



Appendix A

WAAS CH 50208 W03A	APP CRS 027°	Rwy Idg 5500 TDZE 1269 Apt Elev 1276
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RNAV (GPS) RWY 3

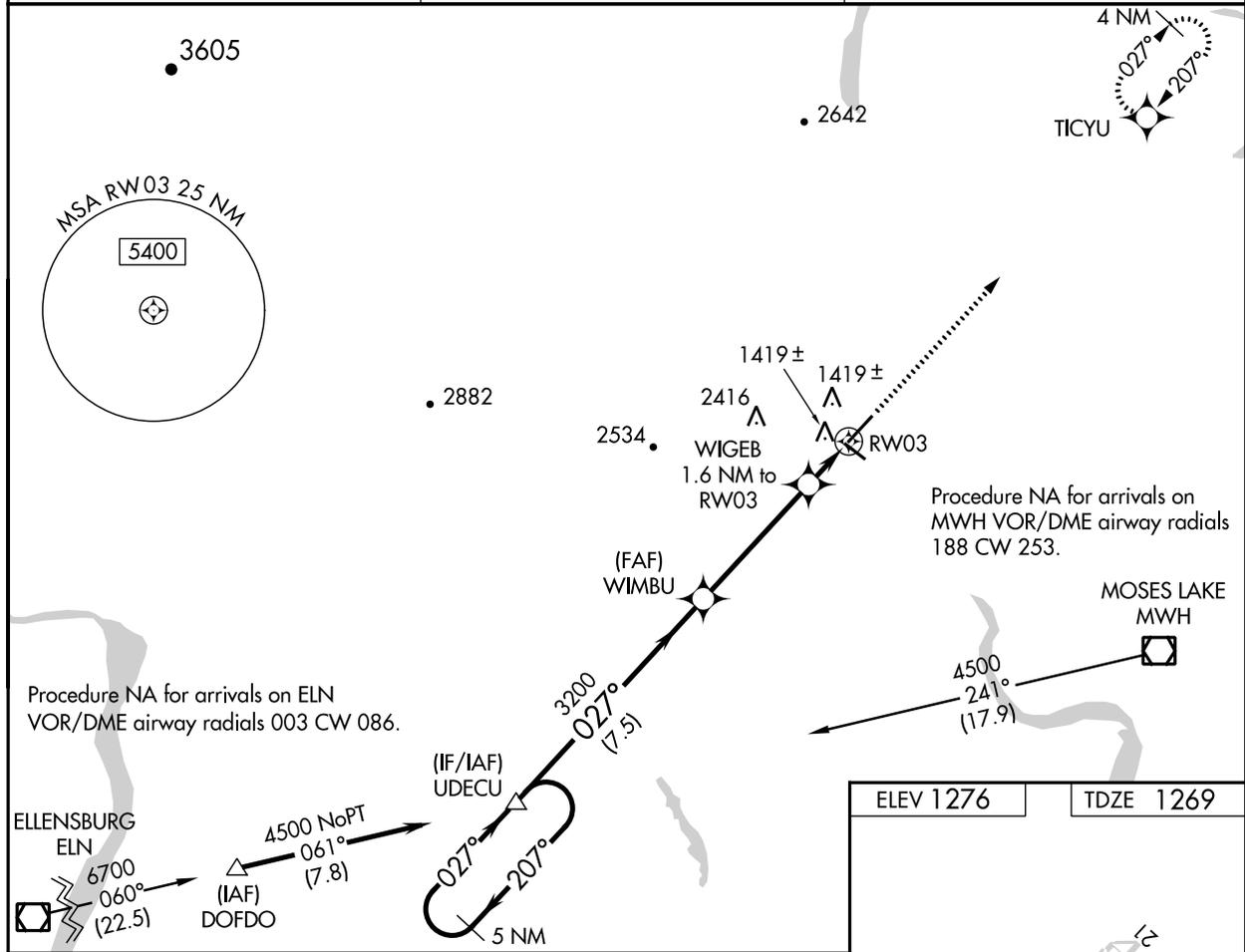
EPHRATA MUNI (EPH)

RNP APCH.

⚠ For uncompensated Baro-VNAV systems, LNAV/VNAV NA below -17°C or above 46°C. VDP and Baro-VNAV NA when using Moses Lake/Grant County Intl altimeter setting. When local altimeter setting not received, use Moses Lake/Grant County Intl altimeter setting and increase all DA/MDA 40 feet and LNAV Cat C and D visibility ¼ SM.

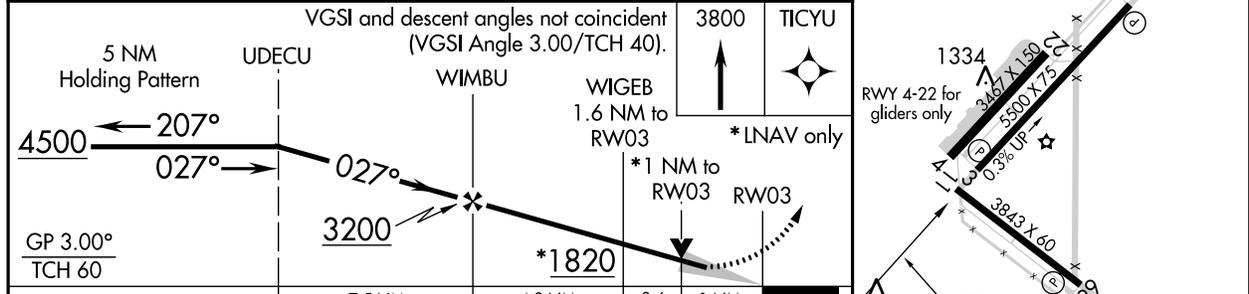
MISSED APPROACH: Climb to 3800 direct TICYU and hold.

ASOS 135.775	GRANT COUNTY APP CON * 126.4 379.95	UNICOM 122.8 (CTAF) 0
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NW-1, 21 MAY 2020 to 18 JUN 2020

NW-1, 21 MAY 2020 to 18 JUN 2020



CATEGORY	A	B	C	D
LPV DA	1519-1		250 (300-1)	
LNAV/VNAV DA	1689-1½		420 (500-1½)	
LNAV MDA	1680-1 411 (500-1)		1680-1¼ 411 (500-1¼)	

ELEV 1276	TDZE 1269
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REIL Rwy 3, 11, 21 and 29 **0**
MIRL Rwy 11-29 and 3-21 **0**

WAAS CH 82308 W21A	APP CRS 207°	Rwy Idg 5500 TDZE 1276 Apt Elev 1276
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RNAV (GPS) RWY 21

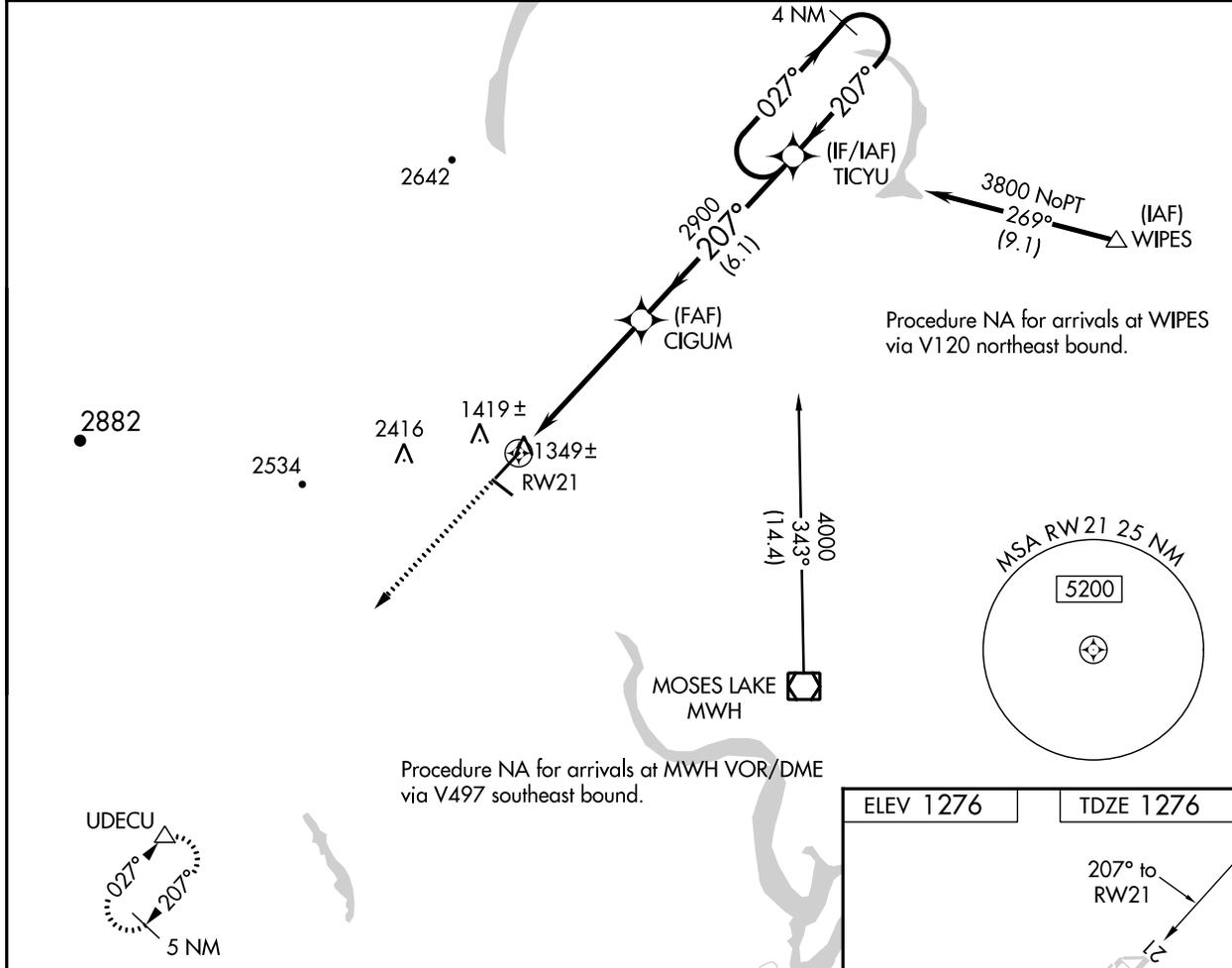
EPHRATA MUNI (EPH)

RNP APCH.

▼ For uncompensated Baro-VNAV systems, LNAV/VNAV NA below -17°C or above 46°C.
▲ VDP and Baro-VNAV NA when using Moses Lake/Grant County Intl altimeter setting. When local altimeter setting not received, use Moses Lake/Grant County Intl altimeter setting and increase all DA/MDA 40 feet; increase visibility LPV all Cats, and LNAV Cats C and D ¼ SM.

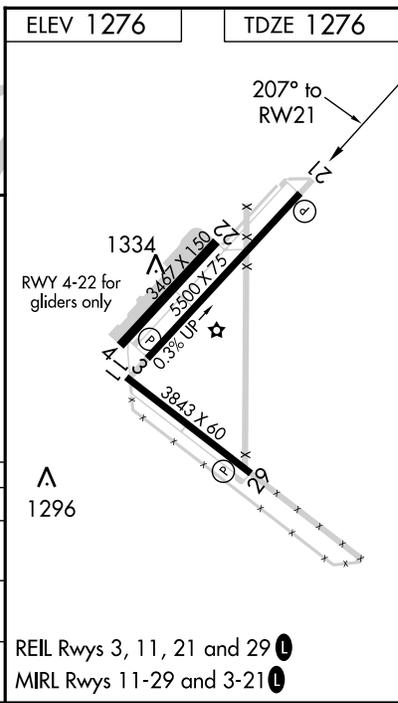
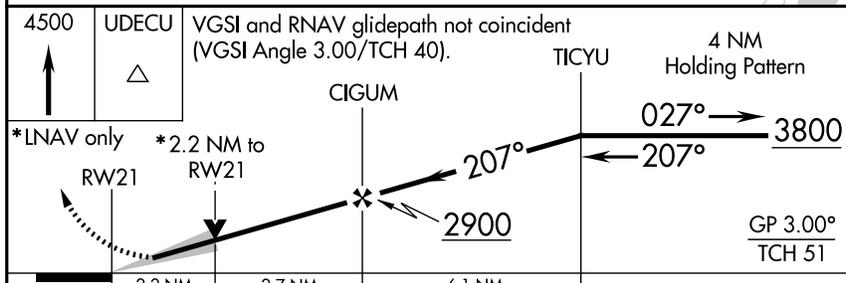
MISSED APPROACH: Climb to 4500 direct UDECU and hold.

ASOS 135.775	GRANT COUNTY APP CON* 126.4 379.95	UNICOM 122.8 (CTAF) 0
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NW-1, 21 MAY 2020 to 18 JUN 2020

NW-1, 21 MAY 2020 to 18 JUN 2020



CATEGORY	A	B	C	D
LPV DA	1526-¾		250 (300-¾)	
LNAV/VNAV DA	2171-4		895 (900-4)	
LNAV MDA	2020-1 744 (800-1)	2020-1¼ 744 (800-1¼)	2020-2¼ 744 (800-2¼)	2020-2½ 744 (800-2½)

VORTAC EPH 112.6 Chan 73	APP CRS 202°	Rwy Idg 5500 TDZE 1276 Apt Elev 1276
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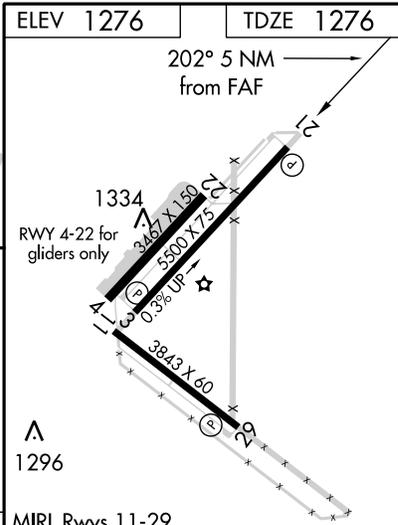
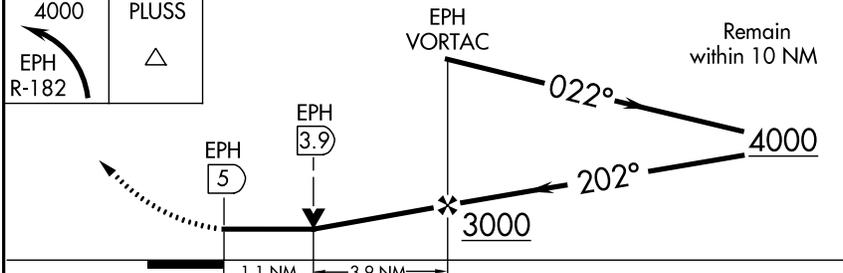
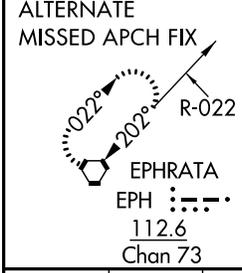
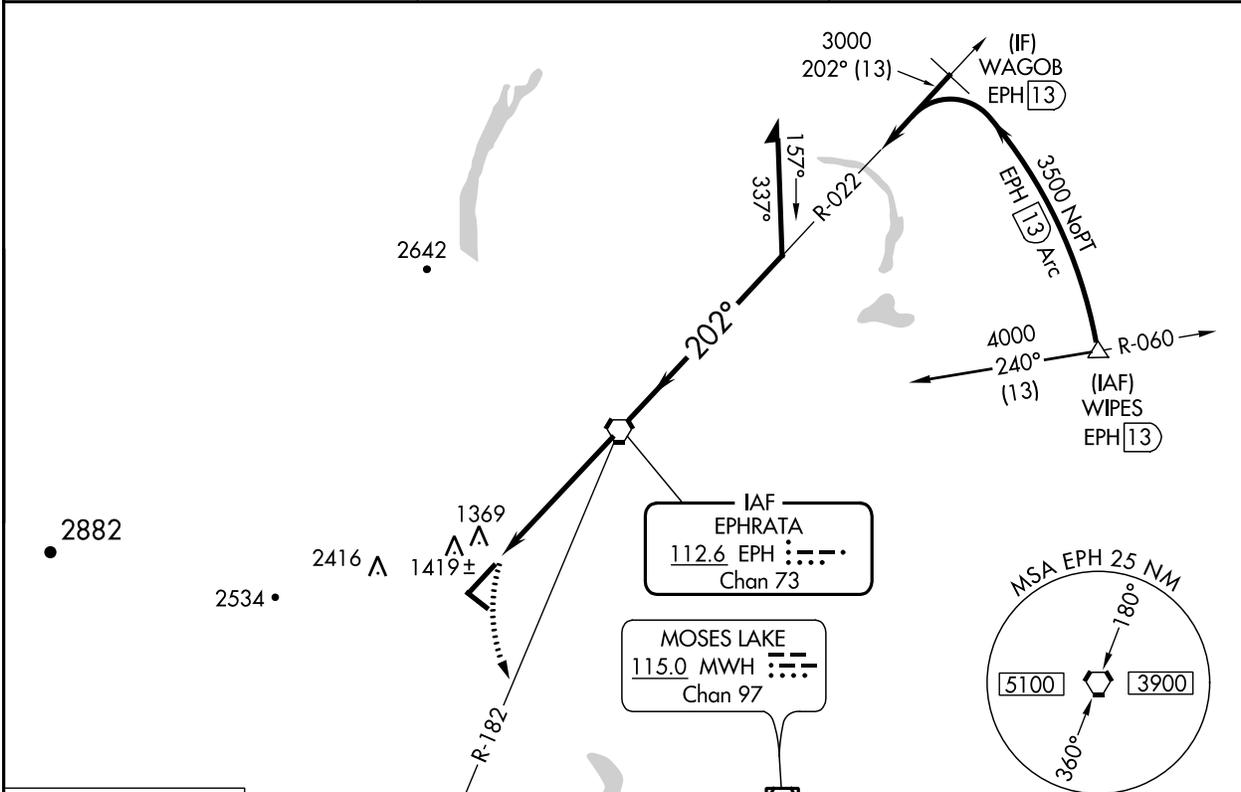
VOR RWY 21

EPHRATA MUNI (EPH)

▼ When local altimeter setting not received, use Moses Lake/Grant County Intl altimeter setting and increase all MDA 40 feet, increase S-21 Cat D visibility ¼ mile. VDP NA when using Moses Lake/Grant County Intl altimeter setting. Final approach from EPH VORTAC holding pattern not authorized. Procedure turn required.

MISSED APPROACH: Climbing left turn to 4000 via EPH R-182 to PLUS INT/EPH 13.3 DME and hold. Continue climb-in-hold to 4000.

ASOS 135.775	GRANT COUNTY APP CON* 126.4 379.95	UNICOM 122.8 (CTAF)
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CATEGORY	A	B	C	D
S-21	1680-1	404 (500-1)	1680-1¼	404 (500-1¼)
CIRCLING	1720-1 444 (500-1)	1740-1 464 (500-1)	1780-1½ 504 (600-1½)	2500-3 1224 (1300-3)

MIRL Rwy 11-29 and 3-21				
REIL Rwy 3, 11, 21 and 29				
FAF to MAP 5 NM				
Knots	60	90	120	150
Min:Sec	5:00	3:20	2:30	2:00

NW-1, 21 MAY 2020 to 18 JUN 2020

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TAKEOFF MINIMUMS, (OBSTACLE) DEPARTURE PROCEDURES, AND DIVERSE VECTOR AREA (RADAR VECTORS)

20142



INSTRUMENT APPROACH PROCEDURE CHARTS



IFR TAKEOFF MINIMUMS AND (OBSTACLE) DEPARTURE PROCEDURES

Civil Airports and Selected Military Airports

ALL USERS: Airports that have Departure Procedures (DPs) designed specifically to assist pilots in avoiding obstacles during the climb to the minimum enroute altitude, and/or airports that have civil IFR takeoff minimums other than standard, are listed below. Takeoff Minimums and Departure Procedures apply to all runways unless otherwise specified. An entry may also be listed that contains only Takeoff Obstacle Notes. Altitudes, unless otherwise indicated, are minimum altitudes in MSL.

DPs specifically designed for obstacle avoidance are referred to as Obstacle Departure Procedures (ODPs) and are textually described below, or published separately as a graphic procedure. If the ODP is published as a graphic procedure, its name will be listed below, and it can be found in either this volume (civil), or the applicable military volume, as appropriate. Users will recognize graphic obstacle DPs by the term "(OBSTACLE)" included in the procedure title; e.g., TETON TWO (OBSTACLE). If not specifically assigned an ODP, SID, or radar vector as part of an IFR clearance, an ODP may be required to be flown for obstacle clearance, even though not specifically stated in the IFR clearance. When doing so in this manner, ATC should be informed when the ODP being used contains a specified route to be flown, restrictions before turning, and/or altitude restrictions.

Some ODPs, which are established solely for obstacle avoidance, require a climb in visual conditions to cross the airport, a fix, or a NAVAID in a specified direction, at or above a specified altitude. These procedures are called Visual Climb Over Airport (VCOA). To ensure safe and efficient operations, the pilot must verbally request approval from ATC to fly the VCOA when requesting their IFR clearance.

