

CHANGE

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

7400.2C CHG 3

5/25/88

7400.2C

CHG3

SUBJ: PROCEDURES FOR HANDLING AIRSPACE MATTERS

1. PURPOSE. This change transmits revised pages for Order 7400.2C, Procedures for Handling Airspace Matters.
2. EFFECTIVE DATE. This change is effective July 11, 1988.
3. EXPLANATION OF CHANGES. The significant changes are listed below. If further information is desired, contact ATO-200.
 - a. 1036. COORDINATES OF NON-FEDERAL NAVAID. Adds the phrase "degrees, minutes, and seconds."
 - b. 1053. CIRCULARIZATION INCLUDED IN NPRM. Clarifies the procedures by adding the phrase "Except for TCA's and ARSA's," when...
 - c. 1060. PURPOSE. (Informal Airspace Meetings). Clarifies the purpose by adding a second sentence.
 - d. 1062. SPECIAL NOTIFICATION PROCEDURES. Clarifies the intent of subparagraph c.
 - e. 2020. DETERMINING ACTION NOTICE REQUIREMENTS. Combines those portions of paragraph 2021 that are pertinent to making the determination; adds "communications, radar, and control systems facilities" for consideration is the last sentence of subparagraph a, and adds subparagraph b.
 - f. 2021. EQUIPMENT WITH APPROVED SITING CRITERIA. Moves the contents from old paragraph 2022b to follow the determination consideration rather than be included in processing actions; clarifies the siting criteria, and adds "(except supplemental wind cones)" to wind equipment.
 - g. 2022. PROCESSING WHEN NOTICE CRITERIA NOT EXCEEDED. Retitles the paragraph; restructures the paragraph to show the processing procedure step-by-step rather than in narrative form, and adds the option to respond by letter.
 - h. 2023. PROCESSING WHEN NOTICE CRITERIA ARE EXCEEDED. Adds a new title and makes some editorial changes for clarity.
 - i. 2034. DISTRIBUTION OF ACKNOWLEDGMENTS. Restructures the instructions.

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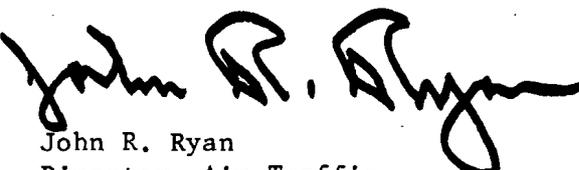
Initiated By: ATO-200

- j. 2205. CIVIL AIRPORT SURFACES. Adds a note.
- k. 2210. STUDY ACTIONS. Adds a sentence to the first subparagraph and adds a reminder of possible environmental assessments for certain procedural changes to subparagraph b(5).
- l. 2400. POLICY (Evaluating Aeronautical Effect). Clarifies the procedure.
- m. 2421. NAVIGABLE AIRSPACE. Adds ARSA's to subparagraph f.
- n. 2432. IFR MINIMUM FLIGHT ALTITUDES. Divides the text of the old, lengthy paragraph 2432 into three new paragraphs--2432, 2433, and 2434. Except for subparagraphs 2433e and 2434c, the text of the new paragraphs remains the same.
- o. 2433. EN ROUTE IFR OPERATIONS. See n. Adds subparagraph e., Radar Bomb Sites.
- p. 2434. TERMINAL AREA IFR OPERATIONS. See n. Replaces "discrepancies and errors" with "differences" in subparagraph c.
- q. 2435 thru 2437. See n. Renumbers the old paragraphs 2433, 2434, and 2435.
- r. 2435. AIR NAVIGATION AND COMMUNICATION AIDS. Clarifies the procedures in subparagraph c.
- s. 2437. TEMPORARY CONSTRUCTION. Changes "VFR minimums" to "predetermined minimums" to allow for more flexibility when establishing restrictions for temporary structures.
- t. Figure 2-31. OE DETERMINATION DATES. Adds a new figure.
- u. 2507. SUPPLEMENTAL DATA. Combines and retitles the old paragraphs 2507 and 2508; adds additional examples for transmitting towers/antennas, and edits the FAR reference.
- v. 2508. DISTRIBUTION. Renumbers the old paragraph 2509.
- w. 2600. POLICY. Renumbers the old paragraph 2601 for more logical sequencing and clarifies the policy.
- x. 2601. STANDARDS. Renumbers the old paragraph 2600 for more logical sequencing and combines it with the old paragraph 2603 to put like material in the same paragraph.
- y. 2602. AERONAUTICAL STUDY. Clarifies the procedure.
- z. 2603. WITHDRAWN. See x.

- aa. 2604. RECOMMENDATIONS. Clarifies the procedures.
 - bb. 2606. OMISSION/DELETION OF MARKING AND LIGHTING. Clarifies the procedures.
 - cc. 2607. EXCESSIVE MARKING AND LIGHTING. Clarifies the procedures.
 - dd. 2608. HIGH AND MEDIUM INTENSITY WHITE OBSTRUCTION LIGHTING SYSTEMS. Retitles the paragraph and clarifies the procedures.
 - ee. 3305. NOISE CONSIDERATION. Clarifies the procedures.
 - ff. 3306. AERONAUTICAL ACTIVITY. Restructures the paragraph from narrative to checklist form.
 - gg. 3400. GENERAL (Airport Determinations). Clarifies the procedures by changing the first three sentences.
 - hh. 3402. CONDITIONAL DETERMINATIONS. Clarifies the procedures in subparagraph d.
 - ii. 3504. MILITARY PROPOSALS OTHER THAN MCP. Clarifies the procedures in subparagraph b.
 - jj. 6230. DEPARTURE AREA. Retitles the paragraph and more accurately describes a departure area.
 - kk. 6300. INTRODUCTION (Terminal Control Areas). Incorporates the provisions of Notice 7400.21.
 - ll. 6320. LOCATION CRITERIA (TCA's). See kk.
 - mm. 6322. CONFIGURATION (TCA's). See kk.
 - nn. 6323. REQUIREMENTS (TCA's). See kk.
 - oo. 6330. HEADQUARTERS RESPONSIBILITY. See kk.
 - pp. 6331. REGIONAL RESPONSIBILITIES. See kk.
 - qq. 6420. LOCATION CRITERIA (ARSA's). Incorporates the provisions of Notice 7400.20.
 - rr. Part 8. CHAPTER 34. Reorganizes the location of the figures in the chapter for clarification.
4. DISPOSITION OF TRANSMITTAL. Retain this transmittal until it is superseded by a new basic order.

5. PAGE CONTROL CHART.

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 John R. Ryan
 Director, Air Traffic
 Operations Service

CHANGE

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

7400.2C CHG 2

7/13/87

SUBJ: PROCEDURES FOR HANDLING AIRSPACE MATTERS

1. PURPOSE: This change transmits revised pages for Order 7400.2C, Procedures for Handling Airspace Matters.
2. EFFECTIVE DATE: This change is effective October 1, 1987.
3. EXPLANATION OF CHANGES: The significant changes are listed below. If further information is desired, contact ATO-240.
 - a. 7002. MINIMUM NUMBERS AND VOLUME. Clarifies the policy.
 - b. 7007. REGIONAL ACTION. Clarifies the procedure.
 - c. 7009. CONTROLLING AGENCY. Clarifies the procedure.
 - d. 7011. CHARTING AND PUBLICATION. Clarifies the procedure by adding temporary restricted areas.
 - e. 7133. ACTIVITIES. Adds associated firing fans, footprints, buffers, etc.
 - f. 7134. SAFETY CONSIDERATIONS. Clarifies the procedure.
 - g. 7135. COMMUNICATIONS AND RADAR. Adds the proposed utilization.
 - h. 7152. TEAM REVIEW. Clarifies the procedures and the policy.
 - i. 7154. DUTIES OF CHAIRMAN. Clarifies the procedure.
 - j. 7155. TEAM REPORT. Clarifies the procedure.
 - k. 7156. TEAM REPORT RESPONSES. Adds a new paragraph, and clarifies the procedure and policy.
 1. 7303. RESTRICTED AREA FLOOR. Clarifies the policy.
 - m. 7305. JOINT USE. Clarifies the procedure.
 - n. 7306. TEMPORARY RESTRICTED AREAS. Clarifies the policy in subparagraph b.
 - o. 7230. SUBMISSION OF PROPOSALS. Changes the policy, and amends the time table.

- p. 7333. REQUIRED INFORMATION. Clarifies the policy in subparagraphs a and e.
- q. 7334. DISCOURAGE LATE CHANGES IN REQUIREMENTS. Changes the policy.
- r. 7336. SUBMISSION OF PROPOSALS. Amends the time table.
- s. 7340. REQUIREMENT. Clarifies the policy.
- t. 7342. REPORT AMENDMENTS. Clarifies the policy.
- u. 7343. REVIEW SUMMARY. Clarifies the procedure, and changes the policy.
- v. 7420. SUBMISSION OF PROPOSALS. Changes the policy, and amends the time table.
- w. 7503. MOA FLOOR. Clarifies the procedure and the policy.
- x. 7520. SUBMISSION OF PROPOSALS. Changes the policy, and amends the time table.
- y. 7521. REGIONAL ACTION. Clarifies the procedure and the policy.
- z. 7530. GENERAL. Clarifies the procedure and the policy.
- aa. 7531. LOCATION AND DURATION. Changes the policy.
- bb. 7533. SUBMISSION OF PROPOSALS. Changes the policy, and amends the time table.
- cc. 7623. TIME OF SUBMISSION. Changes the policy, and adds a time table.
- dd. 7723. REGIONAL ACTION. Clarifies the policy.
- ee. Chapter 34. OUTDOOR LASER DEMONSTRATIONS. Moves the chapter from Part 7 to a new Part 8.
- ff. Part 8. MISCELLANEOUS PROCEDURES. Incorporates Chapter 34, "Outdoor Laser Demonstrations," which contains rewritten and updated guidance for processing outdoor laser demonstrations.
- gg. 8002. DEFINITIONS. Includes additional terms pertaining to laser demonstrations.
- hh. 8004. LASER CONSIDERATIONS. Adds a new paragraph which contains background material on laser effects.
- ii. 8005. EXPOSURE LIMITS. Specifically defines the limits used as the basis for the criteria in Chapter 34.

CHANGE

**DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION**

7400.2C CHG 1

7/10/85

SUEJ: PROCEDURES FOR HANDLING AIRSPACE MATTERS

1. PURPOSE. This change transmits revised pages for Order 7400.2C; Procedures for Handling Airspace Matters.
2. CANCELLATION. The contents of the following policy letters have been incorporated into this change, and they may be discarded.
 - a. AAT-210 letter, dated 7/3/84, subject: Processing of Multiple Proponents Single Notice of Proposed Construction or Alteration (7400-1).
 - b. AAT-1 letter, dated 8/2/84, subject: Supplemental Policy Regarding Obstruction Evaluation (OE) Airport Airspace Analysis (AAA) Determinations.
 - c. ATO-200 letter, dated 11/16/84, subject: Obstruction Evaluation (OE) Determinations Concerning Electromagnetic Interference (EMI).
3. EFFECTIVE DATE. This change is effective September 1, 1985.
4. EXPLANATION OF CHANGES. The significant changes are listed below.
 - a. 1031. DOCKET LOCATION. Adds Airport Radar Service Areas (ARSA's).
 - b. 1038. PROCESSING RULEMAKING CASES. Adds ARSA's, and corrects the note.
 - c. 1043. EFFECTIVE FINAL DATE OF RULES. Adds ARSA to subparagraph a(5).
 - d. 1051. IDENTIFICATION. Clarifies the procedure and adds an example.
 - e. 1062. SPECIAL NOTIFICATION PROCEDURES. Adds ARSA's and ARSA procedures.
 - f. 2005. NOTICE PROCESSING. Adds two subparagraphs to clarify the policy.
 - g. 2009. STRUCTURES EXISTING OR UNDER CONSTRUCTION. Clarifies the procedure.
 - h. 2021. NOTICES NOT SUBJECT TO PROCESSING. Adds a reference to FAR 77.13(a)(3), and clarifies the procedure.

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Initiated By: ATO-200

- i. 2030. FORMS AND TYPES OF ACKNOWLEDGMENTS. Clarifies the procedure.
- j. 2202. MULTIPLE APPLICANTS FOR A SINGLE SITE. Adds a new paragraph to incorporate the provisions of AAT-210's policy letter, dated 7/3/84, and renumbers paragraphs 2203 through 2212.
- k. 2211. NEGOTIATIONS. Clarifies the procedures, and relocates the paragraph for consistency.
- l. 2402. ADVERSE EFFECT. Adds "helipads" to subparagraph d.
- m. 2423. AIRPORT AREAS. Clarifies the procedure by adding "between airports" in b.(2).
- n. 2425. VFR MILITARY TRAINING ROUTES (VR's). Clarifies the procedures.
- o. 2433. AIR NAVIGATION AND COMMUNICATION AIDS. Adds subparagraph f. to incorporate the provisions of ATO-200's policy letter, dated 11/16/84.
- p. Chapter 8, Section 4. REVISION, CORRECTION, AND TERMINATION OF DETERMINATIONS. Corrects the title of the Section.
- q. 2540. REVISIONS, EXTENSIONS, AND TERMINATIONS. Corrects the title of the paragraph, and clarifies the procedure.
- r. 2563. CASES REFERRED TO WASHINGTON. Relocated to the end of Sector 5 for clarity.
- s. 2564. PERIODIC REVIEW. See r.
- t. 2565. SENSITIVE CASES. See r.
- u. APPENDIX 2-1. Incorporates AAT-1's policy letter dated 8/2/84.
- v. 3003. AIRPORTS OFFICE RESPONSIBILITY. Clarifies the procedure.
- w. 3005. FLIGHT STANDARDS OFFICE RESPONSIBILITY. Clarifies the procedure.
- x. 3006. AIRWAY FACILITIES OFFICE RESPONSIBILITY. Clarifies the procedure.
- y. 3017. FORMULATION OF OFFICIAL FAA DETERMINATION. Clarifies the procedure.
- z. 3204. ISSUE DETERMINATION. Clarifies the procedure.
- aa. 3232. CHANGE IN STATUS FROM VFR TO IFR. Clarifies the procedure.
- bb. 3233. AIRPORT PROPOSALS. Clarifies the procedure.

- cc. 3240. EFFECT ON AIR TRAFFIC OPERATIONS. Clarifies the procedure.
- dd. 3241. COORDINATION. Clarifies the procedure.
- ee. 3243. EVALUATE COMMENTS AND AERONAUTICAL EFFECT. Clarifies the procedure.
- ff. 3246. FAR, PART 77 REVIEW. Clarifies the procedure.
- gg. 3247. DESIGNATION OF INSTRUMENT RUNWAY/CHANGE IN AIRPORT STATUS VFR TO IFR. Clarifies the procedure.
- hh. 3248. ONSITE EVALUATION. Clarifies the procedure.
- ii. 3301. AIRPORT TRAFFIC PATTERNS. Clarifies the procedure.
- jj. 3302. INSTRUMENT FLIGHT PROCEDURES. Clarifies the procedure.
- kk. 3304. SAFETY OF PERSONS AND PROPERTY ON THE GROUND. Clarifies the procedure.
- ll. 3306. AERONAUTICAL ACTIVITY. Clarifies the procedure.
- mm. 3402. CONDITIONAL DETERMINATIONS. Clarifies the procedures in subparagraph c.
- nn. 3407. DISSEMINATION OF STUDY RESULTS. Clarifies the procedures.
- oo. 3408. REVIEW OF SENSITIVE OR CONTROVERSIAL CASES. Clarifies the procedures.
- pp. 3602. AIRPORT CHARTING. Adds Seaplane bases.
- qq. Chapter 21, Section 4. FAR PART 95 AND NON-PART 95 ROUTES (OFF-AIRWAY ROUTES). Clarifies the title of the section.
- rr. 6126. ARRIVAL EXTENSION. Clarifies the procedure by adding subparagraph d.
- ss. 6240. ARRIVAL EXTENSION. Clarifies the procedure by adding subparagraphs b. and c.
- tt. 6303. WITHDRAWN--CHG 1. Deletes the old paragraph, Nonrulemaking Alternatives.
- uu. 6330. HEADQUARTERS RESPONSIBILITY. Clarifies the procedures.
- vv. 6331. REGIONAL RESPONSIBILITIES. Replaces TRSA with ARSA.
- ww. Chapter 26. AIRPORT RADAR SERVICE AREAS (ARSA's). Adds a new chapter for ARSA's, including the following paragraphs, and renumbers Chapters 27 through 34.

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6400. INTRODUCTION
6401. DEFINITION
6402. DESIGNATION
6403. NONRULEMAKING ALTERNATIVES
6404 - 6419. RESERVED

Section 2. CRITERIA/REQUIREMENTS
6420. LOCATION CRITERIA
6421. REGIONAL EVALUATION
6422. CONFIGURATION
6423. REQUIREMENTS
6424 - 6429. RESERVED

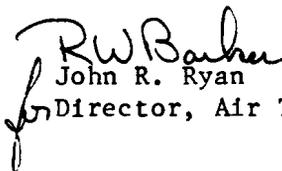
Section 3. ARSA PROCESSING
6430. HEADQUARTERS RESPONSIBILITIES
6431. REGIONAL RESPONSIBILITIES
6432. ENVIRONMENTAL
6433 - 6999. RESERVED

xx. Chapter 34. OUTDOOR LASER DEMONSTRATIONS. The following paragraphs have been changed to clarify the intent.

7800. INTRODUCTION
7802. DEFINITIONS
7820. SUBMISSION OF PROPOSAL
7821. CHECKLIST COMPLETION
7823. AFFECTED AIRSPACE

5. DISPOSITION OF TRANSMITTAL. Retain this transmittal until it is superseded by a new basic order.

6. PAGE CONTROL CHART. See the attachment for the page control chart.


John R. Ryan
for Director, Air Traffic Operations Service

PAGE CONTROL CHART

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jj. 8022. STUDY. Includes consideration of helicopters operating below 1,000 feet in accordance with FAR 91.79(d).

* kk. 8023. AFFECTED AIRSPACE. Deletes the maximum 12 watt limit for acceptable laser demonstrations. Revises and expands criteria presented based on output power and beam divergence.

ll. 8024. CALCULATING LASER EFFECTS. Adds a new paragraph, which explains how to calculate the laser effects using the revised charts.

mm. Figure 8-1. LASER PROJECTOR POWER/RANGE TABLE. Renumbers the old Figure 7-2, and changes the graph to a table.

nn. Figure 8-2. SINE VALUES. Adds a table to be used in calculating laser effects.

oo. Figure 8-3. SAMPLE NOTAM FORMATS. Adds three examples of laser NOTAM's.

pp. Figure 8-4. FOOD AND DRUG ADMINISTRATION ELECTRO-OPTICS SPECIALISTS' ADDRESSES. Renumbers the old Figure 7-3, and updates the information.

4. DISPOSITION OF TRANSMITTAL: Retain this transmittal until it is superseded by a new basic order.

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Operations Service

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PART 1. GENERAL PROCEDURES

Chapter 1. GENERAL

Section 1. INTRODUCTION

1. PURPOSE/APPLICATION

This handbook prescribes policy, criteria, and procedures applicable to Air Traffic Operations Service, Program Engineering and Maintenance Service, Systems Engineering Service, Office of Airport Planning and Programming, Office of Airport Standards, and Office of Flight Operations. It also applies to all regional and field organizational elements involved in rulemaking and nonrulemaking actions associated with airspace allocation and utilization, obstruction evaluation, obstruction marking and lighting, airport airspace analysis, and the establishment of air navigation aids. Additional procedures and criteria may be set forth in other directives to supplement those contained herein.

2. EFFECTIVE DATE

This handbook is effective May 1, 1984.

3. CANCELLATION

The following directives are canceled: 7400.2B, Procedures for Handing Airspace Matters; 7480.1A, Guidelines for Airport Spacing and Traffic Pattern Airspace Areas; and 6000.13, Potentially Adverse Effects of Construction on Air Traffic Control and Air Navigation.

4. CHANGE AUTHORITY

Changes to this directive will be issued by the Director, Air Traffic Operations Service, ATO-1, after obtaining concurrence from the affected headquarters offices/services listed in the foreword.

5. OTHER RESPONSIBILITIES

Functional responsibility of headquarters organizations referred to are contained in FAA Handbook 1100.1 and 1100.2.

6. STRUCTURAL FORMAT

a. Order 7400.2 is designed to conform with the standard structural format set forth by FAA Management Systems guidelines. Graphic depiction and their textual references are identified by Part and Number; e.g., Figure 2 in Part 5 is shown as "Figure 5-2."

b. A cross-reference index showing 7400.2B paragraph numbers and corresponding 7400.2 paragraph numbers is provided.

7-999. RESERVED

1000. POLICY

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. Full consideration shall be given to the requirements of national defense and of commercial and general aviation, and to the public right of freedom of transit through the airspace. Accordingly, while a sincere effort shall be made to negotiate equitable solutions to conflicts over its use for nonaviation purposes, preservation of the navigable airspace for aviation must receive primary emphasis.

1001. AUTHORITY AND APPLICABILITY

Sections 101, 103, 104, 305, 306, 307 (a)(b)(c)(d)(e)(f), 308, 309, 312(a), 313(a)(c), 901(a), 902(c), 1101 and 1107 of the Federal Aviation Act of 1958, as amended, provide the authority for the procedures contained in this handbook.

1002. FAR REFERENCES

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

b. Part 71 designates Federal airways, control areas, control area extensions, the continental control area, control zones, transition areas, positive control areas, reporting points, area low routes, and terminal control areas.

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

d. Part 75 designates jet routes and area high routes.

e. Part 77 establishes standards for determining obstructions in the navigable airspace and sets forth requirements for notice to the Administrator of certain proposed construction or alteration. It provides for aeronautical studies and public hear-

ings to determine the effects of such proposals on the navigable airspace.

f. Part 91 prescribes general operating and flight rules governing the operation of aircraft within the U.S. and governing operation of U.S. registered aircraft outside of the U.S.

g. Part 93 prescribes special airport traffic patterns and airport traffic areas.

h. Part 95 prescribes altitudes governing the operation of aircraft under IFR on Federal airways, jet routes, area navigation low or high routes, or other direct routes for which a MEA is designated. It also designates mountainous areas and changeover points.

i. Part 152 prescribes policies and procedures for administering Federal grants for airports.

j. 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.

k. Part 171 Non-Federal Navigation Facilities.

1003. EXECUTIVE ORDER 10854

Executive Order 10854 extends the application of the Federal Aviation Act of 1958, as amended, to the overlying airspace of those areas of land or water outside the United States beyond the 3-mile offshore limit in which the United States, under international treaty agreement or other lawful arrangement, has appropriate jurisdiction or control. Any airspace action, rulemaking or nonrulemaking, that concerns airspace beyond the 3-mile offshore limit requires coordination with the Departments of Defense and State. Additional lead time is required to meet that coordination requirement. Under provisions of Executive Order 10854, airspace actions must not be inconsistent with the requirements of national defense, or be in conflict with any international treaties or agreements made by the U.S., or be inconsistent with the successful conduct of the foreign relations of the U.S. In this respect, the DOD and DOS have preemptive authority over FAA over airspace use beyond the 3-mile offshore limit. All Executive Order 10854 coordination shall be conducted at the headquarters level.

1004. WORD USAGE

The concept of word usage and intended meaning as used in this Handbook is set forth below:

a. "Shall" or a command verb is used when application is mandatory.

b. "Shall not" is used when an action is prohibited.

c. "Should" is used when application is recommended.

d. "May" and "need not" are used when application is optional.

e. "Will" is used only to indicate futurity, never to indicate any degree of requirement for application of a procedure.

f. "Regional Director" means the Regional Director or any person to whom his authority has been delegated in the matter concerned.

g. "Navigable airspace" means airspace above the minimum altitudes of flight prescribed by Federal Aviation Regulations and shall include airspace needed to insure safety in takeoff and landing of aircraft. By policy, the term "airspace above minimum altitudes of flight" is interpreted for application to mean "airspace at or above minimum flight altitudes."

1005. HANDBOOK CHANGES

The responsibilities for processing and coordinating revisions to this handbook are delegated to the Airspace-Rules and Aeronautical Information Division, ATO-200, of the Air Traffic Operations Service. Proposed changes or recommended revisions should be submitted directly to ATO-200 after internal coordination within originating offices. Additional coordination necessary shall be accomplished by ATO-200. When revised, reprinted, or additional pages are issued, they will be marked as follows:

a. Each revised or additional page will show the change number and effective date of the change.

b. Bold vertical lines in the margin of the text will mark the location of substantive procedural, operational, or policy changes; i.e., when material that affects the performance of duty is added, revised, or deleted.

1006-1019. RESERVED

Section 2. CHARTING

1020. CHARTING INFORMATION

The National Flight Data Center, ATO-250, Cartographic Standards Section, is responsible for coordination with charting agencies and chart producers. ATO-200 shall furnish personnel handling airspace matters with appropriate aeronautical chart cutoff and publication dates. Cutoff dates are 9 weeks (10 weeks for action involving flight check) in advance of the publication date to allow sufficient time for charting and chart distribution purposes. Also, information pertinent to the development of the geographical description of airspace shall be obtained from ATO-250. For example: validation of geographical coordinates, airport geographic positions, true radials, etc.

1021. DIRECTIONS

Directions shall be described as follows:

- 338° True—022° True = North
- 023° True—067° True = Northeast
- 068° True—112° True = East
- 113° True—157° True = Southeast
- 158° True—202° True = South
- 203° True—247° True = Southwest
- 248° True—292° True = West
- 293° True—337° True = Northwest

1022-1029. RESERVED

Chapter 2. AIRSPACE CASES

Section 1. RULEMAKING CASES

1030. SCOPE

Rulemaking cases relate to the designation, alteration, or revocation of airspace by rule, regulation, or order.

1031. DOCKET LOCATION

The official docket in terminal airspace rulemaking cases, except Airport Radar Service Areas (ARSA's) and Terminal Control Areas (TCA's), within the United States shall be maintained in the appropriate regional office. All others are maintained at the Federal Aviation Administration, Office of the Chief Counsel, Rules Docket, AGC-204, 800 Independence Avenue, S.W., Washington, D.C. 20591.

1032. DOCKET NUMBER

Rulemaking cases shall be identified by a docket number which includes the last two digits of the calendar year, the abbreviation of the appropriate office, and a consecutively assigned number. (Example, 88-ASW-46.) Numbers shall run consecutively within each calendar year.

1033. DOCKET CONTENT

The official docket shall include all petitions, notices and rules, comments, correspondence, and related material concerning the case (other than working files).

1034. FLIGHT PROCEDURAL DATA

Flight procedural data (MEA, COP, etc.), as required, are determined by Flight standards field offices as a result of a Notice of Proposed Rulemaking (NPRM). If a rule without notice is to be issued and flight check data is required, the regional Air Traffic Office must specifically request the data from the appropriate Flight Standards Office.

1035. TRUE/MAGNETIC DIRECTIONS

All radials, courses, and bearings specified in an NPRM shall be stated both as true and magnetic, except magnetic need not be stated in terminal airspace notices.

1036. COORDINATES OF NON-FEDERAL NAVAID

When a non-Federal NAVAID is used as a reference point in a controlled airspace description, its geographic coordinates in degrees, minutes, and seconds shall be included.

1037. REVOCATION OF CONTROLLED AIRSPACE

Care should be taken when processing rules without notice that revoke controlled airspace. Coordination should be effected with appropriate user groups since they may be adversely affected by the release of controlled airspace. Aircraft may be depending upon controlled airspace for operations under instrument flight rules. If any doubt exists, an NPRM should be issued.

1038. PROCESSING RULEMAKING CASES

Terminal area airspace designation within the United States, except ARSA's and TCA's, shall be processed by the appropriate regional Air Traffic division and shall be processed as outlined in Part 11 of the FARs, Subpart D, and 11.61(c). Where the actions involve more than one region, coordinate to determine which region will process the case. Federal airways and additional control areas within the United States may be included if they are ancillary to the terminal action. However, to ensure consistency with national airway plans, this must first be approved by ATO-200.

Note. — Guidelines for processing ARSA's and TCA's are detailed in Part 6, Chapters 25 and 26.

1039. ACTION BY REGIONAL COUNSEL

The regional counsel is responsible for drafting the appropriate rulemaking document for publication in the *Federal Register* and for ensuring compliance with:

- a. The Federal Aviation Act of 1958, as amended.
- b. Administrative Procedures Act (Administrative Procedure: Administrative Conference and Judicial Review, Chapter 5 - Administrative Procedure).
- c. Agency directives and policy pertaining to rulemaking actions.

1040. SUBMISSION OF AIRSPACE DATA TO ATO-200

All other airspace cases shall be processed by ATO-200. The regional Air Traffic division shall completely staff the action proposed and submit a complete technical description of the proposed airspace to ATO-200. All background information including charts, complete with proper justification and appropriate recommendations, should be submitted. If airspace action is required to be completed by a specified date, regions must ensure that sufficient lead time exists for meeting normal airspace procedural processing and charting requirements.

1041. INFORMAL DISCUSSIONS

Washington and/or regional personnel may hold informal discussions concerning airspace matters with interested parties both before and after issuance of an NPRM. However, these discussions do not constitute prehearing or hearing proceedings, and the parties shall be advised to submit their views in writing to ensure consideration. (See Chapter 2, Section 3).

1042. REGIONAL ANALYSIS

With regard to airspace cases processed by ATO-200, the regional Air Traffic division shall submit to ATO-200 the comments received in response to the NPRM and a regional analysis and recommendations within 20 days after the NPRM closing date for comment. A statement concerning the status of the flight procedures data (MEA, COP, etc.) on en route cases shall be included with the recommendations.

1043. EFFECTIVE FINAL DATE OF RULES

a. Amendments to Parts 71, 73, and 75 of the Federal Aviation Regulations shall be made effective at 0901 Greenwich Mean Time (GMT) and

shall coincide with en route charting dates as furnished by ATO-250. Exceptions are as follows:

- (1) Those actions in which safety or national interest require an earlier effective time or date.
- (2) Editorial changes.
- (3) 700-foot floor transition areas that underlie existing 1,200-foot transition areas.
- (4) Those actions which lessen the burden on the public, such as revocation of restricted areas or controlled airspace.
- (5) ARSA's and TCA's which shall be made effective to coincide with the appropriate aeronautical chart dates.

b. Cutoff dates are established to allow sufficient time for charting and chart distribution purposes. Rules should be signed on or before the applicable cutoff date. (See current issue of Order 7031.20.)

1044. PUBLICATION IN FEDERAL REGISTER

An original and six duplicate originals of the NPRM or Rule shall be forwarded to Rules Dockets, AGC-204, for publication in the *Federal Register*.

1045. DISTRIBUTION

Distribution of airspace dockets (NPRM's and Rules) shall be consistent with the procedures set forth in the current edition of FAA Handbook 1720.18.

1046. PERIODIC REVIEW

The Air Traffic Service and the Office of the Chief Counsel may conduct a periodic review of regional rulemaking and nonrulemaking issuances for the purpose of maintaining uniformity in the application of agency policy and criteria.

1047-1049. RESERVED

Section 2. NONRULEMAKING CASES

1050. DEFINITION

Nonrulemaking cases are those concerning navigational aids, nonregulatory airspace, ground structures, and airports where public notification and participation is warranted.

1051. IDENTIFICATION

Identify nonrulemaking cases by a study number which includes the last two digits of the calendar year, the abbreviation of the appropriate regional or airports district office, a consecutively assigned number within each calendar year, and "NR," "NRA," or "OE" as appropriate.

Examples.—

1. 88-AWP-1-NR for studies involving navigational aids and
2. 88-ASO-1-NRA for studies involving airports.
3. 88-AGL-1-OE for studies involving surface structures.
4. 88-ORL-1-NRA for studies processed by an airports district office.

1052. CIRCULARIZATION

a. All nonrulemaking airspace proposals shall be circularized unless procedures for processing particular types of proposals allow exemptions to circularization. Each notice shall contain a complete, detailed description of the proposal including charts, if appropriate, that will assist interested persons in preparing comments. Circularization lists shall include but not be limited to all known aviation interested persons and groups such as regional military representatives, national and local offices of aviation organizations, local flight schools, local airport owners, managers, and fixed base operators, and local air taxi and charter flight offices. Some parts in this handbook include more specific guidance on circularization.

b. Identify in the nonrulemaking circular any regulatory changes; e.g., Part 71, Part 97, etc., that must be effected if the nonrulemaking proposal is

adopted. Describe the regulatory changes in as much detail as is known at the time; i.e., radials, distances, and coordinates.

c. Regions shall coordinate with their respective states to ascertain which nonrulemaking circulars each state is interested in receiving. If various agencies within a state government request copies of particular circulars, the region may request that one agency be designated to receive and distribute the requested copies.

d. Send one copy of each nonrulemaking circular to the Airspace-Rules and Aeronautical Information Division, ATO-200.

1053. CIRCULARIZATION INCLUDED IN NPRM

Except for TCA's and ARSA's, when nonrulemaking action is ancillary to a rulemaking action, the extent of change may be included in the NPRM. In this instance, a nonrulemaking circularization need not be made. The NPRM will satisfy the circularization requirement and present the full impact of both the rule and nonrule proposal.

1054. CIRCULARIZATION DOCUMENTATION

Certificate of mailing statements for all notices of aeronautical study, notices of informal airspace meetings, and determinations issued for obstruction evaluation and airport airspace analysis studies shall be recorded in each study file as follows:

AERONAUTICAL STUDY NO.

CERTIFICATE OF MAILING

I HEREBY CERTIFY THAT A COPY OF THE ATTACHED (notice/determination) WAS MAILED TO EACH OF THE ADDRESSEES LISTED ON THE ATTACHED (mailing list/distribution list number) THIS (date) DAY OF (month), 19(year).

SIGNED: (specialist/mail clerk/etc.)

1055-1059. RESERVED

Section 3. INFORMAL AIRSPACE MEETINGS

1060. PURPOSE

Informal airspace meetings are held at the discretion of the person/office conducting an aeronautical study for the purpose of gathering additional aeronautical facts and information relevant to the rulemaking or nonrulemaking proposals under study. Informal airspace meetings on TCA's and ARSA's are required before the issuance of an NPRM.

1061. NOTIFICATION

Every effort shall be made to notify all aviation persons and/or organizations who may be affected by, or interested in, the proposal. The notice of informal airspace meetings shall be disseminated in the same manner as the nonrulemaking circulars and shall explain that the purpose is to solicit aeronautical comments on the proposal's effect on the use of the airspace by aircraft. The notice shall describe the proposal in sufficient detail, including charts if necessary, to enable interested persons to prepare comments prior to the meeting. Notices should be distributed at least 30 days prior to the meeting date.

1062. SPECIAL NOTIFICATION PROCEDURES

Based on the extent of known or anticipated controversy, the following procedures may be applied to all notices of informal airspace meetings concerning obstruction evaluation, airport airspace analysis, special use airspace, and the commissioning/decommissioning of navigational aids. These procedures shall be applied to all notices of informal airspace meetings held in advance of rulemaking action involving the establishment or modification of ARSA's or TCA's.

a. Publish the notice in the *Federal Register*. The publication shall be as far in advance as possible, up to a maximum of 90 days, with a minimum of 60 days advance notice for meetings concerning TCA's. The notice shall identify the name and address of the office where additional information can be obtained.

b. Regions are also encouraged to make use of local newspapers, radio, and television to disseminate notices and information.

c. In addition to the methods described in paragraph 1062a and b, notices of informal airspace meetings shall be sent to all known licensed pilots,

airport managers/operators, and operators of parachute, sailplane, ultralight, and balloon clubs within a 100-mile radius of the primary airport for TCA's and within a 50-mile radius of the primary airport for ARSA's. These distributions should be accomplished through the facilities of the Airman Certification Branch, AAC-260, after coordination with the regional Accident Prevention Coordinator. Sufficient lead time must be provided for processing and still meet the 60-day minimum advance notice requirements. AAC-260 will need a lead time of 16 days from the receipt of the material until mailing. Additional lead time should be considered for coordination with the regional Accident Prevention Coordinator.

1063. LOCATION

Informal airspace meetings should be held at appropriate times and locations most advantageous to the gathering of all facts relative to proposals under study. The chairman shall represent the Regional Director. Identify each informal airspace meeting held by consecutive numbers and dates. Example: "Meeting No. 50, February 15, 1988."

1064. AGENDA ITEMS

Agenda items may be included in the notice of informal airspace meeting or distributed separately. Agendas may include airspace matters of a rulemaking and/or nonrulemaking nature. They should be distributed at least 15 days before the meeting and those involving TCA proposals shall be distributed at least 30 days prior to the meeting. Items concerning aeronautical studies not on the agenda should not be discussed except when the chairman considers them appropriate.

1065. RECORD OF MEETINGS

Do not take official verbatim transcripts or minutes of informal airspace meetings. However, the chairman shall prepare a memorandum for each of the discussed aeronautical study files, listing attendees and a digest of the discussions held. Written statements received from attendees during and after the informal airspace meeting shall also be included in the study files. Forward one copy of the memorandum to ATO-200.

1066-1069. RESERVED

Section 4. HEARINGS

1070. PRESCRIBED PROCEDURES

FAR Part 11, Section 11.67, prescribes procedures for informal public hearings. FAR Part 77, Subpart E, prescribes procedures for hearings on the evaluation of surface structures.

1071. PUBLICATION

Notice of proposed hearings should be given to appropriate news sources in the area and should be inserted as paid notices in local newspapers.

1072. ARRANGEMENTS

Hearings should normally be held in the vicinity of the affected airspace. Arrangements shall be made for reporter service and, if needed, a public address

system. The record of the hearing shall include the verbatim transcript and all documents offered at the hearing. The presiding officer may request or permit additional statements or exhibits to be offered at a later date.

1073. SUBMISSION REQUIREMENTS

One copy of the hearing record, together with a case summary and recommended course of action, shall be sent within 20 days to the regional office or ATO-200, as appropriate. One copy shall be sent to AGC-204, or to the regional official docket as appropriate.

1074-1079. RESERVED

Section 5. CHARTED REPORTING POINTS

1080. POLICY

Chartered reporting points should be established only when necessary to provide for MEA changes or the separation of aircraft; i.e., estimating purposes, holding patterns. Reporting points should not be established solely for the purpose of communications handoffs, transfer of control from one sector/facility to another, to define an approach control area of jurisdiction, or to identify the apex of an airway dogleg.

1081. DESIGNATION

Only compulsory reporting points are designated in the regulations.

1082. CHART SERIES SELECTION

The request to have a reporting point charted should be limited to only the chart series necessary for its intended use. For example, a reporting point established for the high altitude structure should not appear on the low altitude charts.

1083. FAA FORM 8260-2 (RIS: FS 8220-1)

FAA Form 8260-2 serves as a request form, or as a checklist by flight inspection in response to a request for chartered reporting points, and as a record of action taken to publish the data. Whenever there is a requirement to establish, modify, or cancel an intersection used as a reporting point or to establish, modify, or cancel a holding pattern, the appropriate air traffic field facility will initiate a Form 8260-2 as a request for flight inspection action. This form shall be submitted through the respective regional Air Traffic Division.

1084. PREPARATION OF FORM 8260-2

Instructions for preparation of FAA Form 8260-2 (RIS: FS 8220-1) are contained in Flight Procedures and Airspace Handbook, 8260.19.

1085-1089. RESERVED

Chapter 3. NAMING OF NAVIGATIONAL AIDS/AERONAUTICAL FACILITIES/RADIO FIXES

1090. RESPONSIBILITY

Regional Air Traffic Divisions are responsible for assigning and changing names of navigational aids and aeronautical facilities and shall follow the instructions contained herein and in Order 7350.4, Chapter 1. The National Flight Data Center, ATO-250, is responsible for assigning name/codes to waypoints, intersections, marker beacons, compass locators, ATC coordination, and DME fixes.

1091. GENERAL

All fixes located at a common point shall have the same name/code regardless of type, altitude, or route structure. If one of the collocated fixes is a navigational aid, the other fixes shall be assigned the same name and three letter identifier as the navigational aid.

1092. NAMING OF NAVIGATIONAL AIDS

a. The NAVAID name selected should represent a city, town, or prominent geographic landmark which is depicted on a sectional aeronautical chart at or near the site. If one is not available or suitable, a local memorial name may be used. Assign a common, easily understood word other than a personal name.

b. The name selected shall neither duplicate nor be similar sounding to an existing NAVAID/fix location name within the originating ARTCC, the adjacent ARTCC's area, or a radius of 300 nautical miles from the NAVAID involved.

c. Unduly long names should not be used.

d. A navigational aid with the same name as the associated airport should be located on the airport. However, in existing situations, a NAVAID off the airport with the same name as the airport may retain the airport name provided there is no other NAVAID with the same name. If retention of the airport name at an off-airport NAVAID at a particular location might lead to a confusing situation, then the name should be changed. Newly established NAVAID's may be assigned the same name as the airport only when the NAVAID is located on the airport. Where two or more NAVAID's are located on the airport, only one may be assigned the airport name.

NOTE.—For the purpose of this paragraph only, a compass locator shall be considered as a separate NAVAID.

e. Instrument Landing Systems (ILS)

(1) Inner/middle fan markers (without collocated NDB's or compass locators) and localizer equipment are not normally assigned names. Localizers are identified with the associated airport name and applicable runway number in official writings.

(2) All outer markers shall be assigned name/codes. If the outer marker is to be situated at the same geographic location as a fix, it shall adopt the fix name/code.

(3) All outer compass locators (LOM's) and middle compass locators (LMM's) shall be assigned name/codes. If collocated with a fix they shall also adopt the fix name/code.

f. Names and name/codes assigned shall be the "chart names" that will appear on aeronautical charts, in airspace dockets, and other official publications and records.

NOTE.—FIFO's will coordinate names they assign to fixes with the associated center to preclude similar sounding fix names.

1093. NAMING OF WAYPOINTS, INTERSECTIONS, AND DME FIXES

a. To decide whether a fix needs to be named, see Handbook 8260.19.

b. Names assigned for waypoints, intersections, ATC coordination, and DME fixes not collocated with a navigational aid shall consist of a single five-letter pronounceable name. These five letters shall serve as the name, identifier, and computer code.

c. Regional requests for specific five-letter names for waypoints, intersections, ATC coordination, and DME fixes may be granted by ATO-250 if feasible.

1094. ELIMINATION OF DUPLICATION

ATO-250, in conjunction with the respective regional Air Traffic Division, shall ensure that no duplication exists in location names of NAVAID's within an ARTCC control area, adjacent ARTCC control areas, and the 300 NM radius area described in 1092.b.

1095-1999. RESERVED



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PART 2. OBJECTS AFFECTING NAVIGABLE AIRSPACE

Chapter 4. GENERAL

Section 1. POLICY

2000. AUTHORITY

The authority to conduct aeronautical studies of objects affecting navigable airspace is delegated to the regional offices. The obstruction evaluation program shall be administered by Air Traffic personnel with the coordinated assistance of Airports, Airway Facilities, and Flight Standards personnel.

2001. PURPOSE

The guidelines, procedures, and standards in this part supplement those contained in FAR Part 77, Objects Affecting Navigable Airspace, and are for use in:

- a. The performance of functions relating to the processing of notices of proposed construction or alteration;
- b. The conduct of aeronautical studies of any existing object affecting navigable airspace;
- c. The conduct of aeronautical studies of the electromagnetic radiation effect of proposed or existing objects on the operation of air navigation facilities (see FA Act 101(8));
- d. The conduct of aeronautical studies of the physical effect of proposed or existing objects on the line-of-sight view of all runways, taxiways, and traffic pattern areas from the air traffic control tower; and
- e. The conduct of aeronautical studies of the physical effect of proposed or existing objects on airport approach lighting systems.

2002. GEOGRAPHICAL AREA

The notice requirements in Part 77 apply only to proposed construction or alteration which would be located within any state of the United States, the District of Columbia, or any territory or possession of the United States including the territorial waters (3 nautical miles) surrounding such states, territories, or possessions.

Note. — Determinations on whether a proposal's location is within 3 NM may be obtained from NOS' Aeronautical Chart Branch (FTS 443-8075).

2003. OBJECTS SUBJECT TO STANDARDS

Apply the obstruction standards to existing and proposed man-made objects including mobile objects, objects of natural growth, and terrain wherever they may be located.

2004. POLICY

The prime objective of the FAA in administering Part 77 and in conducting aeronautical studies of the electromagnetic and physical effects of objects is to ensure the safety of aircraft and efficient utilization of navigable airspace by aircraft. While the FAA recognizes that there are varied interests for the use of the airspace, when conflicts arise out of construction proposals or the presence of existing objects, the FAA emphasizes the need for conserving the navigable airspace, preserving the integrity of the national airport system, and protecting air navigation facilities from either electromagnetic or physical encroachments which would preclude them from performing their operational functions. In the case of proposed construction or alteration, first consideration should be given to altering the proposal. For existing objects, first consideration should be given to the adjustment of aviation requirements that would accommodate the structure. This does not preclude issuing a determination of hazard to air navigation on an existing object (see Chapters 6 and 8) when the adjustment of aviation requirements that would accommodate the structure could not be done without substantial adverse effect on aeronautical operations.

2005. NOTICE PROCESSING

a. The appropriate regional Air Traffic division is responsible for processing Notices of Proposed Construction or Alterations required under the provisions of Part 77 with the coordinated assistance of Airports, Airway Facilities, and Flight Standards divisions. Notices of Proposed Construction or Alteration on obligated airports shall be processed under the provisions of FAR, Part 152, Airport Aid Program.

b. Each operating division shall review all notices of proposed construction or alteration received by the FAA. An acknowledgment and/or determination shall be issued only after all operating divisions agree that the proposal will not create a hazard to air navigation. It is emphasized that this conclusion must be reached even on proposals that do not meet FAR Part 77 notice criteria. With intelligent handling and artful negotiation, more than a narrow, explicit application of

the "acknowledgment" requirements of Part 77 can be accomplished (see Appendix 2-1).

c. If any element of the organization—Airway Facilities, Flight Standards, Air Traffic, or Airports—objects to a proposed or existing structure that is identified as an obstruction or that creates electromagnetic effect, the Air Traffic unit shall be responsible for writing the determination. If the proposed or existing structure is not identified as an obstruction and does not create electromagnetic effect, the organizational element that objects to the structure, for whatever reason, shall be responsible for writing the determination.

2006. FAA FORMS 7460-1 THROUGH 7460-11

Standard FAA forms are established for use in processing notices received under Part 77. Use the forms according to instructions contained in the action sections involved; i.e., acknowledgment, circularization, determination, etc. The standard FAA forms are: FAA Form 7460-1, Notice of Proposed Construction or Alteration, Figures 2-1 thru 2-3; FAA Form 7460-2, Notice of Actual Construction or Alteration, Figure 2-4; FAA Form 7460-5, Obstruction Evaluation Log, Figure 2-5; FAA Form 7460-6, Obstruction Evaluation Worksheet, Figure 2-6; FAA Form 7460-7, Acknowledgment of Notice of Proposed Construction or Alteration, Figure 2-7; FAA Form 7460-8, Aeronautical Study of Proposed Construction or Alteration, Figure 2-8; FAA Form 7460-9, Determination of No Hazard to Air Navigation, Figure 2-9; FAA Form 7460-10, Determination of Hazard to Air Navigation, Figure 2-10; and FAA Form 7460-11, Project Status Request, Figure 2-11.

2007. SHIELDING — SECTION 77.15(a)

Occasionally, a notice may be filed which is not required because of the shielding provision of Section 77.15(a) of Part 77. Apply the criteria of Section 77.15(a) to determine if the shielding provision is applicable. Do not apply the shielding guidelines set forth in Chapter 7, Section 1. They only apply to proposals when notice is required and an aeronautical study under Part 77 is necessary to determine the adverse effect upon air navigation.

