

APPENDIX 1. REMOTENESS - COMPENSATION FOR BENEFIT/COST CRITERIA

1. Introduction. This appendix contains criteria for evaluating a remote facility as described in Chapter 1, paragraph 7e(2).

2. Establishment.

a. Applicability. Facility proposals for which establishment criteria are stated as benefit/cost (B/C) ratios are eligible for remoteness-compensation by the methodology outlined in Report No. FAA-ASP-76-7, Remoteness - Compensation Methodology for Benefit/Cost Establishment and Discontinuance Criteria, if:

(1) The proposed site has a construction cost index of 1.50 or greater on the scale provided in Report FAA-ASP-76-7, or

(2) The proposal would require new FAA-provided quarters for staff, or

(3) The terminal for which it is proposed serves a community not accessible year-round, from a larger city or intermodal transfer point, by at least one mechanized surface transport mode.

b. Responsibilities.

(1) The Office of Aviation Policy and Plans (APO) will perform remoteness-compensation calculations on proposals submitted in the annual Call for Estimates, or will check computations performed and submitted voluntarily by Regions. APO will assist Regions in applying the compensatory methodology during the planning process.

(2) Regions will submit the data called for in Part V of Report FAA-ASP-76-7 for each eligible proposal included in the annual Call for Estimates. Essential items are: FAA Form 2500-40 (9-76) F&E Cost Summary; total annual enplanements (or air carrier, air taxi, and itinerant general aviation annual operations); annual months of accessibility, from a larger city or intermodal transfer point, by rail, water, and highway modes; and the proportion of water transport capacity used by passengers.

c. Procedure

(1) B/C ratios will first be calculated without adjustment.

(2) Cost adjustment methodology will be performed according to Part III of Report FAA-ASP-76-7.

(3) Benefit enhancement will be performed according to Part IV of Report FAA ASP-76-7.

APPENDIX 1. REMOTENESS - COMPENSATION FOR BENEFIT/COST  
CRITERIA (CONTINUED)

d. Precautions. It is important that adjusted costs and B/C ratios generated by the application of these procedures be so identified wherever they appear. Explicitly:

(1) Adjusted cost figures must always be labeled "adjusted regional cost" or "adjusted project cost," as appropriate, and the corresponding actual cost, so identified, must be shown in parentheses. This is to avoid the possibility that artificially lowered cost figures be mistaken in the budget process for the true costs that will actually be incurred.

(2) B/C ratios are to be identified as "unadjusted," "cost-adjusted," or "fully-adjusted" to indicate which compensatory operations they have undergone and avoid redundant calculations.

3. Discontinuance.

a. Applicability. Same as for establishment.

b. Responsibilities. APO will perform calculations.

c. Procedure.

(1) B/C ratios will first be calculated without adjustment.

(2) Cost-adjustment is not applicable.

(3) Benefit enhancement will be computed according to Part IV of Report FAA-ASP-76-7.

d. Precaution. B/C ratios will be identified as "unadjusted" or "adjusted" to reflect whether or not they have undergone compensatory calculations.

APPENDIX 2. SUMMARY OF ESTABLISHMENT  
AND DISCONTINUANCE CRITERIA

1. Introduction. This appendix summarizes the criteria of Order 7031.3C by chapter and in section and paragraph order.

2. Index.

<u>Figure</u>	<u>Title</u>	<u>Page</u>
1	Criteria Summary for Chapter 2, Navigation Aids	3
	Section 1. - Air Navigation Radio Aids	3
	Section 2. - Radar Services	7
2	Criteria Summary for Chapter 3, Aeronautical Lighting and Airport Marking Aids	9
3	Criteria Summary for Chapter 4, Air Traffic Control	11

FIGURE 1. SUMMARY OF ESTABLISHMENT AND DISCONTINUANCE CRITERIA FOR CHAPTER 2, NAVIGATION AIDS

Facility or Service	Establishment	Discontinuance	Additional Facilities or Improvements
<u>SECTION 1. AIR NAVIGATION RADIO AIDS</u>			
Microwave Landing System (MLS) with approach lights, Par. 20	Sustained turbojet operations. Annual instrument approach (AIA) criteria, i.e., sum of ratio values equal to or greater than 1.0 plus benefit/cost study.	Loss of turbojet service. Sum of ratio values less than 0.3 and is justified by benefit/cost study.	
Supplemental MLS Criteria for commercial service airports, Par. 20d	One-half of sum of commercial service airport and associated major hub airport AIA ratio values equal to or greater than 1.0 plus benefit/cost study.	One-half of sum of commercial service airport and associated major hub airport AIA ratio values less than .3 plus benefit/cost study.	
Supplemental MLS Criteria for reliever airports, Par. 20e	Benefit/cost analysis considering congestion reduction and safety improvements at relieved airport.	Benefit/cost analysis based on MLS recurring cost and considering congestion reduction and safety improvements at relieved airport.	