At some locations where an ODP has been established, a diverse vector area (DVA) may be created to allow radar vectors to be used in lieu of an ODP. DVA information will state that headings will be as assigned by ATC and climb gradients, when applicable, will be published immediately following the specified departure procedure.

Graphic DPs designed by ATC to standardize traffic flows, ensure aircraft separation and enhance capacity are referred to as "Standard Instrument Departures (SIDs)". SIDs also provide obstacle clearance and are published under the appropriate airport section. ATC clearance must be received prior to flying a SID.

CIVIL USERS NOTE: Title 14 Code of Federal Regulations Part 91 prescribes standard takeoff rules and establishes takeoff minimums for certain operators as follows: (1) For aircraft, other than helicopters, having two engines or less – one statute mile visibility. (2) For aircraft having more than two engines – one-half statute mile visibility. (3) For helicopters – one-half statute mile visibility. These standard minima apply in the absence of any different minima listed below.

MILITARY USERS NOTE: Civil (nonstandard) takeoff minima are published below. For military takeoff minima, refer to appropriate service directives.

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AFTON, WY

AFTON MUNI (AFO)

TAKEOFF MINIMUMS AND (OBSTACLE) DEPARTURE PROCEDURES

AMDT 1 28SEP06 (06271) (FAA)

DEPARTURE PROCEDURE:

Rwy 16, Use LUNDI DEPARTURE.

Rwy 34, use AFTON DEPARTURE.

ALBANY, OR

ALBANY MUNI (S12)

TAKEOFF MINIMUMS AND (OBSTACLE) DEPARTURE PROCEDURES

AMDT 2B 10DEC15 (15344) (FAA)

DEPARTURE PROCEDURE:

Rwy 16, turn right.

Rwy 34, turn left.

All aircraft climb direct CVO VOR/DME and continue climb in CVO VOR/DME holding pattern, (East, right turns, 261° inbound) to cross CVO VOR/DME at or above 3400.

TAKEOFF OBSTACLE NOTES:

Rwy 16, pole 1391' from DER, 277' right of centerline, 30' AGL/265" MSL.

Rwy 34, light poles 860' from DER, 69' right of centerline, 40' AGL/262' MSL.

Light poles 906' from DER, 15' left of centerline, 41' AGL/262' MSL.



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NW-1



TAKEOFF MINIMUMS, (OBSTACLE) DEPARTURE PROCEDURES, AND DIVERSE VECTOR AREA (RADAR VECTORS)



20142

EPHRATA, WA

EPHRATA MUNI (EPH)

TAKEOFF MINIMUMS AND (OBSTACLE) DEPARTURE PROCEDURES

AMDT 3 07MAY09 (09127) (FAA)

TAKEOFF MINIMUMS:

Rwy 29, NA-Obstacles.

DEPARTURE PROCEDURE:

Rwy 3, climb heading 027° to 2300 before proceeding on course.

Rwy 11, climb heading 112° to 2200 before proceeding on course.

Rwy 21, climb heading 207° to 2800 before proceeding on course.

EUGENE, OR

MAHLON SWEET FIELD (EUG)

TAKEOFF MINIMUMS AND (OBSTACLE) DEPARTURE PROCEDURES

AMDT 7B 13SEP18 (18256) (FAA)

DEPARTURE PROCEDURE:

Rwy 16L, climb heading 164° to 1200 then climbing right turn...

Rwy 16R, climb heading 164° to 1200 then climbing right turn...

Rwy 34L, climb heading 344° to 1200 then climbing left turn...

Rwy 34R, climb heading 344° to 1200 then climbing left turn...

...all aircraft climb direct EUG VORTAC, then climb in hold in EUG VORTAC holding pattern (hold north, right turns 180° Inbound) to cross EUG VORTAC at or above MEA before proceeding on course.

TAKEOFF OBSTACLE NOTES:

Rwy 16L, power poles beginning 1036' from DER, 74' right of centerline, up to 35' AGL/408' MSL.

Power poles beginning 1017' from DER, 211' left of centerline, up to 31' AGL/404' MSL.

Rwy 16R, tree 1991' from DER, 83' left of centerline, 54' AGL/419' MSL.

Trees beginning 1504' from DER, 489' right of centerline, up to 43' AGL/408' MSL.

Rwy 34L, tree 1597' from DER, 842' left of centerline, 50' AGL/404' MSL.

Rwy 34R, tree 2897' from DER, 606' right of centerline, 77' AGL/440' MSL.

Tree 2535' from DER, 643' left of centerline, 65' AGL/428' MSL.

EVANSTON, WY

EVANSTON-UINTA COUNTY BURNS FIELD (EVW)

TAKEOFF MINIMUMS AND (OBSTACLE) DEPARTURE PROCEDURES

AMDT 1 31AUG06 (06243) (FAA)

DEPARTURE PROCEDURE:

Rwy 5, climb via heading 050° and FBR VOR/DME R-243 to FBR VOR/DME.

Rwy 23, climbing left turn via heading 030° and FBR VOR/DME R-243 to FBR VOR/DME.

All aircraft: cross FBR VOR/DME at or above MEA for direction of flight.

EVERETT, WA

SNOHOMISH COUNTY (PAINE FIELD) (PAE)

TAKEOFF MINIMUMS AND (OBSTACLE) DEPARTURE PROCEDURES

AMDT 3 10DEC15 (15344) (FAA)

DEPARTURE PROCEDURE:

Rwy 16L/R, climbing right turn, thence...

Rwy 34L/R, climbing left turn, thence...

...for aircraft departing on V287 westbound, climb on PAE VOR/DME R-236 to 3000. All others, climb direct PAE VOR/DME, climb in PAE VOR/DME holding pattern (NW, RT, 149° inbound) to MEA for route of flight before proceeding on course.

TAKEOFF OBSTACLE NOTES:

Rwy 16R, Rwy light 9' from DER, 15' right of centerline, 1' AGL/579' MSL.

Trees beginning 707' from DER, left and right of centerline, up to 116' AGL/625' MSL.

Tree 2130' from DER, 866' left of centerline, 151' AGL/660' MSL.

Trees beginning 2789' from DER, left and right of centerline, up to 163' AGL/698' MSL.

Trees beginning 3078' from DER, 238' left of centerline, up to 156' AGL/704' MSL.

Rwy 16L, poles, tower and tree beginning 107' from DER, left and right of centerline, up to 42' AGL/639' MSL.

Trees beginning 900' from DER, 477' left of centerline, up to 137' AGL/699' MSL.

Trees beginning 1412' from DER, left and right of centerline, up to 123' AGL/668' MSL.

Trees beginning 1785' from DER, 535' left of centerline, up to 155' AGL/700' MSL.

Tree 4646' from DER, 912' right of centerline, 178' AGL/717' MSL.

Rwy 34R, trees beginning 154' from DER, left and right of centerline, up to 86' AGL/648' MSL.

Tree 1324' from DER, 229' left of centerline, 97' AGL/655' MSL.

Trees beginning 2084' from DER, 548' right of centerline, up to 131' AGL/699' MSL.

Trees beginning 2720' from DER, 114' left of centerline, up to 135' AGL/690' MSL.

DIVERSE VECTOR AREA (RADAR VECTORS)

AMDT 1, 21JUL16 (16203)

Rwy 16L/R, Rwy 34L/R, heading as assigned by ATC.

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TAKEOFF MINIMUMS, (OBSTACLE) DEPARTURE PROCEDURES, AND DIVERSE VECTOR AREA (RADAR VECTORS)



20142

NW-1

NAME ALTERNATE MINIMUMS

CODY, WY

YELLOWSTONE
RGNL (COD).....RNAV (GPS) Rwy 4¹
RNAV (GPS) Rwy 22²
RNAV (GPS)-B³
VOR-A²

NA when local weather not available.
¹Categories A, B, C, 900-2½; Category D, 1900-3.
²Category B, 900-2; Category C, 900-2½;
Category D, 1900-3.
³Categories A, B, 1100-2; Category C, 1100-3;
Category D, 1900-3.

COEUR D'ALENE, ID

COEUR D'ALENE-PAPPY BOYINGTON
FIELD (COE).....ILS or LOC/DME Rwy 6
RNAV (GPS) Rwy 6
VOR/DME Rwy 2

NA when local weather not available.

CORVALLIS, OR

CORVALLIS
MUNI (CVO).....ILS or LOC Rwy 17¹
VOR Rwy 17²
VOR Rwy 35²
VOR-A³

¹LOC, Category C, 800-2¼; Category D, 900-2¾.
²Category D, 900-2¾.
³Categories A, B, 1200-2; Categories C, D, 1200-3.

CUT BANK, MT

CUT BANK
INTL (CTB).....RNAV (GPS) Rwy 5
RNAV (GPS) Rwy 14
RNAV (GPS) Rwy 23
RNAV (GPS) Rwy 32
VOR Rwy 32

NA when local weather not available.
Category D, 800-2½.

DEER PARK, WA

DEER PARK (DEW).....RNAV (GPS) Rwy 34
NA when local weather not available.

DILLON, MT

DILLON (DLN).....RNAV (GPS) Rwy 17²
RNAV (GPS) Rwy 35²
VOR-A¹
VOR/DME-B²

¹Categories A, B, 2900-2; Categories C, D,
2900-3.
²Category D, 1100-3.

DIXON, WY

DIXON (DWX).....RNAV (GPS) Rwy 24
Categories A, B, 900-2; Category C, 900-2¾;
Category D, 1400-3.

NAME ALTERNATE MINIMUMS

DOUGLAS, WY

CONVERSE COUNTY (DGW).....VOR Rwy 29
Categories A, B, 1100-2; Categories C, D,
1100-3. DME standard.

DRIGGS, ID

DRIGGS-REED
MEMORIAL (DIJ).....RNAV (GPS) Rwy 4¹
RNAV (GPS)-A

Category D, 1200-3.
¹NA when local weather not available.

EASTSOUND, WA

ORCAS ISLAND (ORS).....RNAV (GPS)-A
RNAV (GPS) Rwy 16
RNAV (GPS) Rwy 34

NA when local weather not available.
Category A, 1100-2; Category B, 1800-2.

ELLENSBURG, WA

BOWERS FIELD (ELN).....RNAV (GPS) Rwy 29
RNAV (GPS)-C¹
VOR-B²

NA when local weather not available.
¹Categories A, B, 900-2; Category C, 900-2¾;
Category D, 900-3.
²Category A, 1500-2.

ENNIS, MT

ENNIS-BIG SKY (EKS).....RNAV (GPS) Rwy 16¹
RNAV (GPS) Rwy 34²³

¹Category D, 800-2¼.
²NA when local weather not available.
³Categories A, B, 900-2; Category C, 900-2½;
Category D, 900-2¾.

EPHRATA, WA

EPHRATA MUNI (EPH).....RNAV (GPS) Rwy 3¹
RNAV (GPS) Rwy 21²
VOR/DME Rwy 3¹
VOR Rwy 21¹

NA when local weather not available.
¹Category D, 1300-3.
²Category C, 800-2¼; Category D, 1300-3.

EUGENE, OR

MAHLON SWEET
FIELD (EUG).....ILS or LOC Rwy 16L¹
ILS or LOC Rwy 16R¹
RNAV (GPS) Y Rwy 16L²⁴
RNAV (GPS) Y Rwy 16R²
RNAV (GPS) Y Rwy 34L²
RNAV (GPS) Y Rwy 34R²
VOR-A³
VOR or TACAN Rwy 16R²
VOR or TACAN Rwy 34L²

¹LOC, Category D, 800-2½.
²Category D, 800-2½.
³Categories A, B, 900-2; Category C, 900-2½;
Category D, 900-2¾.
⁴NA when local weather not available.

21 MAY 2020 to 18 JUN 2020

21 MAY 2020 to 18 JUN 2020



Appendix B

TECHNICAL MEMORANDUM

DATE: December 16, 2016
TO: Matt Rogers, Century West Engineering
FROM: Shane Phelps, Parametrix
SUBJECT: Environmental Overview for Ephrata Municipal Airport
CC:
PROJECT NUMBER: 273-2694-016
PROJECT NAME: Ephrata Municipal Airport Environmental Overview

The Ephrata Municipal Airport is located approximately 1.5 miles southeast of the central business district of Ephrata, Washington, in Grant County. The airport has three asphalt paved runways, 3/21, 4/22, and 11/29. The airport is operated by Port District #9 of Grant County (Port of Ephrata). The airport and related properties are owned by Port of Ephrata are referred to in this memorandum collectively as the study area and are shown on Figure 1.

Parametrix collected and reviewed information originating from previous studies and reports written about the study area, as well as reviewed information available at online databases and websites. This technical memorandum provides an overview of existing environmentally related information available for the study area as of the date of this memorandum. The following sections provide a summary of existing conditions.

THREATENED AND ENDANGERED SPECIES

The US Fish and Wildlife Service (USFWS) Information for Planning and Conservation (IPaC) website was reviewed on December 12, 2016, to provide a list of federally proposed or listed threatened and endangered species that may occur in the study area (USFWS 2016a). These species are shown in Table 1 below. Based on Washington Department of Fish and Wildlife (WDFW) Priority Habitat and Species (PHS) data reviewed on December 12, 2016, no federally listed threatened or endangered species or critical habitat is present within one mile of the project area (WDFW 2016).

Table 1. Listed Species Potentially Occurring in Project Vicinity

Common Name	Scientific Name	ESU or DPS ^a	Listing Status	Critical Habitat
Yellow-billed Cuckoo	<i>Coccyzus americanus</i>	Western DPS	Threatened	Proposed
Columbia Basin Pygmy Rabbit	<i>Brachylagus idahoensis</i>	N/A	Endangered	None
Gray Wolf	<i>Canus lupus</i>	N/A	Endangered	None

^a ESU – Evolutionary Significant Unit; DPS – Distinct Population Segment

No major water bodies appear within or directly adjacent to the study area. Rocky Ford Creek runs north-south approximately 2.3 miles east of the airport and the U.S. Bureau of Reclamation (Reclamation) West Canal runs northeast-southwest approximately 1.5 miles west of the airport. National Oceanic and Atmospheric Administration (NOAA) Fisheries and StreamNet Mapper databases were reviewed on December 13, 2015, and there are no federally-listed threatened or endangered fish species noted within 25 miles of the study area (NOAA Fisheries 2016; StreamNet 2016).

LAND USE AND ZONING

Airport Zoning

The majority of airport and Port of Ephrata parcels are zoned Airport Enterprise (AE) by the City of Ephrata. The purpose of the AE zone is to provide for the coordinated, managed, and safe development of land adjacent to the Ephrata Municipal Airport as provided in the Airport Master Plan (Ephrata 2016). In addition to AE zoning, there are several parcels in the study area that are zoned Airport Industrial 1, Airport Industrial 2, Airport Commercial, and Airport Unclassified. The airport is also located within the Ephrata Urban Growth Area.

Airport Clear Zones overlay the study area to ensure that any proposed development or land uses within the approach or departure areas of the airport maintain aviation and personal safety, and limit aviation accidents and hazards to aircraft during approach and departure. In the interest of public health and safety, it is the purpose of this designation to prevent the creation or establishment of hazards to air navigation. As such, airport clear zones have been designated to include all land lying beneath the approach surfaces, transitional surfaces, horizontal surfaces, and conical surfaces, as defined by Ephrata Municipal Code and depicted on the Ephrata Airport Zoning Map. Each zone has established height limitations for structures and trees.

Surrounding Zoning Designations

Land adjacent to the study area to the north, west, and southeast are within the City of Ephrata and are subject to Ephrata Zoning requirements. Zoning north of the airport is Industrial 2. To the west of the study area, land is zoned Residential 1, Residential 2, and Commercial 2. Parcels adjacent to the study area in the City of Ephrata are within the Airport Clear Zone.

Land adjacent to the east, south, and southwest of the study area is within Grant County and subject to Grant County Zoning requirements. Zoning east of the study area is designated Rural Remote. South of the study area, land is designated Rural Residential 1. Southwest of the study area is zoned Rural Recreation Commercial and Rural Residential 1. Parcels adjacent to the airport in Grant County are within the Grant County Airport Safety Overlay, which is similar in nature and purpose to the Ephrata Airport Clear Zone (Grant County 2016a).

Compatibility of Land Uses

Surrounding zoning designations vary with regard to compatibility with airport-related activities. Compatible land uses are those that are expressly permitted as documented in Ephrata Municipal Code 19.04 or Grant County Code 23.04. Incompatible land uses do not meet this criteria.

The Ephrata Municipal Code does not list airport-related activities as an expressly permitted use, special use, or conditional use in the surrounding zoning designations described above. Uses not listed may be permitted upon determination by the community development director to be a use of the same general character as the main permitted uses in accordance with the stated purpose of each zone. Furthermore, provisions in the Ephrata Municipal Code note that no land uses within any zone may be made that would “create electrical interference with navigational signals or radio communication between the airport and aircraft, make it difficult for pilots to

distinguish between airport lights and others, result in glare in the eyes of pilots using the airport, impair visibility in the vicinity of the airport, create bird strike hazards or otherwise in any way endanger or interfere with the landing, take off or maneuvering of aircraft intended to use the airport” (Ephrata 2016).

In Grant County, airport-related activities are expressly prohibited in all zones surrounding the airport and are therefore not compatible land uses.

AIR AND WATER QUALITY

Air Quality

The State of Washington Department of Ecology (Ecology) and the U.S. Environmental Protection Agency (EPA) regulate air quality in Grant County. The EPA has established the National Ambient Air Quality Standards (NAAQS) for six criteria pollutants: carbon monoxide (CO), ozone (O₃), particulate matter, lead (Pb), sulfur dioxide (SO₂), and nitrogen dioxide (NO₂). Ecology has adopted the standards set by EPA.

For each of the six criteria pollutants, NAAQS are defined as a maximum concentration above which adverse effects on human health may occur. When air quality in an area exceeds NAAQS, it may be designated as a nonattainment area. Grant County is currently designated to be in attainment for air quality standards and therefore not subject to General Conformity provisions under the Clean Air Act.

Water Quality

The study area is located in the Lower Crab Water Resource Inventory Area (WRIA 41) about 130 miles east of Seattle, Washington (Ecology 2016a). No major water bodies appear within or directly adjacent to the study area. Rocky Ford Creek runs north-south approximately 2.3 miles to the east of the airport and the Reclamation’s West Canal runs northeast-southwest approximately 1.5 miles to the west of the airport. Rocky Ford Creek feeds south into Moses Lake, approximately five miles southeast of the study area. The West Canal is one of the canals serving the Reclamation Columbia Basin Project and is used to store and carry irrigation water (Reclamation 2016).

The State of Washington Department of Ecology lists water quality assessments that fall into five categories that range from Category 1 which “meets tested standards for clean waters” to Category 5 which lists polluted waters that are on the 303(d) list. Category 5, or 303(d)-listed waters, are impaired state waters that do not meet water quality standards in accordance with Section 303(d) of the Clean Water Act. Water quality assessments from Ecology show 303(d)-listed, Category 5 waters for temperature and dissolved oxygen in Rocky Ford Creek. Rocky Ford Creek is also listed as a Category 2, “waters of concern” for pH and bacteria. Rocky Ford Creek also is listed as Category 1, “meets standards for clean waters” for nitrogen ammonia. Additional creek segments north and east of Rocky Ford Creek are listed as Category 5, 303(d)-listed, but are over five miles from the study area (Ecology 2016b).

WASTEWATER AND SOLID WASTE TREATMENT

Water and sewer utilities are provided within the municipal boundaries by the City of Ephrata. Raw domestic wastewater is conveyed by the City’s gravity sewer system to a water reclamation facility where it is treated. A sewer line runs through the study area along Division Avenue and Airport Street with several spurs off those two main lines. In addition to utilizing the sewer system, many property owners also use septic systems for wastewater treatment (Ephrata 2007).

Solid waste collection service both in the City of Ephrata and surrounding Grant County is provided under contract with Consolidated Disposal Services, Inc. (CDSI) (Ephrata 2007). CDSI disposes solid waste at the Grant

County Landfill, approximately three miles south of Ephrata. The landfill is operated by Grant County Public Works Solid Waste Division. The landfill is a lined facility with a leachate and gas collection system. The available capacity at the site is 16 years and an additional 40 acres of land is available that can be utilized in the future. In addition to solid waste, materials for recycling are accepted at the landfill, including used motor oil, antifreeze, automotive batteries, newspaper, aluminum cans, glass bottles and jars, latex paint, and cardboard. Scrap metal and appliances may also be recycled at all solid waste sites for a fee (Grant 2016b).

HAZARDOUS MATERIALS AND CLEANUP SITES

Nine sites regulated for hazardous materials are located within or adjacent to the study area. These sites include a mix of designations including hazardous waste management, hazardous waste generator, independent cleanup, confirmed and suspected contaminated site, and underground storage tank site (Ecology 2016c). A Spill Prevention, Control, and Countermeasures (SPCC) Plan has been developed for the airport fueling stations (Port 2016). Table 2 below lists the regulated facilities in the study area. These are also shown on Figure 1.

