

**CRATER LAKE**  
**KLAMATH**  
REGIONAL AIRPORT

# Master Plan

February 2021



Appendix E

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# Facility Requirements Supporting Data

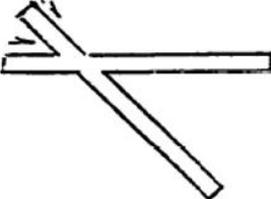


# Appendix E: Facility Requirements Data

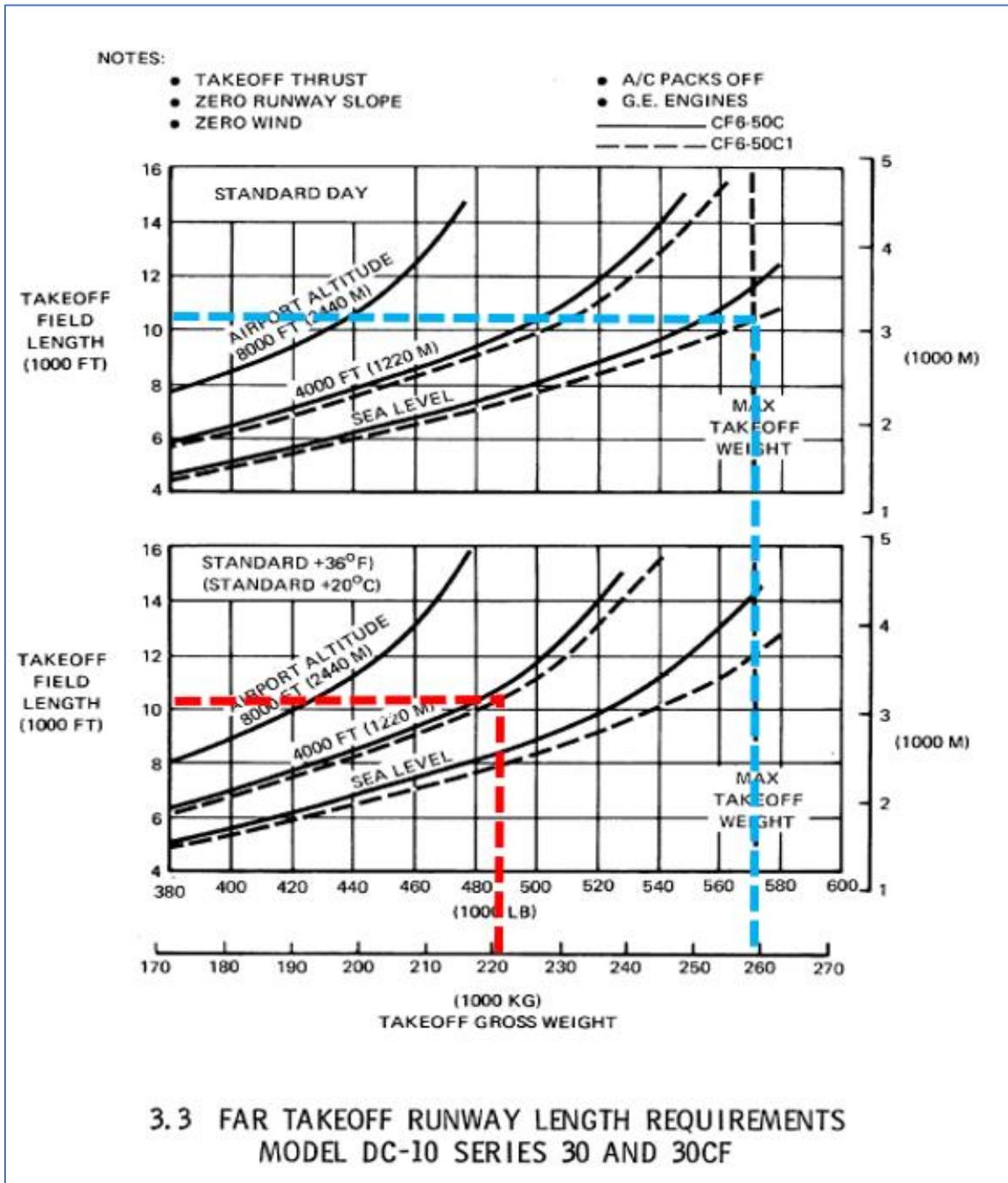
- Attachment E1:** LMT Annual Service Volume (ASV) and Capacity/Demand Calculations Factors
- Attachment E2:** Runway 14/32 Length Curve (Future Critical Aircraft DC-10-30 Series)
- Attachment E3:** Taxiway System Critical Aircraft
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- Attachment E5:** UFC Airfield and Heliport Planning and Design – EOR Pads