2008. CONSTRUCTION WITHIN AN ANTENNA FARM

A proposed antenna structure, or any other type structure, that would be located entirely within an antenna farm area established in accordance with

Part 77 is, nevertheless, subject to notice and requires processing to the extent of determining whether marking and lighting should be recommended and whether a supplemental notice of progress of construction or alteration is required. There is no requirement for making an aeronautical study for the purpose of determining the hazard to air navigation issue. However, potential electromagnetic interference must be evaluated. The acknowledgment is subject to the effective period provisions of Section 77.39.

2009. STRUCTURES EXISTING OR UNDER CONSTRUCTION

Process a notice received of an existing structure or for a proposal on which construction has already started as an existing structure. Construction is considered to have started if actual structural work, such as laying of a foundation, but not including excavation, has begun. If an aeronautical study is appropriate, apply the guidelines set forth in Chapter 6.

2010. STRUCTURES EXCEEDING 2,000 FEET

Any proposed structure which would exceed a height of 2,000 feet above ground will be presumed to have a substantial adverse effect upon the safe and efficient use of navigable airspace and will be determined to be a hazard to air navigation unless the construction sponsor, at the time of filing, makes a clear and compelling showing to the contrary.

a. Process a notice proposing a structure greater than 2,000 feet in height above the ground only if the construction sponsor has submitted the detailed showing required in Part 77.

b. Return notices received without the detailed showing to the originator for compliance with Section 77.17(c). The acknowledgment should state that the proposed structure is presumed to be, inherently, a hazard to air navigation and the construction sponsor has the burden of overcoming this presumption.

c. Notices submitted in compliance with Section 77.17(c) shall be processed in the normal manner; except, send one copy each of the notice and detailed showing to the Flight Information and Obstructions Branch, ATO-210, for coordination prior to the issuance of a determination.

2011-2019. RESERVED

Section 2. RESPONSIBILITIES—SCREENING OF NOTICES

2020. DETERMINING NOTICE ACTION REQUIREMENTS

a. Apply the criteria of FAR 77.13 and 77.15 to determine the action necessary on proposals. This requires application of FAR 77.23(a)(3) and (a)(4) criteria to determine if instrument procedures would be affected. Use of the checklists on FAA Form 7460-6 is recommended to assure all required areas are considered. In all cases, the effect of electromagnetic or line-of-sight interference to air navigation, communications, radar, and control systems facilities shall be considered.

b. If notice is required by any other FAA regulation, the appropriate division shall process the notice under that regulation. Do not acknowledge under Part 77.

2021. EQUIPMENT WITH APPROVED SITING CRITERIA

No notice is required under FAR 77.15(c) for certain equipment installations "of a type approved by the Administrator" when the equipment is installed in accordance with the established FAA siting criteria. Equipment installed in compliance with the siting criteria without waivers and which do not affect other runways do not have to be considered under Part 77 criteria. Some examples of this kind of equipment not requiring notice are: wind equipment (except supplemental wind cones); transmissometers (RVV and RVR equipment); radars (PAR's, ASR's, and ARSR's); instrument landing systems (ILS's); visual approach slope indicators (VASI's); airport lighting installations (runway lights, in-runway lights, approach light systems, threshold lights, runway end identifier lights (REIL's), and taxiway lights); runway "distance-to-go" markers; aircraft arresting devices; visibility markers (RVO's); FAA airport traffic control towers (ATCT's); radio beacons (RBN's); VHF omnidirectional ranges (VOR's); tactical air navigation (TACAN's) facilities; VOR's/TACAN's (VORTAC's); and microwave landing systems (MLS's).

2022. PROCESSING WHEN NOTICE CRITERIA NOT EXCEEDED

a. If you determine that notice criteria are not exceeded and the proposed structure will not cause electromagnetic or line-of-sight interference to an

air navigation facility, acknowledgment may be made on FAA Form 7460-1 as follows:

(1) Check the appropriate box in the shaded area on Form 7460-1.

(2) If marking and/or lighting is required, check that box and indicate the appropriate specific chapters to AC 70/7460-1 on the line provided.

(3) Return a signed and dated copy of the form to the originator.

b. When responding by letter or computer format, address all appropriate items noted in paragraph 2022a(1) through (3).

2023. PROCESSING WHEN NOTICE CRITERIA ARE EXCEEDED

a. If notice criteria are exceeded, determine if and to what extent the proposed construction or alteration will exceed Part 77, Subpart C. Coordination is required within regional offices whose functional responsibilities are as follows:

(1) Air Traffic. The appropriate Air Traffic Office applies FAR 77.23(a)(1). (See Figure 2-16.)

(2) Airports. The appropriate Airports Office applies FAR 77.23(a)(2) and 77.23(a)(5), including FAR 77.25, 77.28, and 77.29 if appropriate. (See Figures 2-17 through 2-23.)

(3) Flight Standards. The appropriate Flight Standards Office applies FAR 77.23(a)(3) and 77.23(a)(4).

(4) Airway Facilities. Regional Airway Facilities personnel evaluate the potential physical or electromagnetic effect of proposals on air navigation and communications facilities and line-of-sight problems.

b. Each office shall forward the results of its evaluation to the Air Traffic Office for further processing. The Air Traffic Office is responsible for issuing the determination. A processing flow chart is diagrammed in Figure 2-24.

2024. PROCESSING NOTICES UNDER SECTION 77.17(d)

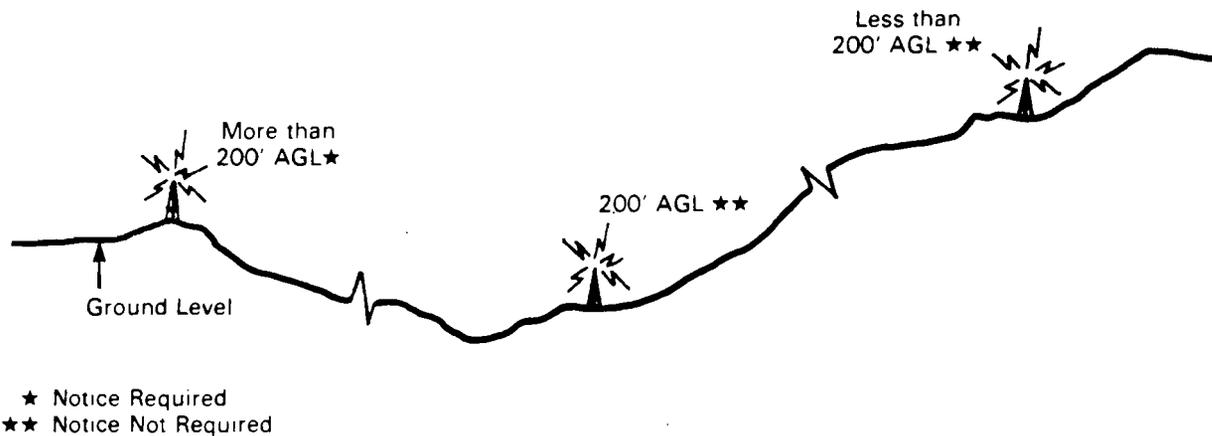
Regional offices shall issue instructions for processing emergency notices submitted under FAR 77.17(d) to ensure prompt attention by appropriate offices within their areas of jurisdiction.

2025-2029. RESERVED

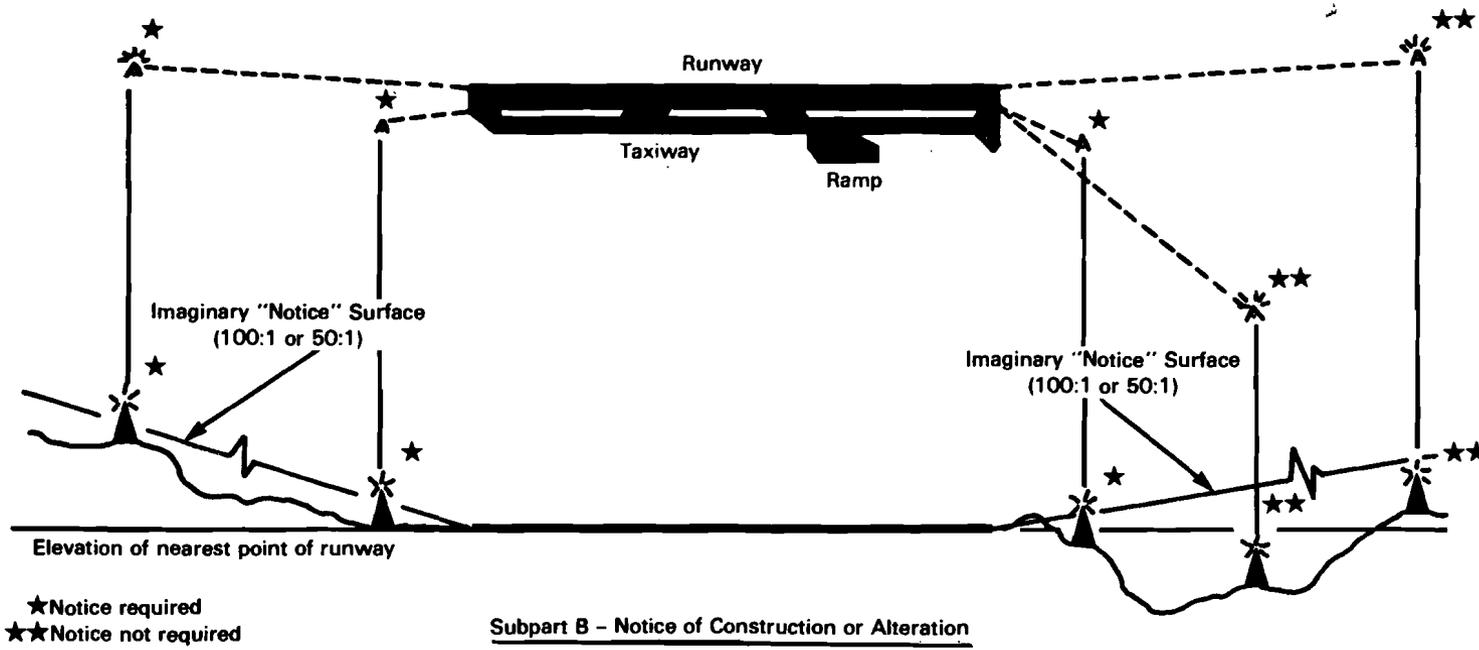
Figure 2-12. SUBPART B—NOTICE OF CONSTRUCTION OR ALTERATION

§77.13(a)(1) - A notice is required for any proposed construction or alteration that would be more than 200 feet in height above the ground level at its site.

§77.13(a)(1) - Notice Requirement Anywhere



§77.13(a)(2) - Notice Requirement Related to Airports



Subpart B - Notice of Construction or Alteration

Note: Each airport must be available for public use and listed in the Airport/Facility Directory or in either the Alaska or Pacific Chart Supplement; under construction and the subject of a notice or proposal on file with FAA, and except for Military airports, it is clearly indicated that that airport will be available for public use, or operated by an armed force of the United States. (Heliports and seaplane bases without specified boundaries are excluded.)

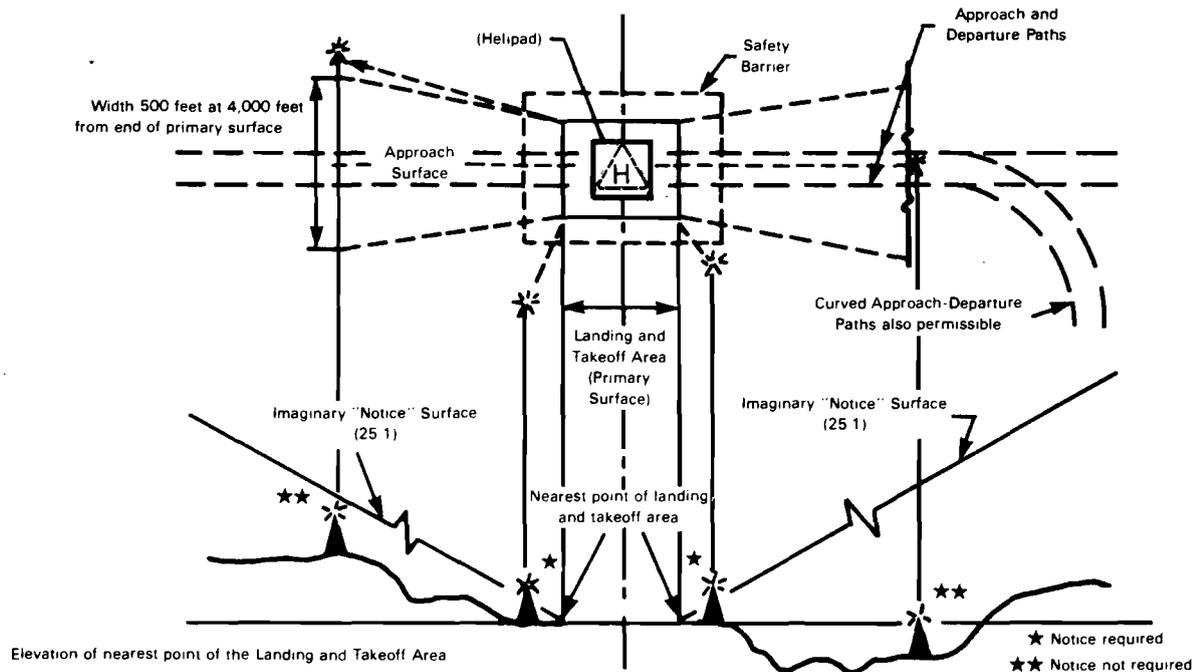
§77.13(a)(2) - A notice is required for any proposed construction or alteration that would be of greater height than an imaginary surface extending outward and upward at one of the following slopes -

- (i) 100 to 1 for a horizontal distance of 20,000 feet from the nearest point of the nearest runway of each airport with at least one runway more than 3,200 feet in actual length.
- (ii) 50 to 1 for a horizontal distance of 10,000 feet from the nearest point of the nearest runway of each airport with its longest runway no more than 3,200 feet in actual length.

(Note: §77.13(a)(5) requires notice of any proposed construction or alteration on each airport, including heliports)

Figure 2-13

§77.13(a)(2) - Notice Requirement Related to Heliports



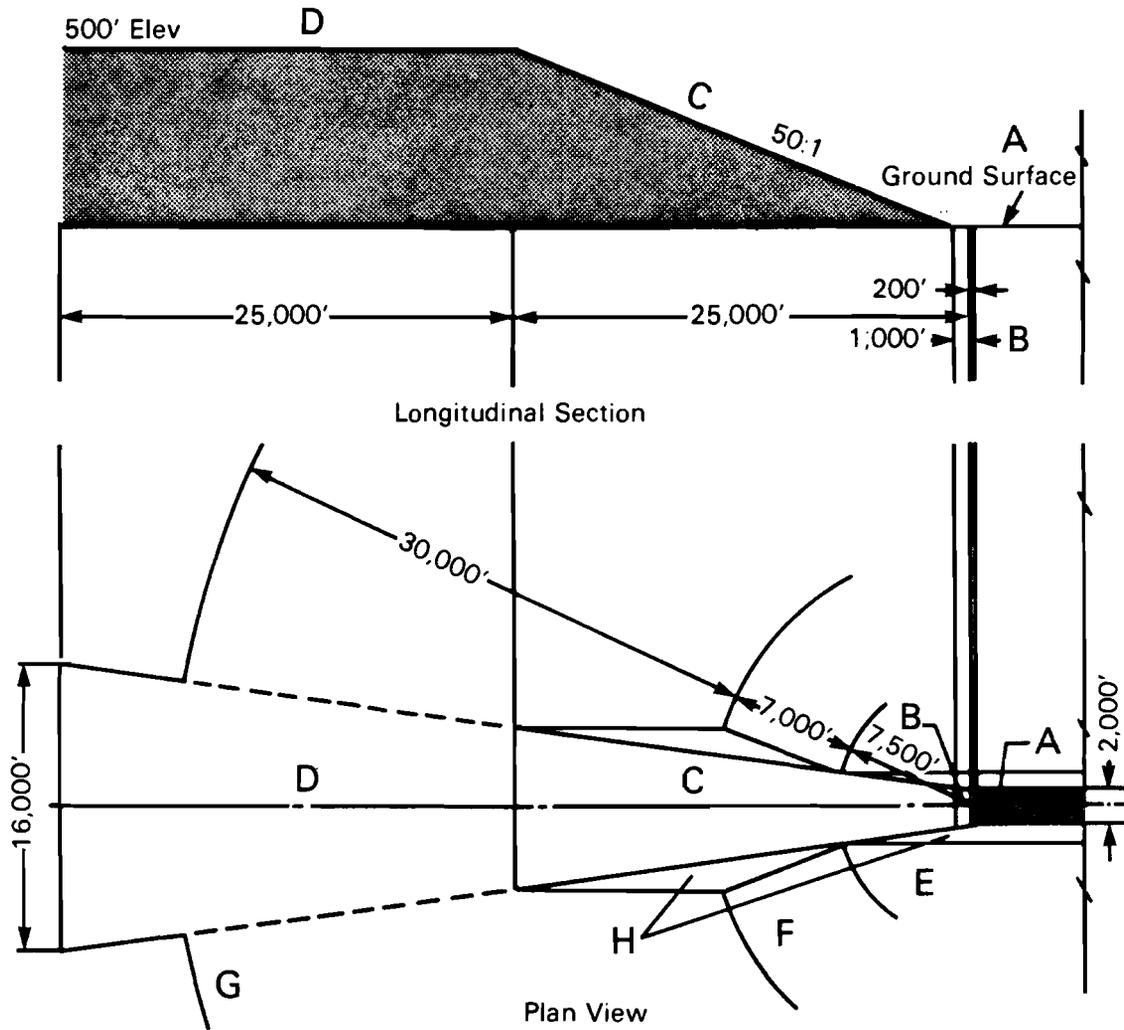
Subpart B - Notice of Construction or Alteration

§77.13(a)(2) - A notice is required for any proposed construction or alteration that would be of greater height than an imaginary surface extending outward and upward at the following slope:

(iii) 25 to 1 for a horizontal distance of 5,000 feet from the nearest landing and takeoff area of each heliport, available for public use and listed in the Airport/Facility Directory or in either the Alaska or Pacific Chart Supplement; is under construction and is the subject of a notice or proposal on file with the FAA and except for military heliports, it is clearly indicated that that heliport will be available for public use, or operated by a Federal Military agency

Figure 2-14

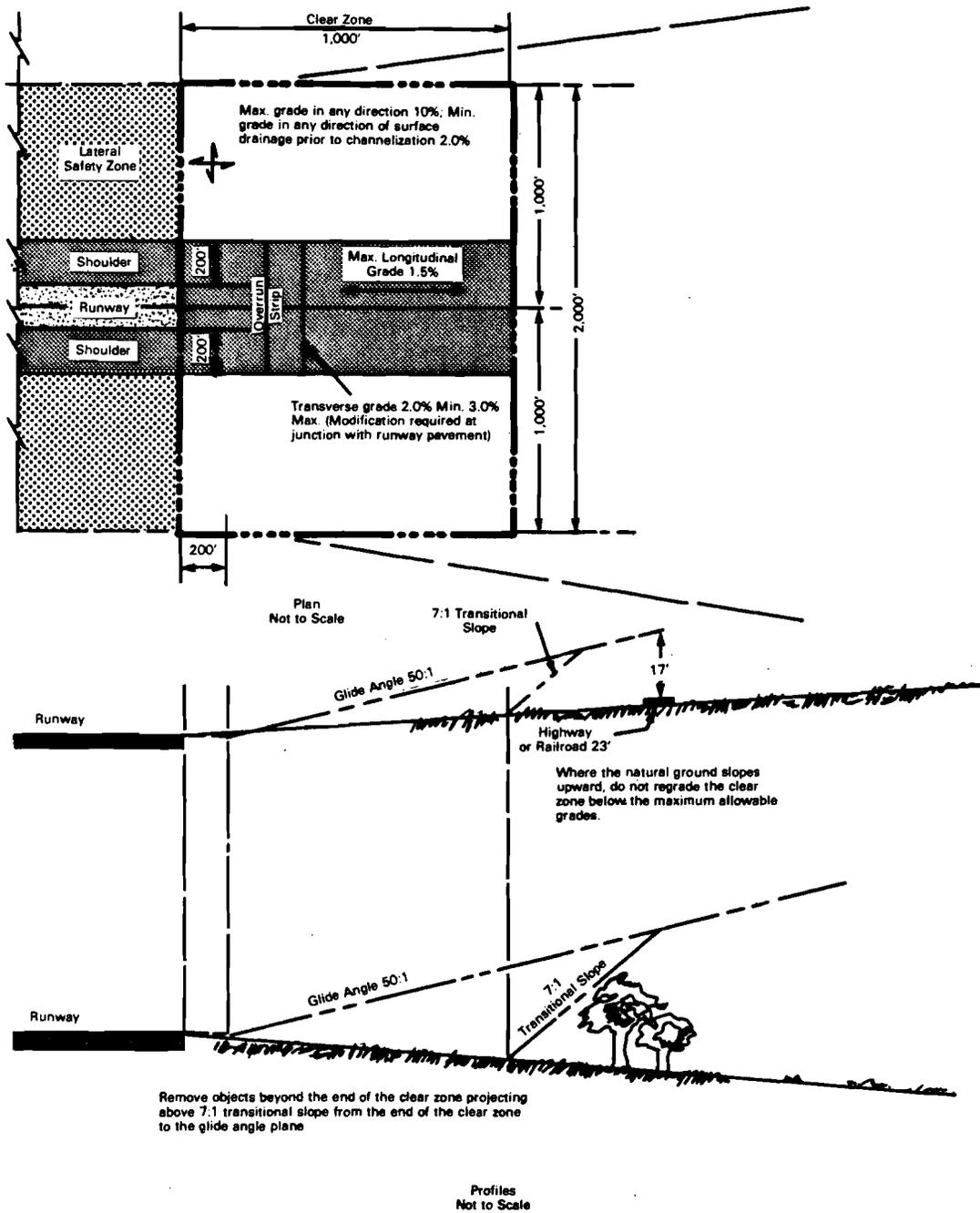
§77.28 - Military Airport Imaginary Surfaces



Legend

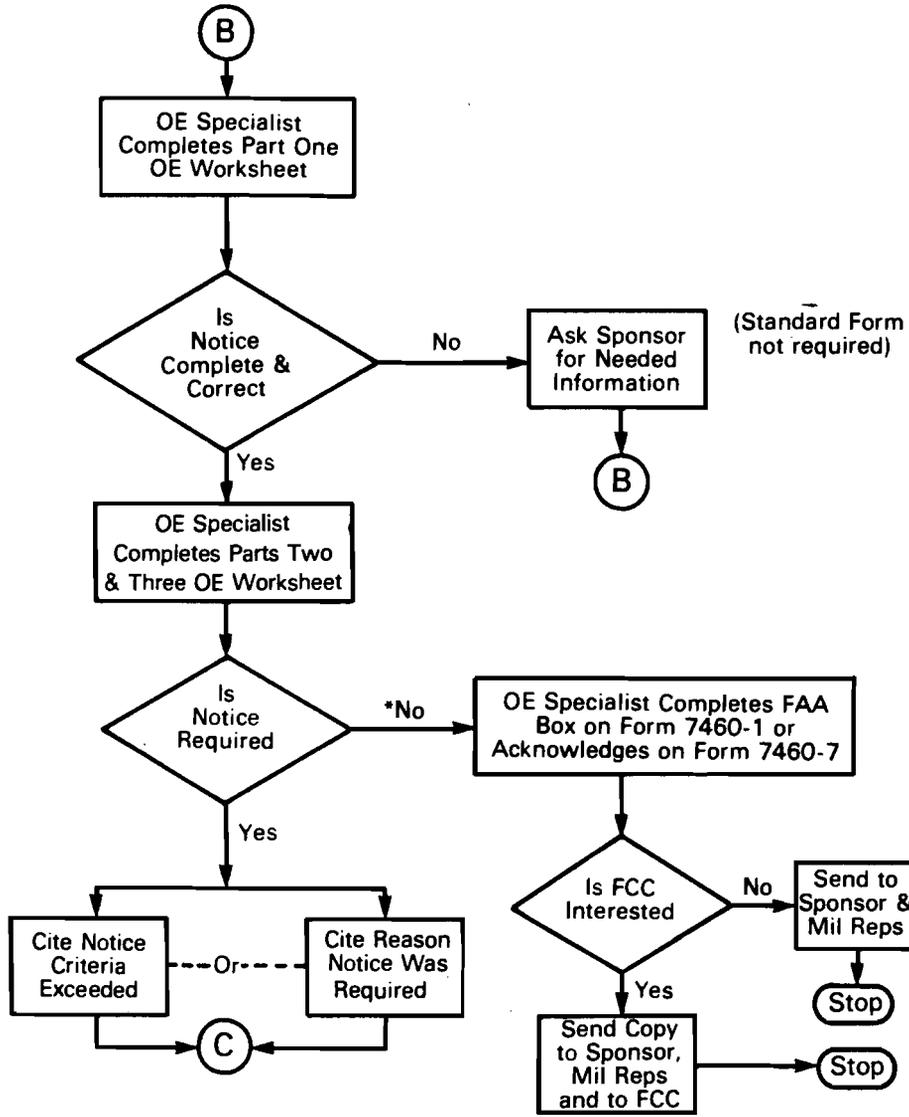
- A Primary Surface
- B Clear Zone Surface
- C Approach-Departure Clearance Surface (Glide Angle)
- D Approach-Departure Clearance Surface (Horizontal)
- E Inner Horizontal Surface
- F Conical Surface
- G Outer Horizontal Surface
- H Transitional Surface

Figure 2-21



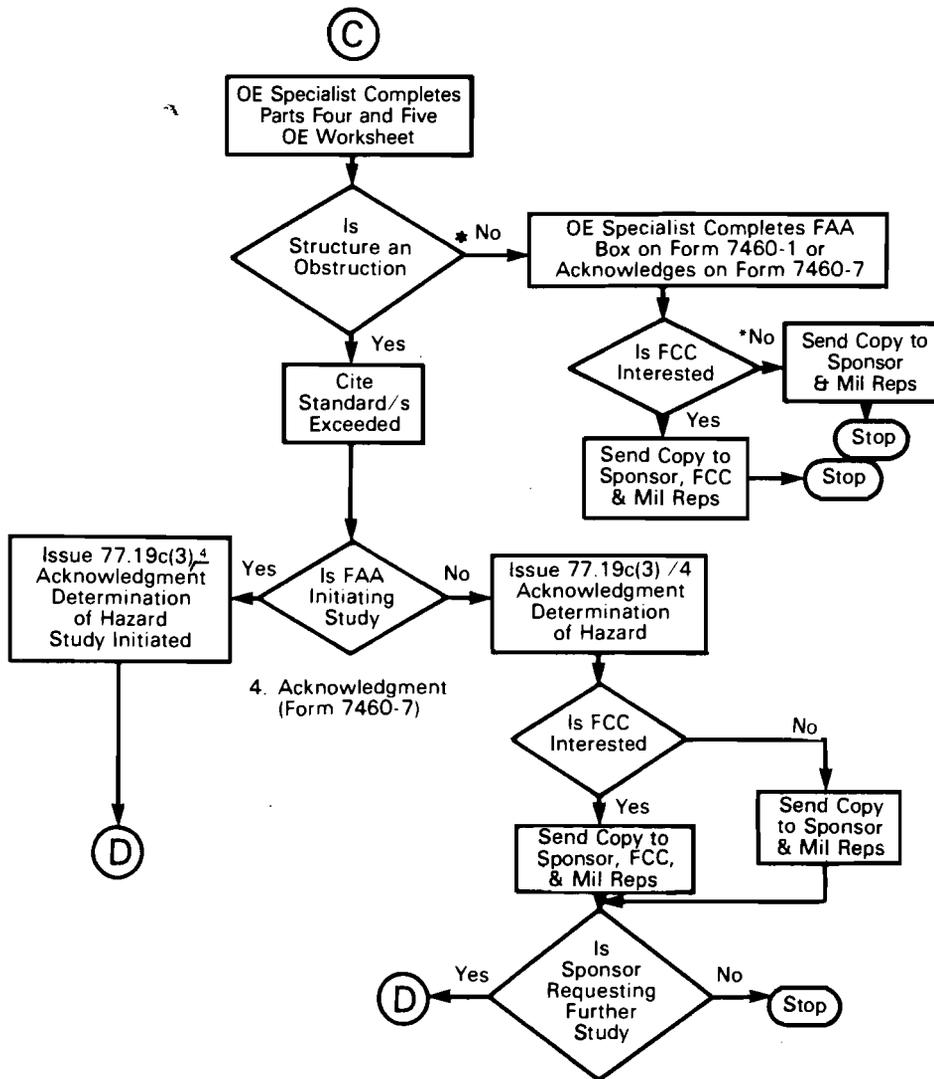
§77.28(b)(2)-Clear Zone - Military

Figure 2-22



*Coordinate with Airports, Airway Facilities, and Flight Standards.

Figure 2-24 Continued



*Coordinate with Airports, Airway Facilities, and Flight Standards.

Figure 2-24 Continued

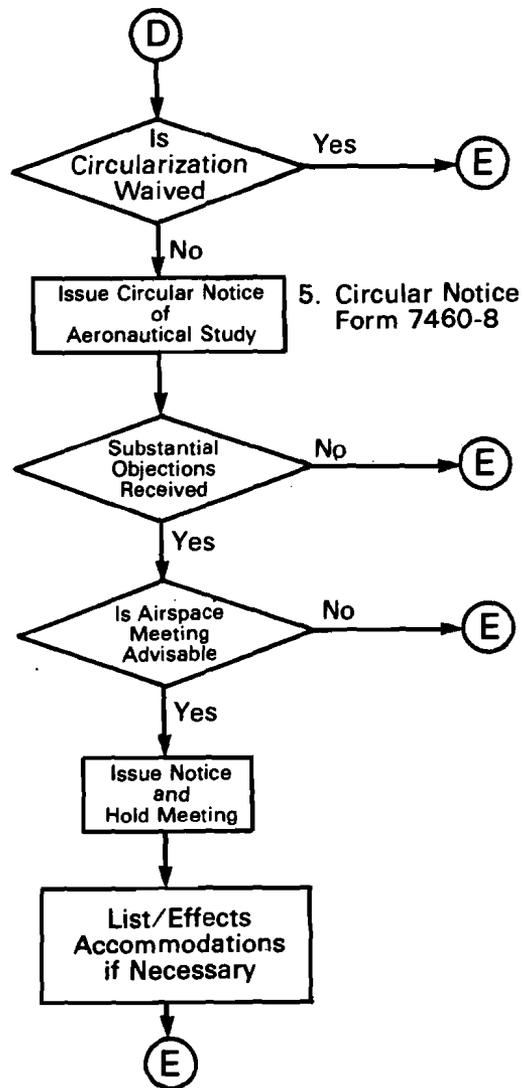
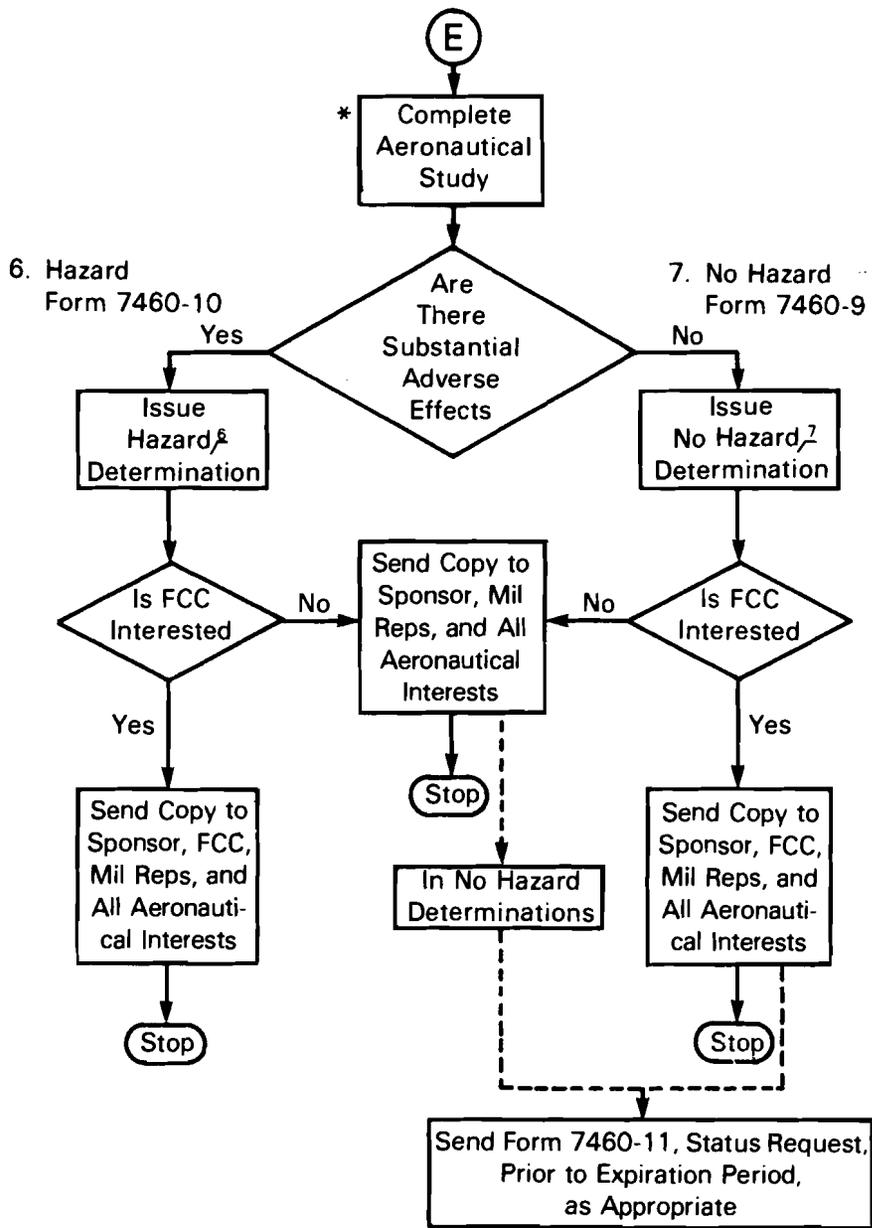


Figure 2-24 Continued



*Coordinate with Airports, Airway Facilities, and Flight Standards.

Figure 2-24 Continued

Section 3. ACKNOWLEDGMENT OF NOTICES

2030. FORMS AND TYPES OF ACKNOWLEDGMENTS

The receipt of each notice submitted under Part 77 shall be acknowledged in writing. FAR 77.19(c) provides for the following types of acknowledgments:

a. The structure would not exceed Subpart C standards and would not be a hazard to air navigation (FAR 77.19(c)(1)). Acknowledge by FAA Form 7460-1, FAA Form 7460-7, or letter.

b. The structure would exceed Subpart C standards but would not be a hazard to air navigation (FAR 77.19(c)(2)). Acknowledge by FAA Form 7460-9 or letter. Issue this acknowledgment only after determining that circularization of the proposal is not necessary. FAA Forms 7460-1 and 7460-7 may only be used in the case when the proposal deals with temporary construction equipment.

c. The structure would exceed Subpart C standards and it is presumed to be a hazard to air navigation pending further aeronautical study (FAR 77.19(c)(3)). Acknowledge by FAA Form 7460-7 or letter.

d. A structure for which notice is not required under FAR 77.13 or FAR 77.15. Acknowledge by FAA Form 7460-1, FAA Form 7460-7, or letter.

2031. PRELIMINARY STUDY

Issue an acknowledgment only after a preliminary study has been accomplished to determine:

a. If there is any possibility that the proposal may affect the operations, availability, or quality of NAS facilities or the air traffic services needed for the safe operation of aircraft. This should be accomplished by Air Traffic and Airway Facilities personnel.

b. If the proposal would affect an existing airport, future development of an existing airport, or a plan on file for a proposed airport; or if an existing structure scheduled for removal was used for shielding or in the determination of another structure. This should be accomplished by Airports personnel.

c. If there is a possibility that the proposed construction may exceed clearance or visibility requirements for instrument and visual approach systems. This should be accomplished by Airports, Airway Facilities, and Flight Standards personnel.

d. The effect of the proposed structure on both IFR and VFR aircraft operations. This should be accomplished by Flight Standards personnel.

2032. EFFECTIVE AND EXPIRATION DATES

Include effective and expiration dates in acknowledgments issued under Part 77.

2033. PETITIONING INFORMATION

Acknowledgments issued under FAR 77.19 are determinations and, except for those issued under FAR 77.19(c)(1), are petitionable. Include petitioning information in acknowledgments issued under FAR 77.19(c)(2). It is presumed that a proponent in receipt of an acknowledgment under FAR 77.19(c)(3) would request further study in lieu of filing a petition.

2034. DISTRIBUTION OF ACKNOWLEDGMENTS

Send a copy of the acknowledgement to:

- a. The sponsor.
- b. The regional military representative.
- c. The FCC when appropriate (see address below).
- d. ATO-200 except when acknowledgment is issued under FAR 77.19(c)(1).
- e. Any interested party when a proposal is acknowledged under FAR 77.19(c)(2).

2035. FCC ADDRESS

Send FCC's copies to:

Federal Communications Commission
Attention: Chief, Antenna Survey Branch
1919 M Street, N.W.
Washington, D.C. 20554

2036. FURNISHING FORM 7460-2

FAA Form 7460-2, Notice of Actual Construction or Alteration, is the authorized form for construction sponsors to use in reporting the start, completion, abandonment of construction, or dismantlement of structures. *It is essential that FAA Form 7460-2 be furnished to each construction sponsor whose proposed construction is determined to be an obstruction but no hazard to air navigation or will be more than 200 feet above ground level.*

2037. NEED FOR SUPPLEMENTAL NOTICE

The information submitted by construction sponsors on the actual construction or alteration of ground structures is used for:

- a. Charting obstructions to air navigation on aeronautical charts;

- b. Giving notice to airmen of the erection of obstructions;
- c. Changing affected aeronautical procedures and operations; and
- d. Revising minimum flight altitudes.

2038. SUBMISSION REQUIREMENTS—48 HOURS

Request construction sponsors to complete and mail Part 1 of FAA Form 7460-2 to be received at least 48 hours prior to the start of construction or alteration when:

- a. An aeronautical procedure or minimum flight altitude will be affected (supplemental notice earlier than 48 hours may be requested to permit adjustments); or
- b. The construction will be in progress over an extended period of time; or
- c. The structure will exceed 500 feet AGL and be erected within a relatively short period of time, as in the case of a TV tower.

2039. SUBMISSION REQUIREMENTS—5 DAYS

Request construction sponsor to complete and mail Part 2 of FAA Form 7460-2 within 5 days after the construction or alteration reaches its greatest height in each case where:

- a. The structure is more than 200 feet above ground level.
- b. The structure exceeds an obstruction standard.
- c. At any other time determined necessary by the requesting office.

2040. REGIONAL PREPARATION OF FORM 7460-2

Insert the aeronautical study number, the city and state, and the *requesting office's* return address before sending the form to the sponsor. Retain Part 3 of the form in the requesting office.

2041. DISTRIBUTION OF EXECUTED FORM 7460-2

When a completed Form 7460-2 is received, the appropriate Air Traffic Office shall immediately compare the information on the form with the study file. If minimum flight altitudes require change or the potential for electronic interference exists, notify the appropriate Flight Standards and Airway Facilities Offices by the fastest means possible. Additionally, send copies of a completed Form 7460-2 to ATO-250 for processing and to all other interested offices.

2042. FOLLOWUP ACTION

Take appropriate action to determine the construction status when the Form 7460-2 has not been received. Use Form 7460-11 for this status request. Insert the aeronautical study number and the *requesting office's* return address before sending the form to the sponsor. After the form is returned and indicates construction has started, or is complete, ensure that notification is accomplished in accordance with paragraph 2041; however, Form 7460-11 may be used in this notification process in lieu of Form 7460-2.

2043-2199. RESERVED

Chapter 5. AERONAUTICAL STUDIES—PROPOSED CONSTRUCTION OR ALTERATION

Section 1. GENERAL

2200. STRUCTURES SUBJECT TO STUDY

Conduct aeronautical studies of proposed structures that exceed Part 77 obstruction standards in accordance with Subpart D, Part 77, and this handbook. Also, determine the line-of-sight and physical or electromagnetic interference effect of the proposal on the use of the navigable airspace and the operation of air navigation facilities.

2201. EXTENT OF STUDY

The extent of an aeronautical study depends upon the impact of a proposed structure on aeronautical operations and procedures, airport operations and efficiency, and/or air navigation facilities. This involves coordination between Air Traffic, Airports, Flight Standards, and Airway Facilities; and, to the extent necessary, with those persons and Government agencies outside the FAA that have a valid aeronautical interest.

2202. MULTIPLE APPLICANTS FOR A SINGLE SITE

At times, multiple applicants may be competing before the FCC for the same license in the same market area and may propose the same communications band/frequency/ channel using the same effective radiated power at the same location and height. If desired by these applicants and/or their consultant, a single FAA Form 7460-1 may be submitted to cover multiple applicants for a common site. The following procedures are applicable.

a. A list must be attached to each submitted FAA Form 7460-1 containing the corporate name, address, telephone number, and contact person for each applicant covered by the notice.

b. The appropriate FAA regional office must receive prompt, written notification when the FCC decides which proponent shall be the surviving applicant.

c. The surviving applicant shall expeditiously submit an application for an FCC construction permit and shall forward a copy of that application to the appropriate FAA regional office.

d. The surviving applicant must properly complete and return to the appropriate FAA regional office all requested forms concerning the actual construction of the structure within the timeframe requested.

e. All conditions specified in the FAA acknowledgment or determination will be complied with by the surviving applicant.

f. If a preliminary study indicates that the proposed structure would be a hazard to air navigation, a proponent may propose a decrease in structure height to minimize or eliminate the objection. Any such proposal must be made in a prompt and timely manner so that the additional work required to process the change will not place an undue burden on the affected regional office.

2203. MULTIPLE SITES

Normally, study only one site and height for each notice of proposed construction or alteration. More than one site or height may be studied simultaneously for a sponsor if it appears justified and in the public interest. A sponsor may modify his proposal any time during the aeronautical study; however, except as provided for in Section 4 of Chapter 8, once a determination has been issued, assign a new aeronautical study number and process any modification received as a new proposal.

2204. MULTIPLE STRUCTURES

Consider multiple-structure proposals as a single proposal when the structures would be closely grouped as in an antenna array, windmill clusters, housing development, cluster of buildings, or a utility pole line. Consider multiple-structure proposals, such as microwave relay system towers, as separate structures requiring separate notice and study.

2205. CIVIL AIRPORT SURFACES

Civil airport imaginary surfaces related to runways and heliports are defined in FARs 77.25 and 77.29. Civil airport imaginary surfaces are based upon the use of each runway according to the type of approach (visual, nonprecision, or precision) available or planned for each runway end and the type runway (utility or other than utility). (See Figure 2-25.) Heliport imaginary surfaces are based upon the size of the takeoff and landing area. (See AC 150/5390-1, Heliport Design Guide.)

Note. — FAR 77.25 does not make provisions for precision approaches to utility runways. In these situations, use precision standards for other than utility runways

to develop the primary, approach, and transition surfaces.

a. Runway End. The appropriate runway imaginary surface shall be applied to the primary surface related to the physical end of the specific runway surface usable for either takeoff or landing. If the runway threshold has been previously relocated so that a portion of the runway has been permanently closed to all takeoffs and landings, consider the relocated threshold to be the end of the runway surface.

Note. — A "relocated" threshold permanently closes a portion of a runway to takeoffs and landings. A "displaced" threshold does not close that portion of the runway for takeoffs. (See AC 150/5300.4, Appendix 9.)

b. Approach Surface Elevation. Use the runway centerline elevation at the runway end as the elevation from which the approach surface begins (FAR 77.25).

c. Planned Runway Configuration. Consider the planned runway configuration and use it when there is a plan on file with the FAA or with an appropriate military service to extend the runway and/or upgrade its use.

2206. VFR AIRPORTS

For the purpose of applying the standards of Part 77, Subpart C, consider runways which were constructed to the former "VFR Airport" standards and have not been updated to be either "utility" or "other than utility," depending on the type of existing or planned aircraft operations.

2207. MILITARY AIRPORT SURFACES

The obstruction standards in FAR 77.28, Military Airport Imaginary Surfaces, are applicable only to military airports operated by a military service of the United States. Apply the Civil Airport Imaginary Surfaces, (FAR 77.25) to civil operated joint-use airports.

2208. TERMINAL OBSTACLE CLEARANCE AREA

The terminal obstacle clearance area specified in FAR 77.23(a)(3) includes the initial, intermediate, final, and missed approach segments of an instrument approach procedure and the circling approach and instrument departure areas as prescribed in FAA Order 8260.3, U.S. Standard Terminal Instrument Procedures (TERPS).

2209. EN ROUTE OBSTACLE CLEARANCE AREA

The en route obstacle clearance area specified in FAR 77.23(a)(4) is applicable when evaluating the

effect of an object on an airway, a feeder route, or an approved off-airway route (direct route) as prescribed in TERPS, Chapter 17.

2210. STUDY ACTIONS

If the proposed structure exceeds any Part 77, Subpart C, Obstruction Standards, a study shall be conducted to identify the effects of the proposal on the use of the navigable airspace by aircraft and the operation of air navigation facilities. When a problem is identified, notify other divisions that may be affected. Use Form 7460-6, or other means necessary to document the effect.

a. Air Traffic. The appropriate Air Traffic personnel shall study the effect on aeronautical operations, air traffic control procedures, and airport traffic patterns plus take the following actions as appropriate:

(1) Issue a Determination of No Hazard to Air Navigation when a proposed structure would have no substantial adverse effect. If required, circularize the proposal and evaluate valid aeronautical comments before issuing the determination.

(2) Negotiate with the construction sponsor to revise a proposal so as to eliminate the problem when a proposed structure would have an adverse effect. If the sponsor agrees to revise the proposal so that it does not exceed Part 77 Obstruction Standards and would have no adverse effect, then terminate the aeronautical study and acknowledge the revised proposal.

(3) Issue a Determination of No Hazard to Air Navigation when aviation requirements that would accommodate the structure can be adjusted without substantial adverse effect on the safe and efficient use of the navigable airspace by aircraft or on the operation of air navigation facilities, or if a revision of the proposal is negotiated so as to mitigate the substantial adverse effect. Before issuing the determination, take the action set forth in FAR 77.35(b)(1).

(4) Issue a Determination of Hazard to Air Navigation when negotiations with the proponent are not sufficiently successful to eliminate the substantial adverse effect and the affected aeronautical operations and procedures cannot be adjusted to accommodate the structure without a substantial adverse effect. Before issuing the determination, take the actions set forth in FAR 77.35(b)(1).

(5) Specify marking and lighting recommendations/provisions as appropriate.

b. Flight Standards. Areas to be evaluated by the appropriate Flight Standards personnel in-

clude, but are not specifically limited to the following:

(1) VFR Traffic. The effect of the construction or alteration on VFR routes, VFR terminal operations, and other concentrations of VFR traffic. When requested by air traffic, evaluate the mitigation of adverse effect on VFR operations through the installation and operation of high intensity white obstruction lights.

(2) IFR — Terminal Area. The effect upon terminal area IFR operations, including transitions, radar vectoring, holding, STAR's, SID's, any segment of a SIAP, including proposed instrument procedures, and departure areas.