Table 2. Hazardous Materials and Cleanup Sites

Site No.	Site Name	Site Address	Site Type Designation
1	FUDS Ephrata ANG	Division Avenue East	Independent Cleanup, Formerly Used Defense Site
2	Quality Paint and Coatings	187 Airport Street SE	Hazardous Waste Management Activity, Hazardous Waste Generator
3	Lenroc Co	16051 Railroad Street NW	Toxics Release Inventory, Emergency/Haz Chem Rpt TIER 2, Hazardous Waste Generator, Hazardous Waste Planner
4	FUDS Ephrata AFB	1010 Airport Street	Confirmed and Suspected Contaminated Sites List, Independent Cleanup
5	Norco Enterprise Oxygen Company	276 Enterprise Street SE	Emergency/Haz Chem Rpt TIER 2
6	Grant County Public Works	124 Enterprise Street SE	Underground Storage Tank (two operational tanks)
7	Grant County Port District 9	East End Division	Underground Storage Tank (tanks closed and removed)
8	Katana Summit LLC	1980 Fairchild Hangar 304	Hazardous Waste Management Activity, Hazardous Waste Generator, Hazardous Waste Planner
9	Ephrata Municipal Airport	Lat 47 18 3 N, Long 199 30 7 W	Underground Storage Tank (three operational tanks)

Prior to development of sites with a previous history of hazardous materials and/or cleanup, it is recommended that a Phase I Environmental Site Assessment (ESA) be conducted to ascertain site history. If the Phase I ESA indicates the potential presence of contamination, site sampling may need to be conducted to confirm the presence and concentration of any contaminants that may be present.

DRAINAGE PATTERNS (STORMWATER)

Topographic relief in the study area is very slight, with elevation ranging from 1,260 to 1,320 feet above mean sea level and land sloping slightly to the east (FDMC 2010). No streams or natural drainages occur within the study area. Review of aerial photographs show no readily visible detention ponds, catch basins, and open ditches where stormwater would collect on the surface. It is assumed that surface water from the study area either infiltrates directly into groundwater or is captured via underground culverts and discharged into the City of Ephrata's stormwater system.

Ephrata Municipal Code stipulates that all new construction and development shall use the current Best Management Practices as defined in the most current Storm Water Management Plan for Eastern Washington adopted by the Washington State Department of Ecology. In addition, open water retention/detention ponds are prohibited outright within 3,000 feet of the centerline of all runways at the Port of Ephrata (Ephrata 2016).

WETLAND AND WATERS OF THE STATE/US

As shown in Figure 1, the National Wetland Inventory (NWI) indicates that there are no currently identified potential wetland areas adjacent to or within the study area (USFWS 2016b). There are several small potential wetland areas located over a mile outside of the study area, to the east, northwest, and southwest (see Figure 1). Potential wetland areas are also located along Rocky Ford Creek. The Reclamation's West Canal is likely considered jurisdictional under Section 404 of the Clean Water Act, and is located approximately 1.5 miles to the west of the project area.

It should be noted that the NWI only identifies potential wetland areas and does not establish if a wetland is actually present or not at a given location. Prior to development of any of the parcels within the study area, a wetland survey and/or delineation should be performed to ascertain whether or not wetlands are actually present. If wetlands are present, permits may be needed from agencies such as the US Army Corps of Engineers, the Washington Department of Ecology, and Grant County.

PARKS AND RECREATIONAL AREAS

The Boyd Mordhorst Gun Range is located within the study area. The range is over 75 acres, has three separate shooting areas, and is located approximately 1,000 feet northeast of runway 11/29. It is a municipal facility located on Port of Ephrata property through a lease agreement.

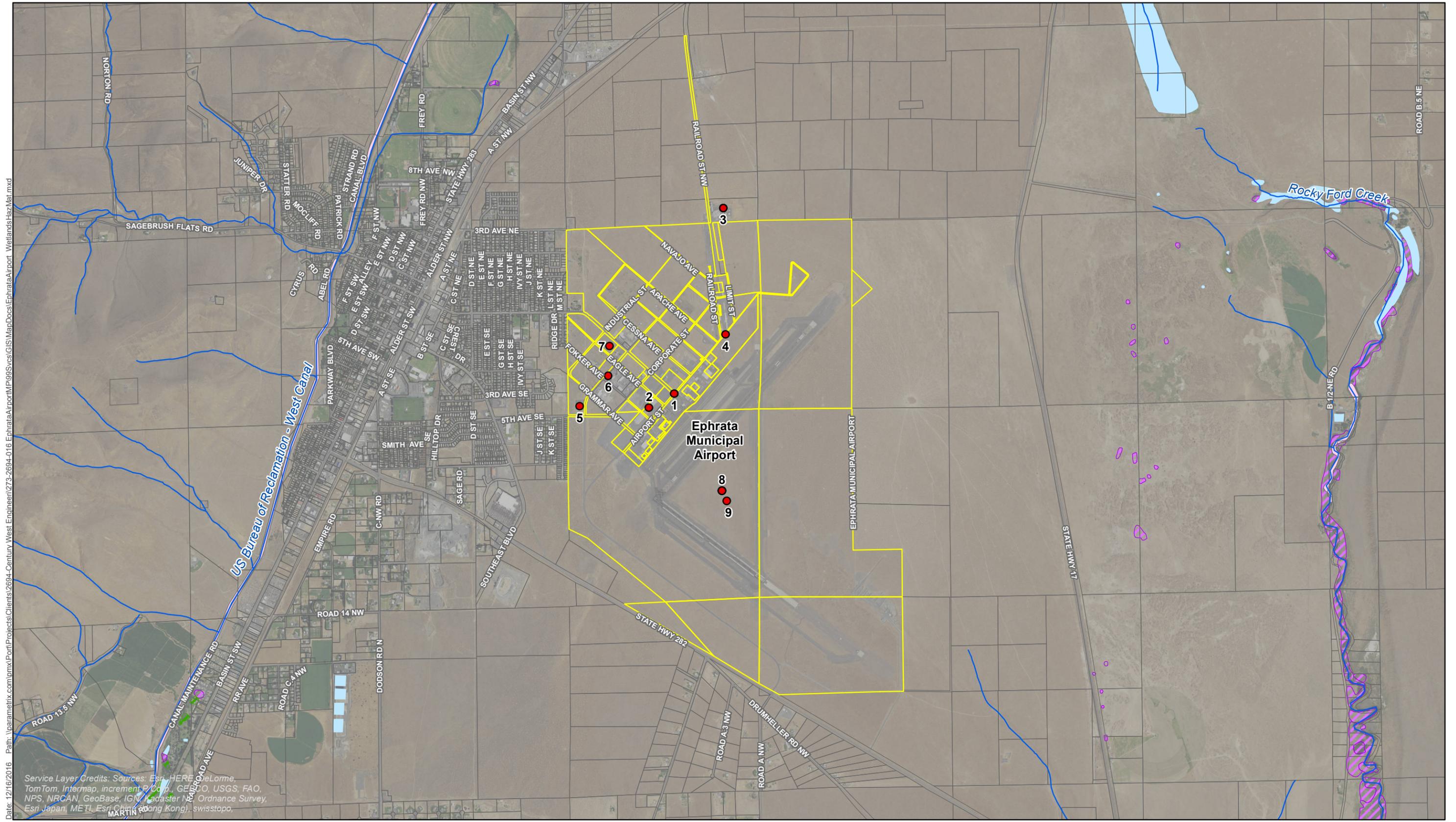
The following parks and recreational facilities are located within 1.5 miles of the study area: Lee Park, Ephrata Sports Complex, Ephrata Skate Park, Splash Zone Aquatic Center, and Columbia Ridge Elementary Playfield. Additional park and recreation areas, including Bambino Park, Lion's Park, Oasis, Patrick Park, Grant Elementary Playfield, Ephrata High School Sports Complex, and Sun Basin Plaza are located further west of the study area on the west side of SR-28.

An Ephrata Parks Master Plan was developed in 2009 and includes future direction for trail planning and the City's parks. Parks in the master planning effort included Oasis Park, Sports Complex, Lee Park, Patrick Park, Lion's Park, and Parkway Fields (Ephrata 2009).

Other recreation facilities in Ephrata include 7.12 miles of bike lanes, 3.35 miles of paved walking path, and 14.82 miles of proposed pathways/unpaved paths (Ephrata 2007). Several paved trails exist along Division Avenue and Airport Street within the study area and additional trails are proposed towards the southern end of the study area.

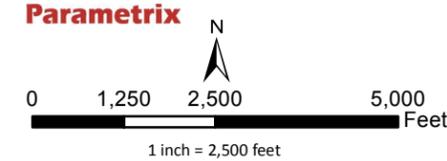
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Date: 12/16/2016 Path: \\parametrix.com\pmx\Port\Projects\Clients\2694-Century West Engineering\273-2694-016 EphrataAirport\MP099Svcs\GIS\MapDocs\EphrataAirport_WetlandsHazMat.mxd

Service Layer Credits: Sources: Esri, HERE, DeLorme, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo,



Source: U.S. Fish and Wildlife Service
 National Wetland Inventory,
 WA Department of Ecology,
 Grant County, WA Department
 of Natural Resources

- Hazardous Materials and Cleanup Sites
- Port of Ephrata Parcel
- Grant Co. Parcel
- Stream Centerline (DNR)

- Wetland (NWI)**
- Freshwater Emergent Wetland
 - Freshwater Forested/Shrub Wetland
 - Freshwater Lake/Pond
 - Riverine

Figure 1
Ephrata Municipal Airport
Wetlands, Streams and Hazmat Sites
 Ephrata, WA 98823



Appendix C



U.S. Department
of Transportation
**Federal Aviation
Administration**

Northwest Mountain Region
Seattle Airports District Office
2200 S. 216th Street
Des Moines, WA 98198

December 18, 2018

Mr. Michael G. Wren
Airport Manager
Ephrata Municipal Airport
P.O. Box 1089
Ephrata, WA 98823

Ephrata Municipal Airport (EPH) Aviation Forecast Approval

Dear Mike:

The Federal Aviation Administration (FAA), Seattle Airports District Office has reviewed the aviation forecast for the Ephrata Municipal Airport (EPH) Master Plan Update, submitted May 1, 2018. The FAA approves these forecasts for airport planning purposes, including for Airport Layout Plan (ALP) development. The FAA approval is based on the following:

1. The difference between the FAA Terminal Area Forecast (TAF) and Ephrata's forecast for total operations is not within the 10% allowance for the 5-year planning horizon and the 15% for the 10-year planning horizon for reasons contained within the forecast. We concur with these reasons and believe the differences have been resolved.
2. The difference between the FAA TAF and Ephrata's forecast for based aircraft is not within the 10% allowance for the 5-year planning horizon and the 15% allowance for the 10-year planning horizon for reasons contained within the forecast. We concur with these reasons and believe the differences have been resolved.
3. The forecast is based on reasonable planning assumptions, current data and appropriate forecasting methodologies.

Based on the approved forecast, the FAA also approves the existing critical aircraft, based on a combination of the Air Tractor 602 and the HpH Glasflugel 304 CZ (expressed as a B-II), and the future critical aircraft, based on a combination of the Air Tractor 802 and Beechcraft King Air 250 (expressed as a B-II).

The approval of the forecast and critical aircraft does not automatically constitute a commitment on the part of the United States to participate in any development recommended in the master plan or shown on the ALP. All future development will need to be justified by current activity levels at the time of proposed implementation. Further, the approved forecasts may be subject to

additional analysis or the FAA may request a sensitivity analysis if this data is to be used for environmental or Part 150 noise planning purposes.

The ADO will initiate the process to request that the FAA Office of Aviation Policy and Plans (APO) modify the TAF to reflect this current forecast. It may take some time before these changes are officially reflected in the TAF.

If you have any questions about this forecast approval, please call me at (206) 231-4135.

Sincerely,

**Jennifer I
Kandel**

Digitally signed by
Jennifer I Kandel
Date: 2018.12.18
15:26:39 -08'00'

Jennifer I. Kandel
Planner, FAA Seattle Airports District Office

Comparing Airport Planning and TAF Forecasts

AIRPORT NAME: EPHRATA MUNICIPAL AIRPORT

Comparing Airport Planning and TAF Forecasts							
AIRPORT NAME: EPHRATA MUNICIPAL AIRPORT							
						AF/TAF	
				Airport	2017		
				<u>Year</u>	Forecast	TAF	<u>(% Difference)</u>
Enplanements							
	Base yr.		2016	0	0	0.0%	
	Base yr. + 5yrs.		2021	0	0	0.0%	
	Base yr. + 10yrs.		2026	0	0	0.0%	
Commercial Operations							
	Base yr.		2016	0	0	0.0%	
	Base yr. + 5yrs.		2021	0	0	0.0%	
	Base yr. + 10yrs.		2026	0	0	0.0%	
Total Operations							
	Base yr.		2016	22,874	136,651	-83.3%	
	Base yr. + 6yrs.		2021	24,056	146,624	-83.6%	
	Base yr. + 11yrs.		2026	25,238	156,271	-83.8%	

Summarizing and Documenting Airport Planning Forecasts

AIRPORT NAME: EPHIRATA MUNICIPAL AIRPORT

A. Forecast Levels and Growth Rates
Specify base year: 2016

	<u>Base Yr. Level</u>	<u>Base Yr. + 1yr.</u>	<u>Base Yr. + 5yrs.</u>	<u>Base Yr. + 10yrs.</u>	<u>Base Yr. + 15yrs.</u>	<u>Base yr. to +1</u>	<u>Base yr. to +5</u>	<u>Base yr. to +10</u>	<u>Base yr. to +15</u>
Passenger Enplanements									
Air Carrier	0	0	0	0	0	0.0%	0.0%	0.0%	0.0%
Commuter	0	0	0	0	0	0.0%	0.0%	0.0%	0.0%
TOTAL	0	0	0	0	0	0.0%	0.0%	0.0%	0.0%
Operations									
<u>Itinerant</u>									
Air carrier	0	0	0	0	0	0.0%	0.0%	0.0%	0.0%
Commuter/air taxi	16	17	20	30	40	6.3%	4.6%	6.5%	6.3%
Total Commercial Operations	16	17	20	30	40	6.3%	4.6%	6.5%	6.3%
General aviation	20,570	20,996	21,630	22,684	23,734	2.1%	1.0%	1.0%	1.0%
Military	0	0	0	0	0	0.0%	0.0%	0.0%	0.0%
<u>Local</u>									
General aviation	2,288	2,311	2,406	2,524	2,640	1.0%	1.0%	1.0%	1.0%
Military	0	0	0	0	0	0.0%	0.0%	0.0%	0.0%
TOTAL OPERATIONS	22,874	23,324	24,056	25,238	26,414	2.0%	1.0%	1.0%	1.0%
Instrument Operations									
Peak Hour Operations	11	11	12	12	13	0.0%	0.8%	0.9%	0.6%
Cargo/mail (enplaned+deplaned tons)	0	0	0	0	0	0.0%	1.8%	0.9%	1.1%
Based Aircraft									
Single Engine (Nonjet)	25	26	28	30	32	4.0%	2.3%	1.8%	1.7%
Multi Engine (Nonjet)	2	2	1	1	2	0.0%	-12.9%	-6.7%	0.0%
Jet Engine	0	0	1	1	1	0.0%	0.0%	0.0%	0.0%
Helicopter	0	0	1	1	1	0.0%	0.0%	0.0%	0.0%
Other	26	26	26	26	25	0.0%	0.0%	0.0%	0.0%
TOTAL	53	54	57	59	61	1.9%	1.5%	1.1%	0.9%
B. Operational Factors									
<u>Average aircraft size (seats)</u>									
Air carrier	0.0	0.0	0.0	0.0	0.0				
Commuter	9.0	9.0	9.0	9.0	9.0				
<u>Average enplaning load factor</u>									
Air carrier	0.0%	0.0%	0.0%	0.0%	0.0%				
Commuter	0.0%	0.0%	0.0%	0.0%	0.0%				
GA operations per based aircraft	431	432	422	427	432				

From: mwren@portofephrata.com
To: [David Miller](#)
Cc: [W. Matt Rogers](#)
Subject: FW: Ephrata MPU Project Information - to Produce Final Documents
Date: Thursday, November 5, 2020 11:46:38 AM

Here's the info from Karen...See below.

Mike

From: Miles, Karen (FAA) <Karen.Miles@faa.gov>
Sent: Thursday, November 5, 2020 11:45 AM
To: mwren@portofephrata.com
Cc: Mello, Benjamin J (FAA) <Benjamin.J.Mello@faa.gov>; Fisher, Agnes (FAA) <Agnes.Fisher@faa.gov>; Eaton, Scott (FAA) <Scott.Eaton@faa.gov>
Subject: FW: Ephrata MPU Project Information - to Produce Final Documents

Hi Mike:

Thank you for the phone call today asking whether there was any status update from HQ, as you would like to finalize your MPU and ALP set documents. To my knowledge, the region and ADO have not heard anything recent from HQ.

Since the MPU grant is now closed, we suggest you have your consultant finalize the MPU document and ALP set as soon as possible with the comments highlighted in yellow below. As far as the email train, I suggest you incorporate this entire email train and not just the portion from Jennifer. Please be sure to make a note on your ALP, as suggested below.

The ADO needs to receive your final documents as soon as possible. The exact format of such I will leave up to our new planners to help you with. With COVID - I'm not sure whether we are asking for hardcopy still or only electronic.

Agnes Fisher is our new WA planner, and Ben Mello is our new OR planner (helping Agnes get up to speed). I have included them on this email.

Agnes and Ben: Mike's phone number is 509.750.8623

Karen

Karen Miles, PE
Project Manager
Seattle ADO
206.231.4133

Our new address is 2200 S. 216th Street, Des Moines, WA 98198

From: Eaton, Scott (FAA) <Scott.Eaton@faa.gov>
Sent: Thursday, September 03, 2020 8:38 AM

To: mwren@portofephrata.com; Miles, Karen (FAA) <Karen.Miles@faa.gov>

Cc: Thorsen, Valerie (FAA) <valerie.thorsen@faa.gov>

Subject: RE: Ephrata Project Information

Mike,

The Regional Office is looking into whether we can get an official letter from HQ. We will keep you updated on the status of that request. It wouldn't hurt to also ping us every so often as to the status. The e-mail below states that proposed development is eligible and the ADO supports that proposed development. As always, everything is subject to available funding, though.

The ADO understands your concern about ensuring this issue isn't dredged up in the future and results in postponing projects that have already been determined eligible. So the ADO proposes you take a copy of the e-mail from Jen stating the proposed development in the Master Plan and ALP are eligible and has received concurrence from HQ and place that as an appendix in the Master Plan and reference the e-mail/Appendix in the Alternatives section of the MP and on the ALP. This will create a roadmap for anyone looking into this issue in the future.

Let me know if you have any questions.

Scott Eaton

Airport Planner (MT/ID)
FAA Helena Airports District Office
2725 Skyway Drive, Suite 2
Helena, MT 59602
(406) 441-5408

From: mwren@portofephrata.com <mwren@portofephrata.com>

Sent: Tuesday, September 01, 2020 2:18 PM

To: Eaton, Scott (FAA) <Scott.Eaton@faa.gov>; Miles, Karen (FAA) <Karen.Miles@faa.gov>

Subject: FW: Ephrata Project Information

Scott and Karen,

I am fully prepared to close out this grant by tomorrow and will have everything to you within minutes of receiving the final invoice from Century West some time today.

However, I have a major concern with respect to funding eligibility of this design that has yet to be answered clearly after me asking for the last couple years (see some of the email chain below). This project will never be built if it is not eligible for the 90% AIP funding support across the board. Since there are several years between now and design, coupled with the fact that I am retiring Jul 2021, I believe it to be critical for continuity to document the FAA's concurrence on funding and include that as part of the master plan document. If the FAA doesn't concur, then this plan was a waste of 4 years of effort and not even close to

being representative of the future.

How do we get there from here?

Thank you for your help!

Mike Wren, Director
Ephrata Municipal Airport
509.754.3508

From: Kandel, Jennifer (FAA) <Jennifer.Kandel@faa.gov>
Sent: Tuesday, April 21, 2020 9:19 AM
To: mwren@portofephrata.com
Subject: RE: Ephrata Project Information

Hi Mike,

Great timing on your e-mail. HQ has recently released a bunch of secondary runway determinations, so they are moving on this topic. In fact, they reached out to our Regional Planner to begin prepping the documentation for EPH. The HQ Airports divisions APP-400 (Planning) and APP-500 (Financial) have coordinated on this, and they are on the same page to move forward.

I will check in with the RO Planner for an ETA for this.

Respectfully,
Jennifer I. Kandel
(206) 231-4135

From: mwren@portofephrata.com <mwren@portofephrata.com>
Sent: Tuesday, April 21, 2020 8:19 AM
To: Kandel, Jennifer (FAA) <Jennifer.Kandel@faa.gov>
Subject: RE: Ephrata Project Information

Hi Jennifer,

I've checked in with David to make sure this project is still moving and will be pressing to get this wrapped up as soon as I can. One of the elements we wanted to tidy up for continuity's sake was that the FAA was fully aware of and has approved funding eligibility of the items we spoke about below. We wanted to make sure there was an appropriate email or letter documenting this in the Master Plan so others don't possibly have to "reinvent the wheel" in 2025.

