



NATIONAL TRANSPORTATION SAFETY BOARD

Office of Aviation Safety
Washington, D.C. 20594

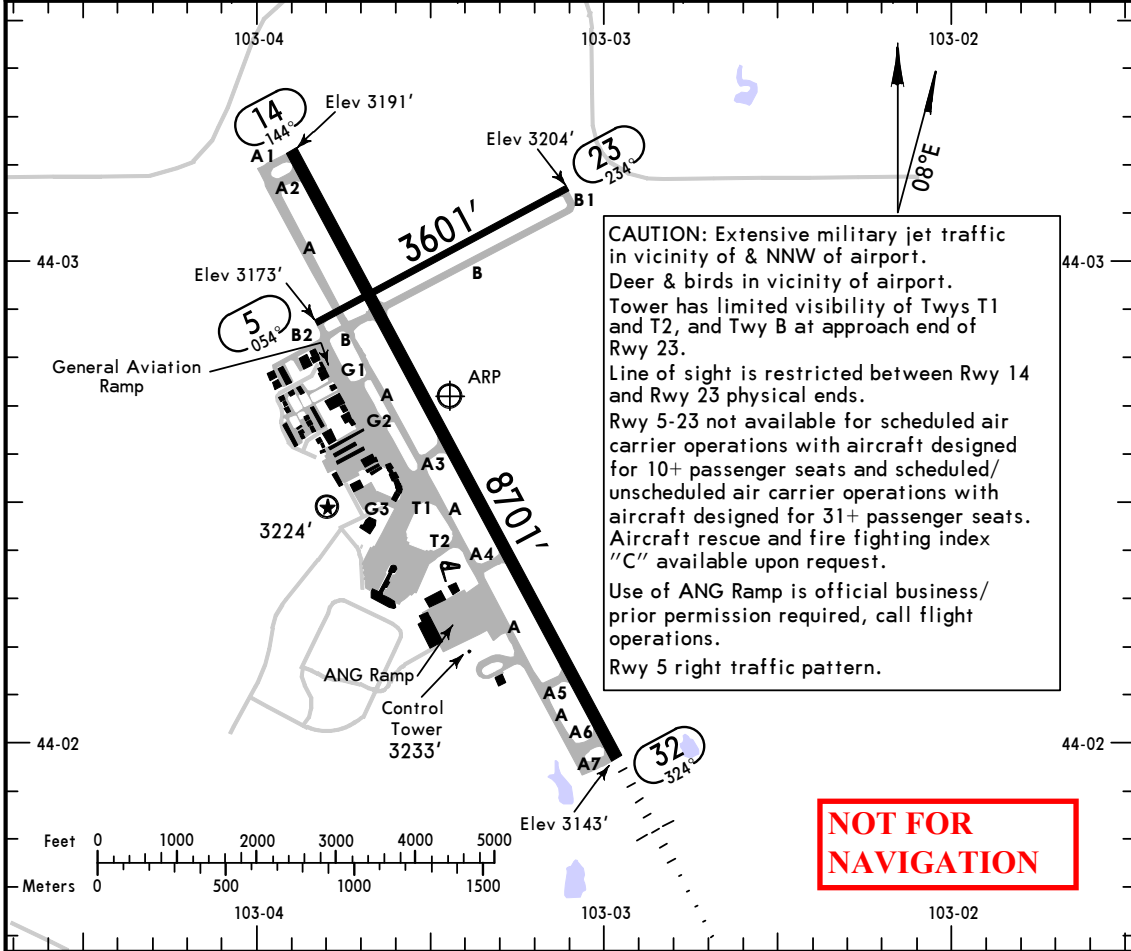
October 27, 2016

Attachment 7 – RAP Approach Charts

OPERATIONAL FACTORS

DCA16IA200

ASOS 118.52	*RAPID CITY Ground 121.9	*Tower CTAF 125.85	UNICOM 122.95	ELLSWORTH Departure (R) 119.5
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CAUTION: Extensive military jet traffic in vicinity of & NNW of airport.
 Deer & birds in vicinity of airport.
 Tower has limited visibility of Twys T1 and T2, and Twy B at approach end of Rwy 23.
 Line of sight is restricted between Rwy 14 and Rwy 23 physical ends.
 Rwy 5-23 not available for scheduled air carrier operations with aircraft designed for 10+ passenger seats and scheduled/unscheduled air carrier operations with aircraft designed for 31+ passenger seats.
 Aircraft rescue and fire fighting index "C" available upon request.
 Use of ANG Ramp is official business/prior permission required, call flight operations.
 Rwy 5 right traffic pattern.

