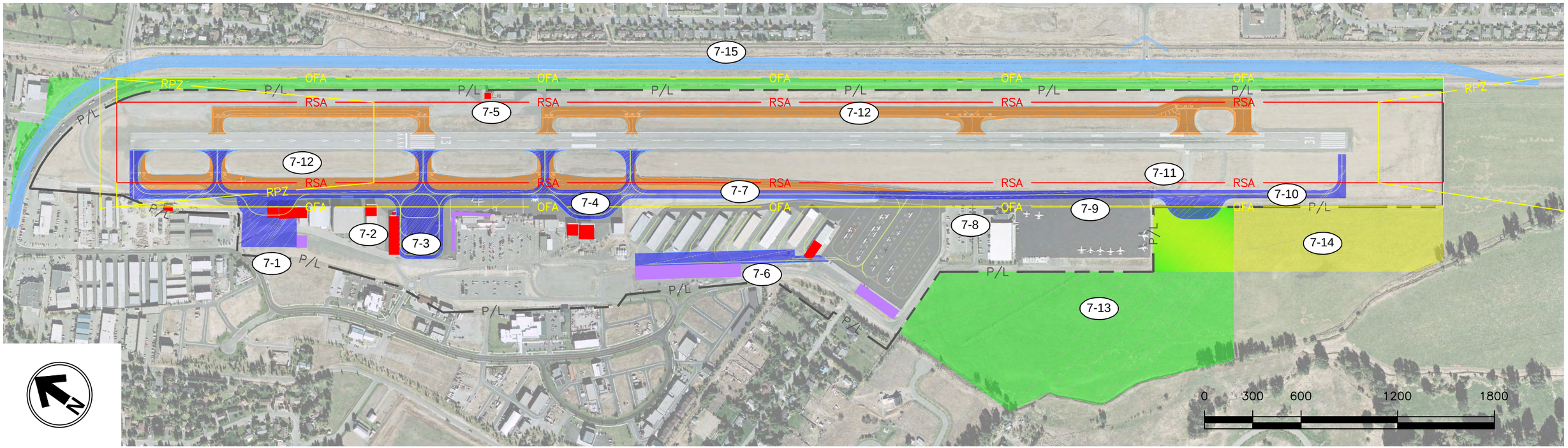


ITEM	DESCRIPTION
7-1	RELOCATE HANGARS, RELOCATE DE-CONFLICTION, CONSTRUCT APRON FOR FED EX AND UPS, CLOSE WINTER BUS ROUTE
7-2	REMOVE HANGARS, RELOCATE ELECTRICAL VAULT
7-3	RELOCATE TERMINAL AIRCRAFT PARKING
7-4	RELOCATE HANGARS AND DE-CONFLICTION APRON
7-5	RELOCATE AIR TRAFFIC CONTROL TOWER
7-6	NEW TAXILANE TO ACCESS T- HANGARS
7-7	RELOCATE TAXIWAY B
7-8	RELOCATE EXISTING FBO FENCE AND PORTION OF PARKING LOT OUTSIDE OF TAXIWAY OFA

ITEM	DESCRIPTION
7-9	LOSS OF PARKING DURING HIGH DEMAND: 79,000 SF
7-10	EXTEND TAXIWAY B
7-11	RELOCATE AWOS
7-12	REMOVE EXISTING PAVEMENT AND GRADE RSA
7-13	OPTION A: ACQUIRE 36 ACRES FOR STORM DRAINAGE RETENTION POND, RELOCATED AIRCRAFT HANGARS AND APRON
7-14	OPTION B: ACQUIRE 17 ACRES FOR STORM DRAINAGE RETENTION POND, RELOCATED AIRCRAFT HANGARS AND APRON
7-15	ACQUIRE 15 ACRES OF HIGHWAY 75 ROW FOR RUNWAY OFA

AIRCRAFT PARKING IMPACTS

FBO:	-39,000 SF
GENERAL AVIATION:	-95,000 SF
TERMINAL APRON:	+41,200 SF
AIR CARGO APRON:	-88,500 SF
NET DIFFERENCE:	-181,300 SF

POTENTIAL MODIFICATIONS REQUIRED

AIRPORT DESIGN STANDARD	STANDARD DIMENSIONS	POTENTIAL MODIFICATIONS REQUIRED AS SHOWN
RUNWAY TO PARALLEL TAXIWAY SEPARATION	400'	320'
RUNWAY TO AIRCRAFT PARKING	500'	400'
RUNWAY OFA GRADING	10:1	4:1
RUNWAY OFA CLEARING	NO FIXED OBJECTS	HWY 75/BUILDINGS AT NE CORNER
TAXIWAY OBJECT FREE AREA	186'	160'

LEGEND

- 7-1 — KEY NUMBER
- NEW AIRFIELD PAVEMENT
- AIRFIELD PAVEMENT REMOVAL
- NEW BUILDING / HANGAR / STRUCTURE AREA
- BUILDING / HANGAR / STRUCTURE REMOVAL
- NEW LAND ACQUISITION - OPTION A
- NEW LAND ACQUISITION - OPTION B
- RELOCATED HIGHWAY

NOTES

1. PROPERTY ACQUISITION SHOWN REFLECTS AN ASSUMED PARCEL FOR ACQUISITION. ALTERNATE CONFIGURATION MAY BE PREFERABLE TO LANDOWNER.

EXHIBIT 5-7
ALTERNATIVE 7 - MODEST LAND ACQUISITION

Table 5-7 – Alternative 7 – Modest Expansion

RDC C-III ≥1 Mile	MEETS STANDARDS?	DISPOSITION/COMMENTS
RUNWAY PROTECTION STANDARDS		
Runway Safety Area (RSA)	Yes	• Meets RSA grading and dimensional standards. Dimensional standards met with the removal of Taxiway A on the east side and relocation of Taxiway B on the west side.
Runway Object Free Area (OFA) – dimensional standards Runway Object Free Area (OFA) – grading standards Taxiway Object Free Area (TOFA)	Yes No – MOS Required No – MOS Required	• Relocation of Highway 75 and bike path to the east provides for a fully compliant OFA. • Requires the acquisition of 15 acres of land to relocate Highway 75 and bike path Right-of-Ways (ROW). • Requires removal and relocation of Air Traffic Control Tower (ATCT). • MOS for runway OFA grading and aircraft specific TOFA.
Object Free Zone (OFZ)	Yes	• Provides fully compliant OFZ
Runway Protection Zone (RPZ)	No	• Portions of Highway 75 remain in RPZ on both ends (may be allowable with FAA approval). • Land acquisition required to accommodate RPZ on Runway 31 end.
SEPARATION STANDARDS		
Centerline to Holdline(s)	Yes	• Fully compliant at 250 feet
Centerline to Parallel Taxiway	No – MOS Required	• Taxiway A – Removed. 320-330 foot runway to Taxiway B centerline – Requires MOS.
Centerline to Aircraft Parking	No – MOS Required	• Requires MOS. Existing separation 400 feet – standard is 500 feet.
MAJOR ENVIRONMENTAL CONSIDERATIONS		
Compatible Land Use Wetlands	N/A	• 41 acres of land acquisition, including the acquisition of some ranch land and land for Highway 75 ROW may have adverse environmental impacts based on these impact categories.
OTHER		
Compliance and Infrastructure	N/A	• Requires the use of MOS. Results in loss of current hangars, aircraft parking and snow storage. Replacement of lost facilities can be recovered on acquired land.
Schedule (including planning/ environmental/land acquisition/construction)	N/A	**Maximum** 3 years (2013-2015). **MUST BE IMPLEMENTED IMMEDIATELY TO MEET RSA DEADLINE.**
COST ESTIMATE		**$59,500,000**

APPENDIX A

SUN CURRENT FAA FORM 5010-1

Exhibit C

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

AIRPORT MASTER RECORD

PRINT DATE: 10/18/2012
AFD EFF: 09/20/2012
Form Approved OMB 2120-0015

1 ASSOC CITY: HAILEY
2 AIRPORT NAME: FRIEDMAN MEMORIAL
3 CBD TO AIRPORT (NM): 01 SE
4 STATE: ID
6 REGION/ADO: ANM/SEA
LOC ID: SUN
5 COUNTY: BLAINE ID
7 SECT AERO CHT: SALT LAKE CITY
FAA SITE NR: 14208.*A

GENERAL

10 OWNERSHIP: PU
11 OWNER: CITY OF HAILEY
12 ADDRESS: BLAINE CO - BOX 929
HAILEY, ID 83333
13 PHONE NR: 208-788-5500
14 MANAGER: RICHARD R BAIRD
15 ADDRESS: P.O. BOX 929
HAILEY, ID 83333
16 PHONE NR: 208-788-4956
17 ATTENDANCE SCHEDULE:
ALL ALL DAWN-DUSK

18 AIRPORT USE: PUBLIC
19 ARPT LAT: 43-30-13.6000N ESTIMATED
20 ARPT LONG: 114-17-44.0000W
21 ARPT ELEV: 5320.0 SURVEYED
22 ACREAGE: 211
23 RIGHT TRAFFIC:
24 NON-COMM LANDING: YES
25 NPIAS/FED AGREEMENTS: NGY
26 FAR 139 INDEX: I A S 10/1974

SERVICES

70 FUEL: 100LL A1+
71 AIRFRAME RPRS: MAJOR
72 PWR PLANT RPRS: MAJOR
73 BOTTLE OXYGEN: HIGH
74 BULK OXYGEN: HIGH
75 TSNT STORAGE: HGR, TIE
76 OTHER SERVICES:
ARPT, AMB, CARGO, CHTR, INSTR, RNTL, SALES

FACILITIES

80 ARPT BCN: CG
81 ARPT LGT SKED: SEE RMK
82 UNICOM: 122.950
83 WIND INDICATOR: YES-L
84 SEGMENTED CIRCLE: NONE
85 CONTROL TWR: YES
86 FSS: BOISE
87 FSS ON ARPT: NO
88 FSS PHONE NR:
89 TOLL FREE NR: 1-800-WX-BRIEF

BASED AIRCRAFT

90 SINGLE ENG: 101
91 MULTI ENG: 35
92 JET: 11
TOTAL: 147
93 HELICOPTERS: 4
94 GLIDERS: 0
95 MILITARY: 0
96 ULTRA-LIGHT: 2

OPERATIONS

100 AIR CARRIER: 1,839
102 AIR TAXI: 17,063
103 G A LOCAL: 1,488
104 G A ITNRNT: 22,961
105 MILITARY: 58
TOTAL: 43,231
OPERATIONS FOR 12 MONTHS ENDING: 12/31/2011

RUNWAY DATA

30 RUNWAY IDENT:		13/31
31 LENGTH:		7,550
32 WIDTH:		100
33 SURF TYPE-COND:		ASPH-G
34 SURF TREATMENT:		GRVD
35 GROSS WT:	SW	65.0
36 (IN THSDS)	DW	155.0
37	DTW	150.0
38	DDTW	
39 PCN:		

LIGHTING/APCH AIDS

40 EDGE INTENSITY:	HIGH
42 RWY MARK TYPE-COND:	NPI - G / PIR - F
43 VGSI:	V / P4L
44 THR CROSSING HGT:	/ 55
45 VISUAL GLIDE ANGLE:	/ 3.50
46 CNTRLN-TDZ:	- / -
47 RVR-RVV:	- / -
48 REIL:	/ Y
49 APCH LIGHTS:	/

OBSTRUCTION DATA

50 FAR 77 CATEGORY:	B(V) / C
51 DISPLACED THR:	1,701 /
52 CTLG OBSTN:	ROAD / TREE
53 OBSTN MARKED/LGTD:	/ L
54 HGT ABOVE RWY END:	17 / 64
55 DIST FROM RWY END:	200 / 1800
56 CNTRLN OFFSET:	0L / 500L
57 OBSTN CLNC SLOPE:	5:1 / 21:1
58 CLOSE-IN OBSTN:	Y / N

DECLARED DISTANCES

60 TAKE OFF RUN AVBL (TORA):	7,150 / 6,850
61 TAKE OFF DIST AVBL (TODA):	7,550 / 7,550
62 ACLT STOP DIST AVBL (ASDA):	7,150 / 6,851
63 LNDG DIST AVBL (LDA):	5,450 / 6,851

(>) ARPT MGR PLEASE ADVISE FSS IN ITEM 86 WHEN CHANGES OCCUR TO ITEMS PRECEDED BY >

110 REMARKS:

A 011 AND COUNTY OF BLAINE.
A 022 LNDG FEE FOR ACFT GTR THAN 6000 LBS.
A 024 ARFF AVBL 0700-2300.
A 025 PPR FOR ALL UNSKED ACFT OPNS UTILIZING ACFT WITH A TYPE CERTIFICATE FOR MORE THAN 30 PAX SEATS. PPR FOR ALL SKED ACR OPNS BTN 2300-0600 CALL AMGR (208) 788-4956.
A 057 RWY 13 ROAD 65 FT TO DSPLCD THR, PARKED ACFT 0 225 L, 3:1 BASED ON DSPLCD THR.
A 058 RWY 13 - 17 FT ROAD 150 FT FM THLD 250 FT L, 115 FT PIPES 500 FT FM THLD 130 FT R, 12 FT FENCE 150 FT FM THLD 150 FT L, 17 FT ROAD 550 FT FM THLD 150 FT L.
A 070 FUEL AVBL AFT DUSK PPR 208-788-3511.

111 INSPECTOR: (F) 112 LAST INSP: 08/13/2012 113 LAST INFO REQ:

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

AIRPORT MASTER RECORD

AFD EFF 09/05/2013
Form Approved OMB 2120-0016

1 ASSOC CITY: CONTINUED
2 AIRPORT NAME:
3 OBS TO AIRPORT (NM):
4 STATE: ID
5 COUNTY:
6 REGION/ADO: ANM/BOI
LOC ID: SUN
7 SECT AERO CHT:
FAC SITE NR: 04109.A

GENERAL

10 OWNERSHIP:
11 OWNER:
12 ADDRESS:

13 PHONE NR:
14 MANAGER:
15 ADDRESS:

16 PHONE NR:
17 ATTENDANCE SCHEDULE:

18 AIRPORT USE:
19 ARPT LAT:
20 ARPT LONG:
21 ARPT ELEV:
22 ACREAGE:
23 IFR/VFR TRAFFIC:
24 NON-COMM LANDING:
25 # PAVED AGREEMENTS:
26 FAR 139 INDEX:

SERVICES

70 FUEL:

71 AIRFRAME RPRS:
72 PWR PLANT RPRS:
73 BOTTLE OXYGEN:
74 BULK OXYGEN:
75 TSNT STORAGE:
76 OTHER SERVICES:

FACILITIES

80 ARPT BCN:
81 ARPT LGT SKED:
82 UNICOM:
83 WIND INDICATOR:
84 SEGMENTED CIRCLE:
85 CONTROL TWR:
86 FSS:
87 FSS ON ARPT:
88 FSS PHONE NR:
89 TOLL FREE NR:

BASED AIRCRAFT

90 SINGLE ENG:
91 MULTI ENG:
92 JET:
TOTAL:
93 HELICOPTERS:
94 GLIDERS:
95 MILITARY:
96 ULTRA-LIGHT:

OPERATIONS

100 AIR CARRIER:
102 AIR TAXI:
103 GA LOCAL:
104 GA ITNRNT:
105 MILITARY:
TOTAL:

OPERATIONS FOR 12 MONTHS ENDING:

RUNWAY DATA

30 RUNWAY IDENT:
31 LENGTH:
32 WIDTH:
33 SURF TYPE-COND:
34 SURF TREATMENT:
35 GROSS WT: SW
36 (IN THSDS) DSW
37 DTW
38 DDTW
39 PCN:

LIGHTING/APCH AIDS

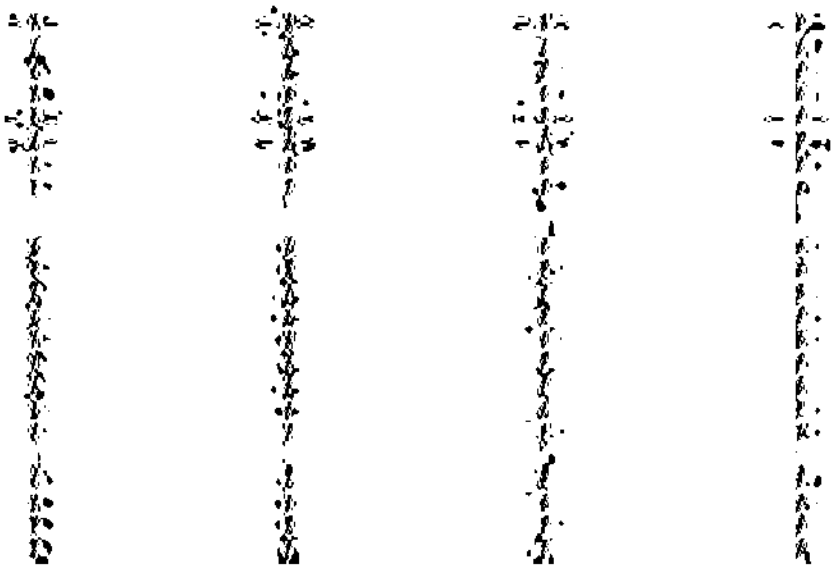
40 EDGE INTENSITY:
42 RWY MARK TYPE-COND:
43 VGSI:
44 THR CROSSING HGT:
45 VISUAL GLIDE ANGLE:
46 CNTRLN-TDZ:
47 RVR-RVV:
48 REIL:
49 APCH LIGHTS:

OBSTRUCTION DATA

50 PART 77 CATEGORY:
51 DISPLACED THR:
52 CTLG OBSTN:
53 OBSTN MARKED/LGTD:
54 HGT ABOVE RWY END:
55 DIST FROM RWY END:
56 CNTRLN OFFSET:
57 OBSTN CLNC SLOPE:
58 CLOSE-IN OBSTN:

DECLARED DISTANCES

60 TAKE OFF RUN AVBL (TORA):
61 TAKE OFF DIST AVBL (TODA):
62 ACLT STOP DIST AVBL (ASDA):
63 LNDG DIST AVBL (LDA):



67 ARPT MGR PLEASE ADVISE FSS IN ITEM 88 WHEN CHANGES OCCUR TO ITEMS PRECEDED BY *

110 REMARKS:

A 001 RWY ART ACTVT HRS:RY 13/31 - CTAF WHEN ATCT CLSD. PAPI RY 31 OPER 24 HRS.
A 110-1 WHEN ATCT CLSD - LAND RY 31, TAKEOFF RY 13, DUE TO OPPOSITE DIRECTION TRAFFIC USE LANDING LIGHT IN TRAFFIC PATTERN.
A 110-2 NOT RQMD FOR NIGHT USE OR IN MARGINAL WEATHER BY UNFAMILIAR PILOTS DUE TO MOUNTAINOUS TERRAIN.
A 110-4 BIRD ACTIVITY RY 13 END RY 31.
A 110-7 CTC ANGR 208-788-4992 OR 208-788-5102 FOR NOISE ABATEMENT PROCEDURES. APU OPERATION LIMITED TO 30 MINUTE MAXIMUM RUN TIME.
A 110-9 (ER) REFLECTORS ON TWYS.
A 110-11 DUE TO OPPOSITE TFC: ARCH RY 31 ALONG E SIDE OF VALLEY. DEP RY 13 ALONG W SIDE OF VALLEY. SHOWLINGH (ZSH).

111 INSPECTOR: 112 LAST INSP: 08/14/2013 113 LAST INFO REQ:

FAA Form 5010-1 (5-91) SUPERSEDES PREVIOUS EDITION

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

AIRPORT MASTER RECORD

AFD EFF 09/20/2012
Form Approved OMB 2120-0015

> 1 ASSOC CITY: ****CONTINUED****   4 STATE: ID   LOC ID: SUN   FAA SITE NR: [illegible]
> 2 AIRPORT NAME: 5 COUNTY:
> 3 CBD TO AIRPORT (NM):   6 REGION/ADO: ANM/SEA   7 SECT AERO CHT:

GENERAL

10 OWNERSHIP:
> 11 OWNER:
> 12 ADDRESS:
> 13 PHONE NR:
> 14 MANAGER:
> 15 ADDRESS:
> 16 PHONE NR:
> 17 ATTENDANCE SCHEDULE:

18 AIRPORT USE:
19 ARPT LAT:
20 ARPT LONG:
21 ARPT ELEV:
22 ACREAGE:
> 23 RIGHT TRAFFIC:
> 24 NON-COMM LANDING:
25 NPIAS/FED AGREEMENTS:
> 26 FAR 139 INDEX:

SERVICES

> 70 FUEL:
> 71 AIRFRAME RPRS:
> 72 PWR PLANT RPRS:
> 73 BOTTLE OXYGEN:
> 74 BULK OXYGEN:
75 TSNT STORAGE:
76 OTHER SERVICES:

FACILITIES

> 80 ARPT BCN:
> 81 ARPT LGT SKED:
> 82 UNICOM:
> 83 WIND INDICATOR:
84 SEGMENTED CIRCLE:
85 CONTROL TWR:
86 FSS:
87 FSS ON ARPT:
88 FSS PHONE NR:
89 TOLL FREE NR:

BASED AIRCRAFT

90 SINGLE ENG:
91 MULTI ENG:
92 JET:
TOTAL:
93 HELICOPTERS:
94 GLIDERS:
95 MILITARY:
96 ULTRA-LIGHT:

OPERATIONS

100 AIR CARRIER:
102 AIR TAXI:
103 G A LOCAL:
104 G A ITNRNT:
105 MILITARY:
TOTAL:

OPERATIONS FOR 12 MONTHS ENDING:

RUNWAY DATA

> 30 RUNWAY IDENT:
> 31 LENGTH:
> 32 WIDTH:
> 33 SURF TYPE-COND:
> 34 SURF TREATMENT:
35 GROSS WT: SW
36 (IN THSDS) DW
37 DTW
38 DDTW
> 39 PCN:

LIGHTING/APCH AIDS

> 40 EDGE INTENSITY:
> 42 RWY MARK TYPE-COND:
> 43 VGSI:
44 THR CROSSING HGT:
45 VISUAL GLIDE ANGLE:
> 46 CNTRLN-TDZ:
> 47 RVR-RVV:
> 48 REIL:
> 49 APCH LIGHTS:

OBSTRUCTION DATA

50 FAR 77 CATEGORY:
> 51 DISPLACED THR:
> 52 CTLG OBSTN:
> 53 OBSTN MARKED/LGTD:
> 54 HGT ABOVE RWY END:
> 55 DIST FROM RWY END:
> 56 CNTRLN OFFSET:
57 OBSTN CLNC SLOPE:
58 CLOSE-IN OBSTN:

DECLARED DISTANCES

> 60 TAKE OFF RUN AVBL (TORA):
> 61 TAKE OFF DIST AVBL (TODA):
> 62 ACLT STOP DIST AVBL (ASDA):
> 63 LNDG DIST AVBL (LDA):

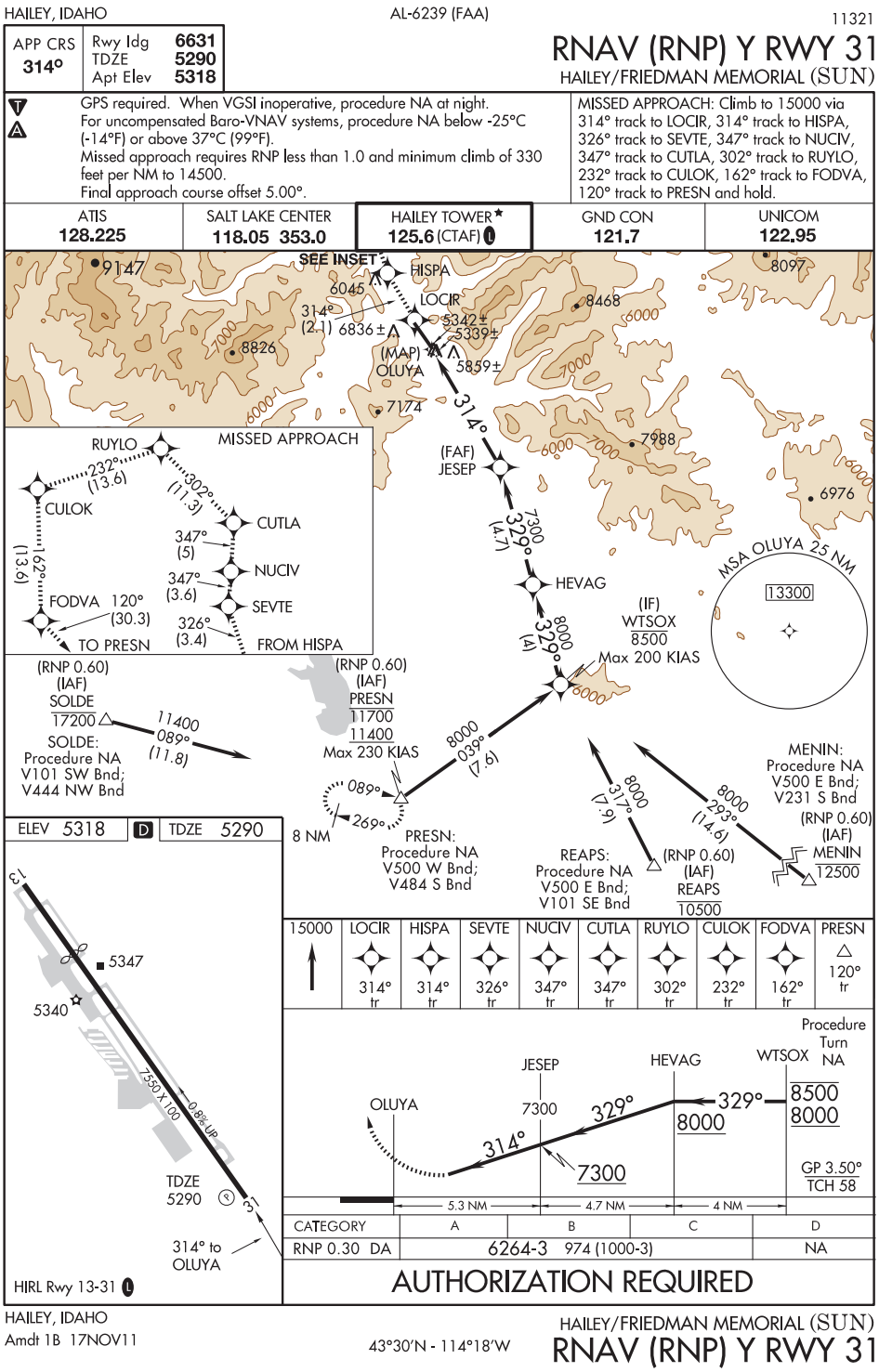
(>) ARPT MGR PLEASE ADVISE FSS IN ITEM 86 WHEN CHANGES OCCUR TO ITEMS PRECEDED BY >