Any progress from May of last year?

Mike

From: Jennifer.Kandel@faa.gov <Jennifer.Kandel@faa.gov>

Sent: Friday, May 10, 2019 2:37 PM

To: mwren@portofephrata.com

Cc: Jason.Ritchie@faa.gov; Karen.Miles@faa.gov

Subject: RE: Ephrata Project Information

Mike,

I recently had the opportunity to discuss Ephrata's RW 4-22 with FAA folks in our ANM Regional and HQ APP-400 (Planning) and AAS-100 (Standards) offices. I believe we developed a solution that will work for the Port and allow for AIP eligibility and funding of the solution.

- "Secondary Runway" eligibility –APP-400 would support RW 4-22 as a secondary runway to separate non-powered glider activity from powered aircraft. In addition, APP-400 wants to honor the previous decision that established this runway.
- Exceeding RW width standards – Based on the recent conversation the ADO had with the Port and the glider council, the gliders would prefer to maintain the RW width of 150' due to unique glider operating requirements. AAS-100 supports exceeding standards, since this exceedance supports the safety of this operation. Furthermore, APP-400 would support this in terms of AIP eligibility.
- Maintaining a clear OFZ – Gliders that are "staging" would need to sit outside of the ADG II OFZ of 250 feet (or 125' from the RW centerline). We recognize the gliders need for a paved surface to exit the runway environment safely, so AAS-100 supports paved RW shoulders of 50' on either side of the 150' RW. The shoulders could be marked, allowing for a line that would indicate the "operating environment." Again, AAS-100 would support exceeding standards since this supports the safety of this operation, and APP-400 would support this in terms of AIP eligibility.
- Maintaining a clear ROFA – All of the FAA folks agreed that parked gliders (not actively competing or unmanned) would need to be outside of the ADG II ROFA of 300' (or 150' from the RW centerline).

Please confirm this solution would work for the Airport. If so, we can continue discussing the details of what the adjacent ramp area will look like, and I begin documenting the decision-making and justification for AIP eligibility purposes.

Respectfully,
Jennifer I. Kandel
(206) 231-4135

From: Kandel, Jennifer (FAA)

Sent: Tuesday, May 07, 2019 5:28 PM

To: 'mwren@portofephrata.com' <mwren@portofephrata.com>

Subject: RE: Ephrata Project Information

Your ears must have been ringing. I finally got the e-mail *today* from APP-400 confirming their support of what you and I discussed on the phone.

I just sent it to Jason for his situational awareness and should have it over to you by tomorrow.

Respectfully,
Jennifer I. Kandel
(206) 231-4135

From: mwren@portofephrata.com <mwren@portofephrata.com>

Sent: Tuesday, May 07, 2019 10:35 AM

To: Kandel, Jennifer (FAA) <Jennifer.Kandel@faa.gov>

Subject: Ephrata Project Information

Hi Jennifer,

I was checking to see if you were able to get any more clarity about where we stand on the runway/ramp issues for us. If so, could you please put it down in text and send it over for our review?

Thanks for your patience on this!

Mike Wren, Manager
Ephrata Municipal Airport



Appendix D

PF Public Facilities Zone

The purpose of Public Facilities (PF) Zone is to provide areas that are available for public facilities, such as governmental facilities, parks, schools, infrastructure facilities, and other developments intended primarily for public use.

AE Airport Enterprise Zone

The purpose of Airport Enterprise (AE) Zone is to provide for the coordinated, managed and safe development of land adjacent to the Ephrata Airport. The development and use of land shall be as provided in the Airport Master Plan, the document adopted by both the Port of Ephrata and the City of Ephrata to establish development and land use standards on Port property.

CZ Airport Clear Zone Overlay District

The purpose of the Airport Clear Zone (CZ) Overlay District is to ensure that any proposed development or use of land in that area within the approach or departure pattern of the Ephrata Municipal Airport is consistent with aviation and personal safety, limiting the exposure of persons on the ground to injury due to aviation accidents and reducing hazards to flight during approach and departure. Obstructions within the clear zones have the potential for endangering the lives and property of users of the Ephrata Municipal Airport and property of occupants of land in its vicinity. Obstructions may affect future instrument approach minimums to the airport and may reduce the size of the area available for landing, take-off and maneuvering of aircraft. Obstructions would tend to destroy or impair the utility of the airport and the public's investment and are potential public nuisances.

In the interest of the public health, safety and general welfare, the creation or establishment of obstructions that are a hazard to air navigation should be prevented. The prevention of these obstructions should be accomplished, to the extent legally possible, by the exercise of the police power without compensation.

It is the purpose of this designation to prevent the creation or establishment of hazards to air navigation; to eliminate, remove, alter or mitigate hazards to air navigation; and to provide for the marking and lighting of obstructions, for which the City may raise and expend public funds and acquire land or interest in land.

c. Two-bedroom: 2.0 parking spaces per dwelling unit without commercial uses; 1.25 parking spaces per dwelling unit with commercial uses; provided, that twenty-five (25) percent of overall gross floor area is in commercial uses. (Ord. 10-07, 2010)

19.04.210 – Airport Clear Zones

To carry out the provisions of this chapter, there are created and established certain zones which include all of the land lying beneath the approach surfaces, transitional surfaces, horizontal surfaces and conical surfaces as they apply to the airport. Such zones are shown on the airport zoning map consisting of one sheet prepared by the Grant County planning department, dated September 6, 1978. An area located in more than one of the following zones is considered to be only in the zone with the more restrictive height limitation. The various zones are established and defined as follows:

- 1) Runway larger than utility visual approach zone – The inner edge of this approach zone coincides with the width of the primary surface and is 500 feet wide. The approach zone expands outward uniformly to a width of 1,500 feet at a horizontal distance of 5,000 feet from the primary surface. Its centerline is the continuation of the centerline of the runway.
- 2) Runway larger than utility with a visibility minimum greater than three-fourths mile nonprecision instrument approach zone – The inner edge of this approach zone coincides with the width of the primary surface and is 500 feet wide. The approach zone expands outward uniformly to a width of 3,500 feet at a horizontal distance of 10,000 feet from the primary surface. Its centerline is the continuation of the centerline of the runway.
- 3) Precision instrument runway approach zone – The inner edge of this approach zone coincides with the width of the primary surface and is 1,000 feet wide. The approach zone expands outward uniformly to a width of 16,000 feet at a horizontal distance of 50,000 feet from the primary surface. Its centerline is the continuation of the centerline of the runway.
- 4) Transitional zones – The transitional zones are the areas beneath the transitional surfaces.
- 5) Horizontal zone – The horizontal zone is established by swinging arcs of 10,000 feet radii from the center of each end of the primary surface of each runway and connecting the adjacent arcs by drawing lines tangent to those arcs. The horizontal zone does not include the approach and transitional zones. (Ord. 10-09, 2010)

19.04.215 – Airport Clear Zone Height Limitations

Except as otherwise provided in this chapter, no structure shall be erected, altered or maintained, and no tree shall be allowed to grow in any zone created by this chapter to a height in excess of the applicable height limit herein established for such zone. Such applicable height limitations are established for each of the zones in question as follows:

- 1) Runway larger than utility visual approach zone – Slopes 20 feet outward for each foot upward beginning at the end of and at the same elevation as the primary surface and extending to a horizontal distance of 5,000 feet along the extended runway centerline.
- 2) Runway larger than utility with a visibility minimum greater than three-fourths mile nonprecision instrument approach zone – Slopes 34 feet outward for each foot upward beginning at the end of and at the same elevation as the primary surface and extending to a horizontal distance of 10,000 feet along the extended runway centerline.
- 3) Precision instrument runway approach zone – Slopes 50 feet outward for each foot upward beginning at the end of and at the same elevation as the primary surface and extending to a horizontal distance of 10,000 feet along the extended runway centerline; thence slopes upward 40 feet horizontally for each foot vertically to an additional horizontal distance of 40,000 feet along the extended runway centerline.
- 4) Transitional zone - Slopes seven feet outward for each foot upward beginning at the sides of and at the same elevation as the primary surface and the approach surface, and extending to a height of 150 feet above the airport elevation. In addition to the foregoing, there are established height limits sloping seven feet outward for each foot upward beginning at the sides of and at the same elevation as the approach surface, and extending to where they intersect the conical surface. Where the precision instrument runway approach zone projects beyond the conical zone, there are established height limits sloping seven feet outward for each foot upward beginning at the sides of and at the same elevation as the approach surface, and extending a horizontal distance of 5,000 feet measured at 90-degree angles to the extended runway centerline.
- 5) Horizontal zone – Established at 150 feet above the airport elevation.
- 6) Conical zone – Slopes 20 feet outward for each foot upward beginning at the periphery of the horizontal zone and at 150 above the airport elevation and extending to a height of 350 feet above the airport elevation.

- 7) Accepted height limitations – Nothing in this chapter shall be construed as prohibiting the construction or maintenance of any structure or growth of any tree to a height up to 35 feet above the surface of the land. (Ord. 10-09, 2010)

19.04.220 – Use Restrictions

Notwithstanding any other provisions of this chapter, no use may be made of land or water within any zone established by this chapter in such a manner as to create electrical interference with navigational signals or radio communication between the airport and aircraft, make it difficult for pilots to distinguish between airport lights and others, result in glare in the eyes of pilots using the airport, impair visibility in the vicinity of the airport, create bird strike hazards or otherwise in any way endanger or interfere with the landing, take off or maneuvering of aircraft intended to use the airport. **Further, all new constructions and developments shall use the current Best Management Practices as defined in the most current Storm Water Management Plan for Eastern Washington adopted by the Washington State Department of Ecology. Open water retention/detention ponds are prohibited outright within 3000 feet of the centerline of all runways at the port of Ephrata.** (Ord. 10-09, 2010)

19.04.225 – Future Uses

Except as specifically provided in this section, no material change shall be made in the use of land, no structure shall be erected or otherwise established, and no tree shall be planted in any zone hereby created unless a permit therefore shall have been applied for and granted. Each application for a permit to the planning commission shall indicate the purpose for which the permit is desired, with sufficient particularity to permit it to be determined whether the resulting use, structure or tree would conform to the regulations herein prescribed. If such determination is in the affirmative, the permit shall be granted. No permit for a use inconsistent with the provisions of this chapter shall be granted unless a variance has been approved in accordance with this chapter.

- 1) In the area lying within the limits of the horizontal zone and conical zone, no permit shall be required for any tree or structure less than 75 feet in height.
- 2) In areas lying within the limits of the approach zones, but at a horizontal distance of not less than 4,200 feet from each end of the runway, no permit shall be required for any tree or structure less than 75 feet in height except when such tree or structure would extend above the height limit prescribed for such approach zones.

Grant County Zoning

1 (d) Limitations on Accessory Uses and Structures: Accessory uses and structures shall meet the
2 requirements specified in GCC § 23.08.020. Permitted accessory dwelling units in this zoning district
3 are specified in Table 3. All accessory uses and structures are permitted in this zoning district, except
4 as limited or prohibited by GCC § 23.08.020 and Table 4 for the underlying zoning district.
5

6 (e) Prohibited Uses: Prohibited uses are listed in Table 4 for the underlying zoning district.
7

8 (f) Development Standards: Development standards, including allowable density, minimum lot area,
9 minimum setbacks, maximum building dimensions, and set aside requirements, shall be as specified in
10 GCC § 23.12 Table 2 for the underlying zoning district, except that the maximum residential density
11 shall be one (1) dwelling unit per forty (40) acres.
12

13 (g) Performance Standards: Performance and use-specific standards for allowable and accessory uses in
14 this zoning district are specified in GCC § 23.08.
15

16 **23.04.645 Airport Safety Overlay (ASO)** 17

18 (a) Purpose: The purpose of the Airport Safety Overlay (ASO) zoning district is to recognize and protect
19 the airspace around state and federal system airports from airspace obstructions and hazards and
20 incompatible land uses and to protect public health, safety and general welfare within the ASO zone.
21

22 (b) Applicability: This Section is applicable to new buildings and structures and outdoor activities
23 involving human use or assembly, which lie wholly or in part within the ASO zone of public airports
24 with Airport Imaginary Surfaces defined in accordance with Federal Aviation Regulations (FAR), Part
25 77, "Objects Affecting Navigable Airspace," as shown on the Part 77 Airspace Plan, Approach Zone,
26 and/or Runway Protection Zone plans for an airport as contained in an airport master plan. Such airports
27 in Grant County include, but may not be limited to:

- 28 (1) Grant County International Airport;
- 29 (2) Ephrata Municipal Airport;
- 30 (3) Grand Coulee Dam Airport;
- 31 (4) Quincy Municipal Airport;
- 32 (5) Desert Aire Airport;
- 33 (6) Warden Municipal Airport; and
- 34 (7) Moses Lake Municipal Airport.
35

36 (c) Exemptions: The provisions of this Section shall not be applicable to the following when allowed in
37 the underlying zoning district:

- 38 (1) Existing Uses: Uses existing on the effective date of adoption of this Chapter shall not be required to
39 change operations to comply with these regulations. However, any use shall not be so changed as to
40 result in a greater degree of nonconformity with respect to these regulations;
- 41 (2) Temporary Outdoor Events and Festivals: Temporary outdoor events and temporary outdoor festivals
42 as defined in this UDC, as long as the period of operation does not exceed five (5) days;
- 43 (3) Temporary Structures: Temporary buildings and structures auxiliary to residential development and
44 major construction and temporary uses in new subdivisions and other residential developments which
45 support the sale of dwellings and lots within the same subdivision or residential development, so long
46 as such uses and associated structures are constructed or erected as incidental to a development, do not
47 involve any significant investment, are solely used for the designated purpose and remain for a
48 maximum of one (1) year;
- 49 (4) Agricultural Structures: Bona fide agricultural buildings, structures, improvements and associated
50 developments so long as not more than one (1) single-family dwelling occurs within that portion of the

1 parcel located within the ASO; and

2 (5) Other Uses: As determined by the Administrative Official to be minor or incidental and within the
3 intent or objective of these regulations.
4

5 (d) Airport Safety Overlay Zone Designation: The Airport Safety Overlay (ASO) contains those areas
6 defined as Airport Imaginary Surfaces by Federal Aviation Regulations (FAR), Part 77, and the
7 Runway Protection Zone(s) for an airport as delineated on the various airport plans contained in an
8 airport master plan. The boundaries of the airport safety overlay zones are depicted on the various
9 airport plans contained in an airport master plan. Such maps may be amended from time to time by the
10 agency or district having jurisdictional authority for an airport, and shall be kept on record and available
11 for public inspection by the Department.
12

13 (e) General Regulations: The following general requirements shall apply to the ASO zoning district:

14 (1) If there is any conflict between the ASO regulations defined in this section and those of the underlying
15 zoning district, the regulations of the ASO shall prevail; and

16 (2) If there is any conflict between the ASO regulations defined in this section and those of any airport
17 safety-related ordinance adopted by an agency or district having jurisdictional authority for an airport
18 regulated under this section, the ordinance of the jurisdictional authority shall prevail.
19

20 (f) Permitted Uses: Uses allowed outright, discretionary uses and conditional uses shall be as listed in
21 Tables 3, 4 and 5 for the underlying zoning district, subject to the limitations specified herein and in
22 GCC Chapter 23.08. Additional or new commercial aircraft operations at an airport constitute an
23 expansion of use subject to conditional use permit requirements of this UDC.
24

25 (g) Limitations on Accessory Uses and Structures: Accessory uses and structures are the same as for the
26 underlying zoning district as listed in Tables 3, 4 and 5.
27

28 (h) Prohibited Uses: Prohibited uses are the same as for the underlying zoning district as listed in Tables
29 3, 4 and 5. No permit shall be granted that would:

30 (1) Allow the establishment or creation of an airport hazard;

31 (2) Authorize any use or activity that would result in the siting of an incompatible use adjacent to an airport
32 (RCW 36.70); or

33 (3) Permit a nonconforming structure or use to be made larger or to become higher or become a greater
34 hazard to air navigation than it was when this UDC was adopted.
35

36 (i) Review Procedures: Review procedures for land use activities within an ASO zoning district shall be
37 as follows:

38 (1) Development permits for all permitted uses shall be subject to the height restrictions of GCC §
39 23.08.030 and GCC § 23.12.070, Table 3, whichever is more restrictive.

40 (2) Allowed Outright Uses: No separate application or information is required, provided the
41 Administrative Official can conclusively determine that the proposed structure or use:

42 (A) Does not constitute a potentially incompatible land use as defined in GCC § 25.02.030; and

43 (B) Will not exceed thirty-five (35) feet in height; or, if greater than 35 feet in height, will not
44 penetrate the approach, transitional, horizontal, or conical surface zones of the airport for any
45 existing or planned approaches as defined by FAR, Part 77; and

46 (C) Is not within a designated Runway Protection Zone designated in an airport master plan or a
47 FAA-approved airport layout plan; and

48 (D) Is not within an identified future 65 Ldn (Interior Day-Night Average Sound Level) aircraft noise
49 impacted area designated in an airport master plan or a FAA-approved airport layout plan.
50

1 Such structures and uses shall in any case be subject to the requirements of GCC § 23.08.030 and
2 to the recording of an avigation easement, as specified in subsection (n) of this section.

3 (3) Allowed Outright Uses for which there exists a potentially incompatible land use or where the
4 Administrative Official cannot make a conclusive determination as required in subsection (2) shall be
5 subject to discretionary review procedures and must include a separate application as specified in
6 subsection (j) below.

7 (4) Discretionary and Conditional Uses: A separate application shall be required as specified in subsection
8 (j) below, and shall be subject to a determination that the use can be appropriately conditioned to
9 mitigate noise impacts and other airport safety concerns.

10 (5) Where an airspace hazard has been determined to exist by the Administrative Official, the FAA
11 determination on obstructions and hazards to air navigation shall be balanced with special
12 consideration for unique characteristics of local terrain, reporting points for pilots using visual flight
13 rules, airport operations, and development patterns.

14
15 (j) Application Requirements: An application proposing a use for which an application is required under
16 this chapter shall submit the following technical substantiation, maps, plans, drawings and such other
17 information:

18 (1) A completed application on forms provided by the Department and signed by the applicant;

19 (2) Property boundary lines as they relate to the boundaries of the airport safety overlay;

20 (3) Location of all existing and proposed buildings, structures, utility lines, street and site lighting, and
21 trees taller than thirty-five (35) feet in height;

22 (4) Height of all proposed structures;

23 (5) Outdoor lighting design details;

24 (6) Identification of the uses to occur within each structure or activity area;

25 (7) A narrative description describing the location of the site, its total acreage, existing character and use,
26 and the concept of the proposed development or use including (as appropriate) proposed residential
27 density, number of employees and/or estimated number of people who will be engaged in transactions
28 at the site over a twenty-four (24) hour period such as, but not limited to, retail store customers;

29 (8) Noise attenuation measures to be applied in the development shall be identified, together with the
30 analysis of the noise insulation effectiveness of the proposed construction, showing that the prescribed
31 interior noise level requirements are met. Said analysis shall be prepared by or under the supervision
32 of a person experienced in the field of acoustical engineering who shall be identified. If interior
33 allowable noise levels are met by requiring that windows be fixed or closed, the design for the
34 structures must also specify the means that will be employed to provide ventilation and cooling, if
35 necessary, to provide a habitable interior environment;

36 (9) A statement of compatibility from the airport manager when the use is to be located within the ASO
37 relative to the impact of the use on airport operations and safety;

38 (10) A statement from the Washington State Department of Transportation Aviation Division relative to the
39 impact of the use on airport operations and safety; and

40 (11) A statement from the FAA relative to the impact of the use on airport operations and safety.

41 (12) In consideration of an application for a building, structure, or other use which will exceed thirty-five
42 (35) feet in height, the Administrative Official may require the applicant to submit either of the
43 following:

44 (A) A certificate from a Professional Engineer or licensed land surveyor, which clearly states that no
45 airspace obstruction will result from the proposed use; or

46 (B) Either or both of the following:

47 (i) The maximum elevations of proposed structures based on the established airport elevation
48 and USGS datum. Elevations shall be determined by a Professional Engineer or licensed
49 land surveyor, accurate to plus or minus one (1) foot shown as mean sea level elevation or
50

1 other available survey data. The accuracy of all elevations shall be certified by the
2 Professional Engineer or licensed land surveyor.

- 3 (ii) A map of topographic contours with not more than five (5) foot intervals, showing all land
4 within one hundred (100) feet of the proposed structure(s) for which the permit is being
5 sought. This map shall also bear the certification of a Professional Engineer or licensed
6 land surveyor.
7

8 (k) Application Review Criteria: The application described in subsection (j), above, shall be reviewed and
9 evaluated by the Administrative Official for conformance with the following criteria.

- 10 (1) Land Use and Performance Standards: All elements of the proposed development are consistent with
11 the land use requirements of this Section and performance standards specified in GCC § 23.08.030;
12 (2) Height: Buildings and structures are located such that their height does not impact any Airport
13 Imaginary Surfaces;
14 (3) Siting: Buildings and structures are located when reasonable and feasible at the greatest distance from
15 the noise source, taking maximum advantage of existing topographical features to minimize noise
16 impact; and
17 (4) Design Consideration Regarding Noise: The amount of passive outdoor recreational space where
18 individuals would be subject to high levels of noise is minimized; construction materials utilized are
19 such that sound attenuation yields an interior average sound level as described in GCC § 23.08.030.