NOT FOR NAVIGATION

ADDITIONAL RUNWAY INFORMATION

RWY		USABLE LENGTHS			
		Threshold	LANDING BEYOND Glide Slope	TAKE-OFF	WIDTH
5	① MIRL ① PAPI-L (angle 3.0°)				75'
14	① HIRL ① REIL ① PAPI-L (angle 3.0°) grooved				150'
32	① HIRL ① MALSR ① PAPI-L (angle 3.0°) grooved RVR		7825'		

① Activate on 125.85 when Twr inop.

TAKE-OFF & OBSTACLE DEPARTURE PROCEDURE

FOR FILING AS ALTERNATE
 Authorized Only When Local Weather Available

All Rwys		FOR FILING AS ALTERNATE			
Adequate Vis Ref		ILS Rwy 32		LOC Rwy 32	
1 & 2 Eng	RVR 16 or 1/4	A	600-2	800-2	800-2
3 & 4 Eng		B	700-2		
	RVR 50 or 1	C	800-2	800-2	800-2
		D			
	RVR 24 or 1/2				

OBSTACLE DP: Rwy 5, climb on heading between 255° clockwise to 210° from departure end of runway, or minimum climb of 240'/NM to 8800' for all other courses. Rwy 14, climb on heading between 325° clockwise to 210° from departure end of runway, or minimum climb of 245'/NM to 8900' for all other courses. Rwy 23, climb on heading between

210° counterclockwise to 055° from departure end of runway, or minimum climb of 245'/NM to 8900' for all other courses. Rwy 32, climb heading 324° to 3700' for courses between 255° clockwise to 140° from departure end of runway, or minimum climb of 244'/NM to 8800' for all other courses.

A
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7

KRAP/RAP
RAPID CITY REGL

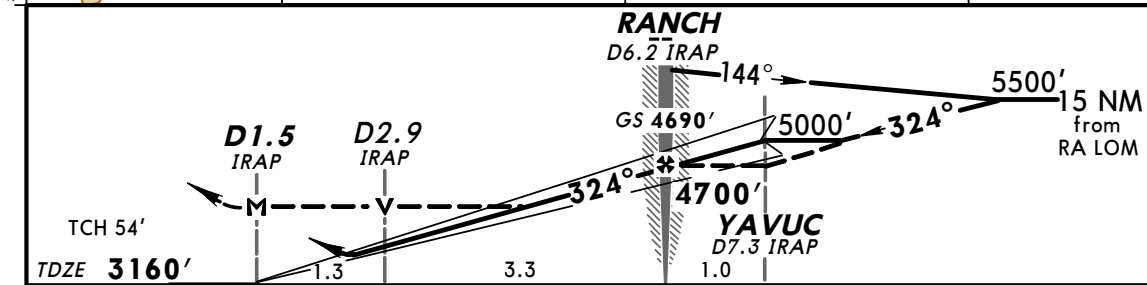
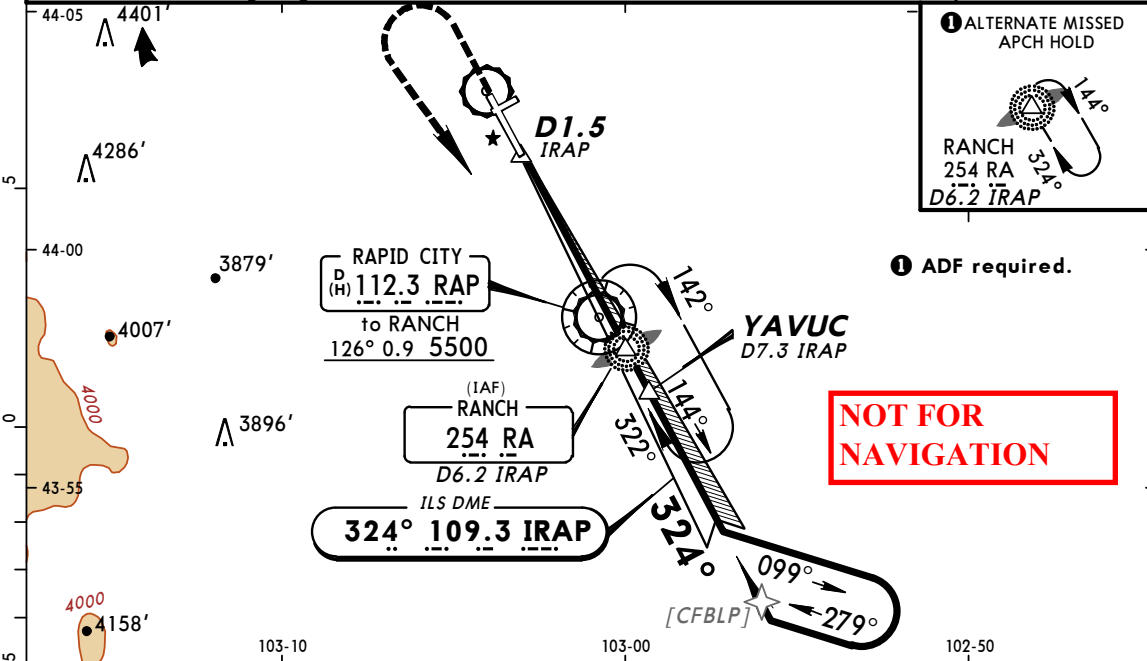
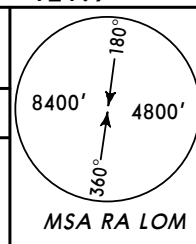
RAPID CITY, S DAK
ILS or LOC Rwy 32