FIGURE 1. SUMMARY OF ESTABLISHMENT AND DISCONTINUANCE CRITERIA FOR  
CHAPTER 2, NAVIGATION AIDS (CONTINUED)

Facility or Service	Establishment	Discontinuance	Additional Facilities or Improvements
ILS replacement with MLS, Par. 20f	Existing ILS systems will be replaced with MLS systems in accor- dance with provisions set forth in the MLS Transition Plan.	Subject to provisions set forth in the MLS Transition Plan.	
* RVR with MLS, Par. 20h	The criteria developed in paragraph 21c(1)(a) shall apply to MLS.	The criteria developed in paragraph 21c(1)(b) shall apply to MLS.	*
MLS Training Instal- lations, Par. 20i	One or more airports in same area with 200,000 or more annual total operations and 50,000 or more annual instrument operations.	None	
MLS for Noise Abatement, Par. 20j	Staff Study	None	

FIGURE 1. SUMMARY OF ESTABLISHMENT AND DISCONTINUANCE CRITERIA FOR  
CHAPTER 2, NAVIGATION AIDS (CONTINUED)

Facility or Service	Establishment	Discontinuance	Additional Facilities or Improvements
Instrument Landing System (ILS) with approach lights, Par. 21		Decommission, if ratio value sum is less than 1.0 and is justified by benefit/cost study.	
* Runway Visual Range (RVR) at Category I Instrument Landing System (ILS), Par. 21c(1)	Sum of ratio values equals or exceeds 1.00 plus benefit/cost study.	Sum of ratio values is less than 0.40 and is justified by benefit/cost study.	
LDA or TVOR nonprecision instrument approach systems, Par. 22a(1) or 22a(2)	200 or more annual instrument approaches OR 1,825 or more scheduled annual passenger originations.	100 or less annual instrument approaches and 1,095 or less scheduled annual passenger originations.	500 or more annual instrument approaches, OR 4,500 or more scheduled annual passenger originations, OR between 200 and 499 annual instrument approaches, OR 1,825 and 4,499 scheduled annual passenger originations plus a staff study.

\*

\*

FIGURE 1. SUMMARY OF ESTABLISHMENT AND DISCONTINUANCE CRITERIA FOR  
CHAPTER 2. NAVIGATION AIDS (CONTINUED)

Facility or Service	Establishment	Discontinuance	Additional Facilities or Improvements
DME with localizer/marker, Par. 22a(3)	Meet annual instrument approach criteria and benefit/cost evaluation.	Below 60 percent of establishment criteria levels and benefit/cost evaluation.	
Visual Approach Slope Indicator (VASI) for nonprecision approach, Par. 22a(4)	Landings + AIA's - 1.0 14,000 120	Decommission if establishment ratio is less than 0.50.	
Lighting aids nonprecision approach system, Par 22a(5)	300 or more annual instrument approaches OR 2,725 annual passenger originations.	With the approach system when there are less than 100 annual instrument approaches and less than 1,095 annual passenger originations.	
Runway Visual Range (RVR) at Nonprecision Instrumented Runway, Par. 22a(6)	Benefit/cost ratio of 1.0 or greater	None	
* LORAN-C Nonprecision Approach, Par. 22a(7)	Benefit/cost ratio of 1.0 or greater.	Present value of continued maintenance costs exceeds present value of remaining life-cycle benefits.	*

FIGURE 1. SUMMARY OF ESTABLISHMENT AND DISCONTINUANCE CRITERIA  
FOR CHAPTER 2, NAVIGATION AIDS (CONTINUED)

Facility or Service	Establishment	Discontinuance	Additional Facilities Or Improvements
VOR Test Signal (VOT), Par.23	No additional VOT facilities will be established unless justified by an evaluation of requirements peculiar to a specific location in accordance with Federal Aviation Regulations 91.25.	Existing facilities will be decommissioned if the cost of maintaining the service exceeds the benefits derived, as determined by a staff study.	
Section 2. RADAR SERVICES Airport Surveillance Radar with Air Traffic Control Radar Beacon System and Automated Radar Terminal system (ASR/ATCRBS/ARTS), Par.26	The airport ratio value or the area ratio value is 1.0 or greater.	The airport ratio value or the area ratio value is less than 0.35.	Improvements: 25,000 or more annual instrument operations OR between 15,000 and 25,000 annual instrument operations. A benefit/cost study may be required for major improvements.  Remoted Radar Bright Display Scope: 30,000 or more annual itinerant operations and operationally adequate low altitude coverage is assured.
			TRACON establishment or conversion: 125,000 or more annual itinerant operations or 60,000 or more annual instrument operations. Establishment candidates are required to satisfy criteria within 2 years of the year of budget submission.