20 The Applicant bears the responsibility of demonstrating compliance through documentation from a
21 qualified professional. The Decision Maker may impose reasonable conditions necessary to achieve
22 conformance with the application review criteria listed herein.
23

24 (l) Development Standards: Development standards, including allowable density, minimum lot area,
25 minimum setbacks, maximum building dimensions, and set aside requirements, are specified in GCC
26 § 23.12 Table 3.
27

28 (m) Performance Standards: Performance and use-specific standards for airports and allowable and
29 accessory uses in this zoning district are specified in GCC § 23.08.
30

31 (n) Avigation Easement Required: No permit of any type shall be issued for any development or activity
32 subject to this Section unless and until an avigation easement permitting the right of flight in the
33 airspace above the subject property is provided to the jurisdictional airport authority. Such easement
34 shall be recorded on the title of the subject property.
35

36 (o) Use Restrictions: Notwithstanding any other provisions of this Section, no use may be made of land or water
37 within any zoning district in such a manner as to create electrical interference with navigational signals or
38 radio communication between the airport and aircraft, make it difficult for pilots to distinguish between
39 airport lights and others, result in glare in the eyes of pilots using the airport, impair visibility in the vicinity
40 of the airport, create bird strike hazards, or otherwise in any way endanger or interfere with the landing,
41 takeoff, or maneuvering of aircraft intending to use the airport.

42 (p) The regulations prescribed by this Section shall not be construed to require a property owner to remove,
43 lower, or make changes or alterations to any structure which legally existed prior to the effective date of this
44 UDC, except as may be compelled by state or federal regulation. However, such structures shall be
45 considered nonconforming if such structure is in conflict with the regulations of this Section.
46

47 **23.04.650 Master Planned Resorts (MPR)**

48

49 (a) Purpose: A Master Planned Resort (MPR) is a self-contained and fully integrated development in a
50 setting of significant natural amenities that are necessary and/or supportive of the proposed resort



Appendix E



ASSURANCES

Airport Sponsors

A. General.

1. These assurances shall be complied with in the performance of grant agreements for airport development, airport planning, and noise compatibility program grants for airport sponsors.
2. These assurances are required to be submitted as part of the project application by sponsors requesting funds under the provisions of Title 49, U.S.C., subtitle VII, as amended. As used herein, the term "public agency sponsor" means a public agency with control of a public-use airport; the term "private sponsor" means a private owner of a public-use airport; and the term "sponsor" includes both public agency sponsors and private sponsors.
3. Upon acceptance of this grant offer by the sponsor, these assurances are incorporated in and become part of this grant agreement.

B. Duration and Applicability.

1. **Airport development or Noise Compatibility Program Projects Undertaken by a Public Agency Sponsor.**

The terms, conditions and assurances of this grant agreement shall remain in full force and effect throughout the useful life of the facilities developed or equipment acquired for an airport development or noise compatibility program project, or throughout the useful life of the project items installed within a facility under a noise compatibility program project, but in any event not to exceed twenty (20) years from the date of acceptance of a grant offer of Federal funds for the project. However, there shall be no limit on the duration of the assurances regarding Exclusive Rights and Airport Revenue so long as the airport is used as an airport. There shall be no limit on the duration of the terms, conditions, and assurances with respect to real property acquired with federal funds. Furthermore, the duration of the Civil Rights assurance shall be specified in the assurances.

2. **Airport Development or Noise Compatibility Projects Undertaken by a Private Sponsor.**

The preceding paragraph 1 also applies to a private sponsor except that the useful life of project items installed within a facility or the useful life of the facilities developed or equipment acquired under an airport development or noise compatibility program project shall be no less than ten (10) years from the date of acceptance of Federal aid for the project.

3. Airport Planning Undertaken by a Sponsor.

Unless otherwise specified in this grant agreement, only Assurances 1, 2, 3, 5, 6, 13, 18, 25, 30, 32, 33, and 34 in Section C apply to planning projects. The terms, conditions, and assurances of this grant agreement shall remain in full force and effect during the life of the project; there shall be no limit on the duration of the assurances regarding Airport Revenue so long as the airport is used as an airport.

C. Sponsor Certification.

The sponsor hereby assures and certifies, with respect to this grant that:

1. General Federal Requirements.

It will comply with all applicable Federal laws, regulations, executive orders, policies, guidelines, and requirements as they relate to the application, acceptance and use of Federal funds for this project including but not limited to the following:

Federal Legislation

- a. Title 49, U.S.C., subtitle VII, as amended.
- b. Davis-Bacon Act - 40 U.S.C. 276(a), et seq.¹
- c. Federal Fair Labor Standards Act - 29 U.S.C. 201, et seq.
- d. Hatch Act – 5 U.S.C. 1501, et seq.²
- e. Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 Title 42 U.S.C. 4601, et seq.^{1 2}
- f. National Historic Preservation Act of 1966 - Section 106 - 16 U.S.C. 470(f).¹
- g. Archeological and Historic Preservation Act of 1974 - 16 U.S.C. 469 through 469c.¹
- h. Native Americans Grave Repatriation Act - 25 U.S.C. Section 3001, et seq.
- i. Clean Air Act, P.L. 90-148, as amended.
- j. Coastal Zone Management Act, P.L. 93-205, as amended.
- k. Flood Disaster Protection Act of 1973 - Section 102(a) - 42 U.S.C. 4012a.¹
- l. Title 49, U.S.C., Section 303, (formerly known as Section 4(f))
- m. Rehabilitation Act of 1973 - 29 U.S.C. 794.
- n. Title VI of the Civil Rights Act of 1964 (42 U.S.C. § 2000d et seq., 78 stat. 252) (prohibits discrimination on the basis of race, color, national origin);
- o. Americans with Disabilities Act of 1990, as amended, (42 U.S.C. § 12101 et seq.), prohibits discrimination on the basis of disability).
- p. Age Discrimination Act of 1975 - 42 U.S.C. 6101, et seq.
- q. American Indian Religious Freedom Act, P.L. 95-341, as amended.
- r. Architectural Barriers Act of 1968 -42 U.S.C. 4151, et seq.¹
- s. Power plant and Industrial Fuel Use Act of 1978 - Section 403- 2 U.S.C. 8373.¹
- t. Contract Work Hours and Safety Standards Act - 40 U.S.C. 327, et seq.¹
- u. Copeland Anti-kickback Act - 18 U.S.C. 874.1
- v. National Environmental Policy Act of 1969 - 42 U.S.C. 4321, et seq.¹
- w. Wild and Scenic Rivers Act, P.L. 90-542, as amended.
- x. Single Audit Act of 1984 - 31 U.S.C. 7501, et seq.²
- y. Drug-Free Workplace Act of 1988 - 41 U.S.C. 702 through 706.

- z. The Federal Funding Accountability and Transparency Act of 2006, as amended (Pub. L. 109-282, as amended by section 6202 of Pub. L. 110-252).

Executive Orders

- a. Executive Order 11246 - Equal Employment Opportunity¹
- b. Executive Order 11990 - Protection of Wetlands
- c. Executive Order 11998 – Flood Plain Management
- d. Executive Order 12372 - Intergovernmental Review of Federal Programs
- e. Executive Order 12699 - Seismic Safety of Federal and Federally Assisted New Building Construction¹
- f. Executive Order 12898 - Environmental Justice

Federal Regulations

- a. 2 CFR Part 180 - OMB Guidelines to Agencies on Governmentwide Debarment and Suspension (Nonprocurement).
- b. 2 CFR Part 200, Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards. [OMB Circular A-87 Cost Principles Applicable to Grants and Contracts with State and Local Governments, and OMB Circular A-133 - Audits of States, Local Governments, and Non-Profit Organizations].^{4, 5, 6}
- c. 2 CFR Part 1200 – Nonprocurement Suspension and Debarment
- d. 14 CFR Part 13 - Investigative and Enforcement Procedures 14 CFR Part 16 - Rules of Practice For Federally Assisted Airport Enforcement Proceedings.
- e. 14 CFR Part 150 - Airport noise compatibility planning.
- f. 28 CFR Part 35- Discrimination on the Basis of Disability in State and Local Government Services.
- g. 28 CFR § 50.3 - U.S. Department of Justice Guidelines for Enforcement of Title VI of the Civil Rights Act of 1964.
- h. 29 CFR Part 1 - Procedures for predetermination of wage rates.¹
- i. 29 CFR Part 3 - Contractors and subcontractors on public building or public work financed in whole or part by loans or grants from the United States.¹
- j. 29 CFR Part 5 - Labor standards provisions applicable to contracts covering federally financed and assisted construction (also labor standards provisions applicable to non-construction contracts subject to the Contract Work Hours and Safety Standards Act).¹
- k. 41 CFR Part 60 - Office of Federal Contract Compliance Programs, Equal Employment Opportunity, Department of Labor (Federal and federally assisted contracting requirements).¹
- l. 49 CFR Part 18 - Uniform administrative requirements for grants and cooperative agreements to state and local governments.³
- m. 49 CFR Part 20 - New restrictions on lobbying.
- n. 49 CFR Part 21 – Nondiscrimination in federally-assisted programs of the Department of Transportation - effectuation of Title VI of the Civil Rights Act of 1964.
- o. 49 CFR Part 23 - Participation by Disadvantage Business Enterprise in Airport Concessions.

- p. 49 CFR Part 24 – Uniform Relocation Assistance and Real Property Acquisition for Federal and Federally Assisted Programs.^{1 2}
- q. 49 CFR Part 26 – Participation by Disadvantaged Business Enterprises in Department of Transportation Programs.
- r. 49 CFR Part 27 – Nondiscrimination on the Basis of Handicap in Programs and Activities Receiving or Benefiting from Federal Financial Assistance.¹
- s. 49 CFR Part 28 – Enforcement of Nondiscrimination on the Basis of Handicap in Programs or Activities conducted by the Department of Transportation.
- t. 49 CFR Part 30 - Denial of public works contracts to suppliers of goods and services of countries that deny procurement market access to U.S. contractors.
- u. 49 CFR Part 32 – Governmentwide Requirements for Drug-Free Workplace (Financial Assistance)
- v. 49 CFR Part 37 – Transportation Services for Individuals with Disabilities (ADA).
- w. 49 CFR Part 41 - Seismic safety of Federal and federally assisted or regulated new building construction.

Specific Assurances

Specific assurances required to be included in grant agreements by any of the above laws, regulations or circulars are incorporated by reference in this grant agreement.

Footnotes to Assurance C.1.

¹ These laws do not apply to airport planning sponsors.

² These laws do not apply to private sponsors.

³ 49 CFR Part 18 and 2 CFR Part 200 contain requirements for State and Local Governments receiving Federal assistance. Any requirement levied upon State and Local Governments by this regulation and circular shall also be applicable to private sponsors receiving Federal assistance under Title 49, United States Code.

⁴ On December 26, 2013 at 78 FR 78590, the Office of Management and Budget (OMB) issued the Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards in 2 CFR Part 200. 2 CFR Part 200 replaces and combines the former Uniform Administrative Requirements for Grants (OMB Circular A-102 and Circular A-110 or 2 CFR Part 215 or Circular) as well as the Cost Principles (Circulars A-21 or 2 CFR part 220; Circular A-87 or 2 CFR part 225; and A-122, 2 CFR part 230). Additionally it replaces Circular A-133 guidance on the Single Annual Audit. In accordance with 2 CFR section 200.110, the standards set forth in Part 200 which affect administration of Federal awards issued by Federal agencies become effective once implemented by Federal agencies or when any future amendment to this Part becomes final. Federal agencies, including the Department of Transportation, must implement the policies and procedures applicable to Federal awards by promulgating a regulation to be effective by December 26, 2014 unless different provisions are required by statute or approved by OMB.

⁵ Cost principles established in 2 CFR part 200 subpart E must be used as guidelines for determining the eligibility of specific types of expenses.

⁶ Audit requirements established in 2 CFR part 200 subpart F are the guidelines for audits.

2. Responsibility and Authority of the Sponsor.

a. Public Agency Sponsor:

It has legal authority to apply for this grant, and to finance and carry out the proposed project; that a resolution, motion or similar action has been duly adopted or passed as an official act of the applicant's governing body authorizing the filing of the application, including all understandings and assurances contained therein, and directing and authorizing the person identified as the official representative of the applicant to act in connection with the application and to provide such additional information as may be required.

b. Private Sponsor:

It has legal authority to apply for this grant and to finance and carry out the proposed project and comply with all terms, conditions, and assurances of this grant agreement. It shall designate an official representative and shall in writing direct and authorize that person to file this application, including all understandings and assurances contained therein; to act in connection with this application; and to provide such additional information as may be required.

3. Sponsor Fund Availability.

It has sufficient funds available for that portion of the project costs which are not to be paid by the United States. It has sufficient funds available to assure operation and maintenance of items funded under this grant agreement which it will own or control.

4. Good Title.

- a. It, a public agency or the Federal government, holds good title, satisfactory to the Secretary, to the landing area of the airport or site thereof, or will give assurance satisfactory to the Secretary that good title will be acquired.
- b. For noise compatibility program projects to be carried out on the property of the sponsor, it holds good title satisfactory to the Secretary to that portion of the property upon which Federal funds will be expended or will give assurance to the Secretary that good title will be obtained.

5. Preserving Rights and Powers.

- a. It will not take or permit any action which would operate to deprive it of any of the rights and powers necessary to perform any or all of the terms, conditions, and assurances in this grant agreement without the written approval of the Secretary, and will act promptly to acquire, extinguish or modify any outstanding rights or claims of right of others which would interfere with such performance by the sponsor. This shall be done in a manner acceptable to the Secretary.

- b. It will not sell, lease, encumber, or otherwise transfer or dispose of any part of its title or other interests in the property shown on Exhibit A to this application or, for a noise compatibility program project, that portion of the property upon which Federal funds have been expended, for the duration of the terms, conditions, and assurances in this grant agreement without approval by the Secretary. If the transferee is found by the Secretary to be eligible under Title 49, United States Code, to assume the obligations of this grant agreement and to have the power, authority, and financial resources to carry out all such obligations, the sponsor shall insert in the contract or document transferring or disposing of the sponsor's interest, and make binding upon the transferee all of the terms, conditions, and assurances contained in this grant agreement.
- c. For all noise compatibility program projects which are to be carried out by another unit of local government or are on property owned by a unit of local government other than the sponsor, it will enter into an agreement with that government. Except as otherwise specified by the Secretary, that agreement shall obligate that government to the same terms, conditions, and assurances that would be applicable to it if it applied directly to the FAA for a grant to undertake the noise compatibility program project. That agreement and changes thereto must be satisfactory to the Secretary. It will take steps to enforce this agreement against the local government if there is substantial non-compliance with the terms of the agreement.
- d. For noise compatibility program projects to be carried out on privately owned property, it will enter into an agreement with the owner of that property which includes provisions specified by the Secretary. It will take steps to enforce this agreement against the property owner whenever there is substantial non-compliance with the terms of the agreement.
- e. If the sponsor is a private sponsor, it will take steps satisfactory to the Secretary to ensure that the airport will continue to function as a public-use airport in accordance with these assurances for the duration of these assurances.
- f. If an arrangement is made for management and operation of the airport by any agency or person other than the sponsor or an employee of the sponsor, the sponsor will reserve sufficient rights and authority to insure that the airport will be operated and maintained in accordance Title 49, United States Code, the regulations and the terms, conditions and assurances in this grant agreement and shall insure that such arrangement also requires compliance therewith.
- g. Sponsors of commercial service airports will not permit or enter into any arrangement that results in permission for the owner or tenant of a property used as a residence, or zoned for residential use, to taxi an aircraft between that property and any location on airport. Sponsors of general aviation airports entering into any arrangement that results in permission for the owner of residential real property adjacent to or near the airport must comply with the requirements of Sec. 136 of Public Law 112-95 and the sponsor assurances.

6. Consistency with Local Plans.

The project is reasonably consistent with plans (existing at the time of submission of this application) of public agencies that are authorized by the State in which the project is located to plan for the development of the area surrounding the airport.

7. Consideration of Local Interest.

It has given fair consideration to the interest of communities in or near where the project may be located.

8. Consultation with Users.

In making a decision to undertake any airport development project under Title 49, United States Code, it has undertaken reasonable consultations with affected parties using the airport at which project is proposed.

9. Public Hearings.

In projects involving the location of an airport, an airport runway, or a major runway extension, it has afforded the opportunity for public hearings for the purpose of considering the economic, social, and environmental effects of the airport or runway location and its consistency with goals and objectives of such planning as has been carried out by the community and it shall, when requested by the Secretary, submit a copy of the transcript of such hearings to the Secretary. Further, for such projects, it has on its management board either voting representation from the communities where the project is located or has advised the communities that they have the right to petition the Secretary concerning a proposed project.

10. Metropolitan Planning Organization.

In projects involving the location of an airport, an airport runway, or a major runway extension at a medium or large hub airport, the sponsor has made available to and has provided upon request to the metropolitan planning organization in the area in which the airport is located, if any, a copy of the proposed amendment to the airport layout plan to depict the project and a copy of any airport master plan in which the project is described or depicted.

11. Pavement Preventive Maintenance.

With respect to a project approved after January 1, 1995, for the replacement or reconstruction of pavement at the airport, it assures or certifies that it has implemented an effective airport pavement maintenance-management program and it assures that it will use such program for the useful life of any pavement constructed, reconstructed or repaired with Federal financial assistance at the airport. It will provide such reports on pavement condition and pavement management programs as the Secretary determines may be useful.

12. Terminal Development Prerequisites.

For projects which include terminal development at a public use airport, as defined in Title 49, it has, on the date of submittal of the project grant application, all the safety equipment required for certification of such airport under section 44706 of Title 49, United States Code, and all the security equipment required by rule or regulation, and

has provided for access to the passenger enplaning and deplaning area of such airport to passengers enplaning and deplaning from aircraft other than air carrier aircraft.

13. Accounting System, Audit, and Record Keeping Requirements.

- a. It shall keep all project accounts and records which fully disclose the amount and disposition by the recipient of the proceeds of this grant, the total cost of the project in connection with which this grant is given or used, and the amount or nature of that portion of the cost of the project supplied by other sources, and such other financial records pertinent to the project. The accounts and records shall be kept in accordance with an accounting system that will facilitate an effective audit in accordance with the Single Audit Act of 1984.
- b. It shall make available to the Secretary and the Comptroller General of the United States, or any of their duly authorized representatives, for the purpose of audit and examination, any books, documents, papers, and records of the recipient that are pertinent to this grant. The Secretary may require that an appropriate audit be conducted by a recipient. In any case in which an independent audit is made of the accounts of a sponsor relating to the disposition of the proceeds of a grant or relating to the project in connection with which this grant was given or used, it shall file a certified copy of such audit with the Comptroller General of the United States not later than six (6) months following the close of the fiscal year for which the audit was made.

14. Minimum Wage Rates.

It shall include, in all contracts in excess of \$2,000 for work on any projects funded under this grant agreement which involve labor, provisions establishing minimum rates of wages, to be predetermined by the Secretary of Labor, in accordance with the Davis-Bacon Act, as amended (40 U.S.C. 276a-276a-5), which contractors shall pay to skilled and unskilled labor, and such minimum rates shall be stated in the invitation for bids and shall be included in proposals or bids for the work.

15. Veteran's Preference.

It shall include in all contracts for work on any project funded under this grant agreement which involve labor, such provisions as are necessary to insure that, in the employment of labor (except in executive, administrative, and supervisory positions), preference shall be given to Vietnam era veterans, Persian Gulf veterans, Afghanistan-Iraq war veterans, disabled veterans, and small business concerns owned and controlled by disabled veterans as defined in Section 47112 of Title 49, United States Code. However, this preference shall apply only where the individuals are available and qualified to perform the work to which the employment relates.

16. Conformity to Plans and Specifications.

It will execute the project subject to plans, specifications, and schedules approved by the Secretary. Such plans, specifications, and schedules shall be submitted to the Secretary prior to commencement of site preparation, construction, or other performance under this grant agreement, and, upon approval of the Secretary, shall be incorporated into this grant agreement. Any modification to the approved plans,

specifications, and schedules shall also be subject to approval of the Secretary, and incorporated into this grant agreement.

17. Construction Inspection and Approval.

It will provide and maintain competent technical supervision at the construction site throughout the project to assure that the work conforms to the plans, specifications, and schedules approved by the Secretary for the project. It shall subject the construction work on any project contained in an approved project application to inspection and approval by the Secretary and such work shall be in accordance with regulations and procedures prescribed by the Secretary. Such regulations and procedures shall require such cost and progress reporting by the sponsor or sponsors of such project as the Secretary shall deem necessary.