(3) IFR — En Route. The effect of the proposed construction or alteration on MEA's, MOCA's, MCA's, MHA's, and turning and termination areas.

(4) Interference. Coordinate with Air Traffic and Airway Facilities personnel to determine whether there may be interference with navigation facility performance, and identify the effect of this interference on any terminal or en route procedure.

(5) Procedural Adjustments. If the structure will affect an instrument flight procedure, provide a statement as to what adjustments can be made to the procedure/structure to eliminate the adverse effects. Some procedural changes may require an environmental assessment.

c. Airports. Action by appropriate Airports personnel shall include:

(1) Evaluating the effect of the proposal on existing and planned airports (plans on file) including potential restrictions/impacts on airport operations, capacity, efficiency, and development.

(2) Making recommendations for procedure/structure revisions that would eliminate adverse effect.

d. Airway Facilities. The appropriate Airway Facilities personnel shall evaluate the electromagnetic/physical effect on air navigation facilities including:

(1) Effect on the availability or quality of navigational or communications signals to or from aircraft, including lighting systems.

(2) Effect on ground-based communications and navigation aid equipment, and the signal paths between ground-based and airborne equipments.

(3) Effect on the availability or quality of air traffic services needed for the safe operation of aircraft; i.e., ground-based primary and secondary radar, direction finders, air traffic control tower line-of-sight visibility, the effects of sunlight reflection from glass covered structures, powerlines, or buildings near a navigation aid, communications facilities, and on the signal paths between ground-based and airborne equipment.

(4) Recommendations or revisions that may be necessary to minimize or eliminate adverse effect.

2211. NEGOTIATIONS

Whether a study is conducted under Part 77 or the FA Act, attempt to negotiate a solution to any adverse effects on aeronautical operations or air navigation facilities with the construction sponsor. Do not encourage heights which would exceed those requested by the sponsor or the standards of Subpart C, Part 77, except to recommend collocation of the proposal with other structures of equal or greater heights. Include in the aeronautical study file and in the determination a record of all the negotiations attempted and the results.

2212. POLICY ON RELEASE OF INFORMATION

Requests from the public for access to or copies of information contained in obstruction evaluation study files are occasionally made to the regional offices. Such requests shall be processed in accordance with the provisions of the Freedom of Information Act (5 U.S.C. 552), as implemented by Part 7 of the Department of Transportation Regulations and FAA Order 1200.23.

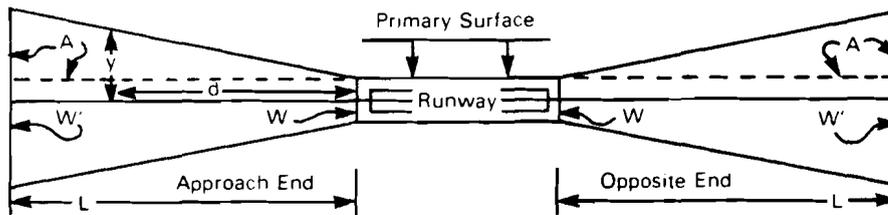
2213-2219. RESERVED

Figure 2-25. FAR PART 77, APPROACH SURFACE DATA

Runway Type	Rwy Use Avail./Planned		Approach Surface Dimensions			Slopes and Flare Ratios	
	Approach/Opposite Runway End Combinations		Length L	Inner Width-W	Outer Width-W'	Slope Ratio	Flare Ratio-A
UTILITY RUNWAYS	V		5,000	250	1,250	20:1	1:1
		V	5,000	250	1,250	20:1	1:1
	V		5,000	500	1,250	20:1	.075:1
		NP	5,000	500	2,000	20:1	15:1
	NP		5,000	500	2,000	20:1	15:1
OTHER THAN UTILITY RUNWAYS	V		5,000	500	1,500	20:1	1:1
		V	5,000	500	1,500	20:1	1:1
	V	NP 3 4+	10,000	500	3,500	34:1	15:1
		NP 3 4	10,000	1,000	4,000	34:1	15:1
	V		5,000	1,000	1,500	20:1	.05:1
		P	50,000	1,000	16,000	50:1 40:1	15:1
	NP 3 4+		10,000	500	3,500	34:1	15:1
		NP 3 4+	10,000	500	3,500	34:1	15:1
	NP 3 4+		10,000	1,000	3,500	34:1	125:1
		NP 3 4	10,000	1,000	4,000	34:1	15:1
	NP 3 4-		10,000	1,000	3,500	34:1	125:1
		P	50,000	1,000	16,000	50:1 40:1	15:1
	NP 3 4		10,000	1,000	4,000	34:1	15:1
		NP 3 4	10,000	1,000	4,000	34:1	15:1
	NP 3 4		10,000	1,000	4,000	34:1	15:1
	P	50,000	1,000	16,000	50:1 40:1	15:1	
P		50,000	1,000	16,000	50:1 40:1	15:1	
	P	50,000	1,000	16,000	50:1 40:1	15:1	

V - Visual NP - Nonprecision 3 4+ - Visibility Minimums More Than 3:4 SM
 P - Precision 3 4 - Visibility Minimums As Low As 3:4 SM

EXAMPLE



Sample Use Problem Proposed structure would be located by measurement to be 20,000 feet from the end of the primary surface and 3,400 feet at 90° from the extended centerline of a precision runway. (Refer to Section 77.21(b) for relation of primary surface to end of runway) To determine whether it would fall within the approach surface of that runway, apply the following formula

$$y = d \times A + \frac{W}{2}$$

y = distance from runway centerline to edge of the approach surface

d = distance from end of primary surface at which proposed construction is 90° from extended runway centerline

$$y = 20,000 \times .15 + \frac{1,000}{2} \quad y = 3,000 + 500 \quad y = 3,500 \text{ (structure would be within approach surface)}$$

Chapter 6. AERONAUTICAL STUDIES OF EXISTING OBJECTS

2300. AUTHORITY

Aeronautical studies of existing objects shall be conducted under the authority of Sections 307(a) and 313(a) of the Federal Aviation Act of 1958, as amended, and in accordance with appropriate sections of this handbook.

2301. PURPOSE

Aeronautical studies of existing objects are conducted when deemed necessary by the FAA to determine the physical or electromagnetic effect on the use of navigable airspace and air navigation facilities.

2302. INITIATION OF STUDIES

Aeronautical studies of existing objects may be initiated as a result of:

- a. Information received or a situation observed.
- b. A request for the study from another FAA component, another agency, or person with a valid interest in the matter.
- c. A notice received under Part 77 for proposed construction or alteration that has already been started and, therefore, must be considered an existing structure.
- d. A structure blocking all or portions of runways, taxiways, or traffic patterns from being seen from an airport traffic control tower.
- e. Other situations for which such an aeronautical study would be appropriate.

2303. NEED FOR STUDY

Situations that may require aeronautical study of existing objects include but are not limited to:

- a. Determining the effect of a change in aeronautical procedures; however, analysis of existing obstacles by Flight Standards personnel, relative to establishment of instrument flight procedures, should satisfy the aeronautical study requirement.
- b. Determining the effect of a proposed runway construction, extension, or realignment.
- c. Determining the need for providing technical assistance in the design and development of airports.
- d. Determining whether the FAA should recommend that an existing object be altered or removed.

- e. Determining whether the FAA should recommend that an existing object be made conspicuous by marking and lighting in accordance with current standards.

- f. Determining whether the marking and lighting display on an existing object can be removed or reduced without adversely affecting aviation safety or should be increased to more effectively make its presence known to airmen.

- g. Determining whether an existing object has an electromagnetic effect upon an air navigation or communications facility or obstructs visibility from an airport control tower.

- h. Providing recommendations to FCC concerning dismantlement of abandoned antenna structures.

- i. Providing information and assistance to a person or body politic to achieve safe and efficient utilization of the navigable airspace in the vicinity of an existing object.

2304. PRELIMINARY STUDY

FAR Part 77, Subpart C, Obstruction Standards, may be applied independently to an existing object without conducting further aeronautical study to determine whether that object is an obstruction to air navigation. The application of these standards (referred to as FAA Obstruction Standards when dealing with existing structures) could also constitute the preliminary step in an extended aeronautical study to determine whether an object found to be an obstruction is a hazard to aeronautical operations and procedures.

2305. EXTENT OF STUDY

The extent to which an aeronautical study of an existing object should be conducted depends upon the reason for the study and the relative impact the object may have upon aeronautical operations, procedures, and air navigation facilities. It may be necessary to study an object of natural growth, a terrain feature, or a manmade structure to determine their effect upon a proposed or existing airport, a runway, an air navigation facility, or an air traffic control facility.

2306. COORDINATION

Aeronautical studies of existing objects shall be conducted by Air Traffic, Airports, Airway Facilities, and Flight Standards personnel and coordinated with other FAA offices and with outside interests to ensure the development of a true agency position. Coordinate with interested persons or agencies outside FAA if changes in aeronautical operations or procedures are required because of the object.

2307. RELEASE OF INFORMATION

The guidelines in paragraph 2212. apply in responding to requests for access to copies of information contained in aeronautical study files of existing objects.

2308. AIRPORT IMAGINARY SURFACES

When conducting aeronautical studies of existing objects, the guidelines in paragraphs 2205. and 2206. apply in regard to airport imaginary surfaces.

2309. ELECTROMAGNETIC OR LINE-OF-SIGHT INTERFERENCE

Airway Facilities personnel shall determine the potential impact of existing objects on the operation of NAS facilities. These studies shall take into consideration existing siting clearance criteria as established in agency orders, handbooks, and advisory circulars. Additionally, the object must be evaluated to determine the potential for electromagnetic interference. This evaluation shall analyze the shape, location, and types of material used in the object, plus the potential of causing deflections, reradiation, or interference to the signals emitted from and/or received by a NAS facility.

2310. CIRCULARIZATION

The extent of distribution of a notice of intent to conduct an aeronautical study of an existing object shall be as determined necessary on a case-by-case

basis. Give serious consideration to circularizing the notice to all interested persons when the aeronautical study may result in an FAA recommendation to the owner/sponsor of the object, or to another person, or to a body politic with a valid interest in the results of the study. The comment period, distribution records, evaluation of comments, and informal airspace meetings guidelines for proposed structures shall also apply to studies of existing objects.

2311. NEGOTIATIONS

Attempt to resolve any conflict between the existing object and any adversely affected aeronautical operations or air navigation facility. The study should be terminated and interested persons advised if the sponsor or owner can be persuaded to alter or remove an existing object to avoid an adverse effect.

2312. INFORMAL AIRSPACE MEETINGS

Existing objects may be discussed at an informal airspace meeting when considered appropriate (see Chapter 2, Section 3).

2313. PETITION PROCESSING

Determinations or recommendations concerning existing objects are not subject to review under the provisions of Sections 77.37 or 77.39 of Part 77. Petitions or requests for review shall be processed by regional offices outside the regulatory framework of Part 77 and granted or denied at the discretion of the Regional Director. If a review is granted, it should be on the basis of written materials including the aeronautical study, briefs, and related submissions by interested persons and other known relevant facts with the Regional Director affirming, revising, or reversing the determination.

2314-2399. RESERVED.

Chapter 7. EVALUATING AERONAUTICAL EFFECT

Section 1. GENERAL

2400. POLICY

a. The Federal Aviation Act of 1958, as amended, does not provide specific authority for the FAA to regulate or control how real estate (land) may be used involving structures that may penetrate the navigable airspace. Consequently, Part 77 was adopted to establish notice standards for proposed construction or alteration to protect aircraft from unannounced objects.

b. Subpart C of Part 77 establishes standards for determining obstructions to air navigation. Objects that exceed these standards are presumed to be hazards to air navigation unless an aeronautical study determines otherwise. Once an aeronautical study has been initiated, other standards in addition to those in Subpart C shall be used to determine if the object being studied would actually be a hazard to air navigation. The additional standards used are those established by the FAA to satisfy operational, procedural, and electronic requirements.

2401. EVALUATION BY FAA OFFICES

The FAA's obstruction evaluation program transcends all organizational lines. The regional Air Traffic, Flight Standards, Airways Facilities, and Airport Offices have specific responsibilities in the aeronautical study process. Each of these offices shall evaluate the aeronautical effect by applying standards pertinent to their functions as follows:

a. Air Traffic Personnel — Pertinent to aeronautical operations, air traffic control procedures, and obstruction marking and lighting recommendations.

b. Airports Personnel — Pertinent to existing airports and planned or future airport development programs on file with the agency.

c. Flight Standards Personnel — Pertinent to en route or terminal obstruction clearance altitudes, a feeder route or altitude, and approved or planned instrument approach/departure procedures.

d. Airway Facilities Personnel — Pertinent to possible restrictions to air traffic control line-of-sight capability and interference effects upon electronic and visual aids to air navigation as well as on the aircraft using such aids. The service position shall contain the results of the electromagnetic interference status when submitting such infor-

mation to the Air Traffic Service as the basis for a determination.

e. Other Interested FAA Offices or Services — May be requested to evaluate the proposal on a case-by-case basis.

2402. ADVERSE EFFECT

An object to be considered for adverse aeronautical effect must first exceed the obstruction standards of Subpart C, Part 77 and/or be found to have physical or electromagnetic radiation effect on the operation of air navigation facilities. A proposed structure, if erected, would have, or an existing object, if not altered or removed, has an adverse effect if either would:

a. Require a change to an existing or planned IFR minimum flight altitude, a published or special instrument procedure, or an IFR departure procedure.

b. Require a VFR operation, excluding operations under FAR Part 137, VFR military training routes (VR routes), and any operation conducted under a waiver or exemption to FAR's, to change from a regular flight course or altitude.

c. Cause an electromagnetic effect upon the operation of an air navigation facility or the signal used by aircraft.

d. Restrict a clear view of runways, helipads, taxiways, or traffic patterns from the airport air traffic control tower.

e. Derogate airport capacity/efficiency.

f. Affect future VFR and/or IFR operations indicated by plans on file.

g. Affect the usable length of an existing or planned runway.

2403. SUBSTANTIAL ADVERSE EFFECT

A proposed structure would have, or an existing object has, a substantial adverse effect if there is a combination of:

a. Adverse effect; and

b. A significant volume of aeronautical operations would be affected.

2404. SIGNIFICANT VOLUME OF ACTIVITY

The type of activity must be considered in reaching a decision on the question of what volume of aeronautical activity is "significant." For example, if one or more aeronautical operations per day

would be affected, this would indicate regular and continuing activity, thus a significant volume no matter what the type of operation. On the other hand, an affected instrument procedure or minimum altitude may need to be used only an average of once a week to be considered significant if the procedure is one which serves as the primary procedure under certain conditions.

2405. SHIELDING

a. Consideration. Shielding is one of the many factors that must be considered in determining the physical effect an object may have upon aeronautical operations and procedures. Good judgment, plus the circumstances of location and flight activity, will influence the consideration given this factor in determining whether proposed or existing objects would be physically shielded.

b. Principle. The basic principle in applying the shielding guidelines is whether the location and height of proposed or existing objects are such that aircraft, when operating with due regard for the shielding object, would not collide with the shielded object.

c. Limitations. Application of the shielding effect factor to an existing object or proposed construction or alteration is limited to:

(1) The physical protection provided by existing natural terrain, topographic features, or surface structures of equal or greater height than the structure under study; and

(2) The objects providing the shielding protection are of a permanent nature and there are no plans for removal or alteration on file with the FAA.

2406. SHIELDING GUIDELINES

Any proposed construction or alteration or existing object is normally considered to be physically shielded by an existing permanent structure(s), natural terrain, or topographic feature(s) of equal

or greater height if the object under consideration would be located as indicated in one of the following (see Figures 2-26 through 2-29):

a. Not more than 500 feet horizontal distance from the shielding object(s) and in the congested area of a city, town, or settlement, provided the shielded object would not have located closer than the shielding objects to any heliport or airport located within 5 miles of the object(s);

b. Such that there would be at least one such shielding object situated on at least three sides of the shielded structure at a horizontal distance of not more than 500 feet; and

c. Within the lateral dimensions of any runway approach surface but would not exceed an overall height above the established airport elevation greater than that of the outer extremity of the approach surface, and located within, but would not penetrate, the shadow plane/s of the shielding object/s.

2407. SHADOW PLANE

The term "shadow plane" means a surface originating at a horizontal line passing through the top of the shielding object at right angles to a straight line extending from the top of the shielding object to the end of the runway. The shadow plane has a width equal to the projection of the shielding object's width onto a plane normal to the line extending from the top and center of the shielding object to the midpoint of the runway end. The shadow plane extends horizontally outward away from the shielding object until it intersects or reaches the end of one of the imaginary approach area surfaces (see Figures 2-26 through 2-29).

2408. MARKING AND LIGHTING

Every aeronautical study shall include an evaluation to determine whether obstruction marking and/or lighting is necessary.

2409-2419. RESERVED

Section 2. GUIDELINES FOR EVALUATING EFFECT ON VFR OPERATIONS

2420. PURPOSE

The guidelines in this section are for use in determining the effect of proposed construction or alteration, or existing objects, upon VFR aeronautical operations in the navigable airspace. The intent of these guidelines is to provide a basis for analytic judgments in evaluating and determining the effect of proposed or existing surface structures on VFR operations.

2421. NAVIGABLE AIRSPACE

a. Minimum flight altitudes are prescribed by regulation. Generally, speaking, from a VFR standpoint, it may be considered that the navigable airspace includes all airspace 500 feet and more above the surface and that airspace below 500 feet required for:

- (1) Takeoff and landing, including an airport traffic pattern.
- (2) Flight over open water and sparsely populated areas.
- (3) Helicopters where the operation may be conducted without hazard to persons and property on the surface.

b. VFR Weather Minimums. Proposed or existing structures potentially have the greatest impact in those areas where VFR operations are conducted when ceiling and/or visibility conditions are at or near VFR weather minimums. Any object that would interfere with significant volume of low altitude flights by actually excluding or restricting VFR operations in a specific area would have a substantial adverse effect and may be considered a hazard to air navigation.

c. Obstruction Marking and Lighting or Shielded. Not every object penetrating into the navigable airspace is considered to be a hazard to air navigation. Some can be obstruction marked and lighted in a manner so that pilots can visually observe and avoid the structures. Others may be "shielded" by being located in proximity to other permanent structures or terrain and would not, by themselves, adversely affect aeronautical operations.

d. Height Of Structures. Surface structures are of concern to pilots during climb after takeoff, during low altitude operations, and when descending to land. Any structure more than 500 feet above ground level, or structures of any height which would affect landing and takeoff operations, requires extensive evaluation to determine the extent of adverse effect on VFR aeronautical operations.

e. Airport Traffic Patterns. The primary concern regarding structures in airport traffic pattern areas is whether they would create a dangerous situation during a critical phase of flight. Such structures may cause substantial adverse effect if adjustments cannot be made to the affected traffic pattern.

f. Terminal Control Areas (TCA's) and Airport Radar Service Areas (ARSA's). Proposed structures that exceed obstruction standards in areas available for VFR flight below the floor of a TCA or an ARSA require careful evaluation. TCA's and ARSA's are designed to provide a more regulated environment for IFR and VFR traffic around certain airports. Consequently, the floors of some TCA's and ARSA's compress the airspace into geographical areas of limited size and minimum altitude availability for VFR operations.

g. VFR Routes. Pilots operating VFR over most portions of the United States are encouraged to fly routes that parallel rivers, coastlines, mountain passes, valleys, and similar types of natural landmarks or to follow major highways, railroads, powerlines, canals, or other manmade objects. The basic consideration in evaluating the effect of obstructions on operations along these routes is whether pilots would be able to visually observe and avoid them during marginal VFR weather conditions. At least 1 mile flight visibility is required for VFR operations beneath the floor of controlled airspace. This means that a surface reference used for VFR low altitude flight must be horizontally visible to pilots for a minimum of 1 mile. A VFR route may also follow specific radials of a VOR. These routes may correspond to an established Federal Airway, direct radials between navigation facilities, or a single radial providing transition to a route predicated on visual aids. While there may be established minimum en route altitudes for segments of these routes and navigation is dependent upon adequate signal reception, the pilot may be expected to fly at an altitude below the established minimum altitude in order to maintain visual contact with the ground.

2422. EN ROUTE OPERATIONS

The area considered for en route VFR flight begins and ends outside the airport traffic pattern airspace areas or airport traffic areas for airports with airport traffic control towers.

a. A proposed object would have, or an existing object has, an adverse effect upon VFR air navigation if its height is more than 500 feet above the

surface at its site, and it is within 2 statute miles of any regularly used VFR route. (See Figure 2-30.)

b. Evaluation of obstructions that would be located within VFR routes must consider the fact that pilots may and sometimes do operate below the floor of controlled airspace with low ceilings and 1 mile flight visibility. When operating within these limitations using pilotage navigation, these flights must remain within 1 mile of the identifiable landmark to maintain visual reference. Even if made more conspicuous by the installation of high intensity white obstruction lights, a structure placed in this location could be a hazard to air navigation because after sighting it, the pilot may not have the opportunity to safely circumnavigate or overfly the structure. As flight visibility increases and if ceiling permits, the pilot is able to move farther away from the landmark and be at high altitudes to maintain visual contact. Accordingly, increased conspicuity by the installation of high intensity white obstruction lights may eliminate the substantial adverse effect of structures located on the outer fringes of the area considered for VFR routes. Additional factors that serve to anticipate pilot actions include but not limited to the following:

- (1) FAR 91.79 minimum altitude requirements.
- (2) Historical weather data (ceiling/visibility).
- (3) Floor of controlled airspace.
- (4) Conditions which could make circumnavigation or overflight of the structure impossible or impractical such as other tall structures, terrain, special use airspace, large bodies of water, controlled airspace configurations, etc.

c. In all cases, a full aeronautical study shall be conducted to ensure that the structure is not or will not be a hazard to air navigation. If an aeronautical study disclosed that the installation and operation of high intensity white obstruction lights would mitigate the substantial adverse effect, the conditions section of the determination of no hazard must specify that "the structure is lighted and monitored in accordance with (the appropriate chapters) of FAA Advisory Circular 70/7460-1, Obstruction Marking and Lighting." Also, provide the sponsors with a copy of the advisory circular or advise them that the circular is available free of charge from the Department of Transportation, Subsequent Distribution Unit, M-494.3, 400 7th Street, SW., Washington, D.C. 20590.

2423. AIRPORT AREAS

The following requires consideration in determining the effect of proposed or existing objects on VFR operations in airport airspace areas:

a. **Traffic Pattern Airspace.** There are many variables that influence the establishment of airport arrival and departure traffic flows. While there are no hard-and-fast rules that can be applied, the airport category and types of aircraft using the airport normally determine specific airport traffic pattern airspace requirements. (See paragraph 3013.) Any obstruction in the traffic pattern area is a potential hazard to air navigation if it would tend to distract a pilot's attention during a critical phase of flight. The effect of proposed or existing objects depends upon the altitudes established for the types of aircraft operating in the traffic patterns. The recommended traffic pattern altitude is 1,000 feet above the ground; however, turbine-powered airplanes operate at 1,500 feet above the surface at airports with operating control towers. Not all airports can comply with the recommendation; therefore, it will be necessary to determine the traffic pattern altitude established at most airports. A structure that penetrates a plane 300 feet beneath the airport traffic pattern altitude has an adverse effect.

b. **Terminal Transition Routes.** A proposed structure would have, or an existing structure has, an adverse effect upon VFR air navigation if it would:

- (1) Exceed a height of 500 feet above the surface at its site; and
- (2) Be located within 2 statute miles of the centerline of any regularly used VFR transition routes between airports or between an airport and any air navigation aid serving the airport. (See Figure 2-30.)

c. **Approach Surface Slope Ratios.** A proposed object would have, or an existing object has, an adverse effect upon VFR air navigation if it would penetrate the approach surface slope ratio of any runway. The slope ratio for:

- (1) A civil visual approach is 20 to 1.
- (2) Military runway approach surfaces are 50 to 1.
- (3) Helicopter approach surfaces are 8 to 1 for civil and 10 to 1 for military.

d. **Random structures** that exceed basic approach slope ratios should be individually studied and, except when shielded, resisted even though they may not be controlling obstacles. Additionally, steeper approach surfaces are required at some airports because of existing structures. However, any proposed structure that would require a still steeper approach surface at such airports would have an adverse effect and careful study is necessary to determine the effect on airport operations.

2424. HELICOPTERS

The special maneuvering characteristics of helicopters are recognized in FAR 91.79 and 91.105, provided operations are conducted without hazard to persons or property on the ground; and if operating when the visibility is less than 1 mile, be outside controlled airspace at 1,200 feet or less above the surface. Helicopter pilots taking advantage of these exemptions must also operate at a speed that will allow them to see-and-avoid obstructions. Consequently, proposed or existing structures are not considered to be factors in determining adverse effect upon helicopter VFR operations except as follows:

a. En Route. When routes and altitudes are prescribed for helicopters by the Administrator, the helicopter exemptions to Part 91 do not apply. Thus, any structure would have an adverse effect if it penetrates an imaginary surface 300 feet below an established helicopter minimum flight altitude and is located within 250 feet either side of the established route's centerline.

b. Heliport Landing/Takeoff Area. Any structure would have an adverse effect if it would exceed any of the heliport imaginary surfaces. Helicopter approach-departure paths may curve within the length of the approach departure surface; however, the surface remains fixed.

→ 2425. VFR MILITARY TRAINING ROUTES (VR's)

Operations on VR's provide pilots with training for low altitude navigation and tactics (see FAA Order 7610.4, Special Military Operations). Surface structures have their greatest impact on VFR operations when ceiling and visibility conditions are at or near basic VFR minimums. Accordingly, the guidelines for a finding of substantial adverse effect on en route VFR operations are based on consideration for those operations conducted under FAR Part 91 that permits flight clear of clouds with 1 mile flight visibility

outside controlled airspace. In contrast, flight along VR's can be conducted only when weather conditions equal or exceed 3,000 feet ceiling and 5 miles flight visibility. A proposed structure's location on a VR is not a basis for determining it to be a hazard to air navigation; however, in recognition of the military's requirement to conduct low altitude training, disseminate Part 77 notices and aeronautical study information to military representatives. Additionally, attempt to persuade the sponsor to lower or relocate proposed structures that exceed obstruction standards and have been identified by the military as detrimental to their training requirement.

2426. AGRICULTURAL AIRCRAFT OPERATIONS

Rules that apply to agricultural dispensing operations, as prescribed in FAR Part 137, allow deviation from Part 91 altitude restrictions. It is the pilot's responsibility to avoid obstacles because the agricultural operations must be conducted without creating a hazard to persons or property on the surface. Consequently, Part 77 obstruction standards are not a hazard/no hazard determining factor in relation to agricultural aircraft operations.

2427. OPERATIONS UNDER WAIVER/EXEMPTION TO FAR'S

Waivers/exemptions to FAR operating rules include provisions to ensure achievement of a level of safety equivalent to that which would be present for compliance with the regulation waived or exempted. Additionally, waivers/exemptions do not relieve pilots of the responsibility to conduct operations without creating a hazard to persons and property on the surface. Accordingly, a determination of hazard to air navigation shall not be based upon a proposed structure's effect on aeronautical operations conducted under a waiver or exemption to FAR operating rules.

2428-2429. RESERVED.

VFR Routes

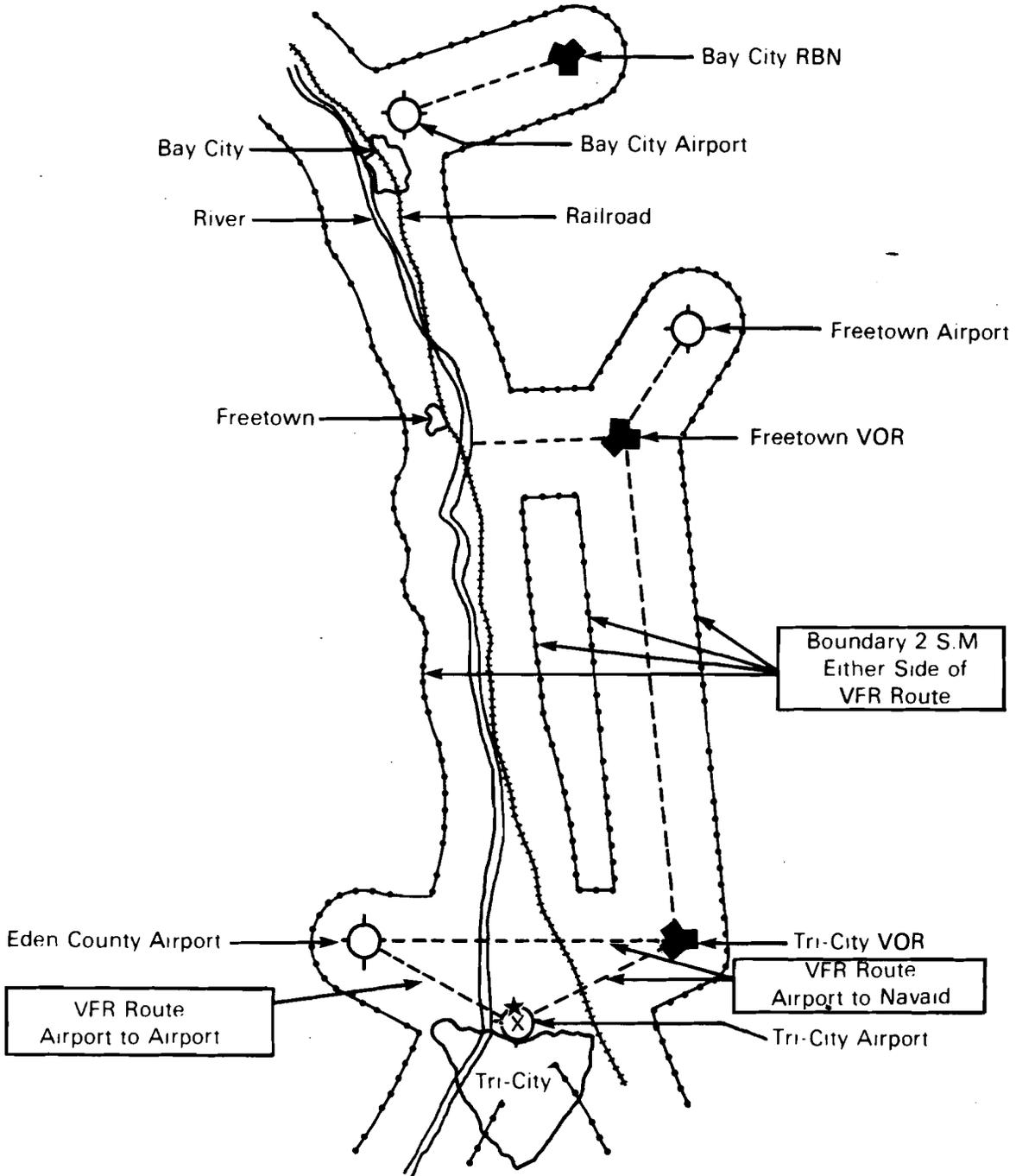


Figure 2-30

Section 3. GUIDELINES FOR EVALUATING EFFECT ON IFR OPERATIONS

2430. PURPOSE

This section provides general guidelines for determining the effect of proposed construction or alteration and existing objects upon IFR aeronautical operations. Proper application should result in determinations based upon well documented, properly analyzed and evaluated aeronautical studies.

2431. OPERATIONAL STANDARDS

Part 77 obstruction standards are not the basis for a determination regarding proposals once an aeronautical study has been initiated. Generally, they are more restrictive than is needed for safe flight operations. The standards used in determining the adverse affect are those established by the FAA to satisfy operational, procedural, and electromagnetic requirements. They are contained in the FAR's, advisory circulars, and other FAA Handbooks; i.e., 8260.3, 8260.19, 7110.65, etc. Obstruction evaluation personnel shall apply these standards in judging the extent of adverse affect to determine if the object being studied would actually have a substantial adverse effect on air navigation.

2432. IFR MINIMUM FLIGHT ALTITUDES

The Aviation Standards National Field Office is the principle FAA staff element responsible for establishing instrument procedures and minimum altitudes for IFR operations. The appropriate regional Flight Standards personnel shall evaluate the effect of proposed or existing structures on IFR aeronautical operations as outlined in FAA Handbook 8260.19. The Air Traffic divisions establish, revise, or delete airways/routes based upon air traffic demand and user requirements. Flight Standards personnel participate in airway/route planning with respect to navigational signal coverage, development of minimum altitudes, and related data.

2433. EN ROUTE IFR OPERATIONS

a. Minimum En Route Altitudes (MEA's). MEA's are established for each segment of an airway or an approved route based upon obstacle clearance, navigational signal reception, and communications. The MEA assures obstruction clearance and acceptable navigational signal coverage over the entire airway or route segment flown. Any proposed structure that will require an MEA to be raised has an adverse effect. Careful analysis by the appropriate Flight Standards and Air Traf-

fic personnel is necessary to determine if there would be a substantial adverse effect on the navigable airspace. Generally, the loss of a cardinal altitude is considered to be a substantial adverse effect. However, the effect may not be substantial if the aeronautical study discloses that the affected MEA is not normally flown by aircraft, not used for air traffic control purposes, and there are no FAA plans to increase the use of the affected MEA.

b. Minimum Obstruction Clearance Altitude (MOCA). The MOCA assures obstacle clearance over the entire route segment to which it applies and assures navigational signal coverage within 25 statute miles of the associated VOR navigational facility. For that portion of the route segment beyond 25 statute miles from the VOR where the MOCA is lower than the MEA and there are no plans to reduce the MEA down to the MOCA, a structure that affects only the MOCA would not be considered to have substantial adverse effect. Other situations require study as ATC may assign altitudes down to the MOCA under certain conditions.

c. IFR Military Training Routes (IR's). Operations on IR's provide pilots with training for low altitude navigation and tactics (see FAA Order 7610.4, Special Military Operations). Flight along these routes can be conducted below the minimum IFR altitudes specified in FAR Part 91, and the military conducts operational flight evaluations of each route to ensure compatibility with their obstruction clearance requirements. A proposed structure's location on an IR is not a basis for determining it to be a hazard to air navigation; however, in recognition of the military's requirement to conduct low altitude training, disseminate Part 77 notices and aeronautical study information to military representatives. Additionally, attempt to persuade the sponsor to lower or relocate proposed structures that exceed obstruction standards and have been identified by the military as detrimental to their training requirement.

d. Minimum IFR Altitudes (MIA's). These altitudes are established in accordance with Order 7210.37 to provide the controller with minimum IFR altitude information for off-airway operations. MIA's provide the minimum obstacle clearance prescribed by FAR 91.119 and are established without respect to flight-checked radar or normal radar coverage. MIA's are developed by en route facilities, approved by the associated Flight Inspection Field Office (FIFO), and published for control-

lers on MIA Sector Charts. Any proposed structure that would cause an increase in an MIA is an obstruction, and a study is required to determine the extent of adverse effect. Radar coverage adequate to vector around such a structure is not, of itself, sufficient to mitigate a finding of substantial adverse effect that would otherwise be the basis for a determination of hazard to air navigation.

e. Radar Bomb Sites (RBS's). These sites are a vital link in the low level training network used by the Strategic Air Command to evaluate bomber crew proficiency. They provide an accurate radar record for aircraft flying at low altitudes as they attack simulated targets along the RBS scoring line. An obstruction located within the boundaries may have a substantial adverse effect and a serious operational impact on military training capability.

2434. TERMINAL AREA IFR OPERATIONS

The obstruction standards in Part 77 are specific with assigned values for identifying obstructions within terminal obstacle clearance areas. Any structure identified as an obstruction is considered to have an adverse effect; however, there is no clear-cut formula to determine at what stage the extent of adverse effect is considered substantial. Instrument approach/departure procedures are established in accordance with published obstacle clearance guidelines and criteria. Yet, there are segments of instrument approach procedures where the minimum altitudes may be revised without substantially effecting or causing landing minimums to be raised. Thus, the determination must represent a decision based on the best factual information that can be obtained during the aeronautical study.

a. Standard Instrument Approach Procedures (SIAP's). Appropriate Flight Standards personnel are responsible for evaluating the effect of proposed or existing structures upon any segment of a SIAP, any proposed SIAP or any departure restriction. However, all FAA personnel involved in the obstruction evaluation process should be familiar with all aspects of the terminal area IFR operations being considered. If Flight Standards personnel determine that a structure will affect instrument flight procedures, their evaluation should include those procedural adjustments that can be made without adversely affecting IFR operations at the airport/s. When the study discloses that the procedural adjustments to reduce or eliminate any adverse effect cannot be accomplished, then the comments to Air Traffic shall include a statement to the significance of this effect

on the procedures and aircraft operations. Personnel are reminded that airport layout and configuration are also factors regarding the establishment of SIAP's and in evaluating the effect of obstructions on proposed or existing SIAP's. The airport landing surfaces must be adequate to accommodate the type of aircraft expected to use the procedures, and the airport must have been found acceptable for IFR operations as a result of an airport airspace analysis by the FAA.

b. Minimum Vectoring Altitudes (MVA's). These altitudes are based upon obstruction clearance requirements (see Order 8260.19) only. The area considered for obstacle clearance is the normal operational use of the radar without regard to the flight-checked radar coverage. It is the responsibility of individual controllers to determine that a target return is adequate for radar control purposes. MVA's are developed by terminal facilities, approved by the associated FIFO, and published for controllers on MVA Sector Charts. Any proposed structure that would cause an increase in an MVA is an obstruction and a study is required to determine the extent of adverse effect. Radar coverage adequate to vector around such a structure is not, of itself, sufficient to mitigate a finding of substantial adverse effect that would otherwise be the basis for a determination of hazard to air navigation.

c. Military Airports. With the exception of the U.S. Army, the appropriate military command establishes and approves terminal instrument procedures for airports under their respective jurisdictions. Consequently, the Air Traffic Office responsible for the issuance of a determination shall ensure that the military are provided the opportunity to evaluate a proposed structure that may affect their operations. While the military has the responsibility for determining the effect of a proposal, it is expected that Flight Standards will assist Air Traffic in reconciling differences in the military's findings.

d. Departure Procedures. Criteria exists in Chapter 12 of TERPS for the development of IFR departure procedures. Generally, any obstacle that penetrates the 40:1 obstacle identification surface should be evaluated on a case-by-case basis to determine the need for a departure restriction.

e. Minimum Safe Altitudes (MSA's). An MSA is the minimum obstacle clearance altitude for emergency use within a specified distance from the navigation facility upon which a procedure is predicated. These are either Minimum Sector Altitudes established for all procedures within a 25 mile (may be increased to 30 miles under certain

conditions) radius of the navigational facility or Emergency Safe Altitude established within a 100 mile radius of the navigation facility and normally used only in military procedures at the option of the approving authority. These altitudes are designed for emergency use only and are not routinely used by pilots or by air traffic control. Consequently, they are not considered a factor in determining the extent of adverse effect or used as the basis of a determination and should not be identified in the notice of intent to conduct an aeronautical study.

2435. AIR NAVIGATION AND COMMUNICATION AIDS

a. The FAA is authorized to establish, operate, and maintain air navigation and communications facilities and to protect such facilities from interference. During evaluation of proposed structures, factors that may adversely affect any portion or component of the National Airspace System (NAS) must be considered. Since an electromagnetic interference potential may create adverse effects as serious as those caused by a physical penetration of the airspace by a structure, those effects shall be identified and stated. Determinations regarding the potential harmful effect on navigation and communication systems should be issued under Part 77 when the proposed structure exceeds the obstruction standards, or under the FA Act (see paragraph 1001) when the proposed structure does not exceed the Part 77 obstruction standards. Proposals evaluated under the Act will be handled, when appropriate, directly with FCC through the FAA Headquarters Spectrum Engineering Division, AES-500.

b. Airway Facilities personnel shall evaluate proposals to determine if the proposed construction or alteration will affect the performance of existing or proposed NAS facilities. The study must also include any plans for future facilities, proposed airports, or improvements to existing airports.

c. The physical presence of a structure and/or the electromagnetic signals emanating or reflecting therefrom may have a substantial adverse effect on the availability or quality of navigational and communications signals or on air traffic services needed for the safe operation of aircraft. The following general guidelines are provided to assist in determining the anticipated interference.

(1) ILS. General structures supporting electromagnetic radiators (antennas) are potential sources of electromagnetic interference which may effect the operation of aircraft using the ILS facili-

ty. The structure height, the antenna radiation pattern, the operating frequency, the effective radiated power (ERP), and its proximity to the runway centerline are all factors contributing to the possibility of interference. Normally, any structure supporting an electromagnetic radiator within the established localizer and/or glide slope service volume must be studied carefully. However, extremes in structure height, ERP, frequency, and/or antenna radiation pattern may require careful study of proposals up to 30 nautical miles from the ILS.

(a) ILS Localizer. Large mass objects adjacent to the localizer course and/or antenna array are potential sources of reflections and/or reradiation which may affect facility operation. The shape and intensity of such reflections and/or reradiation depends upon the size of the reflecting surface and distance from the localizer antenna. The angle of incidence reflection in the azimuthal plane generally follows the rules of basis optical reflection. Normally, in order to affect the course structure, the reflections must come from objects which lie in parallel, or near parallel to the on-course signal. Large mass objects of any type, including metallic fences or powerlines, within plus/minus 15 SYM of extended centerline up to 1 NM from the approach end of the runway and any obstruction within 500 feet of the localizer antenna array must be studied carefully. (Refer to FAA Order 6750.16.)

(b) ILS Glide Slope. Vertical surfaces approximately parallel to and within 1,000 feet of the runway centerline and located up to 3,000 feet forward of the glide slope antenna can cause harmful reflections. Most interference to the glide slope is caused by discontinuities in the ground surface, described approximately as a rectangular area 1,000 feet wide by 5,000 feet long, extending forward from the glide slope antenna and centered at about the runway centerline. Discontinuities are usually in the form of rough terrain or buildings. (Refer to FAA Order 6750.16.)

(2) MLS. The guidelines stated for ILS systems above also apply to MLS installations. The established MLS service volume defines the area of concern.

(3) VOR/TACAN. Usually, there should be no reflecting objects or heavy vegetation (trees, brush, etc.) within a 1,000 foot radius of the VOR or the TACAN antenna. Interference may occur from large structures or powerlines up to 2 NM from the antenna. (Refer to FAA Order 6700.11.)

(4) ARSR/ASR. Normally, there should be no reflecting objects within a 1,500 foot radius of the radar antenna. In addition, large reflective struc-

tures up to 3 nautical miles from the antenna can cause interference unless they are in the "shadow" of topographic features.

(5) ATC Radar Beacon. The effects encountered due to reflections of the secondary radar main lobe are more serious than those associated with primary radar. Therefore, it is necessary to ensure that no large vertical reflecting surface penetrates a 1,500 foot radius horizontal plane located 25 feet below the antenna platform. In addition, interference may occur from large structures up to 12 miles away from the antenna. This distance will depend on the area of the reflecting surface, the reflection coefficient of the surface, and its elevation with respect to the interrogator antenna (refer to FAA Order 6310.6 for potential problems).

(6) VHF/DF. The DF antenna site should be free of objects which will obstruct line-of-sight with aircraft at low altitudes. The vicinity within 300 feet of the antenna should be free of metallic objects which can act as reradiators.

(7) Communication Facilities. The minimum desirable distances to prevent interference problems between communication facilities and other construction are 1,000 feet from power transmission lines (other than those serving the facility) and other radio or radar facilities; 300 feet from areas of high vehicle activity, such as highways, busy roads, and large parking areas; and 1 NM from commercial broadcasting stations (FM, TV, etc.).

(8) Approach Lighting System. No object, except the localizer antenna, the localizer far field monitor antenna, or the marker antenna, shall protrude above the approach light plane. For approach light plane clearance purposes, all roads, highways, vehicle parking areas, and railroads shall be considered as vertical solid objects. The clearance required above interstate highways is 17 feet; above railroads, 23 feet; and for all other roads, highways, and vehicle parking areas, 15 feet. The clearance for roads and highways shall be measured from the crown of the road; the clearance for railroads shall be measured from the top of the rails. For vehicle parking areas, clearance shall be measured from the average grade in the vicinity of the highest point. Relative to airport service roads substantial adverse effect can be eliminated if all vehicular traffic is controlled or managed by the air traffic control facility. A clear line-of-sight is required to all lights in the system from any point on a surface, one-half degree below the aircraft descent path and extending 250 feet

each side of the runway centerline, up to 1,600 feet in advance of the outermost light in the system.

(9) VASI. No objects or obstructions shall be placed within the clearance zone for the particular site involved or the projected visual glide path. In consideration of siting requirements for the ILS glide slope end field antenna, refer to Order 6750.16.

(10) REIL. No objects or obstructions shall be placed within the established clearance zone.

d. There are factors that modify the evaluation criteria guidelines that require consideration. Some facility signal areas are more susceptible to interference than others. The operational status of some signals may already be marginal because of existing interference from other objects. Also the following characteristics of proposed structures must be considered:

(1) The higher the object in relation to the antenna, the greater is the chance of interfering reflections. Any structure subtending a vertical angle greater than one degree from the facilities is usually cause for concern. Tall structures, such as radio towers and grain elevators, can interfere from distances greater than those listed in the general criteria.

(2) The type of construction material on the reflecting surface of the proposed structure is a factor, with nonmetallic surfaces being less troublesome than metallic or metallic impregnated glass.

(3) Aircraft hangars with large doors can be a special problem because the reflecting surfaces of the hangar varies appreciably with changes in the position of the doors.

(4) Interference is usually caused by mirror reflections from surfaces on the proposed structure. Orientation of the structure therefore plays an important part in the extent of the interference. Reflections of the largest amplitude will come from signals striking a surface perpendicular to the signals. Signals striking a surface at a shallow angle will have a smaller amplitude.

e. Air Traffic personnel shall request Airway Facilities personnel to assist in discussions with construction sponsors to explore alternatives to resolve the prospective adverse effects to facilities. These may involve design revisions, relocations, or reorientations depending on the character of the construction and facility involved.

f. Since there are no provisions for petitioning determinations issued under the FA Act, notify the proponent by letter that the proposed structure may create harmful electromagnetic interfer-

ence before issuing a determination. Include in the letter the formulae and values applied, the specific adverse effects expected, and an offer to meet and informally discuss alternatives. Provide the proponent as well as your office ample time to exhaust all available avenues for positive resolution. The intent of this process is to allow the proponent adequate time to consider the problems and alternatives before a "final" decision is rendered by the issuance of an FAA determination. These guidelines are to be followed in all situations where harmful electromagnetic interference is indicated by our study regardless of whether the determination will be issued under the authority of the FA Act or the provisions of FAR Part 77.

2436. PLANNED OR FUTURE AIRPORT DEVELOPMENT PROGRAMS

The national system of airports consists of those public, civil, and joint-use airport facilities considered necessary to provide airports to adequately meet the anticipated needs of civil aeronautics. Airport Planning and Programming Offices are the most accurate source of up-to-date information on airport development plans. Consequently, Airports personnel are expected to extensively review proposed structures in reference to the safe and orderly development of airport facilities, including what development will realistically be accomplished within a reasonable time. Areas of considerations in accomplishing this responsibility are:

a. Future Development of Existing Airports. A detailed review in this area requires looking at current planned airport projects, national airport plan data, and land-use planning studies in the vicinity of the proposed structure. The results of the study forwarded to the Air Traffic Office shall include appropriate comments regarding the extent of Federal aid and sponsor airport investments, obligations of the airport owner in existing grant-in-aid agreements, and anticipated air activity of the airport and general area. If a proposed structure would adversely impact an airport's efficiency, utility, or capacity, the responsible Airports Office should document this impact in its evaluation. Comments should include recommended new location/s for the proposed structure as appropriate.

b. New Airport Development. When a structure requiring notice under Part 77 and any new airport development are both proposed in the same vicinity, Airports personnel shall study the interrelationship of the structure and the airport. Additionally, supplemental information on the proposed airport site shall be furnished to the Air Traffic Office. If a major problem is anticipated,

Airports personnel shall provide detailed comments and specific recommendations regarding the proposed structure.