ASOS 118.52		ELLSWORTH Approach (R) 119.5		*RAPID CITY Tower CTAF 125.85		*Ground 121.9	
LOC IRAP 109.3	Final Apch Crs 324°	GS RANCH 4690' (1530')	ILS DA(H) 3360' (200')	Apt Elev 3204' TDZE 3160'			

MISSED APCH: Climb to 5500' then LEFT turn direct RAP VOR and hold, or as directed by ATC.

Alt Set: INCHES Trans level: FL 180 Trans alt: 18000'

1. ADF or DME required. 2. Night landing: Rwy 5 not authorized. 3. Use local altimeter setting; if not received use Ellsworth AFB altimeter setting. 4. VDP not authorized with Ellsworth AFB altimeter setting. 5. Use IRAP DME when on the LOC course. 6. ILS glideslope unusable for coupled approaches below 3360'. 7. Pilot controlled lighting 125.85.

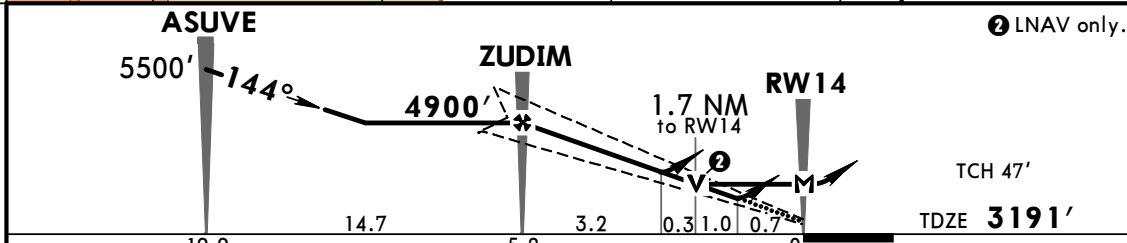
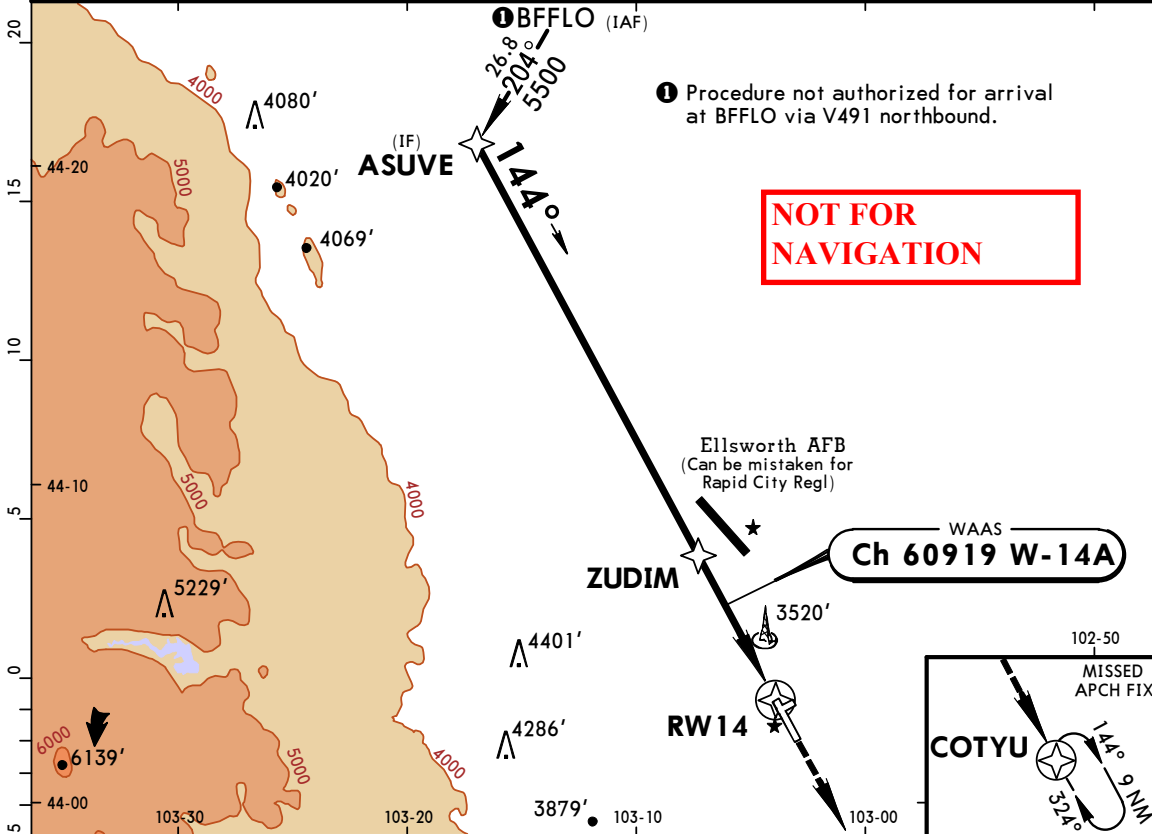