18. Planning Projects.

In carrying out planning projects:

- a. It will execute the project in accordance with the approved program narrative contained in the project application or with the modifications similarly approved.
- b. It will furnish the Secretary with such periodic reports as required pertaining to the planning project and planning work activities.
- c. It will include in all published material prepared in connection with the planning project a notice that the material was prepared under a grant provided by the United States.
- d. It will make such material available for examination by the public, and agrees that no material prepared with funds under this project shall be subject to copyright in the United States or any other country.
- e. It will give the Secretary unrestricted authority to publish, disclose, distribute, and otherwise use any of the material prepared in connection with this grant.
- f. It will grant the Secretary the right to disapprove the sponsor's employment of specific consultants and their subcontractors to do all or any part of this project as well as the right to disapprove the proposed scope and cost of professional services.
- g. It will grant the Secretary the right to disapprove the use of the sponsor's employees to do all or any part of the project.
- h. It understands and agrees that the Secretary's approval of this project grant or the Secretary's approval of any planning material developed as part of this grant does not constitute or imply any assurance or commitment on the part of the Secretary to approve any pending or future application for a Federal airport grant.

19. Operation and Maintenance.

- a. The airport and all facilities which are necessary to serve the aeronautical users of the airport, other than facilities owned or controlled by the United States, shall be operated at all times in a safe and serviceable condition and in accordance with the minimum standards as may be required or prescribed by applicable Federal,

state and local agencies for maintenance and operation. It will not cause or permit any activity or action thereon which would interfere with its use for airport purposes. It will suitably operate and maintain the airport and all facilities thereon or connected therewith, with due regard to climatic and flood conditions. Any proposal to temporarily close the airport for non-aeronautical purposes must first be approved by the Secretary. In furtherance of this assurance, the sponsor will have in effect arrangements for-

- 1) Operating the airport's aeronautical facilities whenever required;
 - 2) Promptly marking and lighting hazards resulting from airport conditions, including temporary conditions; and
 - 3) Promptly notifying airmen of any condition affecting aeronautical use of the airport. Nothing contained herein shall be construed to require that the airport be operated for aeronautical use during temporary periods when snow, flood or other climatic conditions interfere with such operation and maintenance. Further, nothing herein shall be construed as requiring the maintenance, repair, restoration, or replacement of any structure or facility which is substantially damaged or destroyed due to an act of God or other condition or circumstance beyond the control of the sponsor.
- b. It will suitably operate and maintain noise compatibility program items that it owns or controls upon which Federal funds have been expended.

20. Hazard Removal and Mitigation.

It will take appropriate action to assure that such terminal airspace as is required to protect instrument and visual operations to the airport (including established minimum flight altitudes) will be adequately cleared and protected by removing, lowering, relocating, marking, or lighting or otherwise mitigating existing airport hazards and by preventing the establishment or creation of future airport hazards.

21. Compatible Land Use.

It will take appropriate action, to the extent reasonable, including the adoption of zoning laws, to restrict the use of land adjacent to or in the immediate vicinity of the airport to activities and purposes compatible with normal airport operations, including landing and takeoff of aircraft. In addition, if the project is for noise compatibility program implementation, it will not cause or permit any change in land use, within its jurisdiction, that will reduce its compatibility, with respect to the airport, of the noise compatibility program measures upon which Federal funds have been expended.

22. Economic Nondiscrimination.

- a. It will make the airport available as an airport for public use on reasonable terms and without unjust discrimination to all types, kinds and classes of aeronautical activities, including commercial aeronautical activities offering services to the public at the airport.
- b. In any agreement, contract, lease, or other arrangement under which a right or privilege at the airport is granted to any person, firm, or corporation to conduct or

to engage in any aeronautical activity for furnishing services to the public at the airport, the sponsor will insert and enforce provisions requiring the contractor to-

- 1) furnish said services on a reasonable, and not unjustly discriminatory, basis to all users thereof, and
 - 2) charge reasonable, and not unjustly discriminatory, prices for each unit or service, provided that the contractor may be allowed to make reasonable and nondiscriminatory discounts, rebates, or other similar types of price reductions to volume purchasers.
- c. Each fixed-based operator at the airport shall be subject to the same rates, fees, rentals, and other charges as are uniformly applicable to all other fixed-based operators making the same or similar uses of such airport and utilizing the same or similar facilities.
 - d. Each air carrier using such airport shall have the right to service itself or to use any fixed-based operator that is authorized or permitted by the airport to serve any air carrier at such airport.
 - e. Each air carrier using such airport (whether as a tenant, non-tenant, or subtenant of another air carrier tenant) shall be subject to such nondiscriminatory and substantially comparable rules, regulations, conditions, rates, fees, rentals, and other charges with respect to facilities directly and substantially related to providing air transportation as are applicable to all such air carriers which make similar use of such airport and utilize similar facilities, subject to reasonable classifications such as tenants or non-tenants and signatory carriers and non-signatory carriers. Classification or status as tenant or signatory shall not be unreasonably withheld by any airport provided an air carrier assumes obligations substantially similar to those already imposed on air carriers in such classification or status.
 - f. It will not exercise or grant any right or privilege which operates to prevent any person, firm, or corporation operating aircraft on the airport from performing any services on its own aircraft with its own employees [including, but not limited to maintenance, repair, and fueling] that it may choose to perform.
 - g. In the event the sponsor itself exercises any of the rights and privileges referred to in this assurance, the services involved will be provided on the same conditions as would apply to the furnishing of such services by commercial aeronautical service providers authorized by the sponsor under these provisions.
 - h. The sponsor may establish such reasonable, and not unjustly discriminatory, conditions to be met by all users of the airport as may be necessary for the safe and efficient operation of the airport.
 - i. The sponsor may prohibit or limit any given type, kind or class of aeronautical use of the airport if such action is necessary for the safe operation of the airport or necessary to serve the civil aviation needs of the public.

23. Exclusive Rights.

It will permit no exclusive right for the use of the airport by any person providing, or intending to provide, aeronautical services to the public. For purposes of this paragraph, the providing of the services at an airport by a single fixed-based operator shall not be construed as an exclusive right if both of the following apply:

- a. It would be unreasonably costly, burdensome, or impractical for more than one fixed-based operator to provide such services, and
- b. If allowing more than one fixed-based operator to provide such services would require the reduction of space leased pursuant to an existing agreement between such single fixed-based operator and such airport. It further agrees that it will not, either directly or indirectly, grant or permit any person, firm, or corporation, the exclusive right at the airport to conduct any aeronautical activities, including, but not limited to charter flights, pilot training, aircraft rental and sightseeing, aerial photography, crop dusting, aerial advertising and surveying, air carrier operations, aircraft sales and services, sale of aviation petroleum products whether or not conducted in conjunction with other aeronautical activity, repair and maintenance of aircraft, sale of aircraft parts, and any other activities which because of their direct relationship to the operation of aircraft can be regarded as an aeronautical activity, and that it will terminate any exclusive right to conduct an aeronautical activity now existing at such an airport before the grant of any assistance under Title 49, United States Code.

24. Fee and Rental Structure.

It will maintain a fee and rental structure for the facilities and services at the airport which will make the airport as self-sustaining as possible under the circumstances existing at the particular airport, taking into account such factors as the volume of traffic and economy of collection. No part of the Federal share of an airport development, airport planning or noise compatibility project for which a grant is made under Title 49, United States Code, the Airport and Airway Improvement Act of 1982, the Federal Airport Act or the Airport and Airway Development Act of 1970 shall be included in the rate basis in establishing fees, rates, and charges for users of that airport.

25. Airport Revenues.

- a. All revenues generated by the airport and any local taxes on aviation fuel established after December 30, 1987, will be expended by it for the capital or operating costs of the airport; the local airport system; or other local facilities which are owned or operated by the owner or operator of the airport and which are directly and substantially related to the actual air transportation of passengers or property; or for noise mitigation purposes on or off the airport. The following exceptions apply to this paragraph:
 - 1) If covenants or assurances in debt obligations issued before September 3, 1982, by the owner or operator of the airport, or provisions enacted before September 3, 1982, in governing statutes controlling the owner or operator's financing, provide for the use of the revenues from any of the airport owner or

operator's facilities, including the airport, to support not only the airport but also the airport owner or operator's general debt obligations or other facilities, then this limitation on the use of all revenues generated by the airport (and, in the case of a public airport, local taxes on aviation fuel) shall not apply.

- 2) If the Secretary approves the sale of a privately owned airport to a public sponsor and provides funding for any portion of the public sponsor's acquisition of land, this limitation on the use of all revenues generated by the sale shall not apply to certain proceeds from the sale. This is conditioned on repayment to the Secretary by the private owner of an amount equal to the remaining unamortized portion (amortized over a 20-year period) of any airport improvement grant made to the private owner for any purpose other than land acquisition on or after October 1, 1996, plus an amount equal to the federal share of the current fair market value of any land acquired with an airport improvement grant made to that airport on or after October 1, 1996.
 - 3) Certain revenue derived from or generated by mineral extraction, production, lease, or other means at a general aviation airport (as defined at Section 47102 of title 49 United States Code), if the FAA determines the airport sponsor meets the requirements set forth in Sec. 813 of Public Law 112-95.
- b. As part of the annual audit required under the Single Audit Act of 1984, the sponsor will direct that the audit will review, and the resulting audit report will provide an opinion concerning, the use of airport revenue and taxes in paragraph (a), and indicating whether funds paid or transferred to the owner or operator are paid or transferred in a manner consistent with Title 49, United States Code and any other applicable provision of law, including any regulation promulgated by the Secretary or Administrator.
 - c. Any civil penalties or other sanctions will be imposed for violation of this assurance in accordance with the provisions of Section 47107 of Title 49, United States Code.

26. Reports and Inspections.

It will:

- a. submit to the Secretary such annual or special financial and operations reports as the Secretary may reasonably request and make such reports available to the public; make available to the public at reasonable times and places a report of the airport budget in a format prescribed by the Secretary;
- b. for airport development projects, make the airport and all airport records and documents affecting the airport, including deeds, leases, operation and use agreements, regulations and other instruments, available for inspection by any duly authorized agent of the Secretary upon reasonable request;
- c. for noise compatibility program projects, make records and documents relating to the project and continued compliance with the terms, conditions, and assurances of this grant agreement including deeds, leases, agreements, regulations, and other instruments, available for inspection by any duly authorized agent of the Secretary upon reasonable request; and

- d. in a format and time prescribed by the Secretary, provide to the Secretary and make available to the public following each of its fiscal years, an annual report listing in detail:
 - 1) all amounts paid by the airport to any other unit of government and the purposes for which each such payment was made; and
 - 2) all services and property provided by the airport to other units of government and the amount of compensation received for provision of each such service and property.

27. Use by Government Aircraft.

It will make available all of the facilities of the airport developed with Federal financial assistance and all those usable for landing and takeoff of aircraft to the United States for use by Government aircraft in common with other aircraft at all times without charge, except, if the use by Government aircraft is substantial, charge may be made for a reasonable share, proportional to such use, for the cost of operating and maintaining the facilities used. Unless otherwise determined by the Secretary, or otherwise agreed to by the sponsor and the using agency, substantial use of an airport by Government aircraft will be considered to exist when operations of such aircraft are in excess of those which, in the opinion of the Secretary, would unduly interfere with use of the landing areas by other authorized aircraft, or during any calendar month that –

- a. Five (5) or more Government aircraft are regularly based at the airport or on land adjacent thereto; or
- b. The total number of movements (counting each landing as a movement) of Government aircraft is 300 or more, or the gross accumulative weight of Government aircraft using the airport (the total movement of Government aircraft multiplied by gross weights of such aircraft) is in excess of five million pounds.

28. Land for Federal Facilities.

It will furnish without cost to the Federal Government for use in connection with any air traffic control or air navigation activities, or weather-reporting and communication activities related to air traffic control, any areas of land or water, or estate therein, or rights in buildings of the sponsor as the Secretary considers necessary or desirable for construction, operation, and maintenance at Federal expense of space or facilities for such purposes. Such areas or any portion thereof will be made available as provided herein within four months after receipt of a written request from the Secretary.

29. Airport Layout Plan.

- a. It will keep up to date at all times an airport layout plan of the airport showing
 - 1) boundaries of the airport and all proposed additions thereto, together with the boundaries of all offsite areas owned or controlled by the sponsor for airport purposes and proposed additions thereto;
 - 2) the location and nature of all existing and proposed airport facilities and structures (such as runways, taxiways, aprons, terminal buildings, hangars and

roads), including all proposed extensions and reductions of existing airport facilities;

- 3) the location of all existing and proposed nonaviation areas and of all existing improvements thereon; and
 - 4) all proposed and existing access points used to taxi aircraft across the airport's property boundary. Such airport layout plans and each amendment, revision, or modification thereof, shall be subject to the approval of the Secretary which approval shall be evidenced by the signature of a duly authorized representative of the Secretary on the face of the airport layout plan. The sponsor will not make or permit any changes or alterations in the airport or any of its facilities which are not in conformity with the airport layout plan as approved by the Secretary and which might, in the opinion of the Secretary, adversely affect the safety, utility or efficiency of the airport.
- b. If a change or alteration in the airport or the facilities is made which the Secretary determines adversely affects the safety, utility, or efficiency of any federally owned, leased, or funded property on or off the airport and which is not in conformity with the airport layout plan as approved by the Secretary, the owner or operator will, if requested, by the Secretary (1) eliminate such adverse effect in a manner approved by the Secretary; or (2) bear all costs of relocating such property (or replacement thereof) to a site acceptable to the Secretary and all costs of restoring such property (or replacement thereof) to the level of safety, utility, efficiency, and cost of operation existing before the unapproved change in the airport or its facilities except in the case of a relocation or replacement of an existing airport facility due to a change in the Secretary's design standards beyond the control of the airport sponsor.

30. Civil Rights.

It will promptly take any measures necessary to ensure that no person in the United States shall, on the grounds of race, creed, color, national origin, sex, age, or disability be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination in any activity conducted with, or benefiting from, funds received from this grant.

- a. Using the definitions of activity, facility and program as found and defined in §§ 21.23 (b) and 21.23 (e) of 49 CFR § 21, the sponsor will facilitate all programs, operate all facilities, or conduct all programs in compliance with all non-discrimination requirements imposed by, or pursuant to these assurances.
- b. Applicability
 - 1) Programs and Activities. If the sponsor has received a grant (or other federal assistance) for any of the sponsor's program or activities, these requirements extend to all of the sponsor's programs and activities.
 - 2) Facilities. Where it receives a grant or other federal financial assistance to construct, expand, renovate, remodel, alter or acquire a facility, or part of a facility, the assurance extends to the entire facility and facilities operated in connection therewith.

- 3) Real Property. Where the sponsor receives a grant or other Federal financial assistance in the form of, or for the acquisition of real property or an interest in real property, the assurance will extend to rights to space on, over, or under such property.

c. Duration.

The sponsor agrees that it is obligated to this assurance for the period during which Federal financial assistance is extended to the program, except where the Federal financial assistance is to provide, or is in the form of, personal property, or real property, or interest therein, or structures or improvements thereon, in which case the assurance obligates the sponsor, or any transferee for the longer of the following periods:

- 1) So long as the airport is used as an airport, or for another purpose involving the provision of similar services or benefits; or
- 2) So long as the sponsor retains ownership or possession of the property.

d. Required Solicitation Language. It will include the following notification in all solicitations for bids, Requests For Proposals for work, or material under this grant agreement and in all proposals for agreements, including airport concessions, regardless of funding source:

“The **(Name of Sponsor)**, in accordance with the provisions of Title VI of the Civil Rights Act of 1964 (78 Stat. 252, 42 U.S.C. §§ 2000d to 2000d-4) and the Regulations, hereby notifies all bidders that it will affirmatively ensure that any contract entered into pursuant to this advertisement, disadvantaged business enterprises and airport concession disadvantaged business enterprises will be afforded full and fair opportunity to submit bids in response to this invitation and will not be discriminated against on the grounds of race, color, or national origin in consideration for an award.”

e. Required Contract Provisions.

- 1) It will insert the non-discrimination contract clauses requiring compliance with the acts and regulations relative to non-discrimination in Federally-assisted programs of the DOT, and incorporating the acts and regulations into the contracts by reference in every contract or agreement subject to the non-discrimination in Federally-assisted programs of the DOT acts and regulations.
- 2) It will include a list of the pertinent non-discrimination authorities in every contract that is subject to the non-discrimination acts and regulations.
- 3) It will insert non-discrimination contract clauses as a covenant running with the land, in any deed from the United States effecting or recording a transfer of real property, structures, use, or improvements thereon or interest therein to a sponsor.
- 4) It will insert non-discrimination contract clauses prohibiting discrimination on the basis of race, color, national origin, creed, sex, age, or handicap as a

covenant running with the land, in any future deeds, leases, license, permits, or similar instruments entered into by the sponsor with other parties:

- a) For the subsequent transfer of real property acquired or improved under the applicable activity, project, or program; and
 - b) For the construction or use of, or access to, space on, over, or under real property acquired or improved under the applicable activity, project, or program.
- f. It will provide for such methods of administration for the program as are found by the Secretary to give reasonable guarantee that it, other recipients, sub-recipients, sub-grantees, contractors, subcontractors, consultants, transferees, successors in interest, and other participants of Federal financial assistance under such program will comply with all requirements imposed or pursuant to the acts, the regulations, and this assurance.
- g. It agrees that the United States has a right to seek judicial enforcement with regard to any matter arising under the acts, the regulations, and this assurance.

31. Disposal of Land.

- a. For land purchased under a grant for airport noise compatibility purposes, including land serving as a noise buffer, it will dispose of the land, when the land is no longer needed for such purposes, at fair market value, at the earliest practicable time. That portion of the proceeds of such disposition which is proportionate to the United States' share of acquisition of such land will be, at the discretion of the Secretary, (1) reinvested in another project at the airport, or (2) transferred to another eligible airport as prescribed by the Secretary. The Secretary shall give preference to the following, in descending order, (1) reinvestment in an approved noise compatibility project, (2) reinvestment in an approved project that is eligible for grant funding under Section 47117(e) of title 49 United States Code, (3) reinvestment in an approved airport development project that is eligible for grant funding under Sections 47114, 47115, or 47117 of title 49 United States Code, (4) transferred to an eligible sponsor of another public airport to be reinvested in an approved noise compatibility project at that airport, and (5) paid to the Secretary for deposit in the Airport and Airway Trust Fund. If land acquired under a grant for noise compatibility purposes is leased at fair market value and consistent with noise buffering purposes, the lease will not be considered a disposal of the land. Revenues derived from such a lease may be used for an approved airport development project that would otherwise be eligible for grant funding or any permitted use of airport revenue.
- b. For land purchased under a grant for airport development purposes (other than noise compatibility), it will, when the land is no longer needed for airport purposes, dispose of such land at fair market value or make available to the Secretary an amount equal to the United States' proportionate share of the fair market value of the land. That portion of the proceeds of such disposition which is proportionate to the United States' share of the cost of acquisition of such land will, (1) upon application to the Secretary, be reinvested or transferred to another

eligible airport as prescribed by the Secretary. The Secretary shall give preference to the following, in descending order: (1) reinvestment in an approved noise compatibility project, (2) reinvestment in an approved project that is eligible for grant funding under Section 47117(e) of title 49 United States Code, (3) reinvestment in an approved airport development project that is eligible for grant funding under Sections 47114, 47115, or 47117 of title 49 United States Code, (4) transferred to an eligible sponsor of another public airport to be reinvested in an approved noise compatibility project at that airport, and (5) paid to the Secretary for deposit in the Airport and Airway Trust Fund.

- c. Land shall be considered to be needed for airport purposes under this assurance if (1) it may be needed for aeronautical purposes (including runway protection zones) or serve as noise buffer land, and (2) the revenue from interim uses of such land contributes to the financial self-sufficiency of the airport. Further, land purchased with a grant received by an airport operator or owner before December 31, 1987, will be considered to be needed for airport purposes if the Secretary or Federal agency making such grant before December 31, 1987, was notified by the operator or owner of the uses of such land, did not object to such use, and the land continues to be used for that purpose, such use having commenced no later than December 15, 1989.
- d. Disposition of such land under (a) (b) or (c) will be subject to the retention or reservation of any interest or right therein necessary to ensure that such land will only be used for purposes which are compatible with noise levels associated with operation of the airport.

32. Engineering and Design Services.

It will award each contract, or sub-contract for program management, construction management, planning studies, feasibility studies, architectural services, preliminary engineering, design, engineering, surveying, mapping or related services with respect to the project in the same manner as a contract for architectural and engineering services is negotiated under Title IX of the Federal Property and Administrative Services Act of 1949 or an equivalent qualifications-based requirement prescribed for or by the sponsor of the airport.

33. Foreign Market Restrictions.

It will not allow funds provided under this grant to be used to fund any project which uses any product or service of a foreign country during the period in which such foreign country is listed by the United States Trade Representative as denying fair and equitable market opportunities for products and suppliers of the United States in procurement and construction.

34. Policies, Standards, and Specifications.

It will carry out the project in accordance with policies, standards, and specifications approved by the Secretary including but not limited to the advisory circulars listed in the Current FAA Advisory Circulars for AIP projects, dated _____ (the latest approved version as of this grant offer) and included in this grant, and in accordance

with applicable state policies, standards, and specifications approved by the Secretary.