2437. TEMPORARY CONSTRUCTION

a. Temporary Construction Equipment. Construction of many structures require utilization of temporary construction equipment of a greater height than the proposed structure. While this is not a consideration in the aeronautical study of the proposal, appropriate action is necessary to ensure that the temporary construction equipment does not present a hazard to air navigation. Therefore, when appropriate, construction sponsors should be advised that the determination does not include temporary construction equipment which may be used during actual construction. (See paragraph 2507.) It is not possible to set forth criteria that is applicable for every situation, but the following action examples may help to minimize potential problems:

(1) If use of the temporary construction equipment is on an airport, it may be necessary to negotiate with airport managers/owners to close a runway, taxiway, relocate a runway threshold, or other similar action.

(2) Negotiate with equipment operators to raise and lower cranes, derricks, or other construction equipment when weather conditions go below predetermined minimums as necessary for air traffic situations or as appropriate for the airport runways in use.

(3) Control the movement of construction vehicle traffic on airports.

(4) Adjust minimum IFR altitudes or instrument procedures as necessary to accommodate the construction equipment if such action will not have serious adverse effects on aeronautical operations.

(5) Request that the temporary construction equipment be appropriately obstruction marked and/or lighted as the situation warrants.

b. Temporary Structures. Notices of proposed construction or alteration received on temporary structures are processed in the same manner as a permanent structure but require special consideration in determining the extent of adverse effect. This is especially true of a structures such as cranes and derricks that may only be at a particular site for a short period of time. As a general policy, it is considered in the public interest to make whatever adjustments are necessary to accommodate the temporary structure of 30 days or less if there are no substantial adverse affect on

aeronautical operations or procedures. However, this policy does not apply if the aeronautical study discloses that existence of the structure would be a hazard to aviation. Reasonable adjustments in

aeronautical requirements or operations and modifications to the temporary structure should be given equal consideration.

2438-2499. RESERVED

Figure 2-31. OE DETERMINATION DATES

DETERMINATION PREFERRED FORM	NO NOTICE REQUIRED 7460-1	DOES NOT EXCEED 7460-1	NO HAZARD 7460-9	HAZARD 7460-10
Issuance Date	April 1	April 1	April 1	April 1
Petition Date	None	None	May 1 } + 30 days	May 1 } + 30 days
Effective Date	Issuance Date	Issuance Date	May 11 (+ 10 days) (Fortieth day after issuance)	May 11 (+ 10 days) (Fortieth day after issuance)
Expiration Date	None	+ 18 mo. From <i>Issuance Date</i> + 6 mo. From <i>Issuance Date</i> See FCC Note	+ 18 mo. From <i>Effective Date</i> + 6 mo. From <i>Effective Date</i> See FCC Note	None

Note: If *FCC Construction Permit* is required, expiration date is 6 months.

FCC Construction Permit required for:

- Commercial Broadcast—TV, Radio
- Common Carrier—Telephone
- CATV—Cable TV

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tors in airport airspace analysis studies should be preserved where necessary in the public interest as part of the overall FAA noise abatement program. Accordingly, the following shall apply:

a. The Air Traffic Office shall identify potential noise problem areas based on existing and/or contemplated traffic patterns and procedures. When a noise problem is anticipated, advise the Airports Office accordingly with recommendations and/or alternatives, such as nonstandard traffic patterns or special departure and arrival procedures, etc.

b. When an airport proposal is circularized, the Air Traffic Office may receive comments concerning potential noise, environmental, or ecological problems. Include a copy of the comments and a statement to this effect in the Air Traffic letter to the Airports Office.

3306. AERONAUTICAL ACTIVITY

The type of aeronautical activity expected to be associated with an airport is an important consideration in the airport analysis process. The following types of activity should be considered:

a. Will the proposed operations be conducted in accordance with visual or instrument flight rules?

b. What is the expected volume of operations?

c. How many and what type aircraft will be based on the proposed airport? You should be aware that a large number of aircraft may be based at a private-use airport that could generate a significant amount of traffic.

d. What is the most critical aircraft the airport will accommodate?

3307. WIND ROSE DATA

a. Visual Flight Rules. Wind conditions affect aircraft in varying degrees. Generally, in landing and takeoff, the smaller aircraft are more affected by wind, particularly crosswind components.

Therefore, when studying a runway proposal, evaluate the consistency between the proposed runway alignment and the wind rose data to determine whether operations can normally be conducted safely.

b. Instrument Flight Rules. When evaluating a proposal to designate a single instrument landing runway at an airport, give major consideration to the consistency between this designation and the low visibility wind rose.

3308. HELICOPTER INGRESS-EGRESS ROUTES

Proposed heliports require onsite evaluation by Flight Standards operations specialists. The evaluation must determine whether specific ingress-egress routes to and from heliports and helipads may be necessary to assure an adequate level of safety with respect to obstructions and/or congested areas. Additionally, consider existing air traffic operations in proximity to a proposed heliport site and the need for specific ingress-egress routes.

3309. DISPLACED/RELOCATED THRESHOLDS

Consideration can be given to displacing or relocating a proposed runway threshold when proposed structures, existing objects, or terrain obstruct the airspace necessary for landing on or taking off from the runway. (See AC 150/5300.4, Appendix 9.)

3310. EXISTING AIRPORTS

Evaluation on the effect of existing airports shall be made in the same manner as for other non-AIP proposals pursuant to the provisions of Section 307(a) and 313 of the Federal Aviation Act of 1958, as amended. Such studies may be conducted on those airports for which there is no record of a previous aeronautical study, or on any airport when deemed necessary or appropriate.

3311-3399. RESERVED

Chapter 12. EVALUATING AERONAUTICAL EFFECT

3300. EXISTING AND PROPOSED OBJECTS

Use the guidelines in Chapter 7 to evaluate the effects of objects on the airport proposal.

3301. AIRPORT TRAFFIC PATTERNS

Traffic patterns shall be established only at those airports where the provisions of Part 91 do not meet aircraft airspace requirements. When the airspace review indicates the need, traffic patterns may be established by special rule in Part 93, or as outlined in this handbook, when necessary to ensure compatibility of aircraft operations with adjacent airports, or for reasons of obstructions, terrain, traffic separation, or noise abatement. Use the guidelines in paragraph 3013 to evaluate whether the traffic pattern associated with an airport proposal would conflict with operations at any other airport. Also, evaluate the traffic pattern effect on instrument approach procedures and the need for establishment of traffic pattern altitudes for aircraft separation.

3302. INSTRUMENT FLIGHT PROCEDURES

a. Existing and proposed structures or objects must be evaluated for their effect on the airport proposal in reference to instrument procedures. This is normally conducted by regional Flight Standards Offices by applying the standards and criteria contained in FAA Handbooks 8260.3 and 8260.19 to ascertain if the airport proposal would adversely affect existing or planned instrument approach procedures. Use the same guidelines to evaluate the compatibility of any existing or proposed instrument approach procedure with the airport proposal.

b. Air Traffic and Flight Standards personnel shall be especially alert to ensure aircraft separation when the traffic pattern associated with an airport proposal would overlap the airspace encompassed by a standard instrument approach procedure (SIAP) for an adjacent airport. When this occurs, take action to establish at least 500 feet vertical separation between the traffic pattern altitude and the altitude associated with the affected portion of the adjacent instrument approach procedure. If heavy jets are involved, ensure at least 1,000 feet vertical separation. These same vertical separation guidelines must be applied when evaluating a proposed SIAP when the airspace required would overlap the traffic pattern airspace at an adjacent airport.

3303. AIR TRAFFIC CONTROL PROCEDURES

The extent that an airport proposal or proposed instrument approach procedure may adversely affect air traffic control (ATC) procedures in the area can possibly cause rejection of the proposal. The traffic pattern airspace associated with an airport proposal may not overlap the traffic pattern of an adjacent airport. However, the proposal must be thoroughly examined to determine if it would adversely affect ATC procedures by requiring a restriction on the air traffic flow, or the proposal may limit the flexibility of entry or exit to or from affected traffic patterns or airport areas. The need for establishment of, or existing noise abatement procedures may amplify such problems. When a proposed instrument approach procedure would be adjacent to the area of an instrument approach procedure to another airport, determine whether simultaneous approaches would have an adverse effect on new SIAP or ATC procedures and on the requirement for instrument approaches to the adjacent airport. Should a proposed instrument approach procedure be located in a radar environment, determine the radar coverage and ATC capability to provide radar air traffic control service.

3304. SAFETY OF PERSONS AND PROPERTY ON THE GROUND

Section 307(c) of the Federal Aviation Act of 1958, as amended, makes it essential that FAA personnel evaluate the effect of a proposal on the safety of persons and property on the ground. Consideration must be given to the proximity of cities and towns, as well as flight patterns over heavily populated areas, schools, homes, hospitals, sports stadiums, outdoor theaters, and shopping centers. The evaluation must also include the effect of changes in flight operations required by the proposal and the need for special air traffic rules. In evaluating the compatibility of proposed airports and the surrounding terrain, consider the type of aircraft anticipated to use the airport, their operational performance capability, the effective runway lengths, and whether a reasonable level of safety of persons and property on the ground can be expected.

3305. NOISE CONSIDERATION

Although Part 157 does not specify that noise factors be considered in airport analysis studies, the Office of Environment and Energy believes that the ability of the FAA to evaluate noise fac-



3244. INFORMAL AIRSPACE MEETINGS

The appropriate Air Traffic Office may convene an informal airspace meeting with interested parties as set forth in Part 1. Such meetings provide the opportunity to gather additional facts relevant to the aeronautical effect of the proposal, provides interested persons an opportunity to discuss aeronautical objections to the proposal, and provides the FAA with the opportunity to negotiate a resolution to objectionable aspects of the proposal.

3245. AIRPORT TRAFFIC PATTERNS

If the appropriate VFR or IFR traffic pattern airspace area requirements overlap or if airspace requirements cannot be developed to accommodate the category and volume of aircraft anticipated at an existing or planned airport, the airport, in all cases, need not be found objectionable from an airspace utilization standpoint. Adjustments to traffic patterns can be made, such as establishing nonstandard traffic patterns, assigning specific traffic pattern altitudes, and/or developing special operational procedures. Should such action be necessary, in all probability, the capacity, operational flexibility, and compatibility of the airports involved will be reduced. The Air Traffic Office is responsible for determining the degree of incompatibility based largely upon the amount of airspace area overlap for a given condition. If the airport proposal would cause a traffic pattern conflict with an adjacent airport which could be eliminated by adjusting the traffic pattern of the airport proposal only (change of pattern direction), the Air Traffic Office will specify the traffic pattern to be used as a condition of the determination. When adjustment to an adjacent traffic pattern is necessary to resolve the conflict and such adjustment can be made without resulting in an undesirable pattern, the Air Traffic Office shall be requested to assist the Airports Office in negotiating with the adjacent airport owner/manager for agreement in writing to the traffic pattern adjustment. If a non-standard traffic pattern adjustment is made at a public-use airport with other than a full-time control tower, then visual indicators are required at the airport in accordance with Advisory Circular Number 150/5340-5, Segmented Circle Airport Marker System. If night operations are conducted or planned at the airport, then floodlighting of the segmented circle is necessary.

→ 3246. FAR, PART 77 REVIEW

Review proposed structures and existing terrain or objects that exceed Part 77 obstruction standards to determine the extent of adverse effect and obstruction marking/lighting requirements. If the review indicates any obstructions that are potential hazards to the airport proposal, then coordinate and attempt resolution with the Airports, Flight Standards, and Airway Facilities Offices prior to forwarding the airspace finding to the Airports office. The airspace use associated with a new airport or airport alteration proposal should normally be considered as objectionable (or disapproved for AIP) if the study discloses a hazardous condition, except when the airport sponsor/owner does affect action that removes the hazardous effect.

→ 3247. DESIGNATION OF INSTRUMENT RUNWAY/ CHANGE IN AIRPORT STATUS VFR TO IFR

The processing required by Air Traffic Offices depends upon the action necessary for establishment of the instrument approach procedure. This can involve the establishment of air navigation aids, nonrule or rulemaking circularization and associated actions, need for communications, weather reporting and capability of providing air traffic control service. In conducting the airspace review, determine the practicability of establishing a reasonable instrument approach procedure and the acceptability of the airport environment for the proposed procedure. Also, evaluate the effect of the proposed procedure on existing or proposed IFR or VFR aeronautical operations at the airport in question and/or adjacent airports. Be particularly alert to previously issued no objection determinations which included a provision for VFR-only operations. Forward the finding to the responsible office. (See paragraph 3014.)

→ 3248. ONSITE EVALUATION

The need for onsite evaluations will be determined by the airspace review results. Onsite evaluations may especially be necessary when the review indicates the presence of unsafe conditions. The Air Traffic Office should assist the Airports and Flight Standards Offices in the onsite evaluation as appropriate for arriving at a finding.

3249-3299. RESERVED.

Section 4. PROCESSING BY AIR TRAFFIC OFFICES

→ 3240. EFFECT ON AIR TRAFFIC OPERATIONS

The Air Traffic Office shall conduct an airspace review to evaluate the effect on the safe and efficient utilization of airspace and the effect that such proposals may have on the movement and control of air traffic, associated resources (personnel, facilities and equipment), and ATC program planning.

a. The depth of the review shall be commensurate with the location, complexity, and timing of the proposed development. The measure of study necessary may vary from the need for no review for the closing of an airport reported for record purposes to the extent of effort required to process and study a proposal for a new major regional airport to serve a high density terminal area.

b. An airspace review shall be conducted for airport projects reported in compliance with Part 157, for Federal agreement airport plans, for military construction projects, and at any other time deemed necessary for assessing the utilization of airspace. Include studies associated with existing airports and with disposal of Federal surplus real property for public airport purposes, as appropriate.

c. Upon completion of the airspace review, forward a consolidated regional airspace finding in letter form to the Airports Office. The airspace finding shall be either an approval or disapproval of the use of the airspace associated with airport layout plans and Federal agreement airport projects, and in the form of no objection without conditions, no objection provided certain conditions are met, or objectionable for other type airport projects. Clearly state in the finding the reasons why the proposed use of associated airspace is disapproved or objectionable. If the finding is conditional, also clearly state the conditions. Care must be exercised when issuing conditional findings. When the conditions are such that a substantial adverse affect would result if not corrected (such as the blocked view to a portion of the movement area from the air traffic control tower), then an objectionable or disapproval finding should be issued. Include a statement in the finding that the FAA will reconsider the proposal after provisions are made to resolve the objectionable conditions.

→ 3241. COORDINATION

The Air Traffic Office shall coordinate airport proposals with other affected air traffic offices and facilities as appropriate.

a. Projects contemplated at airports served by an airport traffic control tower or flight service station

must be coordinated with the facility manager or his representative prior to arriving at a finding. Such coordination may be effected by any appropriate means in reference to the timing or complexity of the project. Suitable documentation of the coordination shall be entered in the case file.

b. Military airport proposals which are not part of the Military Construction (MCP) are normally submitted to Regional Air Traffic Offices through the Regional Military Representatives. Those proposals shall be processed in the same manner as civil proposals except that the Air Traffic Office is responsible for coordinating the proposals with the Airports, Flight Standards, and Airway Facilities Offices. The Air Traffic Office is also responsible for any coordination necessary with the military regarding the proposal and issuance of the regional determination.

c. Request the Airports Office to coordinate and negotiate with the sponsor of all civil airport proposals to resolve any problems. The Airports Office may request the Air Traffic Office to assist in the negotiation if the problem relates to the safe and efficient utilization of the airspace.

3242. CIRCULARIZATION

The Air Traffic Office shall circularize airport proposals as necessary, in accordance with nonrulemaking procedures, for the purpose of obtaining comments from aeronautical interests, municipal, county and state groups, civic groups, military representatives, and FAA facilities and offices if the proposal is within their areas of responsibility. All controversial proposals or those that have a potential adverse effect on the users of the airspace should be circularized. However, do not circularize a proposal without prior coordination with the Airport Office to assure that circularization will not compromise the sponsor's position in land acquisition negotiations.

→ 3243. EVALUATE COMMENTS AND AERONAUTICAL EFFECT

The Air Traffic Office shall examine comments received in response to coordination and evaluate their validity as related to the safe and efficient use of airspace and to the safety of persons or property on the ground. If appropriate, request the Airports, Flight Standards, and Airway Facilities Offices to assist in evaluating the validity of these comments as well as the comments received from other FAA facilities and offices. The guidelines in Chapter 12 will assist in evaluating the aeronautical effect of airport proposals.

Section 3. PROCESSING BY AIRWAY FACILITIES OFFICES

3230. ELECTROMAGNETIC OR LINE-OF-SIGHT INTERFERENCE

The Airway Facilities Office shall study airport proposals to determine if there is a possibility of electromagnetic or line-of-sight interference. Use the guidance in paragraph 2433. to determine the extent, if any, of adverse effect. At locations with an airport traffic control tower, a shadow study is required to determine the possibility that a part of the aircraft operating area would be shielded from view of the control tower. In either case, when a potential problem exists, request the Airports Office, through the Air Traffic Office, to negotiate a resolution with the sponsor. If this is not possible, then proceed with the study and submit findings to the Air Traffic Office.

3231. EVALUATION OF INSTRUMENT RUNWAY DESIGNATION

The designation of an instrument landing runway is normally associated with the planning, qualification, and installation of a precision type landing aid. Conduct a study of a proposal to designate an instrument landing runway to determine the feasibility of siting various components of the instrument landing system. The criteria and guidelines in FAA Order 750.4, Runway Assignment Changes for Category II, ILS/ALS, VASI, REIL and RVR Projects, and Handbook 6750.16, Siting Criteria for Instrument Landing Systems, should be used as appropriate. Forward comments and recommendations to the Air Traffic Office, with copies to the Airports and Flight Standards Offices. Should program approval be

received for the installation of an instrument landing system to serve a runway which has not been designated as an instrument landing runway, send a letter to the Airports Office requesting a study for the runway to be so designated. Include data in the letter concerning the siting of the various components, their heights, and any other comments that may be appropriate.

→ 3232. CHANGE IN AIRPORT STATUS FROM VFR TO IFR

The Airway Facilities Office shall review all proposed airport status changes to ensure that there is no effect on their functional responsibilities. Forward the study results to the Air Traffic Office.

→ 3233. AIRPORT PROPOSALS

Proposals vary in complexity from a single utility runway airport to a major regional jetport. When air navigation aid facilities are a part of the ALP, the Airway Facilities Office shall conduct a study to evaluate the feasibility of siting and installing the proposed facilities as well as to evaluate the effect of the proposal on existing navigational aids. Conduct a shadow study to ensure that existing or proposed structures, or natural objects, do not derogate airport traffic control tower line-of-sight visibility of a runway or taxiway proposed. Forward the study results to the Air Traffic Office.

3234-3239. RESERVED.

Section 2. PROCESSING BY FLIGHT STANDARDS OFFICES

3220. EFFECT ON SAFETY OF FLIGHT

The appropriate Flight Standards Office shall perform a flight safety review of airport proposals to determine whether aircraft operations can be conducted safely. Upon completion of the review, the appropriate Regional Flight Standards Office shall forward a consolidated service position, in letter form, to the Air Traffic Office. The Flight Standards position should state whether safe operations can/cannot be conducted and state the conditions under which safe operations can be achieved.

3221. EFFECT ON SAFETY OF PERSONS AND PROPERTY ON THE GROUND

Order 1000.1, Policy Statement of the FAA, states that the agency will pursue a regulatory policy which recognizes the primary right of the individual to accept personal risk but balances this right against society's interest in the safety of the individual, and limits the individual's right to incur risk when the exercise of that right creates a risk for others. Therefore, airport aeronautical studies must include consideration for such things as the proximity to cities or towns, and the runway alignment with reference to heavily populated areas, schools, hospitals, sports stadiums, and shopping centers.

3222. CHANGE OF AIRPORT STATUS FROM VFR TO IFR

a. Establishment of Instrument Procedures. Requests for instrument approach procedures may originate from a state, a city, an airport tower or manager, or an individual. They may also come from an air carrier, air taxi, or commercial operator or from an Air Traffic or Flight Standards Office. Requests must be forwarded to the appropriate Flight Standards Offices for processing. These proposals are processed in the same way as airport proposals under Part 157, except that the Flight Standards Office must effect coordination with the appropriate Air Traffic, Airports, and Airway Facilities Offices, as well as other offices of interest. The request for instrument approach procedures should normally be disapproved if the change in airport status study indicates a safety problem. Also, disapprove the request if a previous airport study determination was objectionable and remains uncorrected or if the determination listed provisions that have not been complied with by the airport owner or sponsor.

b. Establishment of Air Navigational Aid. When an airport status is to be changed from VFR to IFR, the public is notified by means of the nonrulemaking circular associated with the establishment of the

navigational aid being installed to support the procedure.

c. Existing Navigational Aid. If the flight procedure is to be based upon an existing navigational aid, notice to the public may be accomplished in the notice of proposed rulemaking associated with changes to controlled airspace. If no change in airspace is required, it is recommended that nonrulemaking circularization be accomplished.

d. Circularization associated with this paragraph shall be accomplished by the responsible Air Traffic Office.

3223. EVALUATION OF INSTRUMENT RUNWAY DESIGNATIONS

The appropriate Flight Standards Office shall carefully evaluate the runway or runways to be used in the proposed instrument procedure. Consideration should be given to items such as IFR wind rose data, runway dimensions and weight bearing capacity, expected users, conflicts with IFR traffic, location of existing and proposed NAVAID's, availability of weather information, and probable minimums.

3224. ONSITE EVALUATIONS

a. Heliports. All proposals for the establishment of heliports must be given an onsite operational evaluation by operations specialists or inspectors, preferably those who are qualified on helicopters. Proposed heliports to be located in congested areas, or any roof-top heliport, should be evaluated by helicopter-qualified operations inspectors. Included in the process is the development of recommendations for assignment of ingress and egress routes, where necessary.

b. Non-Federal Agreement Airport Proposal. The Flight Standards Office performing a flight safety review will use information submitted with the FAA Form 7480-1 plus any other information as may be available, such as charts, aerial photographs, etc. A flight check or an onsite inspection may be advantageous if the proposal is controversial or more information is needed.

c. Federal Agreement Airport Proposal. The Flight Standards Regional Office shall review the proposal from the standpoint of safety of flight operations. An onsite survey should be accomplished, accompanied by a flight check of the areas beneath any proposed airport traffic area and proposed instrument procedure area. Should obstructions and/or terrain be identified which provide a significant safety problem, advise the Air Traffic Office of the safety problem.

3225-3229. RESERVED

d. Disposal of Federal Surplus Property. Process proposals by public agencies to acquire property interest in land owned and controlled by the United States for public airport purposes as set forth in subparagraph c. above.

3203. NEGOTIATION WITH SPONSOR

During the course of a study, the Airports Office may find it necessary to negotiate with the sponsor to change a proposal. This may be due to a safety problem, efficient use of the airport, etc. Upon coordination by and agreement with the Air Traffic, Flight Standards, and Airway Facilities Offices, negotiate with the sponsor for changes to the proposal as necessary. Advise interested FAA offices of the results of the negotiation.

a. Part 157. When an airport proposal poses a problem with respect to the safe and efficient use of airspace by aircraft or with respect to the safety of persons and property on the ground, negotiate with the sponsor to revise the proposal, if feasible, so as to resolve the problem. Should a case involve a proposal for a new airport which would create problems not

resolved by revisions to the proposal, negotiate with the sponsor for a relocation of the proposal to a new site to resolve the problem.

b. Federal Agreement Airports/Disposal of Federal Surplus Property. Where problems are encountered with Federal agreement airports proposals or those associated with the disposal of Federal surplus property for airport purposes, coordinate with and negotiate with the sponsors to resolve the problems.

→ 3204. ISSUE DETERMINATION

The Airports Office shall develop and issue the official FAA determination by letter to the airport sponsor in accordance with the guidelines in Chapter 13 upon completion of the study. However, notification to ADAP sponsors of the determination may be delayed by the Airports Office until official notification that Federal funds are approved.

3205-3219. RESERVED.

layout plans is contained in Advisory Circular No. 150/5070-6, Airport Master Plans.

a. Non-Federal Agreement Airports. Airports personnel should encourage the development and submission of airport layout plans with Part 157 airport proposals. Such information will assist in developing a determination with reference to the safe and efficient use of airspace.

b. Federal Agreement Airports. Airport projects involving grant-in-aid requests require review based on considerations relating to the safe and efficient utilization of airspace, factors affecting the control of air traffic, conformance with FAA design criteria, and Federal grant agreements. The product of this review is derived from analysis of information supplied in the airport layout plan or portions thereof. Either a formal or tentative determination may be given depending on the complexity of the proposal or the timing of the request. The review and subsequent determination shall be made as expeditiously as possible to facilitate processing of the project request. However, a project shall not be placed under grant until a favorable determination is made and the airport layout plan approved.

c. Extent of Review. At locations having control tower service, a review is normally required for all projects involving new construction or relocation of runways, taxiways, ramp areas, holding or run-up apron projects, airport and runway lighting and marking, fire and rescue building locations, and other eligible category of project affecting, or potentially affecting, the movement of aircraft. In addition, projects involving marking, lighting or removal of obstructions must also be reviewed. At noncontrol tower locations, review is required only on projects involving new construction or relocation of runways, taxiways, ramp areas, and holding or run-up aprons. At control tower and noncontrol tower locations, projects which conform to a previously approved non-objectionable airport layout plan for the construction or resurfacing of existing airport paving, site preparation work, or paving to overlie existing unpaved landing strips may be omitted from the review process. The omission from review does not include temporary equipment used to construct the project.

3202. FAA COORDINATION

Upon receipt of a Part 157 proposal or a change to an ALP, the appropriate Airports Office shall assign an aeronautical study number, insure that the proposal is complete and correct, review the proposal from an airports planning viewpoint, and the effect on airport programs, and forward a letter with com-

ments to the Air Traffic, Flight Standards, and Airway Facilities Offices for further processing. The letter shall include a statement whether or not circularization of the proposal will compromise the sponsors position in land acquisition. Additional internal coordination shall be accomplished, as appropriate, by the responsible division offices.

a. Part 157. Include a copy of the FAA Form 7480-1 and comments on the effect of existing or proposed man-made objects (on file with the FAA), plus the effect of natural growth and terrain. Direct particular attention to and comment on objects that would exceed the obstruction standards of Part 77, as they relate to the proposal. Also, comment in the letter if the review indicated a potential noise problem and, if applicable, on the effect of the proposal on the safety of persons and property on the ground. Also, enclose, as appropriate, sketches and other data required for the aeronautical study and determination. Include a plot of the proposed runway alignments, associated taxiways or sealane alignments, and any obstructions on a U.S. Geological Survey quadrangle map or equivalent.

b. Airport Layout Plans. Forward a copy of the ALP and include, when appropriate, an analysis of and rationale for the plan, plus various stages of construction, if applicable. Include information on the location of structures which may adversely affect the flight or movement of aircraft, may cause electromagnetic interference to air navigation aids, or may derogate the line-of-sight visibility from a control tower. Should review of the plan reveal a potential noise problem, comment to this effect. Comment, as applicable, on the proximity of urban congestion and any potential problem related to the safety of persons and property on the ground. If the layout plan is a revision of one previously approved, summarize the changes for which an airspace determination is required. Also, include in the letter any Airport's comments that may be appropriate.

c. Federal Agreement Airport Proposals. Transmit by letter a description of the work to be done in the proposed project. If the project is in conformance with an approved airport layout plan, comment to this effect. If the project is at variance with the ALP, comment accordingly and forward a proposed revision to the ALP or an appropriate programming sketch which depicts the location and nature of the work proposed. Also, in the latter event, or if it is a new proposal, forward information on the appropriate items set forth in subparagraph **b.** above.

Chapter 11. PROCESSING AIRPORT STUDIES

Section 1. PROCESSING BY AIRPORTS OFFICES

3200. PART 157 PROPOSALS

Airport proposals received by any FAA office shall be forwarded to the appropriate Airports Office for initial processing and study.

NOTE.—Notification under Part 157 is not required for Federal aid projects.

a. General. The Airports Office, after receipt of a proposal, will check the information submitted for correctness, clarity, completeness, and proper detail. The proponent may need to be contacted if insufficient information is submitted or if significant errors were made in the submission. The Airports Office shall maintain a record by list, map, or other convenient method so that the status of new proposals may be easily correlated with existing airports, airports under construction, or other airport proposals.

b. New Airport Proposals. Initial processing review concerning the proposed construction of new airports shall include but is not limited to the following:

(1) Conformance of the proposal with agency design criteria;

(2) Anticipated operational use of the airport, including the number and type of aeronautical operations and the number of based aircraft;

(3) Whether the airport is for personal, private, or public use;

(4) Runway and taxiway layout in relation to wind rose data and existing or proposed obstructions;

(5) Known or anticipated controversial aspects of the proposal;

(6) Potential noise aspects; and

(7) Possible conflict with airport/improvement development or other agency plans.

c. Alteration of Existing Airports. The nature and magnitude of an existing airport alteration will determine the extent of processing necessary and analysis required. Alteration, such as new runway construction, runway realignment projects, runway extension, runway upgrading, change in status, such as VFR to IFR use, and widening of runways or taxi-

way/ramp areas normally require the same type of processing and study as that required for new airport construction proposals.

d. Deactivation and Abandonment of Airports.

(1) Part 157 airport owners/sponsors are required to notify the FAA concerning the deactivation, discontinued use, or abandonment of an airport, runway, landing strip, or associated taxiway. On partial or specific runway deactivation proposals, a description with a sketch or layout plan and the anticipated operational changes should be forwarded together with any other pertinent information needed to update agency records.

(2) Abandoned or unreported airports. When an airport is believed to be abandoned or unreported and appropriate notification has not been received, the Airports Office, after making a reasonable effort to obtain such notification, shall advise the Air Traffic Office by letter. The letter should contain a statement that the airport is considered either abandoned or unreported. Forward a copy to the airport owner or sponsor, to the National Flight Data Center, ATO-250, and to AAS-330.

e. Other Airport Notices. Occasionally, an airport owner/sponsor will make alterations or changes to the airport without filing notice in accordance with Part 157. Generally, this information will be obtained through the airport safety data program (Form 5010) and after-the-fact. From a legal standpoint, this constitutes notice to the FAA and appropriate action is necessary. The Airports Office shall initiate a study of such information received in the same manner as if the notice had been received under Part 157 requirements.

3201. AIRPORT LAYOUT PLANS.

Airport layout plans (ALP) generally show the location, character, dimensions, details of the airport, and the work to be done. The extent of information needed for any specific airport development will vary depending on the scope and character of the project, plus the anticipated role and category of the airport. Detailed information on the development of airport

INSTRUCTIONS

NOTICE OF LANDING AREA PROPOSAL

(Use Back of This Sheet as Worksheet)

**As Used Herein, The Term "Airport" Means
Any Landing Area such as Airport, Heliport, Seaplane Base, Ultralight Flightpark, or Balloonport.**

Federal Aviation Regulations Part 157 requires that each person who intends to do any of the following shall notify the Administrator:

1. Construct or otherwise establish a new airport or activate an airport.
2. Construct, realign, alter or activate any runway, landing strip or associated taxiway.
3. Deactivate, discontinue using or abandon an airport, runway, landing strip or associated taxiway for a period of one year or more.
4. Change the status of an airport from personal use (exclusive use by the owner), or private use (use by the owner or other persons authorized by the owner) to an airport open to the public.

The notice required shall be made by submitting this form in triplicate to the nearest Federal Aviation Administration's Airports District Office or Regional Office.

Section 901 of the Federal Aviation Act of 1958, as amended, provides that any person who violates a rule, regulation or order issued under Title III of this Act shall be subject to a civil penalty not to exceed \$1,000 for each violation.

General Instructions

1. For any project falling in categories 1, 2 or 4 above, complete all appropriate sections. If the project is, or will be, associated with a personal or private-use airport located more than 5 nautical miles from any airport open to the public and more than 20NM from an IFR airport (an airport for which an instrument approach procedure has been authorized) only sections A, B, D, F and I need be filled out.
2. For deactivation or abandonment (category 3 above), complete sections A and I only.
3. Express all bearings as magnetic and mileages as nautical.
4. **Please Print or Type All Items and Be Sure All Copies are Legible.**

Section A—Self-explanatory.

Section B—If the type of use is to be by the owner only, check "personal." If also used by persons authorized by the owner, check "private." If the airport is open to the public, check "public." If the airport is owned by a state or state agency; a municipality or other political subdivision; or a tax supported organization, check "public" ownership. Otherwise indicate that

the type of ownership is "private." If necessary, use a separate sheet of paper to describe changes or alterations.

Section C—Airport or seaplane base: List VFR airports and heliports within 5NM, and IFR airports within 20NM. Heliports: List VFR airports and heliports within 3NM and IFR airports within 10NM.

Section D—Attach U.S. Geological Survey quadrangle map or equivalent. Plot locations of facility to the nearest second, runway alignments, associated taxiways or sealane alignments. When appropriate, use city map for heliports.

Section E—List and plot on quadrangle map or equivalent any obstructions. Airport or seaplane base: Within 3NM radius for VFR airports and with 5NM for IFR airports. Heliports: Within 5,000 feet of the perimeter of the heliport landing and takeoff area.

Section F—Self-explanatory.

Section G—List schools, churches and residential communities within a 2NM radius for airports and within a 1NM for heliports.

Section H—Self-explanatory.

NOTE: Additional copies of FAA Form 7480-1 may be obtained from the nearest FAA Airports District Office or Regional Office.

Notification to the FAA does not waive the requirements of any other government agency.

ADDRESSES OF THE REGIONAL OFFICES

Alaskan Region AK	Central Region NE, IA, MO, KS	Western-Pacific Region HI, CA, NV, AZ, GU	Southern Region KY, TN, NC, SC, GA, AL, MS, FL, VI, PR
Alaskan Regional Office Airports Division AAL-600 701 "C" Street Anchorage, AK 99513 Mail Address: 701 "C" Street, Box 14 Anchorage, AK 99513 Tele. 907-271-5438	Central Regional Office Airports Division ACE-600 601 East 12th Street Kansas City, MO 64106 Tel. 816-374-5278	Western-Pacific Regional Office Airports Division AWP-600 15000 Aviation Boulevard Hawthorne, CA 90260 Mail Address: AWP-600 P.O. Box 92007 Worldway Postal Center Los Angeles, CA 90009 Tel. 213-536-6182	Southern Regional Office Airports Division ASO-600 3400 Norman Berry Drive East Point, GA 30344 Mail Address: P.O. Box 20636 Atlanta, GA 30320 Tel. 404-763-7288
Northwest Mountain Region WA, OR, MT, ID, WY, UT, CO	Eastern Region NY, PA, WV, VA, DC, MD, DE, NJ	Southwest Region NM, TX, OK, AR, LA	
Northwest Mountain Regional Office Airports Division ANM-600 17900 Pacific Hwy. South C-68966 Seattle, WA 98168 Tel. 206-431-2600	Eastern Regional Office Airports Division AEA-600 JFK International Airport Federal Building Jamaica, NY 11430 Tel. 212-917-1239	Southwest Regional Office Airports Division ASW-600 4400 Blue Mound Road Fort Worth, TX 76101 Mail Address: P.O. Box 1689 Fort Worth, TX 76101 Tel. 817-877-2600	
Great Lakes Region ND, WI, MI, SD, IL, OH, MN, IN	New England Region MA, NH, VT, RI, CT, ME		
Great Lakes Regional Office Airports Division AGL-600 2300 East Devon Avenue Des Plaines, IL 60018 Tel. 312-694-7458	New England Regional Office Airports Division ANE-600 12 New England Executive Park Burlington, MA 01803 Tel. 617-273-1235		

FAA Form 7480-1 (4-83) SUPERSEDES PREVIOUS EDITION

Figure 3-1

Airports Division and will be treated in the same manner as a revision to the ALP. Regardless of where the coordination begins, Air Traffic, Airway Facilities, Airports, and Flight Standards must have an opportunity to review and comment on the proposal. No division shall require dual reporting of such a proposal. The responsible coordinating division shall correspond directly with the proponent and formulate the official determination.

3015. AIRSPACE FEASIBILITY STUDY

Feasibility studies or preliminary airport site analyses are encouraged. Normally, preliminary airport site analyses are made on all Federal agreement projects involving airport site selections. Analyses of this nature allow the agency to evaluate the proposal and advise the proponent as to its feasibility from a safety and airspace use standpoint, in addition to other related matters, before money is expended for acquisition of real property or for elaborate engineering plans. Guidance for conducting these airport studies is contained in AC 150/5070-6, Airport Master Plans, Chapter 6, Site Selection. The advisory circular sets forth recommended procedures for Federal agreement and non-Federal agreement airport site selections. Airport studies of this nature are coordinated in the same manner as Federal agreement or non-Federal agreement proposals depending upon the category they fall into, except that the proposals are not circularized to the public unless specifically requested by the proponent.

3016. ONSITE EVALUATION

The intent of the FAA is to achieve safe airport operations and to simultaneously fulfill its responsibilities of assuring that unsafe conditions will not exist. Consequently, an onsite evaluation of the proposal normally shall be accomplished prior to issuing a determination at anytime there is an indication of unsafe conditions. Such an evaluation may be especially necessary if the proposal would be located in a congested area or if the study indicates the presence of obstructions that may affect the safe and efficient use of the airspace. An onsite evaluation may also be necessary if information pertaining to the proposal is insufficient for arriving at a determination. Airports, Air Traffic, Flight Standards, and Airway Facilities personnel shall assist in the evaluation as determined necessary by the situation requiring evaluation.

→ 3017. FORMULATION OF OFFICIAL FAA DETERMINATION

The official FAA determination shall be a composite of the airspace review and the comments and findings received from other interested FAA offices. Should there be a disagreement in the airspace findings or between other comments received, the disagreement shall be resolved before formulation of the official FAA determination.

3018-3199. RESERVED.

situations require a thorough review of the procedural potential of the area as well as alternate site considerations. In conducting such studies where a complete radar environment calls for the larger airspace areas and such areas abut each other but do not overlap, there is adequate space for:

(a) Approach and departure on the runway centerline.

(b) Two additional tracks offset from and parallel to the runway centerline. A minimum of 4 miles is provided between adjacent tracks of different areas. (See Figure 3-4.)

(3) Where two smaller areas are adjacent, an additional 1-mile spacing is required on two of the longitudinal sides when the areas are adjacent to each other but do not overlap. (See Figure 3-5.)

(4) If the anticipated traffic volume at an existing or proposed airport dictates the need for additional airspace to provide for more efficient use of the airspace and operational flexibility, this may be achieved in the larger airspace areas where space is available by providing a 5-mile buffer area between the adjacent airports involved. This additional airspace will provide two additional tracks offset from and parallel to the runway centerlines within the airspace areas of the adjacent airports and one additional track for each airport within the 5-mile buffer area. A minimum of 3 miles is provided between each track paralleling the runway centerline and each additional track in the buffer area. A 3-mile no transgression area is also provided between the adjacent airport. (See Figure 3-6.)

(5) If additional airspace is required in the smaller areas for a more efficient and flexible operation, the procedures for determining the additional airspace are identical to those used for the larger areas, except that the smaller airspace should be used in lieu of the larger airspace areas. The 1-mile additional spacing should also be applied as outlined in paragraph (3) above, plus the 5-mile buffer area as outlined in paragraph (4) above. (See Figure 3-7.)

c. IFR Nonradar Airspace. The airspace requirements for instrument approach procedures at airports without a radar environment cover a wide range of procedures and no attempt has been made to describe these requirements in detail. However, should it become necessary to determine the airspace requirements at a nonradar IFR airport, the appropriate primary airspace areas and "aircraft approach categories" discussed in paragraph **3013.a.** should be applied.

d. VFR Airspace. A primary objective of an airport/airspace study is to determine whether compatible traffic patterns can be developed when establishing a new airport or altering a runway layout at an existing airport when in the proximity of other airports. As no precise airspace dimensions can be applied to traffic patterns, the following general guidelines are offered for use in these studies. Normally, optimum VFR traffic pattern airspace compatibility can be expected at an airport if the airspace area guidelines described in this section do not overlap the airspace requirements for another airport. Should the VFR traffic pattern airspace area for an airport overlap that of an adjacent airport, the degree of operational compatibility with adjacent airports can be determined by applying the guidelines in Figure 3-8. Determine the category of aircraft which will normally use the airport and the anticipated traffic volume before applying these guidelines. The aircraft categories are used to determine the airspace area required to accommodate four aircraft of the same category in a given airspace. The traffic volume is used for determining the necessity for traffic pattern extensions. These airspace requirements will adequately accommodate four aircraft of the same category within a given airspace area plus a buffer area. For each additional aircraft over four, the length of the pattern should be increased by one-half the length of the final and the departure dimensions.

3014. DESIGNATION OF INSTRUMENT RUNWAYS/ CHANGES OF AIRPORT STATUS VFR TO IFR

Requests for designation of instrument runways, which relate to installation or qualification for a precision landing aid, and proposals for change in airport status from VFR to IFR usually take one of the following forms:

a. A request to the appropriate Flight Standards Office for an instrument procedure.

b. A request for the installation of a navigational aid (NAVAID).

c. A proposal submitted under Part 157 (Form 7480-1).

d. A change to the Airport Layout Plan (ALP).

Flight Standards shall be responsible for coordination of requests for instrument procedures. Coordination of requests for installation of NAVAID's shall be in accordance with Part 4 of this handbook. Airports shall be responsible for coordination of submittals under Part 157 and changes to approved ALP's. Designation of instrument runways on all Federally obligated airports shall be the responsibility of the

c. Promote safety in the areas affected by the airport by assuring, through proper development, land use most beneficial to the community.

3012. FUNDING RESPONSIBILITIES

Each participating office shall be particularly sensitive to airport projects or airport layout plan changes which would, if accomplished, lead to the relocation, replacement, or modification of air traffic control or air navigation and communications facilities. Such conditions shall be identified in the review process and appropriate recommendations made regarding funding responsibilities as related to current FAA policy on facility relocations occasioned by airport improvements or changes. (See Order 6030.1 and AC 150/5300-7.)

3013. AIRPORT SPACING GUIDELINES AND TRAFFIC PATTERN AIRSPACE AREAS

The following general IFR and VFR airspace requirement guidelines are to be used as an aid in evaluating airport proposals. They may also be used in determining the airspace requirements to accommodate a given operation under a given condition, areas of potential air traffic conflict for aircraft having certain operational and performance characteristics, and the degree of aircraft operational flight compatibility with other airports in a given area. These guidelines are not to be construed as authorization for aircraft operations contrary to any Federal Aviation Regulations, nor are the dimensions to be construed as air traffic separation standards.

a. Aircraft Categories. The factor used to categorize the following aircraft was taken from Handbook 8260.3, United States Standard For Terminal Instrument Procedures (TERP's) and Advisory Circular 90-1, Civil Use of U.S. Government Instrument Approach Procedure Charts. This factor is based on 1.3 times the stall speed with aircraft in landing configuration at maximum authorized gross landing weight.

(1) Category A. Speed less than 91 knots. This category includes civil single-engine aircraft, light twins, and some of the heavier twins.

(2) Category B. Speed 91 knots or greater but less than 121 knots.

(3) Category C. Speed 121 knots or greater but less than 141 knots.

(4) Category D. Speed 141 knots or greater but less than 166 knots.

(5) Category E. Speed 166 knots or greater. This category includes, for the most part, those mili-

tary, experimental, and some civil aircraft having extremely high speeds and critical performance characteristics.

NOTE.—For more examples review Appendix 11 of AC 150/5300-4.

b. IFR Radar Airspace.

(1) Air traffic control airspace requirements for a given runway or airport are generally dictated by the approach category of the aircraft that will use the airport and the direction of the instrument approaches and departures. Based on these factors, the following rectangular airspace areas were developed as a general guide for the planning or siting of new airports and the designation of instrument runways when IFR radar control procedures are contemplated or programmed for a single airport operation or under certain conditions multiple airport operations. No provisions are made for holding or for procedure turns within the airspace areas.

(a) Airports which are regularly used by Category C aircraft or larger, 10 miles in the departure direction, 15 miles in the direction from which approaches will be made, and 5 miles either side of the extended runway centerline.

(b) Airports which are regularly used by Category B and smaller aircraft, 5 miles in the departure direction, 10 miles in the direction from which approaches will be made, and 4 miles either side of the extended runway centerline.

(c) In metropolitan areas requiring more than one airport, the primary instrument runways for all airports should be aligned in the same general direction to allow maximum spacing between airspace areas.

(d) At airports having parallel approaches, the rectangular airspace areas should be applied to each runway. Should the instrument runways at an airport have bidirectional instrument approach capabilities, the total length of the larger airspace areas should be increased to 30 miles for Category C and D aircraft, and to 20 miles for Category A and B aircraft in the smaller airspace areas.

(2) These airspace dimensions will not, nor are they intended to, contain sufficient airspace to provide for completely independent IFR operations, although normally, these areas will provide for reasonable operational efficiency if the traffic pattern airspace areas of adjacent airports do not overlap. However, in large metropolitan areas where there is an extremely heavy mix of en route and terminal traffic, reasonable operational efficiency may not result even though the airspace areas do not overlap. Such

3007. LOCAL OFFICE NOTIFICATION

Each of the above offices shall be responsible for keeping their respective local field offices and facilities advised of proposed and completed airport proposals as appropriate.

3008. STUDY NUMBER ASSIGNMENT

The appropriate Airports Office is responsible to assign an NRA aeronautical study number to each airport case in accordance with paragraph 1051.

3009. PROPOSALS SUBJECT TO AERONAUTICAL STUDY

To the extent required, conduct an aeronautical study of the following types of airport proposals:

- a. Airport proposals submitted pursuant to the provisions of Part 157.
- b. Airport Improvement Program requests for aid.
- c. Notices of existing airports where prior notice of the airport construction or alteration was not provided as required by Part 157.
- d. Disposal of Federal surplus real property for public airport purposes.
- e. Airport layout plans, including consideration of the effect of structures which may restrict control tower line-of-sight capability and effects upon electronic and visual aids to air navigation.
- f. Military proposals for military airports used only by the armed forces.
- g. Proposals on joint-use (civil-military) airports.
- h. Proposed designation of precision instrument landing runways.
- i. Airport site selection feasibility studies.
- j. Any other airport case when deemed necessary to assess the safe and efficient use of the navigable airspace by aircraft and/or the safety of persons and property on the ground.