Gnd speed-Kts	70	90	100	120	140	160	MALS R	5500'	←	→	RAP
GS	3.00°	372	478	531	637	743	849	PAPI	↑	→	112.3
MAP at D1.5 IRAP or RANCH to MAP	4.6	3:57	3:04	2:46	2:18	1:58	1:43				

TERPS						STRAIGHT-IN LANDING RWY 32		CIRCLE-TO-LAND	
						With local altimeter setting		With local altimeter setting	
ILS			LOC (GS out)			Max Kts		MDA(H)	
DA(H) 3360' (200')			MDA(H) 3620' (460')						
FULL	RAIL out	ALS out	RAIL out	ALS out					
A			RVR 24	RVR 40	RVR 55	90	3740' (536') - 1		
B	RVR 24 or 1/2	RVR 40 or 3/4	or 1/2	or 3/4	or 1	120	3840' (636') - 1		
C			RVR 45	RVR 60	1 3/8	140	3840' (636') - 1 3/4		
D			or 7/8	or 1 1/8		165	3940' (736') - 2 1/4		
						With Ellsworth AFB altimeter setting		With Ellsworth AFB altimeter setting	
ILS			LOC (GS out)			Max Kts		MDA(H)	
DA(H) 3385' (225')			MDA(H) 3660' (500')						
FULL	RAIL out	ALS out	RAIL out	ALS out					
A			RVR 24	RVR 40	RVR 55	90	3780' (576') - 1		
B	RVR 24 or 1/2	RVR 40 or 3/4	or 1/2	or 3/4	or 1	120	3880' (676') - 1		
C			RVR 50	RVR 60	1 3/8	140	3880' (676') - 2		
D			or 1	or 1 1/8		165	3980' (776') - 2 1/2		

TERPS AMEND 20 8 JAN 2014

ASOS 118.52		ELLSWORTH Approach (R) 119.5		*RAPID CITY Tower CTAF 125.85		*Ground 121.9	
WAAS Ch 60919 W-14A		Final Apch Crs 144°		Minimum Alt ZUDIM 4900' (1709')		LPV DA(H) (CONDITIONAL) 3450' (259')	
				Apt Elev 3204'		TDZE 3191'	
MISSED APCH: Climb to 5500' direct COTYU and hold.							8500' MSA RW14
Alt Set: INCHES Trans level: FL 180 Trans alt: 18000'							
1. Use local altimeter setting; if not received, use Ellsworth AFB altimeter setting. 2. VDP and Baro-VNAV not authorized when using Ellsworth AFB altimeter setting. 3. For uncompensated Baro-VNAV systems, LNAV/VNAV not authorized below -14°C (7°F) or above 53°C (128°F). 4. DME/DME RNP-0.30 not authorized. 5. Helicopter visibility reduction below 1 SM not authorized. 6. Pilot controlled lighting 125.85.							