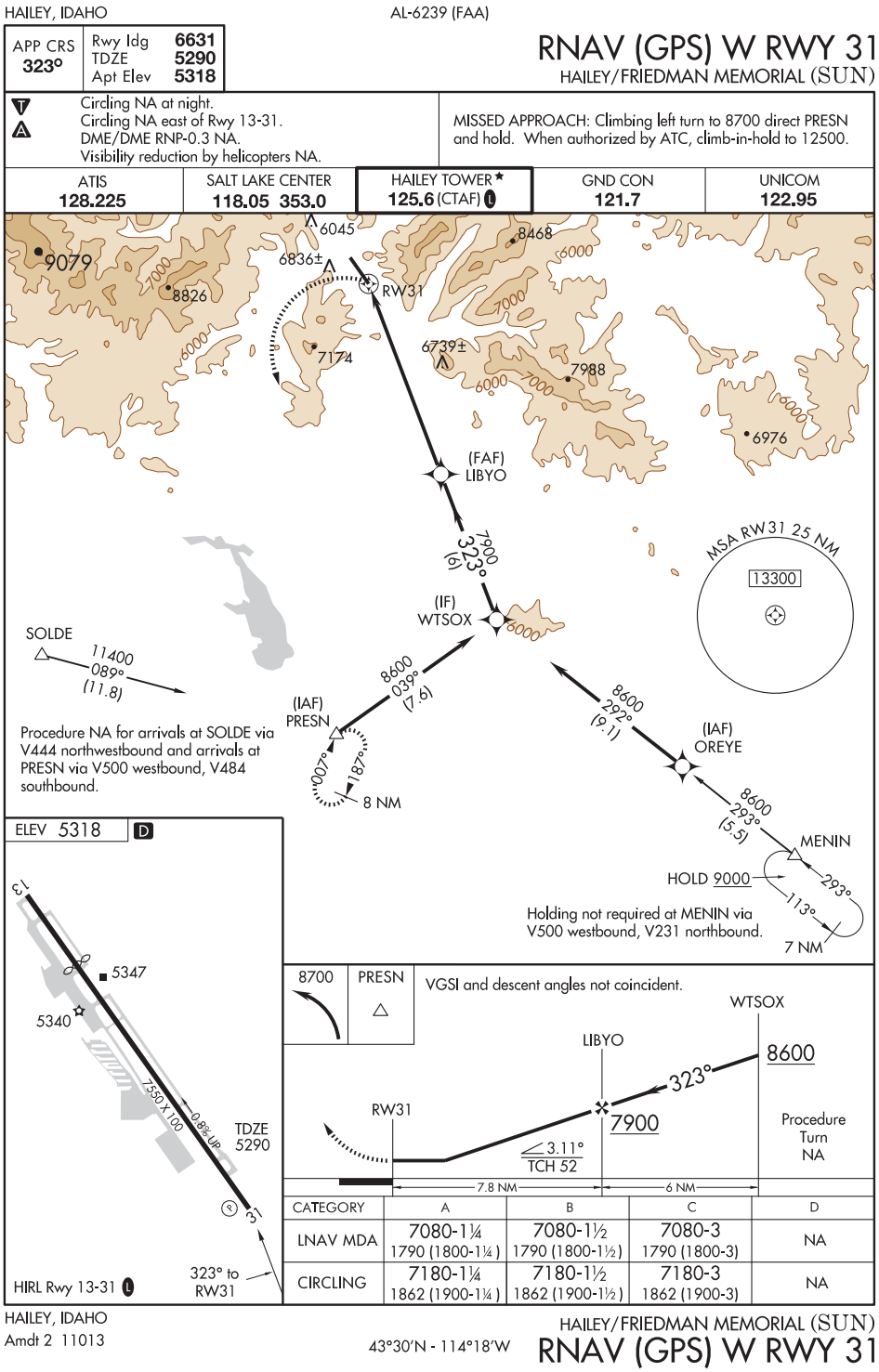
> 110 REMARKS:

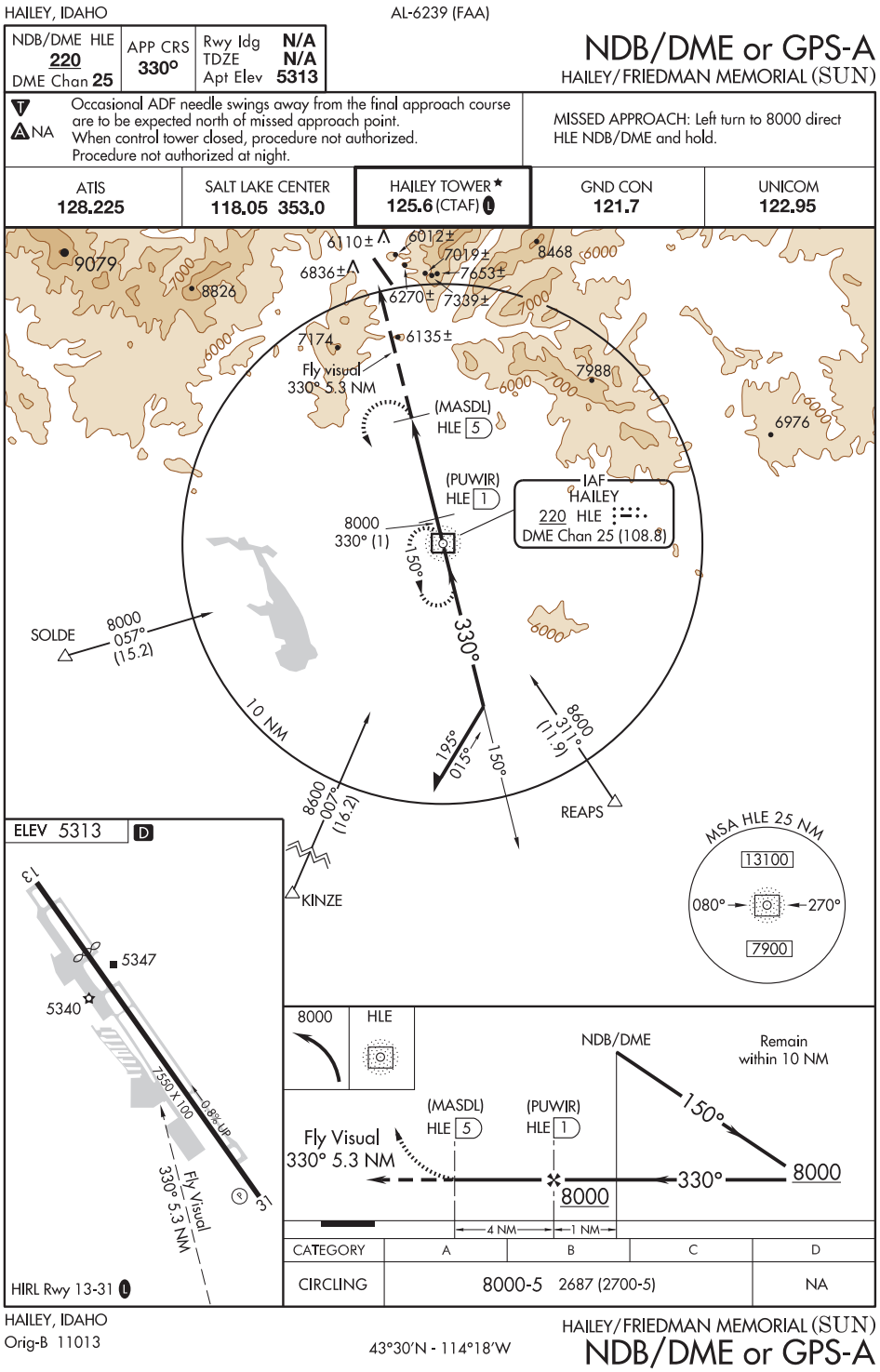
A 110-12 NO LOCKED BRAKE TURNS.
A 110-13 APU OPERATION LIMITED TO 30 MINS WITHOUT EXCEPTION.
A 110-14 TAXIWAYS A-5 AND B-5 RESTRICTED TO AIRCRAFT WITH WINGSPANS OF 49' OR LESS (AIRCRAFT DESIGN GROUP I) ONLY.
A 110-17 TWY A OPEN BTN A2 & A3 DLGT HRS ONLY.
A 110-18 AFLD SFC CONDITIONS NOT MONITORED BETWEEN THE HOURS OF 2300 AND 0700.
A 110-19 LTD PARKG AVBL FOR AIR CARRIER ACFT.

111 INSPECTOR: [illegible]   112 LAST INSP: 09/13/2012   113 LAST INFO REQ:

APPENDIX B
CURRENT INSTRUMENT APPROACH PROCEDURES


HAILEY, IDAHO
AL-6239 (FAA)
11321
APP CRS 314°
Rwy Idg 6631
TDZE 5290
Apt Elev 5318
RNAV (RNP) Y RWY 31
HAILEY/FRIEDMAN MEMORIAL (SUN)
GPS required. When VGSI inoperative, procedure NA at night.
For uncompensated Baro-VNAV systems, procedure NA below -25°C (-14°F) or above 37°C (99°F).
Missed approach requires RNP less than 1.0 and minimum climb of 330 feet per NM to 14500.
Final approach course offset 5.00°.
MISSED APPROACH: Climb to 15000 via 314° track to LOCIR, 314° track to HISPA, 326° track to SEVTE, 347° track to NUCIV, 347° track to CUTLA, 302° track to RUYLO, 232° track to CULOK, 162° track to FODVA, 120° track to PRESN and hold.
ATIS 128.225
SALT LAKE CENTER 118.05 353.0
HAILEY TOWER 125.6 (CTAF)
GND CON 121.7
UNICOM 122.95
SEE INSET
HISPA
LOCIR
OLUYA
(MAP)
(FAF)
JESEP
HEVAG
(IF)
WTSOX
8500
Max 200 KIAS
MISSED APPROACH
RUYLO
CULOK
CUTLA
NUCIV
SEVTE
FODVA 120°
TO PRESN
FROM HISPA
MSA OLUYA 25 NM
13300
(RNP 0.60)
(IAF)
SOLDE
17200
SOLDE: Procedure NA
V101 SW Bnd;
V444 NW Bnd
(RNP 0.60)
(IAF)
PRESN
11700
11400
Max 230 KIAS
PRESN: Procedure NA
V500 W Bnd;
V484 S Bnd
REAPS: Procedure NA
V500 E Bnd;
V101 SE Bnd
(RNP 0.60)
(IAF)
REAPS
10500
MENIN: Procedure NA
V500 E Bnd;
V231 S Bnd
(RNP 0.60)
(IAF)
MENIN
12500
8 NM
ELEV 5318
TDZE 5290
TDZE 5290
314° to OLUYA
HIRL Rwy 13-31
15000
LOCIR 314° tr
HISPA 314° tr
SEVTE 326° tr
NUCIV 347° tr
CUTLA 347° tr
RUYLO 302° tr
CULOK 232° tr
FODVA 162° tr
PRESN 120° tr
Procedure Turn NA
JESEP
HEVAG
WTSOX
OLUYA
7300
8500
8000
GP 3.50°
TCH 58
5.3 NM
4.7 NM
4 NM
CATEGORY A B C D
RNP 0.30 DA 6264-3 974 (1000-3) NA
AUTHORIZATION REQUIRED
HAILEY, IDAHO
Amdt 1B 17NOV11
43°30'N - 114°18'W
HAILEY/FRIEDMAN MEMORIAL (SUN)
RNAV (RNP) Y RWY 31
NW-1, 18 OCT 2012 to 15 NOV 2012
NW-1, 18 OCT 2012 to 15 NOV 2012


HAILEY, IDAHO
AL-6239 (FAA)
RNAV (GPS) W RWY 31
HAILEY/FRIEDMAN MEMORIAL (SUN)
APP CRS 323°
Rwy Idg 6631
TDZE 5290
Apt Elev 5318
Circling NA at night.
Circling NA east of Rwy 13-31.
DME/DME RNP-0.3 NA.
Visibility reduction by helicopters NA.
MISSED APPROACH: Climbing left turn to 8700 direct PRESN and hold. When authorized by ATC, climb-in-hold to 12500.
ATIS 128.225
SALT LAKE CENTER 118.05 353.0
HAILEY TOWER* 125.6 (CTAF) L
GND CON 121.7
UNICOM 122.95
6045
8468
9079
8826
6836±
RW31
7174
6739±
7988
6976
(FAF) LIBYO
7900
323°
(6)
MSA RW31 25 NM
13300
(IF) WTSOX
SOLDE
11400
089°
(11.8)
8600
039°
(7.6)
8600
292°
(9.1)
(IAF) PRESN
(IAF) OREYE
007°
187°
8 NM
8600
293°
(5.5)
MENIN
HOLD 9000
293°
113°
7 NM
Procedure NA for arrivals at SOLDE via V444 northwestbound and arrivals at PRESN via V500 westbound, V484 southbound.
Holding not required at MENIN via V500 westbound, V231 northbound.
ELEV 5318 D
5347
5340
7950 X 100
0.8% UP
TDZE 5290
323° to RW31
HIRL Rwy 13-31 L
8700
PRESN
VGSI and descent angles not coincident.
WTSOX
LIBYO
8600
323°
RW31
7900
3.11°
TCH 52
Procedure Turn NA
7.8 NM
6 NM
CATEGORY | A | B | C | D
LNAV MDA | 7080-1¼ 1790 (1800-1¼) | 7080-1½ 1790 (1800-1½) | 7080-3 1790 (1800-3) | NA
CIRCLING | 7180-1¼ 1862 (1900-1¼) | 7180-1½ 1862 (1900-1½) | 7180-3 1862 (1900-3) | NA
HAILEY, IDAHO
Amdt 2 11013
43°30'N - 114°18'W
HAILEY/FRIEDMAN MEMORIAL (SUN)
RNAV (GPS) W RWY 31
NW-1, 18 OCT 2012 to 15 NOV 2012
NW-1, 18 OCT 2012 to 15 NOV 2012


HAILEY, IDAHO
AL-6239 (FAA)
NDB/DME or GPS-A
HAILEY/FRIEDMAN MEMORIAL (SUN)
NDB/DME HLE
220
DME Chan 25
APP CRS
330°
Rwy Idg N/A
TDZE N/A
Apt Elev 5313
Occasional ADF needle swings away from the final approach course are to be expected north of missed approach point.
When control tower closed, procedure not authorized.
Procedure not authorized at night.
MISSED APPROACH: Left turn to 8000 direct HLE NDB/DME and hold.
ATIS 128.225
SALT LAKE CENTER 118.05 353.0
HAILEY TOWER ★ 125.6 (CTAF)
GND CON 121.7
UNICOM 122.95
9079
8826
6110±
6012±
6836±
7019±
8468
6270±
7339±
7653±
7174
6135±
7988
6976
Fly visual
330° 5.3 NM
(MASDL)
HLE 5
(PUWIR)
HLE 1
IAF
HAILEY
220 HLE
DME Chan 25 (108.8)
8000
330° (1)
150°
330°
SOLDE
8000
057°
(15.2)
10 NM
195°
510°
150°
8600
311°
(11.9)
8600
007°
(16.2)
KINZE
REAPS
MSA HLE 25 NM
13100
080°
270°
7900
ELEV 5313
D
13
5347
5340
7550 X 100
0.6% UP
Fly Visual
330° 5.3 NM
HIRL Rwy 13-31
8000
HLE
NDB/DME
Remain within 10 NM
(MASDL)
HLE 5
(PUWIR)
HLE 1
Fly Visual
330° 5.3 NM
150°
330°
8000
8000
4 NM
1 NM
CATEGORY A B C D
CIRCLING 8000-5 2687 (2700-5) NA
HAILEY, IDAHO
Orig-B 11013
43°30'N - 114°18'W
HAILEY/FRIEDMAN MEMORIAL (SUN)
NDB/DME or GPS-A
NW-1, 18 OCT 2012 to 15 NOV 2012
NW-1, 18 OCT 2012 to 15 NOV 2012

(AUREL2.AUREL) 07298 SL-6239 (FAA)

AURELIA TWO DEPARTURE (RNAV)

HAILEY/ FRIEDMAN MEMORIAL (SUN)
HAILEY, IDAHO

NW-1, 18 OCT 2012 to 15 NOV 2012

GND CON 121.7
HAILEY TOWER ★ 125.6
SALT LAKE CENTER 118.05 353.0
UNICOM 122.95

TAKE-OFF OBSTACLE NOTES

Rwy 13: Multiple trees beginning 763' from DER, 3' right of centerline, up to 100' AGL/5345' MSL.

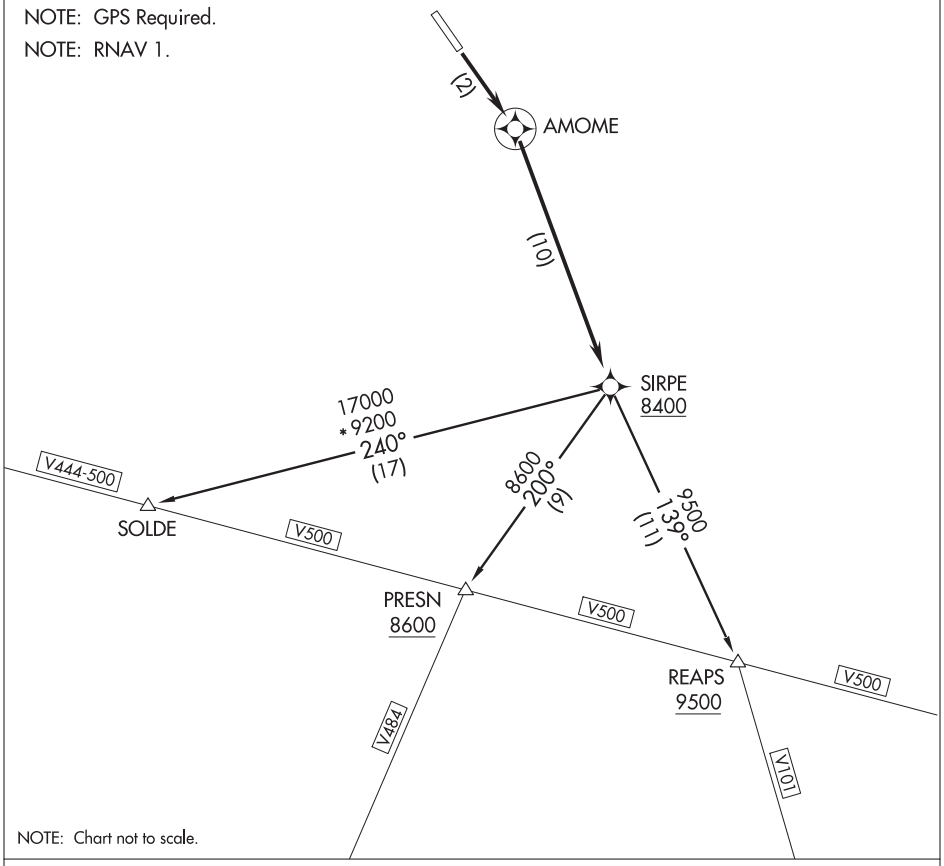
TAKE-OFF MINIMUMS

Rwy 13: Standard with minimum climb of 400' per NM to 6700. ATC climb of 400' per NM to 7300.

Rwy 31: NA, Obstacles.

NOTE: GPS Required.

NOTE: RNAV 1.



DEPARTURE ROUTE DESCRIPTION

TAKE-OFF RUNWAY 13: Climb direct AMOME, then climbing right turn direct SIRPE to cross SIRPE; cross SIRPE at or above 8400, Thence....via (Transition).

PRESN TRANSITION (AUREL2.PRESN)

REAPS TRANSITION (AUREL2.REAPS)

SOLDE TRANSITION (AUREL2.SOLDE)

AURELIA TWO DEPARTURE (RNAV)
(AUREL2.AUREL) 07298
HAILEY, IDAHO
HAILEY/ FRIEDMAN MEMORIAL (SUN)

APPENDIX C
DETAILED COST ESTIMATES

Item	Unit Cost	Unit	Alternative 1 (Runway East/Hwy East) Quantity	Alternative 1 (Runway East/Hwy East) Item Cost	Alternative 2 (Runway East/Hwy West) Quantity	Alternative 2 (Runway East/Hwy West) Item Cost	Alternative 3 (West) Quantity	Alternative 3 (West) Item Cost	Alternative 4 (South and Twist) Quantity	Alternative 4 (South and Twist) Item Cost
Site Work										
Topsoil Strip/Replace	$1.00	SY	825,000	$825,000.00	825,000	$825,000.00	805,000	$805,000.00	660,000	$660,000.00
Excavation to Embankment	$10.00	CY	300,000	$3,000,000.00	300,000	$3,000,000.00	400,000	$4,000,000.00	500,000	$5,000,000.00
Excavation To Be Disposed Offsite	$15.00	CY	0	$0.00	0	$0.00	0	$0.00	0	$0.00
Unsuitable Overdepth Excavation	$25.00	CY	30,000	$750,000.00	30,000	$750,000.00	40,000	$1,000,000.00	50,000	$1,250,000.00
Storm Drainage	Varies	LS	1	$1,000,000.00	1	$1,000,000.00	1	$1,000,000.00	1	$1,000,000.00
Fencing	$22.00	LF	14,000	$308,000.00	18,000	$396,000.00	11,000	$242,000.00	21,000	$462,000.00
Gates	$25,000.00	Each	5	$125,000.00	5	$125,000.00	5	$125,000.00	5	$125,000.00
Perimeter/Access Road	$10.00	LF	13,500	$135,000.00	18,000	$180,000.00	14,000	$140,000.00	21,000	$210,000.00
Wetland Mitigation										
Pipe Existing Canal	$120.00	LF	1,600	$192,000.00	1,600	$192,000.00	1,800	$216,000.00	4,300	$516,000.00
Re-establishment	$100,000.00	Acre	0.7	$70,000.00	0.7	$70,000.00	0.8	$80,000.00	2.0	$200,000.00
Subtotal, Site Work Direct Costs				$6,405,000.00		$6,538,000.00		$7,608,000.00		$9,423,000.00
Indirect Costs (Mobilization, Safety, Etc.)	10%			$640,500.00		$653,800.00		$760,800.00		$942,300.00
Subtotal, Site Work				**$7,045,500.00**		**$7,191,800.00**		**$8,368,800.00**		**$10,365,300.00**
Airfield										
Pavement Removal	$1.50	SY	180,000	$270,000.00	180,000	$270,000.00	367,000	$550,500.00	210,333	$315,500.00
Runway										
Pavement (100'x7,500')	$85.00	SY	84,000	$7,140,000.00	84,000	$7,140,000.00	84,000	$7,140,000.00	84,000	$7,140,000.00
Shoulders (20')	$10.00	SY	34,000	$340,000.00	34,000	$340,000.00	34,000	$340,000.00	34,000	$340,000.00
Edge Drains	$15.00	LF	15,000	$225,000.00	15,000	$225,000.00	15,000	$225,000.00	15,000	$225,000.00
Markings	$50,000.00	LS	1	$50,000.00	1	$50,000.00	1	$50,000.00	1	$50,000.00
Connecting Taxiways										
Pavement (50')	$80.00	SY	17,300	$1,384,000.00	17,300	$1,384,000.00	13,600	$1,088,000.00	24,000	$1,920,000.00
Shoulders (20')	$10.00	SY	7,200	$72,000.00	7,200	$72,000.00	5,800	$58,000.00	11,000	$110,000.00
Edge Drains	$15.00	LF	3,250	$48,750.00	3,250	$48,750.00	2,600	$39,000.00	5,000	$75,000.00
Markings	$3,000.00	Each	5	$15,000.00	5	$15,000.00	4	$12,000.00	7	$21,000.00
Parallel Taxiway										
Pavement (50')	$80.00	SY	66,000	$5,280,000.00	66,000	$5,280,000.00	42,000	$3,360,000.00	72,000	$5,760,000.00
Shoulders (20')	$10.00	SY	29,000	$290,000.00	29,000	$290,000.00	28,000	$280,000.00	50,000	$500,000.00
Edge Drains	$15.00	LF	13,000	$195,000.00	13,000	$195,000.00	11,250	$168,750.00	23,000	$345,000.00
Markings	$15,000.00	LS	1	$15,000.00	1	$15,000.00	1	$15,000.00	2	$30,000.00
Terminal Apron										
Pavement	$80.00	SY	12,100	$968,000.00	12,100	$968,000.00	24,800	$1,984,000.00	0	$0.00
Markings	$1,000.00	LS	1	$1,000.00	1	$1,000.00	1	$1,000.00	1	$1,000.00
Deconfliction Aprons										
Pavement	$80.00	SY	5,000	$400,000.00	5,000	$400,000.00	5,000	$400,000.00	12,000	$960,000.00
Markings	$500.00	LS	1	$500.00	1	$500.00	1	$500.00	2	$1,000.00
GA Aprons/Taxilanes										
Pavement	$75.00	SY	18,000	$1,350,000.00	18,000	$1,350,000.00	154,000	$11,550,000.00	34,000	$2,550,000.00
Markings	$2,000.00	LS	2	$4,000.00	2	$4,000.00	4	$8,000.00	1	$2,000.00
Electrical										
HIRLs	$30.00	LF	15,000	$450,000.00	15,000	$450,000.00	15,000	$450,000.00	15,000	$450,000.00
MITLs	$25.00	LF	16,000	$400,000.00	16,000	$400,000.00	14,000	$350,000.00	27,000	$675,000.00
Vault	$150,000.00	LS	1	$150,000.00	1	$150,000.00	1	$150,000.00	0	$0.00
Signs	$6,000.00	Each	30	$180,000.00	30	$180,000.00	50	$300,000.00	50	$300,000.00
NAVAIDs										
Relocate PAPIs	$50,000.00	LS	1	$50,000.00	1	$50,000.00	1	$50,000.00	1	$50,000.00
Relocate AWOS	$50,000.00	LS	1	$50,000.00	1	$50,000.00	1	$50,000.00	1	$50,000.00
Terminal Modifications (Walkway)	$200,000.00	LS	1	$200,000.00	1	$200,000.00	0	$0.00	0	$0.00
Air Traffic Control Tower										
Demolish Existing	$50,000.00	LS	1	$50,000.00	1	$50,000.00	1	$50,000.00	1	$50,000.00
Construct New Tower	$5,100,000.00	LS	1	$5,100,000.00	1	$5,100,000.00	1	$5,100,000.00	1	$5,100,000.00
Subtotal, Airfield Direct Costs				$24,678,250.00		$24,678,250.00		$33,769,750.00		$27,020,500.00
Indirect Costs (Mobilization, Safety, Etc.)	10%			$2,467,825.00		$2,467,825.00		$3,376,975.00		$2,702,050.00
Subtotal, Airfield				**$27,146,075.00**		**$27,146,075.00**		**$37,146,725.00**		**$29,722,550.00**
Infrastructure										
Airport Access Road	$75.00	LF	1,200	$90,000.00	1,200	$90,000.00	5,000	$375,000.00	0	$0.00
Utilities (Dry and Wet)	Varies	LS	1	$100,000.00	1	$100,000.00	1	$250,000.00	1	$100,000.00
Subtotal, Infrastructure Direct Costs				$190,000.00		$100,000.00		$250,000.00		$100,000.00
Indirect Costs (Mobilization, Safety, Etc.)	10%			$19,000.00		$10,000.00		$25,000.00		$10,000.00
Subtotal, Infrastructure				**$209,000.00**		**$110,000.00**		**$275,000.00**		**$110,000.00**
Subtotal, Airfield Construction				**$34,400,575.00**		**$34,447,875.00**		**$45,790,525.00**		**$40,197,850.00**
Construction Contingency	10%			$3,440,057.50		$3,444,787.50		$4,579,052.50		$4,019,785.00
Planning	5%			$1,720,028.75		$1,722,393.75		$2,289,526.25		$2,009,892.50
Engineering	20%			$6,880,115.00		$6,889,575.00		$9,158,105.00		$8,039,570.00
Total, Construction				**$46,440,776.25**		**$46,504,631.25**		**$61,817,208.75**		**$54,267,097.50**