3010. AIRPORT PROGRAMS

a. Part 157. Pursuant to appropriate sections of the Federal Aviation Act of 1958, as amended, Part 157 was adopted to require notice to the Administrator by persons proposing to construct, alter, activate, or deactivate a civil or joint-use (civil/military) airport for which Federal funds have not been requested. Such notice is required so that a study can be made and the proponent can be advised as to the proposal's effect on the use of the navigable airspace by aircraft (see Figures 3-1 through 3-3).

b. Airport Improvement Program (AIP). Federal Aviation Regulations, Part 152, initially was promulgated under the authority of the Airport and Airway Development Act of 1970 to prescribe the policies and procedures for administering the Airport Development Aid Program (ADAP). Airport projects eligible for Federal aid must be submitted in accordance with the current provisions of Part 152. AIP projects, including airport layout plans, are processed similar to non-AIP projects, except that the airport study results in either an agency approval or disapproval of the project.

c. Federal Aid Airport Program (FAAP) and Airport Development Aid Program (ADAP). Federal Aviation Regulations, Part 151, projects are processed in the same manner as Part 152 proposals. Applicable regulations will remain in effect until all grants and agreements issued for projects under the FAAP or ADAP have been completed and the obligations have expired.

d. Military Construction Program. Section 308(b) of the FA Act provides that the Department of Defense (DOD) and/or the National Aeronautics and Space Administration (NASA) shall not acquire, establish, or construct any military airport, missile or rocket site, or substantially alter any runway layout unless reasonable prior notice is given to the FAA. This permits the FAA to advise other interested persons as to the effects of such projects upon the use of airspace by aircraft.

e. Disposal of Federal Surplus Real Property for Public Airport Purposes. The FAA is required to officially endorse the site before property interest in land owned and controlled by the United States is conveyed to a public agency for public airport purposes. Federal surplus property cases are handled in the same manner as ADAP proposals.

3011. AIRPORT DESIGN STANDARDS

For Federally obligated airports, it is the responsibility of, and for non-Federally obligated airports, it should be encouraged for the airport proponent/sponsor/planner to comply with FAA airport design standards. This action, combined with airport hazard removal standards, should provide hazard-free airspace for airport aeronautical operations. When airport design standards are combined with appropriate state and local zoning ordinances, the resultant effect will:

- a. Assure the lowest possible operational altitudes for aircraft;
- b. Protect the economic investment in the airport; and

PART 3. AIRPORT AIRSPACE ANALYSIS

Chapter 10. POLICY

3000. INTRODUCTION

This part provides guidance and procedures for processing notices of landing area proposals submitted in accordance with FAR Part 157, Airport Improvement Program (AIP), Military Construction Program (MCP), or as otherwise received for consideration by the FAA. The provisions of this part are based upon the authority and responsibility of the Administrator under Sections 307(a), 308(b), 309, 312(a), and 313(a) of the Federal Aviation Act of 1958, as amended. In part, Section 312(a) directs the FAA to make long range plans for, and formulate policy with respect to, the orderly development and location of landing areas. The airport airspace analysis derived from an aeronautical study is an important step in achieving this goal. The results of this study are used to advise an airport proponent, in the form of a determination, as to the effect the construction, alteration, activation, or deactivation of an airport will have on the safe and efficient use of the navigable airspace by aircraft. Such advice must be developed through the aeronautical study process during which specific attention shall be given matters concerning the proposal's effect on the airspace structure and projected programs of the FAA. There are many factors which influence airport studies, and each proposal must be individually studied on its own merits. For the purpose of this part, the term airport is used as defined in FAR Part 1.

3001. PURPOSE

The purpose of an aeronautical study is to determine what effect the proposal may have on compliance with the overall Airports Program and on the safe and efficient utilization of the navigable airspace by aircraft. A complete study consists of an airspace analysis, a flight safety review, and a review of the potential effect of the proposal on air traffic control and air navigation facilities. Each of these phases of the airport aeronautical study requires complete and accurate data to enable the FAA to provide the best possible advice regarding the merits of the proposal on the National Airspace System.

3002. DELEGATION OF AUTHORITY

The authority for conducting the airport program is delegated to regional offices. Airport personnel shall administer the Airports Program with the coordinated assistance of Air Traffic, Airway Facilities, and Flight Standards personnel.

→ 3003. AIRPORTS OFFICE RESPONSIBILITY

Appropriate Airports Offices are responsible for the overall Airports Program, initiating studies of airport proposals, developing and forwarding the FAA determination to the airport sponsor/proponent, and, where applicable, forwarding comments regarding potential noise problems to the airport proponent/sponsor for resolution.

3004. AIR TRAFFIC OFFICE RESPONSIBILITY

The appropriate Air Traffic Office is responsible for evaluating the proposal from the standpoint of safe and efficient use of airspace by aircraft. In addition, based on existing and/or contemplated traffic patterns and procedures, the Air Traffic Office shall be responsible for identifying potential noise problems and advising the Airports Office accordingly.

→ 3005. FLIGHT STANDARDS OFFICE RESPONSIBILITY

The appropriate Flight Standards Office is responsible for evaluating whether aircraft operations can be conducted safely and in accordance with applicable criteria or standards.

→ 3006. AIRWAY FACILITIES OFFICE RESPONSIBILITY

The appropriate Airway Facilities Office will be responsible for conducting the following engineering studies:

- a. Conducting engineering studies on airport proposals to evaluate their effects upon commissioned and/or proposed air navigation aids.
- b. Electromagnetic studies to evaluate the effects existing and/or proposed objects will have upon air navigation and communications facilities.
- c. Line-of-sight (shadow) studies on existing and/or proposed objects for control tower visibility.

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APPENDIX 2-1. Continued

Another problem of inter-agency contradiction involves field office/facility managers and specialists. These viewed experts from all facets of the agency including ATCT's, FSDO's, GADO's, etc., are ambassadors of good will and keep safety and good intentions in mind when conducting their activities; however, not enough have a working knowledge of the obstruction evaluation standards and, in many cases, believe that these standards are not their responsibility to apply. When approached about an "opinion" regarding decisions based on these standards, they are unconsciously free with their independent thoughts that may be in conflict with the agency's collective expert judgments.

In the focus of the programs' administration, the compelling concerns are more than a one voice philosophy. We are concerned about total program awareness; a need to exercise caution when approached by the public for our expert advice; and a need to be consistent in applying our joint standards. Part 77 does not conflict with TERPS, nor does Part 77 conflict with the terms of grant agreements. They complement each other and we should, too. We are a unified organization staffed with an exceptional union of experts who work close as a team - and hope that the outside, as well as the inside, can say - we speak with one voice.

Towards the goal of presenting a unified front to the aeronautical public, we request your assistance in disseminating this philosophy to your staff and field offices.

This letter has been coordinated with and has the support of the Associate Administrators for Aviation Standards, AVS-1, Development and Logistics, ADL-1, and Airports, ARP-1.

#

APPENDIX 2-1. Continued

of the agency may end up publicly at odds and leave the impression that our OE program is inconsistently applied, or, in some cases, that Part 77 and TERPS are contradictory and, most unfortunately, that the FAA speaks with two voices.

A major problem that can lead us into such an untenable position relates to the administration of interrelated FAR Parts. Air Traffic may receive notice under Part 77 on a construction or alteration proposal that is located just off the property of an airport subject to a Federal grant agreement. Technically, Part 77 would apply and the proposal may or may not be identified as an obstruction under Subpart C. That structure's location, however, may also be in the obstacle free zone or in the runway clear zone identified under Federal grant agreements. Without recognizing its location, we could normally acknowledge the notice under Part 77 and check off the box stating that while "the structure would be an obstruction, it will not be a hazard to air navigation." At the same time, the obstruction may be an airport hazard by airport standard's definition and the airports grant agreement specifically requires the airport owner to work with the community in establishing zoning or other action that protects these areas. In other words, if we acknowledge the proposal within just the purview of Part 77, our Airports element is placed in a precarious position because the sponsor now has a "no hazard" determination signed by the FAA saying the proposal is acceptable, while the airport owner is placed into noncompliance with the grant agreement for failure to contain structures in these areas.

This is a very real and, unfortunately, too frequent problem because the Air Traffic specialist feels compelled to acknowledge the notice as prescribed by Part 77, while the Airports specialist needs to enforce the grant agreement. Here is an opportunity that must be served by a "one FAA voice." It is obviously to our advantage, as well as to the advantage of the public, not to acknowledge notice under Part 77 and to address it within the purview of the grant agreement.

The decision to handle the proposal this way is much easier to defend and far less potentially damaging to the agency than a public confrontation over such issues as objects in a clear zone that are not obstructions under Part 77. Similarly, when one element of the agency does not receive support from the other, any case is weakened. Of equal concern is when a proposed structure might derogate airport capacity/efficiency, or increase landing/ departure minimums at an airport subject to Federal grant agreement(s). The potential persuasive power of grant agreement noncompliance can be effectively used to prevent the creation of an aeronautical hazard. This is especially important when the proposed construction project is subject to the concurrence or influence of the airport sponsor, and that sponsor is aware that subsequent grant requests can be approved only if he is in compliance with the existing grant agreement.

We should be confident that once aware of a proposed structure by notice or other means, we are not limited in our study. We must not abdicate the agency's overall responsibility to safety in administering the airspace by failing to provide mutual support for each element's individual responsibility.

APPENDIX 2-1. SUPPLEMENTAL POLICY REGARDING OBSTRUCTION EVALUATION (OE) AIRPORT
AIRSPACE ANALYSIS (AAA) DETERMINATIONS



U.S. Department
of Transportation
Federal Aviation
Administration

Memorandum

Subject INFORMATION: Supplemental Policy Regarding
Obstruction Evaluation (OE) Airport Airspace
Analysis (AAA) Determinations

Date **AUG 2 1984**

From R. J. Van Vuren *R. J. Van Vuren*
Associate Administrator for Air Traffic, AAT-1

Reply to
Attn of Wugalter: 426-8790

To Regional Directors

In the spirit of FAA's Vision of Excellence to provide quality of service and maintain our integrity, we would like to address two important matters that have been of concern to the Associate Administrators for Aviation Standards, Development and Logistics, Airports, and Air Traffic.

The first of these matters is to highlight the most recent edition of Handbook 7400.2C, Procedures for Handling Airspace Matters; the second is to address, in a forum less public than the handbook, the necessity for consistency in policy, specifically when technical application of our joint OE and AAA procedures have the potential to place two agency elements at odds in the public light.

Handbook 7400.2C, with the concurrence and signatures of six office/service heads, reflects an extensive 2-year coordination effort and became effective May 1. This document promotes the one-voice philosophy and outlines procedures and each office's responsibilities to obtain and receive the necessary support and coordination of the related operating divisions (Air Traffic, Airports, Airway Facilities, Flight Standards) in the administration of FAR Parts 77, 157, and the Federal grant programs (Parts 151, 152, etc.) with their associated compliance requirements. The new and clarified procedures call for all operating divisions to review notices of proposed construction or alteration received by FAA and not issue any acknowledgement and/or determination until all operating divisions agree that the proposal will not create a hazard. It should be emphasized that this conclusion must be reached even on a proposal that doesn't meet the Part 77 notice criteria. It is worthy to note that when Congress concluded the FA Act of 1958, the FAA was authorized (Sec. 1101) to obtain "public notice...of the construction, of any structure where notice will promote safety in air commerce." This is the only basis in law for our entire obstruction evaluation program.

Therefore, once we receive the notice, we should take the opportunity to oppose any structure that creates an unacceptable circumstance, electromagnetic or physical, for any element of the agency. With intelligent handling and artful negotiation, we can accomplish more than a narrow, explicit application of the "acknowledgment" requirements of Part 77. If, in the language of FAR 77.19, proposals are acknowledged without consideration of related problems outside the purview of Part 77, two factions

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Section 2. DEVIATIONS AND MODIFICATIONS

2620. AERONAUTICAL STUDY

When the sponsor or owner of an object requests permission to alter or eliminate the recommended marking and/or lighting, an appropriate aeronautical study should be made to determine whether:

- a. Marking and/or lighting is necessary;
- b. The owner/sponsor's proposed alteration is acceptable; or
- c. The recommended marking and/or lighting should be retained.

2621. MODIFICATIONS

A modified application of marking and lighting refers to the amount of standard marking and/or lighting such as:

- a. Placing standard marking and/or lighting on only a portion of an object.
- b. Adding marking and/or lighting in addition to the standard marking and lighting to improve the conspicuity of the object.
- c. Reducing the amount of standard marking and/or lighting to the extent of eliminating one or the other as may be considered appropriate.
- d. Adjusting the standard spacing of recommended intermediate light levels for ease of installation and maintenance as considered appropriate.

2622. APPROVAL OF MODIFICATIONS

A request for a modified application may be approved by the regional director of his designee. Ex-

amples of modified application may be found in paragraph 5(a) of AC 70/7460-1.

2623. DEVIATION

A deviation refers to a change from the standard patterns, intensities, flashing rates, etc. A marking and lighting deviation is considered to be:

- a. Marking patterns or colors other than those specified in AC 70/7460-1.
- b. Lighting patterns, intensities, flashing rates, or colors other than those specified in AC 70/7460-1.

2624. REQUEST FOR DEVIATIONS

Requests for deviations shall be forwarded to the Airspace-Rules and Aeronautical Information Division, ATO-200, only after an aeronautical study has been conducted on the proposal. The results of the study and the regional recommendation shall be submitted with the request.

2625. DEVIATION APPROVAL

Deviations require approval by the Director, Air Traffic Operations Service. Any coordination necessary prior to approval shall be effected by the Airspace-Rules and Aeronautical Information Division, ATO-200. Examples of deviations may be found in AC 70/7460-1.

2626-2999. RESERVED

cordance with guidelines of AC 70/7460-1, Obstruction Marking and Lighting.

2608. HIGH AND MEDIUM INTENSITY WHITE OBSTRUCTION LIGHTING SYSTEMS

a. High intensity lighting systems should not be recommended for structures less than 300 feet above ground level and, normally, not on structures 500 feet or less above ground level except when an aeronautical study shows otherwise. This does not apply to catenary support structures.

b. Use caution in recommending the use of high or medium intensity white obstruction lighting systems. Aircraft operations can be adversely affected where strobe-lighted structures are located in an area of limited visual cues. These situa-

tions can contribute to spatial disorientation when pilots are maneuvering in minimum visibility conditions. Marine or surface vessels and other vehicles, especially on nearby elevated roadways, could also experience operational difficulties from strobe lights. Adverse effects may be minimized by external shielding. Examples are:

(1) Locations within the airport/heliport environment in a sparsely lit rural setting.

(2) An offshore installation.

c. Dual lighting systems should be considered when a structure is located in or near residential areas, especially in hilly terrain where some houses are higher than the base of the structure.

2609-2619. RESERVED

Chapter 9. OBSTRUCTION MARKING AND LIGHTING

Section 1. OBJECTS TO BE MARKED AND LIGHTED

2600. POLICY

Obstruction marking and lighting shall be made a condition of determination of no hazard provided:

- a. Marking and lighting were specifically evaluated in the aeronautical study or in a separate study; and
- b. It disclosed that the obstruction will not be a hazard provided it is marked and lighted.

2601. STANDARDS

FAA standards, procedures, and types of equipment specified for marking and lighting obstructions to air navigation are presented in Advisory Circular (AC) 70/7460-1, Obstruction Marking and Lighting. These standards provide a uniform means to indicate the presence of obstructions and are the basis for recommending marking and lighting to the public. These standards are the minimum acceptable level of conspicuity to warn pilots of the presence of objects. They shall also apply when Federal funds are to be expended for marking and lighting obstructions.

2602. AERONAUTICAL STUDY

The aeronautical study shall determine whether obstruction marking and/or lighting is necessary and to what extent. The entire structure or complex, including closely surrounding terrain and other objects, must be considered in recommending marking and lighting. A later study may indicate a need for recommending marking and/or lighting where no such recommendation was made in the original study or, in some cases, after a Determination of No Hazard is issued.

- a. Proposed Objects. A change in runway length or alignment, a new airport development, a change in aeronautical procedures, or similar reasons may be cause for additional study of proposed objects to determine if marking and/or lighting is now appropriate when it was not recommended as a result of the original study.

- b. Existing Objects. Marking and lighting recommendations may be made at any time. Consider changes occurring in the vicinity of the object since the initial recommendation was made and include such factors as increased aircraft activity, the closing of an airport, changes in IFR and VFR routes, and shielding by taller structures.

2603. WITHDRAWN (CHG 3)

2604. RECOMMENDATIONS

Recommend the obstruction marking and/or lighting standard most appropriate for the height and location of any temporary or permanent object that:

- a. Exceeds 200 feet in overall height above ground level at its site or exceeds any obstruction standard contained in Part 77, Subpart C, unless an aeronautical study shows the absence of such marking and/or lighting will not impair aviation safety; or
- b. Is not identified as an obstruction under the standards of Part 77, Subpart C, but may indicate by its particular location a need to be marked or lighted to promote aviation safety.

2605. PARTIAL MARKING AND LIGHTING

Omitting marking and/or lighting on the bottom section; e.g., the lowest 200 feet, of a tall structure should be discouraged unless that part of the structure is shielded. Marking and lighting standards are based on a total system configuration and are only totally effective when used as intended. Therefore, the object and its location must be given careful consideration prior to recommending partial marking and/or lighting.

2606. OMISSION/DELETION OF MARKING AND LIGHTING

When recommending that the marking and/or lighting be omitted because the structure is conspicuous by its shape, size, and/or color, include a judgment that the structure would not blend into any physical or atmospheric background that may reasonably be expected in the vicinity.

2607. EXCESSIVE MARKING AND LIGHTING

Recommend specific advisory circular chapters, paragraphs, and when appropriate, specific intensities that address the minimum marking and/or lighting standards for safety. Recommendations of specific chapters allow for the use of those chapters only, even though they may contain references to other chapters. If the sponsor insists on or the FAA finds that high intensity white lights would not be objectionable, indicate in the determination that the FAA does not object to increased conspicuity provided the lighting is in ac-

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2562. DISTRIBUTION OF DECISION

Copies of the final decision shall be distributed to the petitioner/s, the sponsor, the interested parties of record, the regional Air Traffic division and, if appropriate, the FCC.

2563. CASES REFERRED TO WASHINGTON

The responsibility for processing obstruction evaluation cases referred to Washington is also delegated to ATO-210, with the coordinated assistance of AES-510, AAS-110, and AFO-230. Additionally, AES-510 shall ensure that the Spectrum Engineering Division reviews all obstruction evaluation cases for potential AM/FM/TV broadcast interference. AGC-230 shall review each case for form and legality as determined necessary by ATO-210.

2564. PERIODIC REVIEW

ATO-210 shall conduct special and periodic reviews of regional aeronautical studies, processing procedures, and issuances to ensure agency-wide continuity in the execution of the obstruction evaluation program. AES-510, AAS-110, and AFO-230

shall assist in these reviews as requested by ATO-210.

2565. SENSITIVE CASES

a. Regional Office. The regional director, prior to issuing, revising, or extending a determination concerning a construction proposal which precipitates a policy determination, may refer the matter together with his recommendation to the Washington Office for action.

b. When a regional director refers a sensitive case to the Washington Office, ATO-210 shall:

(1) Review, analyze, and evaluate the construction proposal, the aeronautical study, and the region's recommendation.

(2) Prepare and coordinate a briefing paper for the Director, Air Traffic Operations Service, ATO-1, to the Associate Administrator for Air Traffic, AAT-1, recommending concurrence or nonconcurrency with the region and transmitting a memorandum for the Administrator's signature replying to the region.

2566-2599. RESERVED

briefs, other relevant facts, and related submissions by any interested party.

2559. REVIEW BASED ON PUBLIC HEARINGS

Hearings held on proposed construction or alteration to determine the effect on the safety of aircraft and the efficient use of navigable airspace are factfinding in nature. As a factfinding procedure, each hearing is nonadversary, and there are no formal pleadings or adverse parties.

a. Notice. When a review is granted on the basis of a public hearing, the notice of review will advise of the FAA official who is to be the presiding officer at the hearing.

b. Responsibility. Upon the designation of a presiding officer, ATO-210 shall serve as technical assistant and staff to him and shall assist in the preparation, coordination, and issuance of further notices and orders pertaining to the hearing, arrange for hearing room space, recorders, record keeping, and perform other tasks incidental to the hearing.

c. Rules of Practice. Rules of practice for public hearings are set forth in Subpart E of Part 77.

2560. REGIONAL PARTICIPATION

When a discretionary review is granted, the regional director concerned will normally be requested to submit a written recommendation report in accordance with FAR 77.37(c)(1). Such written reports shall be forwarded together with the original or certified true copy of the aeronautical study case file.

a. Summary Reports. A summary report of the aeronautical study may also be requested of the regional director. When a summary report is requested, it shall be transmitted together with the aeronautical study file and regional director's recommendation report to the Director, Air Traffic Operations Service, ATO-1.

b. Content and Format. Requested summary reports shall be submitted in a format similar to the following:

(1) Description of construction proposal.

(2) Part 77 obstruction standards exceeded and to what extent.

(3) Narrative summary of the aeronautical study. Include, as appropriate, information and data of effect on:

(a) Airports.

(b) Airport approaches and clear zones.

(c) Airport traffic patterns.

(d) Approach slope ratios.

(e) Departure slope ratios.

(f) Instrument approach procedures.

(g) Instrument departure routes.

(h) Transition procedures.

(i) Radar procedures.

(j) Airway and approved off-airway routes.

(k) Visual flight rules (VFR) operations.

(l) Any related airspace actions.

(m) Other.

(4) Checklist for attachments. Include, as applicable but not limited to:

(a) FAA Form 7460-1 or other form of notice.

(b) Acknowledgment.

(c) Circular notice of study.

(d) Replies to circularization.

(e) Notification of informal meetings.

(f) Summary of informal meetings.

(g) Instrument approach charts.

(h) Local airport traffic pattern data.

(i) Standard instrument departure procedures.

(j) FAA Form 5010-1 FAA Master Airport Record.

(k) FAA Form 8260 series for instrument approach procedures.

(l) Letters of agreement.

(m) Operations letters.

(n) Other.

2561. FINAL DECISION

a. Review Based on Written Materials. Based upon review, analysis and evaluation of the region's report of the aeronautical study, briefs, and related submissions by any interested party, and other relevant facts, ATO-210 prepares, coordinates, and recommends to the Director, Air Traffic Operations Service, ATO-1, a notice affirming, revising, or reversing the determination issued under FAR 77.19, 77.35, or 77.39.

b. Review Based on Public Hearings. The Director, Air Traffic Operations Service, ATO-1, after reviewing the evidence relevant to the question of fact in a hearing, including the official transcript and exhibits, resolves all questions and, based on the weight of the evidence, makes his determination stating the basis and reasons for it. He shall then issue an appropriate order to be served on each of the parties.

Section 5. WASHINGTON OFFICE REVIEWS

2550. AUTHORITY

The Director, Air Traffic Operations Service, ATO-1, is delegated the authority to decide upon a petition initiated under FAR 77.37 to:

- a. Determine whether a determination issued under FAR 77.19 or FAR 77.35, or a revision or extension of a determination issued under FAR 77.39(c) should be reviewed or denied;
- b. Decide the procedural basis (written materials or public hearings) upon which a review will be made; and
- c. Affirm, revise, or reverse a determination as indicated by the review.

2551. PETITIONS FOR REVIEW

The Flight Information and Obstructions Branch, ATO-210, is responsible for processing petitions for discretionary review filed under FAR 77.37 and for making recommendations to the Director, Air Traffic Operations Service, ATO-1, through the Manager, Airspace-Rules and Aeronautical Information Division, as to whether the review should be granted, whether the review should be on the basis of written materials, or public hearing. ATO-210 shall coordinate with the Spectrum Engineering Division, Frequency Allocation Branch, AES-510; Air Transportation Division, Flight Procedures Standards Branch, AFO-230; Design and Operations Criteria Division, Airport Design Standards Group, AAS-110; and, as appropriate, with AGC-230 prior to making recommendations to ATO-1.

2552. PETITION PROCESSING

ATO-210 is the focal point within the FAA for the processing of petitions to the Administrator under FAR 77.37. Upon receiving notification of a petition, ATO-210, shall:

- a. Docket Number. Assign an OE docket number to the petition composed of the last two digits of the calendar year in which the assignment is made, the symbol AWA to indicate Washington Headquarters, the symbol OE to indicate obstruction evaluation, and a serial number. Serial numbers run consecutively within each calendar year.
- b. Notification. As appropriate, notify the construction sponsor, the petitioner, the FAA region concerned, and the FCC that the determination is not and will not be final pending disposition of the petition.

2553. REGIONAL OFFICES

Any FAA office receiving a petition under FAR 77.37 shall forward the petition to ATO-210 by the fastest means available. In the event a petition concerning a determination of no hazard is received toward the end of the 30-day petition filing period, the receiving office shall also promptly notify ATO-210 by telephone.

2554. JURISDICTION

Upon receipt of a petition, jurisdiction of the case immediately transfers from the issuing office to the Washington Office. Any further coordination with the petitioner, the sponsor, or their representatives will be conducted by the Washington Office. Regional assistance may be requested as required.

2555. WRITTEN COMMUNICATIONS

Any written communication containing an objection to a determination issued under FAR 77.19, 77.35, or 77.39 which might be considered to be a petition under FAR 77.37 shall be treated as though it were a valid petition and forwarded to the Washington Office.

2556. RECOMMENDATIONS

Based upon his examination of the petition and after appropriate coordination, ATO-210 recommends the grant or denial of the requested review to the Director, Air Traffic Operations Service, ATO-1, through the Manager, Airspace-Rules and Aeronautical Information Division.

2557. NOTICES OF REVIEW

The decision of the Director, Air Traffic Operations Service, ATO-1, is distributed as a notice to the petitioner, the sponsor, interested parties of record and, if appropriate, the FCC. The notice shall advise whether the review will be based upon written materials or a public hearing.

2558. REVIEW BASED ON WRITTEN MATERIALS

When a review is granted on the basis of written materials, the notice of review shall also advise of the specific issues which are to be considered and solicit written comments from interested parties. The review normally includes a study of a report by the regional director of the aeronautical study,

Section 4. REVISION, CORRECTION, AND TERMINATION OF DETERMINATIONS

2540. REVISIONS, EXTENSIONS, AND TERMINATIONS

The FAA official responsible for issuing a no hazard determination has the delegated authority under FAR 77.39 to revise, extend, or terminate the determination provided the revision is based upon new facts that change the basis on which the determination was made.

2541. CORRECTION

The FAA official issuing a determination may also correct that determination as required. Editorial changes, such as the change in name of a construction sponsor, should be issued as corrections. Minor adjustments to a proposal, usually as a result of a more accurate survey, may be issued as a corrected determination electromagnetic effect upon air navigation facilities or aeronautical operations and procedures than the original proposal. The corrected determination shall be issued under

the original study number. Corrected determinations are effective on issuance, except that in no case will the effective date be prior to the effective date of the original determination.

2542. STANDARD FORMAT

Forms 7460-9/10 should be used in issuing corrections or revisions. Indicate the issuance of a revised determination by adding "Revised" at the end of the title. Indicate the issuance of a corrected proposal or determination by adding "Corrected" at the end of the title. Include an explanation of the revision or correction in the determination.

2543. DISTRIBUTION

Copies of revised or corrected determinations shall be given the same distribution as the original determination and, if appropriate, other known interested persons.

2544-2549. RESERVED

Section 3. EXTENSION OF DETERMINATIONS

2530. AUTHORITY

The FAA official issuing a determination has the delegated authority to grant an extension. Where a petition for an extension precipitates a policy determination which is of such controversial nature that the matter should be considered by the Administrator, the petition should be referred through the regional director to the Administrator.

2531. CONDITIONS

An extension may be granted provided the request is timely (postmarked or delivered 15 days before the determination expires) and a review of aeronautical activity shows that no significant change has occurred since the determination was issued.

2532. COORDINATION

Coordination shall be effected with ATO-210 prior to denying extensions which pertain to structures subject to the licensing authority of the FCC.

2533. EXTENSION PERIOD

Normally, an extension should be for a period of 18 months unless a shorter period is requested by the proponent. If the structure is subject to the licensing authority of the FCC, the extension shall be for a period of 6 months.

2534. REVIEW PROVISIONS

Under the provisions of FAR 77.37, extensions of the effective periods of determinations are subject to review; therefore, each extension granted shall contain a paragraph similar to that in determinations advising of the petition period, the effective date, and the new expiration date.

2535. DISTRIBUTION

Copies of extensions issued under FAR 77.39(b) should be sent to all known interested parties. Send one copy of each extension to ATO-210 and, if appropriate, to the FCC.

2536-2539. RESERVED

Section 2. DETERMINATION DATES

2520. ISSUANCE DATE

The issuance date of a determination is the date on the determination under "issued in _____ on _____."

2521. EFFECTIVE DATE

a. Proposed Structures. The effective date of a determination issued under FAR 77.35 is the fortieth day after the date of issuance. Thus, if a determination is issued on January 2, 1984, the construction sponsor should be advised that the determination is subject to review if a petition is filed on or before February 1, 1984; that if no petition is filed, the determination becomes final on February 11, 1984; and, that if a petition is filed, further notice will be given and the determination will not become final pending disposition of the petition (see Figures 2-9 and 2-10).

b. Existing Objects. A determination, statement of FAA position, or recommendation resulting from an aeronautical study of an existing object is effective upon issuance.

2522. EXPIRATION DATE

a. Non-FCC. For proposed construction not under the licensing authority of the FCC, the expiration date of a no hazard determination is 18 months from the effective date of the determination. Thus, in the example given in paragraph 2521, the construction sponsor should be advised that the determination expires on August 11, 1985, unless otherwise extended, revised, or terminated.

b. FCC. For proposed construction concerning radio, television, microwave relay, or other broadcasting facilities coming under the jurisdiction of the licensing authority of the FCC, the expiration date of a no hazard determination is 6 months from the effective date unless the sponsor makes application to the FCC for a construction permit. When a timely application is filed with the FCC, the determination continues in force until such time as the FCC denies the application or if granted, until the date specified in the FCC construction permit for completion of construction. Thus, using again the example in paragraph 2521, the construction sponsor would be advised that the determination expires on August 11, 1984, unless application is made to the FCC for a construction permit or the determination is otherwise extended, revised, or terminated; and that if application is made to the FCC within the 6-month time period, the determination expires on the date prescribed in the FCC construction permit for completion of construction or on the date the FCC denies the application.

c. Petition or Review. If the date of a final determination is changed as a result of a petition or review, the expiration of the determination is automatically extended as appropriate.

d. Existing Objects. Determinations issued with regard to studies of existing structures shall not contain an expiration date.

2523-2529. RESERVED

the safe and efficient use of the navigable airspace by aircraft and does not relieve the sponsor of any compliance responsibilities relating to any law, ordinance, or regulation of any Federal, state, or local governmental body."

c. Transmitting Towers/Antennas.

"This decision is based solely on the foregoing description of the structure/s, which includes location, height, ERP, and operating frequency."

"The FAA hereby requests that notice be given for any future construction or alteration that would exceed the above described heights, include any increase to the ERP, alter the transmitting frequency, and/or add other transmitting device/s."

2508. DISTRIBUTION

a. Determinations Issued Under FAR 77.35. Copies of determinations issued under FAR

77.35(c) shall be sent to each FAA office that participated in the study and to all known interested persons. One copy of each determination shall be sent to ATO-210, ATO-250, military representatives, and, if appropriate, the FCC.

b. Determinations On Existing Objects. A determination or recommendation resulting from an aeronautical study of an existing object shall be distributed as considered appropriate by the issuing office. Send *one copy* to ATO-210.

c. Records. A record of the distribution for each determination issued under FAR 77.35(c), each revised, extended, or affirmed determination issued under FAR 77.39, or as the result of a study on an existing object shall be entered in the aeronautical study file. Reference to the distribution code, a mailing list, or any other evidence of distribution will be sufficient.

2509-2519. RESERVED

ticable. To facilitate this and to achieve economy in clerical handling, standard forms are provided for circulars and determinations issued under Part 77.

2503. NOISE ISSUES

Comments on noise issues relating to a specific proposal will not be contained in an acknowledgment or determination issued under Part 77. Such information may be transmitted to the construction sponsor in the form of a letter separate and apart from the obstruction evaluation acknowledgment or determination.

2504. CONFORMANCE TO POLICY

The FAA office responsible for issuing determinations shall assure that each determination issued conforms to established policies, procedures, and guidelines. Exceptional cases may require special handling, but no determination shall be issued which would be contrary to agency policy until the matter has been coordinated with and approved by the regional director and the Director, Air Traffic Operations Service, ATO-1.

a. No Hazard. Use FAA Form 7460-9 when issuing a determination of no hazard to air navigation under the provisions of Subpart D of Part 77. The preprinted form is designed to incorporate a maximum amount of the standard language required in each determination of no hazard. This reduces the time required to prepare a determination for issuance and provides a standard of excellence desirable to issuances being distributed to the public.

b. Hazard. Use FAA Form 7460-10 when issuing a determination of hazard to air navigation under the provisions of Subpart D of Part 77. The reasons and basis for the decision must include the adverse effect of the proposal upon the safe and efficient use of the navigable airspace by aircraft and upon air navigation facilities. Also, state the reasons the affected aeronautical operations or the procedure cannot be adjusted to alleviate or eliminate the conflicting demands for the airspace.

c. Proposed Construction or Alteration. Information of an exact nature to clearly identify the character of the proposed construction or alteration shall be stated in the "Description" box of Form 7460-9 (or Form 7460-10). Use wording, such as microwave antenna tower, FM or AM transmitter antenna tower, suspension bridge, TV antenna tower, or four-stack power plant. When a proposal concerns an array of antennas or other multiple-type structures, specific information on this should also be stated in the description.

d. Conditions of Determination. Any conditions upon which a determination of no hazard is based shall be specified under the "Conditions" portion of Form 7460-9. If more space is needed, use the reverse side (page 2) of the form and state under "Conditions" that these are given on page 2.

2505. AIRCRAFT ROUTE CHANGES

Include the following statement in all determinations of no hazard issued under Part 77 when it is believed that a change in departure and arrival routes or airport traffic patterns will be necessary: "Construction of the proposal may require a change in aircraft tracks over the ground near the airport."

2506. EXISTING OBJECTS

A determination issued as a result of a study of an existing object may be written in various forms:

a. As a determination of hazard or no hazard similar in form to a determination under FAR 77.35 but without reference to Part 77;

b. As a formal letter outlining the effects of the structure and perhaps, recommending to the sponsor that the structure be marked and/or lighted, reduced in height, or removed;

c. As an informal letter or staff study making an internal FAA recommendation; or

d. As a formal letter to FCC recommending dismantlement of an abandoned tower.

2507. SUPPLEMENTAL DATA

Determinations of No Hazard may require supplemental statements to resolve potential problems or specify conditions of determination. In addition to the statements on the current FAA Form 7460-9, Determination of No Hazard to Air Navigation, the following examples are provided for standardization.

a. Temporary Construction Equipment.

"This determination does not include temporary construction equipment, such as cranes, derricks, etc., which may be used during the actual construction phase of this proposal. Such equipment which has a height greater than the proposed structure and a height which would exceed the notice standard of Part 77 of the Federal Aviation Regulations requires separate notice."

b. Laws or Regulations Other Than Part 77.

"This determination, issued in accordance with Part 77 of the Federal Aviation Regulations, concerns the effect of the proposal on

Chapter 8. OBSTRUCTION EVALUATION DETERMINATIONS

Section 1. GENERAL

2500. AUTHORITY

The FAA's authority to promote the safe and efficient use of the navigable airspace is derived from the Federal Aviation Act of 1958, as amended. However, this authority is not intended to be and may not be exercised to regulate the use of land (real property) beneath the navigable airspace. The guidelines in this chapter relate to this authority and apply to determinations issued:

- a. In accordance with Subpart D, Part 77, regarding proposed construction or alteration; or
- b. Under the authority of Sections 307(a) and 313(a) of the Federal Aviation Act of 1958, as amended, pertaining to existing structures under construction and to structures of any type which would not exceed Part 77 obstruction standards, but would have adverse physical or electromagnetic interference effect upon the navigable airspace or air navigation facilities.

2501. POLICY

Determinations shall be based on the findings of an aeronautical study as to the extent of adverse physical or electromagnetic interference effect upon the navigable airspace or air navigation facilities. Evidence of adverse effect, either physical or electromagnetic, is not sufficient justification for a determination of hazard. However, a finding of a substantial physical or electromagnetic adverse effect normally requires issuance of a determination of hazard. The effect of objects studied shall be identified in each determination issued along with a clear, but brief, statement why aviation can or cannot accommodate the proposal. Additionally, state in the determination the extent of consideration given to any valid aeronautical comments received during the aeronautical study. The official FAA determination shall be a composite of the comments and findings received from other interested FAA offices. Should there be a disagreement in the airspace findings, the disagreement shall be resolved before issuance of the official FAA determination. Use the following items, as appropriate, to ensure that the necessary information is included in each determination:

a. Determination of No Hazard.

- (1) Brief description of location and obstruction standards exceeded;
- (2) Effect on terminal and/or en route aeronautical operations, IFR, VFR, airports and so forth;
- (3) Circularization, associated comments, informal airspace meetings and negotiations;
- (4) Reasons and basis for determination as to why the structure will not be a hazard to air navigation and accommodations necessary by aeronautics or sponsors;
- (5) Any conditions of the determination that are additional to those listed on the first page of the determination. Routinely, the conditions specified pertain to the marking and lighting of a structure. There are, however, other conditions that are not normally stated, such as changes in procedures and/or altitudes, that are necessary to accommodate the structure or else the object would be a hazard. Consequently, the "conditions" should include a statement that appropriate action will be taken to amend the effected procedure/s and/or altitude/s upon notification to the FAA by the sponsor prior to the start of construction or alteration;
- (6) Limitations, if any; and
- (7) Additional information such as supplemental notice requirements.

b. Determination of Hazard.

- (1) Include the items in paragraph 2501a(1), (2), and (3);
- (2) Changes necessary by aviation and/or by the sponsor to accommodate the proposal; and
- (3) Reasons and basis for determination as to why structure will be a hazard; i.e., a clear showing of substantial adverse effect.

2502. STANDARD FORMS

Determinations issued by the FAA receive widespread public distribution and review. Consequently, it is essential that each determination issued be consistent in form and content to the extent prac-

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Flight Standards has the primary responsibility for off-airway routes establishment and requests for these routes should be submitted to them.

5441. COORDINATION

The appropriate Flight Standards Office will coordinate with:

- a. Frequency Management personnel to ensure adequate frequency protection (keyholding) of the appropriate aids if required.
- b. The appropriate Air Traffic Office for concurrence.

5442. REVIEW

Each proposed route shall be reviewed by the appropriate Air Traffic Office and evaluated from the standpoint of air traffic density, airspace utilization, and air traffic control procedures. Particular attention shall be directed toward possible conflict with military low level routes, military/civil training areas, proximity to military bases, and any adverse

effect on the air traffic control system. To ensure equitable use of the airspace and to assist in evaluating such routes, the appropriate Air Traffic Office should circularize each proposal to interested persons for comment.

5443. MEETING REQUIREMENTS OF RANDOM ROUTES

Proposed routes which are contained wholly within controlled airspace and within the advertised service volume of the NAVAID's to be used will be considered as meeting the requirements of random routing unless otherwise justified.

5444. FORWARDING CONCURRENCE OR OBJECTIONS

After review, the Air Traffic Office shall forward concurrence or objections to the appropriate Flight Standards Office for processing.

5445-5999. RESERVED.

Section 3. SUBSTITUTE ROUTES

5430. PROCEDURES

Procedures for the development, coordination, and use of substitute routes are set forth in Order 7100.5 and Handbook 8260.19.

develop a substitute route that does not meet this requirement, appropriate recommendations for controlled airspace shall be forwarded to ATO-200 for processing.

5431. CONTROLLED AIRSPACE REQUIREMENT

The centerline of each substitute route shall be within controlled airspace. If it is necessary to

5432-5439. RESERVED.

Section 2. FLIGHT INSPECTION REQUESTS

5420. COORDINATION

A requirement for a flight inspection evaluation should be coordinated with the regional Frequency Management Office prior to requesting flight inspection review.

office and will indicate whether the flight inspection results were satisfactory or unsatisfactory. If unsatisfactory, appropriate corrective action should be accomplished and the request resubmitted for flight inspection.

5421. FORWARD FLIGHT INSPECTION REPORT

Upon completion of the requested action, a flight inspection report will be forwarded to the originating

5422-5429. RESERVED.

CHAPTER 21. FLIGHT INSPECTION REQUIREMENTS

Section 1. GENERAL

5400. REQUEST FOR FLIGHT INSPECTION DATA

Regional Air Traffic Divisions shall be responsible for providing the appropriate Flight Standards Office with the Notice of Proposed Rulemaking (NPRM) relating to new or altered airways and jet routes. Requests for flight inspection data (MEA's, COP's, etc.) for airways and jet routes shall be initiated by the

regional Air Traffic Division (see paragraph 1034. for processing action directly to rule).

5401. FLIGHT INSPECTION DATA DISTRIBUTION

Flight inspection data concerning airways and jet routes shall be forwarded to ATO-250 on Form 8260-16 by the appropriate Flight Standards Office.

5402-5419. RESERVED.

Section 4. CRITERIA

5240. WAYPOINT CRITERIA

a. RNAV waypoints are used not only for navigation reference, but also for air traffic control operational fixes in much the same manner as VOR/DME ground stations and intersections are used in the conventional VOR structure. Waypoints are to be established along RNAV routes:

(1) At the end points of RNAV routes.

(2) At route turn points, where essential.

(3) At all consistently used holding fixes. (All holding points must be plotted at both the geographical position and slant range corrected position for purposes of protected airspace determination in accordance with Handbook 7130.3, paragraph 24.)

(4) At any other point of operational benefit, such as route junction points, where required for route clarity. At least one waypoint must be associated with each reference facility used for route definition to meet navigation requirements. If no other requirement exists along any route segment, establish a waypoint at the closest point along the route centerline to the reference facility.

(5) At changeover points only when other operational reasons prevail.

b. Each waypoint within VOR/DME coverage shall be defined by VOR/DME radial and distance to the nearest tenth of a degree and tenth of a mile. In addition, the geographical coordinates of each waypoint will be defined in degrees, minutes, and seconds. Station elevation of the reference facility to the nearest 100 feet will also be defined.

5241. REFERENCE FACILITY CRITERIA

RNAV routes and waypoints based on VOR/DME (VORTAC) shall be defined only by ground facilities having collocated VOR and DME components.

5242. LATERAL PROTECTED AIRSPACE CRITERIA FOR RNAV EN ROUTE SEGMENTS

a. The criteria contained in this section are applicable to all established or designated RNAV routes

except those portions of SID's and STAR's appropriate to the SID and STAR criteria. The lateral extent of RNAV routes designated in Part 71 of the FAR's is coincident with the lateral protected airspace derived from this criteria with the exception of turn protection criteria for reduced width route segment as defined in paragraph 5252. of this handbook.

b. A basic width of 8 miles (4 miles on each side of the route centerline) has been selected for three primary reasons:

(1) Improved system accuracy in proximity to reference facilities allows the basic 8-mile route width to encompass significant amounts of slant range error, thereby reducing the requirements for slant range compensation airspace. A route width large enough to encompass the extremes of slant range error is not considered feasible since this would result in inefficient airspace use along the major portion of the en route structure.

(2) Aeronautical operations can be contained within this width for reasonable distances from the reference facilities, thereby reducing the incidence of route expansion beyond the standard width. A major objective of route planning efforts should be to keep route expansions to a minimum consistent with reasonable station changeover requirements imposed on the pilot.

(3) Compatibility with a VOR standard with which both planning and controller personnel are familiar.

c. This basic 8-mile width, in conjunction with the slant range compensation protection and expansion criteria defined in Section 5 of this Chapter, constitutes, in addition to turn criteria as applicable, lateral protected airspace of RNAV en route segments.

5243-5249. RESERVED.

5230. PROCEDURES

The regional Air Traffic Division is the focal point for the coordination of all RNAV routes. The region shall coordinate, as necessary, with the proponent to ensure that route proposals contain sufficient information; e.g., airports to be served, NAVAID's to be used, optimum altitudes, waypoint to be used, etc.

a. In accordance with Part 1, Chapter 3, Section 5, of this handbook, obtain five-letter pronounceable waypoint name/codes approval from ATO-250.

b. Early coordination should be effected with Flight Operations to ensure timeliness of input. Flight Operations or Flight Standards will handle all route requests in accordance with Flight Procedures and Airspace Handbook, Order 8260.19, Chapter 13.

c. The Air Traffic Division shall coordinate with appropriate ATC facilities, adjacent regional offices, and regional Frequency Management Offices.

d. After Flight Operations concurrence is obtained, the route proposal (all series) shall be sent to ATO-200 for further processing, numbering, and publishing.

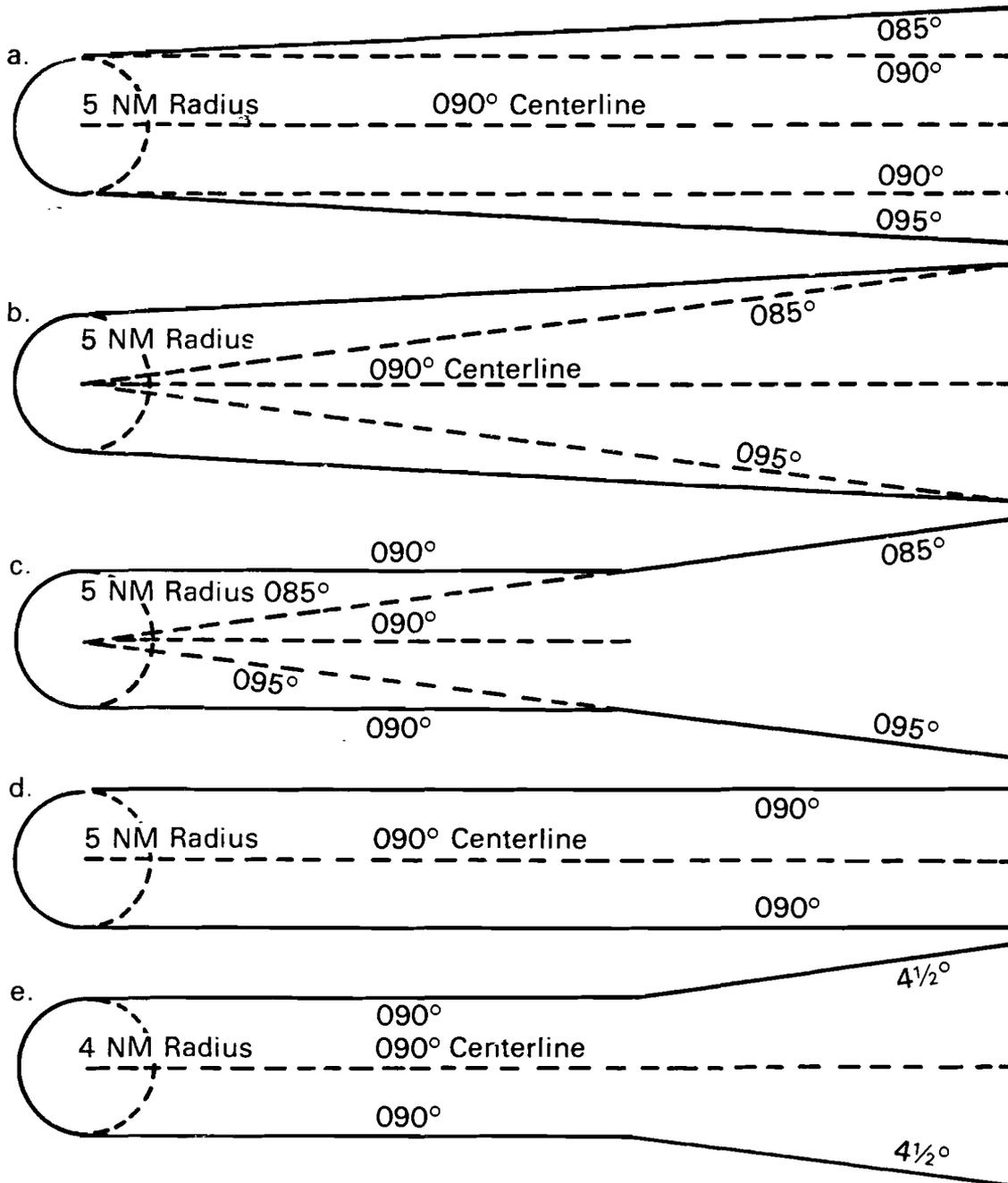
e. All RNAV routes and procedures will be flight checked before use. The en route segments will be flight checked as the result of an NPRM or a direct request from ATO-200.

f. All magnetic bearings, distances between waypoints, and geographical coordinates of waypoints shall be validated by ATO-250. ATO-250, in addition to assigning waypoint name/codes, shall determine station elevation of the reference facility.

g. Lateral airspace to be protected for approved area navigation routes will be displayed, as necessary, in the appropriate manner/media for controller reference.