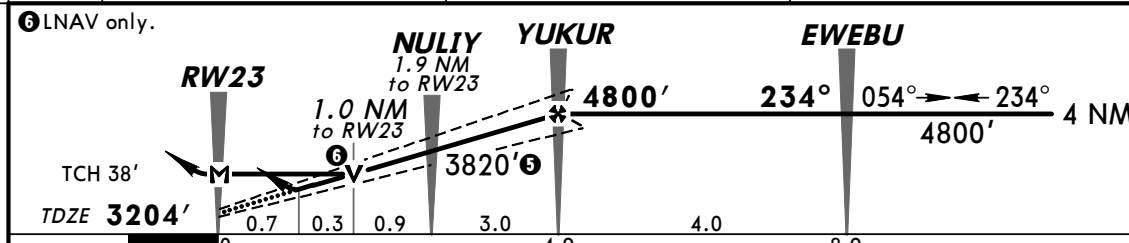
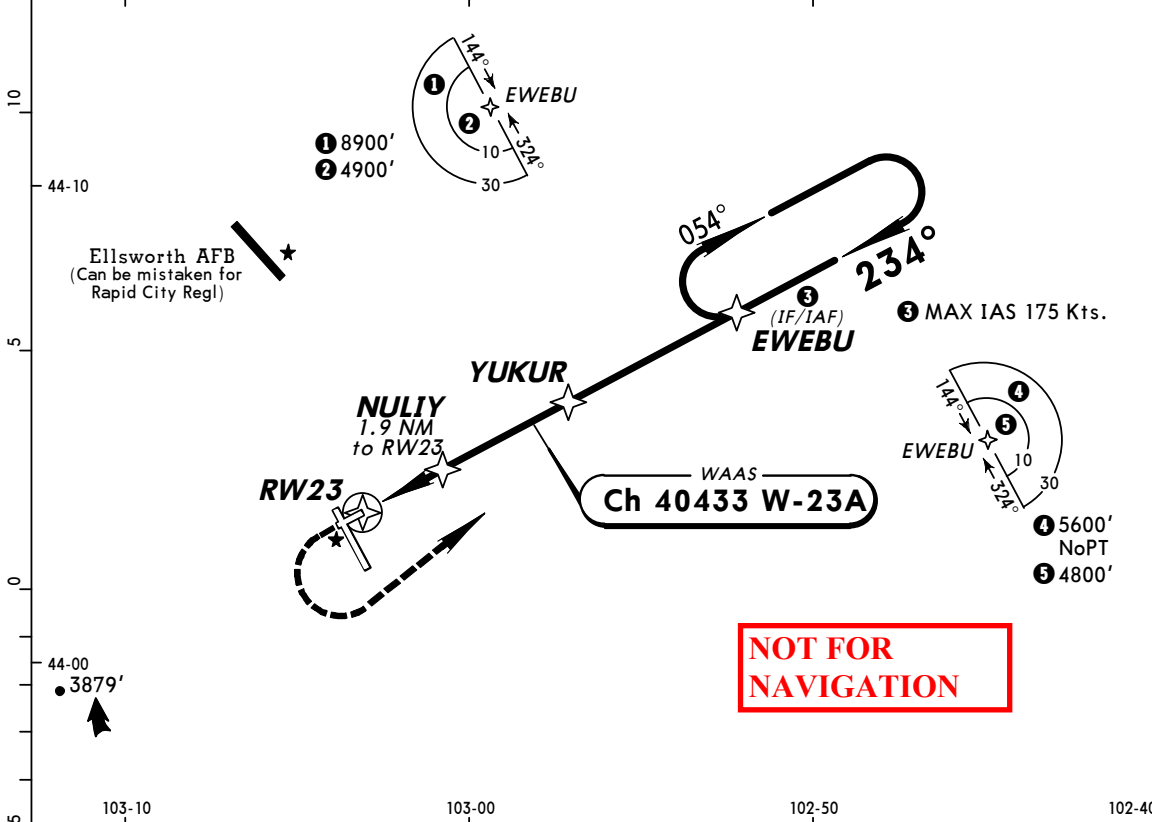


Gnd speed-Kts	70	90	100	120	140	160	REIL	5500'	D → COTYU
Glide Path Angle	3.00°	372	478	531	637	743	PAPI-L	↑	
LPV, LNAV/VNAV: MAP at DA									
LNAV: MAP at RW14									

TERPS	STRAIGHT-IN LANDING RWY 14			CIRCLE-TO-LAND	
	1 LPV DA(H) 3450' (259')	2 LNAV/VNAV DA(H) 3871' (680')	3 LNAV MDA(H) 3780' (589')	With Local Altimeter Setting MDA(H)	With Ellsworth AFB Altimeter Setting MDA(H)
A			1	90 3780' (576') - 1	3820' (616') - 1
B				120 3840' (636') - 1	3880' (676') - 1
C	1	2½		140 3840' (636') - 1¾	3880' (676') - 2
D			1¾	165 3840' (636') - 2	3880' (676') - 2¼

- 1 DA(H) 3476' (285') with Ellsworth AFB altimeter setting.
- 2 DA(H) 3897' (706') with Ellsworth AFB altimeter setting.
- 3 MDA(H) 3820' (629') CAT C,D: Vis 2 with Ellsworth AFB altimeter setting.
- 4 Not Authorized to Rwy 5-23 at Night.