FIGURE 1. SUMMARY OF ESTABLISHMENT AND DISCONTINUANCE CRITERIA  
FOR CHAPTER 2, NAVIGATION AIDS (CONTINUED)

Facility or Service	Establishment	Discontinuance	Additional Facilities Or Improvements
Precision Approach Radar (PAR), Par. 27	None	With individual justification	
* Changes to an FAA facility to accommodate a non-Federally owned Airport Surveillance Radar, Par. 28	N/A		The FAA will consider making capital and staffing investments at FAA air traffic control facilities to facilitate a non-Federal ASR if: (1) the benefits to airspace users equal or exceed incremental FAA investment, operating, and maintenance costs quantified in accordance with procedures outlined in Report FAA-APO-83-5, Investment Criteria for Airport Surveillance Radar; (2) the non-Federal ASR meets recognized aviation standards and complies with current FAA design and performance specifications, and (3) the release and use of radar data to outside interests comply with the policy/procedures contained in Order 1200.22B, Use of National Airspace System (NAS) Computer and Radar Data or Equipment by Outside Interests. *

FIGURE 2. SUMMARY OF ESTABLISHMENT AND DISCONTINUANCE CRITERIA  
FOR CHAPTER 3, AERONAUTICAL LIGHTING  
AND AIRPORT MARKING AIDS

Facility or Service	Establishment	Discontinuance	Additional Facilities or Improvements
Runway End Identification Lights (REIL), Par. 30	The sum of the following ratio values is 1.0 or greater.	Sum of ratio value less than 0.5.	
	Air Carrier landings on runway/4900		
	Air taxi (including commuter) landings on runway/1200		
	General Aviation and military landings on runway/7300		
<u>VFR Visual Approach Slope Indicator (VASI), Par. 31<sup>1</sup></u>			
Four-Box VASI	The net ratio value is 1.0 or greater.	Decommission if net ratio value is less than 0.5 and is justified by benefit/cost study.	
Twelve-Box VASI	Same as for four-box VASI with a stated ICAO requirement.	Reduce to four-box VASI when ICAO requirement is withdrawn.	
	1/ NPA VASI see par 22a(4).		

FIGURE 2. SUMMARY OF ESTABLISHMENT AND DISCONTINUANCE CRITERIA  
FOR CHAPTER 3 AERONAUTICAL LIGHTING  
AND AIRPORT MARKING AIDS (CONTINUED)

Facility or Service	Establishment	Discontinuance	Additional Facilities or Improvements
Walker Six-Box VASI	Same as for four-box VASI when runway is used by B-747 and similar aircraft and runway does not have installed or programmed an ILS.	Reduce to four-box VASI when B-747 and similar aircraft discontinue operations or when an ILS is installed.	
Walker Sixteen-Box VASI	Same as for twelve-box VASI when used by B-747, etc., and runway does not have installed or programmed an ILS.	Reduce to twelve-box VASI when B-747, etc. aircraft operations are discontinued or when an ILS is installed.	

FIGURE 3. SUMMARY OF ESTABLISHMENT AND DISCONTINUANCE CRITERIA  
FOR CHAPTER 4, AIR TRAFFIC CONTROL

Facility or Service	Establishment	Discontinuance	Additional Facilities or Improvements
* Airport Traffic Control Tower, Paragraph 40.	Benefit/cost ratio greater than or equal to one.	Benefit/cost ratio less than one.	
Approach Control Service Paragraph 41.	<p>Tower Airports Within existing tower resources, OR ILS or 5,000 or more annual instrument operations.</p> <p>Non-Tower Airports Within existing resources, OR 1,500 or more annual instrument operations or 1,825 passenger originations.</p>	<p>None, if established within existing resources.  3,500 or less annual instrument operations and less than 1,095 passenger originations.</p> <p>None, if established within existing resources.  1,000 or less annual instrument operations and less than 1,095 passenger originations.</p>	

\*

FIGURE 3. SUMMARY OF ESTABLISHMENT AND DISCONTINUANCE CRITERIA  
FOR CHAPTER 4. AIR TRAFFIC CONTROL CONTINUED

Facility or Service	Establishment	Discontinuance	Additional Facilities or Improvements
Combined Station/ Tower (CS/T), Paragraph 42.	FAA tower airport with requirement for 24-hour staffed air/ground en route communications.	En route air/ground communications coverage no longer required, or may be provided remotely from adjacent FSS.	
Tower En Route Control, Paragraph 43.	When within existing resources and 5 or more annual IFR peak day flights exchanged, or 25 or more annual IFR peak day flights exchanged at locations requiring additional landlines or communications.	None at locations when within existing resources and 10 or less annual IFR peak day flights at locations requiring additional resources.	
* Airport Surface Detection Equipment (ASDE), Paragraph 44.	Benefit/cost ratio is greater than or equal to one, or, if the benefit/cost ratio is less than one, the Administrator determines that an aeronautical requirement exists due to operational or safety factors such as runway configuration, military operations, historical record of a high incidence of runway incursions, or frequent and predictable severe climatological phenomena.	Benefit/cost ratio is less than one or a previously identified aeronautical requirement no longer exists.	*

FIGURE 3. SUMMARY OF ESTABLISHMENT AND DISCONTINUANCE CRITERIA  
FOR CHAPTER 4. AIR TRAFFIC CONTROL CONTINUED

Facility or Service	Establishment	Discontinuance	Additional Facilities or Improvements
Automatic Terminal Information Service (ATIS), Paragraph 45.	FAA tower airport which is Level II or higher or records at least 50,000 annual itinerant ops.	None-except discontinued when air traffic control services discontinued.	