5231-5239. RESERVED.

Solid Lines Represent Control Area Boundary.



Example c. would be used when navigation within and entering the control area is based on the use of VOR/VORTAC facilities. Examples a. through d. would be used if navigation is based on LMF facilities. Example d. would be selected if the distance of the control area to be designated is approximately 50 miles or less in length. Example a. provides the greatest width of controlled airspace if needed for radar vectoring or because of oceanic route alignments or navigational capabilities.

Figure 5-1 Example of Control Area Configurations

Section 5. ADDITIONAL CONTROL AREAS

5150. OFFSHORE ADDITIONAL CONTROL AREAS

Offshore additional control areas may be designated to serve aircraft operations between the U.S. territorial limits and the oceanic CTA/FIR boundary and/or domestic point-to-point flights which operate in part over the high seas. These areas are established to permit the application of domestic procedures in the provision of air traffic control services.

a. Navigational aid spacing for routes within offshore areas has no standard but is determined on an individual basis.

b. Examples of offshore additional control area configurations which also serve as route designations are depicted in Figure 5-1 and may be used as guidelines. Other configurations may be used if required. In determining which configuration to use, consideration should be given to user requirements, navigational quality and dependability of the NAVAID, radar vectoring capabilities, transition to/from the offshore additional control area, requirements of other users for adjacent airspace, and possible future requirements for controlled airspace. Offshore additional control areas which require use of one NAVAID for an extended distance should be based on L/MF facilities so that lower MEA's can be established. Care should be exercised in relocating NAVAID's on which control areas are based so that the desired offshore additional control area configuration can be retained. Where an offshore addi-

tional control area is extended to the domestic/oceanic boundary, the diverging lines shall terminate at their intersection with the domestic/oceanic boundary.

5151. DOMESTIC ADDITIONAL CONTROL AREAS

Domestic additional control areas may be designated to serve en route operations when a requirement exists to provide air traffic control service but the desired routing does not qualify for airway designation. Consideration may also be given to designation of domestic additional control areas when:

a. The NAVAID's are not suitable for inclusion in the airway system, but are approved under FAR 171, are placed in continuous operation, and are available for public use; or

b. Navigation is by means of radar vectoring.

5152. DESIGNATION

Additional control areas are designated in FAR 71.163.

5153. PROCESSING

Regions may process those domestic cases which are ancillary to a terminal airspace action with approval of ATO-200.

5154-5159. RESERVED.

Section 2. VOR AIRWAY STRUCTURE

5120. NAVAID SPACING

VOR airways are based on navigational aids which normally are spaced no farther apart than 80 nautical miles. They may be based on more widely spaced navigational aids if a usable signal can be provided and frequency protection afforded for the distance required (see Order 9840.1). Each airway will be assigned a number which does not exceed three digits.

5121. VERTICAL AND LATERAL EXTENT

The standard vertical and lateral extent of these airways is specified in Section 71.5 of the Federal Aviation Regulations (FAR's). Nonstandard dimensions may be specified as required except as limited by paragraph 5122.

5122. WIDTH REDUCTIONS

A reduced airway width of 3 nautical miles on one or both sides of the centerline may be established from the navigational aid to the point where the 4.5° intersecting lines equal 3 nautical miles (FAR 71.5). Normally, the ends of the reduced portion are determined by lines perpendicular to the airway centerline. If required, the ends of the reduced portion may be

defined differently. A reduced width is permissible to obtain additional traffic capacity and flexibility through use of multiple routes or to avoid encroachment on special use airspace or other essential maneuvering areas. Width reductions are considered the exception rather than the rule and are approved only where adequate air navigation guidance and justification exist.

5123. WHEN TO DESIGNATE AIRWAYS

Airways should be designated in lieu of other airspace to serve en route operations when the route is predicated upon navigational aids which are suitable for inclusion in the airway system, the benefits of the airway designation outweigh any adverse effects to other airspace users, and:

- a. The route is a normal extension of an existing airway; or
- b. Users will benefit from charted information pertaining to navigational guidance, minimum en route altitudes, and changeover points.

5124-5129. RESERVED.

PART 5. AIRWAYS AND ROUTES

CHAPTER 18. GENERAL

Section 1. POLICY

5000. PURPOSE

This part contains policy, procedures, and criteria for the designation/establishment of the airway and route structure for the National Airspace System.

5001. CONTROLLED AIRSPACE DESIGNATION

Controlled airspace for en route purposes is designated where a user or an air traffic control requirement exists and air traffic control service can be provided.

5002. PROTECTED AIRSPACE FOR COURSE CHANGES

Where necessary, regions shall initiate action to designate controlled airspace of sufficient dimension to encompass the airspace to be protected for course changes.

5003-5119. RESERVED.



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and flight inspection of the facility has been accomplished, the Air Traffic Office shall:

- a. Request Flight Standards to complete the necessary processing of the proposed IFR procedure; and
- b. Initiate the airspace regulatory action necessary for the IFR procedure.

4146. DISTRIBUTION

A copy of the determination issued to the sponsor shall be forwarded to ATR-100, AES-500, and to the FCC, Attention: Antenna Survey Branch (for address see paragraph 2035.).

4147-4199. RESERVED.

Section 4. NON-FEDERAL AIR NAVIGATION AIDS

4140. GENERAL

Assist the sponsors of proposed non-Federal navigational aids in the technical planning and provide advice on minimum equipment and operational performance standards. The operation of non-Federal navigation facilities involving the approval of IFR and air traffic control procedures shall be in accordance with minimum requirements set forth in FAR Part 171 and the FAA's 6700 series of Orders.

4141. REQUEST FOR ESTABLISHMENT

The proponent requesting the establishment or relocation of a non-Federal air navigational aid as defined in FAR Part 171 should provide the following information:

- a. The site of the navigational aid using geographical coordinates to the nearest second;
- b. Equipment type;
- c. Frequency range; and
- d. Power output.

4142. PROCESSING RESPONSIBILITY

Requests received for establishment of a non-Federal air navigation aid shall be forwarded to the appropriate regional Airway Facilities Division for initial processing.

a. **Airway Facilities.** Regional Airway Facilities Offices are responsible for the overall regional coordination with the sponsor. Advice should be provided to sponsors on the minimum equipment and operational performance standards, siting requirements, and the conditions prerequisite to use of the navigational facility for any IFR procedure. Additionally:

(1) Evaluate the proposal to determine frequency availability, the potential interference effects on existing/planned electronic and visual aids to navigation, and possible electromagnetic interference to radio communications frequencies;

(2) Forward the proposal to the regional Air Traffic Division for appropriate nonrulemaking action;

(3) Request the sponsor to submit any additional information needed for the study; and

(4) Coordinate with FIFO/Flight Standards as necessary to complete appropriate flight inspection.

b. **Air Traffic.** If the sponsor has requested establishment and approval of an IFR procedure predicated on the proposed facility, the Air Traffic Office shall:

(1) Ensure that the necessary ATC communications can be satisfied;

(2) Request the appropriate Airports, Airway Facilities, and Flight Standards Offices to study the proposal; and

(3) Examine the proposal regarding utilization of the airspace, aeronautical operations and air traffic control procedures.

c. **Airports Programs.** The appropriate Airports Office shall evaluate the proposal in reference to existing airports and planned airport development on file with the agency.

d. **Flight Standards.** Regional Flight Standards Offices are the focal point for Flight Standards studies of the effect of the proposed non-Federal air navigation aid on existing or proposed IFR and VFR flight operations. In developing IFR procedures, Flight Standards personnel are responsible for:

(1) Determining whether their respective requirements outlined in FAR Part 171 and FAA Handbook 8260.3 have been satisfied;

(2) Advising the appropriate Air Traffic Office through the regional Flight Standards Office of the results of their study; and

(3) Initiating development of required IFR procedures.

4143. EXTERNAL COORDINATION

The appropriate Air Traffic Office shall circularize the proposal to all interested persons for comment if the Airway Facilities, Airports, and Flight Standards response is favorable. Any internal FAA problem with the proposal shall be resolved prior to the circularization.

4144. INFORMAL AIRSPACE MEETING

Add the proposal to the agenda of an informal airspace meeting when the comments indicate that further discussion is warranted.

4145. APPROVAL AND NOTIFICATION PROCESS

The appropriate Air Traffic Office shall, based upon the results of the study, determine whether or not the agency has any objections to the installation or relocation of the navigational aid and so advise the originating Airway Facilities Office. The Airway Facilities Office shall then forward the determination approval or disapproval to the sponsor. If the determination is favorable and after a successful ground

Section 3. MILITARY AIR NAVIGATION AIDS

4130. GENERAL

The primary concerns regarding military air navigation aid proposals are the potential effect on airspace or airport utilization and the availability of interference-protected frequencies. Consequently, military proposals involving the establishment or relocation of military navigational aids are forwarded to regional Air Traffic Divisions for nonrulemaking study. Such proposals received should contain the following information:

- a. Site of the navigational aid using geographical coordinates to the nearest second;
- b. Equipment type;
- c. Power output; and
- d. Frequency range.

4131. COORDINATION WITH MILITARY

The Air Traffic Office is authorized to coordinate with the originating military organization to obtain any omitted or additional information needed for the nonrulemaking study.

4132. EVALUATION BY AIRWAY FACILITIES OFFICE

The regional Frequency Management Office shall be requested to evaluate the military proposal to determine frequency availability and the frequency protection provided. This evaluation shall be provided to the responsible Air Traffic Office.

4133. CIRCULARIZATION

If the frequency evaluation report is favorable, the Air Traffic Office shall complete coordination with the appropriate Airports, Flight Standards, and other Airway Facilities Offices. If appropriate, the proposal may be circularized to user groups and other

interested persons for comment. If comments received indicate further discussion is warranted, then the proposal should be added to the agenda of an informal airspace meeting.

4134. DETERMINATION RESPONSIBILITY

The responsibility to determine the acceptability of the military proposal is delegated to regional Air Traffic Divisions after coordination with the Airway Facilities, Flight Standards, and Airports Divisions. Any problems with or objections to the proposal shall be resolved at the regional level prior to issuance of the decision. The determination shall be issued in memorandum form stating that the FAA has "no objections," or "objects," to the installation of the navigational aid. Airports Offices are cautioned to ensure that site locations for the establishment or relocation of air navigation aids on obligated airports are in accordance with FAA approved Airport Layout Plans. Any restriction or reasons why the proposal is objectionable shall be clearly set forth in the memorandum.

4135. NOTIFICATION AND DISTRIBUTION

The appropriate Air Traffic Office shall normally address the determination to the military organization that originated the proposal. When the request for the study originated from FAA Headquarters, then the determination should be directed to the office requesting the study or relayed to the Military Command through FAA/DOD coordination procedures. Forward one copy of the memorandum to ATR-100, AES-500, and those regional offices that participated in the study.

4136-4139. RESERVED.

Section 2. FAA AIR NAVIGATION AIDS

4120. GENERAL

Site locations for the establishment or relocation of air navigation aids require approval by the appropriate regional Airway Facilities, Air Traffic, Flight Standards, and Airports Offices. The Regional Airway Facilities' airspace focal point shall request the appropriate regional Air Traffic Office to initiate a nonrulemaking study of the selected site. The Airway Facility Division must concur with the site location before the request for study is made.

4121. COORDINATION

The Air Traffic Office shall coordinate the proposed site with the regional Flight Standards and Airports Offices, as well as affected air traffic control facilities. The purpose of the air navigation aid must be considered and, as appropriate, a preliminary decision made regarding the establishment of instrument procedures, airways/routes, designation of controlled airspace, ability to provide essential air traffic services, the effect of the site on facility performance, and the effect on the location or configuration of an airport. If all offices agree with the selected site, then the Air Traffic Office should circularize the proposal, as determined necessary, for comment from the aviation community.

4122. INFORMAL AIRSPACE MEETINGS

Convene an informal airspace meeting in accordance with the procedures in Part 1 when considered necessary. Informal airspace meetings may not be practical for proposals that are time critical or in those cases where delay will adversely affect aviation safety. At such meetings, agency representatives should explain the proposed use of the navigation aid, including instrument approaches or other terminal procedures or airspace planning, that will be subsequently handled by airspace rulemaking procedures. Do not commit the agency regarding the actual designation of airspace based on these aids.

4123. APPROVAL AUTHORITY

Regional Air Traffic Divisions are responsible for final approval or disapproval of sites selected for installation of air navigation aids. The approval or disapproval determination shall be issued by memorandum to the appropriate Airway Facilities Office. Any disapproval issued shall include the reasons why a site is not acceptable. Agency personnel are reminded that site approval does not constitute approval of instrument approach procedures or controlled airspace planning to be processed under rulemaking action.

4124. DISTRIBUTION

The appropriate Air Traffic Office shall distribute a copy of the approval or disapproval determination to all FAA offices that participated in the site study and to ATR-100.

4125. COMMISSIONING DATE

The appropriate Airway Facilities Office is authorized to proceed with installation of the navigational aid upon receipt of the site approval. As soon as possible thereafter, an estimated date of commissioning shall be agreed upon by the offices concerned. To the maximum extent possible, the date of commissioning shall be compatible with the associated aeronautical charting dates. (See Orders 8260.26 and 7031.20.)

4126. PROCESSING REGULATORY ACTIONS

The appropriate Flight Standards and Air Traffic Offices shall process the necessary instrument procedures and airspace rulemaking actions to be effective coincident with the commissioning date.

4127-4129. RESERVED.

PART 4. AIR NAVIGATION AIDS

Chapter 16. ESTABLISHING AIR NAVIGATION AIDS

Section 1. GENERAL

4000. PURPOSE

This part provides guidelines and procedures for nonrulemaking actions related to requests for the establishment, relocation, modification, and discontinuance of air navigation aids. Various types of air navigation aids are in use today, each serving a special purpose in the National Airspace System (NAS). These aids have varied owners and operators, but FAA has statutory authority to prescribe standards for the operation of any of these aids which are used for instrument flight rules operations.

4001. COMPATIBILITY WITH CHARTING DATES

To minimize impact on the NOTAM system, the dates for commissioning, discontinuance, or conversion of FAA navigation aids that are part of the NAS shall be compatible with charting dates to the maximum extent possible.

4002. RESPONSIBILITY FOR FREQUENCY SELECTION

The Interdepartmental Radio Advisory Committee (IRAC), which is composed of representatives of various Federal agencies, has delegated to the FAA the responsibility to engineer frequency selections for all air navigation aids. The frequency is selected by the regional Frequency Management Office as set forth in the FAA's 6050 series of orders. Military and other government proponents apply for authorization to the FAA through their respective headquarters. Non-Federal proponents must file with the FCC and

shall only be notified of the frequency selected after the FCC/IRAC action is completed.

4003. GOVERNING CRITERIA

Criteria governing the establishment of air navigation aids are contained in Airway Planning Standards 1 and 2 (Orders 7031.2 and 7031.3), Federal Aviation Regulations, Part 171, and other pertinent agency orders.

4004. LONG-RANGE PLANNING

Regional Air Traffic, Airway Facilities, and Flight Standards Divisions shall, in conjunction, maintain a long-range plan for the provision of air navigation aids and associated air traffic control service.

4005. PROPOSED CHANGES

Regional Air Traffic Divisions shall submit to Air Traffic Service, System Plans and Programs Division, ATR-100, proposed changes to the air navigation aids that are of sufficient magnitude to require advance budgetary planning and/or user coordination at the national level.

4006. PROCEDURES INVOLVING WAIVERS

Forward proposals involving a waiver of nonrulemaking policy or procedures which affect the establishment, relocation, modification, or discontinuance of air navigation aids to ATO-200 for coordination and approval.

4007-4119. RESERVED.

Chapter 15. AIRPORT CHARTING AND PUBLICATION OF AIRPORT DATA

3600. POLICY

All landing facilities which have received airspace determinations, or those not analyzed, must be properly documented and processed in accordance with procedures contained in FAA Order 5010.4, Airport Safety Data Program. Landing facilities that have received objectionable airspace determinations will not be published in the National Flight Data Digest (NFDD), will not be depicted on aeronautical charts, and will not be published in the Airport Facility Directory (A/FD).

3601. NFDC RESPONSIBILITY

As part of the Airspace-Rules and Aeronautical Information Division of the Air Traffic Service, the National Flight Data Center (NFDC), ATO-250, plans, establishes, and directs the FAA's system and programs to provide a single source for serving the flight information requirements of the aviation industry producers of aeronautical charts and publications and other government agencies and users. NFDC also conducts the agency program and serves as the central source for the collection, storage, validation, and dissemination of the physical and operational description of airports (all categories), national and international. A list of all additions, modifications, and deletions of the airport data base is published daily in the NFDD. NFDC will maintain complete information on airports of record, and the NFDD will contain pertinent factual information concerning an airport, including whether the airport is available for public use.

3602. AIRPORT CHARTING

a. Airports meeting the criteria below may be charted, provided the data has been processed in accordance with the policy set forth in paragraph 3600.

(1) Airports (including ultralight flight parks) available for public use.

(2) Military airports without charting restrictions.

(3) Abandoned airports having landmark value.

(4) Personal-use or private-use airports having emergency landing or landmark values.

(5) Heliports available for public use and not associated with an existing fixed-wing airport.

(6) Gliderports.

(7) Airports of lesser aeronautical importance may be omitted in congested areas where other airports with adequate and better facilities are available nearby.

→ (8) Seaplane bases.

b. Airports will be plotted to true geographic positions on charts unless they are in conflict with a navigation aid at the same location. In such cases, the airport will be displaced from, or superimposed upon the navigation aid. However, in displacing, for cartographic purposes, the relationship between the airport and navigation aid is retained.

c. Airports will be charted on aeronautical charts by using the symbols shown in Figure 3-9. Airports where airport traffic areas have been established are shown in blue. All other airports are shown in magenta. Airport names and associated data are shown in the same color as the airport symbol.

3603-3999. RESERVED.

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Chapter 14. MILITARY, NASA, AND OTHER AGENCY AIRPORT PROPOSALS

3500. REQUIREMENT FOR PRIOR NOTICE

Section 308(b) of the Federal Aviation Act of 1958, as amended, provides, in part, that the Department of Defense (DOD), the National Aeronautics and Space Administration (NASA), or other agencies shall not acquire, establish, or construct any military airport, missile, or rocket site; or substantially alter any runway layout unless reasonable prior notice is given to the FAA Administrator so that he may advise with the appropriate committees of Congress and other interested agencies as to the effects of such projects upon the use of airspace by aircraft.

3501. FORM OF NOTICE

DOD forwards military airport or missile site projects to FAA Washington Headquarters in the form of an annual Military Construction Program (MCP). Military projects not involved in the annual program are submitted to the FAA regional office by the individual services or commands through the regional military representatives. (See paragraph 3504.) NASA and other agencies submit their projects directly to FAA Washington Headquarters.

3502. FAA HEADQUARTERS REVIEW

Annual MCP's and proposals submitted by NASA or other agencies are forwarded to Air Traffic Operations Service, ATO-200, for review and processing. ATO-200 shall coordinate with appropriate Headquarters Air Traffic, Airports, Flight Operations, and Systems Engineering Offices prior to forwarding the proposal to the regional office for study. Any problems with the proposal at the Headquarters level should be resolved prior to requesting regional input.

3503. REGIONAL OFFICE REVIEW

ATO-200 will then forward the projects to the appropriate regional office for processing in the

same manner as civil airport proposals, except that regional Air Traffic divisions are responsible for the study. The determination and recommendation on the proposal, plus all pertinent comments and related material, shall be forwarded to ATO-200 by the regional Air Traffic division. The official FAA determination shall be formulated by ATO-200 after review and any required interservices coordination and forwarded to DOD, NASA, or other agencies as appropriate. A copy of the determination shall be forwarded to the affected regional office.

3504. MILITARY PROPOSALS OTHER THAN MCP

Other military airport proposals may be submitted by individual services through the appropriate regional military representatives to the regional office. These proposals shall be processed in the same manner as civil airport proposals except as indicated below. This exception does not apply to notices on joint-use airports received under Part 157 or AIP projects.

a. The regional Air Traffic division shall coordinate with the Airports, Flight Standards, Airway Facilities divisions, and other offices as required for formulation of the official FAA determination. The determination shall be issued to the appropriate regional military representative with a copy to ATO-210.

b. When a controversial proposal is referred to Washington Headquarters for resolution, the airspace finding and official agency determination shall be formulated by ATO-200 in coordination with the Office of Airports Standards and other offices, as required, and forwarded to the appropriate regional military representatives through the regional office.

3505-3599. RESERVED

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c. Notice of Completion. Include a reminder that the sponsor is required to notify the nearest ADO or regional office within 30 days after completion of the project (FAR 157.9).

3405. AIRPORT MASTER RECORD

When appropriate, enclose within the determination an FAA Form 5010, Airport Master Record, and include a statement in the determination letter providing guidance to the sponsor for its use.

3406. ADVISE FEDERAL AGREEMENT AIRPORT SPONSORS

When a determination is sent to the sponsor, include the following additional statement:

"This determination is not a commitment of Federal funds and does not indicate that the proposed development is environmentally acceptable in accordance with Public Laws 91-190, 91-258, and/or 90-495. An environmental finding is a prerequisite to any major airport development project when Federal aid will be granted for the project."

3407. DISSEMINATION OF STUDY RESULTS

The Airports Office shall provide FAA offices that participated in the study a copy of each determination issued. Include a copy to AAS-330. Additionally, the results of an airport study which has been coordinated or discussed in an informal airspace meeting should be disseminated by the Air Traffic Office to those persons/ offices on the coordination distribution list, attendees at the informal airspace meeting, and any other interested person as soon as feasible after the sponsor has been notified. Outside of agency distribution shall be in the form of a notice "To All Concerned." Include in the notice the aeronautical study number together with a brief resume of the factors on which the determination was based and a recital of any statement included in the determination. In addition, if a conditional statement concerning environmental acceptability has been included in the determination to the proponent, include a similar statement in the notice.

3408. REVIEW OF SENSITIVE OR CONTROVERSIAL CASES

There is no right of petition for review of airport determinations. However, a proponent of an airport proposal, or other interested party, may desire to contest or appeal an FAA determination

considered to be unjust. In that event, the appropriate regional office should attempt to resolve the problem in the following manner:

a. Informal Airspace Meeting. The Air Traffic Office should hold a special informal airspace meeting with all interested parties as set forth in Part 1. Emphasize that the scope of an airport study analysis is limited, and that the FAA's determination is based on the safe and efficient use of airspace by aircraft and the safety of persons and property on the ground. (See Paragraph 3404.)

b. Reevaluate. If any new factors regarding the safe and efficient use of the airspace become known as a result of the informal meeting, then reevaluate the airport proposal. Affirm or revise the original determination as appropriate.

c. Public Hearing. The regulations provide no right to, or procedures for, a public hearing regarding airport matters. An airport airspace determination is only advisory, and basically for FAA's own use. Circularization and, where required, informal airspace meetings should be sufficient to provide interested persons a forum to present their views. When Federal funds are, or will be, involved in the airport or its development, there is a right to a public hearing on site location, but no similar right exists to a hearing on airspace matters. If a party is emphatic in his demand for a public hearing, Washington Headquarters Air Traffic Operations Service should be notified and there shall be no inference made that a hearing may be granted. It is general policy not to grant such hearings; however, should circumstances dictate otherwise, Washington Headquarters Air Traffic Operations Service would direct the conduct of the hearing to be informal in nature, not within the scope of the Administrative Procedures Act, and the subject matter would be limited to the scope of the airspace analysis; i.e., the safe and efficient use of airspace by aircraft.

3409. DISPOSAL OF FEDERAL SURPLUS REAL PROPERTY FOR PUBLIC AIRPORT PURPOSES

a. Site Endorsement. The FAA shall study and officially endorse the site before property interest in land owned and controlled by the United States is conveyed to a public agency for public airport purposes.

b. Processing Procedures. Surplus Federal property cases shall be processed in the same manner as Federal grant airport proposals.

3410-3499. RESERVED

than relate to VFR operations, or it should be written to specifically prohibit IFR operations.

b. Traffic Patterns. If there is a need to establish specific airport traffic patterns to ensure compatibility of aircraft operations with adjacent airports, or for other reasons, set forth the specific traffic pattern requirement as a condition.

c. Runway Thresholds. When the determination concerns a proposed runway construction and existing objects will obstruct the airspace needed for arrivals or departures and if the obstructions cannot be removed due to lack of control by the airport sponsor or other compelling reasons, the conditions can stipulate displacement or relocation of a runway threshold to provide clearance over the obstructions. If you use this condition, ensure that the remaining length is sufficient to safely accommodate the most critical aircraft expected to use the runway. Perhaps it may be feasible, or more desirable, for the obstructions to be removed rather than shorten the runway. If so, you may give the airport sponsor this option. However, use the following wording in the determination conditions when the study indicates the runway threshold can safely be displaced or relocated.

"The runway threshold is displaced and, if appropriate, properly marked and lighted so as to provide obstacle clearance in accordance with appropriate airport design standards."

"The runway threshold is relocated and properly marked and lighted so as to clearly indicate that portion of runway which is closed to pilots for takeoff and landing."

d. Ingress-Egress Routes. When the determination concerns a heliport, it may be necessary to specify ingress-egress routes in the conditions placed on the determination. (See paragraph 3308.)

e. Other Conditions. Specify any other items in the determination conditions which are feasible and necessary to assure the safe and efficient use of the airspace by aircraft and the safety of persons and property on the ground.

3403. VOID DATES

The establishment of a void date should be in determinations as appropriate. Void dates (normally 18 months) allow for the orderly planning of airports by providing realistic time limitations for the completion of airport projects. However, give every consideration to extending the void date if a proponent's reasons for not completing the project by the specified time are valid. When establishing void dates on determinations issued under Part 157, include the following statements:

"In order to avoid placing any unfair restrictions on users of the navigable airspace, this determination is valid until (date). Should the airport not be established by this date, an extension of our determination should be requested."

3404. STATEMENT IN DETERMINATIONS

a. No Objections or Conditional. Include the following statement in the determination forwarded to the proponent:

"This determination does not mean FAA approval or disapproval of the physical development involved in the proposal. It is a determination with respect to the safe and efficient use of airspace by aircraft and with respect to the safety of persons and property on the ground."

"In making this determination, the FAA has considered matters such as the effect the proposal would have on existing or planned traffic patterns of neighboring airports, the effects it would have on the existing airspace structure and projected programs of the FAA, the effects it would have on the safety of persons and property on the ground, and the effects that existing or proposed manmade objects (on file with the FAA) and known natural objects within the affected area would have on the airport proposal."

"The FAA cannot prevent the construction of structures near an airport. The airport environs can only be protected through such means as local zoning ordinances or acquisitions of property rights."

b. Objectionable. Include the following statement in the determination forwarded to the proponent:

"This is a determination with respect to the safe and efficient use of airspace by aircraft and with respect to the safety of persons and property on the ground. In making this determination, the FAA has considered matters such as the effect the proposal would have on existing or planned traffic patterns of neighboring airports, the effects it would have on the existing airspace structure and projected programs of the FAA, the effects it would have on the safety of persons and property on the ground, and the effects that existing or proposed manmade objects (on file with the FAA) and natural objects within the affected area would have on the airport proposal."

Chapter 13. AIRPORT DETERMINATIONS

3400. GENERAL

The Airports Office is responsible for formulating and issuing the official determination. That determination shall incorporate the consolidated airspace finding and other pertinent issues. If the official determination will contain additional items and/or alterations of the consolidated airspace finding submitted by Air Traffic, the Airports Office shall obtain a concurrence from the regional Air Traffic, Airway Facilities, and Flight Standards divisions. The Airports Office shall also assure that each determination issued conforms to established policy, procedures, and guidelines. Controversial proposals may require special handling, but no determination shall be issued which would be contrary to agency policy until the matter has been coordinated with and approved by the regional director, the Associate Administrator for Airports, and the Associate Administrator for Air Traffic.

3401. TERMINOLOGY

The following terminology shall be used in FAA determinations:

a. Part 157 Airports.

(1) No objection to the proposal (it will not adversely affect the safe and efficient use of airspace by aircraft).

(2) No objection to the proposal if certain conditions are met (it will not adversely affect the safe and efficient use of airspace by aircraft provided (give conditions)).

(3) Objectionable (it will adversely affect the safe and efficient use of airspace by aircraft (give reasons)).

b. Federal Agreement Related Airport Layout Plans. The regional determination resulting from an analysis study of an airport layout plan or a revision thereto shall relate to approval or disapproval, as appropriate, rather than to objectionable or not objectionable. An FAA-approved ALP is a determination considering all known obstructions to air navigation and all proposed construction whose exact location, type, and dimensions, including height, are identified on the airport layout plan. Agency personnel are reminded that

approval of a Federal agreement ALP includes items shown on the plan, such as terminal buildings, NAVAID's, lighting, fences, cargo facilities and maintenance or service areas. Structures in industrial area developments, motels, storage hangers, and other nonaviation development inside the airport boundary are also appropriate items for inclusion in airport layout plan studies. Approval of an ALP does not constitute approval of structures and their construction materials, methods, dimensions, and orientation unless so shown on the ALP. All items within the airport boundary require notice under Part 152, and airport sponsors should be advised accordingly. The guiding criteria is that all construction involving obligated airports must be in accordance with an approved ALP. Each ALP, and any change in it, is subject to study and FAA approval and is a document which reflects sponsor/FAA agreed upon development. Construction proposals on Federal agreement airports shall be processed and studied as possible ALP modifications. Consequently, any proposal mistakenly submitted by a construction sponsor in accordance with Part 77 shall be forwarded to the appropriate regional Airport Office for study.

3402. CONDITIONAL DETERMINATIONS

When the airport study results in "no objection" if certain conditions are met, then clearly set forth the conditions in the determinations to avoid any misunderstanding.

a. IFR/VFR Status. If the intent of a conditional determination is to restrict or defer the establishment of an instrument approach procedure because of conflict with other IFR procedures in a particular area or to restrict aircraft operations to VFR weather conditions, then these conditions should be clearly defined in the determination to avoid possible misunderstanding. For example, the phrase "VFR operations only" should not be used when the intent is to restrict the establishment of an instrument approach procedure but not necessarily restrict IFR departures. If the intent is to restrict all IFR operations, the determination should identify specific weather conditions rather

Section 3. CONTENT OF PROPOSALS

7130. DESCRIPTION

a. Title — A short definitive description of what is proposed.

b. Boundaries — A definitive description of the proposed area's perimeter in accordance with paragraph 7121.

c. Altitudes — Minimum and maximum altitudes in accordance with paragraph 7122.

d. Times of use — Local time operations are normally expected to begin and end in accordance with paragraph 7123.

e. Controlling agency — Not applicable when the airspace will not be joint use.

f. Using agency.

7131. COORDINATION

Furnish a resume of the coordination accomplished in accordance with paragraph 7006. For new areas, indicate that shared use and/or expansion of existing areas has been explored and determined unacceptable to satisfy the requirement for the proposed airspace. (See paragraph 7003.)

7132. JUSTIFICATION

The need for the proposed airspace must be definitive and able to support any resultant imposition on nonparticipants or affordance of priority to the special use proponent. Requirements, such as "the containment of military activity," or "in support of national defense," or other similar statements, in and of themselves are inadequate.

7133. ACTIVITIES

Activities include:

a. A detailed list of activities to be conducted by each organization proposing to use the area.

b. Local time daily operations normally are scheduled to begin and end. Include weather requirements if it is a condition of use. (See paragraph 7123.)

c. Number of hours (daily) the area will be used.

d. Days per week, weeks per month, or months per year, as appropriate, the area will be used.

e. If the area is to be used for aircraft operations, include:

(1) The number and type of aircraft normally involved in performing activities for which the area is established.

(2) A statement as to whether ground or airborne radar surveillance will be used during the operation. If radar surveillance will be used, indicate on the chart where the radar coverage is available.

(3) The altitudes to be used in daily aircraft operations (expressed in feet MSL or flight levels as appropriate). For each type of activity, include the altitudes (or blocks of altitudes) and the number of hours these altitudes will be used. (See paragraph 7122.)

(4) The intentions regarding flight at supersonic speeds.

f. If the area is to be used for surface firing (see paragraph 7122):

(1) Type weapon/s to be fired with their associated firing fans, footprints, buffers, etc.

(2) Maximum altitude of surface firing (expressed in feet MSL) used in accomplishing required operations.

(3) Number of hours highest altitude is to be used annually.

(4) Altitude normally used for daily firing operations (expressed in feet MSL).

(5) A detailed explanation of the peak hourly, daily, weekly, and monthly volume of firing.

g. Any special requirements.

7134. SAFETY CONSIDERATIONS

Include an explanation as to how each of the following, if applicable, is to be accomplished.

a. How activity will be confined within the proposed area.

b. Procedures for handling malfunctions.

c. Ordnance trajectory envelope.

7135. COMMUNICATIONS AND RADAR

Specify the availability and proposed utilization of ground and/or airborne communications coverage; e.g. range control, military radar unit (MRU), airborne radar unit (ARU), Fleet Area Control and Surveillance Facility (FACSFAC).

7136. ENVIRONMENTAL AND LAND USE INFORMATION

a. Identify the lead agency or appropriate representative responsible for compliance with NEPA.

b. Certify NEPA compliance. If delayed, must be in hand by FAA prior to issuance of final rule

Section 2. DIMENSIONS

7120. GENERAL

Special use airspace is described in terms of horizontal (boundaries) and vertical (altitude) dimensions, effective for a specified period of time.

7121. HORIZONTAL LIMITS

The horizontal limits of special use airspace are defined by geographic coordinates or other appropriate references that clearly describe their boundaries. Where it is difficult to establish boundaries easily discernible from the air, the area may be changed to allow the boundary to be located along some charted prominent terrain feature; i.e., rivers, highways, railroad tracks, etc. Except for temporary areas, boundaries shall not be described as "along the boundary" of another airspace area.

7122. VERTICAL LIMITS

a. Vertical limits shall be established, as necessary, to contain the planned activities. Stratification to enhance joint use is permitted and encouraged.

b. Within areas solely containing aircraft operations, altitudes at or above 18,000 feet MSL shall be expressed as flight levels. Within areas containing other than aircraft operations, altitudes at or above 18,000 feet MSL shall be expressed as feet above mean sea level (MSL).

c. Below 18,000 feet MSL, altitudes shall be expressed to the nearest 100 feet. Above 18,000 feet MSL, altitudes/flight levels shall be expressed to the nearest 500 feet.

d. Procedures for determining the floor of special use airspace vary according to area type and are contained in the appropriate chapters of this part.

e. Ceilings are expressed as flight levels or feet above MSL. Unless otherwise specified, the word "to" an altitude or flight level means "to and including" that altitude or flight level. If the vertical limit does not include the altitude or flight level, the ceiling shall be expressed as "to but not including."

7123. TIMES OF USE

a. Close scrutiny of proposed times of use is essential to good management of special use airspace. Publication of unrealistic usage times unnecessarily discourages pilots of nonparticipating aircraft from requesting transit or activity information. In determining the times of use, the guiding factors are equally to:

(1) Assign the minimum period of time necessary to meet the requirements of the using agency.

(2) Enhance real time joint use of special use airspace by conveying to nonparticipants definite and/or probable periods of inactivity. For areas that permit transit without specific approval, this must also be weighed against the opposite effect of presumed inactivity luring nonparticipants into a lack of vigilance in the area.

(3) Keep to a minimum the amount of information necessary to publish and chart special use airspace areas.

b. Times of use shall be expressed using the terms or combinations of the terms indicated below and should reflect normal use for the majority of the time. When a using agency has knowledge of significant seasonal differences in usage requirements, different times of use may be established as appropriate; e.g., "Sep—Apr, Mon—Fri 0800—1700" and "May—Aug, Daily Sunrise—2300." Days of the week and/or months of the year should be indicated as appropriate.

(1) Sunrise and sunset.

(2) Specified time — Local time using the 24-hour clock.

(3) Intermittent — Requires an associated time or NOTAM provision. Not applicable to restricted areas without a "by NOTAM" provision.

(4) Continuous — Use only if justification exists for utilization 24 hours a day, 7 days a week. Not applicable to warning areas or combined use with (1) and (2) above.

(5) By NOTAM.

(a) May be used alone or in combination with (1), (2), and (3) above when anticipated usage cannot be determined, or when the nature of the using agency's mission requires infrequent and/or erratic utilization. Use of the "by NOTAM" provision is not intended to provide solely for the "possibility of unforeseen short range requirements" of the using agency.

(b) Shall be applicable to an entire area and not only to a portion thereof. When time of use varies significantly from one portion of an area to another, action should be initiated to have dissimilar portions identified by subdivision or reestablished as separate areas.

(c) Activation by NOTAM should normally be at least 24 hours in advance. This may be reduced if justified to gain an operational advantage.

7124-7129. RESERVED

a. Review the proposal for completeness and sufficient justification.

b. Coordinate the proposal to identify conflicts with the requirements of other airspace users. Give special attention to compatible airspace use relative to existing and planned airports and their associated airspace requirements.

c. Circularize the proposal in accordance with the procedures specified in Part 1 and the chapter of this part applicable to the type special use airspace proposed. Additionally, if it would increase the burden on the public and/or coordination and informal discussions indicate it will be controversial, circularize the proposal to interested persons under the procedures of Chapter 2, Section 2. Proposed actions which clearly do not impact aviation need not be circularized nor issued as an NPRM.

d. When comments, review, and/or coordination indicate that the proposal will be controversial, an informal airspace meeting may be scheduled in accordance with Chapter 2, Section 3 of this Handbook.

e. When conclusions are reached, complete processing as specified in the appropriate chapter of this part. When required, forward the proposal to ATO-200 for action. The package shall include at the minimum the region's recommendations, justification, documentation of regional actions, copies of pertinent correspondence, original sectional charts showing proper coordinates, and all other related information contained in Section 3 of this chapter that could be useful to make a determination or complete the coordination.

7008. JOINT USE

Special use airspace should be available for use by nonparticipating aircraft when all or part of the airspace is not required for its prescribed pur-

pose provided there is no derogation to the using agency's mission. Because of their small size, geographic location, or high degree of utilization, some areas are impractical for joint use. Joint use procedures for specific types of airspace are contained in the appropriate chapter of this part.

7009. CONTROLLING AGENCY

Joint use of special use airspace requires the assignment of a controlling agency. The assigned facility is:

a. For joint use restricted areas, the ATC facility that may authorize transit through or flight within a restricted area in accordance with a joint use letter (reference FAR Part 73.17).

b. For other than joint use restricted areas, the FAA or the military ATC facility.

7010. USING AGENCY

Normally, the using agency is the agency, organization, or military command whose activity established the requirement for the special use airspace. An ATC facility may be the using agency for joint use areas when the facility is specified in a letter of procedure as having priority for use of the area.

7011. CHARTING AND PUBLICATION

With the exception of Controlled Firing Areas and an optional requirement for temporary MOA's and temporary restricted areas, special use airspace shall be reflected in aeronautical publications and depicted on aeronautical charts. New and revised areas normally become effective on the U.S. 56-day cycle publication dates (see Part 1).

7012-7119. RESERVED

PART 7. SPECIAL USE AIRSPACE

Chapter 27. GENERAL

Section 1. POLICY

7000. INTRODUCTION

In addition to the requirements of Part 1, this part contains the policy, procedures, and criteria for the assignment, review, modification, and revocation of special use airspace. Special use airspace is airspace of defined dimensions wherein activities must be confined because of their nature, and/or wherein limitations may be imposed upon aircraft operations that are not a part of those activities.

7001. CATEGORIES

The handling of special use airspace matters falls into two categories. The first category consists of rulemaking actions which include restricted areas and prohibited areas. These relate to the assignment, review, modification, or revocation of airspace by a rule, regulation, or order as prescribed in Federal Aviation Regulations (See FAR Part 11). The second category consists of nonrulemaking actions and includes alert areas, controlled firing areas, and military operations areas (MOA's) where the FAA has the authority to make the final decision but does not express that decision by issuing a rule, regulation, or order. Also included in the nonrule category are offshore warning areas where the FAA has an interest, but the final approval is shared by other agencies.

7002. MINIMUM NUMBERS AND VOLUME

a. Special use airspace programs are designed to accommodate national security and welfare and necessary military activity. They identify for other airspace users where the activity occurs and protect other users from hazardous operations. While establishment of special use airspace is essential to national security and the military mission, unnecessary proliferation of these areas degrades the special use airspace program and adversely affects the overall efficiency of the National Airspace System.

b. The volume of airspace to be included in any specific area of special use airspace and the time during which it is to be assigned shall be the minimum required to contain the proposed user activities, including safety zones required by military authority. When an aircraft activity conducted in special use airspace could measurably affect the

safety of persons or property on the surface, the proponent shall demonstrate that provisions have been made for their protection.

7003. OPTIMUM UTILIZATION

To ensure optimum airspace utilization, using agencies shall be encouraged to make their airspace available for the activities of other agencies on a shared use basis. In this regard, all special use airspace proposals shall be specifically reviewed for a determination of whether the military requirement can be accommodated within, or by modifying, existing areas.

7004. WAIVERS OF FAR's

The establishment/designation of special use airspace does not, in itself, waive any part of the Federal Aviation Regulations.

7005. ENVIRONMENTAL ASSESSMENT

Special use airspace actions are subject to environmental assessments and procedures if the floor of the proposed area is below 3,000 feet AGL or if supersonic flight is anticipated at any altitude. Compliance with the National Environmental Policy Act (NEPA) is the responsibility of the proponent under the lead agency concept. (See Order 1050.1.)

7006. COORDINATION OF PROPOSALS

Prior to submission for approval, military proponents of special use airspace will coordinate proposals with locally affected ATC facilities and military units, local FAA representatives/liaison officers where assigned, and the ARTCC having jurisdiction over the affected airspace. All coordination of nonmilitary proposals will be accomplished by the regional Air Traffic division.

7007. REGIONAL ACTION

Special use airspace rulemaking actions shall be processed in accordance with the procedures prescribed in FAR Part 11 and in Parts 1 and 7 of this Handbook. Nonrulemaking actions shall be processed in accordance with the procedures prescribed in Part 1 and this part. Upon receipt of a special use airspace proposal, the region shall:

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Section 3. ARSA PROCESSING

6430. HEADQUARTERS RESPONSIBILITIES

The Air Traffic Operations Service has the responsibility to coordinate all efforts concerning implementation of the ARSA program. NPRM's and final rules will be issued by ATO-200. ATO-200 and ATO-300 are the responsible divisions and will provide assistance to the regions in developing ARSA programs.

6431. REGIONAL RESPONSIBILITIES

a. Regional directors prepare all documents and provide staff studies for each location to determine justification for either withdrawing or proceeding with an NPRM. This applies to new ARSA sites and modifications to existing ARSA sites. The responsibility includes completion of all companion actions associated with the proposed site; i.e., studies, reports, analyses, etc.

b. To ensure that all regions apply a uniform approach to arrive at individual conclusions, a staff study which results in a conclusion to proceed or withdraw the location from further consideration shall be completed for each ARSA proposal. Among other things, the staff study shall contain:

- (1) Traffic volume, density, and breakdown by category.
- (2) Geographical features, adjacent airspace, and air traffic control facilities.
- (3) A description of the terminal area including:
 - (a) VFR traffic flow in and through the area.
 - (b) IFR traffic flow in the affected en route structure including transition routes.

(c) IFR traffic flow in conjunction with runway configuration/SIAP's, SID's, STAR's, and preferential arrival and departure routes.

(d) The names and locations of satellite airports, and a breakdown of air traffic at each by category.

(e) A general description of air traffic operations in the area.

(4) A complete analysis of:

- (a) Major proposals submitted by users.
- (b) Near midair collision assessment.
- (c) The advantages and disadvantages of ARSA establishment.
- (d) Any budgetary impact on air traffic facilities and air navigation facilities, such as new or modified control positions, new or modified communications equipment, the capability of the facility to provide ARSA services to the maximum extent at minimum cost, and new or relocation of navigational aids.

(e) An assessment of the economic impact on users.

(5) A statement as to what actions have been taken to comply with paragraph 6403.

(6) The conclusions reached based on the analysis of the options and issues. The need to enhance safety shall be the key factor in evaluating the options and issues.

6432. ENVIRONMENTAL MATTERS

Environmental matters for ARSA's will be handled in accordance with Handbook 1050.1, Policies and Procedures for Considering Environmental Impacts.

6433-6999. RESERVED

Section 2. CRITERIA/REQUIREMENTS

6420. LOCATION CRITERIA

For a site to be considered as an ARSA candidate, apply the following criteria:

a. An airport with an operational airport traffic control tower serviced by a radar approach control; and

b. Meets one of the following:

(1) 75,000 annual instrument operations count at the primary airport; or

(2) 100,000 annual instrument operations count at the primary and secondary airports in the terminal area hub; or

(3) 250,000 annual enplaned passengers at the primary airport.

6421. REGIONAL EVALUATION

Regions shall periodically reevaluate ARSA designs using the items as listed in paragraph 6431 as guidelines. If it is determined that a modification is required, regions shall adhere to paragraph 6422 as applicable.

6422. CONFIGURATION

a. General Design. Simplification and standardization of ARSA airspace are prime requisites. Vertical and lateral limits shall be in accordance with the following to the maximum extent practicable. The number of subareas shall be kept to a minimum.

b. Lateral Limits. ARSA airspace should initially be designed as two circles centered on the airport reference point. The inner circle should have a five nautical mile radius, and the outer circle should have a ten nautical mile radius. Wherever possible, VOR radials and DME arcs should be used to define the boundaries of the

ARSA and any of its subareas. It is important, however, that prominent visual landmarks also be considered as aids to the VFR traffic desiring to remain clear of the area.

c. Vertical Limits. The ceiling of an ARSA should be 4,000 feet above the field elevation of the primary airport. That ceiling applies equally to the airspace laterally defined by the five and ten nautical mile circles. The lower vertical limit within the five nautical mile circle should be to the surface. The lower vertical limit between the five nautical mile circle and the ten nautical mile circle shall not be lower than 1,200 feet AGL.

Note. — Though not requiring regulatory action, an Outer Area is the procedural companion to an ARSA. The normal radius of an Outer Area is 20 nautical miles from the primary ARSA airport. Its vertical limit extends from the lower limits of radio/radar coverage up to the ceiling of the approach control's delegated airspace, excluding the ARSA itself.

6423. REQUIREMENTS

A candidate ARSA action:

a. Shall be identified and approved by ATO-200 prior to being publicly announced.

b. Shall be designed by the region/facility with the coordinated assistance of ATO-200. This design will:

(1) Be in accordance with paragraph 6422.

(2) Be subject to modification based on user comments if safety and efficiency can be maintained.

(3) Consider any other factors that may be appropriate.

c. Shall be circularized/presented to users in accordance with paragraphs 1052, 1053, and 1062.