Item	Unit Cost	Unit	Alternative 1 (Runway East/Hwy East) Quantity	Alternative 1 (Runway East/Hwy East) Item Cost	Alternative 2 (Runway East/Hwy West) Quantity	Alternative 2 (Runway East/Hwy West) Item Cost	Alternative 3 (West) Quantity	Alternative 3 (West) Item Cost	Alternative 4 (South and Twist) Quantity	Alternative 4 (South and Twist) Item Cost
Highway Relocation										
Pavement Removal	$1.50	SY	72,000	$108,000.00	95,000	$142,500.00	0	$0.00	0	$0.00
New Pavement Construction	$55.00	SY	100,000	$5,500,000.00	145,000	$7,975,000.00	0	$0.00	0	$0.00
Curb/Gutter	$15.00	LF	26,000	$390,000.00	34,000	$510,000.00	0	$0.00	0	$0.00
New Pedestrian Path	$25.00	LF	12,000	$300,000.00	0	$0.00	0	$0.00	0	$0.00
Relocate Signal	$150,000.00	Each	3	$450,000.00	2	$300,000.00	0	$0.00	0	$0.00
Clearing and Grading	$10.00	SY	0	$0.00	137,000	$1,370,000.00	0	$0.00	0	$0.00
Sound Wall	$600.00	LF	11,500	$6,900,000.00	8,000	$4,800,000.00	0	$0.00	0	$0.00
Subtotal, Highway Direct Costs				$13,648,000.00		$15,097,500.00		$0.00		$0.00
Indirect Costs (Mobilization, Safety, Etc.)	10%			$1,364,800.00		$1,509,750.00		$0.00		$0.00
Subtotal, Highway Relocation				**$15,012,800.00**		**$16,607,250.00**		**$0.00**		**$0.00**
Construction Contingency	10%			$1,501,280.00		$1,660,725.00		$0.00		$0.00
Planning	5%			$750,640.00		$830,362.50		$0.00		$0.00
Engineering	20%			$3,002,560.00		$3,321,450.00		$0.00		$0.00
Environmental Impact Study Update	$ 400,000.00	LS	1	$400,000.00	1	$400,000.00	0	$0.00	0	$0.00
Total, Highway Relocation				**$20,667,280.00**		**$22,819,787.50**		**$0.00**		**$0.00**
Property Acquisition/Facility Relocation										
Residential Homes										
Purchase Home	$150,000.00	Each	105	$15,750,000.00	30	$4,500,000.00	4	$600,000.00	1	$150,000.00
Residential Property	$150,000.00	Acre	0	$0.00	0	$0.00	0	$0.00	18	$2,700,000.00
Relocation Expense	$25,000.00	Each	105	$2,625,000.00	30	$750,000.00	4	$100,000.00	1	$25,000.00
Demolish	$15,000.00	Each	105	$1,575,000.00	30	$450,000.00	4	$60,000.00	1	$15,000.00
Churches										
Purchase	$1,000,000.00	Each	1	$1,000,000.00	0	$0.00	0	$0.00	0	$0.00
Demolish	$40,000.00	Each	1	$40,000.00	0	$0.00	0	$0.00	0	$0.00
Light Industrial/Commercial										
Land Purchase	$450,000.00	Acre	0	$0.00	0	$0.00	6	$2,700,000.00	0	$0.00
Existing Facility Purchase	$100,000.00	Each	0	$0.00	0	$0.00	12	$1,200,000.00	0	$0.00
Demolish Existing Structures	$5.00	SF	0	$0.00	0	$0.00	54,781	$273,905.00	0	$0.00
Ranch										
Agricultural Land	$100,000.00	Acre	47	$4,700,000.00	216	$21,600,000.00	196	$19,600,000.00	523	$52,300,000.00
Light Industrial Land	$150,000.00	Acre	0	$0.00	0	$0.00	3	$450,000.00	0	$0.00
Building Demolition	$15,000.00	Each	4	$60,000.00	4	$60,000.00	13	$195,000.00	4	$60,000.00
Irrigation Modifications	$50,000.00	LS	1	$50,000.00	1	$50,000.00	0	$0.00	0	$0.00
Tree Removal	$50,000.00	LS	1	$50,000.00	1	$50,000.00	1	$50,000.00	3	$150,000.00
Acquire ROW from ITD for Runway OFA	$150,000.00	Acre	60	$9,000,000.00	60	$9,000,000.00	0	$0.00	0	$0.00
Hangars										
Lease Buyout	Varies	LS	0	$0.00	0	$0.00	0	$0.00	0	$0.00
Demolition	$5.00	SF	34,000	$170,000.00	34,000	$170,000.00	250,000	$1,250,000.00	0	$0.00
Replacement Construction	$100.00	SF	34,000	$3,400,000.00	34,000	$3,400,000.00	250,000	$25,000,000.00	0	$0.00
Terminal										
Demolition	$5.00	SF	0	$0.00	0	$0.00	28,000	$140,000.00	0	$0.00
Construction	$200.00	SF	0	$0.00	0	$0.00	28,000	$5,600,000.00	0	$0.00
Airport Administration Office										
Demolition	$5.00	SF	0	$0.00	0	$0.00	2,150	$10,750.00	0	$0.00
Construction	$125.00	SF	0	$0.00	0	$0.00	2,150	$268,750.00	0	$0.00
Airport Operations and ARFF										
Demolition	$5.00	SF	0	$0.00	0	$0.00	4,800	$24,000.00	0	$0.00
Construction	$200.00	SF	0	$0.00	0	$0.00	4,800	$960,000.00	0	$0.00
Airport Operations Storage										
Demolition	$5.00	SF	0	$0.00	0	$0.00	3,400	$17,000.00	0	$0.00
Construction	$100.00	SF	0	$0.00	0	$0.00	3,400	$340,000.00	0	$0.00
Airport Operations Covered Storage										
Demolition	$5.00	SF	0	$0.00	0	$0.00	2,100	$10,500.00	0	$0.00
Construction	$50.00	SF	0	$0.00	0	$0.00	2,100	$105,000.00	0	$0.00
FBO Office										
Demolition	$5.00	SF	0	$0.00	0	$0.00	9,500	$47,500.00	9,500	$47,500.00
Construction	$150.00	SF	0	$0.00	0	$0.00	9,500	$1,425,000.00	9,500	$1,425,000.00
FBO Hangar										
Demolition	$5.00	SF	0	$0.00	0	$0.00	31,000	$155,000.00	31,000	$155,000.00
Construction	$125.00	SF	0	$0.00	0	$0.00	31,000	$3,875,000.00	31,000	$3,875,000.00
Subtotal, Property Acquisition/Facility Relocation				**$38,420,000.00**		**$40,030,000.00**		**$64,457,405.00**		**$60,902,500.00**
Contingency	10%			$3,842,000.00		$4,003,000.00		$6,445,740.50		$6,090,250.00
Consulting (Legal, Survey, Real Estate, Admin.)	20%			$7,684,000.00		$8,006,000.00		$12,891,481.00		$12,180,500.00
Environmental Studies				$2,000,000.00		$2,000,000.00		$2,000,000.00		$2,000,000.00
Total, Property Acquisition/Facility Relocation				**$51,946,000.00**		**$54,039,000.00**		**$85,794,626.50**		**$81,173,250.00**
TOTAL COSTS				**$119,054,056.25**		**$123,363,418.75**		**$147,611,835.25**		**$135,440,347.50**

Item	Unit Cost	Unit	Alternative 5 (1700' South) Quantity	Alternative 5 (1700' South) Item Cost	Alternative 6 (No Expansion) Quantity	Alternative 6 (No Expansion) Item Cost	Alternative 7 (Modest Expansion) Quantity	Alternative 7 (Modest Expansion) Item Cost
Site Work								
Topsoil Strip/Replace	$1.00	SY	610,000	$610,000.00	580,000	$580,000.00	580,000	$580,000.00
Excavation to Embankment	$10.00	CY	250,000	$2,500,000.00	55,000	$550,000.00	300,000	$3,000,000.00
Excavation To Be Disposed Offsite	$15.00	CY	0	$0.00	245,000	$3,675,000.00	0	$0.00
Unsuitable Overdepth Excavation	$25.00	CY	25,000	$625,000.00	30,000	$750,000.00	30,000	$750,000.00
Storm Drainage	Varies	LS	1	$500,000.00	1	$250,000.00	1	$500,000.00
Fencing	$22.00	LF	12,900	$283,800.00	11,000	$242,000.00	14,000	$308,000.00
Gates	$25,000.00	Each	5	$125,000.00	5	$125,000.00	5	$125,000.00
Perimeter/Access Road	$10.00	LF	13,000	$130,000.00	10,000	$100,000.00	10,000	$100,000.00
Wetland Mitigation								
Pipe Existing Canal	$120.00	LF	1,600	$192,000.00	0	$0.00	0	$0.00
Re-establishment	$100,000.00	Acre	0.7	$70,000.00	0.0	$0.00	0.0	$0.00
Subtotal, Site Work Direct Costs				$5,035,800.00		$6,272,000.00		$5,363,000.00
Indirect Costs (Mobilization, Safety, Etc.)	10%			$503,580.00		$627,200.00		$536,300.00
Subtotal, Site Work				**$5,539,380.00**		**$6,899,200.00**		**$5,899,300.00**
Airfield								
Pavement Removal	$1.50	SY	110,000	$165,000.00	75,550	$113,325.00	85,000	$127,500.00
Runway								
Pavement (100'x7,500')	$85.00	SY	19,000	$1,615,000.00	0	$0.00	0	$0.00
Shoulders (20')	$10.00	SY	32,000	$320,000.00	0	$0.00	0	$0.00
Edge Drains	$15.00	LF	14,350	$215,250.00	0	$0.00	0	$0.00
Markings	$50,000.00	LS	1	$50,000.00	0	$0.00	0	$0.00
Connecting Taxiways								
Pavement (50')	$80.00	SY	6,000	$480,000.00	12,200	$976,000.00	12,200	$976,000.00
Shoulders (20')	$10.00	SY	6,000	$60,000.00	9,500	$95,000.00	9,500	$95,000.00
Edge Drains	$15.00	LF	2,550	$38,250.00	4,200	$63,000.00	4,200	$63,000.00
Markings	$3,000.00	Each	4	$12,000.00	5	$15,000.00	5	$15,000.00
Parallel Taxiway								
Pavement (50')	$80.00	SY	43,000	$3,440,000.00	42,200	$3,376,000.00	42,200	$3,376,000.00
Shoulders (20')	$10.00	SY	29,200	$292,000.00	25,500	$255,000.00	25,500	$255,000.00
Edge Drains	$15.00	LF	13,100	$196,500.00	11,400	$171,000.00	11,400	$171,000.00
Markings	$15,000.00	LS	1	$15,000.00	1	$15,000.00	1	$15,000.00
Terminal Apron								
Pavement	$80.00	SY	12,100	$968,000.00	12,500	$1,000,000.00	14,000	$1,120,000.00
Markings	$1,000.00	LS	1	$1,000.00	1	$1,000.00	1	$1,000.00
Deconfliction Aprons								
Pavement	$80.00	SY	9,550	$764,000.00	11,000	$880,000.00	14,000	$1,120,000.00
Markings	$500.00	LS	1	$500.00	1	$500.00	1	$500.00
GA Aprons/Taxilanes								
Pavement	$75.00	SY	11,318	$848,875.00	10,000	$750,000.00	10,000	$750,000.00
Markings	$2,000.00	LS	1	$2,000.00	1	$2,000.00	1	$2,000.00
Electrical								
HIRLs	$30.00	LF	14,350	$430,500.00	0	$0.00	0	$0.00
MITLs	$25.00	LF	15,650	$391,250.00	15,600	$390,000.00	15,600	$390,000.00
Vault	$150,000.00	LS	1	$150,000.00	1	$150,000.00	1	$150,000.00
Signs	$6,000.00	Each	16	$96,000.00	24	$144,000.00	24	$144,000.00
NAVAIDs								
Relocate PAPIs	$50,000.00	LS	1	$50,000.00	0	$0.00	0	$0.00
Relocate AWOS	$50,000.00	LS	1	$50,000.00	1	$50,000.00	1	$50,000.00
Terminal Modifications (Walkway)	$200,000.00	LS	1	$200,000.00	1	$200,000.00	1	$200,000.00
Air Traffic Control Tower								
Demolish Existing	$50,000.00	LS	1	$50,000.00	1	$50,000.00	1	$50,000.00
Construct New Tower	$5,100,000.00	LS	1	$5,100,000.00	1	$5,100,000.00	1	$5,100,000.00
Subtotal, Airfield Direct Costs				$16,001,125.00		$13,796,825.00		$14,171,000.00
Indirect Costs (Mobilization, Safety, Etc.)	10%			$1,600,112.50		$1,379,682.50		$1,417,100.00
Subtotal, Airfield				**$17,601,237.50**		**$15,176,507.50**		**$15,588,100.00**
Infrastructure								
Airport Access Road	$75.00	LF	1,200	$90,000.00	0	$0.00	1,200	$90,000.00
Utilities (Dry and Wet)	Varies	LS	1	$100,000.00	1	$50,000.00	1	$100,000.00
Subtotal, Infrastructure Direct Costs				$100,000.00		$50,000.00		$100,000.00
Indirect Costs (Mobilization, Safety, Etc.)	10%			$10,000.00		$5,000.00		$10,000.00
Subtotal, Infrastructure				**$110,000.00**		**$55,000.00**		**$110,000.00**
Subtotal, Airfield Construction				**$23,250,617.50**		**$22,130,707.50**		**$21,597,400.00**
Construction Contingency	10%			$2,325,061.75		$2,213,070.75		$2,159,740.00
Planning	5%			$1,162,530.88		$1,106,535.38		$1,079,870.00
Engineering	20%			$4,650,123.50		$4,426,141.50		$4,319,480.00
Total, Construction				**$31,388,333.63**		**$29,876,455.13**		**$29,156,490.00**

Item	Unit Cost	Unit	Alternative 5 (1700' South) Quantity	Alternative 5 (1700' South) Item Cost	Alternative 6 (No Expansion) Quantity	Alternative 6 (No Expansion) Item Cost	Alternative 7 (Modest Expansion) Quantity	Alternative 7 (Modest Expansion) Item Cost
Highway Relocation								
Pavement Removal	$1.50	SY	45,000	$67,500.00	0	$0.00	38,000	$57,000.00
New Pavement Construction	$55.00	SY	52,000	$2,860,000.00	0	$0.00	71,000	$3,905,000.00
Curb/Gutter	$15.00	LF	21,500	$322,500.00	0	$0.00	17,000	$255,000.00
New Pedestrian Path	$25.00	LF	400	$10,000.00	0	$0.00	400	$10,000.00
Relocate Signal	$150,000.00	Each	1	$150,000.00	0	$0.00	2	$300,000.00
Clearing and Grading	$10.00	SY	0	$0.00	0	$0.00	0	$0.00
Sound Wall	$600.00	LF	11,000	$6,600,000.00	0	$0.00	8,750	$5,250,000.00
Subtotal, Highway Direct Costs				$10,010,000.00		$0.00		$9,777,000.00
Indirect Costs (Mobilization, Safety, Etc.)	10%			$1,001,000.00		$0.00		$977,700.00
Subtotal, Highway Relocation				**$11,011,000.00**		**$0.00**		**$10,754,700.00**
Construction Contingency	10%			$1,101,100.00		$0.00		$1,075,470.00
Planning	5%			$550,550.00		$0.00		$537,735.00
Engineering	20%			$2,202,200.00		$0.00		$2,150,940.00
Environmental Impact Study Update	$ 400,000.00	LS	1	$400,000.00	0	$0.00	1	$400,000.00
Total, Highway Relocation				**$15,264,850.00**		**$0.00**		**$14,918,845.00**
Property Acquisition/Facility Relocation								
Residential Homes								
Purchase Home	$150,000.00	Each	0	$0.00	0	$0.00	0	$0.00
Residential Property	$150,000.00	Acre	0	$0.00	0	$0.00	0	$0.00
Relocation Expense	$25,000.00	Each	0	$0.00	0	$0.00	0	$0.00
Demolish	$15,000.00	Each	0	$0.00	0	$0.00	0	$0.00
Churches								
Purchase	$1,000,000.00	Each	0	$0.00	0	$0.00	0	$0.00
Demolish	$40,000.00	Each	0	$0.00	0	$0.00	0	$0.00
Light Industrial/Commercial								
Land Purchase	$450,000.00	Acre	0	$0.00	0	$0.00	0	$0.00
Existing Facility Purchase	$100,000.00	Each	0	$0.00	0	$0.00	0	$0.00
Demolish Existing Structures	$5.00	SF	0	$0.00	0	$0.00	0	$0.00
Ranch								
Agricultural Land	$100,000.00	Acre	110	$11,000,000.00	0	$0.00	33	$3,300,000.00
Light Industrial Land	$150,000.00	Acre	3	$450,000.00	0	$0.00	3	$450,000.00
Building Demolition	$15,000.00	Each	5	$75,000.00	0	$0.00	0	$0.00
Irrigation Modifications	$50,000.00	LS	0	$0.00	0	$0.00	0	$0.00
Tree Removal	$50,000.00	LS	1	$50,000.00	0	$0.00	0	$0.00
Acquire ROW from ITD for Runway OFA	$150,000.00	Acre	15	$2,250,000.00	0	$0.00	15	$2,250,000.00
Hangars								
Lease Buyout	Varies	LS	0	$0.00	1	$50,000.00	0	$0.00
Demolition	$5.00	SF	36,000	$180,000.00	52,000	$260,000.00	52,000	$260,000.00
Replacement Construction	$100.00	SF	36,000	$3,600,000.00	52,000	$5,200,000.00	52,000	$5,200,000.00
Terminal								
Demolition	$5.00	SF	0	$0.00	0	$0.00	0	$0.00
Construction	$200.00	SF	0	$0.00	0	$0.00	0	$0.00
Airport Administration Office								
Demolition	$5.00	SF	0	$0.00	2,150	$10,750.00	0	$0.00
Construction	$125.00	SF	0	$0.00	2,150	$268,750.00	0	$0.00
Airport Operations and ARFF								
Demolition	$5.00	SF	0	$0.00	0	$0.00	0	$0.00
Construction	$200.00	SF	0	$0.00	0	$0.00	0	$0.00
Airport Operations Storage								
Demolition	$5.00	SF	0	$0.00	0	$0.00	0	$0.00
Construction	$100.00	SF	0	$0.00	0	$0.00	0	$0.00
Airport Operations Covered Storage								
Demolition	$5.00	SF	0	$0.00	0	$0.00	0	$0.00
Construction	$50.00	SF	0	$0.00	0	$0.00	0	$0.00
FBO Office								
Demolition	$5.00	SF	0	$0.00	0	$0.00	0	$0.00
Construction	$150.00	SF	0	$0.00	0	$0.00	0	$0.00
FBO Hangar								
Demolition	$5.00	SF	0	$0.00	0	$0.00	0	$0.00
Construction	$125.00	SF	0	$0.00	0	$0.00	0	$0.00
Subtotal, Property Acquisition/Facility Relocation				**$17,605,000.00**		**$5,789,500.00**		**$11,460,000.00**
Contingency	10%			$1,760,500.00		$578,950.00		$1,146,000.00
Consulting (Legal, Survey, Real Estate, Admin.)	20%			$3,521,000.00		$1,157,900.00		$2,292,000.00
Environmental Studies				$2,000,000.00		$250,000.00		$500,000.00
Total, Property Acquisition/Facility Relocation				**$24,886,500.00**		**$7,776,350.00**		**$15,398,000.00**
TOTAL COSTS				**$71,539,683.63**		**$37,652,805.13**		**$59,473,335.00**

APPENDIX D

PROPOSED MODIFICATION OF AIRPORT DESIGN STANDARDS

APPENDIX D – PROPOSED MODIFICIATION OF AIRPORT DESIGN STANDARDS

As discussed in Chapter 3, the current approved Airport Layout Plan for SUN lists several non-standard conditions relative to airport design standards. Alternatives 5-7 included in Chapter 5 propose several Modification of Airport Design Standards (MOS) to improve existing non-standard conditions while maintaining an acceptable level of safety at the airport. Use of MOS is *not* allowed for RSA dimensional standards and SUN will be required to comply with the Congressional RSA mandate by the end of 2015.

In 2011, the Transportation Research Board (TRB) published Airport Cooperative Research Program (ACRP) Report 51 – *Risk Assessment Method to Support Modification of Airfield Separation Standards*. This ACRP report provides a process to justify MOS for airports where standards cannot be met using practical means. This document is recognized by the FAA and was used in the development of the proposed MOS included in this analysis.

A Technical Memo was prepared that summarizes the analysis used in development of these MOS. A copy of that Memo is included in this Appendix.

Proposed draft MOS are also included in this Appendix. The draft MOS have been developed in the current FAA format. Further coordination with the FAA Airports District and Regional Offices regarding the approval of the proposed draft MOS will be necessary.

- Runway OFA
- Runway-Taxiway Separation
- Taxiway OFA
- Runway OFA Grading
- RSA Grading
- Runway Centerline to Aircraft Parking

APPENDIX D - MOS TECHNICAL MEMO

Technical Memorandum

RE: SUN Modifications of Design Standards

Prepared by: Nathan Cuvala, T-O Engineers

The intent of this memorandum is to explain the methodology behind the requests for Modifications of Airport Design Standards (MOS) at the Friedman Memorial Airport. The requested MOS forms will be submitted separately.

1. BACKGROUND

The Friedman Memorial Airport is located in Hailey, Idaho. This airport serves the Wood River Valley region of Idaho, including the Sun Valley resort area. The Airport is currently served by two commercial service air carriers: SkyWest and Horizon Air. A large number of corporate jets and other general aviation aircraft also use the airfield for business, recreation and travel to and from the large number of second homes in the area. The Friedman Memorial Airport Authority (FMAA) governs and manages the airport under a joint powers agreement between the City of Hailey and Blaine County, who jointly sponsor the airport.

Traffic by aircraft such as the Bombardier Q400, operated by Horizon Air, and several models of large GA aircraft (e.g., Gulfstream G-V and Bombardier Global Express) dictates the Airport Reference Code for the airport is C-III. Due to the geometry of the existing site, the airport does not meet current FAA design standards for many criteria including:

- Runway to Parallel Taxiway Separation
- Parallel Taxiway Object Free Area
- Runway Object Free Area Grading
- Runway Object Free Area (OFA) Width
- Runway Safety Area (RSA) Grading
- Runway to Aircraft Parking Separation

Until recently, the planned solution to meeting these standards was to relocate the airport to a new site to the south and away from the valley cities. The Federal Aviation Administration (FAA) was conducting an Environmental Impact Statement (EIS) study for a new location until the decision was made to suspend the study in August 2011, due to financial and environmental concerns with the sites under consideration.

A relocated airport is still the ultimate solution, as it will provide airport infrastructure that will meet standards, accommodate all foreseeable demand and provide a reliable all-weather airport. Locating a site and building a new airport is likely to take time, however, and some improvements are required in order for the Airport to survive and thrive at the existing site.

The FMAA has developed a plan to meet standards at the existing site wherever possible and provide an equivalent level of safety where standards can't be met. This technical memorandum will provide the background and justification for each of the requested MOS. These MOS are

seen as an interim solution while the sponsor continues the process of locating a site for the future airport.

2. METHODOLOGY

In 2011, the Transportation Research Board (TRB) released Airport Cooperative Research Program (ACRP) Report #51 – Risk Assessment Method to Support Modifications of Airfield Separation Standards. The ACRP is funded by the Federal Aviation Administration (FAA). This report was used to support several of the MOS requested at the Friedman Memorial Airport. Engineering Brief (EB) #78 – Linear Equations for Evaluating the Separation of Airplane Design Groups on Parallel Taxiways and Taxiways to Fixed/Movable Objects was also used.