FIGURE 3. SUMMARY OF ESTABLISHMENT AND DISCONTINUANCE CRITERIA  
FOR CHAPTER 4. AIR TRAFFIC CONTROL (CONTINUED)

Facility or Service	Establishment	Discontinuance	Additional Facilities or Improvements
Automated Weather Observing System and Automated Surface Observing System at FAA towered airport, Par. 46a.	Automatically qualifies if FAA is responsible for the weather observation function. Priority given to FAA ATCT's with part-time operating hours, followed by full-time FAA ATCT's.	If tower is decommissioned and location meets AWOS/ASOS discontinuance criteria for non-towered airport.	
Automated Weather Observing System and Automated Surface Observing System at automated flight service station, Par. 46b.	Automatically qualifies if facility is obligated to take weather observations.	If automated flight service station is decommissioned and location meets discontinuance criteria for non-towered airport.	
Automated Weather Observing System and Automated Surface Observing System at non-Federal towered, or ATCT discontinuance candidate airport, Par. 46c.	Ratio value of 1.0 or greater.	Ratio value of less than 0.45.	

FIGURE 3. SUMMARY OF ESTABLISHMENT AND DISCONTINUANCE CRITERIA  
FOR CHAPTER 4, AIR TRAFFIC CONTROL (CONTINUED)

Facility or Service	Establishment	Discontinuance	Additional Facilities or Improvements
Low-Level Windshear Alert System, Paragraph 48	Net present value of zero or greater and does not also qualify under para- graphs 49, 50, or 51. If more than one system meets the criteria, then the one with the highest (positive) net present value is the qualifying system.	None	None
Terminal Doppler Weather Radar, Paragraph 49.	Net present value of zero or greater and does not also qualify under para- graph 48, 49, or 51. If more than one system meets the criteria, then the one with the highest (positive) net present value is the qualifying system.	None	None



\* FIGURE 3. SUMMARY OF ESTABLISHMENT AND DISCONTINUANCE CRITERIA FOR CHAPTER 4, AIR TRAFFIC CONTROL (CONTINUED)

Facility or Service	Establishment	Discontinuance	Additional Facilities or Improvements
Airport Surveillance Radar Modification for Windshear, Paragraph 50.	Net present value of zero or greater and does not also qualify under paragraphs 48, 49, or 51. If more than one system meets the criteria, then the one with the highest (positive) net present value is the qualifying system.	None	None
Integrated Windshear Detection Systems, Paragraph 51.	Net present value of zero or greater and does not also qualify under paragraph 48, 49, or 50. If more than one system meets the criteria, then the one with the highest (positive) net present value is the qualifying system.	None	None

FIGURE 3. SUMMARY OF ESTABLISHMENT AND DISCONTINUANCE CRITERIA  
FOR CHAPTER 4, AIR TRAFFIC CONTROL (CONTINUED)

Facility or Service	Establishment	Discontinuance	Additional Facilities or Improvements
Metroplex Control Facility, Paragraph 52	Sum of ratio values equals or exceeds 1.0 or number of instrument operations or enplanements exceeds values identified in FAA-APO-93-7 plus benefit/cost study.	Site specific justification.	
Terminal Radar Approach Control (TRACON) Facility, Paragraph 53.	Accomplished in accordance with procedures of FAA Order 6480.17, "Terminal Facility Modernization/Relocation Survey and Evaluation Handbook" and AAT-93-2, "Operational Requirements and Facility Investment Criteria for Metroplex Control Facilities (MCF) and Terminal Radar Approach Control (TRACON) Facilities."	Accomplished in accordance with procedures of FAA Order 6480.17, "Terminal Facility Modernization/Relocation Survey and Evaluation Handbook" and AAT-93-2, "Operational Requirements and Facility Investment Criteria for Metroplex Control Facilities (MCF) and Terminal Radar Approach Control (TRACON) Facilities."	

FIGURE 3. SUMMARY OF ESTABLISHMENT AND DISCONTINUANCE CRITERIA  
FOR CHAPTER 4, AIR TRAFFIC CONTROL (CONTINUED)

Facility or Service	Establishment	Discontinuance	Additional Facilities or Improvements
* Precision Runway Monitor, Paragraph 54	Benefit-cost ratio is greater than or equal to 1.0, or, if the benefit-cost ratio is less than 1.0, the Administrator determines that an aeronautical requirement exists due to operational or safety factors such as runway configuration, terminal approach procedures, or delay at feeder or receiver airports or elsewhere in the National Airspace System (NAS) which can be related to delay at the PRM candidate airport.	Benefit-cost ratio is less than 1.0 or a previously identified aeronautical requirement no longer exists.	

\*

APPENDIX 3. SUMMARY OF ECONOMIC VALUES

This appendix summarizes economic values used in the development of investment criteria of the various terminal air navigation facilities and air traffic control services provided by the agency. The basis of these values is Report Number FAA-APO-89-10, Economic Values for Evaluation of Federal Aviation Administration Investment and Regulatory Programs. These values are expected to change with the passage of time as a result of anticipated price and income level changes. Periodic revisions of the supporting report and this appendix will account for and reflect such changes. Between interim revisions, adjustment of values to future year dollars will be accomplished by the methodology outlined in Section 9 of the supporting report, FAA-APO-89-10.