6424-6429. RESERVED

Chapter 26. AIRPORT RADAR SERVICE AREAS (ARSA'S)

Section 1. GENERAL

6400. INTRODUCTION

a. The ARSA concept was developed as the successor to Terminal Radar Service Area (TRSA) following the recommendation of the National Airspace Review Task Group, a thorough review by the FAA, and over a year's confirmation at selected field facilities. As a result of that review and confirmation, it was determined that ARSA would improve aviation safety and simplify and standardize terminal air traffic control services at facilities that were then utilizing TRSA procedures. Thus, national implementation of ARSA coupled with cancellation of TRSA was begun on March 14, 1985.

b. From an airspace point of view, the primary difference between ARSA and TRSA is that ARSA is regulatory airspace requiring rulemaking to establish; TRSA was nonregulatory airspace and did not require rulemaking. Additionally, ARSA's are generally smaller in size and more standard in dimension than were the earlier TRSA's.

6401. DEFINITION

An ARSA consists of controlled airspace extending upward from the surface or higher to specified

altitudes within which all aircraft are subject to the operating rules and pilot and equipment requirements specified in FAR Part 91.

6402. DESIGNATION

ARSA locations include only one primary airport around which the ARSA is designated.

6403. NONRULEMAKING ALTERNATIVES

Before rulemaking action is initiated to establish an ARSA, all nonrulemaking alternatives which provide for an acceptable level of safety and are consistent with the objectives of standardization and simplification shall be exhausted. Such alternatives include but are not limited to the following:

- a. Review and improve radar services.
- b. Implement, expand, or improve Stage II services.
- c. Conduct pilot/controller education programs, aviation education safety seminars, etc.

6404-6419. RESERVED

Section 3. TCA PROCESSING

6330. HEADQUARTERS RESPONSIBILITY

Air Traffic Operations Service has the responsibility to coordinate all efforts concerning implementation of a TCA. All regulatory proposals and rules will be issued by ATO. ATO-200 is the responsible division and will provide assistance to the regions in developing a TCA proposal.

6331. REGIONAL RESPONSIBILITIES

a. The regional Air Traffic division performs analyses of the TCA candidate, documents the analyses in a staff study, and prepares a draft NPRM when it is indicated that a TCA should be established or an existing one modified. When analyses indicate that a TCA should not be further pursued, documentation and recommendations shall be forwarded to ATO-200 for approval.

b. Regardless of the conclusions drawn from the analyses, the documentation forwarded to ATO-200 shall include the following:

(1) A description and graphic depictions of the area being analyzed in terms of the following:

(a) Routes with altitudes that VFR traffic currently use while operating en route through the area or transitioning to all affected airports.

(b) Routes with altitudes that would be charted and recommended for use by transiting VFR aircraft.

Note. — It is expected that ATC service would be provided to VFR aircraft in the facility's delegated airspace where and when feasible.

(c) Routes with altitudes that IFR traffic use to conduct en route operations through the area being analyzed.

(d) IFR departure and arrival traffic flows including SIAP's, SID's, STAR's, and preferential arrival and departure routes associated with each runway configuration.

(2) A narrative discussion and rationale of the following:

(a) Numbers of aircraft based and types of operations conducted at affected airports.

(b) Numbers of VFR operations that receive ATC service, are denied service, and circumnavigate the present terminal airspace configuration. Include any anticipated increase or decrease in these numbers under a TCA configuration.

(c) Average delay now experienced by VFR operations in obtaining ATC services and any anticipated increase or decrease in this number.

(d) The facility's ability to provide ATC service to IFR and VFR traffic within the boundaries of the facility's delegated airspace after a TCA is established/modified.

(3) Analyses of staffing, options, and issues, such as:

(a) Current staffing status and anticipated staffing changes needed to implement a TCA.

(b) Major proposals submitted by user groups and an analysis of each.

(c) Impact on air traffic and air navigation facilities (new or modified control positions required, if any, and new or relocation of navigational aids including communication equipment).

(4) Environmental considerations.

(5) Conclusions:

(a) Explanation of the conclusion reached based on all considerations.

(b) The need to enhance safety shall be the key factor in evaluating issues associated with establishing or modifying a TCA and should be reflected in the conclusion.

6332. ENVIRONMENTAL MATTERS

Environmental matters for TCA's will be handled in accordance with Handbook 1050.1, Policies and Procedures for Considering Environmental Impacts.

6333-6399. RESERVED

6323. REQUIREMENTS

A candidate TCA action:

- a. Shall require concurrence from ATO-200 prior to such action being publicly announced.
- b. Shall be designed by the region/facility with the coordinated assistance of ATO-200. This design will:

(1) Be subject to modification based on user comments if safety and efficiency can be maintained.

(2) Consider any other factors that may be appropriate.

c. Shall be circularized/presented to users in accordance with paragraphs 1052, 1053, and 1062.

6324-6329. RESERVED

Section 2. CRITERIA/REQUIREMENT

6320. LOCATION CRITERIA

Projected growth and other safety factors should be considered in advance of the airport's actual qualifying as a TCA candidate. For a site to be formally proposed as a new TCA candidate, the following criteria must be met:

a. Group I:

(1) The primary airport serves at least 3.5 million passengers enplaned annually; or

(2) The primary airport has a total airport operations count of 300,000 of which 50 percent is air carrier.

b. Group II:

(1) 650,000 annual enplaned passengers from terminal area hub.

(2) 150,000 annual instrument operations at the primary airport.

Note. — "Passengers enplaned" as defined in Public Law 97-248, Airport and Airway Improvement Act, means domestic, territorial, and international revenue enplanements in the U.S. in scheduled and nonscheduled service of aircraft in intrastate, interstate, and foreign commerce as determined by the Secretary of Transportation. Enplaned passenger counts may be obtained by contacting APP-400 at 267-8782. Validated counts for the current year are not available. However, unvalidated counts for the preceding year are available approximately mid-June of the current year; e.g., 1986 counts were available in June 1987. Validated counts for the previous year are normally available in mid-October of the current year.

6321. REGIONAL EVALUATION

Modification and/or expansion of existing TCA's. Regions shall periodically reevaluate TCA designs using the items as listed in paragraph 6331 as guidelines. If it is determined that a modification is required, regions shall adhere to paragraph 6322 as applicable.

6322. CONFIGURATION

a. General Design. Simplification of the TCA airspace configuration is a prime requisite. Vertical and lateral limits should be standardized and, to the extent practicable, be designed to retain all published instrument procedures once their flight track enters the TCA. The number of subareas should be kept to a minimum.

b. Lateral Limits. TCA airspace should initially be designed in a circular configuration centered on the primary airport. Describe the TCA utilizing

NAVAID's where available on the primary airport in the following order of preference: VORTAC, VOR/DME, ILS/DME.

(1) The outer limits of the TCA should be a 30 NM radius from the primary airport.

(2) This 30 mile radius should be divided into three concentric areas: an inner 10 NM radius, a 20 NM radius, and the outer 30 NM radius.

(3) The inner 10 mile radius area may be subdivided based on operational needs, runway alignment, adjacent regulatory airspace, or adjacent airports.

(4) The areas between 10 to 20 NM and 20 to 30 NM may be vertically subdivided because of terrain or other regulatory airspace.

c. Vertical Limits. The upper limit of the TCA should be 12,500 feet MSL. The inner 10-mile area shall normally extend from the surface to the upper limits of the TCA. This segment may be adjusted to coincide with runway alignment, adjacent airports, other regulatory airspace, etc., but shall encompass, as a minimum, all final approach fixes and minimum altitudes at the final approach fix. The floor of the area between 10 and 20 NM shall be predicated on a 300-foot per NM gradient for 10 NM. This segment will normally have a floor between 2,800 feet and 3,000 feet above the airport elevation. This floor shall remain constant for that segment, but it may be adjusted in consideration of terrain and adjacent regulatory airspace. However, segmentation should be held to an absolute minimum. The floor of the area between 20 and 30 NM shall be at an altitude consistent with approach control arrival and departure procedures. It is expected that this floor would normally be between 5,000 and 6,000 feet above airport elevation. In the segment between 20 and 30 NM, exclusions are permitted to accommodate adjacent regulatory airspace and/or terrain.

d. Any variation from the standard configuration identified above shall be addressed in an appropriate staff study.

e. Satellite Airports. When establishing a TCA floor, consider the adverse effect on satellite airport operations as well as operations at the primary airport. When airspace directly over a satellite airport is not required, appropriate airspace surrounding the airport should be excluded from the TCA. Special published traffic patterns and/or procedures may be required for satellite airports.

Chapter 25. TERMINAL CONTROL AREAS (TCA'S)

Section 1. GENERAL

6300. INTRODUCTION

The TCA program was developed to reduce the midair collision potential in the congested airspace surrounding an airport with high density air traffic by providing an area in which all aircraft will be subject to certain operating rules and equipment requirements. The TCA operating rules afford a level of protection that is appropriate for the large numbers of aircraft and people served by this type of airport. The TCA equipment requirements provide the air traffic control system with an increased capability to provide aircraft separation service within the TCA. The criteria for considering a given terminal area as a TCA candidate is based on factors which include the number of aircraft and people using that airspace, the traffic density, and the type or nature of operations being conducted.

6301. DEFINITION

A TCA consists of controlled airspace extending upward from the surface or higher to specified altitudes within which all aircraft are subject to the operating rules and pilot and equipment requirements specified in FAR Part 91.

6302. DESIGNATION

TCA locations are designated as either Group I or Group II (although provided for in FAR Part 91, no Group III TCA's have been established, and there are no plans to do so) and include at least one primary airport around which the TCA is designated.

6303. WITHDRAWN—CHG 1

6304-6319. RESERVED

Section 5. PROCEDURE TURN CRITERIA

6250. PROCEDURE TURN PROTECTION

Transition area extensions shall be established for the protection of low altitude procedure turn areas as follows:

a. Procedure turns authorized to a distance of 5 nautical miles or less:

(1) The boundary on the procedure turn side is 7 nautical miles (8 statute miles) from and parallel to the approach course.

(2) The boundary on the side opposite to the procedure turn side is 3 nautical miles (3.5 statute miles) from and parallel to the approach course.

(3) The outer limit is established at 10 nautical miles (11.5 statute miles) outbound from the procedure turn fix.

b. Procedure turns authorized to a distance greater than 5 nautical miles:

(1) The boundary on the procedure turn side is 8 nautical miles (9.5 statute miles) from and parallel to the approach course.

(2) The boundary on the side opposite to the procedure turn is 4 nautical miles (4.5 statute miles) from and parallel to the approach course.

(3) The outer limit is established at 16 nautical miles (18.5 statute miles) outbound from the procedure turn fix. This length is extended 1 nautical mile for each mile beyond 10 nautical miles that the procedure turn is authorized.

6251. DETERMINING BASE ALTITUDES

In determining the base altitude of transition areas designated to encompass procedure turns, it is only necessary to consider governing terrain within the TERP's primary obstruction clearance area, excluding the entry zone, rather than terrain within the entire rectangular areas specified above.

6252. MILITARY PENETRATION TURNS

Transition area extensions required for the protection of military high altitude teardrop penetration turns shall be established in accordance with the provisions of Order 7130.1.

6253-6299. RESERVED.

Section 4. ARRIVAL CRITERIA**→ 6240. ARRIVAL EXTENSION**

a. To determine the length of an arrival extension, one needs: (a) the point at which a flight can be expected to leave 1,500 feet above the surface, and (b) the airspace needed to contain arriving IFR operations at 1,500 feet and higher above the surface. The width of the transition area extension shall be equal to the width of the TERP's primary obstruction clearance area at the point where an IFR flight on an instrument approach can be expected to descend to less than 1,500 feet above the surface. However, if the primary area widens between the point where the flight leaves 1,500 feet and the airport, the widest portion of the primary area shall be used for the transition area extension. Transition area extensions shall, in all cases, extend to a minimum of 1 statute mile on each side of the centerline, even though the primary obstruction clearance area extends less than 1 statute mile from the centerline.

b. The extension length shall be based on the approach requiring the greatest distance when multiple approach procedures (NDB/ILS/etc.) are established utilizing the same approach course but with different final approach altitudes.

c. The extension width shall be based on the approach requiring the greatest width when multiple approach procedures (NDB/ILS/etc.) are established utilizing the same approach course.

6241. TRANSITION AREA EXTENSIONS

A transition area extension with a base of 1,200 feet above the surface and 5 statute miles each side of the centerline shall be established to contain the flight path of arriving IFR flights at altitudes at least 1,500 feet or higher above the surface.

6242. DETERMINATION OF INSTRUMENT APPROACH CLEARANCE AREA

The point at which a flight can be expected to leave 1,500 feet above the surface on an instrument approach and the width of the primary obstruction clearance area can be obtained from the office responsible for developing the instrument approach.

6243-6249. RESERVED.

Figure 6-4. TRANSITION AREA CLIMB DATA

Use this Figure to determine the requirement for and, if required, the distance from the geographical position of an airport in which a transition area shall extend in order to contain departing IFR flights within controlled airspace during climb to the floor of the applicable overlying controlled airspace (e.g., higher floor transition area, continental control area, airway).

Airport Elevation	Base 700 Feet Distance for Climb to 1,200 Feet Above Airport Elevation	Base 1,200 Feet Additional Distance for Each 100 Feet Climb Above 1,200 Feet
	Criteria I:	I:
SL-2,000	4.6 SM	.74 SM
2,001-4,000	5.2 SM	.81 SM
4,001-6,000	5.8 SM	.87 SM
6,001-Above	6.3 SM	.92 SM
	Criteria II:	II - III:
SL-2,000	6.1 SM	.81 SM
2,001-4,000	6.9 SM	.92 SM
4,001-6,000	7.7 SM	1.04 SM
6,001-Above	8.5 SM	1.15 SM

Example— Use of the above Figure is illustrated by the following example:

Floor of overlying controlled airspace— 4,500 feet MSL;

Airport elevation— 1,500 feet;

Type of operation— Criteria II.

Climb distance to 1,200 feet above airport = 6.1 SM
(convert to 6.5 SM)

Additional climb required to overlying
controlled airspace - 1,800 Feet:

Airport Elevation - 1,500 Feet

Climb above A/P Elevation - 1,200 Feet

Initial Climb - 2,700 Feet

Overlying airspace less initial climb
(4,500 - 2,700 = 1,800 Feet)

(.81 × 18 one hundreds) = 14.58 SM
(convert to 15 SM)

Total distance to overlying controlled airspace

Note— In the additional distances for each 100 feet of climb above 1,200, allowance has been made for reduction in climb rate accompanying power reduction after initial climb. Average distances from the geographical position of the airport to the end of the runway are included in the distances indicated for climb to 1,200 feet above airport elevation.

Section 3. DEPARTURE CRITERIA

6230. DEPARTURE AREA

The configuration of a departure transition area is based on either specific or random departure routings and determines whether the transition area will be circular (random) or oriented in one or more specific direction/s. Specific departure areas with a base of 700 feet require the airspace 2 statute miles each side. One with a base of 1,200 feet requires 5 statute miles each side of the centerline of departure tracks. (See Figures 6-2 and 6-4.)

6231. LENGTHY TRANSITION AREA EXTENSIONS

If lengthy transition area extensions are established for departing flights, they shall include the additional airspace within lines diverging at angles of 4.5° from the centerline of the route radial beginning at the associated NAVAID. In planning such extensions, the same frequency protection considerations involved in airway planning must be included.

Note. — The 4.5° angle leaves an *8 nautical mile* wide area at 51 nautical miles and a *10 statute mile* wide area at 63.5 statute miles from associated navigational aid (NAVAID).

6232-6239. RESERVED



Control Zone Climb Data in Statute Miles

Height Above Airport Elevation*		Criteria I	Criteria II	Criteria III
700'	(a).....	2.54	3.31	4.55
Each 100'	(b).....	.01325	.0237	.0284
800'	(a).....	2.83	3.65	5.02
Each 100'	(b).....	.01514	.0274	.0322
900'	(a).....	3.14	3.98	5.47
Each 100'	(b).....	.01703	.0312	.036
1,000'	(a).....	3.43	4.38	5.97
Each 100'	(b).....	.01892	.034	.0397
1,100'	(a).....	3.74	4.73	6.45
Each 100'	(b).....	.02081	.0378	.0427
1,200'	(a).....	4.02	5.06	6.94
Each 100'	(b).....	.0227	.0416	.0474

The above distances represent: (a) distance required to climb from sea level airport to 700' through 1,200' and (b) the distance to add for each 100' of airport elevation above sea level. These distances include the addition of average geographical position to runway end distances of: Criteria I — .5sm; Criteria II — .75sm; Criteria III — 1.25sm.

* Ensure the height is not less than the base of adjacent controlled airspace.

For climb above 1,249', the appropriate distance indicated below must be added to the 1,200' figure determined from above for each additional 100 feet of climb.

Airport Elevation	Criteria I	Criteria II	Criteria III
SL to 2,000'.....	.576	.737	.737
2,001' to 4,000'.....	.647	.806	.806
4,001' to 6,000'.....	.69	.851	.851

Figure 6-3

6120. CONFIGURATION

a. A control zone shall be of sufficient size to:

(1) Allow for safe and efficient handling of operations.

(2) Contain IFR arrival operations while between the surface and 1,000 feet above the surface and IFR departure operations while between the surface and the base of adjacent controlled airspace.

b. It is normally a circular area having a radius of at least 5 statute miles. However, size may vary to provide for (1) and (2) above. Control zones restricted for helicopter-only operations may be smaller in radius.

6121. GEOGRAPHIC POSITION OF AIRPORT

The control zone configuration (radius) is based on the "geographic position" of the primary airport. This "geographic position," expressed in coordinates to the nearest 5 seconds, is determined by National Ocean Service (NOS) and should be incorporated into the control zone description.

6122. SATELLITE AIRPORTS

Satellite airports may be excluded from the control zone if they are outside the TERP's primary obstruction clearance area of the procedure/s for which the control zone is constructed. Normally, only airspace beyond 3 statute miles from the primary airport may be excluded (5 statute miles if the primary airport is used by turbojet aircraft). Satellite airports should not be excluded if IFR operations at the primary airport would be adversely affected. (See Figure 6-1.)

6123. ADJOINING CONTROL ZONES

Separate control zones shall be established for airports in proximity to each other if appropriate agreements or procedures can be developed. Normally, a common boundary line should be used so that the zones do not overlap.

6124. DETERMINING CONTROL ZONE SIZE

The size of a control zone, and any necessary extensions, is determined by the use of Figures 6-2 and 6-3. It is also determined from information obtained from the person responsible for developing instrument procedures.

NOTE.—Normally, the person responsible for developing civil and U.S. Army instrument procedures is a Flight Standards specialist. A military representative shall handle all other military procedures.

6125. DEPARTURE EXTENSION

A control zone departure extension is based on either specific or random departure routings. Once this information is obtained, it can be determined whether the extension will require expansion of the entire control zone circumference (random) or in one or more specific direction/s. Length of the extension is determined from Figures 6-2 and 6-3, while width shall contain the airspace 2 statute miles each side of the centerline of the departure track for which it is required.

6126. ARRIVAL EXTENSION

a. A control zone arrival extension shall be established to the point where an IFR flight on an instrument approach can be expected to descend to less than 1,000 feet above the surface.

b. The extension length shall be based on the approach requiring the greatest distance when multiple approach procedures (NDB/ILS, etc.) are established utilizing the same initial approach course but with different final approach altitudes. Consistent with safety and operational feasibility where adjustment of a final approach altitude could be made for a procedure and thereby eliminate or shorten an extension, coordination with the appropriate Flight Standards Office or military representative should be initiated to accomplish the adjustment.

c. The width of the extension shall be equal to the width of the TERP's primary obstruction clearance area at the point where an IFR flight on an instrument approach can be expected to descend to an altitude below 1,000 feet above the surface. However, if the primary area widens between the point where the flight leaves 1,000 feet and the airport, the widened portion of the primary area located outside the basic control zone radius shall be used for the extension. These extensions shall, in all cases, extend to a minimum of 1 statute mile on each side of the centerline, even though the primary obstruction clearance area extends less than 1 statute mile from the centerline.

NOTE.—The point at which a flight can be expected to leave 1,000 feet above the surface on an instrument approach and the width of the primary obstruction clearance area can be obtained from the person responsible for developing the instrument procedure.

→ d. The extension width shall be based on the approach requiring the greatest width where multiple approach procedures (NDB/ILS/etc.) are established utilizing the same approach course.

6127-6199. RESERVED

or publication cutoff date for nonrulemaking action.

c. Furnish the names, addresses, and telephone numbers of persons to whom comments on environmental and land use aspects may be submitted

d. Proposals requesting designation below 1,200 feet AGL which have underlying private or public use land must indicate agreement to provide reasonable and timely aerial access to such land. Prohibited and restricted area proposals requesting designation from the surface shall indicate that the proponent either owns, leases, or by agreement controls the underlying surface.

7137. GRAPHIC DISPLAY

Proposals shall include a graphic presentation of the proposed area on maps and aeronautical charts as appropriate. If applicable, the presentation should indicate those areas owned, leased, or controlled by the using agency. All proposals should, as a minimum, be depicted on an original Sectional Aeronautical Chart.

a. If the area is to contain aircraft operations, the following shall be depicted:

(1) The location and the representative pattern of firing and/or bombing runs. If appropriate, show where run begins, lock-on point, where firing, if any, commences and ends, and release point and pullup points.

(2) Impact areas.

b. If the area is to contain surface-to-surface or surface-to-air firings, the following shall be depicted:

(1) Firing points.

(2) Impact areas.

(3) Perimeter of firing fans for each type weapon used.

7138. JOINT USE

State whether the area will be joint use, and if not, include justification.

7139. REMARKS

Specify any pertinent data not indicated elsewhere.

7140-7149. RESERVED

Section 4. REVIEW AND ANALYSIS

7150. ANNUAL REVIEW

ATO-200 and regional Air Traffic divisions shall systematically and periodically review special use airspace within their area of jurisdiction, and if required, initiate action to alter or revoke such airspace. As a minimum, the utilization of each area of special use airspace, except prohibited and warning areas, shall be reviewed on an annual basis.

7151. FORMAL/INFORMAL REVIEW

The review of special use airspace may be accomplished through formal or informal procedures. Formal reviews are conducted by special use airspace teams that are established when determined to be appropriate by ATO-200 or a regional Air Traffic division. Informal reviews are conducted on a continuous basis by all agency personnel engaged in handling special use airspace.

7152. TEAM REVIEW

Formal airspace reviews should be conducted by a special use airspace team that consists of three or more members. In matters involving Flight Standards, a representative from the Flight Standards division should be invited to participate as a member of the team. If required, representatives of more than one region can participate as members of the team. The team chairman should be an Air Traffic specialist of ATO-200 or the regional Air Traffic division. The selection and use of the special use airspace team should be on an "as required" basis, and a particular team shall be dissolved when its study is completed. Normally, team efforts should be directed toward problem areas evaluating the need for additional assignments of special use airspace and conducting reviews of selected special use areas for the purpose of developing recommendations for retention, alteration, or revocation based upon changing user requirements and/or actual utilization.

7153. TEAM RESPONSIBILITIES

The team shall act as a fact finding body for gathering complete information concerning the requirement for and use of special use airspace. It

should determine the actual hours of use, altitudes and geographical area used, types of activities conducted, and any other pertinent information. Teams should not accept statements from users based on conjecture regarding the present or future usage of an area. Instead, any stated requirement must be based on factual data.

7154. DUTIES OF CHAIRMAN

In addition to the above general responsibilities of a special use airspace review team, the team chairman shall accomplish the following:

a. Prior to the team's visit to the area, coordinate with appropriate military commands and/or civil users. Coordination should be initiated far enough in advance of the team's visit to provide local representatives with sufficient time to prepare required data. Initial coordination with the military shall be effected through the appropriate regional military representative.

b. If deemed necessary, schedule an informal airspace meeting near the location of the area under study. Such a meeting would allow the users and other interested persons an opportunity to present their position and offer recommendations.

7155. TEAM REPORT

On completion of the review, the team shall analyze the information obtained and develop its recommendations. The team findings shall be forwarded through the regional Air Traffic division to the regional military representative for appropriate action. A copy shall be sent to ATO-200 and to the affected ATC facility/s. The report should include:

a. A summary of the positions of all interested civil and military users to include operational requirements and recommendations.

b. The findings, conclusions, and recommendations of the team.

c. Positions submitted in writing at a formal special use airspace review shall be attached to the team report.

7156 TEAM REPORT RESPONSES

The appropriate regional military representative should provide a response to the team report within 60 days. If the military concurs with the team's findings, conclusions, and recommendations, the Air Traffic division should initiate any appropriate airspace action and advise ATO-200. If the Air Traffic division and the military are

unable to reach an agreement on the team's report, the Air Traffic division should forward the military position along with the Air Traffic division recommendation to ATO-200 for a determination. Also, provide a copy of the Air Traffic division recommendation to the appropriate military representative.

7157-7199. RESERVED



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Chapter 28. PROHIBITED AREAS

Section 1. POLICY

7200. DEFINITION

A prohibited area is airspace designated under FAR Part 73 within which no person may operate an aircraft without the permission of the using agency.

7201. PURPOSE

Prohibited areas are designated when determined necessary to prohibit flight over a surface area in the interest of national security and welfare.

7202. IDENTIFICATION

Prohibited areas are identified by the prefix letter "P," followed by a dash, a two-digit number

and a location (city/town/military reservation); e.g., "P-66 Rancho del Cielo, Goletta, CA." The identification number shall be assigned by ATO-200 and normally not until a proposal is published as an NPRM.

7203. EXTENT

Prohibited areas are normally designated from the surface to the minimum altitude required, with a continuous time of designation.

7204. PUBLICATION

Prohibited areas are designated and published in Part 73 of the Federal Aviation Regulations.

7205-7219. RESERVED

Section 2. PROCESSING

7220. SUBMISSION OF PROPOSAL

A proposal for the designation or amendment of a prohibited area should be submitted to the FAA regional Air Traffic division. If the proposal involves more than one region's airspace, Washington Headquarters (ATO-200) or a lead region may be designated as the focal point. The restrictions imposed by prohibited area designation are such that these actions are normally highly controversial and require indepth study. Although specifying a minimum processing time is impractical, at least 6 months is required for routine action.

7221. REGIONAL ACTIONS

After completion of the requirements of Chapter 27, prohibited area proposals shall be forwarded to ATO-200 for final determination. The proposal package shall include the region's recommendations, documentation of regional actions, copies of pertinent correspondence, and any other information that could be helpful in making a determination.

7222-7299. RESERVED

Chapter 29. RESTRICTED AREAS

Section 1. POLICY

7300. DEFINITION

A restricted area is airspace designated under FAR Part 73 within which the flight of aircraft, while not wholly prohibited, is subject to restriction.

7301. PURPOSE

Restricted areas shall be designated when determined necessary to confine or segregate activities considered to be hazardous to nonparticipating aircraft.

7302. IDENTIFICATION

Restricted areas are identified by the prefix letter "R," followed by a dash, a four-digit number, and a location (city/town/area/military reservation and state); e.g., R-2904 Camp Blanding, FL. A letter suffix is assigned to denote subdivisions; e.g., R-3005A Townsend, GA. Identification numbers shall be obtained from ATO-200 and will not normally be assigned until the proposal is published as a proposed rule.

7303. RESTRICTED AREA FLOOR

Restricted area floors will not normally be designated lower than 1,200 feet above the surface. If a valid requirement exists and there is minimal adverse aeronautical effect on the overall system, restricted areas can be established lower than 1,200 feet above the surface. However, the surface may be designated as the floor only when the using agency either owns, leases, or, by agreement otherwise, controls the underlying surface. At a minimum, provisions must be made for aerial access to private and public use land which underlies the restricted area and to accommodate instrument arrivals/departures with minimum delay. The restricted area shall exclude the airspace 1,500 feet AGL and below within a 3 NM radius of airports available for public use.

7304. PUBLICATION

Restricted areas are designated and published in FAR Part 73 and in FAR Part 71 when joint use areas extend into the Continental Control Area.

7305. JOINT USE

a. Restricted areas are designated as joint use areas by designating a using and a controlling agency and by executing a letter of procedure which provides for the operation of nonparticipating IFR and/or VFR flight within the area. Flight within these areas is controlled by the using agency except when released to the controlling agency during periods the airspace is not being used for its designated purpose. During such periods, the controlling agency may permit aircraft operations within the area.

b. When it is determined that a restricted area will be designated as joint use, the appropriate region will assign a controlling agency which shall, in conjunction with the using agency, execute a joint use letter of procedure. The preparation of the letter of procedure shall be in accordance with Handbook 7210.2. Also, see Figure 7-1. The format may be modified where local conditions warrant a departure from and/or the addition of other provisions, such as vertical and/or lateral subdivision of an area to facilitate joint use. For VFR operations it may be desirable to base lateral subdivisions on obvious, well defined landmarks. Charting of these subdivisions is optional.

c. The regional Air Traffic division shall be the approving authority of all joint use letters of procedure. This authority may be delegated to the facility designated as the controlling agency.

d. When there is a requirement to provide air traffic control services within a restricted area, the facility providing that service will be designated as the controlling agency.

Note. — Before ATC services can be provided in such airspace, it must be designated controlled airspace under FAR Part 71.

e. If both IFR and VFR requirements exist and if the controlling agency is an ATC facility remotely located from the restricted area, the area may be "flagged" on charts indicating to pilots that permission to transit the restricted area may be obtained by contacting an area or local FSS rather than the ATC facility.

f. Communications between the controlling and using agencies concerning the timely release of joint use restricted areas shall be outlined in the letter of procedure. Communications shall be accomplished by direct access telephone whenever possible. A record shall be made of all such communications. These records shall be retained for 15 days or longer if needed.

g. Procedures for clearing IFR flights with respect to joint use restricted areas are contained in Handbook 7110.65.

h. When joint use restricted areas will be designated at altitudes coincident with the Continental

Control Area, take concurrent action to have it incorporated in Subpart D of FAR Part 71.151.

7306. TEMPORARY RESTRICTED AREAS

a. Procedures to establish temporary restricted areas for military exercises are specified in Section 3 of this chapter. Temporary areas for other than military exercised may be designated to accommodate short term activities of various government or private agencies involved in research and development or other activity determined to be hazardous to nonparticipating aircraft.

b. Every attempt shall be made to process proposals in minimum time and provide the proponent assistance in submitting a proper proposal. Proponents shall be encouraged to seek permission from using agencies to conduct their activities within established restricted areas to preclude unnecessary designation of additional restricted airspace.

7307-7319. RESERVED

FEDERAL AVIATION ADMINISTRATION
Washington, D.C. 20591

JOINT USE RESTRICTED AREA LETTER OF PROCEDURE

SUBJECT: Joint Use Letter of Procedure for Use of Restricted Area R-_____

EFFECTIVE: _____

In accordance with §73.13, §73.15, and §73.17 of the Federal Aviation Regulations, the following letter establishes procedures for the use of Restricted Area R-_____, by _____, the Controlling Agency, and by _____, the Using Agency.

1. The Using Agency shall release R-_____ to the Controlling Agency when not in use for the purpose designated.
2. During the time when the airspace is released to the Controlling Agency, FAA may clear IFR traffic and authorize VFR traffic into R-_____.
3. The Controlling Agency shall return the use of R-_____ to the Using Agency upon request. Such request shall be made at least _____ (hours/minutes) prior to use by the Using Agency. (In determining this specific time, consideration should be given to such factors as: (1) IFR procedures which impinge upon the Restricted Area; (2) communications; and (3) time required to ascertain that all VFR aircraft shall be clear of the area.) _____ Tower, RAPCON, RATCF, FSS, etc., is designated as liaison station for the relaying of information concerning the release of the area between the Controlling Agency and the Using Agency. (This statement to be used only when required.)

EXECUTED:

For the Controlling Agency:

Signed _____

Air Traffic Manager, _____

(Date)

For the Using Agency:

Signed _____

(Title) _____

(Date)

Section 2. PROCESSING

7320. SUBMISSION OF PROPOSALS

Restricted area proposals are submitted to the FAA regional Air Traffic division at least 9 months in advance of the desired effective date. Military proposals shall be submitted through the appropriate regional military representative. The following schedule represents the minimum time to process proposals which require only routine coordination.

Calendar Days

D	Proposal Received by FAA region.
D+30	Proposal reviewed by region and submitted to Washington Headquarters.
D+95	Proposal reviewed by Washington Headquarters. NOS coordination and chart preparation and Notice of Proposed Rulemaking (NPRM) is prepared and forwarded to Federal Register.
D+100	NPRM published in Federal Register.
D+145	Comment period for NPRM ends. Comments are directed to appropriate region.

—CONTINUED

<i>Calendar Days</i>	
D+165	Comments reviewed by appropriate region, and recommendations forwarded to Washington Headquarters within 20 days.
D+220	Proposal and comments receive final review. Rule is prepared and forwarded to Federal Register.
D+225	Rule published in Federal Register at least 30 days prior to effective date.
D+225-281	NOS cutoff date/rule effective date within this time frame (NOS cutoff date is 8 weeks prior to rule effective date).

7321. REGIONAL ACTION

After completion of the requirements of Chapter 27, restricted area proposals shall be forwarded to ATO-200 for final determination. The proposal package shall include the region's recommendations, documentation of regional actions, copies of pertinent correspondence, and any other information that could be helpful in making a determination.

7322-7329. RESERVED

Section 3. TEMPORARY RESTRICTED AREAS FOR MILITARY EXERCISES

7330. HANDLING REQUIREMENTS

The handling of temporary restricted airspace requirements associated with military exercises differs significantly from the processing of other restricted airspace requirements. The following paragraphs provide definitive guidelines for handling the details associated with such exercises.

7331. INFORMAL COORDINATION

Before submitting a formal proposal requesting a temporary restricted area for a military exercise, the proponent should be encouraged to initiate informal coordination with the appropriate FAA region. This informal review can do much in eliminating future objections to the proposal. Where potential problem areas are noted, mutually agreeable adjustments to the proposed area should be made before formally submitting the proposal. During this coordination, primary consideration should be given, but not limited, to the selection of the ground maneuver area. This is because the requirement for restricted airspace will be directly dependent upon the location of the ground maneuver area. Attention should be given to the impact that a particular site location would have on IFR and VFR airway traffic, regularly used VFR routes, off airway air carrier routes, airports within and in proximity, instrument approach and missed approach areas, approach and departure procedures, and any special military operations.

7332. MILITARY EXERCISES

To assist FAA and military personnel in planning and preparing for military exercises requiring restricted airspace, the following time-phased listing of information items that are normally required in the processing of the request for special use airspace has been developed. It is unlikely that the list below includes all items of information that may be required for a specific military exercise and, conversely, certain items will not be applicable in all cases. Its primary purpose is to provide a common basis from which this agency and the DOD can proceed toward determining and meeting the peculiar airspace requirements associated with military exercises.

7333. REQUIRED INFORMATION

Information normally required for processing requests, developing procedures, and time periods required by the FAA are described as follows:

a. After all informal coordination has been completed and at least 8 months prior to the desired effective date of a temporary restricted area, a formal proposal should be submitted to the FAA. The proposal should include:

- (1) Name of exercise.
- (2) Location and description of area.
- (3) Time of designation.
- (4) Controlling and using agency.
- (5) Complete justification for the area to include:
 - (a) Number of aircraft involved.
 - (b) Types of aircraft and missions they will perform.
 - (c) The exercise concept of operation (scenario).
 - (6) A statement explaining if the entire area, as requested, is required for the complete exercise period, or does the scenario allow for releasing a portion of the area. If a portion can be released, what part, vertically or horizontally, and for what period of time.
 - (7) Requirements for refueling tracks, location, VFR or IFR, in or below positive controlled airspace.
 - (8) Commands that will take part in exercise.
 - (9) Requirements for FAA liaison personnel at exercise facilities and military liaison personnel at affected ATC facilities.
 - (10) Provision to be made for nonparticipating aircraft desiring to operate within area.
 - (a) Local airport operations.
 - (b) Ingress and egress routes.
 - (c) Over flights.
 - (d) Acceptance of reverse charge telephone requests from pilots.
 - (e) Capability of the using agency to accept direct radio requests from pilots.

b. Four months prior to the proposed effective date of restricted area an NPRM is published provided the proponent furnishes the following data:

- (1) Bases to be used as staging airfields and estimated volume of activity at each.
- (2) Bare (inactive) bases to be activated and their locations.
- (3) Military control facilities or navigation aids to be established where none now exist for use of participating aircraft outside of restricted area. Information provided should include locations and frequencies.

(4) Requirements for ingress and egress areas (vector areas).

(5) Requirements for routes from staging bases to include estimated volume of use.

(6) Location of military air traffic facilities.

(7) Requirements for refueling tracks, location, VFR or IFR, in or below area positive control.

(8) Requirements for military control of exercise traffic outside of restricted area.

(9) Requirements for FAA liaison personnel at exercise facilities.

c. Three months prior to beginning of exercise:

(1) Make provisions to assure that participating pilots are provided the capability of closing VFR flight plans.

(2) Provide information concerning other activities not mentioned which will require development of special operating procedures and/or FAA military agreements.

(3) NPRM comment period ends. Comments analyzed.

d. Two months prior to beginning of exercise provide any additional information deemed necessary by the FAA. During this period, the rule is published designating the restricted area, or the proposal is rejected, and the NPRM is withdrawn.

e. Forty-five (45) days prior to beginning of exercise:

(1) Provide any additional information deemed necessary by the FAA or exercise proponent.

(2) Provide copies of all established procedures and agreements for distribution to FAA and military personnel who require this information.

7334. DISCOURAGE LATE CHANGES IN REQUIREMENTS

The proponent of a temporary restricted area should be discouraged from making late changes in stated requirements which would generate different procedures from those previously developed. In any case, no change should be made within 45 days of the exercise unless (a) absolutely essential to the safe and successful conduct of the exercise, or (b) to reduce the amount of airspace to be restricted.

7335. TIME REQUIREMENTS

The agency requires a sufficient amount of time to designate airspace, develop procedures, and complete actions necessary to assist the proponent of an exercise to realize its objectives with a minimum of problems. To accomplish this mission, the planning and execution of that portion of the maneuver which deals with air traffic control must be a joint military/FAA effort from site selection to the final day of the exercise. In summary, close, early, and continuous coordination is essential.

7336. SUBMISSION OF PROPOSALS

Calendar Days

D	Proposal received by FAA region.
D+30	Proposal reviewed by region and submitted to Washington Headquarters.
D+95	Proposal reviewed by Washington Headquarters. NOS coordination and chart preparation. Notice of Proposed Rule-making (NPRM) is prepared and forwarded to Federal Register.
D+100	NPRM published in Federal Register.
D+145	Comment period for NPRM ends. Comments are directed to appropriate region.
D+165	Comments reviewed by appropriate region, and recommendations forwarded to Washington Headquarters within 20 days.
D+220	Proposal and comments receive final review. Rule is prepared and forwarded to Federal Register.
D+225	Rule published in Federal Register at least 30 days prior to effective date.
D+225-260	Class II NOTAM cutoff date/Rule effective date within this time frame. (Class II NOTAM cutoff date is 5 weeks prior to Rule effective date.)

7337-7339. RESERVED

Section 4. ANNUAL UTILIZATION REPORT

7340. REQUIREMENT

Part 73.19 of the Federal Aviation Regulations requires using agencies to submit an annual utilization report detailing the use of each assigned restricted area. Supplemental reports may also be required upon request by the FAA.

7341. REVIEW

A detailed review of the annual utilization report shall be made by the appropriate regional Air Traffic division to:

- a. Determine if a particular area's utilization is consistent with its airspace designation or if an adjustment is in order.
- b. Provide data for and to supplement a team review of an area.
- c. Assist in resolution of questions concerning an area.

7342. REPORT AMENDMENTS

If, after reviewing a utilization report it is determined that additional information is needed to evaluate the use of a restricted area, the regional Air Traffic division shall request the using agency to submit a supplemental report in accordance with FAR 73.19. Requests for supplemental reports shall identify the specific additional information which is to be reported.

7343. REVIEW SUMMARY

Regional Air Traffic divisions shall conduct annual utilization reviews of all restricted areas within their jurisdiction and forward recommendations for corrective action, if required, to the regional military representative. An annual review summary including recommendations or actions taken, as appropriate, shall be submitted to ATO-200 ATTN: ATO-240 by June 15 of each year.

7344-7399. RESERVED



Chapter 30. WARNING AREAS

Section 1. POLICY

7400. DEFINITION

A warning area is airspace of defined dimensions over international waters that contains activity which may be hazardous to nonparticipating aircraft. Because international agreements do not provide for prohibition of flight in international airspace, no restriction to flight is imposed. The term "warning area" is synonymous with the International Civil Aviation Organization (ICAO) term "danger area."

7401. PURPOSE

Warning areas are established in international airspace to contain activity that may be hazardous and to alert pilots of nonparticipating aircraft to the potential danger.

7402. IDENTIFICATION

Warning areas are identified by the prefix letter "W," followed by a dash, a two- or three-digit number, and a location (city/town/area/military reservation and state); e.g., W-72 VACAPES VA. A letter suffix is assigned to denote subdivisions; e.g.,

W-72A VACAPES, VA. Identification numbers shall be assigned by ATO-200.

7403. PUBLICATION

When established, warning areas are published in the National Flight Data digest (NFDD). Additionally, information concerning warning areas not adjacent to or near the conterminous United States, Alaska, or Hawaii, will be disseminated by International NOTAM's issued by National Flight data center (NFDC) at least 28 days prior to effective date.

7404. JOINT USE

When it is determined that a warning area will be established as joint use, a letter of agreement will be executed to assign a controlling agency and define the conditions under which nonparticipating aircraft may be authorized to operate within the area. Apply the procedures of paragraph 7305 as appropriate.

7405-7419. RESERVED

Section 2. PROCESSING

7420. SUBMISSION OF PROPOSALS

—CONTINUED

Warning area proposals are submitted to the FAA regional Air Traffic division through the appropriate military representative at least 7 months in advance of the desired effective date. The following schedule represents the minimum time to process proposals which require only routine coordination.

Calendar Days

D+160

Warning area published in NFDD on or before cutoff date for next available charting date.

D+160-
216

NOS cutoff date/effective date within this time frame. (NOS cutoff date is 8 weeks prior to effective date.)

Calendar Days

D	Proposal received by FAA region.
D+30	Proposal reviewed by region and coordinated as required. Nonrule circularization published.
D+75	Comment period for non-rule circularization ends.
D+95	Comments reviewed, and proposal forwarded to ATO-200 with region's recommendations.
D+140	E.O. 10854 and NOS coordination completed by ATO-200.

7421. REGIONAL ACTION

After completion of the requirements of Chapter 27, warning area proposals shall be forwarded to ATO-200 for final coordination and publication.

7422. E.O. 10854 COORDINATION

In accordance with Executive Order 10854, warning area actions require coordination with Departments of State and Defense. This coordination will be accomplished by ATO-200 and normally requires a minimum of 45 days.

7423-7499. RESERVED

Chapter 31. MILITARY OPERATIONS AREAS (MOA'S)

Section 1. POLICY

7500. DEFINITION

A military operations area (MOA) is airspace established outside positive control area to separate/segregate certain nonhazardous military activities from IFR traffic and to identify for VFR traffic where these activities are conducted.

7501. PURPOSE

The military has a continuing requirement to conduct nonhazardous training activities, such as air combat maneuvers, air intercepts, acrobatics, low altitude tactics, etc. MOA's are established to contain these activities in airspace as free as practicable from nonparticipating aircraft.

7502. IDENTIFICATION

MOA's shall be identified by the use of a nickname from a geographical location or any other common name; e.g., "GATOR" or "FORT STEWART," and if desired, further identified in numerical sequence; e.g., "MOODY 1," "MOODY 2," etc. Cardinal points, letters, or "high" and "low" may be used to identify subsections; e.g., "GATOR LOW." Lengthy composites of the above are cumbersome for communications and charting and should be avoided.

7503. MOA FLOOR

If a valid requirement exists and there is minimal adverse aeronautical effect on the overall system, MOA's can be established below 1,200 feet AGL. Determination of effect must include special consideration for aerial access to private and public use land and for terminal VFR and IFR flight operations. At a minimum, provisions must be made to accommodate instrument arrivals/departures with minimum delay, and the MOA shall exclude the airspace 1,500 feet AGL and below within a 3 nautical mile radius of airports available for public use.

7504. LOCATION

While MOA's should be located to create minimum adverse impact on nonparticipating aircraft operations, full consideration shall be given to the military requirement. Where necessary, feasible, and a significant operational advantage will not be lost, airspace configurations may be changed and routes realigned or revoked to accommodate establishment of MOA's. Establishment of terminal or en route airspace to coincide with or supersede existing MOA's shall be avoided unless a significant operational advantage can be gained. MOA's shall not be established off-shore outside the U.S. 3 NM territorial limit. Additionally, and to the extent possible, locate MOA's:

- a. Within radar and communication coverage of an ATC facility or Military Radar Unit (MRU).
- b. Within 100 miles of the base of flight origin.
- c. Outside terminal airspace and away from Federal airways and regularly used VFR routes.

7505. CONTROLLED AIRSPACE

Designate controlled airspace to coincide with MOA's only if IFR ATC service is to be provided in that airspace by an FAA or military ATC facility.

7506. JOINT USE

MOA's, in effect, are always joint use in that VFR aircraft are not denied access and that IFR aircraft may be routed through the airspace when approved separation can be provided from MOA activity. Procedures for use of the airspace by nonparticipating IFR traffic shall be set forth in letters of agreement executed between the controlling and the using agencies. Such letters shall also include procedures for the appropriate flight service stations to be provided real-time active/inactive status of the MOA.

7507-7519. RESERVED

Section 2. PROCESSING

7520. SUBMISSION OF PROPOSALS

—CONTINUED

MOA proposals are submitted to the FAA regional Air Traffic division through the appropriate regional military representative at least 6 months in advance of the effective date. The following schedule represents the minimum time to process proposals which require only routine coordination.

Calendar Days

D+115-
171

NOS cutoff date/effective date within this time frame. (NOS cutoff date is 8 weeks prior to effective date.)

Calendar Days

D	Proposal received by FAA region.
D+30	Proposal reviewed by region and coordinated as required. Nonrule circularization published.
D+75	Comment period for nonrule circularization ends.
D+95	Comments reviewed and approval recommendation or disapproval determination made by region. MOA's recommended for approval sent to ATO-200 for final determination and processing.
D+115	NOS coordination and MOA published in NFDD on or before cutoff date for next charting date.

7521. REGIONAL ACTION

a. ATO-200 is the final approval authority for MOA's. After completion of the requirements of Chapter 27, the regional Air Traffic division shall forward MOA proposals which are recommended for approval to ATO-200 for final determination. The proposal package shall include the region's recommendations, documentation of regional actions, copies of pertinent correspondence, and any other information that can be helpful in making a determination.

b. Authority to disapprove MOA proposals is delegated to the regional Air Traffic division. Disapproved proposals shall be fully documented in correspondence to the proponent with a copy to ATO-200. If the proponent resubmits the proposal, the regional office shall reevaluate and forward the package to ATO-200 for final determination.

7522-7529. RESERVED

Section 3. TEMPORARY MOA'S

7530. GENERAL

Regional Air Traffic divisions are the approval authority for temporary MOA's. Approved temporary MOA's shall be forwarded to ATO-200 for processing and publication. Disapproved proposals shall be fully documented in correspondence to the proponents with a copy to ATO-200. If the proponent resubmits the proposal, the regional office shall reevaluate and forward the package to ATO-200 for final determination.

The provision for temporary MOA's is in recognition of the military's need for additional airspace to periodically conduct readiness exercises that supplement routine training. When it is known that this need will occur on a regular and continuing basis, the necessary airspace should be considered for establishment as a permanent MOA with provisions for its activation by NOTAM/Special Notice disseminated well in advance of the scheduled activity.