The following four MOS listed below were modeled in accordance with Appendix A – Risk Assessment Methodology of ACRP Report #51:

- Runway to Parallel Taxiway Separation
- Runway to Aircraft Parking Separation
- Runway Object Free Area (OFA) Width
- Parallel Taxiway Object Free Area

This report uses a series of risk plots along with the annual number of operations to analyze the risk associated with either Runway to Parallel Taxiway, Runway to Object, or Taxiway to Object Separations. The operations numbers at SUN over the last decade were reviewed to determine the average annual number of operations. The average annual number of operations from 1990 to 2011 was approximately 50,000 operations. Since 2001, operations levels steadily declined until 2008 when they leveled off at approximately 30,000 annual operations. For the purpose of this risk analysis, the average annual operation level was used as it was deemed to be more conservative.

For operations involving the runway, the risk is analyzed based on three distinct phases of flight:

- Landing - Airborne Phase
- Landing - Ground Phase
- Takeoff

The separation distance from the runway centerline to either the parallel taxiway centerline or an object is used with the associated risk plot to calculate the risk of collision per operation. An example of one of the risk plots is shown below:

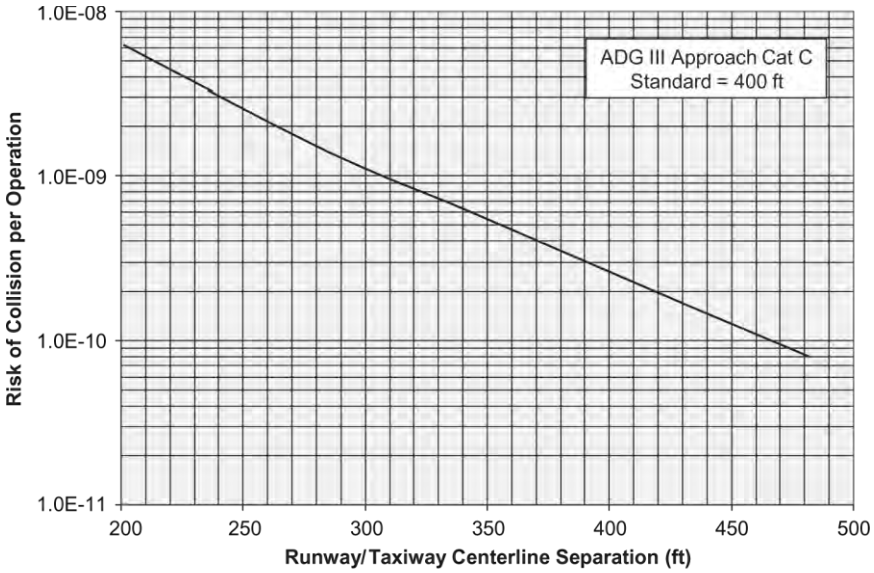


Figure AA-33. Missed approach collision risk for ADG III Cat I.

Source: ACRP Report #51

The risk of collisions per operation is then analyzed along with the number of annual airport operations for the appropriate phase of flight to determine the frequency of occurrence. The frequency of occurrence is used to determine the FAA likelihood level using Table A-3 from ACRP Report #51 which is shown below:

Table A-3. FAA likelihood levels (FAA, 2010).

	General	Airport Specific	ATC Operational	
			Per Facility	NAS-wide
Frequent A	Probability of occurrence per operation is equal to or greater than 1×10^{-3}	Expected to occur more than once per week or every 2,500 departures (4×10^{-4}), whichever occurs sooner	Expected to occur more than once per week	Expected to occur every 1–2 days
Probable B	Probability of occurrence per operation is less than 1×10^{-3}, but equal to or greater than 1×10^{-5}	Expected to occur about once every month or 250,000 departures (4×10^{-6}), whichever occurs sooner	Expected to occur about once every month	Expected to occur several times per month
Remote C	Probability of occurrence per operation is less than 1×10^{-5} but equal to or greater than 1×10^{-7}	Expected to occur about once every year or 2.5 million departures (4×10^{-7}), whichever occurs sooner	Expected to occur about once every 1–10 years	Expected to occur about once every few months
Extremely Remote D	Probability of occurrence per operation is less than 1×10^{-7} but equal to or greater than 1×10^{-9}	Expected to occur once every 10–100 years or 25 million departures (4×10^{-8}), whichever occurs sooner	Expected to occur about once every 10–100 years	Expected to occur about once every 3 years
Extremely Improbable E	Probability of occurrence per operation is less than 1×10^{-9}	Expected to occur less than once every 100 years	Expected to occur less than once every 100 years	Expected to occur less than once every 30 years

Note: Occurrence is defined per movement.

Source: ACRP Report #51

A Hazard Severity Classification is then assigned based on the worst credible outcome of an incident. The Hazard Severity Classifications were determined in accordance with Table A-4 FAA Severity Definitions from ACRP Report #51 and are shown below:

Table A-4. FAA severity definitions (FAA, 2010).

Hazard Severity Classification				
Minimal 5	**Minor 4**	**Major 3**	**Hazardous 2**	**Catastrophic 1**
No damage to aircraft but minimal injury or discomfort of little consequence to passenger(s) or workers	- Minimal damage to aircraft; - Minor injury to passengers; - Minimal unplanned airport operations limitations (i.e. taxiway closure); - Minor incident involving the use of airport emergency procedures	- Major damage to aircraft and/or minor injury to passenger(s)/ worker(s); - Major unplanned disruption to airport operations; - Serious incident; - Deduction on the airport's ability to deal with adverse conditions	- Severe damage to aircraft and/or serious injury to passenger(s)/ worker(s); - Complete unplanned airport closure; - Major unplanned operations limitations (i.e. runway closure); - Major airport damage to equipment and facilities	- Complete loss of aircraft and/or facilities or fatal injury in passenger(s)/ worker(s); - Complete unplanned airport closure and destruction of critical facilities; - Airport facilities and equipment destroyed

Source: ACRP Report #51

Using both the FAA likelihood level and the Hazard Severity Classification the risk was then analyzed using Figure A-1 FAA Risk Matrix from ACRP Report #51, shown below:

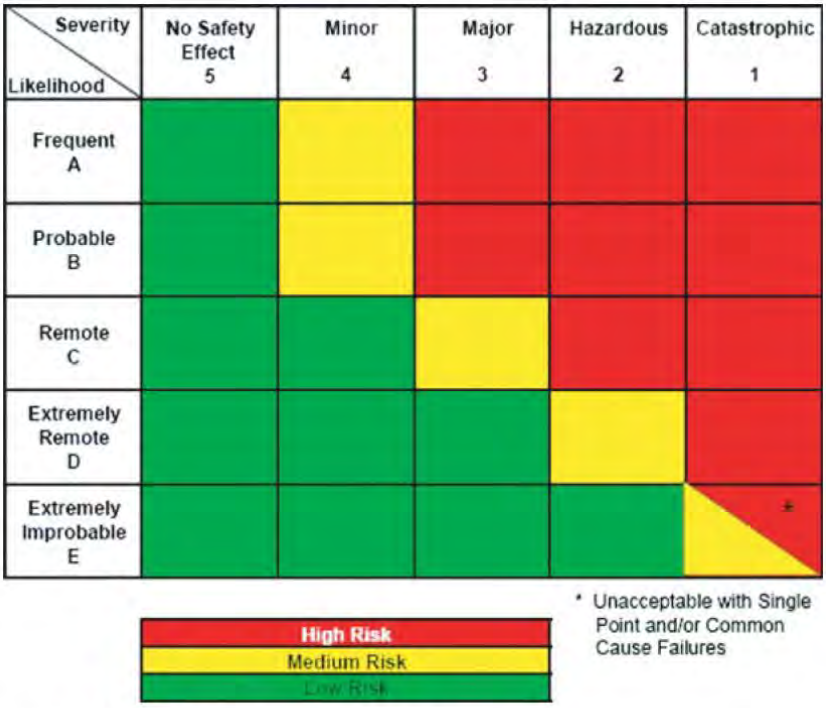


Figure A-1. FAA risk matrix (FAA, 2010).

Source: ACRP Report #51

The MOS for Parallel Taxiway Object Free Area was analyzed in accordance with Engineering Brief #78.

The MOS for both Runway Safety Area and Object Free Area grading were analyzed in accordance with the stated purpose of each of the FAA design standards in either Advisory Circular 150/5300-13A or 150/5300-13 Change 18.

3. ANALYSIS

Several of the MOS are tied directly together in that if one is not approved there is no need for the others. The first three related MOS are:

- 1A - Runway to Parallel Taxiway Separation
- 1B - Parallel Taxiway Object Free Area
- 1C - Runway Object Free Area (OFA) Grading

The remaining MOS are shown below:

- 2- Runway Object Free Area (OFA) Width
- 3- Runway Safety Area (RSA) Grading
- 4 - Runway to Aircraft Parking Separation

Several of the MOS listed above are related to MOS 1A, B or C. If MOS 3 – RSA Grading is approved, MOS 1C – Runway OFA Grading is not required. If MOS 1A, B or C are not

approved, MOS 4 – Runway to Aircraft Parking will not be applicable. In the introduction to the analysis for each MOS below, the relation to the other MOS is noted. The following table shows the relationship between each MOS.

MOS	Decision	MOS Not Applicable
1A	Not Approved	1B, 1C, 3, 4
1B	Not Approved	1A, 1C, 4
1C	Not Approved	1A, 1B, 4
3	Approved	1C
4	Not Approved	1A, 1B, 1C, 2, 3

As the relationship between each MOS is complex, it is recommended all proposed MOS be considered together. Following is the analysis of each individual MOS.

MOS 1A - Runway to Parallel Taxiway Separation

The FAA design standard for Runway to Parallel Taxiway Separation for ARC C-III is 400'. The requested MOS for Runway to Parallel Taxiway Separation of Taxiway B is 320'. This MOS is requested in conjunction with MOS 1B - Parallel Taxiway OFA and MOS 1C - Runway OFA Grading. If this MOS is not approved, MOS 4 – Runway to Aircraft Parking Separation is not required.

When analyzing the risk associated with a reduction in Runway to Parallel Taxiway Separation it is important to consider the purpose of the design standard. Appendix 8, Paragraph 1 b. of Advisory Circular 150/5300-13 Change 18 provides the design rationale for separations associated with runway to parallel taxiway:

> *"Runway to parallel taxiway/taxilane separation is determined by the landing and takeoff flight path profiles and physical characteristics of airplanes. The runway to parallel taxiway/taxilane standard precludes any part of an airplane (tail, wingtip, nose, etc.) on a parallel taxiway/taxilane centerline from being within the runway safety area or penetrating the OFZ."*

Paragraph 321 a. (1) of Advisory Circular 150/5300-13A provides the same rationale; however the reference to penetrations of the runway safety area or OFZ has been removed:

> *"These standards are determined by landing and takeoff flight path profiles and physical characteristics of aircraft."*

Additional background on the research that went into determining Runway to Parallel Taxiway Separation is further discussed on Page 5 of ACRP Report #51:

> *"In the 1960s, the FAA's Flight Standards organization and the ICAO Obstacle Clearance Panel (OCP) developed the Collision Risk Model (CRM) for ILS operations. The CRM was based on actual observation of 2,500 aircraft on an ILS precision approach to a runway. Four observations were made for each aircraft's approach. This model was used to define the area that needed to be protected on an airport when an aircraft was making an ILS approach. The runway/taxiway separation also took into account the possibility of an aircraft on landing rollout or takeoff roll veering off the runway."*

A separation to the C-III standard could be met in one of two ways, either shift Runway 13-31 and State Highway 75 to the east or shift all facilities on the airfield including the terminal, FBO facilities, ARFF, maintenance and all hangars to the west. The estimated costs of each alternative are shown below:

- Shift Runway 13-31 and State Highway 75 East - $144 Million dollars
- Shift Airfield Facilities West - $115 Million dollars

The maximum separation possible at SUN without major impacts to airfield facilities is 320' from Runway 13-31 centerline. There is a small area on the south end of the airfield where the separation could be increased to 330'; however as 320' is the controlling separation, a separation of 330' was not analyzed. The risks associated with each of the phases of flight described previously are analyzed for a Runway to Taxiway Separation of 320' below:

Airborne Landing Phase - Using the separation of 320' and Figure AA-33 in Appendix A of ACRP Report #51, the following provides a risk level 8.4E-10 or one chance in 1.2 billion landings. This can be seen in the figure below:

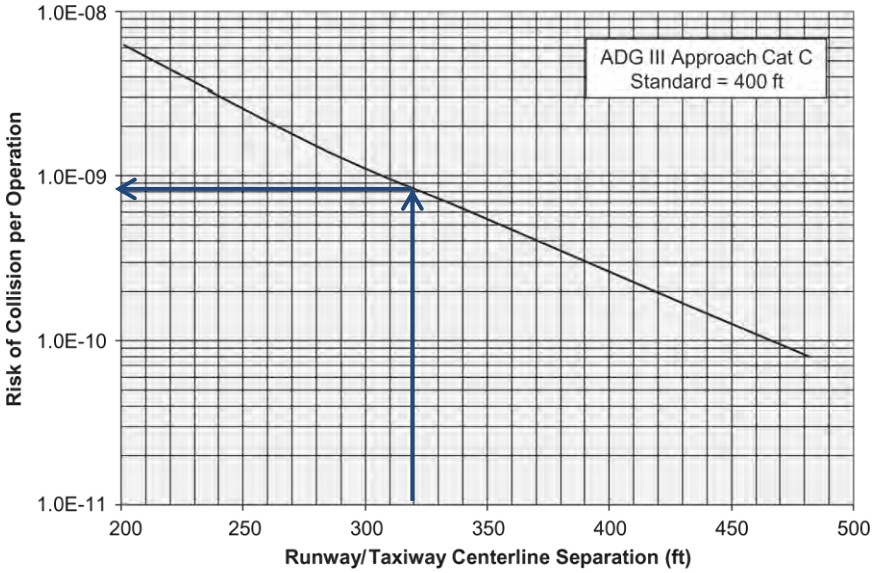


Figure AA-33. Missed approach collision risk for ADG III Cat I.

Source: ACRP Report #51

The current annual number of landing operations at SUN is approximately 25,000 or half of the 50,000 annual operations. As the risk is one incident in every 1.2 billion landings, the occurrence is calculated as 1.2 billion divided by 25,000 operations per year which equates to one incident every 47,620 years.

Landing Roll Phase - Using the separation of 320' and Figure AA-43 in Appendix A of ACRP Report #51, provides a risk level 9.0E-08 or one chance in 11 million landings. This can be seen in the figure below:

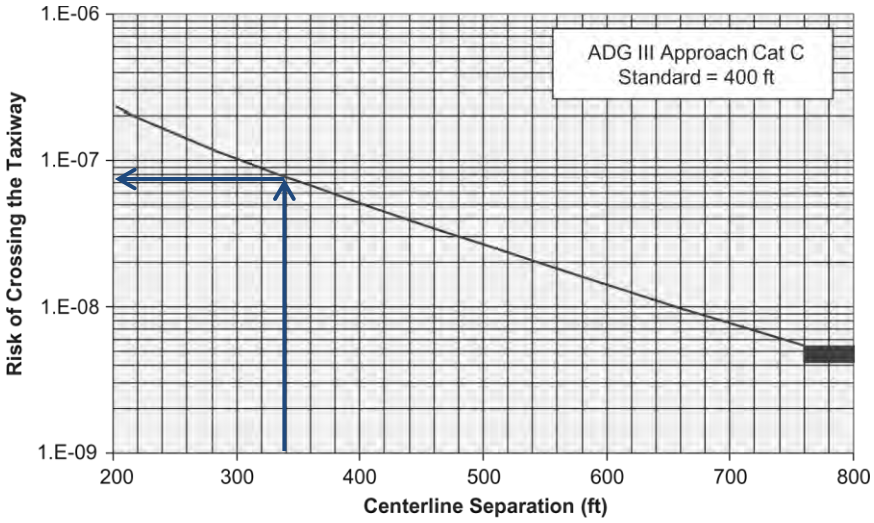


Figure AA-43. Landing veer-off collision risk for ADG III.

Source: ACRP Report #51

As the risk is one incident in every 11 million landings, the occurrence is calculated as 11 million divided by 25,000 operations per year which equates to one incident every 440 years.

Takeoff Roll Phase - Using the separation of 320' and Figure AA-50 in Appendix A of ACRP Report #51, provides a risk level 2.5E-08 or one chance in 40 million takeoffs. This can be seen in the figure below:

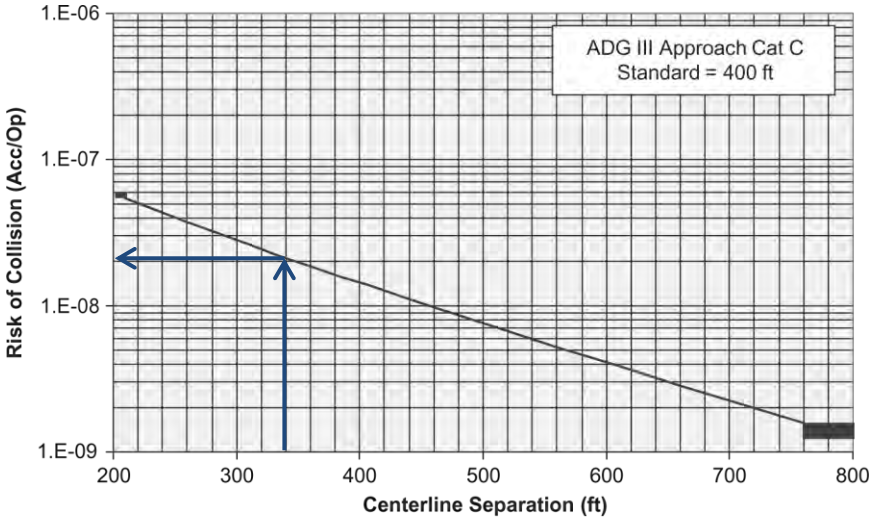


Figure AA-50. Takeoff veer-off collision risk for ADG III.

Source: ACRP Report #51

As the risk is one incident in every 40 million landings, the occurrence is calculated as 40 million divided by 25,000 operations per year which equates to one incident every 1,600 years.

Considering the risk of each phase of flight, the risk of collision during the landing roll is the controlling factor. The Hazard Severity Classification for this type of operation would be

catastrophic and the acceptable probability of occurrence is extremely improbable (1E-09) or less than once every 100 years. The following table summarizes the risk associated with each phase of flight:

Phase of Flight	Rate of Occurrence	Acceptable Level?
Airborne Phase	Once every 47,620 years	Yes
Landing Roll Phase	Once every 440 years	Yes
Takeoff Roll Phase	Once every 1,600 years	Yes

A Runway to Parallel Taxiway Separation of 320' appears to provide an acceptable level of risk. In addition a separation of 320' would keep any part of an aircraft on the taxiway from penetrating the RSA, the Runway Obstacle Free Zone (OFZ) and the Part 77 Primary Surface.

MOS 1B - Taxiway Object Free Area Width

The FAA design standard for Taxiway OFA for ARC C-III is 186'. The requested MOS for Taxiway OFA is 160'. This MOS is requested in conjunction with the MOS - 1A for Runway to Parallel Taxiway Separation and MOS - 1C Runway OFA Grading.

In the airport's current configuration, relocation of Parallel Taxiway B to a separation of 320 feet with a full C-III Taxiway OFA of 186 feet would require significant modification to existing airport facilities, along with property acquisition and removal of adjacent buildings. The estimated cost of these improvements is approximately $11 million dollars.

When considering the current and anticipated traffic at the airport, these improvements are not necessary. The published pavement strength for Runway 13-31 at SUN is 95,000 pounds. For the current fleet of all available aircraft, no aircraft with a maximum takeoff weight of 95,000 pounds or less has a wingspan of greater than 100 feet. Therefore, existing and anticipated aircraft traffic will include only aircraft with wingspans less than 100 feet.

Equation #2 from Table 1 in EB #78 gives the separation from centerline to an object as 0.7 x Wingspan + 10 feet. Using this equation and a wingspan of 100', an aircraft specific Taxiway OFA is calculated at 160 feet. For the aircraft that use and are anticipated to use the airport, this Taxiway OFA meets standards and therefore will provide an acceptable level of safety.

In addition, ACRP Report #51 provides the methodology for analyzing the risk of taxiway to object separations. Using the separation of 80' and Figure AA-10 in Appendix A of ACRP Report #51, provides a risk level 2.5E-09 or one chance in 400 million operations. This can be seen in the figure below:

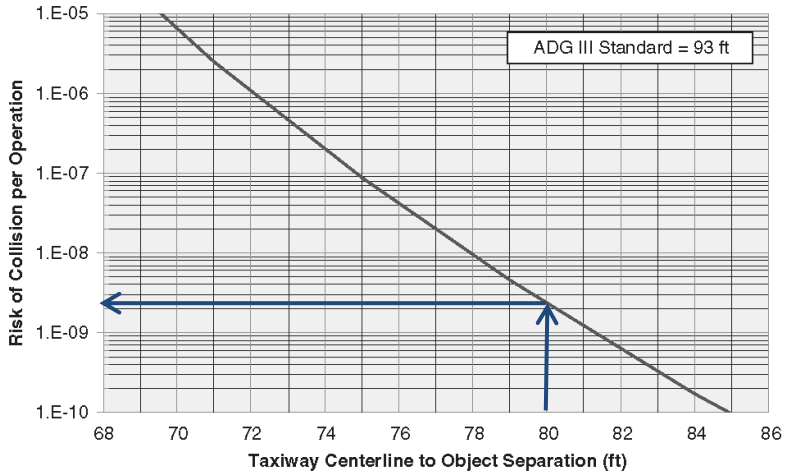


Figure AA-10. Collision risk associated with taxiway to object separation for ADG III.

Source: ACRP Report #51

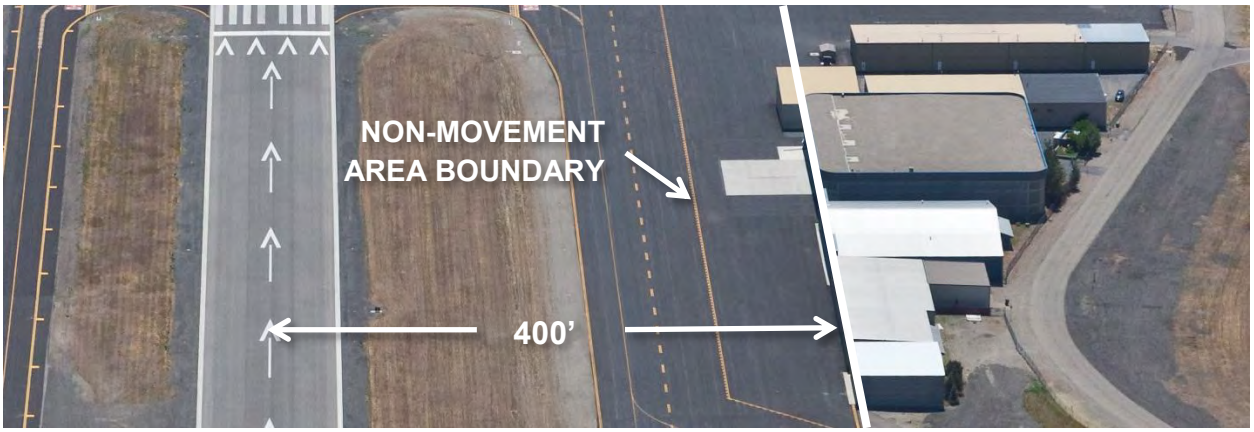
As the risk is one incident in every 400 million operations, the occurrence is calculated as 400 million divided by 50,000 operations per year which equates to one incident every 8,000 years.

The Hazard Severity Classification for this type of operation would be major and the acceptable probability of occurrence is remote (1E-05) or less than once every 1-10 years. A Taxiway OFA of 160’ appears to provide an acceptable level of safety especially when considering the current and future aircraft fleet.

MOS 1C - Runway Object Free Area Transverse Grading

The FAA design standard for maximum transverse OFA grading for ADG III is a 10:1 slope for the first 59' of the OFA followed by a maximum slope of 4:1. The requested MOS for maximum transverse OFA grade is a 4:1 slope from the edge of OFA. This MOS is requested in conjunction with MOS - 1A for Runway to Parallel Taxiway Separation and MOS 1B - Parallel Taxiway OFA. This MOS is not required if MOS 3 - Runway Safety Area Grading is approved.

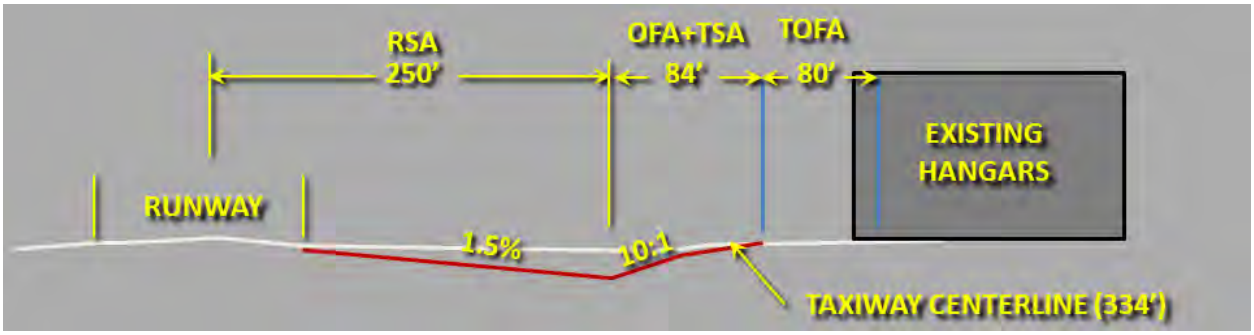
There is one area at the north end of the airfield, where meeting a 10:1 slope incurs significant impacts and cost. At the north end of the airfield, a series of existing hangars are located at approximately 400' from the runway centerline. The estimated cost of relocating these hangars is approximately $7 Million dollars. This cost does not include any land acquisition costs to accommodate the similar size hangars. The hangars are shown in the figure below:



Source: T-O Engineers

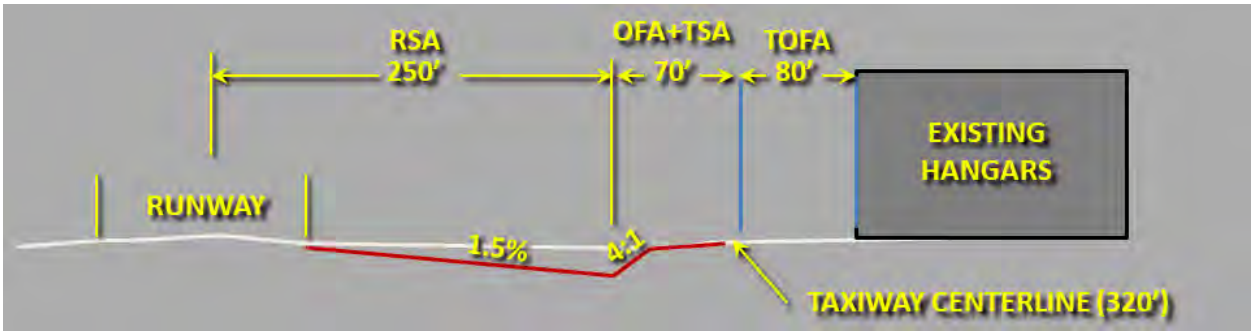
For reference, the current runway to parallel taxiway separation is 250' and a separation of 320' would place the taxiway centerline on the non-movement area boundary marking shown to the right in the photo above. One hangar is currently located less than 400' from the runway centerline and is planned to be removed.