The following summarizes unit economic values in 1987 and 1988 current dollars.

SUMMARY OF ECONOMIC VALUES

	<u>Current Year Dollar Value</u>	
	<u>1987</u>	<u>1988</u>
Air Traveler's Time (\$ per hr.)	\$34.00	\$35.00
Statistical Life (\$ 000)	1,740	1,810
Cost of Injuries (\$ 000)		
Minor	2.3	2.4
Serious	740	770

SUMMARY OF ECONOMIC VALUES  
(continued)

	<u>Current Year Dollar Values</u>	
	<u>1987</u>	<u>1988</u>
Replacement/Restoration Costs (\$ 000) (for destroyed/substantially damaged aircraft)		
<u>Scheduled Commercial Service</u>		
Turbofan, 2-engine, regular body	\$11,180/1,450	\$11,350/1,480
Turbofan, 3-engine, regular body	5,370/698	5,460/710
Turbofan, 4-engine, regular body	10,620/1,380	10,790/1,400
Turbofan, 2-engine, wide body	32,900/4,280	33,420/4,350
Turbofan, 3-engine, wide body	20,160/2,620	20,480/2,660
Turbofan, 4-engine, wide body	23,200/3,020	23,570/3,060
Turboprop, multi-engine, 20+ seats	1,700/221	1,730/225
Turboprop, multi-engine, other	1,370/178	1,390/181
<u>Nonscheduled/Noncommercial Service</u>		
Piston, 1-engine, 1-3 seats	14/4	14/4
Piston, 1-engine, 4+ seats	26/7	26/8
Piston, 2-engine, 1-6 seats	61/15	62/15
Piston, 2-engine, 7+ seats	88/21	89/21
Turboprop, 2-engine, 1-12 seats	517/67	526/68
Turboprop, 2-engine, 13+ seats	624/81	634/82
Turbojet, 2-engine	1,430/186	1,460/189
Rotorcraft, piston	47/14	48/14
Rotorcraft, turbine	363/47	369/48
<u>Military</u>		
Turbojet/fan-multi-engine	26,920/3,500	27,350/3,560
Turbojet/fan-attack/fighter	12,900/1,680	13,110/1,700
Turbojet/fan-other	2,580/335	2,620/341
Turboprop	11,920/1,550	12,110/1,570
Piston engine	64/8	65/8
Rotary	2,370/308	2,410/313
Total military (weighted avg.)	8,220/1,070	8,350/1,090

SUMMARY OF ECONOMIC VALUES  
(continued)

	<u>Current Year Dollar Value</u>	
	<u>1987</u>	<u>1988</u>
Aircraft Variable Operating Cost		
<u>Scheduled Commercial Service</u>		
(\$ per block hour/\$ per airborne hour)		
Turbofan, 2-engine, regular body	\$ 954/1,142	\$ 980/1,173
Turbofan, 3-engine, regular body	1,355/1,623	1,391/1,666
Turbofan, 4-engine, regular body	1,539/1,844	1,581/1,894
Turbofan, 2-engine, wide body	1,689/2,023	1,735/2,077
Turbofan, 3-engine, wide body	2,490/2,983	2,556/3,061
Turbofan, 4-engine, wide body	3,396/4,067	3,480/4,168
Turboprop, 4-engine	681/830	704/858
Turboprop, 2-engine, 20+ seats	293/357	302/369
Turboprop, 2-engine, <20 seats	264/322	272/332
Turboprop, 2-engine, Alaska	372/454	383/467
Turboprop, all types, Alaska	275/336	283/345
Piston, multi engine	129/157	133/162
<u>Nonscheduled Service (\$ per hour)</u>		
Piston, 1-engine, 1-3 seats	71	73
Piston, 1-engine, 4+ seats	84	86
Piston, 2-engine, 1-6 seats	171	176
Piston, 2-engine, 7+ seats	180	186
Turboprop, 2-engine, 1-12 seats	300	308
Turboprop, 2-engine, 13+ seats	307	316
Turbojet, 2-engine	725	743
Rotorcraft, piston	102	105
Rotorcraft, turbine	189	194

SUMMARY OF ECONOMIC VALUES  
(continued)

	<u>Current Year Dollar Value</u>	
	<u>1987</u>	<u>1988</u>
<u>Noncommercial Service (\$ per hour)</u>		
Piston, 1-engine, 1-3 seats	\$ 29	\$ 29
Piston, 1-engine, 4+ seats	42	43
Piston, 2-engine, 1-6 seats	115	118
Piston, 2-engine, 7+ seats	124	128
Turboprop, 2-engine, 1-12 seats	224	229
Turboprop, 2-engine, 13+ seats	231	237
Turbojet, 2-engine	579	592
Rotorcraft, piston	60	62
Rotorcraft, turbine	133	136
<u>Military (\$ per hour)</u>		
Turbojet/fan-multi-engine	2,478	2,529
Turbojet/fan-attack/fighter	1,965	2,018
Turbojet/fan-other	496	510
Turboprop	735	756
Piston engine	71	73
Rotary	302	312