35. Relocation and Real Property Acquisition.

- a. It will be guided in acquiring real property, to the greatest extent practicable under State law, by the land acquisition policies in Subpart B of 49 CFR Part 24 and will pay or reimburse property owners for necessary expenses as specified in Subpart B.
- b. It will provide a relocation assistance program offering the services described in Subpart C and fair and reasonable relocation payments and assistance to displaced persons as required in Subpart D and E of 49 CFR Part 24.
- c. It will make available within a reasonable period of time prior to displacement, comparable replacement dwellings to displaced persons in accordance with Subpart E of 49 CFR Part 24.

36. Access By Intercity Buses.

The airport owner or operator will permit, to the maximum extent practicable, intercity buses or other modes of transportation to have access to the airport; however, it has no obligation to fund special facilities for intercity buses or for other modes of transportation.

37. Disadvantaged Business Enterprises.

The sponsor shall not discriminate on the basis of race, color, national origin or sex in the award and performance of any DOT-assisted contract covered by 49 CFR Part 26, or in the award and performance of any concession activity contract covered by 49 CFR Part 23. In addition, the sponsor shall not discriminate on the basis of race, color, national origin or sex in the administration of its DBE and ACDBE programs or the requirements of 49 CFR Parts 23 and 26. The sponsor shall take all necessary and reasonable steps under 49 CFR Parts 23 and 26 to ensure nondiscrimination in the award and administration of DOT-assisted contracts, and/or concession contracts. The sponsor's DBE and ACDBE programs, as required by 49 CFR Parts 26 and 23, and as approved by DOT, are incorporated by reference in this agreement. Implementation of these programs is a legal obligation and failure to carry out its terms shall be treated as a violation of this agreement. Upon notification to the sponsor of its failure to carry out its approved program, the Department may impose sanctions as provided for under Parts 26 and 23 and may, in appropriate cases, refer the matter for enforcement under 18 U.S.C. 1001 and/or the Program Fraud Civil Remedies Act of 1936 (31 U.S.C. 3801).

38. Hangar Construction.

If the airport owner or operator and a person who owns an aircraft agree that a hangar is to be constructed at the airport for the aircraft at the aircraft owner's expense, the airport owner or operator will grant to the aircraft owner for the hangar a long term lease that is subject to such terms and conditions on the hangar as the airport owner or operator may impose.

39. Competitive Access.

- a. If the airport owner or operator of a medium or large hub airport (as defined in section 47102 of title 49, U.S.C.) has been unable to accommodate one or more requests by an air carrier for access to gates or other facilities at that airport in order to allow the air carrier to provide service to the airport or to expand service at the airport, the airport owner or operator shall transmit a report to the Secretary that-
 - 1) Describes the requests;
 - 2) Provides an explanation as to why the requests could not be accommodated; and
 - 3) Provides a time frame within which, if any, the airport will be able to accommodate the requests.
- b. Such report shall be due on either February 1 or August 1 of each year if the airport has been unable to accommodate the request(s) in the six month period prior to the applicable due date.



Glossary of Terms & List of Abbreviations

GLOSSARY OF AVIATION TERMS

The following glossary of aviation terms was compiled from a variety of aviation industry sources.

Above Ground Level (AGL) – As measured above the ground; used to identify heights of built items (towers, etc.) on aeronautical charts in terms of absolute height above the ground.

Accelerate Stop Distance Available (ASDA) – The length of the takeoff run available plus the length of a stopway, when available.

Agricultural Aviation – The use of fixed-wing or rotor-wing aircraft in the aerial application of agricultural products (i.e., fertilizers, pesticides, etc.).

Air Cargo – All commercial air express and air freight with the exception of airmail and parcel post.

Air Carrier/Airline – All regularly scheduled airline activity performed by airlines certificated in accordance with Federal Aviation Regulations (FAR Part 121).

Air Taxi – Operations of aircraft “for hire” for specific trips, commonly referred to as aircraft available for charter (FAR Part 135).

Aircraft Approach Category – Grouping of aircraft based on the speed they are traveling when configured for landing (typically 1.3 times the aircraft stall speed in landing configuration). As a rule of thumb, slower approach speeds mean smaller airport dimensions and faster approach speeds require larger dimensions. The aircraft approach categories are:

- Category A - Speed less than 91 knots;
- Category B - Speed 91 knots or more but less than 121 knots
- Category C - Speed 121 knots or more but less than 141 knots
- Category D - Speed 141 knots or more but less than 166 knots
- Category E - Speed 166 knots or more

Aircraft Holding Area – An area typically located adjacent to a taxiway and runway end designed to accommodate aircraft prior to departure (for pre-takeoff engine checks, instrument flight plan clearances, etc.). Per FAA design standards, aircraft holding areas should be located outside the runway safety area (RSA) and obstacle free zone (OFZ) and aircraft located in the holding area should not interfere with normal taxiway use (taxiway object free area). Sometimes referred to as holding bays or “elephant ear.” Smaller areas (aircraft turnarounds) are used to facilitate aircraft movement on runways without exit taxiways or where back-taxiing is required.

Aircraft Operation – A landing or takeoff is one operation. An aircraft that takes off and then lands creates two aircraft operations.

Aircraft Owners and Pilots Association (AOPA) – A general aviation organization.

Aircraft Parking Line (APL) – A setback depicted on an ALP or other drawings that defines the minimum separation between aircraft parking areas and an adjacent runway or taxiway. The APL dimension reflects runway and taxiway clearances (object free area, etc.) and FAR Part 77 airspace surface clearance (transitional surface penetrations) for parked aircraft. Typically the tail height of the parked aircraft is used to determine adequate clearance for the transitional surface.

Airplane Design Group – A grouping of airplanes based on wingspan and tail height. As with Approach Category, the wider the wingspan, the bigger the aircraft is, the more room it takes up for operating on an airport. The Airplane Design Groups are:

- Group I: Up to but not including 49 feet or tail height up to but not including 20 feet.
- Group II: 49 feet up to but not including 79 feet or tail height from 20 up to but not including 30 feet.
- Group III: 79 feet up to but not including 118 feet or tail height from 30 up to but not including 45 feet.
- Group IV: 118 feet up to but not including 171 feet or tail height from 45 up to but not including 60 feet.
- Group V: 171 feet up to but not including 214 feet or tail height from 60 up to but not including 66 feet.
- Group VI: 214 feet up to but not including 262 feet or tail height from 66 up to but not including 80 feet.

Airport - A landing area regularly used by aircraft for receiving or discharging passengers or cargo, including heliports and seaplane bases.

Airport Beacon (also Rotating Beacon) – A visual navigational aid that displays alternating green and white flashes for a lighted land airport and white for an unlighted land airport.

GLOSSARY OF AVIATION TERMS

Airports District Office (ADO) – The local” office of the FAA that coordinates planning and construction projects. The Seattle ADO is responsible for airports located in Washington, Oregon, and Idaho.

Airport Improvement Program (AIP) – The funding program administered by the Federal Aviation Administration (FAA) with user fees which are dedicated to improvement of the national airport system. This program currently provides 95% of funding for eligible airport improvement projects. The local sponsor of the project (i.e., airport owner) provides the remaining 5% known as the "match."

Airport Layout Plan (ALP) – The FAA approved drawing which shows the existing and anticipated layout of an airport for the next 20 years. An ALP is prepared using FAA design standards. Future development projects must be consistent with the ALP to be eligible for FAA funding. ALP drawings are typically updated every 7 to 10 years to reflect significant changes, or as needed.

Airport Reference Code (ARC) – An FAA airport coding system that is defined based on the critical or design aircraft for an airport or individual runway. The ARC is an alpha-numeric code based on aircraft approach speed and airplane wingspan (see definitions in glossary). The ARC is used to determine the appropriate design standards for runways, taxiways, and other associated facilities. An airport designed to accommodate a Piper Cub (an A-I aircraft) requires less room than an airport designed to accommodate a Boeing 747 (a D-V aircraft).

Airport Reference Point (ARP) – The approximate mid-point of an airfield that is designated as the official airport location.

Aircraft Rescue and Fire Fighting (ARFF) – On airport emergency response required for certificated commercial service airports (see FAR Part 139).

Airside – The portion of an airport that includes aircraft movement areas (runways, taxiways, etc.)

Airspace – The area above the ground in which aircraft travel. It is divided into enroute and terminal airspace, with corridors, routes, and restricted zones established for the control and safety of air traffic.

Alternate Airport – An airport that is available for landing when the intended airport becomes unavailable. Required for instrument flight planning in the event that weather conditions at destination airport fall below approach minimums (cloud ceiling or visibility).

Annual Service Volume (ASV) – An estimate of how many aircraft operations an airport can handle based upon the number, type and configuration of runways, aircraft mix (large vs. small, etc.), instrumentation, and weather conditions with a “reasonable” amount of delay. ASV is a primary planning standard used to determine when a runway (or an airport) is nearing its capacity, and may require new runways or taxiways. As operations levels approach ASV, the amount of delay per operation increases; once ASV is exceeded, “excessive” delay generally exists.

Approach End of Runway - The end of the runway used for landing. Pilots generally land into the wind and choose a runway end that best aligns with the wind.

Approach Light System (ALS) – Configurations of lights positioned symmetrically beyond the runway threshold and the extended runway centerline. The ALS visually augments the electronic navigational aids for the runway.

Approach Reference Code (APRC) – The APRC is composed of three components: AAC, ADG, and visibility minimums. Visibility minimums are expressed as Runway Visual Range (RVR) values in feet of 1600, 2400, 4000, and 5000 (nominally corresponding to lower than 1/2 mile, lower than 3/4 mile but not lower than 1/2 mile, not lower than 3/4 mile, and not lower than one mile, respectively).

Approach Surface (Also FAR Part 77 Approach) – An imaginary (invisible) surface that rises and extends from the ends of a runway to provide an unobstructed path for aircraft to land or take off. The size and slope of the approach surface vary depending upon the size of aircraft that are accommodated and the approach capabilities (visual or instrument).

Apron - An area on an airport designated for the parking, loading, fueling, or servicing of aircraft (also referred to as tarmac and ramp).

Aqueous Film Forming Foam (AFFF) – A primary fire-fighting agent that is used to create a blanket that smothers flame or prevents ignition (fuel spills, etc.). AFFF is also used to foam runways during emergency landings.

Asphalt or Asphaltic Concrete (AC) – Flexible oil-based pavement used for airfield facilities (runways, taxiways, aircraft parking apron, etc.); also commonly used for road construction.

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Automated Surface Observation System (ASOS) and Automated Weather Observation System (AWOS) – Automated observation systems providing continuous on-site weather data, designed to support aviation activities and weather forecasting.

AVGAS – Highly refined gasoline used in airplanes with piston engines. The current grade of AVGAS available is 100 Octane Low Lead (100LL).

Avigation Easement – A grant of property interest (airspace) over land to ensure unobstructed flight. Typically acquired by airport owners to protect the integrity of runway approaches. Restrictions typically include maximum height limitations for natural (trees, etc.) or built items, but may also address permitted land uses by the owner of the underlying land that are compatible with airport operations.

Back-Taxiing – The practice of aircraft taxiing on a runway before takeoff or after landing, normally, in the opposite direction of the runway's traffic pattern. Back-taxiing is generally required on runways without taxiway access to both runway ends.

Based Aircraft – Aircraft permanently stationed at an airport usually through some form of agreement with the airport owner. Used as a measure of activity at an airport.

Capacity – A measure of the maximum number of aircraft operations that can be accommodated on the runways of an airport in an hour.

Ceiling – The height above the ground or water to base of the lowest cloud layers covering more than 50 percent of the sky.

Charter – Operations of aircraft “for hire” for specific trips, commonly referred to an aircraft available for charter.

Circle to Land or Circling Approach – An instrument approach procedure that allows pilots to “circle” the airfield to land on any authorized runway once visual contact with the runway environment is established and maintained throughout the procedure.

Commercial Service Airport – An airport designed and constructed to serve scheduled or unscheduled commercial airlines. Commercial service airports are certified under FAR Part 139.

Common Traffic Advisory Frequency (CTAF) – A frequency used by pilots to communicate and obtain airport advisories at an uncontrolled airport.

Complimentary Fire Extinguishing Agent – Fire extinguishing agents that provide rapid fire suppression, which may be used in conjunction with principal agents (e.g., foam). Examples include sodium-based and potassium-based dry chemicals, Halocarbons, and Carbon dioxide. Also recommended for electrical and metal fires where water-based foams are not used. Complimentary agents are paired with principal agents based on their compatibility of use.

Conical Surface – One of the FAR Part 77 “Imaginary” Surfaces. The conical surface extends outward and upward from the edge of the horizontal surface at a slope of 20:1 to a horizontal distance of 4,000 feet.

Controlling Obstruction – The highest obstruction relative to a defined plane of airspace (i.e., approach surface, etc.).

Critical Aircraft – Aircraft which controls one or more design items based on wingspan, approach speed and/or maximum certificated take-off weight. The same aircraft may not be critical to all design items (i.e., runway length, pavement strength, etc.). Also referred to as “design aircraft.”

Crosswind – Wind direction that is not parallel to the runway or the path of an aircraft.

Crosswind Runway – An additional runway (secondary, tertiary, etc.) that provides wind coverage not adequately provided by the primary runway. Crosswind runways are generally eligible for FAA funding when a primary runway accommodates less than 95 percent of documented wind conditions (see wind rose).

Decision Height (DH) – For precision instrument approaches, the height (typically in feet or meters above runway end touchdown zone elevation) at which a decision to land or execute a missed approach must be made by the pilot.

Declared Distances – The distances the airport owner declares available for airplane operations (e.g., takeoff run, takeoff distance, accelerate-stop distance, and landing distance). In cases where runways meet all FAA design criteria without modification, declared distances equal the total runway length. In cases where any declared distances are less than full runway length, the dimension should be published in the FAA Airport/Facility Directory (A/FD).

Departure Reference Code (DPRC) – The DPRC represents aircraft that can take off from a runway while any aircraft are present on adjacent taxiways, under particular meteorological conditions with no special operational procedures necessary.

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Departure Surface – A surface that extends upward from the departure end of an instrument runway that should be free of any obstacle penetrations. For instrument runways other than air carrier, the slope is 40:1, extending 10,200 feet from the runway end. Air carrier runways have a similar surface designed for one-engine inoperative conditions with a slope of 62.5: 1.

Design Aircraft – Aircraft which controls one or more design items based on wingspan, approach speed and/or maximum certificated takeoff weight. The same aircraft may not represent the design aircraft for all design items (i.e., runway length, pavement strength, etc.). Also referred to as “critical aircraft.”

Displaced Threshold – A landing threshold located at a point other than on the runway end, usually provided to mitigate close-in obstructions to runway approaches for landing aircraft. The area between the runway end and the displaced threshold accommodates aircraft taxi and takeoff, but not landing.

Distance Measuring Equipment (DME) – Equipment that provides electronic distance information to enroute or approaching aircraft from a land-based transponder that sends and receives pulses of fixed duration and separation. The ground stations are typically co-located with VORs, but they can also be co-located with an ILS.

Distance Remaining Signs – Airfield signs that indicate to pilots the amount of useable runway remaining in 1,000-foot increments. The signs are located along the side of the runway, visible for each direction of runway operation.

DNL – Day-night sound levels, a mathematical method of measuring noise exposure based on cumulative, rather than single event impacts. Night time operations (10pm to 7AM) are assessed a noise penalty to reflect the increased noise sensitivity that exists during normal hours of rest. Previously referred to as Ldn.

Easement – An agreement that provides use or access of land or airspace (see aviation easement) in exchange for compensation.

Enplanements – Domestic, territorial, and international revenue passengers who board an aircraft in the states in scheduled and non-scheduled service of aircraft in intrastate, interstate, and foreign commerce and includes intransit passengers (passengers on board international flights that transit an airport in the US for non-traffic purposes).

Entitlements – Distribution of Airport Improvement Plan (AIP) funds by FAA from the Airport & Airways Trust Fund to commercial service airport sponsors based on passenger enplanements or cargo volumes and smaller fixed amounts for general aviation airports (Non-Primary Entitlements).

Experimental Aircraft – See homebuilt aircraft.

Federal Aviation Administration (FAA) – The FAA is the branch of the U.S. Department of Transportation that is responsible for the development of airports and air navigation systems.

FAR Part 77 – Federal Air Regulations (FAR) which establish standards for determining obstructions in navigable airspace and defines imaginary (airspace) surfaces for airports and heliports that are designed to prevent hazards to air navigation. FAR Part 77 surfaces include approach, primary, transitional, horizontal, and conical surfaces. The dimensions of surfaces can vary with the runway classification (large or small airplanes) and approach type of each runway end (visual, non-precision instrument, precision instrument). The slope of an approach surface also varies by approach type and runway classification. FAR Part 77 also applies to helicopter landing areas.

FAR Part 139 – Federal Aviation Regulations which establish standards for airports with scheduled passenger commercial air service. Airports accommodating scheduled passenger service with aircraft more than 9 passenger seats must be certified as a “Part 139” airport. Airports that are not certified under Part 139 may accommodate scheduled commercial passenger service with aircraft having 9 passenger seats or less.

Final Approach Fix (FAF) – The fix (location) from which the final instrument approach to an airport is executed; also identifies beginning of final approach segment.

Final Approach Point (FAP) – For non-precision instrument approaches, the point at which an aircraft is established inbound for the approach and where the final descent may begin.

Fixed Base Operator (FBO) – An individual or company located at an airport providing aviation services. Sometimes further defined as a “full service” FBO or a limited service. Full service FBOs typically provide a broad range of services (flight instruction, aircraft rental, charter, fueling, repair, etc.) where a limited service FBO provides only one or two services (such as fueling, flight instruction or repair).

Fixed Wing – A plane with one or more “fixed wings,” as opposed to a helicopter that utilizes a rotary wing.

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Flexible Pavement – Typically constructed with an asphalt surface course and one or more layers of base and subbase courses that rest on a subgrade layer.

Flight Service Station (FSS) – FAA or contracted service for pilots to contact (on the ground or in the air) to get weather and airport information. Flight plans are also filed with the FSS.

General Aviation (GA) – All civil (non-military) aviation operations other than scheduled air services and non-scheduled air transport operations for hire.

Glide Slope (GS) – For precision instrument approaches, such as an instrument landing system (ILS), the component that provides electronic vertical guidance to aircraft.

Global Positioning System (GPS) – GPS is a system of navigating which uses multiple satellites to establish the location and altitude of an aircraft with a high degree of accuracy. GPS supports both enroute flight and instrument approach procedures.

Helicopter Landing Pad (Helipad) – A designated landing area for rotor wing aircraft. Requires protected FAR Part 77 imaginary surfaces, as defined for heliports (FAR Part 77.29).

Helicopter Parking Area – A designated area for rotor wing aircraft parking that is typically accessed via hover-taxi or ground taxiing from a designated landing area (e.g., helipad or runway-taxiway system). If not used as a designated landing area, helicopter parking pads do not require dedicated FAR Part 77 imaginary surfaces.

Heliport – A designated helicopter landing facility (as defined by FAR Part 77).

Height Above Airport (HAA) – The height of the published minimum descent altitude (MDA) above the published airport elevation. This is normally published in conjunction with circling minimums.

High Intensity Runway Lights (HIRL) – High intensity (i.e., very bright) lights are used on instrument runways to help pilots to see the runway when visibility is poor.

High Speed (Taxiway) Exit – An acute-angled exit taxiway extending from a runway to an adjacent parallel taxiway which allows landing aircraft to exit the runway at a higher rate of speed than is possible with standard (90-degree) exit taxiways.

Hold Line (Aircraft Hold Line) – Pavement markings located on taxiways that connect to runways, indicating where aircraft should stop before entering runway environment. At controlled

airports, air traffic control clearance is required to proceed beyond a hold line. At uncontrolled airports, pilots are responsible for ensuring that a runway is clear prior to accessing for takeoff.

Hold/Holding Procedure – A defined maneuver in controlled airspace that allows aircraft to circle above a fixed point (often over a navigational aid or GPS waypoint) and altitude while awaiting further clearance from air traffic control.

Home Built Aircraft - An aircraft built by an amateur from a kit or specific design (not an FAA certified factory built aircraft). The aircraft built under the supervision of an FAA-licensed mechanic and are certified by FAA as "Experimental."

Horizontal Surface - One of the FAR Part 77 Imaginary (invisible) Surfaces. The horizontal surface is an imaginary flat surface 150 feet above the established airport elevation (typically the highest point on the airfield). Its perimeter is constructed by swinging arcs (circles) from each runway end and connecting the arcs with straight lines. The oval-shaped horizontal surface connects to other Part 77 surfaces extending upward from the runway and also beyond its perimeter.

Initial Approach Point/Fix (IAP/IAF) – For instrument approaches, a designated point where an aircraft may begin the approach procedure.

Instrument Approach Procedure (IAP) – A series of defined maneuvers designed to enable the safe transition between enroute instrument flight and landing under instrument flight conditions at a particular airport or heliport. IAPs define specific requirements for aircraft altitude, course, and missed approach procedures. See precision or non-precision instrument approach.

Instrument Flight Rules (IFR) – IFR refers to the set of rules pilots must follow when they are flying in bad weather. Pilots are required to follow these rules when operating in controlled airspace with visibility (ability to see in front of themselves) of less than three miles and/or ceiling (a layer of clouds) lower than 1,000 feet.