In this area, the existing RSA grades are less than the minimum of 1.5%. Meeting the minimum transverse RSA grade of 1.5% requires removal of up to 4.5' of material at the outside edge of the RSA. In this area, the new RSA grade would be below the TSA and using the maximum allowable grades in the TSA decreases the total elevation change between the RSA and TSA to approximately 2.5', requiring 25' of grading at a 10:1 slope. This grading combined with the RSA grading and TSA grading results in a minimum runway to parallel taxiway separation of 334' and is shown in the figure below:



Source: T-O Engineers

If the parallel taxiway were located at 334' from runway centerline, the hangars shown above would need to be removed as they would be located inside the aircraft specific Taxiway OFA of 160'. Allowing a maximum OFA grade of 4:1 results in a minimum runway to parallel taxiway separation of 319' and would not impact the hangars on the north end. This is shown in the figure below:



Source: T-O Engineers

Prior to the release of AC 150/5300-13A, the previous maximum gradient for the Runway OFA was a 4:1 slope. This MOS is required due to the recent change in the design standard. The main hazard associated with allowing a slope of greater than a 4:1 is the risk a wingtip striking the ground in the event of an excursion from the runway.. At the north end of the airfield, the ground would penetrate approximately 30 inches above the edge of the RSA and would be the same height as an airfield light. The total cost required to meet the maximum OFA slope of a 10:1 at the north end of the airfield is in excess of $7 Million dollars. Considering the cost and benefit involved in meeting the new design standard, a slope of 4:1 inside the OFA appears to be acceptable.

MOS 2 - Runway Safety Area Transverse Grading

The FAA design standard for transverse RSA grades for ADG III is a minimum of 1.5% and a maximum of 3%. The requested MOS for transverse RSA grade is for less than 1.5%. If this MOS is approved, MOS 1C – Runway Object Free Area Transverse Grading is not required.

Meeting the minimum gradient of 1.5% at SUN requires the removal of 300,000 cubic yards of earthwork. In order to accomplish this, 250,000 cubic yards of earthwork would have to be disposed of off of airport property. The estimated cost of disposing of the material is in excess of $3.5 Million dollars. In addition, nearly the entire storm drainage system would need to be removed and relocated in order to meet the new grades. This includes 10,000 feet of pipe along with 30 aircraft rated inlets. The estimated cost of relocating the storm drainage system is $1.5 Million dollars. The work required to grade the RSA and relocate the storm drainage system would require the airport to be closed for 90 days. In the mountain environment of Hailey this work would have to take place in the summer months and would require the runway to be closed during the peak travel season.

When considering this MOS it is important to understand the purpose of the RSA. Paragraph 307 of Advisory Circular 150/5300-13A gives the purpose of the RSA:

> *"The RSA enhances the safety of aircraft which undershoot, overrun or veer off the runway, and it provides greater accessibility for fire-fighting and rescue equipment during such incidents."*

Paragraph 307 b. of Advisory Circular 150/5300-13A defines the requirements of the RSA:

> *"(1) cleared and graded and have no potentially hazardous ruts, humps, depressions, or other surface variations;*
>
> *(2) drained by grading or storm sewers to prevent water accumulation;*
>
> *(3) capable under dry conditions of supporting snow removal equipment, Aircraft Rescue and Fire Fighting (ARFF) equipment, and the occasional passage of aircraft; and*
>
> *(4) free of objects, except for objects that need to be relocated in the RSA because of their function."*

As the purpose of the RSA is to enhance the safety of aircraft in the event of a departure from the runway, the distance an aircraft departs from the runway is affected by three (3) major elements: weight of the aircraft, speed of the aircraft and RSA gradient. The third variable and the subject of this modification, the RSA gradient, affects the rate at which an aircraft slows after departing the runway. The steeper the gradient the longer it will take for an aircraft to stop. The existing transverse RSA gradients at SUN are flatter than standard; meaning an aircraft would actually come to a stop sooner if all other variables were equal. Paragraph 307 f in AC 5300-13 describes this condition:

"Keeping negative grades to the minimum practicable contributes to the effectiveness of the RSA."

Though flatter than standard, the RSA at SUN is graded smoothly and is capable of safely accommodating an aircraft without damage, in the case of a veer off.

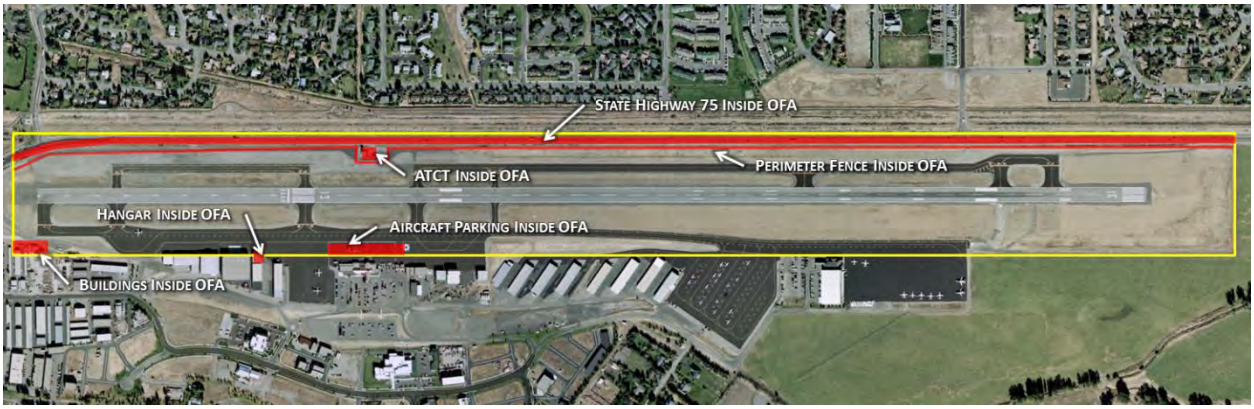
The negative aspect of gradients flatter than standard are their inability to adequately drain the RSA during rainfall events. The existing RSA at SUN drains extremely well, with no accumulation of standing water. Existing soils have a very high permeability and the local climate is dry, with an average annual rainfall of only 16 inches. In addition, the runway is equipped with a storm drainage system that collects and removes drainage efficiently. The following table summarizes the design requirements that would be met at SUN:

RSA Requirement	Standard Met
Cleared and Graded	Yes
Drained by grading or storm sewers	Yes
Capable of supporting SRE, ARFF and aircraft	Yes
Free of objects	Yes

The total estimated cost of meeting the minimum transverse grade of a 1.5% is $5 Million dollars and will require a full airport closure for 3 months. As the proposed RSA at SUN will meet the RSA requirements defined in AC 5300-13A, the grades flatter than standard will provide an acceptable level of safety.

MOS 3 - Runway Object Free Area (OFA) Width

The FAA design standard for Runway OFA Width for ARC C-III is 800', centered on the runway. The deficiencies in the existing Runway OFA at SUN are shown in the Figure below:

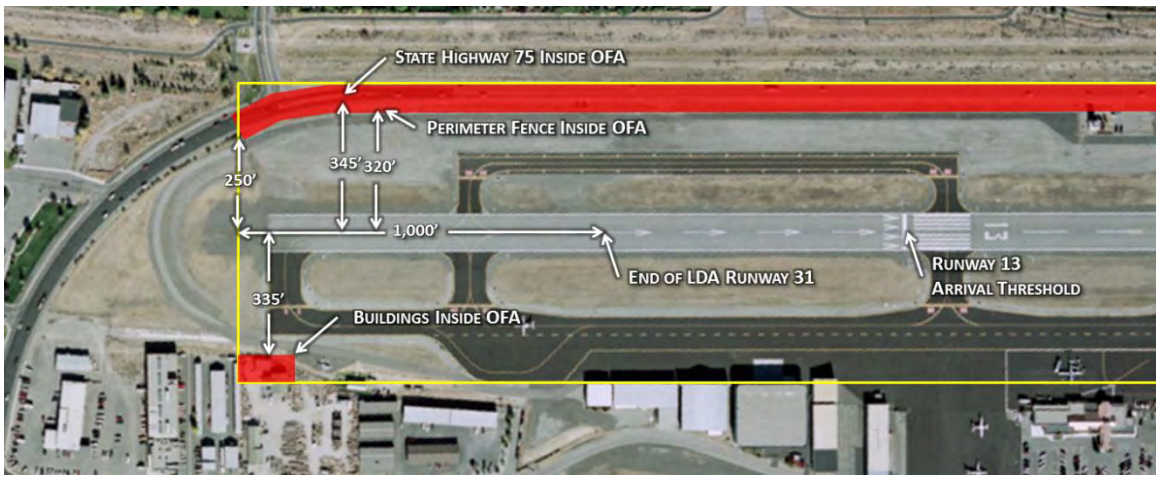


Source: T-O Engineers

The current deficiencies include:

- ATCT Inside OFA (To be relocated)
- Aircraft Parking Inside OFA (To be relocated)
- Hangar Inside OFA (To be relocated)
- Perimeter Fence Inside OFA (250'-320' from Runway CL)
- State Highway 75 Inside OFA (275'-345' from Runway CL)
- Off Airport Buildings Inside OFA (335' from Runway CL)

This MOS only includes the Perimeter Fence, State Highway 75 and the Off Airport Buildings inside the OFA; all of which are located off or at the edge of airport property. The remainder of the OFA deficiencies are located on airport property and could be relocated. State Highway 75 and the Perimeter Fence run parallel to Runway 13-31 from south to north until approximately 210' from the Runway 13 pavement end at which point they curve toward the runway until they are a minimum distance of 250' for the Perimeter Fence and 275' for State Highway 75 from the extended runway centerline. The following figure shows the deficiencies on the north end of the airfield in more detail:



Source: T-O Engineers

As SUN is currently configured using declared distances, the OFA for arrivals and departures in each direction have different deficiencies. The OFA to the east of Runway 13-31 for both arrivals and departures is penetrated by both State Highway 75 and the Perimeter Fence at 345' and 320' respectively. The OFA for Runway 13 departures and Runway 31 arrivals are penetrated to a greater degree at the north end of the airfield by the Perimeter Fence and State Highway 75 along with two buildings located off airport property. The deficiencies are summarized in the following table:

Runway OFA	State Highway 75	Perimeter Fence	Off Airport Buildings
13 Arrivals	345'	320'	None
13 Departures	275' to 345'	250' to 320'	335'
31 Arrivals	275' to 345'	250' to 320'	335'
31 Departures	345'	320'	None

Relocating the perimeter fence is not possible without the relocation of State Highway 75. A large residential neighborhood is located to the east of the SH 75 and the relocation of State Highway 75 closer to the residential neighborhood would raise significant environmental concerns including Historical Resources, Noise and Environmental Justice. Environmental impacts notwithstanding, the estimated costs to relocate State Highway 75 are in excess of $17 Million dollars.

The buildings located outside of airport property are currently located in an area zoned as light industrial. As the availability of light industrial land in the area is very low, the land is highly desirable. The estimated cost to acquire the light industrial land and remove the structures is $2 Million dollars.

When analyzing the risk associated with a reduction in Runway OFA it is important to consider the purpose of the design standard. Paragraph 309 of Advisory Circular 150/5300-13A defines the OFA but does not give the design rational behind the standard:

> *"The ROFA is centered about the runway centerline. The ROFA clearing standard requires clearing the ROFA of above-ground objects protruding above the nearest point of the RSA."*

Appendix 8, Paragraph 4 of Advisory Circular 150/5300-13 Change 18 provides the only available reference to the design rationale behind the Runway OFA width:

> *"The ROFA is a result of an agreement that a minimum 400-foot (120 m) separation from runway centerline is required for equipment shelters, other than localizer equipment shelters."*

Below is a summary of RSA and OFA width for each Runway Design Code (RDC):

RDC	RSA Width	OFA Width
A/B-I Small	120'	250'
A/B-I	120'	400'
A/B-II	150'	500'
A/B-III	300'	800'
C-I through E-IV	500'	800'

Source: AC 150/5300-13A

As shown in the table above, the OFA width for any RDC above A/B-II is 800'. This means an airport such as SUN serving the Canadair Regional Jet 700 and the Bombardier Q400 with a Non Precision approach has the same size OFA as Denver International or SEATAC airports, which serve very large commercial aircraft (such as the Boeing 747) with CAT III Precision approaches. Logically it appears a smaller OFA would be acceptable for smaller aircraft. The risk analysis procedure outlined in ACRP Report #51 appears to substantiate this.

Using the same risk based analysis as in the Runway to Parallel Taxiway Separation, there are three separate objects that must be considered; the Perimeter Fence, State Highway 75 and the buildings located off airport property. The risk associated with allowing each of these to remain will be analyzed separately.

Perimeter Fence (250' Separation)

The Perimeter Fence at the northernmost corner on the OFA is located 250' from the extended runway centerline. The risks associated with each of the phases of flight are analyzed below:

Airborne Landing Phase - Using the separation of 250' and Figure AA-33 in Appendix A of ACRP Report #51, the following provides a risk level 2.6E-09 or one chance in 384 million landings. This can be seen in the figure below:

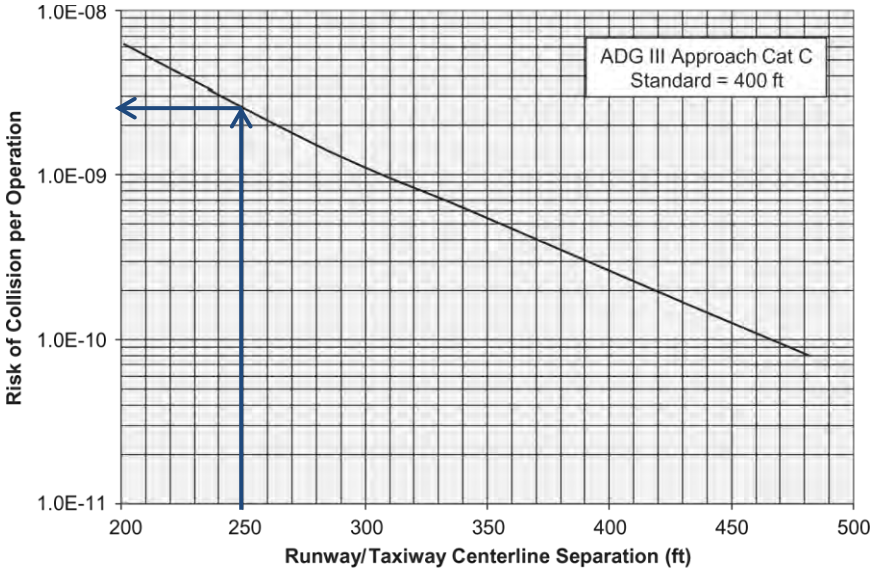


Figure AA-33. Missed approach collision risk for ADG III Cat I.

Source: ACRP Report #51

The current annual number of landing operations at SUN is approximately 25,000 or half of the 50,000 annual operations. As the risk is one incident in every 384 million landings, the rate of occurrence is calculated as 384 million landings divided by 25,000 landing operations per year which equates to one incident every 15,360 years.

Landing Roll Phase - Using the separation of 250' and Figure AA-43 in Appendix A of ACRP Report #51, provides a risk level 1.6E-07 or one chance in 6.25 million landings. This can be seen in the figure below:

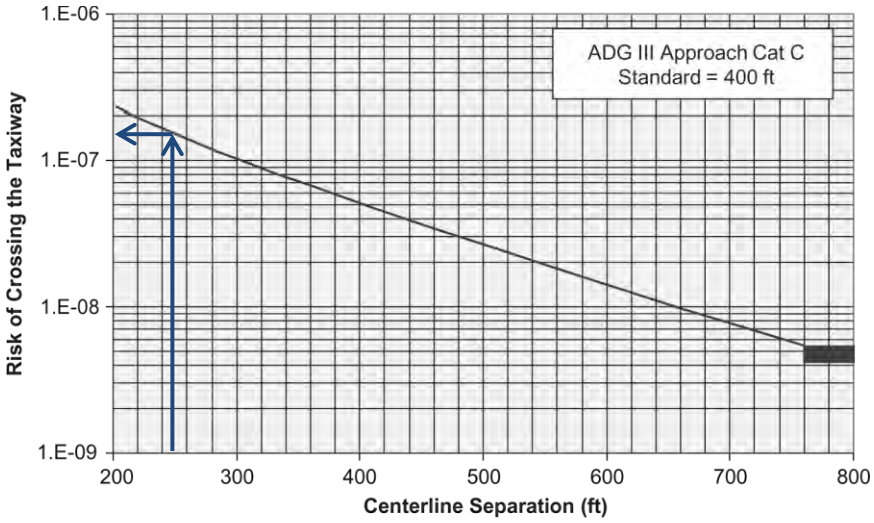


Figure AA-43. Landing veer-off collision risk for ADG III.

Source: ACRP Report #51

As the risk is one incident in every 6.25 million landings, the rate of occurrence is calculated as 6.25 million landings divided by 25,000 landings per year which equates to one incident every 250 years.

Takeoff Roll Phase - Using the separation of 250' and Figure AA-50 in Appendix A of ACRP Report #51, provides a risk level 4E-08 or one chance in 25 million takeoffs. This can be seen in the figure below:

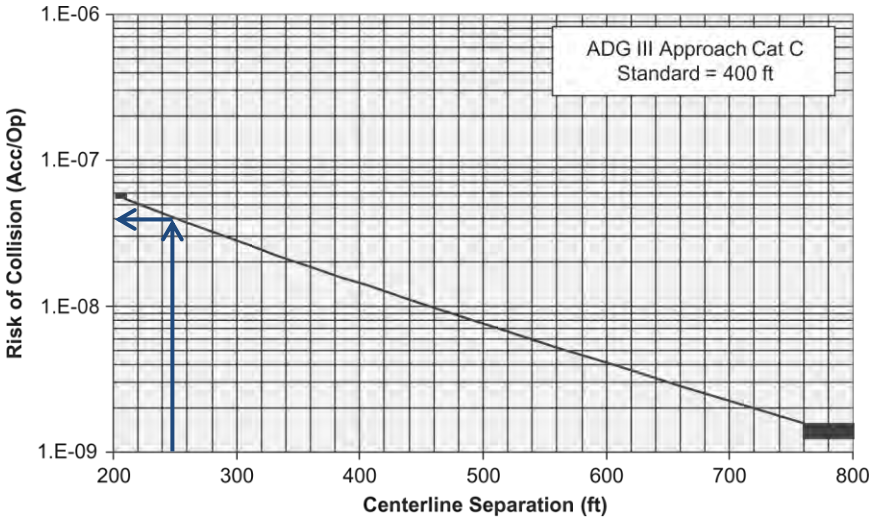


Figure AA-50. Takeoff veer-off collision risk for ADG III.

Source: ACRP Report #51

As the risk is one incident in every 25 million takeoffs, the rate of occurrence is calculated as 25 million takeoffs divided by 25,000 takeoffs per year which equates to one incident every 1,000 years.

Considering the risk of each phase of flight, the risk of collision during the landing roll is the controlling factor. The Hazard Severity Classification for this type of operation would be major and the acceptable probability of occurrence is remote (1E-05) or less than once every 1-10 years. The following table summarizes the risk associated with each phase of flight:

Phase of Flight	Rate of Occurrence	Acceptable Level
Airborne Phase	Once every 15,360 years	Yes
Landing Roll Phase	Once every 250 years	Yes
Takeoff Roll Phase	Once every 1,000 years	Yes

A Runway to object separation of 250' appears to provide an acceptable level of risk as the controlling occurrence is once every 250 years.

Perimeter Fence (320' Separation)

The Perimeter Fence runs along the east side of Runway 13-31 OFA and is located 320' from the extended runway centerline. The risks associated with each of the phases of flight are exactly the same as those for a Runway to Parallel Taxiway Separation of 320':

- Airborne Landing Phase - one incident every 47,620 years
- Landing Roll Phase - one incident every 440 years
- Takeoff Roll Phase - one incident every 1,600 years

Considering the risk of each phase of flight, the risk of collision during the landing roll is the controlling factor. The Hazard Severity Classification for this type of operation would be major and the acceptable probability of occurrence is remote (1E-05) or less than once every 1-10 years. A Runway to object separation of 250' appears to provide an acceptable level of risk as the controlling rate of occurrence is once every 440 years.

State Highway 75 (275' Separation)

State Highway 75 at the northernmost corner on the OFA is located 275' from the extended runway centerline. The risks associated with each of the phases of flight are analyzed below:

Airborne Landing Phase - Using the separation of 275' and Figure AA-33 in Appendix A of ACRP Report #51, the following provides a risk level 1.8E-09 or one chance in 555 million landings. This can be seen in the figure below:

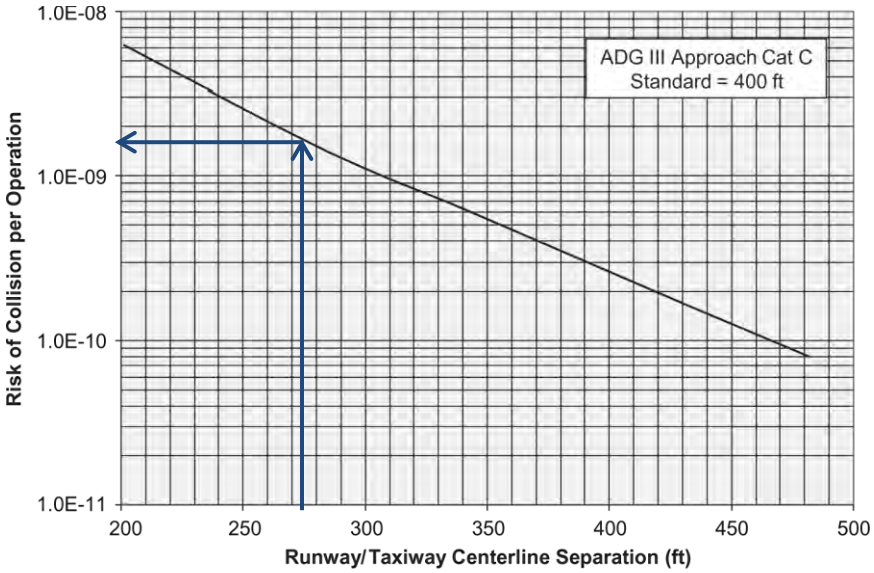


Figure AA-33. Missed approach collision risk for ADG III Cat I.

Source: ACRP Report #51

The current annual number of landing operations at SUN is approximately 25,000 or half of the 50,000 annual operations. As the risk is one incident in every 555 million landings, the rate of occurrence is calculated as 555 million landings divided by 25,000 landing operations per year which equates to one incident every 22,200 years.

Landing Roll Phase - Using the separation of 275' and Figure AA-43 in Appendix A of ACRP Report #51, provides a risk level 1.2E-07 or one chance in 8.33 million landings. This can be seen in the figure below:

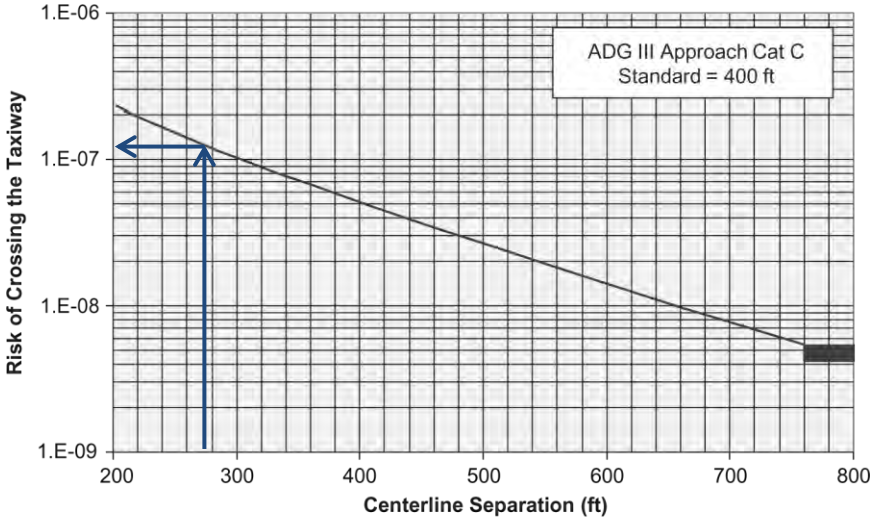


Figure AA-43. Landing veer-off collision risk for ADG III.

Source: ACRP Report #51

As the risk is one incident in every 8.33 million landings, the rate of occurrence is calculated as 8.33 million landings divided by 25,000 landings per year which equates to one incident every 333 years.