APPENDIX 3. SUMMARY OF "CRITICAL VALUES" (CONTINUED)

SUMMARY OF CRITICAL VALUES

Nature of Value	Current Year Dollar Value			
	1980	1981	1982	1983
Rotary-Wing:				
Turbine	\$ 107	\$ 119	\$ 126	\$ 131
Piston	\$ 54	\$ 61	\$ 64	\$ 67
Total Military (Weighted By Hours)	\$ 735	\$ 778	\$ 851	\$ 883



2/5/91

7031.2C CHG 6  
Appendix 4

APPENDIX 4. ESTABLISHMENT AND DISCONTINUANCE CRITERIA FOR AIRPORT  
TRAFFIC CONTROL TOWER FACILITIES--FINAL RULE

This appendix contains the Final Rule on Establishment and Discontinuance Criteria for Airport Traffic Control Tower Facilities, as signed by the Administrator. The criteria are further explained in paragraph 40 and appendix 2.

FAA is adding Part 170 to the Federal Aviation Regulations (14 CFR Part 170) to read as follows:

PART 170--ESTABLISHMENT AND DISCONTINUANCE CRITERIA FOR AIR TRAFFIC CONTROL SERVICES AND NAVIGATIONAL FACILITIES

Subpart A--General

Sec.

170.1 Scope.

170.3 Definitions.

Subpart B--Airport Traffic Control Tower

Sec.

170.11 Scope.

170.13 Airport Traffic Control Tower (ATCT) Establishment Criteria.

170.15 ATCT Discontinuance Criteria.

Authority: 49 U.S.C. 1343, 1346, 1348, 1354(a), 1355, 1401, 1421 (as amended by P.L. 100-223), 1422 through 1430, 1472(c), 1502, and 1522; 49 U.S.C. 106(g) (Revised Pub. L. 97-449, January 12, 1983).

Subpart A--General

Section 170.1 Scope.

This subpart sets forth establishment and discontinuance criteria for navigation aids operated and maintained by the United States.

Section 170.3 Definitions.

For purposes of this subpart--

Aircraft operations means the airborne movement of aircraft in controlled or noncontrolled airport terminal areas, and counts at en route fixes or other points where counts can be made. There are two types of operations: local and itinerant.

(1) "Local operations" mean operations performed by aircraft which:

(i) Operate in the local traffic pattern or within sight of the airport;

(ii) Are known to be departing for, or arriving from flight in local practice areas located within a 20-mile radius of the airport; or

(iii) Execute simulated instrument approaches or low passes at the airport.

(2) "Itinerant operations" mean all aircraft operations other than local operations.

Air navigation facility (NAVAID) means any facility used, available for use, or designated for use in the aid of air navigation. Included are landing areas; lights; signaling, radio direction-finding, or radio or other electronic communication; and any other structure or mechanism having a similar purpose of guiding or controlling flight or the landing or takeoff of aircraft.

Air traffic clearance means an authorization by air traffic control for an aircraft to proceed under specified traffic conditions within controlled airspace for the purpose of preventing collision between known aircraft.

Air traffic control (ATC) means a service that promotes the safe, orderly, and expeditious flow of air traffic, including airport, approach, departure, and en route air traffic control.

Air traffic controller means a person authorized to provide air traffic service, specifically en route and terminal control personnel.

Airport traffic control tower means a terminal facility, which through the use of air/ground communications, visual signaling, and other devices, provides ATC services to airborne aircraft operating in the vicinity of an airport and to aircraft operating on the airport area.

Alternate airport means an airport, specified on a flight plan, to which a flight may proceed when a landing at the point of first intended landing becomes inadvisable.

Approach means the flightpath established by the FAA to be used by aircraft landing on a runway.

Approach control facility means a terminal air traffic control facility providing approach control service.

Arrival means any aircraft arriving at an airport.

Benefit-cost ratio means the quotient of the discounted life cycle benefits of an air traffic control service or navigation aid facility (i.e., ATCT) divided by the discounted life cycle costs.

Ceiling means the vertical distance between the ground or water and the lowest layer of clouds or obscuring phenomena that is reported as "broken," "overcast," or "obstruction."

Control tower - See Airport Traffic Control Tower.

Criteria means the standards used by the FAA for the determination of establishment or discontinuance of a service or facility at an airport.

Departure means any aircraft taking off from an airport.

Discontinuance means the withdrawal of a service and/or facility from an airport

Establishment means the provision of a service or facility at a candidate airport.

Instrument approach means a series of predetermined maneuvers for the orderly transfer of an aircraft under instrument flight conditions from the beginning of the initial approach to a landing, or to a point from which a landing may be made visually. It is prescribed and approved for a specific airport by competent authority.

Instrument flight rules (IFR) means rules governing the procedures for conducting flight under instrument meteorological conditions (IMC) instrument flight.