Instrument Landing System (ILS) – An ILS is an electronic navigational aid system that guides aircraft for a landing in bad weather. Classified as a precision instrument approach, it is designed to provide a precise approach path for course alignment and vertical descent of aircraft. Generally consists of a localizer, glide slope, outer marker, and middle marker. ILS runways are generally equipped with an approach lighting system (ALS) to maximize approach capabilities. A Category I ILS allows aircraft to descend as low as 200 feet above runway elevation with ½ mile visibility.

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Instrument Meteorological Conditions (IMC) – Meteorological conditions expressed in terms of visibility, distance from clouds, and ceiling less than minima specified for visual meteorological conditions.

Instrument Runway – A runway equipped with electronic navigational aids that accommodate straight-in precision or non-precision instrument approaches.

Itinerant Operation – All aircraft operations at an airport other than local, i.e., flights that come in from another airport.

Jet Fuel – Highly refined grade of kerosene used by turbine engine aircraft. Jet-A is currently the common commercial grade of jet fuel.

Knot (Nautical Mile) – one nautical mile = 1.152 statute miles.

Landing Area – That part of the movement area intended for the landing and takeoff of aircraft.

Landing Distance Available (LDA) – The length of runway which is available and suitable for the ground run of an airplane landing.

Landside – The portion of an airport that includes aircraft parking areas, fueling, hangars, airport terminal area facilities, vehicle parking and other associated facilities.

Larger than Utility Runway – As defined under FAR Part 77, a runway designed and constructed to serve large planes (aircraft with maximum takeoff weights greater than 12,500 pounds).

Ldn – Noise measurement metric (see DNL)

Left Traffic – A term used to describe which side of a runway the airport traffic pattern is located. Left traffic indicates that the runway will be to the pilot's left when in the traffic pattern. Left traffic is standard unless otherwise noted in facility directories at a particular airport.

Large Aircraft – An aircraft with a maximum takeoff weight more than 12,500 lbs.

Light Sport Aircraft (LSA) – A basic aircraft certified by FAA that can be flown by pilots with limited flight training (Sport Pilot certificates), but also provide lower cost access to basic aircraft for all pilot levels. LSA design limits include maximum a gross takeoff weight of 1,320 pounds (land planes) and a maximum of two seats.

Local Area Augmentation System (LAAS) – GPS-based instrument approach that utilizes ground-based systems to augment satellite coverage to provide vertical (glideslope) and horizontal (course) guidance.

Local Operation – Aircraft operation in the traffic pattern or within sight of the tower, or aircraft known to be departing or arriving from flight in local practice areas, or aircraft executing practice instrument approaches at the airport.

Localizer – The component of an instrument landing system (ILS) that provides electronic lateral (course) guidance to aircraft. Also used to support non-precision localizer approaches.

LORAN C – A navigation system using land based radio signals, which indicates position and ground speed, but not elevation. (See GPS)

Localizer Performance with Vertical Guidance (LPV) – Satellite navigation (SATNAV) based GPS approaches providing “near category I” precision approach capabilities with course and vertical guidance. LPV approaches are expected to eventually replace traditional step-down, VOR and NDB procedures by providing a constant, ILS glideslope-like descent path. LPV approaches use high-accuracy WAAS signals, which allow narrower glideslope and approach centerline obstacle clearance areas.

Magnetic Declination – Also called magnetic variation, is the angle between magnetic north and true north. Declination is considered positive east of true north and negative when west. Magnetic declination changes over time and with location. Runway end numbers, which reflect the magnetic heading/alignment (within 5 degrees +/-) occasionally require change due to declination.

MALSR – Medium-intensity Approach Lighting System with Runway alignment indicator lights. An approach lighting system (ALS) which provides visual guidance to landing aircraft.

Medevac – Fixed wing or rotor-wing aircraft used to transport critical medical patients. These aircraft are equipped to provide life support during transport.

Medium Intensity Runway Lights (MIRL) – Runway edge lights which are not as intense as HIRLs (high intensity runway lights). Typical at medium and smaller airports which do not have sophisticated instrument landing systems.

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Microwave Landing System (MLS) – An instrument landing system operating in the microwave spectrum, which provides lateral and vertical guidance to aircraft with compatible equipment. Originally developed as the “next-generation” replacement for the ILS, the FAA discontinued the MLS program in favor of GPS-based systems.

Minimum Descent Altitude (MDA) – The lowest altitude in a non-precision instrument approach that an aircraft may descend without establishing visual contact with the runway or airport environment.

Minimums – Weather condition requirements established for a particular operation or type of operation.

Missed Approach Procedure – A prescribed maneuver conducted by a pilot when an instrument approach cannot be completed to a landing. Usually requires aircraft to climb from the airport environment to a specific holding location where another approach can be executed or the aircraft can divert to another airport.

Missed Approach Point (MAP) – The defined location in a non-precision instrument approach where the procedure must be terminated if the pilot has not visually established the runway or airport environment.

Movement Area – The runways, taxiways and other areas of the airport used for taxiing, takeoff and landing of aircraft, i.e., for aircraft movement.

MSL - Elevation above Mean Sea Level.

National Plan of Integrated Airport Systems (NPIAS) – The NPIAS is the federal airport classification system that includes public use airports that meet specific eligibility and activity criteria. A “NPIAS designation” is required for an airport to be eligible to receive FAA funding for airport projects.

Navigational Aid (Navaid) – Any visual or electronic device that helps a pilot navigate. Can be for use to land at an airport or for traveling from point A to point B.

Noise Contours – Continuous lines of equal noise level usually drawn around a noise source, such as runway, highway or railway. The lines are generally plotted in 5-decibel increments, with higher noise levels located nearer the noise source, and lesser exposure levels extending away from the source.

Non-Directional Beacon (NDB) – Non-Directional Beacon which transmits a signal on which a pilot may “home” using equipment installed in the aircraft.

Non-Precision Instrument (NPI) Approach - A non-precision instrument approach provides horizontal (course) guidance to pilots for landing. NPI approaches often involve a series of “step down” sequences where aircraft descend in increments (based on terrain clearance), rather than following a continuous glide path. The pilot is responsible for maintaining altitude control between approach segments since no “vertical” guidance is provided.

Obstacle Clearance Surface (OCS) – As defined by FAA, an approach surface that is used in conjunction with alternative threshold siting/clearing criteria to mitigate obstructions within runway approach surfaces. Dimensions, slope and placement depend on runway type and approach capabilities. Also known as Obstacle Clearance Approach (OCA).

Obstruction – An object (tree, house, road, phone pole, etc.) that penetrates an imaginary surface described in FAR Part 77.

Obstruction Chart (OC) – A chart that depicts surveyed obstructions that penetrate a FAR Part 77 imaginary surface surrounding an airport. OC charts are developed by the National Ocean Service (NOS) based on a comprehensive survey that provides detailed location (latitude/longitude coordinates) and elevation data in addition to critical airfield data.

Parallel Taxiway – A taxiway that is aligned parallel to a runway, with connecting taxiways to allow efficient movement of aircraft between the runway and taxiway. The parallel taxiway effectively separates taxiing aircraft from arriving and departing aircraft located on the runway. Used to increase runway capacity and improve safety.

Passenger Facility Charge (PFC) – A user fee charged by commercial service airports for enplaning passengers. Airports must apply to the FAA and meet certain requirements in order to impose a PFC.

Pavement Condition Index (PCI) – A scale of 0-100 that is used to rate airfield pavements ranging from failed to excellent based on visual inspection. Future PCIs can be predicted based on pavement type, age, condition and use as part of a pavement maintenance program.

Pavement Strength or Weight Bearing Capacity – The design limits of airfield pavement expressed in maximum aircraft weight for specific and landing gear configurations (i.e., single wheel, dual wheel, etc.) Small general aviation airport pavements are typically designed to accommodate aircraft weighing up to 12,500 pounds with a single-wheel landing gear.

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Portland Cement Concrete (PCC) – Rigid pavement used for airfield facilities (runways, taxiways, aircraft parking, helipads, etc.).

Precision Approach Path Indicator (PAPI) – A system of lights located by the approach end of a runway that provides visual approach slope guidance to aircraft during approach to landing. The lights typically show green if a pilot is on the correct flight path, and turn red if a pilot is too low.

Precision Instrument Runway (PIR) – A runway equipped with a “precision” instrument approach (descent and course guidance), which allows aircraft to land in bad weather.

Precision Instrument Approach – An instrument approach that provides electronic lateral (course) and vertical (descent) guidance to a runway end. A non-precision instrument approach typically provides only course guidance and the pilot is responsible for managing defined altitude assignments at designated points within the approach.

Primary Runway – That runway which provides the best wind coverage, etc., and receives the most usage at the airport.

Primary Surface – One of the FAR Part 77 Imaginary Surfaces, the primary surface is centered on top of the runway and extends 200 feet beyond each end. The width is from 250' to 1,000' wide depending upon the type of airplanes using the runway.

Principal Fire Extinguishing Agent – Fire extinguishing agents that provide permanent control of fire through a fire-smothering foam blanket. Examples include protein foam, aqueous film forming foam and fluoroprotein foam.

Procedure Turn (PT) – A maneuver in which a turn is made away from a designated track followed by a turn in an opposite direction to permit an aircraft to intercept the track in the opposite direction (usually inbound).

Area Navigation (RNAV) – is a method of instrument flight navigation that allows an aircraft to choose a course within a network of navigation beacons rather than navigating directly to and from the beacons. Originally developed in the 1960, RNAV elements are now being integrated into GPS-based navigation.

Relocated Threshold – A runway threshold (takeoff and landing point) that is located at a point other than the (original) runway end. Usually provided to mitigate nonstandard runway safety area (RSA) dimensions beyond a runway end. When a runway threshold is relocated, the published length of the runway is reduced and the pavement between the relocated threshold and to the original end of the

runway is not available for aircraft takeoff or landing. This pavement is typically marked as taxiway, marked as unusable, or is removed.

Required Navigation Performance (RNP) – A type of performance-based navigation system that allows an aircraft to fly a specific path between two 3-dimensionally defined points in space. RNP approaches require on-board performance monitoring and alerting. RNP also refers to the level of performance required for a specific procedure or a specific block of airspace. For example, an RNP of .3 means the aircraft navigation system must be able to calculate its position to within a circle with a radius of 3 tenths of a nautical mile. RNP approaches have been designed with RNP values down to .1, which allow aircraft to follow precise 3 dimensional curved flight paths through congested airspace, around noise sensitive areas, or through difficult terrain.

Rigid Pavement – Typically constructed of Portland cement concrete (PCC), consisting of a slab placed on a prepared layer of imported materials.

Rotorcraft – A helicopter.

Runway – A defined area intended to accommodate aircraft takeoff and landing. Runways may be paved (asphalt or concrete) or unpaved (gravel, turf, dirt, etc.), depending on use. Water runways are defined takeoff and landing areas for use by seaplanes.

Runway Bearing – The angle of a runway centerline expressed in degrees (east or west) relative to true north.

Runway Design Code (RDC) – The RDC is comprised of the AAC, ADG, and approach visibility minimums of a particular runway. The RDC provides the information needed to determine applicable design standards. The AAC is based on aircraft approach speed. The ADG is based on either the aircraft wingspan or tail height; (whichever is most restrictive) of the largest aircraft expected to operate on the runway and taxiways adjacent to the runway. The approach visibility minimums represent RVR values in feet of 1,200, 1,600, 2,400, 4,000, and 5,000 (corresponding to lower than 1/4 mile, lower than 1/2 mile but not lower than 1/4 mile, lower than 3/4 mile but not lower than 1/2 mile, lower than 1 mile but not lower than 3/4 mile, and not lower than 1 mile, respectively).

Runway Designation Numbers – Numbers painted on the ends of a runway indicating runway orientation (in degrees) relative to magnetic north. “20” = 200 degrees magnetic, which means that the final approach for Runway 20 is approximately 200 degrees (+/- 5 degrees).

GLOSSARY OF AVIATION TERMS

Runway End Identifier Lights (REILs) – Two high-intensity sequenced strobe lights that help pilots identify a runway end during landing in darkness or poor visibility.

Runway Object Free Area (OFA) – A defined area surrounding a runway that should be free of any obstructions that could interfere with aircraft operations. The dimensions for the OFA increase for runways accommodating larger or faster aircraft.

Runway Protection Zone (RPZ) – A trapezoid-shaped area located beyond the end of a runway that is intended to be clear of people or built items. The geometry of the RPZ often coincides with the inner portion of the runway approach surface. However, unlike the approach surface, the RPZ is a defined area on the ground that does not have a vertical slope component for obstruction clearance. The size of the RPZ increases as runway approach capabilities or aircraft approach speeds increase. Previously defined as “clear zone.”

Runway Safety Area (RSA) – A symmetrical ground area extending along the sides and beyond the ends of a runway that is intended to accommodate inadvertent aircraft passage without causing damage. The dimensions for the RSA increase for runways accommodating larger or faster aircraft. FAA standards include surface condition (compaction, etc.) and absence of obstructions. Any items that must be located within an RSA because of their function (runway lights, airfield signage, wind cones, etc.) must be frangible (breakable) to avoid significant aircraft damage.

Segmented Circle – A system of visual indicators designed to show a pilot in the air the direction of the traffic pattern at that airport.

Small Aircraft – An aircraft that weighs 12,500 lbs. or less.

Straight-In Approach – An instrument approach that directs aircraft to a specific runway end.

Statute Mile – 5,280 feet (a nautical mile = 6,080 feet)

Stop and Go – An aircraft operation where the aircraft lands and comes to a full stop on the runway before takeoff is initiated.

T-Hangar – A rectangular aircraft storage hangar with several interlocking “T” units that minimize building per storage unit. Usually two-sided with either bi-fold or sliding doors.

Takeoff Distance Available (TODA) – the length of the takeoff run available plus the length of clearway, if available.

Takeoff Run Available (TORA) – the length of runway available and suitable for the ground run of aircraft when taking off.

Taxilane – A defined path used by aircraft to move within aircraft parking apron, hangar areas and other landside facilities.

Taxiway – A defined path used by aircraft to move from one point to another on an airport.

Threshold – The beginning of that portion of a runway that is useable for landing.

Taxiway Design Group (TDG) – The TDG is based on the undercarriage dimensions of the aircraft. TDG is used to determine taxiway/taxilane width and fillet standards, and in some instances, runway to taxiway and taxiway/taxilane separation requirements.

Threshold Lights – Components of runway edge lighting system located at the ends of runways and at displaced thresholds. Threshold lights typically have split lenses (green/red) that identify the beginning and ends of usable runway.

Through-the-Fence – Term used to describe how off-airport aviation users (private airparks, hangars, etc.) access an airport “through-the-fence,” rather than having facilities located on airport property.

Tiedown – A place where an aircraft is parked and “tied down.” Surface can be grass, gravel or paved. Tiedown anchors may be permanently installed or temporary.

Touch and Go – An aircraft operation involving a landing followed by a takeoff without the aircraft coming to a full stop or exiting the runway.

Traffic Pattern – The flow of traffic that is prescribed for aircraft landing and taking off from an airport. Traffic patterns are typically rectangular in shape, with upwind, crosswind, base and downwind legs and a final approach surrounding a runway.

Traffic Pattern Altitude – The established altitude for a runway traffic pattern, typically 800 to 1,000 feet above ground level (AGL).

Transitional Surfaces – One of the FAR Part 77 Imaginary Surfaces, the transitional surface extend outward and upward at right angles to the runway centerline and the extended runway centerline at a slope of 7:1 from the sides of the primary surface and from the sides of the approach surfaces.

GLOSSARY OF AVIATION TERMS

Universal Communications (UNICOM) – Is an air-ground communication facility operated by a private agency to provide advisory service at uncontrolled airports.

Utility Runway – As defined under FAR Part 77, a runway designed and constructed to serve small planes (aircraft with maximum takeoff weights of 12,500 pounds or less).

Vertical Navigation (VNAV) – Vertical navigation descent data or descent path, typically associated with published GPS instrument approaches. The use of any VNAV approach technique requires operator approval, certified VNAV-capable avionics, and flight crew training.

VOR - Very High Frequency Omnidirectional Range – A ground based electronic navigational aid that transmits radials in all directions in the VHF frequency spectrum. The VOR provides azimuth guidance to aircraft by reception of radio signals.

VORTAC – VOR collocated with ultra high frequency tactical air navigation (TACAN)

Visual Approach Slope Indicator (VASI) – A system of lights located by the approach end of a runway which provides visual approach slope guidance to aircraft during approach to landing. The lights typically show some combination of green and white if a pilot is on the correct flight path, and turn red if a pilot is too low.

Visual Flight Rules (VFR) – Rules that govern the procedures to conducting flight under visual conditions. The term is also used in the US to indicate weather conditions that are equal to or greater than minimum VFR requirements. In addition, it is used by pilots and controllers to indicate type of flight plan.

Visual Guidance Indicator (VGI) – Equipment designed to provide visual guidance for pilots for landing through the use of different color light beams. Visual Approach Slope Indicators (VASI) and Precision Approach Path Indicators (PAPI) defined above are examples.

Waypoint – A specified geographical location used to define an area navigation route or the flight path of an aircraft employing area navigation.

Wide Area Augmentation System (WAAS) – GPS-based instrument approach that can provide both vertical (glideslope) and horizontal (course) guidance. WAAS-GPS approaches are able to provide approach minimums nearly comparable to a Category I Instrument Landing System (ILS).

Wind Rose – A diagram that depicts observed wind data direction and speed on a 360-degree compass rose. Existing or planned proposed runway alignments are overlain to determine wind coverage levels based on the crosswind limits of the design aircraft.

Wind Cone – A device located near landing areas used by pilots to verify wind direction and velocity. Usually manufactured with brightly colored fabric and may be lighted for nighttime visibility. Also referred to as “wind sock.”

LIST OF ABBREVIATIONS

AC – Advisory Circular	ILS – Instrument Landing System
AC – Asphaltic Concrete	IMC – Instrument Meteorological Conditions
ACM – Airport Certification Manual	LDA – Landing Distance Available
ADG – Airplane Design Group	LDA - Localizer Directional Aid
ADO – Airport District Office	LIRL – Low Intensity Runway Lighting
AGL – Above Ground Level	LOC – Localizer
AIP – Airport Improvement Program	MALSR – Medium Intensity Approach Lighting System (MALS) with Runway Alignment Indicator Lights (RAIL)
ALP – Airport Layout Plan	MIRL – Medium Intensity Runway Lighting
ALS – Approach Lighting System	MITL - Medium Intensity Taxiway Lighting
AOA – Airport Operations Area	MTOW – Maximum Takeoff Weight
APL – Aircraft Parking Line	NAVAID – Navigation Aid
APRC – Approach Reference Code	NDB – Non-Directional Beacon
ARC – Airport Reference Code	NEPA – National Environmental Policy Act
ARFF – Aircraft Rescue and Fire Fighting	NGS – National Geodetic Survey
ARP - Airport Reference Point	NPIAS – National Plan of Integrated Airport Systems
ASDA – Accelerate-Stop Distance Available	OCS – Obstacle Clearance Surface
ASV – Annual Service Volume	ODALS – Omnidirectional Airport Lighting System
ATC –Air Traffic Control	OFA – Object Free Area
ATCT – Airport Traffic Control Tower	OFZ – Obstacle Free Zone
ASOS – Automated Surface Observation System	PAPI – Precision Approach Path Indicator
AWOS – Automated Weather Observation System	PCC – Portland Cement Concrete
BRL – Building Restriction Line	PCI – Pavement Condition Index
CFR – Code of Federal Regulations	PCN – Pavement Condition Number
CTAF – Common Traffic Advisory Frequency	POFZ – Precision Obstacle Free Zone
DPRC – Departure Reference Code	RAIL – Runway Alignment Indicator Lights
DME – Distance Measuring Equipment	RDC – Runway Design Code
FAA – Federal Aviation Administration	REIL – Runway End Identifier Lights
FAR – Federal Air Regulation	RNAV – Area Navigation
FBO – Fixed Base Operator	ROFA – Runway Object Free Area
GIS – Geographic Information System	ROFZ – Runway Obstacle Free Zone
GS – Glide Slope	RPZ – Runway Protection Zone
GPS – Global Positioning System	RSA – Runway Safety Area
HIRL – High Intensity Runway Lighting	RVR – Runway Visual Range
IFR – Instrument Flight Rules	

LIST OF ABBREVIATIONS

RVZ – Runway Visibility Zone
TDG – Taxiway Deign Group
TSA- Taxiway Safety Area
TSA – Transportation Security Administration
TODA – Takeoff Distance Available
TOFA – Taxiway/Taxilane Object Free Area
TORA – Takeoff Run Available
TSS – Threshold Siting Surface
TVOR – Terminal Very High Frequency Omni-directional Range
UAS – Unmanned Aircraft Systems
UGA – Urban Growth Area
UGB – Urban Growth Boundary
UHF – Ultra-High Frequency
USDA – United States Department of Agriculture
USGS – U. S. Geological Survey
UNICOM – Universal Communications
VASI – Visual Approach Slope Indicator
VFR – Visual Flight Rules
VGI - Visual Guidance Indicators
VOR – Very High Frequency Omni-Directional Range