## ATTACHMENT E1: LMT ANNUAL SERVICE VOLUME (ASV) AND CAPACITY/DEMAND CALCULATIONS FACTORS

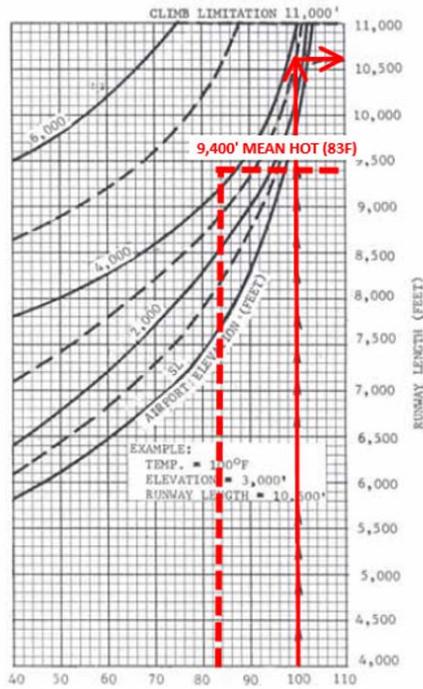
ANNUAL SERVICE VOLUME (ASV)					
Capacity Component	2018	2023	2028	2033	2038
ASV Total Annual Aircraft Operations	48,500	52,955	51,655	53,355	54,955
ASV Peak Month Operations	5,335	7,943	7,748	8,003	8,243
ASV Average Day Peak Month (ADPM) Operations	175	261	255	263	271
ASV Total Peak-Hour Operations	21	31	31	32	33
Annual Service Volume (ASV) and Demand/Capacity (D/C) Outputs (% Capacity Used)					
ASV - Annual Operations	200,000	200,000	200,000	200,000	200,000
ASV - Annual Demand/Capacity (% Used)	24%	26%	26%	27%	27%
Hourly Demand/Capacity (% Used)	24%	35%	34%	35%	36%
VFR Demand/Capacity (% Used)	21%	31%	30%	31%	32%
IFR Hourly Operations (% Used)	4%	6%	6%	6%	7%

NO.	Runway-use Configuration	Mix Index %(C+3D)	Hourly Capacity Ops/Hr		Annual Service Volume Ops/Yr
			VFR	IFR	
1.		0 to 20	98	59	230,000
		21 to 50	74	57	195,000
		51 to 80	63	56	205,000
		81 to 120	55	53	210,000
		121 to 130	51	50	240,000
9.		0 to 20	98	59	230,000
		21 to 50	77	57	200,000
		51 to 80	77	56	215,000
		81 to 120	76	59	225,000
		121 to 180	72	60	265,000

# ATTACHMENT E2: RUNWAY 14/32 LENGTH CURVE (FUTURE CRITICAL AIRCRAFT DC-10-30 SERIES)

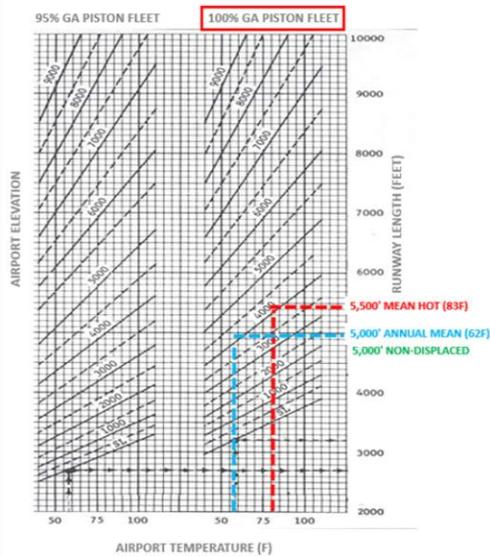


FAA Runway Length Curves (Charts)