Instrument landing system (ILS) means an instrument landing system whereby the pilot guides his approach to a runway solely by reference to instruments in the cockpit. In some instances, the signals received from the ground can be fed into the automatic pilot for automatically controlled approaches.

Instrument meteorological conditions (IMC) means weather conditions below the minimums prescribed for flight under Visual Flight Rules (VFR).

Instrument operation means an aircraft operation in accordance with an IFR flight plan or an operation where IFR separation between aircraft is provided by a terminal control facility or air route traffic control center (ARTCC).

Life cycle benefits means the value of services provided to aviation users over the life span of a facility or service.

Life cycle costs means the value of research and development costs, investment costs, operation costs, maintenance costs, and termination costs over the life span of a facility or service.

LORAN-C means an electronic navigational system by which hyperbolic lines of position are determined by measuring differences in the time of reception of synchronized pulse signals from two fixed transmitters.

Maintenance costs means the costs incurred in servicing and maintaining a facility after establishment.

Mean sea level (MSL) means the base commonly used in measuring altitudes.

Microwave landing system (MLS) means a landing system which enables equipped aircraft to make curved and closely spaced approaches to properly instrumented airports.

Noncommercial traffic means all aircraft operations that are conducted free of compensation.

Nonprecision approach procedure means an FAA standard for approaching an IFR runway where no electronic glide slope is available.

Nonscheduled commercial service means the carriage by aircraft in air commerce of persons or property for compensation or hire that are not operated in regularly scheduled service such as charter flights.

Present value (PV) means the value of a stream of future benefits or costs that are discounted to the present.

PVE or BPV means the discounted value of life cycle benefits.

PVC or CPV means the discounted value of life cycle benefits.

PVCM or GMPV means the discounted value of operations and maintenance costs less termination costs over a facility's remaining life cycle.

Runway means a defined rectangular area on a land airport prepared for the landing and takeoff of aircraft along its length.

Runway visual range means an instrumentally derived value based on standard calibrations that represent the horizontal distance a pilot will see down the runway from the approach end.

Scheduled commercial service means the carriage by aircraft in air commerce under Parts 121, 127, and 135 of persons or property for compensation or hire based on published flight schedules.

Separation means the spacing of aircraft in flight and while landing and taking off to achieve their safe and orderly movement.

Takeoff clearance means authorization by an airport traffic control tower for an aircraft to take off.

Tower cab means an ATC facility located at an airport. Controllers at these facilities direct ground traffic, takeoffs, and landings.

Traffic advisories means advisories issued to alert pilots to other known or observed air traffic which may be in such proximity to the position or intended route of flight of their aircraft to warrant attention.

Traffic pattern means the flow of aircraft operating on and in the vicinity of an airport during specified wind conditions as established by appropriate authority.

VFR traffic means aircraft operated solely in accordance with Visual Flight Rules.

Visual flight rules (VFR) means rules that govern the procedures for conducting flight under visual conditions. The term "VFR" is also used in the United States to indicate weather conditions that are equal to or greater than minimum VFR requirements. In addition, "VFR" is used by pilots and controllers to indicate the type of flight plan.

Visual meteorological conditions (VMC) means meteorological conditions expressed in terms of visibility, distance from clouds, and ceiling equal to or better than specified minima.

#### Subpart B--Airport Traffic Control Towers

##### Section 170.11 Scope.

This subpart sets forth establishment and discontinuance criteria for Airport Traffic Control Towers.

##### Section 170.13 Airport Traffic Control Tower (ATCT) Establishment Criteria.

(a) The following criteria along with general facility establishment standards must be met before an airport can qualify for an ATCT:

- (1) The airport, whether publicly or privately owned, must be open to and available for use by the public as defined in the Airport and Airway Improvement Act of 1982;
- (2) The airport must be recognized by and contained within the National Plan of Integrated Airport Systems;
- (3) The airport owners/authorities must have entered into appropriate assurances and covenants to guarantee that the airport will continue in operation for a long enough period to permit the amortization of the ATCT investment;
- (4) The FAA must be furnished appropriate land without cost for construction of the ATCT; and

2/5/91

(5) The airport must meet the benefit-cost ratio criteria specified herein utilizing three consecutive FAA annual counts and projections of future traffic during the expected life of the tower facility. (An FAA annual count is a fiscal year or a calendar year activity summary. Where actual traffic counts are unavailable or not recorded, adequately documented FAA estimates of the scheduled and nonscheduled activity may be used.)

(b) An airport meets the establishment criteria when it satisfies paragraphs (a)(1) through (a)(5) of this section and its benefit-cost ratio equals or exceeds one. As defined in Section 170.3 of this Part, the benefit-cost ratio is the ratio of the present value of the ATCT life cycle benefits (BPV) to the present value of ATCT life cycle costs (CPV).

$$BPV/CPV \geq 1.0$$

(c) The satisfaction of all the criteria listed in this section does not guarantee that the airport will receive an ATCT.