Takeoff Roll Phase - Using the separation of 275' and Figure AA-50 in Appendix A of ACRP Report #51, provides a risk level 3.2E-08 or one chance in 31 million takeoffs. This can be seen in the figure below:

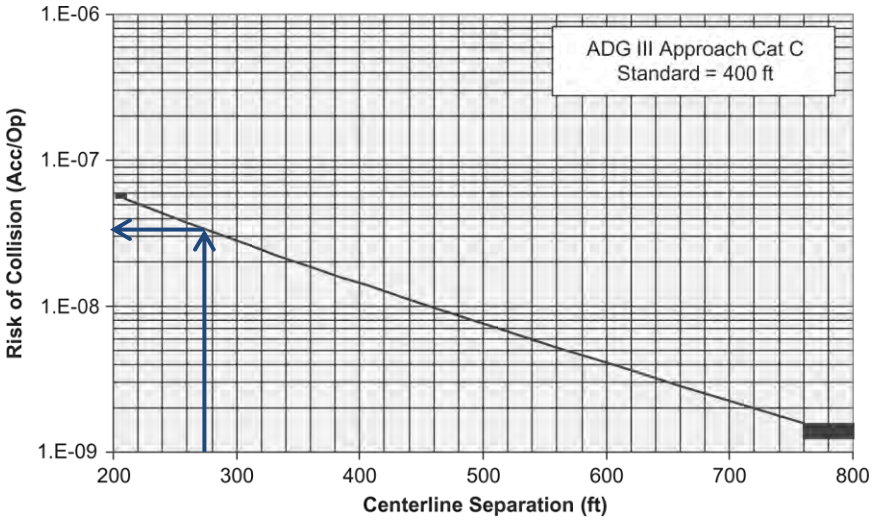


Figure AA-50. Takeoff veer-off collision risk for ADG III.

Source: ACRP Report #51

As the risk is one incident in every 31 million takeoffs, the rate of occurrence is calculated as 31 million takeoffs divided by 25,000 takeoffs per year which equates to one incident every 1,240 years.

Considering the risk of each phase of flight, the risk of collision during the landing roll is the controlling factor. The Hazard Severity Classification for this type of operation would be catastrophic and the acceptable probability of occurrence is extremely improbable (1E-09) or less than once every 100 years. The following table summarizes the risk associated with each phase of flight:

Phase of Flight	Rate of Occurrence	Acceptable Level
Airborne Phase	Once every 22,200 years	Yes
Landing Roll Phase	Once every 333 years	Yes
Takeoff Roll Phase	Once every 1,240 years	Yes

A Runway to Object Separation of 275' appears to provide an acceptable level of risk as the controlling rate of occurrence is once every 333 years.

State Highway 75 (345' Separation)

State Highway 75 runs along the east side of the Runway 13-31 OFA and is located 345' from the extended runway centerline. The risks associated with each of the phases of flight are analyzed below:

Airborne Landing Phase - Using the separation of 345' and Figure AA-33 in Appendix A of ACRP Report #51, the following provides a risk level 6E-10 or one chance in 1.7 billion landings. This can be seen in the figure below:

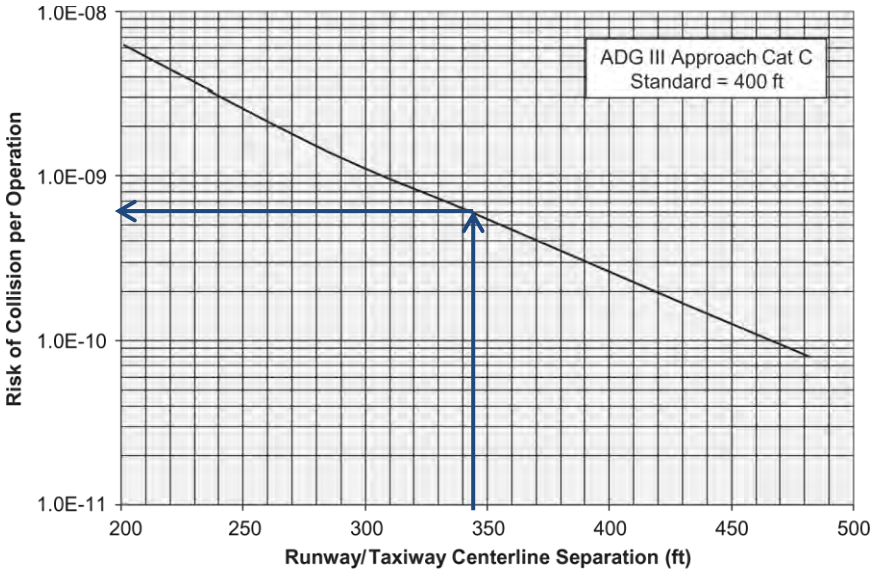


Figure AA-33. Missed approach collision risk for ADG III Cat I.

Source: ACRP Report #51

The current annual number of landing operations at SUN is approximately 25,000 or half of the 50,000 annual operations. As the risk is one incident in every 1.7 billion landings, the rate of occurrence is calculated as 1.7 billion landings divided by 25,000 landing operations per year which equates to one incident every 66,666 years.

Landing Roll Phase - Using the separation of 345' and Figure AA-43 in Appendix A of ACRP Report #51, provides a risk level 7E-08 or one chance in 14 million landings. This can be seen in the figure below:

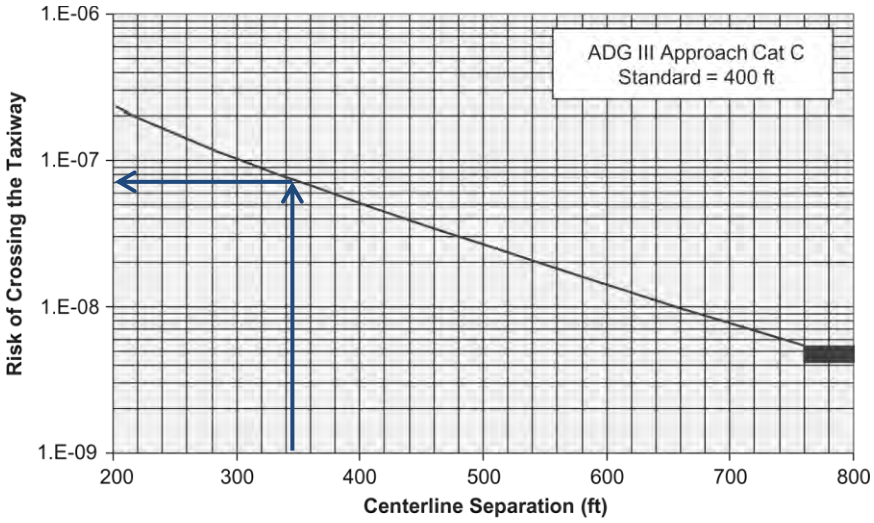


Figure AA-43. Landing veer-off collision risk for ADG III.

Source: ACRP Report #51

As the risk is one incident in every 14 million landings, the rate of occurrence is calculated as 14 million landings divided by 25,000 landings per year which equates to one incident every 571 years.

Takeoff Roll Phase - Using the separation of 345' and Figure AA-50 in Appendix A of ACRP Report #51, provides a risk level 2E-08 or one chance in 50 million takeoffs. This can be seen in the figure below:

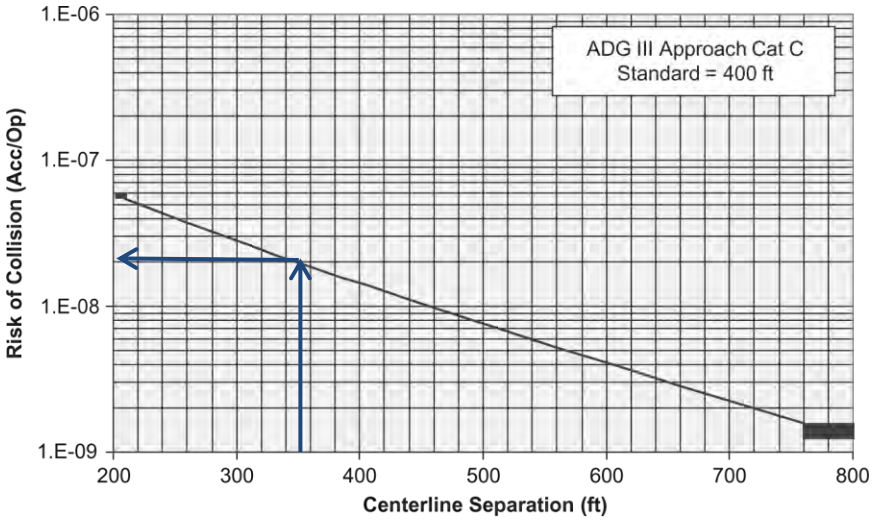


Figure AA-50. Takeoff veer-off collision risk for ADG III.

Source: ACRP Report #51

As the risk is one incident in every 50 million takeoffs, the rate of occurrence is calculated as 50 million takeoffs divided by 25,000 takeoffs per year which equates to one incident every 2,000 years.

Considering the risk of each phase of flight, the risk of collision during the landing roll is the controlling factor. The Hazard Severity Classification for this type of operation would be catastrophic and the acceptable probability of occurrence is extremely improbable (1E-09) or less than once every 100 years. The following table summarizes the risk associated with each phase of flight:

Phase of Flight	Rate of Occurrence	Acceptable Level
Airborne Phase	Once every 66,666 years	Yes
Landing Roll Phase	Once every 571 years	Yes
Takeoff Roll Phase	Once every 2,000 years	Yes

A Runway to Object Separation of 345' appears to provide an acceptable level of risk as the controlling rate of occurrence is once every 571 years.

Buildings Located Off Airport Property (335' Separation)

The buildings located at the northernmost corner on the west side of the OFA are located 335' from the extended runway centerline. The risks associated with each of the phases of flight are analyzed below:

Airborne Landing Phase - Using the separation of 335' and Figure AA-33 in Appendix A of ACRP Report #51, the following provides a risk level 6E-10 or one chance in 1.6 billion landings. This can be seen in the figure below:

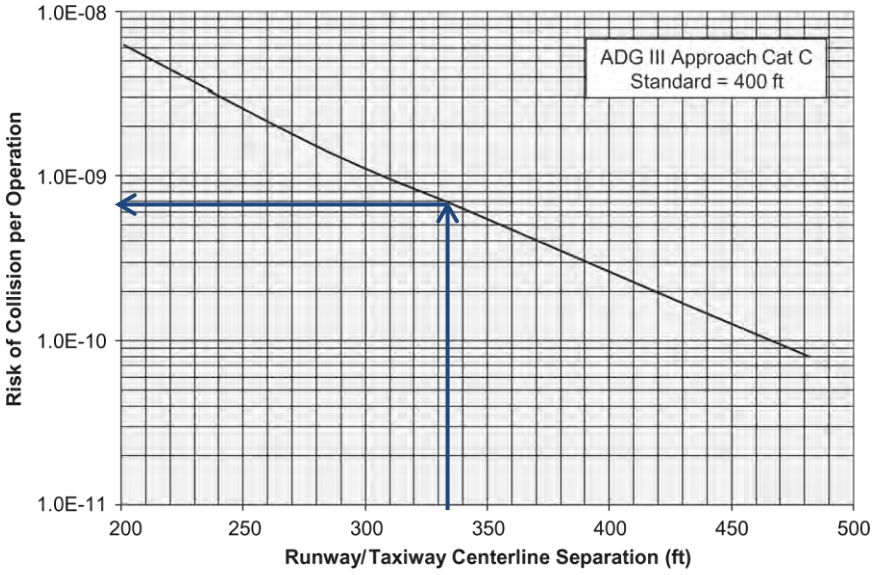


Figure AA-33. Missed approach collision risk for ADG III Cat I.

Source: ACRP Report #51

The current annual number of landing operations at SUN is approximately 25,000 or half of the 50,000 annual operations. As the risk is one incident in every 1.6 billion landings, the rate of occurrence is calculated as 1.6 billion landings divided by 25,000 landing operations per year which equates to one incident every 64,000 years.

Landing Roll Phase - Using the separation of 335' and Figure AA-43 in Appendix A of ACRP Report #51, provides a risk level 8E-08 or one chance in 12.5 million landings. This can be seen in the figure below:

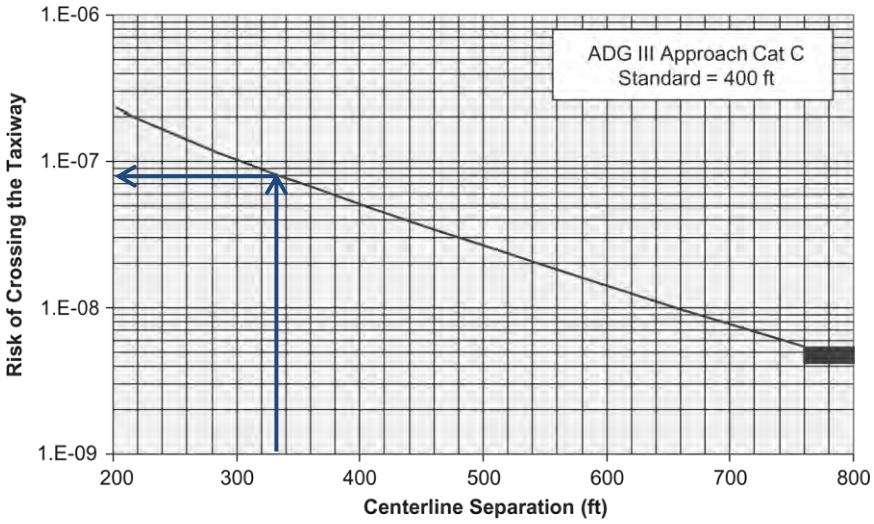


Figure AA-43. Landing veer-off collision risk for ADG III.

Source: ACRP Report #51

As the risk is one incident in every 12.5 million landings, the rate of occurrence is calculated as 12.5 million landings divided by 25,000 landings per year which equates to one incident every 500 years.

Takeoff Roll Phase - Using the separation of 335' and Figure AA-50 in Appendix A of ACRP Report #51, provides a risk level 2.2E-08 or one chance in 45 million takeoffs. This can be seen in the figure below:

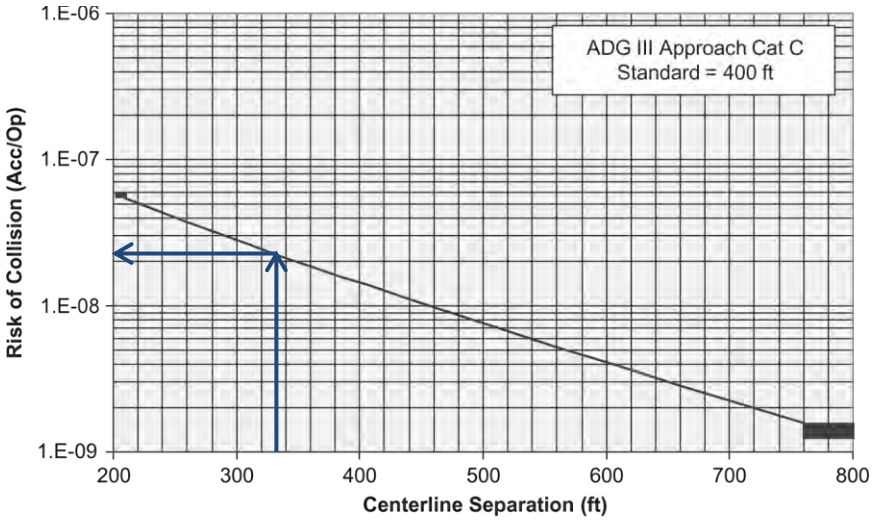


Figure AA-50. Takeoff veer-off collision risk for ADG III.

Source: ACRP Report #51

As the risk is one incident in every 45 million takeoffs, the rate of occurrence is calculated as 45 million takeoffs divided by 25,000 takeoffs per year which equates to one incident every 1,800 years.

Considering the risk of each phase of flight, the risk of collision during the landing roll is the controlling factor. The Hazard Severity Classification for this type of operation would be catastrophic and the acceptable probability of occurrence is extremely improbable (1E-09) or less than once every 100 years. The following table summarizes the risk associated with each phase of flight:

Phase of Flight	Rate of Occurrence	Acceptable Level
Airborne Phase	Once every 64,000 years	Yes
Landing Roll Phase	Once every 500 years	Yes
Takeoff Roll Phase	Once every 1,800 years	Yes

A Runway to Object Separation of 335' appears to provide an acceptable level of risk as the controlling rate of occurrence is once every 500 years.

For each of the various object separations the Landing Roll phase of flight provided the controlling risk. Each of the separations and the associated rate of occurrence are summarized in the following table:

Object (Separation)	Controlling Phase of Flight	Hazard Severity Classification	Rate of Occurrence	Acceptable Level?

Perimeter Fence (250')	Landing Roll	Major	Once every 250 years	Yes
Perimeter Fence (320')	Landing Roll	Major	Once every 440 years	Yes
State Highway 75 (275')	Landing Roll	Catastrophic	Once every 333 years	Yes
State Highway 75 (345')	Landing Roll	Catastrophic	Once every 571 years	Yes
Off Airport Buildings (335')	Landing Roll	Catastrophic	Once every 500 years	Yes

As shown in the table above, each of the various Runway to Object Separations provide an acceptable level of risk. In addition, the closest separations are all located on the north end of the airfield. Though each of these penetrates the departure OFA for Runway 13, the risk of an incident is actually much lower as an aircraft would be taking off in the opposite direction of the objects. For arrivals on Runway 31, due to the use of declared distances, the objects are located a minimum of 1,000' from the end of the runway declared suitable for landing operations. Their location is modeled as if the objects are located laterally to the runway and as such the actual risk of an incident is much lower.

MOS 4 - Runway to Aircraft Parking Separation

The FAA design standard for Runway to Aircraft Parking Separation for ARC C-III is 500'. The requested MOS for Runway to Aircraft Parking Separation is 400'. This MOS is not applicable if MOS 1A, 1B, or 1C are not approved.

A separation to the C-III standard of 500' could be met in one of two ways, either shift Runway 13-31 and State Highway 75 to the east or relocate the majority of apron parking on the airfield including the terminal, to the southwest. The estimated costs of each alternative are shown below:

- Shift Runway 13-31 and State Highway 75 East - $144 Million dollars
- Shift Airfield Parking and Terminal Southwest - $30 Million dollars

The maximum separation possible at SUN without major impacts to airfield facilities is 400' from Runway 13-31 centerline. When analyzing the level of safety associated with a reduction in Runway to Aircraft Parking Separation it is important to consider the purpose of the design standard. Paragraph 321 a. (3) of Advisory Circular 150/5300-13A provides the design rationale:

> *"Runway to aircraft parking area separation is determined by the landing and takeoff flight path profiles and physical characteristics of the aircraft. The runway to parking area separation standard precludes any part of a parked aircraft (tail, wingtip, nose, etc.) from being within the ROFA or penetrating the OFZ."*

A Runway to Aircraft Parking Separation of 400' at SUN will preclude any part of an aircraft from penetrating the Runway OFA or Runway OFZ. In addition, a separation of 400 feet would also provide the following benefits:

- Prevent parked aircraft from penetrating the Runway Primary Surface
- Prevent parked aircraft from penetrating the Runway Transitional Surface
- Prevent parked aircraft from penetrating the Taxiway OFA

As the runway to aircraft parking area separation of 400 feet meets the purpose of this standard as stated in AC 150/5300-13A, this configuration will provide an acceptable level of safety.

APPENDIX D - MOS
RUNWAY OFA

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
NORTHWEST MOUNTAIN REGION
AIRPORT IMPROVEMENT PROGRAM

MODIFICATION OF AIRPORT DESIGN STANDARDS

BACKGROUND

1. AIRPORT: **Friedman Memorial Airport**	2. LOCATION(CITY,STATE): **Hailey, ID**	3. LOC ID: **SUN**
4. EFFECTED RUNWAY/TAXIWAY: **RUNWAY 13-31**	5. APPROACH (EACH RUNWAY): **RW 13 VISUAL** **RW 31 NPI**	6. AIRPORT REF. CODE (ARC): **C-III**

7. DESIGN AIRCRAFT (EACH RUNWAY/TAXIWAY): **Bombardier Q-400 and Gulfstream G-V**

MODIFICATION OF STANDARDS

8. TITLE OF STANDARD BEING MODIFIED (CITE REFERENCE DOCUMENT):

Runway Object Free Area (OFA), Advisory Circular 150/5300-13A, *Airport Design* (AC 150/5300-13A)

9. STANDARD/REQUIREMENT:

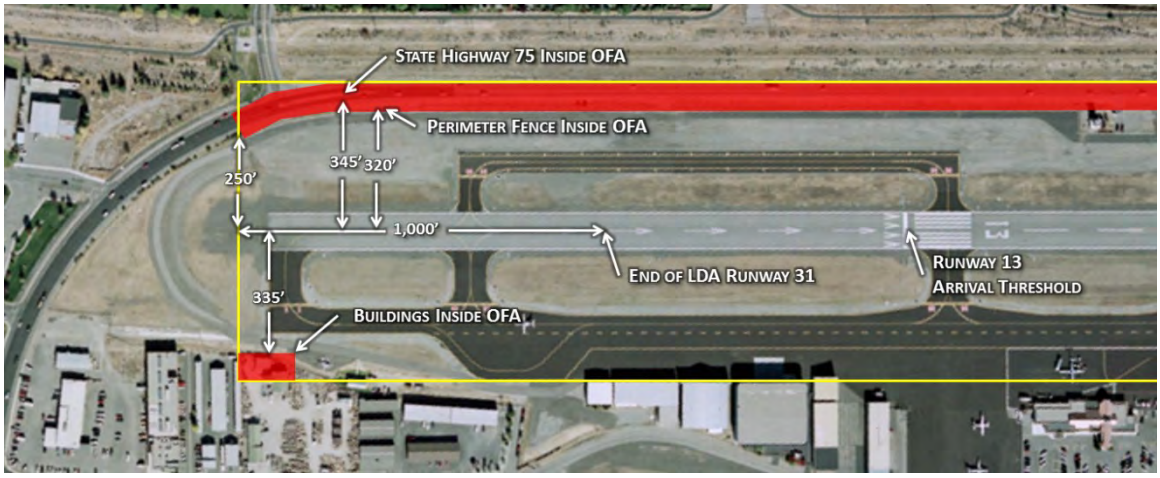
800 feet (400 foot either side of centerline) per Table 3-8 on page 94 of AC 150/5300-13A.

10. PROPOSED:

Varies see below.

11. EXPLAIN WHY STANDARD CANNOT BE MET (FAA ORDER 5300.1E):

State Highway 75 and the Perimeter Fence run parallel to Runway 13-31 from south to north until approximately 210' from the Runway 13 pavement end at which point they curve toward the runway until they are a minimum distance of 250' for the Perimeter Fence and 275' for State Highway 75 from the extended runway centerline. The following figure shows the deficiencies on the north end of the airfield in more detail:



As SUN is currently configured using declared distances, the OFA for arrivals and departures in each direction have different deficiencies. The OFA to the east of Runway 13-31 for both arrivals and departures is penetrated by both State Highway 75 and the Perimeter Fence at 345' and 320' respectively. The OFA for Runway 13 departures and Runway 31 arrivals are penetrated to a greater degree at the north end of the airfield by the Perimeter Fence and State Highway 75 along with two buildings located off airport property. The deficiencies are summarized in the following table:

Runway OFA	State Highway 75	Perimeter Fence	Off Airport Buildings
13 Arrivals	345'	320'	None
13 Departures	275' to 345'	250' to 320'	335'
31 Arrivals	275' to 345'	250' to 320'	335'
31 Departures	345'	320'	None

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
NORTHWEST MOUNTAIN REGION
AIRPORT IMPROVEMENT PROGRAM

MODIFICATION OF AIRPORT DESIGN STANDARDS

In order to meet OFA requirements either the Runway and all airport facilities would have to be shifted to the West or State Highway 75 would have to be shifted to the East.

Neither of these options are seen as practicable and providing a less than standard OFA will provide an acceptable level of safety, based on the aircraft traffic at the airport.

12. DISCUSS VIABLE ALTERNATIVES (FAA ORDER 5300.1E):

The airport sponsor has considered three alternatives to provide a Runway OFA at the airport that complies with standards. The first two alternatives, though viable, are not practicable, due to cost and environmental impact.

1. Relocate Runway And All Airport Facilities To The West – Not Practicable
    - Essentially reconstructs the entire airport west of existing facilities, including the terminal, FBO facilities, all hangars and maintenance/ARFF facilities.
    - Total estimated cost exceeds $144 million.
2. Relocate Highway to the East – Not Practicable
    - Requires relocation of approximately 2 miles of State Highway 75 approximately 75 feet to the east.
    - A large neighborhood exists east of the airport in this location and relocating the highway will greatly increase the environmental impact of the highway on that neighborhood. Idaho Transportation Department has completed an Environmental Impact Statement study for a proposed project on this highway, which identifies the following environmental impacts of the highway in this location, all of which would be exacerbated significantly by relocating the highway as described. Note that an environmental analysis for the proposed action relative to the airport has not been completed – these impacts are identified based on previous studies and would require further evaluation.
        - Historical Resources: Relocation of the highway would require removal of a railroad berm that has been identified as a potential historic structure.
        - Noise: The noise levels of a relocated highway may exceed those permitted by Federal Highway Administration guidelines and require mitigation. Mitigation is difficult at this location, due to local ordinances prohibiting construction of noise walls.
        - Environmental Justice: The adjacent neighborhood is high density, with relatively low incomes and a high minority population. Based on these factors, relocating the highway could induce environmental justice impacts.
    - Costs for relocating the highway are estimated to exceed $17 million.
3. Allow Highway, Fence and Buildings To Remain
    - Do not relocate the highway.
    - Based on existing traffic at the airport, this will provide an acceptable level of safety. (See explanation below.)

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
NORTHWEST MOUNTAIN REGION
AIRPORT IMPROVEMENT PROGRAM

MODIFICATION OF AIRPORT DESIGN STANDARDS

13. STATE WHY MODIFICATION WOULD PROVIDE ACCEPTABLE LEVEL OF SAFETY, ECONOMY, DURABILITY, AND WORKMANSHIP (FAA ORDER 5300.1E):

In 2011, the Transportation Research Board (TRB) published ACRP Report 51 – Risk Assessment Method to Support Modification of Airfield Separation Standards. This report provides a method for calculating the probability and associated risk for various runway to object separations, with the purpose of determining acceptability of modifications of standards. The method outlined in the report involves calculating the risk for three separate phases of aircraft operation: airborne phase, landing roll and takeoff roll. The highest risk value is then used to evaluate whether the separation is acceptable. The report provides figures for each of the phases of aircraft operations where the runway to object separation is used to determine the risk.