ASOS 118.52		ELLSWORTH Approach (R) 119.5		*RAPID CITY Tower CTAF 125.85		*Ground 121.9	
WAAS Ch 40433 W-23A		Final Apch Crs 234°		Minimum Alt YUKUR 4800' (1596')		LPV DA(H) (CONDITIONAL) 3454' (250')	
				Apt Elev 3204'		TDZE 3204'	
MISSED APCH: Climbing LEFT turn to 5300' direct EWEBU and hold.							TAA 30 NM IAF
Alt Set: INCHES		Trans level: FL 180		Trans alt: 18000'			
1. Use local altimeter setting; if not received, use Ellsworth AFB altimeter setting. 2. VDP and Baro-VNAV not authorized when using Ellsworth AFB altimeter setting. 3. For uncompensated Baro-VNAV systems, LNAV/VNAV not authorized below -21°C (-5°F) or above 54°C (130°F). 4. DME/DME RNP-0.30 not authorized. 5. Pilot controlled lighting 125.85.							

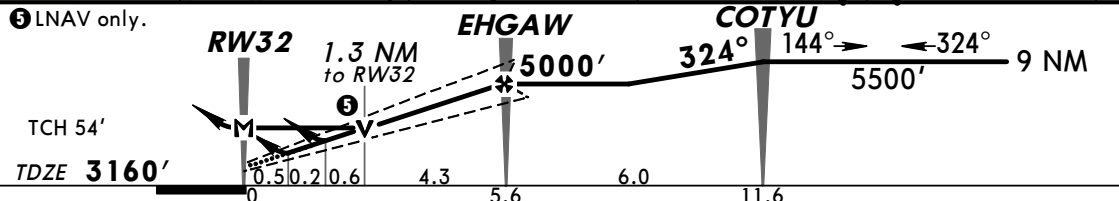
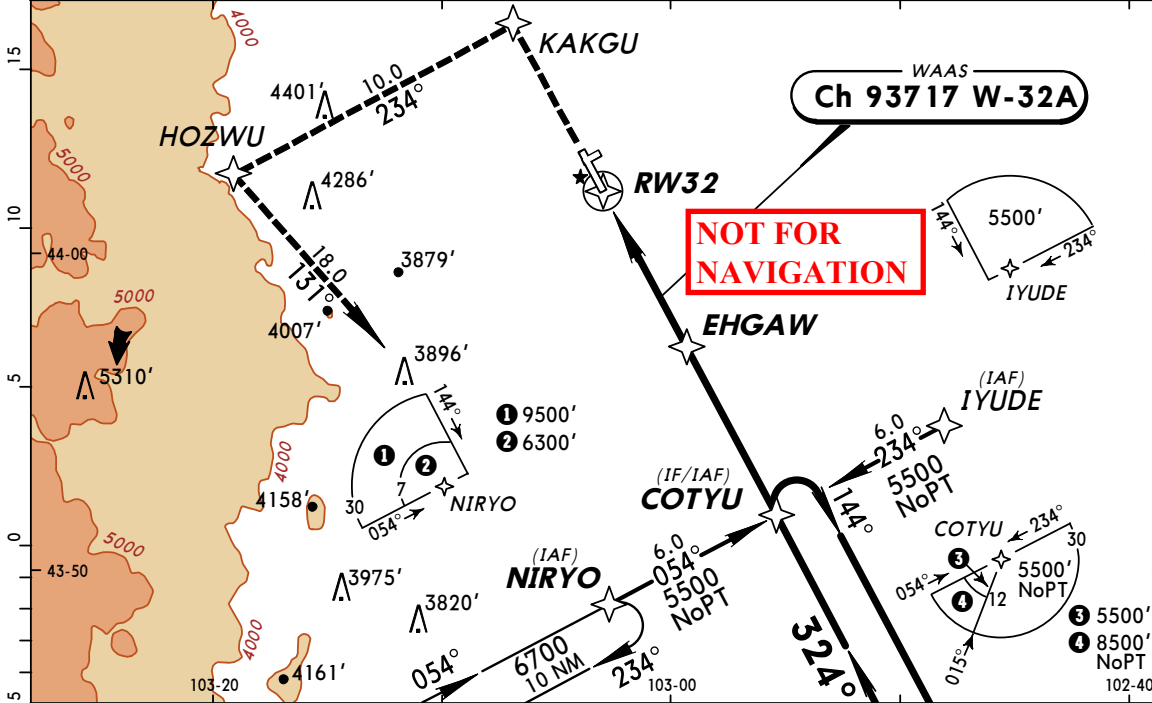