#### Section 170.15 ATCT Discontinuance Criteria.

An ATCT will be subject to discontinuance when the continued operation and maintenance costs less termination costs (CMPV) of the ATCT exceed the present value of its remaining life-cycle benefits (BPV):

$$BPV/CMPV < 1.0$$

Issued in Washington, DC on December 26, 1990.

**\* APPENDIX 5. ESTABLISHMENT AND DISCONTINUANCE CRITERIA FOR LORAN-C NONPRECISION APPROACH PROCEDURES--FINAL RULE**

This appendix contains the Final Rule on Establishment and discontinuance Criteria for LORAN-C Approach Procedures, as signed by the Administrator. The criteria are further explained in "Establishment Criteria For LORAN-C Approach Procedures," FAA-APO-90-5, June 1990. A discussion of the criteria and public comments on the criteria are contained in Federal Register Vol. 58, No. 153, Wednesday August 11, 1993, Rules and Regulations, 42814-42818.

The FAA is amending Part 170 of the Federal Aviation Regulations (14 CFR Part 170) by adding Subpart C which reads as follows:

**PART 170--ESTABLISHMENT AND DISCONTINUANCE CRITERIA FOR AIR TRAFFIC CONTROL SERVICES AND NAVIGATIONAL FACILITIES**

1. The authority citation for part 170 is revised to read as follows:

**Authority:** 49 U.S.C. app. 1343, 1346, 1348, 1354(a), 1355, 1401, 1421, 1422, through 1430, 1472(c), 1502, and 1522; 49 U.S.C. 106(g).

2. Part 170 is amended by adding subpart C consisting of §§ 170.21, 170.23, and 170.25 to read as follows:

Sec.

170.21 Scope.

170.23 LORAN-C establishment criteria.

170.25 LORAN-C discontinuance criteria.

**Subpart C--LORAN-C**

**§ Section 170.21 Scope**

This subpart sets forth establishment and discontinuance criteria for LORAN-C.

**§ Section 170.23 LORAN-C establishment criteria.**

(a) The criteria in paragraphs (a)(1) through (a)(6) of this section, along with general facility and navigational aid establishment requirements, must be met before a runway can be eligible for LORAN-C approach.

(1) A runway must have landing surfaces judged adequate by the FAA to accommodate aircraft expected to use the approach and meet all FAA-required airport design criteria for nonprecision runways. \*

\* (2) A runway must be found acceptable for instrument flight rules operations as a result of an airport airspace analysis conducted in accordance with the current FAA regulations and provisions.

(3) The LORAN-C signal must be of sufficient quality and accuracy to pass an FAA flight inspection.

(4) It must be possible to remove, mark, or light all approach obstacles in accordance with FAA marking and lighting provisions.

(5) Appropriate weather information must be available.

(6) Air-to-ground communications must be available at the initial approach fix minimum altitude and at the missed approach altitude.

(b) A runway meets the establishment criteria for a LORAN-C approach when it satisfies paragraphs (a)(1) through (a)(6) of this section and the estimated value of benefits associated with the LORAN-C approach equals or exceeds the estimated costs (benefit-cost ratio equals or exceeds one). As defined in § 170.3 of this part, the benefit-cost ratio is the ratio of the present value of the LORAN-C life-cycle benefits (PVB) to the present value of LORAN-C life-cycle costs (PVC):

$PVB/PVC \geq 1.0$ .

(c) The criteria do not cover all situations that may arise and are not used as a sole determinant in denying or granting the establishment of nonprecision LORAN-C approach for which there is a demonstrated operational or air traffic control requirement.

§ Section 170.25 LORAN-C discontinuance criteria.

A LORAN-C nonprecision approach may be subject to discontinuance when the present value of the continued maintenance costs (PVCM) of the LORAN-C approach exceed the present value of its remaining life-cycle benefits (PVB):

$PVB/PVCM < 1.0$

Issued in Washington, DC on August 4, 1993.

/s/

Joseph M. Del Balzo  
Acting Administrator

\*



2/5/91

(5) The airport must meet the benefit-cost ratio criteria specified herein utilizing three consecutive FAA annual counts and projections of future traffic during the expected life of the tower facility. (An FAA annual count is a fiscal year or a calendar year activity summary. Where actual traffic counts are unavailable or not recorded, adequately documented FAA estimates of the scheduled and nonscheduled activity may be used.)

(b) An airport meets the establishment criteria when it satisfies paragraphs (a)(1) through (a)(5) of this section and its benefit-cost ratio equals or exceeds one. As defined in Section 170.3 of this Part, the benefit-cost ratio is the ratio of the present value of the ATCT life cycle benefits (BPV) to the present value of ATCT life cycle costs (CPV).

$$BPV/CPV \geq 1.0$$

(c) The satisfaction of all the criteria listed in this section does not guarantee that the airport will receive an ATCT.

#### Section 170.15 ATCT Discontinuance Criteria.

An ATCT will be subject to discontinuance when the continued operation and maintenance costs less termination costs (CMPV) of the ATCT exceed the present value of its remaining life-cycle benefits (BPV):

$$BPV/CMPV < 1.0$$

Issued in Washington, DC on December 26, 1990.