**FAA Recommended Runway Length (Civilian Users) 100% Business Jet Fleet @ 90% Load:**

**9,400'** = FAA length at LMT mean maximum ambient temperature (83F) and LMT field elevation (4,085')



**Recommended Crosswind Runway Length (100% GA Fleet):**

**5,000'±** = Corrects existing runway end displaced threshold(s)

**5,000'** = FAA length at standard ambient temperature (62F) and LMT field elevation (4,095')

**5,500'** = FAA length at LMT mean maximum ambient temperature (83F) and LMT field elevation (4,095')

# ATTACHMENT E3: TAXIWAY SYSTEM CRITICAL AIRCRAFT

TAXIWAY SYSTEM - FUTURE FACILITY REQUIREMENTS						
Aircraft Type/Category	User/Operator	FAA RDC	Aircraft Type	MTOW	Gear Type	Existing or Future User
<b>RUNWAY 14-32 - MOST DEMANDING AIRCRAFT</b>						
Falcon 50 / 900 Series	FBO - Medical/Charter	B/C-II	Large Business Jet	45,500	DWG	Existing
Gulfstream 400 Series	FBO - Medical/Charter	D-II	Large Business Jet	74,000	DWG	Forecast
Gulfstream 500 Series	FBO - Medical/Charter	D-III	Large Business Jet	90,000	DWG	Forecast
<b>DC-10 Air Fire Tanker</b>	<b>US Forest Service</b>	<b>D-IV</b>	<b>Transport - Jet</b>	<b>590,000</b>	<b>DTWG</b>	<b>Existing</b>
MD-87 / DC-9 (or Similar)	US Forest Service	C-III	Transport - Jet	149,500	DWG	Existing
Avro RJ-85 / 146 (or Similar)	US Forest Service	C-III	Transport - Jet	97,200	DWG	Existing
DC-7	US Forest Service	B-III	Transport - Turboprop	120,000	DWG	Existing
C-130 Hercules (or Similar)	US Forest Service	C-IV	Transport - Turboprop	155,000	DTWG	Existing
Grumman S2-T (or Similar)	US Forest Service	B-II	Transport - Turboprop	26,100	DWG	Existing
B-737	US Forest Service	C-III	Transport - Jet	160,000	DWG	Forecast
<b>F-15 Eagle</b>	<b>ORANG Guard</b>	<b>D-I</b>	<b>Fighter Jet</b>	<b>68,000</b>	<b>SWG</b>	<b>Existing</b>
F-16 Falcon	Military Branches	D-I	Fighter Jet	42,000	SWG	Existing
F-18 Hornet	Military Branches	D-I	Fighter Jet	52,000	SWG	Existing
F-35 Lightning	Military Branches	D-I	Fighter Jet	70,000	SWG	Existing
C-130 Hercules	Military Branches	C-IV	Transport - Turboprop	155,000	DTWG	Existing
<b>KC-10 Extender</b>	<b>Military Branches</b>	<b>D-IV</b>	<b>Fuel Transport - Jet</b>	<b>590,000</b>	<b>DTWG</b>	<b>Existing</b>
KC-135 Stratotanker	Military Branches	D-IV	Fuel Transport - Jet	325,000	DTWG	Existing
C-17 Globemaster	Military Branches	C-IV	Cargo Transport - Jet	585,000	DTWG	Existing
Boeing P-8 Poseidon (B-737)	Military Branches	C-III	Cargo Transport - Jet	160,000	DWG	Existing
KC-46A Pegasus (Replace KC-135)	Military Branches	D-IV	Fuel Transport - Jet	395,000	DTWG	Existing
<b>RUNWAY 7/25 - MOST DEMANDING AIRCRAFT</b>						
<b>King Air 350/1900 Series</b>	<b>Critical Aircraft</b>	<b>B-II</b>	<b>Twin Turboprop</b>	<b>18,000</b>	<b>DWG</b>	<b>Existing</b>
Falcon 50 / 900 Series	FBO - Medical/Charter	B/C-II	Large Business Jet	45,500	DWG	Existing
Cessna Citation 500 Series	GA	B-II	Small Business Jet	18,000	SWG	Existing
Cessna Caravan - 208	Cargo	A-II	Single Turboprop	9,000	SWG	Existing
Beechcraft 99	Cargo	B-I	Twin Turboprop	16,000	DWG	Existing
Air Tractor - AG	Ag - Tenant	B-II	Single Turboprop	15,000	SWG	Existing
Air Tractor - 800 Series	USFS	B-II	Single Turboprop	16,000	SWG	Existing
S-2T Grumman	USFS	B-II	Twin Turboprop	26,000	DWG	Existing
Aero Commander	USFS	B-II	Twin Piston	9,000	SWG	Existing
Pilatus PC-12	Medical	A-II	Single Turboprop	10,400	SWG	Existing

# ATTACHMENT E4: UNIFIED FACILITIES CRITERIA (UFC) AIRFIELD AND HELIPORT PLANNING AND DESIGN – GENERAL REQUIREMENTS

**UFC 3-260-01**  
**17 NOVEMBER 2008**

## CHAPTER 1 (Applicable sections)

### GENERAL REQUIREMENTS

1-1 **PURPOSE OF THIS MANUAL.** This manual provides standardized airfield, heliport, and airspace criteria for the geometric layout, design, and construction of runways, helipads, taxiways, aprons, and related permanent facilities to meet sustained operations.