Gnd speed-Kts	70	90	100	120	140	160			
Glide Path Angle	3.00°	372	478	531	637	743	849		
LPV, LNAV/VNAV: MAP at DA									
LNAV: MAP at RW23									

	STRAIGHT-IN LANDING RWY 23			CIRCLE-TO-LAND	
	1 LPV DA(H) 3454' (250')	1 LNAV/VNAV DA(H) 3454' (250')	2 LNAV MDA(H) 3560' (356')	With Local Altimeter Setting MDA(H)	With Ellsworth AFB Altimeter Setting MDA(H)
A	1	1	1	90 3660' (456')-1	3700' (496')-1
B	1	1	1	120 3840' (636')-1	3880' (676')-1
C	NA	NA	NA	C	NA
D	NA	NA	NA	D	NA

1 DA(H) 3479' (275') with Ellsworth AFB altimeter setting.
2 MDA(H) 3600' (396') with Ellsworth AFB altimeter setting.

ASOS 118.52		ELLSWORTH Approach (R) 119.5		*RAPID CITY Tower CTAF 125.85		*Ground 121.9	
WAAS Ch 93717 W-32A		Final Apch Crs 324°		Minimum Alt EHGAW 5000' (1840')		LPV DA(H) (CONDITIONAL) 3360' (200')	
				Apt Elev 3204'		TDZE 3160'	
						TAA 30 NM IAF	
MISSED APCH: Climb to 6700' direct KAKGU and LEFT turn on track 234° to HOZWU and LEFT turn on track 131° to NIRYO and hold.							
Alt Set: INCHES Trans level: FL 180 Trans alt: 18000' 1. Use local altimeter setting; if not received, use Ellsworth AFB altimeter setting. 2. VDP and Baro-VNAV not authorized when using Ellsworth AFB altimeter setting. 3. For uncompensated Baro-VNAV systems, LNAV/VNAV not authorized below -21°C (-5°F) or above 42°C (107°F). 4. DME/DME RNP-0.30 not authorized. 5. Pilot controlled lighting 125.85.							



Gnd speed-Kts	70	90	100	120	140	160	MALSR 6700'	PAPI	D → KAKGU	
Glide Path Angle	3.00°									
LPV, LNAV/VNAV: MAP at DA										
LNAV: MAP at RW32										