Current traffic at SUN includes less than 50,000 operations (25,000 takeoffs and 25,000 landings) per year. Using these operational numbers and the procedure outlined in ACRP Report 51, the estimated risk along with the return period for each phase of operation is summarized below for each of the objects located in the Runway Object Free Area. In each case, the controlling phase of flight was the Landing Roll. The table below summarizes the risk associated with each object.

Object (Separation)	Controlling Phase of Flight	Hazard Severity Classification	Rate of Occurrence	Acceptable Level?
Perimeter Fence (250')	Landing Roll	Major	Once every 250 years	Yes
Perimeter Fence (320')	Landing Roll	Major	Once every 440 years	Yes
State Highway 75 (275')	Landing Roll	Catastrophic	Once every 333 years	Yes
State Highway 75 (345')	Landing Roll	Catastrophic	Once every 571 years	Yes
Off Airport Buildings (335')	Landing Roll	Catastrophic	Once every 500 years	Yes

As shown in the table above, each of the various Runway to Object Separations provide an acceptable level of risk. In addition, the closest separations are all located on the north end of the airfield. Though each of these penetrates the departure OFA for Runway 13, the risk of an incident is actually much lower as an aircraft would be taking off in the opposite direction of the objects. For arrivals on Runway 31, due to the use of declared distances, the objects are located a minimum of 1,000' from the end of the runway declared suitable for landing operations. Their location is modeled as if the objects are located laterally to the runway and as such the actual risk of an incident is much lower.

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
NORTHWEST MOUNTAIN REGION
AIRPORT IMPROVEMENT PROGRAM

MODIFICATION OF AIRPORT DESIGN STANDARDS

MODIFICATION:	LOCATION:	PAGE 2 OF 2
14. SIGNATURE OF ORIGINATOR:	15. ORIGINATOR'S ORGANIZATION:	16. TELEPHONE:
17. DATE OF LATEST FAA SIGNED ALP:		
18. ADO RECOMMENDATION:	19. SIGNATURE:	20. DATE:
21. FAA DIVISIONAL REVIEW (AT, AF, FS):		

ROUTING SYMBOL	SIGNATURE	DATE	CONCUR	NON-CONCUR

COMMENTS:

22. AIRPORTS' DIVISION FINAL ACTION:

☐ UNCONDITIONAL APPROVAL	☐ CONDITIONAL APPROVAL	☐ DISAPPROVAL

DATE:	SIGNATURE:	TITLE:

CONDITIONS OF APPROVAL:

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
NORTHWEST MOUNTAIN REGION
AIRPORT IMPROVEMENT PROGRAM

MODIFICATION OF AIRPORT DESIGN STANDARDS

ITEMS 1-17 ARE TO BE COMPLETED BY THE AIRPORT SPONSOR(ORIGINATOR). ALL OTHER ITEMS WILL BE COMPLETED BY THE FAA.

THE COMPLETED FORM WILL BE TRANSMITTED BY THE ORIGINATOR TO THE APPLICABLE ADO/AFO. THE ADO/AFO WILL TRANSMIT THE FINAL FAA DETERMINATION TO THE ORIGINATOR.

MODIFICATION TO AIRPORT DESIGN STANDARDS REQUESTS SHOULD INCLUDE SKETCHES OR DRAWINGS WHICH CLEARLY ILLUSTRATE THE NONSTANDARD CONDITION.

ITEMS

1. LEGAL NAME OF AIRPORT.

2. ASSOCIATED CITY.

3. AIRPORT LOCATION IDENTIFIER (SEE APPROACH PLATES/AIRPORT FACILITY DIRECTORY).

4. IDENTIFY THE RUNWAY(S), TAXIWAY(S) OR OTHER FACILITIES EFFECTED BY THE PROPOSED MODIFICATION TO STANDARDS REQUEST.

5. IDENTIFY THE MOST CRITICAL APPROACH FOR EACH RUNWAY IDENTIFIED IN #4.

6. AIRPORT REFERENCE CODE - SEE PARAGRAPH 2, PAGE 1 AC 150/5300-13(CHANGE 4) - I.E. C-II, B-II, A-I (SMALL).

7. NOTE THE DESIGN AIRCRAFT (ARC OR SPECIFIC AIRCRAFT) FOR EACH FACILITY IDENTIFIED IN #4. A DESIGN AIRCRAFT MUST MAKE REGULAR USE OF THE FACILITY. NORMALLY, FAA CONSIDERS REGULAR USE TO BE 500 OR MORE ANNUAL INTINERANT OPERATIONS.

IF THE AIRPORT SERVES A WHOLE FAMILY OF AIRCRAFT IN A PARTICULAR GROUP, THE ARC (I.E. B-II) SHOULD BE SPECIFIED. IF,HOWEVER, THE AIRPORT IS USED BY ONLY 1 OR 2 OF A FAMILY OF AIRCRAFT (IX- BEECH KING AIR C90), THE MOST DEMANDING (APPROACH SPEED, WINGSPAN) AIRCRAFT SHOULD BE SPECIFIED.

8. IDENTIFY THE SPECIFIC NAME OF THE STANDARD THAT IS PROPOSED TO BE MODIFIED FOR THE SUBJECT LOCAL CONDITION.
9. DESCRIBE (WORDS AND NUMBERS) THE DIMENSIONS AND REQUIREMENTS OF THE STANDARD AS PROVIDED IN AC 150/5300-13.

10. STATE THE PROPOSED MODIFICATION TO THE STANDARD.

11. DISCUSS THE LOCAL CONDITIONS THAT MAKE IT IMPRACTICAL OR IMPOSSIBLE TO MEET THE STANDARD.

12. IDENTIFY ALTERNATIVES TO THE SUBJECT PROPOSED MODIFICATION, AND SHOW WHY THESE ALTERNATIVES ARE NOT VIABLE.

13. DISCUSS HOW THE PROPOSED MODIFICATION WOULD IMPACT AIRPORT SAFETY AND EXPLAIN WHY AN ACCEPTABLE LEVEL OF SAFETY, ECONOMY, DURABILITY, AND WORKMANSHIP WOULD STILL EXIST.

14. TYPED NAME AND SIGINATURE OF AIRPORT AUTHORITY REPRESELNTATIVE.

15. SELF-EXPLANATORY.

16. SELF-EXPLANATORY.

17. SELF-EXPLANATORY.

18. TO BE COMPLETED BY FAA.

Appendix 3

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
AIRPORT IMPROVEMENT PROGRAM

MODIFICATION OF AIRPORT CONSTRUCTION STANDARDS

SPECIFICATION & PARA. REQUESTED MODIFICATION & JUSTIFICATION

DATE **SPONSOR**

DATE **APPROVED BY (FAA)**

Attachment A

APPENDIX D - MOS
RUNWAY-TAXIWAY SEPARATION

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
NORTHWEST MOUNTAIN REGION
AIRPORT IMPROVEMENT PROGRAM

MODIFICATION OF AIRPORT DESIGN STANDARDS

BACKGROUND

1. AIRPORT: **Friedman Memorial Airport**	2. LOCATION(CITY,STATE): **Hailey, ID**	3. LOC ID: **SUN**
4. EFFECTED RUNWAY/TAXIWAY: **RUNWAY 13-31** **TAXIWAY B**	5. APPROACH (EACH RUNWAY): **RW 13 VISUAL** **RW 31 NPI**	6. AIRPORT REF. CODE (ARC): **C-III**

7. DESIGN AIRCRAFT (EACH RUNWAY/TAXIWAY): **Bombardier Q-400 and Gulfstream G-V**

MODIFICATION OF STANDARDS

8. TITLE OF STANDARD BEING MODIFIED (CITE REFERENCE DOCUMENT):

Runway to Parallel Taxiway Separation, Advisory Circular 150/5300-13A, *Airport Design* (AC 150/5300-13A)

9. STANDARD/REQUIREMENT:

400 feet, per Table 3-8 on page 94 of AC 5300-13A.

10. PROPOSED:

320 feet.

11. EXPLAIN WHY STANDARD CANNOT BE MET (FAA ORDER 5300.1E):

In the airport's current configuration, relocation of Parallel Taxiway B to a separation of 400 feet would either require relocating the runway, adjacent Highway 75 and other facilities to the east or relocating all existing airport facilities to the west. Neither of these options are seen as practicable and providing a less than standard Runway to Parallel Taxiway Separation will provide an acceptable level of safety, based on the aircraft traffic at the airport.

12. DISCUSS VIABLE ALTERNATIVES (FAA ORDER 5300.1E):

The airport sponsor has considered three alternatives to improve Runway To Parallel Taxiway Separation at the airport. The first two alternatives, though viable, are not practicable, due to cost and environmental impact.

1. Relocate Runway And All Airport Facilities To The West – Not Practicable
    - Essentially reconstructs the entire airport west of existing facilities, including the terminal, FBO facilities, all hangars and maintenance/ARFF facilities.
    - Total estimated cost exceeds $144 million.
2. Relocate Runway and Highway to the East – Not Practicable
    - Requires relocation of approximately 2 miles of State Highway 75 to the east.
    - Requires acquisition of over 100 homes to accommodate relocated highway.
    - Idaho Transportation Department has completed an Environmental Impact Statement study for a proposed project on this highway, which identifies the following environmental impacts of the highway in this location, all of which would be exacerbated significantly by relocating the highway as described. Note that an environmental analysis for the proposed action relative to the airport has not been completed – these impacts are identified based on previous studies and would require further evaluation.
        - Historical Resources: Relocation of the highway would require removal of a railroad berm that has been identified as a potential historic structure.
        - Noise: The noise levels of a relocated highway may exceed those permitted by Federal Highway Administration guidelines and require mitigation. Mitigation is difficult at this location, due to local ordinances prohibiting construction of noise walls.
        - Environmental Justice: The adjacent neighborhood is high density, with relatively low incomes and a high minority population. Based on these factors, relocating the highway could induce environmental justice impacts.
    - Costs for this alternative are estimated to exceed $115 million.
3. Relocate Taxiway B to 320-feet Separation From Runway 13-31
    - Requires reconstruction of Taxiway B.
    - Requires relocation of several hangars and terminal parking apron to accommodate aircraft parking and maneuvering.
    - Based on existing traffic at the airport, this will provide an acceptable level of safety. (See explanation below.)

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
NORTHWEST MOUNTAIN REGION
AIRPORT IMPROVEMENT PROGRAM

MODIFICATION OF AIRPORT DESIGN STANDARDS

13. STATE WHY MODIFICATION WOULD PROVIDE ACCEPTABLE LEVEL OF SAFETY, ECONOMY, DURABILITY, AND WORKMANSHIP (FAA ORDER 5300.1E):

Runway to Parallel Taxiway separation serves two purposes; the first is to prevent an aircraft on the taxiway from colliding with an aircraft that departs the runway surface during landing or takeoff and the second is to prevent an aircraft executing a missed approach from colliding with an aircraft on the taxiway. In 2011, the Transportation Research Board (TRB) published ACRP 51 – Risk Assessment Method to Support Modification of Airfield Separation Standards. This report provides a method for calculating the probability and associated risk for various runway to parallel taxiway separations. The method outlined in the report involves calculating the risk for three separate phases of aircraft operation: airborne phase, landing roll and takeoff roll. The highest risk value is then used to evaluate whether the less than standard separation is acceptable. The report provides figures for each of the phases of aircraft operations where the runway to taxiway separation is used to determine the risk.

Current traffic at SUN includes less than 50,000 operations (25,000 takeoffs and 25,000 landings) per year. Using these operational numbers and the procedure outlined in ACRP Report 51, the estimated risk along with the return period for each phase of operation is summarized below.

Airborne Phase – 8.4E-10 (one chance in 1.2 billion landings or once every 47,620 years)
Landing Roll – 9.0E-08 (one chance in 11 million landings or once every 440 years)
Takeoff Roll – 2.5E-08 (one chance in 40 million landings or once every 1,600 years)

The risk of collision during the landing roll is the controlling factor. Using the FAA's risk matrix, a severity level of catastrophic was assigned to the landing roll phase for this type of incident. Using the FAA likelihood levels, the acceptable level of risk associated with a catastrophic event is extremely improbable or less than once every 100 years. As shown above, the expected rate of occurrence is once every 440 years. A Runway to Parallel Taxiway Separation of 320' appears to provide an acceptable level of risk. In addition a separation of 320' would keep any part of an aircraft on the taxiway from penetrating the RSA, the Runway Obstacle Free Zone (OFZ) and the Part 77 Primary Surface.

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
NORTHWEST MOUNTAIN REGION
AIRPORT IMPROVEMENT PROGRAM

MODIFICATION OF AIRPORT DESIGN STANDARDS

MODIFICATION:	LOCATION:	PAGE 2 OF 2
14. SIGNATURE OF ORIGINATOR:	15. ORIGINATOR'S ORGANIZATION:	16. TELEPHONE:
17. DATE OF LATEST FAA SIGNED ALP:		
18. ADO RECOMMENDATION:	19. SIGNATURE:	20. DATE:
21. FAA DIVISIONAL REVIEW (AT, AF, FS):		

ROUTING SYMBOL	SIGNATURE	DATE	CONCUR	NON-CONCUR

COMMENTS:

22. AIRPORTS' DIVISION FINAL ACTION:

☐ UNCONDITIONAL APPROVAL	☐ CONDITIONAL APPROVAL	☐ DISAPPROVAL

DATE:	SIGNATURE:	TITLE:

CONDITIONS OF APPROVAL:

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
NORTHWEST MOUNTAIN REGION
AIRPORT IMPROVEMENT PROGRAM

MODIFICATION OF AIRPORT DESIGN STANDARDS

ITEMS 1-17 ARE TO BE COMPLETED BY THE AIRPORT SPONSOR(ORIGINATOR). ALL OTHER ITEMS WILL BE COMPLETED BY THE FAA.

THE COMPLETED FORM WILL BE TRANSMITTED BY THE ORIGINATOR TO THE APPLICABLE ADO/AFO. THE ADO/AFO WILL TRANSMIT THE FINAL FAA DETERMINATION TO THE ORIGINATOR.

MODIFICATION TO AIRPORT DESIGN STANDARDS REQUESTS SHOULD INCLUDE SKETCHES OR DRAWINGS WHICH CLEARLY ILLUSTRATE THE NONSTANDARD CONDITION.

ITEMS

1. LEGAL NAME OF AIRPORT.

2. ASSOCIATED CITY.

3. AIRPORT LOCATION IDENTIFIER (SEE APPROACH PLATES/AIRPORT FACILITY DIRECTORY).

4. IDENTIFY THE RUNWAY(S), TAXIWAY(S) OR OTHER FACILITIES EFFECTED BY THE PROPOSED MODIFICATION TO STANDARDS REQUEST.

5. IDENTIFY THE MOST CRITICAL APPROACH FOR EACH RUNWAY IDENTIFIED IN #4.

6. AIRPORT REFERENCE CODE - SEE PARAGRAPH 2, PAGE 1 AC 150/5300-13(CHANGE 4) - I.E. C-II, B-II, A-I (SMALL).

7. NOTE THE DESIGN AIRCRAFT (ARC OR SPECIFIC AIRCRAFT) FOR EACH FACILITY IDENTIFIED IN #4. A DESIGN AIRCRAFT MUST MAKE REGULAR USE OF THE FACILITY. NORMALLY, FAA CONSIDERS REGULAR USE TO BE 500 OR MORE ANNUAL INTINERANT OPERATIONS.

IF THE AIRPORT SERVES A WHOLE FAMILY OF AIRCRAFT IN A PARTICULAR GROUP, THE ARC (I.E. B-II) SHOULD BE SPECIFIED. IF,HOWEVER, THE AIRPORT IS USED BY ONLY 1 OR 2 OF A FAMILY OF AIRCRAFT (IX- BEECH KING AIR C90), THE MOST DEMANDING (APPROACH SPEED, WINGSPAN) AIRCRAFT SHOULD BE SPECIFIED.

8. IDENTIFY THE SPECIFIC NAME OF THE STANDARD THAT IS PROPOSED TO BE MODIFIED FOR THE SUBJECT LOCAL CONDITION.
9. DESCRIBE (WORDS AND NUMBERS) THE DIMENSIONS AND REQUIREMENTS OF THE STANDARD AS PROVIDED IN AC 150/5300-13.

10. STATE THE PROPOSED MODIFICATION TO THE STANDARD.

11. DISCUSS THE LOCAL CONDITIONS THAT MAKE IT IMPRACTICAL OR IMPOSSIBLE TO MEET THE STANDARD.

12. IDENTIFY ALTERNATIVES TO THE SUBJECT PROPOSED MODIFICATION, AND SHOW WHY THESE ALTERNATIVES ARE NOT VIABLE.

13. DISCUSS HOW THE PROPOSED MODIFICATION WOULD IMPACT AIRPORT SAFETY AND EXPLAIN WHY AN ACCEPTABLE LEVEL OF SAFETY, ECONOMY, DURABILITY, AND WORKMANSHIP WOULD STILL EXIST.

14. TYPED NAME AND SIGINATURE OF AIRPORT AUTHORITY REPRESELNTATIVE.

15. SELF-EXPLANATORY.

16. SELF-EXPLANATORY.

17. SELF-EXPLANATORY.

18. TO BE COMPLETED BY FAA.

Appendix 3

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
AIRPORT IMPROVEMENT PROGRAM

MODIFICATION OF AIRPORT CONSTRUCTION STANDARDS

SPECIFICATION & PARA. REQUESTED MODIFICATION & JUSTIFICATION

DATE **SPONSOR**

DATE **APPROVED BY (FAA)**

Attachment A

APPENDIX D - MOS
TAXIWAY OFA

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
NORTHWEST MOUNTAIN REGION
AIRPORT IMPROVEMENT PROGRAM

MODIFICATION OF AIRPORT DESIGN STANDARDS

BACKGROUND

1. AIRPORT: **Friedman Memorial Airport**	2. LOCATION(CITY,STATE): **Hailey, ID**	3. LOC ID: **SUN**
4. EFFECTED RUNWAY/TAXIWAY: **TAXIWAY B**	5. APPROACH (EACH RUNWAY): **RW 13 VISUAL** **RW 31 NPI**	6. AIRPORT REF. CODE (ARC): **C-III**

7. DESIGN AIRCRAFT (EACH RUNWAY/TAXIWAY): **Bombardier Q-400 and Gulfstream G-V**

MODIFICATION OF STANDARDS

8. TITLE OF STANDARD BEING MODIFIED (CITE REFERENCE DOCUMENT):

Parallel Taxiway Object Free Area (OFA), Advisory Circular 150/5300-13A, *Airport Design* (Advisory Circular 150/5300-13A)

9. STANDARD/REQUIREMENT:

186 feet per Table 4-1 on page 124 of AC 150/5300-13A.

10. PROPOSED:

160 feet.

11. EXPLAIN WHY STANDARD CANNOT BE MET (FAA ORDER 5300.1E):

In a separate modification request, the airport proposes relocating Taxiway B to 320 feet separation from Runway 13-31. In the airport's current configuration, relocation of Parallel Taxiway B to a separation of 320 feet with a full C-III Taxiway OFA of 186 feet would require significant modification to existing airport facilities, along with property acquisition and removal of adjacent buildings. This significant effort is not necessary, due to current and anticipated aircraft traffic at the airport.

12. DISCUSS VIABLE ALTERNATIVES (FAA ORDER 5300.1E):

The airport sponsors have considered two alternatives for Taxiway OFA on Taxiway B. Though both are viable, the first is not seen as practicable, due to the high costs and impacts, nor is it seen as necessary, due to the existing traffic at the airport.

1. Provide full C-III Taxiway OFA
    - Requires removal/relocation of 6 private hangars (1 of which is multi-unit condo hangars) on the north end of the airfield along with relocation of the FBO access at the south end of the airfield.
    - Several businesses northwest of the airport outside of the existing property boundary would need to be acquired and removed.
    - The estimated cost of removing the hangars and reconfiguring the FBO is at least $8.5 million. The estimated cost of acquiring the land northwest of the airport is $2.5 million, for a total cost in excess of $11 million.
2. Reduce Taxiway OFA to 160 feet.
    - Provides acceptable level of safety for aircraft that currently use the airport.

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
NORTHWEST MOUNTAIN REGION
AIRPORT IMPROVEMENT PROGRAM

MODIFICATION OF AIRPORT DESIGN STANDARDS

13. STATE WHY MODIFICATION WOULD PROVIDE ACCEPTABLE LEVEL OF SAFETY, ECONOMY, DURABILITY, AND WORKMANSHIP (FAA ORDER 5300.1E):

The published pavement strength for Runway 13-31 at SUN is 95,000 pounds. For the current fleet of all available aircraft, no aircraft with a maximum takeoff weight of 95,000 pounds or less has a wingspan of greater than 100 feet. Therefore, existing and anticipated aircraft traffic will include only aircraft with wingspans less than 100 feet.

Using equation #2 from Table 1 in Engineering Brief (EB) 78 and this maximum wingspan, an aircraft specific Taxiway OFA was calculated. Equation #2 from EB 78 gives the separation from centerline to an object as 0.7 x Wingspan + 10 feet. Using the 100' wingspan described above, this calculation results in a Taxiway OFA of 160 feet. For the aircraft that use the airport, this Taxiway OFA meets standards and therefore will provide an acceptable level of safety.

In addition, ACRP Report #51 provides the methodology for analyzing the risk of taxiway to object separations. Using the separation of 80' and Figure AA-10 in Appendix A of ACRP Report #51, provides a risk level of 2.5E-09 or one chance in 400 million operations. As the risk is one incident in every 400 million operations, the occurrence is calculated as 400 million divided by 50,000 operations per year which equates to one incident every 8,000 years. The Hazard Severity Classification for this type of operation would be major and the acceptable probability of occurrence is remote (1E-05) or less than once every 1-10 years. A Taxiway OFA of 160' appears to provide an acceptable level of safety especially when considering the current and future aircraft fleet.

U.S. DEPARTMENT OF TRANSPORTATION
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MODIFICATION OF AIRPORT DESIGN STANDARDS

MODIFICATION:	LOCATION:	PAGE 2 OF 2
14. SIGNATURE OF ORIGINATOR:	15. ORIGINATOR'S ORGANIZATION:	16. TELEPHONE:
17. DATE OF LATEST FAA SIGNED ALP:		
18. ADO RECOMMENDATION:	19. SIGNATURE:	20. DATE:
21. FAA DIVISIONAL REVIEW (AT, AF, FS):		

ROUTING SYMBOL	SIGNATURE	DATE	CONCUR	NON-CONCUR

COMMENTS:

22. AIRPORTS' DIVISION FINAL ACTION:

☐ UNCONDITIONAL APPROVAL	☐ CONDITIONAL APPROVAL	☐ DISAPPROVAL

DATE:	SIGNATURE:	TITLE:

CONDITIONS OF APPROVAL:

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
NORTHWEST MOUNTAIN REGION
AIRPORT IMPROVEMENT PROGRAM

MODIFICATION OF AIRPORT DESIGN STANDARDS

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MODIFICATION TO AIRPORT DESIGN STANDARDS REQUESTS SHOULD INCLUDE SKETCHES OR DRAWINGS WHICH CLEARLY ILLUSTRATE THE NONSTANDARD CONDITION.

ITEMS

1. LEGAL NAME OF AIRPORT.

2. ASSOCIATED CITY.

3. AIRPORT LOCATION IDENTIFIER (SEE APPROACH PLATES/AIRPORT FACILITY DIRECTORY).

4. IDENTIFY THE RUNWAY(S), TAXIWAY(S) OR OTHER FACILITIES EFFECTED BY THE PROPOSED MODIFICATION TO STANDARDS REQUEST.

5. IDENTIFY THE MOST CRITICAL APPROACH FOR EACH RUNWAY IDENTIFIED IN #4.

6. AIRPORT REFERENCE CODE - SEE PARAGRAPH 2, PAGE 1 AC 150/5300-13(CHANGE 4) - I.E. C-II, B-II, A-I (SMALL).

7. NOTE THE DESIGN AIRCRAFT (ARC OR SPECIFIC AIRCRAFT) FOR EACH FACILITY IDENTIFIED IN #4. A DESIGN AIRCRAFT MUST MAKE REGULAR USE OF THE FACILITY. NORMALLY, FAA CONSIDERS REGULAR USE TO BE 500 OR MORE ANNUAL INTINERANT OPERATIONS.

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8. IDENTIFY THE SPECIFIC NAME OF THE STANDARD THAT IS PROPOSED TO BE MODIFIED FOR THE SUBJECT LOCAL CONDITION.
9. DESCRIBE (WORDS AND NUMBERS) THE DIMENSIONS AND REQUIREMENTS OF THE STANDARD AS PROVIDED IN AC 150/5300-13.

10. STATE THE PROPOSED MODIFICATION TO THE STANDARD.

11. DISCUSS THE LOCAL CONDITIONS THAT MAKE IT IMPRACTICAL OR IMPOSSIBLE TO MEET THE STANDARD.

12. IDENTIFY ALTERNATIVES TO THE SUBJECT PROPOSED MODIFICATION, AND SHOW WHY THESE ALTERNATIVES ARE NOT VIABLE.

13. DISCUSS HOW THE PROPOSED MODIFICATION WOULD IMPACT AIRPORT SAFETY AND EXPLAIN WHY AN ACCEPTABLE LEVEL OF SAFETY, ECONOMY, DURABILITY, AND WORKMANSHIP WOULD STILL EXIST.