1-2 **SCOPE.** This manual prescribes dimensional and geometric layout criteria for safe standards for airfields, landing zones, heliports and helipads, and related permanent facilities, as well as the navigational airspace surrounding these facilities. Criteria in this manual pertain to all Department of Defense (DOD) military facilities in the United States, its territories, trusts, and possessions, and unless otherwise noted, to DOD facilities overseas on which the United States has vested base rights. For DOD facilities overseas; if a written agreement exists between the host nation and the DOD that requires application of either North Atlantic Treaty Organization (NATO), International Civil Aviation Organization (ICAO), or Federal Aviation Administration (FAA) standards, those standards shall apply as stipulated within the agreement; however, DOD proponents shall apply the criteria within this manual to the maximum extent practicable. United States Air Force (USAF) bases within the European theater may be authorized by Headquarters United States Forces in Europe (HQ USAFE) to use NATO criteria. Tenant organizations on civil airports in the continental United States (CONUS) will use these criteria to the extent practicable; otherwise, FAA criteria will apply. Specifically, on airfield areas that are joint-use or with restrictions and clear zones generated by joint-use areas, the FAA criteria contained in FAA Advisory Circular (AC) 150/5300-13 is applicable. For areas where airfield surfaces are Air National Guard (ANG) controlled, whether fee-owned or exclusive use leased, the criteria contained in this manual are applicable. Procedures for pavement structural design and pavement marking and lighting are beyond the scope of this manual.

### 1-4 APPLICATION OF CRITERIA

1-4.1 **Existing Facilities.** The criteria in this manual are not intended to apply to facilities located or constructed under previous standards. This includes cases where runways may lack paved shoulders or other physical features because they were not previously required or authorized. Existing airfield facilities need not be modified nor upgraded to conform to the criteria in this manual if these facilities meet current mission requirements. If a change in mission necessitates reconstruction, an upgrade to current standards should be accomplished where practical. Once upgraded, facilities must be maintained at a level that will sustain

compliance with current standards. USAF personnel must identify the status of features and facilities on airfield maps as exempt (because they were constructed under a previous, less stringent standard), as a permissible deviation (authorized as a deviation to airfield criteria and sited appropriately), or as a violation, with or without approved waiver. Building restriction lines (BRL) encompass vertical facilities along the flight line that are exempt because they were constructed under previous standards. For other items or features, annotate the airfield map to identify the status of the facility or feature and the date of construction or waiver number. See Appendix B, Section 18, for the guidelines used to establish the BRL.

**1-4.3 New Construction.** The criteria established in this manual apply to all new facilities. All new construction will comply with the criteria established in this manual unless the appropriate waivers are obtained as outlined in Appendix B, Section 1. For the USAF, new facilities within the appropriate category code may be constructed without a waiver if they are behind and beneath the boundaries of the BRL (see Appendix B, Section 18). All site plans for new facilities that will be sited within this area should clearly delineate the limits (including elevation) of the BRL and the relationship to the proposed facility. New facilities must be maintained at a level that will sustain compliance with the current standards.

**1-4.5 Military Activities on Civil Owned Airfields.** Air Force, Air Force Reserve Command (AFRC), and ANG installations on municipal airports or FAA-controlled airfields must apply FAA criteria to facilities such as runways and taxiways that are jointly used by civilian and military aircraft. Facilities that are for military use only, such as aircraft parking aprons, must apply Air Force/DOD criteria.

## ATTACHMENT E5: UFC AIRFIELD AND HELIPORT PLANNING AND DESIGN – EOR PADS

UFC 3-260-01  
February 4, 2019

### **6-10 ARM/DEARM PADS.**

The arm/dearm pad is used for arming aircraft immediately before takeoff and for dearming (safing) weapons retained or not expended upon their return. Do not site arm/dearm pads, other aprons, hot cargo spots, or taxiways to these facilities in a way that will allow penetration of the approach-departure clearance surface.

#### **6-10.2 Location.**

Air Force arm/dearm pads should be located adjacent to runway thresholds and sited such that armed aircraft are oriented in the direction of least populated areas or towards revetments.



Mead&Hunt