7531. LOCATION AND DURATION

When existing airspace is inadequate to accommodate short-term military training exercises, temporary MOA's may be established for a period not to exceed 30 days. Preference will be given to expansion of existing MOA's over establishment of new areas.

7532. PUBLICATION

In all cases, approval of temporary MOA's shall include the provision that the military publicize the exercise within 100 miles of the affected airspace through such avenues as public media, pilot forums, and distribution of bulletins to known aviation interests. Determination of appropriate additional publication for temporary MOA's requires a case-by-case evaluation according to the scope of the exercise, anticipated impact on non-participants, time constraints, and other considerations. Normally, temporary MOA's will be published by NOTAM "L," at least 24 hours prior to activation, and Class II Graphic NOTAM's (available through ATO-200 on 8-9 weeks notice). Mail-

ing the Graphic NOTAM to all licensed pilots within the appropriate geographical area may be required to ensure adequate notification of the temporary airspace. Publication of temporary MOA's on aeronautical charts is normally not required; however, it may be a provision of approval if, because of anticipated impact on nonparticipants, such action is determined essential to aviation safety. Full consideration shall be given to the potential detrimental effect on the military of the additional processing time associated with aeronautical chart cyclic printing dates, and such a requirement shall not be imposed without ATO-200 concurrence.

7533. SUBMISSION OF PROPOSALS

Temporary MOA proposals are submitted to the FAA regional Air Traffic division through the appropriate regional military representative at least 4 months prior to the desired effective date. The following schedule represents the minimum time to process proposals which require only routine coordination.

Calendar Days

D	Proposal received by FAA region.
D+15	Proposal reviewed by region and coordinated as required. Nonrule circularization published.
D+60	Comment period for non-rule circularization ends.
D+80	Comments reviewed by region and approval/disapproval determination made and forwarded to Washington Headquarters within 20 days.
D+100-135	Class II NOTAM cutoff date/effective date within this time frame. (Class II NOTAM cutoff date is 5 weeks prior to effective date.)

7534-7599. RESERVED



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Chapter 32. ALERT AREAS

Section 1. GENERAL

7600. PURPOSE

Alert areas are established to inform pilots of specific areas wherein a high volume of pilot training or an unusual type of aeronautical activity is conducted.

7601. ACTIVITY

The activity within an alert area shall be conducted in accordance with Federal Aviation Regulations, without waiver, and pilots of participating aircraft, as well as pilots transiting the area, shall be equally responsible for collision avoidance. The establishment of alert areas does not impose any flight restrictions or communication requirements.

Flight service stations in the vicinity may broadcast information regarding the use being made of the area, as circumstances dictate. Operations which may be hazardous to other aircraft shall not be conducted within alert areas since such activity must be confined within restricted areas.

7602. MINIMUM NUMBERS

Alert areas should only be established when a determination has been made that dissemination of the information concerning the activity would be of operational value to the flying public.

7603-7619. RESERVED

Section 2. ESTABLISHMENT

7620. PROPOSALS/REQUESTS

Regional Air Traffic divisions are responsible for initiating proposals or processing requests for alert areas and submitting recommendations to ATO-200.

7621. REVIEW BY ATO-200

ATO-200 is responsible for reviewing the regional recommendations and making the final determination regarding the establishment of alert areas.

7622. CHART DEPICTION

Alert areas shall be flagged on aeronautical charts with information regarding time of use, altitudes employed, and type of activity conducted. They will be identified by the prefix letter "A" followed by two or more digits. ATO-200 shall assign the identifying number.

7623. TIME OF SUBMISSION

Proposals for the establishment of alert areas shall be submitted to the appropriate regional office at least 6 months in advance of the desired effective date.

Calendar Days

D	Proposal received by FAA region.
D+30	Proposal reviewed by region and coordinated as required. Nonrule circularization published.
D+75	Comment period for non-rule circularization ends.
D+95	Comments reviewed by region, and recommendations forwarded to Washington Headquarters within 20 days.
D+115	NOS coordination and Alert Area published in NFDD on or before cutoff date for next charting date.
D+115-171	NOS cutoff date/effective date within this time frame. (NOS cutoff date is 8 weeks prior to effective date.)

7624. CONTENT OF PROPOSALS

These proposals shall include the following information:

a. Title — A definitive description of what is proposed.

b. Purpose — A comprehensive explanation as to why the action is proposed.

c. Location and Dimensions:

(1) A description of the airspace requested by geographic coordinates or other appropriate reference that clearly define the areas.

(2) Minimum and maximum altitudes (MSL/AGL) as appropriate

(3) A graphic presentation of the proposal to maps and aeronautical charts as appropriate.

d. Pertinent data on activities to be conducted:

(1) A detailed list of activities to be conducted in the area by all user organizations.

(2) Time, expressed in local time, daily operations normally are scheduled to begin and end.

(3) Number of hours (daily) the area will be used.

(4) Days per week, weeks per month, or months per year, as appropriate, the area will be used.

(5) Number and type of aircraft normally involved in performing activities for which the area is requested.

(6) Altitudes (MSL/AGL) to be used in daily aircraft operations.

7625. REGIONAL ACTIONS

Upon receipt of a proposal for an alert area, the appropriate region shall comply with the provisions of Part 1 and this part.

7626-7629. RESERVED

Section 3. CRITERIA

7630. GENERAL

The criteria in this section shall be applied to determine whether or not alert areas should be established. The activity must be nonhazardous, and all flight activity shall be conducted in accordance with visual flight rules.

7631. HORIZONTAL BOUNDARIES

To the extent possible, these areas should be established so as to avoid Federal airways, major terminal areas, and high volume VFR routes. After an alert area is established, the designation of Federal airways through such areas should be kept to a minimum.

7632. VERTICAL DIMENSIONS

The ceiling and floor shall be established at levels necessary to contain the activity. In addition, the ceiling shall not extend into positive control airspace nor the floor established below 4,000 feet above ground level within a control zone.

7633. TIME ASSIGNMENT

A time period, expressed in local time, shall be specified to indicate hours of regularly scheduled use. When conditions warrant, provision may also be made for activation of the area by Notice to Airmen during other than regularly scheduled hours.

7634. TYPES OF OPERATIONS

Only the following types of operations should be considered.

a. Concentrated Student Training. A high volume of flight operations at one or more airports at a given location. Singly or jointly, the volume of activity should exceed 250,000 local operations annually and be generated primarily by student training in fixed-wing or rotary-type aircraft. A local operation is an aircraft arrival at or departure from an airport in which the aircraft:

(1) Operates in the local traffic pattern or within sight of the tower.

(2) Is known to be departing for, or arriving from, flight in local practice areas.

(3) Executes simulated instrument approaches or low passes at the airport.

b. Unusual Aerial Activity. This type of activity is harder to define and must be individually considered as to its operational significance to the flying public. As an example, an alert area may be established where regularly used VFR routes transit an area which regularly contains a specialized type of air traffic and where prior knowledge of such traffic would significantly enhance aviation safety.

7635-7699. RESERVED



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Chapter 33. CONTROLLED FIRING AREAS

Section 1. GENERAL

7700. PURPOSE

Controlled firing areas are established to contain activities which, if not conducted in a controlled environment, would be hazardous to nonparticipating aircraft. It is the user's responsibility to provide for the safety of persons and property on the surface, and the proponent's written request for a controlled firing area should indicate that such provisions have been made.

7701. BASIS FOR APPROVAL

The approval of a controlled firing area shall only be considered for those activities which are either of short duration or of such a nature that

they could be immediately suspended on notice that such activity might endanger nonparticipating aircraft. Examples of such activities are as follows:

- a. The firing of missiles, rockets, anti-aircraft artillery, and field artillery. (Includes military and civil firings, and in the case of rockets, also pertains to those fired by amateurs.)
- b. Static testing of large rocket motors.
- c. Blasting.
- d. Ordnance disposal.
- e. Chemical disposal.

7702-7719. RESERVED

Section 2. ESTABLISHMENT

7720. RESPONSIBILITY FOR APPROVAL

The authority to approve or disapprove controlled firing area proposals rests with the regional Air Traffic divisions within whose jurisdiction the activity will take place.

7721. SUBMISSION REQUIREMENTS

The proposal for a controlled firing area should be submitted to the appropriate regional Air Traffic division at least 3 months in advance of the desired effective date.

7722. CONTENT OF PROPOSALS

Controlled firing area proposals should include the information listed in Chapter 27, Section 3.

7723. REGIONAL ACTION

Upon receipt of a proposal requesting a controlled firing area, the responsible regional Air Traffic division shall:

a. Review the proposal to determine if the proposed area's location would conflict with the requirements of other airspace users.

b. Accomplish the following:

(1) If practicable, encourage the proponent to explore the feasibility of conducting the activity in an existing restricted area.

(2) After reaching a decision to approve or disapprove a proposal, inform the proponent of such decision by formal letter. If approval is granted, issue a Certificate of Waiver to FAR Part 101 as required.

(3) If the decision is to approve a proposal, the letter of approval shall include, as a minimum, the following:

(a) Activity for which approval has been granted.

(b) Specific area for the activity.

(c) Altitudes.

(d) The name of the user.

(e) Time of use.

(f) Effective date.

(g) Safety precautions to be observed (see Section 3 of this chapter).

(h) Instructions, if applicable, for the user to notify the owner or manager of any airport that might be affected by the controlled firing area.

(i) Instructions for the user to file the following information with the nearest flight service station in sufficient time to permit a notice to airmen to be transmitted at least 12 hours prior to scheduled operations:

(i) Location of the area.

(ii) Time of use.

(iii) Activity to be conducted.

(iv) Altitudes.

(v) User.

c. Circularize potentially or known controversial proposals.

d. Forward to ATO-200, for information purposes, a copy of the request for a controlled firing area and subsequent regional action.

7724-7729. RESERVED

Section 3. SAFETY PRECAUTIONS

7730. PRECAUTIONARY MEASURES

Precautionary measures necessary to protect aircraft in flight, and where appropriate, persons and property on the surface are dependent on the type of activity, terrain, and other factors involved. The approving FAA office shall assure that adequate safety precautions are established for each controlled firing area. The following precautionary measures are considered to be the minimum required and shall be mandatory for all controlled firing areas:

a. The ceiling shall be at least 1,000 feet above the highest altitude of fire or other activity that could be hazardous to aircraft in the area.

b. Visibility shall be sufficient to maintain visual surveillance of the entire controlled firing area and for a distance of 5 miles therefrom in all directions.

7731. RADAR SURVEILLANCE

If the approving FAA office determines that adequate radar surveillance is available, the criteria set forth in paragraph 7730a and b need not apply. The approving FAA office may establish ceiling and visibility requirements as it deems necessary; however, no projectile is to enter any cloud formation.

7732. SAFETY OFFICER

The user of a controlled firing area shall appoint a safety officer. This person is responsible to see that surveillance of the area and for distance of 5 miles therefrom is maintained immediately prior to and during the time that activity hazardous to aircraft is in progress. Surveillance may be accomplished by ground observers, radar, patrol aircraft, and/or surface vessels. While the use of any one or a combination of the methods is considered satisfactory, the limited capabilities of a surveillance plan based solely on the use of ground observers must be recognized. Although it would not be reasonable to restrict the altitude of an area on this factor alone, its limitations must be considered.

7733. USER RESPONSIBILITIES

The user must agree to cease any activity which creates a hazard upon notification that an aircraft is approaching the area. To accomplish this, each observer shall have continuous effective communications with the safety officer and shall be thoroughly briefed as to observer responsibilities.

7734-7999. RESERVED



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CHAPTER 34. OUTDOOR LASER DEMONSTRATIONS

Section 1. GENERAL

→ 7800. INTRODUCTION

Outdoor laser demonstrations are light shows or tests that use a laser to amplify or generate light. When laser beams are projected or reflected into space, the potential exists for permanent eye damage and/or other injury to pilots and passengers of aircraft. Therefore, the FAA conducts an aeronautical study of all proposals for outdoor laser demonstrations to determine the effect upon the navigable airspace.

7801. PURPOSE

This Chapter provides guidance to air traffic personnel in determining the effects of an outdoor laser demonstration on the safe and efficient utilization of the navigable airspace.

→ 7802. DEFINITIONS

a. **Demonstration**—An outdoor laser demonstration is considered to be an outdoor test, light show, or any other type of entertainment or promotional use of a laser.

b. **Laser manufacturer**—A term that includes persons who make laser products and persons who receive compensation to design, assemble, or modify a laser projector and/or light show.

c. **Watts**—A term used to describe laser projector power output.

d. Laser products are divided in performance standards which are stated in four classes as follows:

(1) Class I laser projectors produce levels of radiation that have not been found to cause biological damage. Class I visible radiation laser projectors emit less than 0.39 microwatts (or 0.39 millionths of a watt) continuous output.

(2) Class II laser projectors produce radiation that could cause eye damage after direct, long term exposure. Class II laser projectors emit less than 1 milliwatt (or 1 thousandth of a watt) continuous output.

(3) Class III laser projectors produce radiation powerful enough to injure human tissue with one short exposure to the direct beam or its direct reflections off a shiny surface. Class III visible radiation laser projectors emit less than 500 milliwatts (or one-half watt) continuous output.

(4) Class IV laser projectors produce radiation so powerful that it can cause injury with a direct or reflected exposure, even when the beam is scattered or diffused by a rough surface or even by some smoke screens. Class IV visible radiation laser projectors emit more than one-half watt continuous output.

7803-7819. RESERVED.

Section 2. PROCESSING

→ 7820. SUBMISSION OF PROPOSAL

The Center for Devices and Radiological Health (CDRH) requires, by law, that a laser manufacturer notify the FAA before CDRH issues a variance (permit) for an outdoor show, tests, etc. CDRH recommends that the FAA is notified at least 2 weeks, and preferably 4 weeks, in advance. CDRH also informs manufacturers that the FAA can usually respond with a determination within 7 days. The 2-4 week notification is only a recommendation; actual notice time may be shorter. CDRH informs manufacturers that notification should be directed to the Airspace and Procedures Branch Manager at the regional office having jurisdiction over the area where the laser show will take place. Any FAA office receiving information on a proposed outdoor laser demonstration shall forward this information to the appropriate regional office as soon as practicable.

→ 7821. CHECKLIST COMPLETION

a. Local checklist forms should be formulated to include the following information on all proposed demonstrations:

- (1) Laser group/company.
- (2) Address.
- (3) Telephone number.
- (4) Person in charge.
- (5) Date and time of show.
- (6) Location of show/geographical coordinates.
- (7) Output projector power (watts) as certified to the CDRH.

b. In addition to the above, include, as applicable, the following information on proposed demonstrations more than one-half watts:

- (1) Computation as derived from the Laser Projector Power/Range Graph, as necessary.
- (2) Emissions.
 - (a) End defined.
 - (b) Open ended.
 - (c) Continuous.
- (3) Reflector devices.
 - (a) Flat mirrors.
 - (b) Mirror balls.
 - (c) Smoke.
 - (d) Method of positioning smoke.
- (4) Safeguards.

(5) Safety Officer.

- (a) Name.
- (b) Telephone number.
- (c) Communications equipment.

(6) Visual spotters.

7822. STUDY

The regional Air Traffic Division, Airspace and Procedures Branch, shall conduct an aeronautical study on all notices received proposing an outdoor demonstration test. Study should include the following, as appropriate:

- a. Quantities of traffic affected.
- b. Traffic flow.
- c. Location/s of aviation activity that may be affected.
- d. Control jurisdiction; i.e., tower or center.
- e. Coordination with local officials; i.e., airport managers, FAA Air Traffic Managers, military representatives, etc.
- f. Possible flight restrictions that could be imposed.
- g. Negotiations to restrict wattage, etc.

→ 7823. AFFECTED AIRSPACE

Laser demonstrations are categorized by projector power output (watts) as follows:

a. Less than or equal to one-half watt—Calculations show such a laser poses no hazard to the aviation public if aircraft are operating in compliance with FAR 91.79 restricting traffic to 1,000 feet over congested areas or over an open air assembly of persons.

b. More than one-half watt up to and including 12 watts—To determine the effect of laser projector output power in this range, use the Laser Projector Power/Range Graph (Figure 7-2) as a guide. Determine whether or not the required airspace would impose undesirable restrictions on aircraft movements. CDRH personnel should be consulted about potential hazards.

c. Greater than 12 watts—The effect on the navigable airspace is considered objectionable and approval should not be granted unless a study determines otherwise. A laser projector of this power is not required for an effective light show and air traffic would have to be restricted to distances greater than 5,000 feet.

7824. STUDY ACTIONS

To assure safety of flight, some proposals may require the segregation of nonparticipating aircraft from within a defined area and, if necessary, initiation of appropriate action to establish a temporary restricted area in accordance with the provisions of Chapters 27 and 29; however, the time requirements, circularization, and publication requirements are not applicable. An FDC Notice to Airmen shall be issued, as appropriate.

7825. DETERMINATIONS

A determination on proposed laser demonstration is either objectionable or not objectionable with respect to its effect on the navigable airspace. A statement of objectionable or not objectionable should be clearly made. A determination of, not objectionable provided certain actions by the proponent are accomplished, is proper. CDRH will consider FAA's determination in issuing or withholding a variance.

7826. FORMALIZING DECISION

Determinations should be in summary form with any provisions categorized. Contact sources should be stated if the proposed event is changed or canceled. Also, a statement should be included advising the

proponent that approval must also be obtained from the appropriate state/local agencies and the Food and Drug Administration (FDA).

7827. DISTRIBUTION OF DETERMINATION

Respond to each notice with a written determination to the proponent. Time critical determinations may be telephoned to the proponent and to the CDRH and confirmed by a written determination.

a. As required, ensure that Notices to Airmen are issued advising pilots of the location of the outdoor laser demonstration, the dimensions of the airspace that should be avoided, or that a temporary restricted area has been established, emphasizing that possible eye damage and/or other injury could result if that airspace is penetrated.

b. A copy of all determinations shall be sent to ATO-200, affected air traffic control facilities, and the CDRH in Silver Spring, Maryland. CDRH's national, regional, and local offices' mailing addresses are included in Figure 7-3.

NOTE.—An objectionable determination may not motivate the proponent to cancel the proposed demonstration. In these cases, the CDRH must seek an injunction to stop the demonstration.

Editorial Change

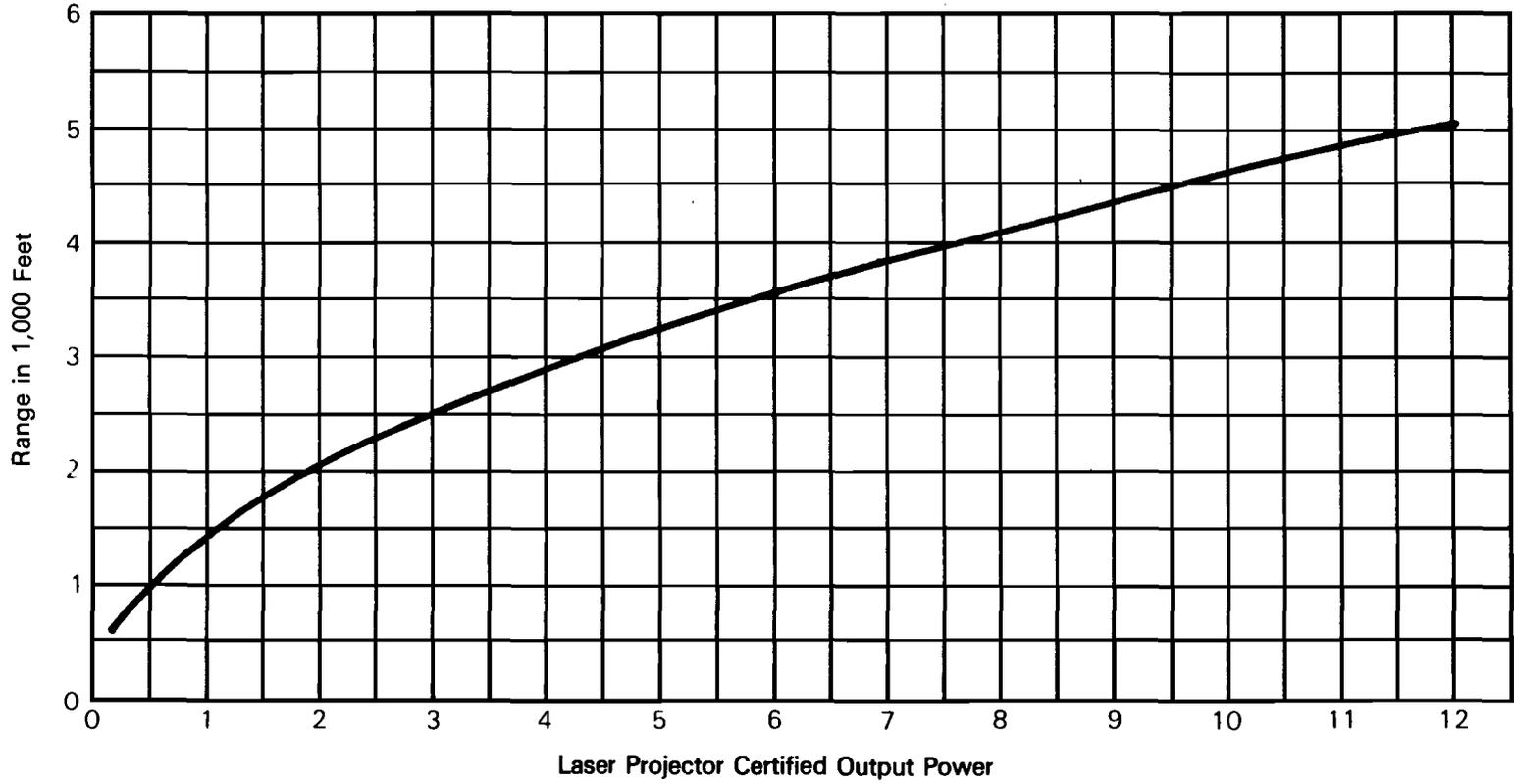


Figure 7-2 Laser Projector Power/Range Graph

Food and Drug Administration Electro-Optics Specialists' Addresses

585 Commercial Street
Boston, Massachusetts 02109
617-223-3178
FTS: 223-3178
ATTN: John J. Galli

Regions I and II
ME, NH, VT, MA, RI, CT,
NY, NJ, PR

1182 W. Peachtree NW
Atlanta, Georgia 30309
404-881-3576
FTS: 257-3576
ATTN: Malcolm Frazier

Regions III, IV, and VI
III—PA, MD, DE, VA, WV, DC
IV—KY, TN, NC, SC, MS, AL, GA, FL
VI—NM, TX, OK, AR, LA

1521 W. Pico Blvd.
Los Angeles, California 90274
213-688-4561
FTS: 798-4561
ATTN: Brian Kasell

Regions VIII and IX
(So. California and Arizona)
VIII—UT, CO, WY, MT, ND, SD
IX—CA (S. of LA CO.), AZ

Rm. 2062
280 1st Street
San Jose, California 95113
415-275-7670
FTS: 466-7893
ATTN: Robert C. Stoll

Regions IX (No. California and
Nevada) and Region X
IX—CA (CENTRAL and N), NV, HI
X—WA, OR, ID, AK

Consumer Safety Officer
Center for Devices
and Radiological Health
Consumer Industrial Products Branch, HFZ-312
8757 Georgia Avenue
Silver Spring, Maryland 20910
301-427-8228
ATTN: Dale Smith

National Office

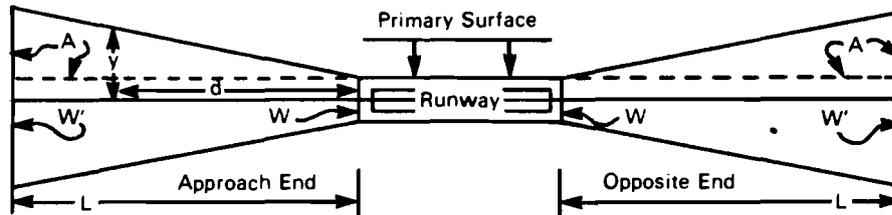


FAR Part 77 Approach Surface Data

Runway Type	Rwy Use Avail./Planned		Approach Surface Dimensions			Slopes and Flare Ratios	
	Approach/Opposite Runway End Combinations		Length L	Inner Width-W	Outer Width-W'	Slope Ratio	Flare Ratio-A
	UTILITY RUNWAYS	V		5,000	250	1,250	20:1
		V	5,000	250	1,250	20:1	.1:1
V			5,000	500	1,250	20:1	.075:1
		NP	5,000	500	2,000	20:1	.15:1
NP			5,000	500	2,000	20:1	.15:1
OTHER THAN UTILITY RUNWAYS		NP	5,000	500	1,500	20:1	.1:1
	V	V	5,000	500	1,500	20:1	.1:1
	V		5,000	500	1,500	20:1	.1:1
		NP 3/4+	10,000	500	3,500	34:1	.15:1
	V		5,000	1,000	1,500	20:1	.05:1
		NP 3/4	10,000	1,000	4,000	34:1	.15:1
	V		5,000	1,000	1,500	20:1	.05:1
		P	50,000	1,000	16,000	50:1/40:1	.15:1
	NP 3/4+		10,000	500	3,500	34:1	.15:1
		NP 3/4+	10,000	500	3,500	34:1	.15:1
	NP 3/4+		10,000	1,000	3,500	34:1	.125:1
		NP 3/4	10,000	1,000	4,000	34:1	.15:1
	NP 3/4+		10,000	1,000	3,500	34:1	.125:1
		P	50,000	1,000	16,000	50:1/40:1	.15:1
	NP 3/4		10,000	1,000	4,000	34:1	.15:1
	NP 3/4	10,000	1,000	4,000	34:1	.15:1	
NP 3/4		10,000	1,000	4,000	34:1	.15:1	
	P	50,000	1,000	16,000	50:1/40:1	.15:1	
P		50,000	1,000	16,000	50:1/40:1	.15:1	
	P	50,000	1,000	16,000	50:1/40:1	.15:1	

V - Visual NP - Nonprecision 3/4+ - Visibility Minimums More Than 3/4 SM
 P - Precision 3/4 - Visibility Minimums As Low As 3/4 SM

EXAMPLE:



Sample Use Problem: Proposed structure would be located by measurement to be 20,000 feet from the end of the primary surface and 3,400 feet at 90° from the extended centerline of a precision runway. (Refer to Section 77.21(b) for relation of primary surface to end of runway.) To determine whether it would fall within the approach surface of that runway, apply the following formula:

$$y = d \times A + \frac{W}{2}$$

y = distance from runway centerline to edge of the approach surface

d = distance from end of primary surface at which proposed construction is 90° from extended runway centerline

$$y = 20,000 \times .15 + \frac{1,000}{2} \quad y = 3,000 + 500 \quad y = 3,500 \text{ (structure would be within approach surface)}$$

Figure 2-25



MISCELLANEOUS PROCEDURES



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CONTENTS

PART 8. MISCELLANEOUS PROCEDURES

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PART 8. MISCELLANEOUS PROCEDURES

Chapter 34. OUTDOOR LASER DEMONSTRATIONS

Section 1. GENERAL

8000. INTRODUCTION

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 and/or other injury to pilots and passengers of aircraft. Therefore, the FAA conducts an aeronautical study of all proposals for outdoor laser demonstrations to determine the effect upon the navigable airspace.

8001. PURPOSE AND APPLICATION

a. This chapter provides guidance to air traffic personnel for determining or verifying the effects of an outdoor laser demonstration on the safe and efficient utilization of the navigable airspace.

b. This chapter applies primarily to commercial entertainment and promotional outdoor visible laser demonstrations which are subject to the Food and Drug Administration's (FDA) "Performance Standards for Light-Emitting Products," Code of Federal Regulations, 21 CFR 1040. Military and research laser applications may require other controls, safeguards, and airspace considerations which are beyond the scope of this chapter. While the criteria contained herein maybe useful for evaluating some military laser uses, it should be noted that such lasers are subject to military safety standards and are exempt from the requirements of 21 CFR 1040.

8002. DEFINITIONS

As used in this chapter, the following terms are defined below:

a. CDRH — Center for Devices and Radiological Health. An office of the FDA concerned with the safe operation of laser devices.

b. Demonstration — An outdoor laser demonstration is considered to be an outdoor test, light show, or any other type of entertainment or promotional use of a laser.

c. Diffusion — The scattering or dispersing of a light beam by reflection off a surface or transmission through a translucent material.

d. Divergence — Measured in milliradians (mr). The increase in beam diameter with increase in distance from the source. The power of the light becomes spread over an increasingly wider area with distance from the source.

e. Eye-safe Distance — The maximum distance from the laser projector beyond which the laser beam irradiance does not exceed $2.6\text{mW}/\text{cm}^2$.

f. Irradiance — A measure of light energy spread across a given area, expressed in watts per square centimeter (W/cm^2).

g. Laser — An acronym for Light Amplification by Stimulated Emission of Radiation.

h. Laser Manufacturer — A term that refers to persons who make laser products including those who are engaged in the business of design, assembly, or presentation of a laser projector and/or light show.

i. Laser Safety Officer — A knowledgeable person present during laser operation who is responsible for shutting down the laser should an unsafe condition occur or become imminent.

j. Milliradian (mr) — One thousandth of a radian. A measurement of laser beam divergence.

k. Navigable Airspace — Airspace at and above the minimum flight altitude prescribed in the Federal Aviation Regulations (FAR) including airspace needed for safe takeoff and landing (see FAR Part 91).

l. Nonvisible Laser — A laser-generated product that is not normally visible to the naked eye. Lasers of this kind are not used for outdoor laser demonstrations. They lack the principle safety factor—visibility.

m. Terminated Beam — An output from the laser projector which does not enter the navigable airspace but is terminated against a suitable object or surface.

n. Unterminated Beam — Projector outputs which are directed or reflected into the navigable airspace.

o. Variance — Permission from FDA for a laser manufacturer to deviate from one or more requirements of a standard when alternate steps are taken to assure safety; i.e., to be in the business of providing Class IIIb or IV laser demonstrations or projectors.

p. Visible Laser — A laser generated product visible to the naked eye.

q. Watts — A term used to measure the power output of a laser projector.

8003. LASER PRODUCT CLASSES

The FDA's laser performance standard divides laser products into five classes as follows:

a. Class I laser projectors produce levels of radiation that have not been found to cause biological damage. Class I visible radiation laser projectors emit less than 0.39 microwatts (0.39 millionths of a watt) continuous output.

b. Class II laser projectors produce visible radiation that could cause eye damage after direct, long term viewing. Class II laser projectors emit less the 1 milliwatt (1 thousandth of a watt) continuous output.

c. Class IIIa laser projectors produce visible radiation at levels capable of causing ocular injury in a short exposure. However, factors of atmospheric attenuation, beam, body movements, and limitations in eye focusing ability provide a measure of protection. Class IIIa laser projectors emit less than 5 milliwatts peak power.

d. Class IIIb laser projectors produce visible radiation powerful enough to injure human tissue with one short exposure to the direct beam or its direct reflections off a shiny surface. Class IIIb visible radiation laser projectors emit less than 500 milliwatts (one-half watt) continuous output.

e. Class IV laser projectors produce visible radiation so powerful that it can cause injury with a direct or reflected exposure, even when the beam is scattered or diffused by a rough surface or even by some smoke screens. Class IV visible radiation laser projectors emit more than one-half watt continuous output.

8004. LASER CONSIDERATIONS

a. 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 is concentrated on a very small area on the retina. This can produce harmful effects ranging from temporary flash blindness to permanent blind spots or other eye injury. In some cases, the eye's automatic aversion response to the light (blink reflex) may be sufficient to avoid these effects. To guard against this hazard, an aircraft observer, with binoculars and direct communications with the laser operator, should be stationed at a location where visual surveillance of the entire area is possible. The observer shall notify the laser

operator to cease projections if any aircraft or helicopters approach the area. This requirement should be placed in the FAA determination.

b. Laser beam divergence is very small even over long distances. For example, a beam with a 1mr divergence will be just over 1 inch in diameter at 100 feet from the source. Beam divergence and laser projector output power are considered in determining the airspace affected. A chart is provided for determining eye-safe distances for lasers having 0.5mr, 1.0mr, 1.5mr, and 2.0mr divergence (see Figure 8-1).

Figure 8-1. LASER PROJECTOR POWER/RANGE TABLE

Laser Output Power (Watts)	Beam Divergence—Milliradians (mr)			
	0.5mr	1.0mr	1.5mr	2.0mr
1	1452	726	484	363
2	2054	1027	685	513
3	2515	1253	938	629
4	2904	1452	968	726
5	3247	1623	1082	812
6	3557	1778	1186	889
7	3842	1921	1281	960
8	4107	2054	1369	1027
9	4356	2178	1452	1089
10	4592	2296	1531	1148
11	4816	2408	1605	1204
12	5030	2515	1677	1258
13	5235	2618	1745	1309
14	5433	2717	1811	1358
15	5624	2814	1875	1406
16	5808	2904	1936	1452
17	5987	2993	1996	1497
18	6161	3080	2054	1540
19	6329	3165	2110	1582
20	6494	3247	2165	1623
25	7260	3630	2420	1815
30	7953	3977	2651	1988
35	8590	4295	2863	2148
40	9184	4592	3061	2296
45	9741	4870	3247	2435
50	10268	5134	3423	2567
55	10769	5384	3590	2692
60	11248	5624	3749	2812
65	11707	5853	3902	2927
70	12149	6074	4050	3037
75	12575	6288	4192	3144
80	12988	6494	4329	3247
85	13387	6694	4462	3347
90	13775	6888	4592	3444
95	14153	7076	4718	3538
100	14521	7260	4840	3630

c. Diffusion effects have not been considered in Figure 8-1. Determination of these effects involves many variables and requires complex calculations. Evaluation of diffusion is beyond the scope of this chapter. Atmospheric scattering and absorption have also been ignored as an additional safety factor.

8005. EXPOSURE LIMITS

The eye-safe distances in this chapter are based on exposure limits for a maximum irradiance value of 2.6 milliwatts per square centimeter ($2.6\text{mW}/\text{cm}^2$). This irradiance value is the maximum at which a person, unaided by viewing devices, such as binoculars or cameras, can typically react quickly enough to avoid an exposure that

would exceed the limits of Class I. Staring into a laser beam, like staring into the sun, is dangerous. A momentary exposure however, can be compared to an accidental glance at the sun. In an accidental glance, the light does not remain focused on a single point on the retina, so the hazard potential is lessened. Considering aircraft movement and/or laser beam scanning, the probability of a prolonged exposure is statistically very low. This fact may actually permit use of slightly higher irradiance values. However, to maintain a reasonable margin of safety, the value of $2.6\text{mW}/\text{cm}^2$ is chosen as the maximum permissible irradiance allowed at the aircraft.

8006-8019. Reserved

Section 2. PROCESSING

8020. SUBMISSION OF PROPOSAL

a. The Center for Devices and Radiological Health (CDRH) requires that a laser manufacturer provide written notification to the FAA before conducting an outdoor laser demonstration.

b. CDRH informs manufacturers that:

(1) All notifications are to be directed to the Air Traffic division at the FAA regional office having jurisdiction over the area where the laser show will take place.

(2) FAA needs at least 21 days advance notice to process a request and conduct an aeronautical study. The FAA recognizes that industry conditions may not always permit the advance notice desired. While FAA endeavors to accommodate all requests, proper conduct of the aeronautical study to determine airspace effects is essential to air safety. This is particularly true when demonstrations occur in proximity to airports or when the nature of the demonstration would necessitate protection of large amounts of airspace. In these cases, it may be impossible for the FAA to respond to short-notice requests.

(3) Notifications are required for all demonstrations in which projections will be directed or reflected into the navigable airspace (including setup, alignment, and rehearsals). Notifications should contain a minimum of technical information. Of primary concern is the maximum distance from and altitude above the source to be affected by a proposed demonstration.

(4) A proponent wishing to provide supplementary information about measures which will result in a smaller actual danger area than that shown in the Laser Projector Power/Range Table should submit the data in advance to CDRH for review. CDRH will validate the information and issue a letter to the proponent to include with their notification to FAA.

c. Any FAA field office or facility receiving information on a proposed outdoor laser demonstration shall forward this information to the Air Traffic division in the appropriate FAA regional office as soon as practicable.

8021. CONTENT OF NOTIFICATIONS

a. Proponent notifications to the FAA regional office will include the following information on all proposed outdoor demonstrations:

- (1) Laser group/company.
- (2) Business address.
- (3) Telephone number.

- (4) Variance number and expiration date.
- (5) Date(s) and time(s) of shows(s).
- (6) Date(s) and time(s) of setup and alignment.
- (7) Location of the show.
 - (a) Showplace name and address.
 - (b) Latitude and longitude of showplace.
- (8) Maximum emitted peak power (watts) at the projector as certified to CDRH.
- (9) Azimuthal direction of projections.
- (10) Elevation of projections in degrees above the horizon.
- (11) Beam divergence (milliradians).
- (12) Maximum distance from source for irradiance of $2.6\text{mW}/\text{cm}^2$ based on maximum emitted peak power.
- (13) Maximum altitude above source for irradiance of $2.6\text{mW}/\text{cm}^2$ based on maximum emitted peak power and beam elevation.
- (14) A diagram depicting unterminated beam arrays if applicable.
- (15) Laser safety officer/operator.
 - (a) Local address and phone number.
 - (b) Additional safety procedures.
 - (i) Communications procedures during the show.
 - (ii) Visual aircraft spotters.
 - (iii) Other.

b. Supplementary information if applicable. Include the CDRH letter validating the measures which result in a smaller affected area than that shown in the Laser Projector Power/Range Table.

8022. STUDY

a. The regional Air Traffic division shall conduct an aeronautical study on all notices received proposing an outdoor laser demonstration. The study should include the following, as appropriate:

- (1) Quantities of traffic affected.
- (2) Traffic flow.
- (3) Location(s) of aviation activity that may be affected, including areas where helicopter traffic operate below 1,000 feet in accordance with FAR 91.79(d).
- (4) Control jurisdiction; i.e., tower or center.
- (5) Coordination with local officials; i.e., airport managers, FAA Air Traffic managers, military representatives, etc.

(6) Possible flight restrictions that should be imposed (consider setup and alignment times as well as actual show times).

(7) Negotiations to resolve objectionable effects, such as limiting wattage, restricting direction and/or elevation of projections, weather requirements, etc.

b. Some demonstrations may require further segregation of non-participating aircraft from within a defined area. A temporary restricted area, established in accordance with the provisions of chapters 27 and 29, may be considered if warranted by airspace requirements and/or duration of proposed operations.

c. To enhance safety of flight, a Special Data NOTAM(L) should be prepared alerting pilots of laser demonstrations. Sample NOTAM's are shown in Figure 8-2.

Figure 8-2. SAMPLE NOTAM FORMATS

A LASER LIGHT DEMONSTRATION WILL BE CONDUCTED AT THE LIBERTY BOWL STADIUM, MEMPHIS, TENNESSEE (MEM VORTAC 355° RADIAL, 5 NAUTICAL MILES, LATITUDE 35° 07' 18"N, LONGITUDE 89° 58' 40"W) ON DECEMBER 27, 1987, BETWEEN 1800 AND 2300 LOCAL. LASER LIGHT BEAM MAY BE INJURIOUS TO PILOTS'/PASSENGERS' EYES WITHIN 500 FEET VERTICALLY AND 1 NM LATERALLY OF THE LIGHT SOURCE.

A LASER LIGHT DEMONSTRATION WILL BE CONDUCTED AT 250 LOWER DUG CAP ROAD DALTON, GEORGIA (CHA VORTAC 156° RADIAL, 15 NAUTICAL MILES, LATITUDE 34° 44' 00"N, LONGITUDE 85° 01' 00"W) ON MAY 18, 1987, BETWEEN 2130 AND 2330 LOCAL. LASER LIGHT BEAM MAY BE INJURIOUS TO PILOTS'/PASSENGERS' EYES WITHIN 2,000 FEET VERTICALLY AND 1 NM LATERALLY OF LIGHT SOURCE.

A LASER LIGHT DEMONSTRATION WILL BE CONDUCTED AT THE COTTON BOWL AT THE TEXAS STATE FAIRGROUNDS, DALLAS, TEXAS (LOVE VORTAC 123° RADIAL, 6.5 NAUTICAL MILES, LATITUDE 32° 47' 00"N, LONGITUDE 96° 45' 30"W) ON JULY 4, 1987, BETWEEN 2040 AND 2200 LOCAL. LASER LIGHT BEAM MAY BE INJURIOUS TO PILOTS'/PASSENGERS' EYES WITHIN 3,500 FEET OF LIGHT SOURCE.

8023. AFFECTED AIRSPACE

a. The amount of airspace affected by a laser demonstration varies with projector output power (watts) as follows:

(1) Less than or equal to one-half watt—Calculations show such a laser poses no hazard to the aviation public if aircraft are operating in compliance with FAR 91.79 restricting traffic to 1,000 feet over congested areas or over an open air assembly of persons. Restrictions on laser activity may be required to protect helicopter traffic operating below 1,000 feet in accordance with FAR 91.79(d).

(2) More than one-half watt—To determine laser effects, use the Laser Projector Power/Range Table (Figure 8-1). Determine whether or not the required airspace would impose undesirable restrictions on aircraft movements. CDRH personnel should be consulted concerning potential hazards or for technical advice as required (Figure 8-5).

b. Diffusion, diffraction, scanning, and other optical effects are often employed by laser manufacturers to modify the laser beam. These techniques could result in actual affected airspace being less than what is shown in the Laser Projector Power/Range Table. However, no reduction in chart figures will be allowed unless the data has been validated by CDRH.

c. Figure 8-1 depicts laser effects on airspace based on power output and beam divergence. The chart can be used to validate data submitted by the proponent or to examine alternatives for resolving objectionable effects. The distances in Figure 8-1 represent the minimum distance from the laser source required to ensure eye protection.

8024. CALCULATING LASER EFFECTS

a. Figure 8-1 specifies the minimum distance from the laser source which should be protected. Using a worst-case scenario, this distance would represent the minimum airspace to be protected both horizontally and vertically from the laser source. However, when the laser beam is projected or reflected above horizontal, but less than 90 degrees vertically, the minimum altitude requiring protection will actually be less than the distance shown in Figure 8-1. In this case, the minimum altitude may be found by multiplying the laser distance (from Figure 8-1) by the sine of the angle of elevation of the laser beam (from Figure 8-3) as follows: $\text{Altitude} = \text{Laser Distance} \times \text{Sine of Elevation Angle}$.

Figure 8-3. SINE VALUES

<i>Elevation Angle</i>	<i>Sine</i>
0	.0000
5	.0872
10	.1737
15	.2588
20	.3420
25	.4226
30	.5000
35	.5736
40	.6428
45	.7071
50	.7660
55	.8192
60	.8660
65	.9063
70	.9397
75	.9659
80	.9848
85	.9962
90	1.0000

b. All distances should be rounded up to the next 100 foot increment. Example problems are shown in Figure 8-4.

Figure 8-4. LASER PROBLEM SOLUTIONS**Example Problem 1:**

Laser output power = 15 watts

Laser beam divergence = 1.5mr

Find: Laser distance:

1. Enter Figure 8-1 at 15 watts in the *Laser Output Power* column.

2. Proceed horizontally to the *1.5mr* column, and read the laser distance of 1875 feet.

3. Round up the distance to 1,900 feet.

Answer: Laser distance = 1,900 feet.

Example Problem 2:

Laser output = 18 watts

Laser beam divergence = 1.0mr

Maximum elevation angle of laser beams = 60 degrees above horizontal.

Find: Horizontal and vertical distances to be protected:

1. Laser distance (from Figure 8-1) = 3,080 feet.

2. Sine of 60 degree elevation angle (from Figure 8-3) = 0.8660.

3. Find altitude by multiplying 3,080 feet by 0.8660 = 2,667 feet.

4. Round up all figures to the next 100 foot increment.

Answer: Minimum required protected airspace is 3,100 feet horizontally and 2,700 feet vertically from the laser source.

Technical Note. — Solving the triangle in Example Problem 2 would indicate a 1,540 foot horizontal distance from the laser source. However, in determining the airspace effects, the greater distance from Figure 8-1 is selected as an added safety margin.

8025. DETERMINATIONS

A determination on proposed laser demonstrations is either "objectionable" or "not objectionable" with respect to its effect on the navigable airspace. A statement of "objectionable" or "not objectionable" should be clearly made. A determination of "not objectionable," provided certain actions by the proponent are accomplished, is proper. Air safety shall be the primary concern. CDRH will consider the firm's history of cooperation with FAA when considering whether to renew or withdraw the firm's variance.

Note. — An "objectionable" determination may not motivate the proponent to cancel the proposed demonstration. In these cases, CDRH may withdraw the variance or seek an injunction to stop the demonstration.

8026. CONTENT OF DETERMINATIONS

Determinations should be in letter form and include, as a minimum, the following:

a. Listing of any provisions, conditions, or limitations, such as aircraft spotter requirements, as applicable.

b. Notification requirements including FAA contacts to be informed of show start/stop times, changes, or cancellation.

c. A statement advising the proponent that the determination satisfies FAA requirements only and that final approval must also be obtained from appropriate state/local agencies and the FDA.

d. Other information as deemed appropriate.

8027. DISTRIBUTION OF DETERMINATION

Respond to each notice with a written determination to the proponent. If necessary, determinations may be telephoned to the proponent and to the CDRH and confirmed by a written determination.

a. As required, ensure that a Special Data NOTAM(L) is issued advising pilots of the location of the outdoor laser demonstration and the dimensions of the airspace that should be avoided. Em-

phasize that possible eye injury could result if that airspace is penetrated.

b. A copy of all determinations shall be sent to ATO-200, affected air traffic control facilities, and

the CDRH in Silver Spring, Maryland. CDRH's national, regional, and local offices' mailing addresses are included in Figure 8-5.

Figure 8-5. FOOD AND DRUG ADMINISTRATION ELECTRO-OPTICS SPECIALISTS' ADDRESSES

<i>Address</i>	<i>Region</i>
585 Commercial Street Boston, Massachusetts 02109 (617) 565-4718 FTS: 835-4718 ATTN: John J. Galli	Regions I and II (I—ME, NH, VT, MA, RI, & CT) (II—NY, NJ, & PR)
60 Eighth Street, NE Atlanta, Georgia 30309 (404) 347-3576 FTS: 257-3576 ATTN: Malcolm Frazier	Regions III, IV, and VI (III—PA, MD, DE, VA, WV, & DC) (IV—KY, TN, NC, SC, MS, AL, GA, & FL) (VI—NM, TX, OK, AR, & LA)
FDA District Office 1141 Central Parkway Cincinnati, Ohio 45202 (513) 684-3505 FTS: 684-3505 ATTN: James E. Frye	Regions V and VII (V—MN, WI, MI, IL, IN, & OH) (VII—NE, IA, KS, & MO)
1521 W. Pico Blvd. Los Angeles, California 90015 (213) 252-7603 FTS: 983-7603 ATTN: James Roseboro	Regions VIII and IX (So. Calif.) (VIII—UT, CO, WY, MT, ND, & SD) (IX—AZ & CA (LAX County and South))
U.S. Federal Building & U.S. Court House Rm. 2062 280 1st Street San Jose, California 95113 (408) 291-7893 FTS: 466-7893 ATTN: Robert C. Stohl	Regions IX (No. Calif.) and X (IX—HI, NV, & CA (North of LAX County)) (X—WA, OR, ID, & AK)
Consumer Safety Officer National Office Center for Devices and Radiological Health Consumer Industrial Products Branch, HFZ-312 8757 Georgia Avenue Silver Spring, Maryland 20910 (301) 427-8228	