14. TYPED NAME AND SIGINATURE OF AIRPORT AUTHORITY REPRESELNTATIVE.

15. SELF-EXPLANATORY.

16. SELF-EXPLANATORY.

17. SELF-EXPLANATORY.

18. TO BE COMPLETED BY FAA.

Appendix 3

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
AIRPORT IMPROVEMENT PROGRAM

MODIFICATION OF AIRPORT CONSTRUCTION STANDARDS

SPECIFICATION & PARA. REQUESTED MODIFICATION & JUSTIFICATION

DATE **SPONSOR**

DATE **APPROVED BY (FAA)**

Attachment A

APPENDIX D - MOS
RUNWAY OFA GRADING

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
NORTHWEST MOUNTAIN REGION
AIRPORT IMPROVEMENT PROGRAM

MODIFICATION OF AIRPORT DESIGN STANDARDS

BACKGROUND

1. AIRPORT: **Friedman Memorial Airport**	2. LOCATION(CITY,STATE): **Hailey, ID**	3. LOC ID: **SUN**
4. EFFECTED RUNWAY/TAXIWAY: **RUNWAY 13-31**	5. APPROACH (EACH RUNWAY): **RW 13 VISUAL** **RW 31 NPI**	6. AIRPORT REF. CODE (ARC): **C-III**

7. DESIGN AIRCRAFT (EACH RUNWAY/TAXIWAY): **Bombardier Q-400 and Gulfstream G-V**

MODIFICATION OF STANDARDS

8. TITLE OF STANDARD BEING MODIFIED (CITE REFERENCE DOCUMENT):

Runway Object Free Area (OFA), Advisory Circular 150/5300-13A, *Airport Design* (AC 150/5300-13A)

9. STANDARD/REQUIREMENT:

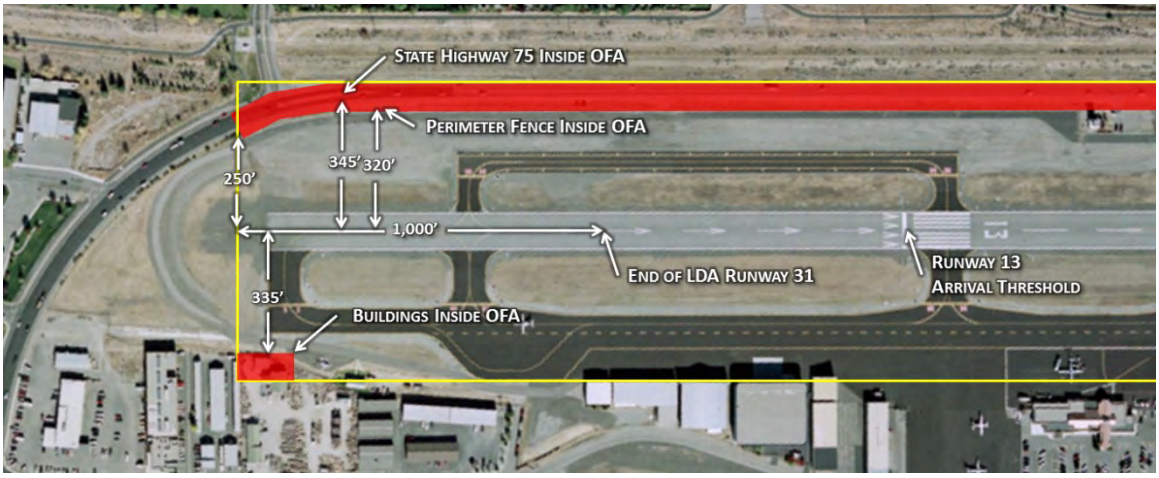
800 feet (400 foot either side of centerline) per Table 3-8 on page 94 of AC 150/5300-13A.

10. PROPOSED:

Varies see below.

11. EXPLAIN WHY STANDARD CANNOT BE MET (FAA ORDER 5300.1E):

State Highway 75 and the Perimeter Fence run parallel to Runway 13-31 from south to north until approximately 210' from the Runway 13 pavement end at which point they curve toward the runway until they are a minimum distance of 250' for the Perimeter Fence and 275' for State Highway 75 from the extended runway centerline. The following figure shows the deficiencies on the north end of the airfield in more detail:



As SUN is currently configured using declared distances, the OFA for arrivals and departures in each direction have different deficiencies. The OFA to the east of Runway 13-31 for both arrivals and departures is penetrated by both State Highway 75 and the Perimeter Fence at 345' and 320' respectively. The OFA for Runway 13 departures and Runway 31 arrivals are penetrated to a greater degree at the north end of the airfield by the Perimeter Fence and State Highway 75 along with two buildings located off airport property. The deficiencies are summarized in the following table:

Runway OFA	State Highway 75	Perimeter Fence	Off Airport Buildings
13 Arrivals	345'	320'	None
13 Departures	275' to 345'	250' to 320'	335'
31 Arrivals	275' to 345'	250' to 320'	335'
31 Departures	345'	320'	None

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FEDERAL AVIATION ADMINISTRATION
NORTHWEST MOUNTAIN REGION
AIRPORT IMPROVEMENT PROGRAM

MODIFICATION OF AIRPORT DESIGN STANDARDS

In order to meet OFA requirements either the Runway and all airport facilities would have to be shifted to the West or State Highway 75 would have to be shifted to the East.

Neither of these options are seen as practicable and providing a less than standard OFA will provide an acceptable level of safety, based on the aircraft traffic at the airport.

12. DISCUSS VIABLE ALTERNATIVES (FAA ORDER 5300.1E):

The airport sponsor has considered three alternatives to provide a Runway OFA at the airport that complies with standards. The first two alternatives, though viable, are not practicable, due to cost and environmental impact.

1. Relocate Runway And All Airport Facilities To The West – Not Practicable
    - Essentially reconstructs the entire airport west of existing facilities, including the terminal, FBO facilities, all hangars and maintenance/ARFF facilities.
    - Total estimated cost exceeds $144 million.
2. Relocate Highway to the East – Not Practicable
    - Requires relocation of approximately 2 miles of State Highway 75 approximately 75 feet to the east.
    - A large neighborhood exists east of the airport in this location and relocating the highway will greatly increase the environmental impact of the highway on that neighborhood. Idaho Transportation Department has completed an Environmental Impact Statement study for a proposed project on this highway, which identifies the following environmental impacts of the highway in this location, all of which would be exacerbated significantly by relocating the highway as described. Note that an environmental analysis for the proposed action relative to the airport has not been completed – these impacts are identified based on previous studies and would require further evaluation.
        - Historical Resources: Relocation of the highway would require removal of a railroad berm that has been identified as a potential historic structure.
        - Noise: The noise levels of a relocated highway may exceed those permitted by Federal Highway Administration guidelines and require mitigation. Mitigation is difficult at this location, due to local ordinances prohibiting construction of noise walls.
        - Environmental Justice: The adjacent neighborhood is high density, with relatively low incomes and a high minority population. Based on these factors, relocating the highway could induce environmental justice impacts.
    - Costs for relocating the highway are estimated to exceed $17 million.
3. Allow Highway, Fence and Buildings To Remain
    - Do not relocate the highway.
    - Based on existing traffic at the airport, this will provide an acceptable level of safety. (See explanation below.)

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
NORTHWEST MOUNTAIN REGION
AIRPORT IMPROVEMENT PROGRAM

MODIFICATION OF AIRPORT DESIGN STANDARDS

13. STATE WHY MODIFICATION WOULD PROVIDE ACCEPTABLE LEVEL OF SAFETY, ECONOMY, DURABILITY, AND WORKMANSHIP (FAA ORDER 5300.1E):

In 2011, the Transportation Research Board (TRB) published ACRP Report 51 – Risk Assessment Method to Support Modification of Airfield Separation Standards. This report provides a method for calculating the probability and associated risk for various runway to object separations, with the purpose of determining acceptability of modifications of standards. The method outlined in the report involves calculating the risk for three separate phases of aircraft operation: airborne phase, landing roll and takeoff roll. The highest risk value is then used to evaluate whether the separation is acceptable. The report provides figures for each of the phases of aircraft operations where the runway to object separation is used to determine the risk.

Current traffic at SUN includes less than 50,000 operations (25,000 takeoffs and 25,000 landings) per year. Using these operational numbers and the procedure outlined in ACRP Report 51, the estimated risk along with the return period for each phase of operation is summarized below for each of the objects located in the Runway Object Free Area. In each case, the controlling phase of flight was the Landing Roll. The table below summarizes the risk associated with each object.

Object (Separation)	Controlling Phase of Flight	Hazard Severity Classification	Rate of Occurrence	Acceptable Level?
Perimeter Fence (250')	Landing Roll	Major	Once every 250 years	Yes
Perimeter Fence (320')	Landing Roll	Major	Once every 440 years	Yes
State Highway 75 (275')	Landing Roll	Catastrophic	Once every 333 years	Yes
State Highway 75 (345')	Landing Roll	Catastrophic	Once every 571 years	Yes
Off Airport Buildings (335')	Landing Roll	Catastrophic	Once every 500 years	Yes

As shown in the table above, each of the various Runway to Object Separations provide an acceptable level of risk. In addition, the closest separations are all located on the north end of the airfield. Though each of these penetrates the departure OFA for Runway 13, the risk of an incident is actually much lower as an aircraft would be taking off in the opposite direction of the objects. For arrivals on Runway 31, due to the use of declared distances, the objects are located a minimum of 1,000' from the end of the runway declared suitable for landing operations. Their location is modeled as if the objects are located laterally to the runway and as such the actual risk of an incident is much lower.

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
NORTHWEST MOUNTAIN REGION
AIRPORT IMPROVEMENT PROGRAM

MODIFICATION OF AIRPORT DESIGN STANDARDS

MODIFICATION:	LOCATION:	PAGE 2 OF 2
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17. DATE OF LATEST FAA SIGNED ALP:		
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21. FAA DIVISIONAL REVIEW (AT, AF, FS):		

ROUTING SYMBOL	SIGNATURE	DATE	CONCUR	NON-CONCUR

COMMENTS:

22. AIRPORTS' DIVISION FINAL ACTION:

☐ UNCONDITIONAL APPROVAL	☐ CONDITIONAL APPROVAL	☐ DISAPPROVAL

DATE:	SIGNATURE:	TITLE:

CONDITIONS OF APPROVAL:

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
NORTHWEST MOUNTAIN REGION
AIRPORT IMPROVEMENT PROGRAM

MODIFICATION OF AIRPORT DESIGN STANDARDS

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MODIFICATION TO AIRPORT DESIGN STANDARDS REQUESTS SHOULD INCLUDE SKETCHES OR DRAWINGS WHICH CLEARLY ILLUSTRATE THE NONSTANDARD CONDITION.

ITEMS

1. LEGAL NAME OF AIRPORT.

2. ASSOCIATED CITY.

3. AIRPORT LOCATION IDENTIFIER (SEE APPROACH PLATES/AIRPORT FACILITY DIRECTORY).

4. IDENTIFY THE RUNWAY(S), TAXIWAY(S) OR OTHER FACILITIES EFFECTED BY THE PROPOSED MODIFICATION TO STANDARDS REQUEST.

5. IDENTIFY THE MOST CRITICAL APPROACH FOR EACH RUNWAY IDENTIFIED IN #4.

6. AIRPORT REFERENCE CODE - SEE PARAGRAPH 2, PAGE 1 AC 150/5300-13(CHANGE 4) - I.E. C-II, B-II, A-I (SMALL).

7. NOTE THE DESIGN AIRCRAFT (ARC OR SPECIFIC AIRCRAFT) FOR EACH FACILITY IDENTIFIED IN #4. A DESIGN AIRCRAFT MUST MAKE REGULAR USE OF THE FACILITY. NORMALLY, FAA CONSIDERS REGULAR USE TO BE 500 OR MORE ANNUAL INTINERANT OPERATIONS.

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Appendix 3

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
AIRPORT IMPROVEMENT PROGRAM

MODIFICATION OF AIRPORT CONSTRUCTION STANDARDS

SPECIFICATION & PARA. REQUESTED MODIFICATION & JUSTIFICATION

DATE **SPONSOR**

DATE **APPROVED BY (FAA)**

Attachment A

APPENDIX D - MOS
RSA GRADING

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
NORTHWEST MOUNTAIN REGION
AIRPORT IMPROVEMENT PROGRAM

MODIFICATION OF AIRPORT DESIGN STANDARDS

BACKGROUND

1. AIRPORT: **Friedman Memorial Airport**	2. LOCATION(CITY,STATE): **Hailey, ID**	3. LOC ID: **SUN**
4. EFFECTED RUNWAY/TAXIWAY: **RUNWAY 13-31**	5. APPROACH (EACH RUNWAY): **RW 13 VISUAL** **RW 31 NPI**	6. AIRPORT REF. CODE (ARC): **C-III**

7. DESIGN AIRCRAFT (EACH RUNWAY/TAXIWAY): **Bombardier Q-400 and Gulfstream G-V**

MODIFICATION OF STANDARDS

8. TITLE OF STANDARD BEING MODIFIED (CITE REFERENCE DOCUMENT):

Runway Safety Area (RSA) Grading, Advisory Circular 150/5300-13A, *Airport Design* (AC 150/5300-13A)

9. STANDARD/REQUIREMENT:

Per Figure 3-23 on page 82 of AC 5300-13, the RSA transverse grades vary from 1.5% to 3% from the edge of runway shoulder down to the edge of the runway safety area.

10. PROPOSED:

Existing transverse grades in the north half of the airport vary from 0% to 1% to remain.

11. EXPLAIN WHY STANDARD CANNOT BE MET (FAA ORDER 5300.1E):

In order to meet the RSA grading standards, approximately 250,000 cubic yards of excavation would be disposed of offsite in addition to approximately 50,000 yards of onsite embankment. The estimated cost of disposing of the material offsite alone is over $3.7 million dollars. In the mountain environment of Hailey, the project would need to occur in the summer during peak travel times and the airport's single runway would need to be shut down for approximately 90 days to complete the work. The closure of the airport for an extended period of time would have significant negative economic impacts on the community.

12. DISCUSS VIABLE ALTERNATIVES (FAA ORDER 5300.1E):

The airport sponsor has considered two alternatives to meet this standard. Though viable, the first alternative is not seen as practicable due to cost and operational impacts relative to the improvement in safety.

1. Grade the RSA so transverse grades are -1.5% to -3%.
    - Requires excavation of over 300,000 cubic yards of material, over 250,000 of which would need to be disposed of off site.
    - Additional cost of over $3.7 million to dispose of material off site.
    - Additional cost of $1.5 million to relocate storm drainage system.
    - Would require runway shut down of up to 90 days during summer months, with a huge negative impact to the airport and local economy.
2. Allow existing grades of 0% to +1% to remain.
    - Provides acceptable level of safety, as described below.
    - No operational or cost impacts.

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
NORTHWEST MOUNTAIN REGION
AIRPORT IMPROVEMENT PROGRAM

MODIFICATION OF AIRPORT DESIGN STANDARDS

13. STATE WHY MODIFICATION WOULD PROVIDE ACCEPTABLE LEVEL OF SAFETY, ECONOMY, DURABILITY, AND WORKMANSHIP (FAA ORDER 5300.1E):

From AC 150/5300-13A, the purpose of the RSA is to *"enhance the safety of aircraft which undershoot, overrun or veer off the runway, and it provides greater accessibility for fire fighting and rescue equipment during such incidents."* The distance an aircraft departs from the runway is affected by three (3) major elements: weight of the aircraft, speed of the aircraft and RSA gradient. The third variable and the subject of this modification, the RSA gradient, affects the rate at which an aircraft slows after departing the runway. The steeper the gradient the longer it will take for an aircraft to stop. The existing transverse RSA gradients at SUN are flatter than standard; meaning an aircraft would actually come to a stop sooner if all other variables were equal. Paragraph 307 f in AC 5300-13 describes this condition: *"Keeping negative grades to the minimum practicable contributes to the effectiveness of the RSA."* Though flatter than standard, the RSA at SUN is graded smoothly and is capable of safely accommodating an aircraft without damage, in the case of a veer off.

The negative aspect of gradients flatter than standard are the inability to adequately drain the RSA during rainfall events. The existing RSA at SUN drains extremely well, with no accumulation of water. Existing soils drain very well and the local climate is dry, with an average annual rainfall of only 16 inches. In addition, the runway is equipped with a storm drainage system that collects and removes drainage efficiently.

The total estimated cost of meeting the minimum transverse grade of a 1.5% is $5 Million dollars and will require a full airport closure for 3 months. As the proposed RSA at SUN will meet the RSA requirements defined in AC 5300-13A, the grades flatter than standard will provide an acceptable level of safety.

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
NORTHWEST MOUNTAIN REGION
AIRPORT IMPROVEMENT PROGRAM

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Appendix 3

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
AIRPORT IMPROVEMENT PROGRAM

MODIFICATION OF AIRPORT CONSTRUCTION STANDARDS

SPECIFICATION & PARA. REQUESTED MODIFICATION & JUSTIFICATION

DATE **SPONSOR**

DATE **APPROVED BY (FAA)**

Attachment A

APPENDIX D - MOS
RUNWAY CENTERLINE TO AIRCRAFT PARKING

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
NORTHWEST MOUNTAIN REGION
AIRPORT IMPROVEMENT PROGRAM

MODIFICATION OF AIRPORT DESIGN STANDARDS

BACKGROUND

1. AIRPORT: **Friedman Memorial Airport**	2. LOCATION(CITY,STATE): **Hailey, ID**	3. LOC ID: **SUN**
4. EFFECTED RUNWAY/TAXIWAY: **RUNWAY 13-31**	5. APPROACH (EACH RUNWAY): **RW 13 VISUAL** **RW 31 NPI**	6. AIRPORT REF. CODE (ARC): **C-III**

7. DESIGN AIRCRAFT (EACH RUNWAY/TAXIWAY): **Bombardier Q-400 and Gulfstream G-V**

MODIFICATION OF STANDARDS

8. TITLE OF STANDARD BEING MODIFIED (CITE REFERENCE DOCUMENT):

Runway to Aircraft Parking Area, Advisory Circular 150/5300-13A, *Airport Design* (Advisory Circular 150/5300-13A)

9. STANDARD/REQUIREMENT:

500 feet per Table 3-8 on page 94 of AC 150/5300-13A.

10. PROPOSED:

400 feet

11. EXPLAIN WHY STANDARD CANNOT BE MET (FAA ORDER 5300.1E):

In the airport's current configuration, relocation of aircraft parking area to a separation of 500 feet would either require the reconfiguration of all airfield facilities on the west side of the airport or relocating the runway and Highway 75 to the east to provide the required separation. Neither of these options are seen as practicable and providing a separation of 400 feet between Runway 13-31 and Aircraft Parking will provide an acceptable level of safety, based on the aircraft traffic at the airport.

12. DISCUSS VIABLE ALTERNATIVES (FAA ORDER 5300.1E):

The airport sponsor has considered three alternatives to provide meet or improve compliance with standards at the airport, including Runway to Aircraft Parking Separation. The first two alternatives, though viable, are not practicable, due to cost and environmental impact.

1. Relocate Terminal and Aircraft Parking To The Southwest – Not Necessary
    - Acquire 30 Acres of land, relocate terminal building and access road, extend utilties and construct 50,000 SY of aircraft parking
    - Total estimated cost exceeds $30 million.
2. Relocate Runway and Highway to the East – Not Practicable
    - Requires relocation of approximately 2 miles of State Highway 75 approximately 75 feet to the east.
    - A large neighborhood exists east of the airport in this location and relocating the highway will greatly increase the environmental impact of the highway on that neighborhood. Idaho Transportation Department has completed an Environmental Impact Statement study for a proposed project on this highway, which identifies the following environmental impacts of the highway in this location, all of which would be exacerbated significantly by relocating the highway as described. Note that an environmental analysis for the proposed action relative to the airport has not been completed – these impacts are identified based on previous studies and would require further evaluation.
        - Historical Resources: Relocation of the highway would require removal of a railroad berm that has been identified as a potential historic structure.
        - Noise: The noise levels of a relocated highway may exceed those permitted by Federal Highway Administration guidelines and require mitigation. Mitigation is difficult at this location, due to local ordinances prohibiting construction of noise walls.
        - Environmental Justice: The adjacent neighborhood is high density, with relatively low incomes and a high minority population. Based on these factors, relocating the highway could induce environmental justice impacts.
    - Costs for relocating the Runway and Highway are estimated to exceed $119 million.
3. Reconfigure Aircraft Parking to Provide 400 Feet Separation
    - Can be accomplished along with other proposed standards improvements, without additional cost or environmental impact.
    - Provides acceptable level of safety.

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13. STATE WHY MODIFICATION WOULD PROVIDE ACCEPTABLE LEVEL OF SAFETY, ECONOMY, DURABILITY, AND WORKMANSHIP (FAA ORDER 5300.1E):

According to AC 150/5300-13A Paragraph 321 a (3), "Runway to aircraft parking area separation is determined by the landing and takeoff flight path profiles and physical characteristics of the aircraft. The runway to parking area separation standard precludes any part of a parked aircraft (tail, wingtip, nose, etc.) from being within the ROFA or penetrating the OFZ."

A runway to aircraft parking area separation of 400 feet would preclude any part of a parked aircraft from penetrating the Runway OFA or the Runway OFZ. In addition, a separation of 400 feet would also provide the following benefits:

1. Prevent parked aircraft from penetrating the Runway Primary Surface
2. Prevent parked aircraft from penetrating the Runway Transitional Surface
3. Prevent parked aircraft from penetrating the Taxiway OFA

As the proposed runway to aircraft parking area separation of 400 feet meets the purpose of this standard as stated in AC 150/5300-13A, this configuration will provide an acceptable level of safety.

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MODIFICATION OF AIRPORT DESIGN STANDARDS

MODIFICATION:	LOCATION:	PAGE 2 OF 2
14. SIGNATURE OF ORIGINATOR:	15. ORIGINATOR'S ORGANIZATION:	16. TELEPHONE:
17. DATE OF LATEST FAA SIGNED ALP:		
18. ADO RECOMMENDATION:	19. SIGNATURE:	20. DATE:
21. FAA DIVISIONAL REVIEW (AT, AF, FS):		

ROUTING SYMBOL	SIGNATURE	DATE	CONCUR	NON-CONCUR

COMMENTS:

22. AIRPORTS' DIVISION FINAL ACTION:

☐ UNCONDITIONAL APPROVAL	☐ CONDITIONAL APPROVAL	☐ DISAPPROVAL

DATE:	SIGNATURE:	TITLE:

CONDITIONS OF APPROVAL:

U.S. DEPARTMENT OF TRANSPORTATION
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MODIFICATION OF AIRPORT DESIGN STANDARDS

ITEMS 1-17 ARE TO BE COMPLETED BY THE AIRPORT SPONSOR(ORIGINATOR). ALL OTHER ITEMS WILL BE COMPLETED BY THE FAA.

THE COMPLETED FORM WILL BE TRANSMITTED BY THE ORIGINATOR TO THE APPLICABLE ADO/AFO. THE ADO/AFO WILL TRANSMIT THE FINAL FAA DETERMINATION TO THE ORIGINATOR.

MODIFICATION TO AIRPORT DESIGN STANDARDS REQUESTS SHOULD INCLUDE SKETCHES OR DRAWINGS WHICH CLEARLY ILLUSTRATE THE NONSTANDARD CONDITION.

ITEMS

1. LEGAL NAME OF AIRPORT.

2. ASSOCIATED CITY.

3. AIRPORT LOCATION IDENTIFIER (SEE APPROACH PLATES/AIRPORT FACILITY DIRECTORY).

4. IDENTIFY THE RUNWAY(S), TAXIWAY(S) OR OTHER FACILITIES EFFECTED BY THE PROPOSED MODIFICATION TO STANDARDS REQUEST.

5. IDENTIFY THE MOST CRITICAL APPROACH FOR EACH RUNWAY IDENTIFIED IN #4.

6. AIRPORT REFERENCE CODE - SEE PARAGRAPH 2, PAGE 1 AC 150/5300-13(CHANGE 4) - I.E. C-II, B-II, A-I (SMALL).

7. NOTE THE DESIGN AIRCRAFT (ARC OR SPECIFIC AIRCRAFT) FOR EACH FACILITY IDENTIFIED IN #4. A DESIGN AIRCRAFT MUST MAKE REGULAR USE OF THE FACILITY. NORMALLY, FAA CONSIDERS REGULAR USE TO BE 500 OR MORE ANNUAL INTINERANT OPERATIONS.

IF THE AIRPORT SERVES A WHOLE FAMILY OF AIRCRAFT IN A PARTICULAR GROUP, THE ARC (I.E. B-II) SHOULD BE SPECIFIED. IF,HOWEVER, THE AIRPORT IS USED BY ONLY 1 OR 2 OF A FAMILY OF AIRCRAFT (IX- BEECH KING AIR C90), THE MOST DEMANDING (APPROACH SPEED, WINGSPAN) AIRCRAFT SHOULD BE SPECIFIED.

8. IDENTIFY THE SPECIFIC NAME OF THE STANDARD THAT IS PROPOSED TO BE MODIFIED FOR THE SUBJECT LOCAL CONDITION.
9. DESCRIBE (WORDS AND NUMBERS) THE DIMENSIONS AND REQUIREMENTS OF THE STANDARD AS PROVIDED IN AC 150/5300-13.

10. STATE THE PROPOSED MODIFICATION TO THE STANDARD.

11. DISCUSS THE LOCAL CONDITIONS THAT MAKE IT IMPRACTICAL OR IMPOSSIBLE TO MEET THE STANDARD.

12. IDENTIFY ALTERNATIVES TO THE SUBJECT PROPOSED MODIFICATION, AND SHOW WHY THESE ALTERNATIVES ARE NOT VIABLE.

13. DISCUSS HOW THE PROPOSED MODIFICATION WOULD IMPACT AIRPORT SAFETY AND EXPLAIN WHY AN ACCEPTABLE LEVEL OF SAFETY, ECONOMY, DURABILITY, AND WORKMANSHIP WOULD STILL EXIST.

14. TYPED NAME AND SIGINATURE OF AIRPORT AUTHORITY REPRESELNTATIVE.

15. SELF-EXPLANATORY.

16. SELF-EXPLANATORY.

17. SELF-EXPLANATORY.

18. TO BE COMPLETED BY FAA.

Appendix 3

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
AIRPORT IMPROVEMENT PROGRAM

MODIFICATION OF AIRPORT CONSTRUCTION STANDARDS

SPECIFICATION & PARA. REQUESTED MODIFICATION & JUSTIFICATION

DATE **SPONSOR**

DATE **APPROVED BY (FAA)**

Attachment A