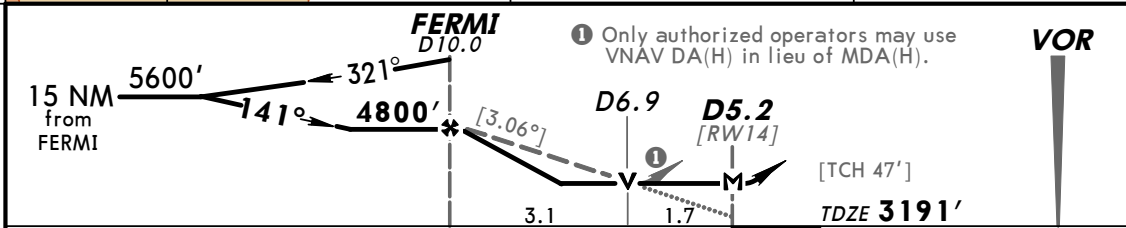
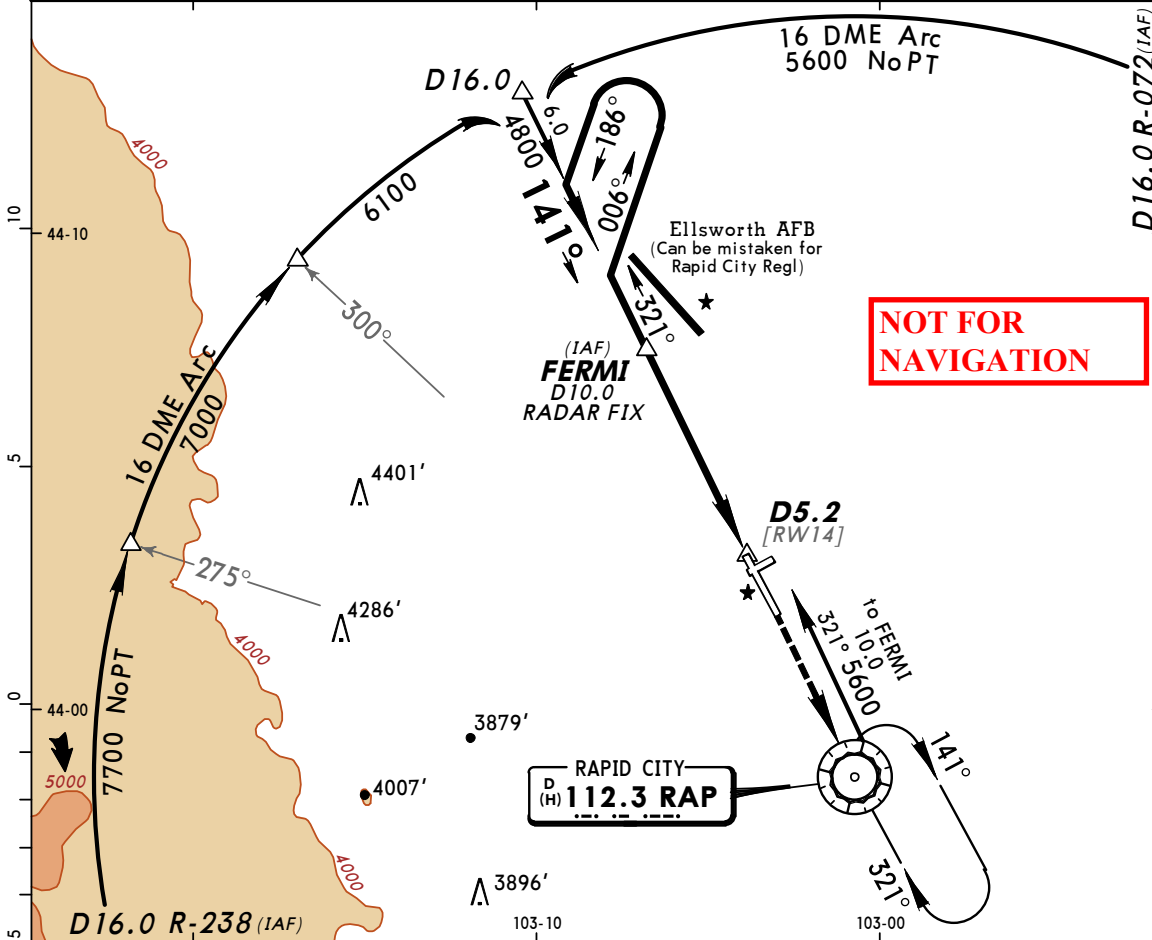
TERPS									
STRAIGHT-IN LANDING RWY 32									1
With Local Altimeter Setting									1
LPV			LNAV/VNAV			LNAV			C
DA(H) 3360' (200')			DA(H) 3410' (250')			MDA(H) 3620' (460')			
	RAIL out	ALS out	RAIL out	ALS out	RAIL out	ALS out	RAIL out	ALS out	Max Kts
A					RVR 24	RVR 40	RVR 55		90
B	RVR 24 or 1/2	RVR 40 or 3/4	RVR 24 or 1/2	RVR 40 or 3/4	RVR 24 or 1/2	RVR 40 or 3/4	RVR 55 or 1		120
C					RVR 45 or 7/8	RVR 55 or 1	1 3/8		140
D			RVR 40 or 3/4		RVR 50 or 1				165
With Ellsworth AFB Altimeter Setting									C
LPV			LNAV/VNAV			LNAV			C
DA(H) 3386' (226')			DA(H) 3436' (276')			MDA(H) 3660' (500')			
	RAIL out	ALS out	RAIL out	ALS out	RAIL out	ALS out	RAIL out	ALS out	Max Kts
A					RVR 24	RVR 40	RVR 55		90
B	RVR 24 or 1/2	RVR 40 or 3/4	RVR 24 or 1/2	RVR 40 or 3/4	RVR 24 or 1/2	RVR 40 or 3/4	RVR 55 or 1		120
C					RVR 50	RVR 60	1 3/8		140
D			RVR 40 or 3/4		RVR 50 or 1				165

1 Not authorized to Rwy 5-23 at night.

KRAP/RAP
RAPID CITY REGL

RAPID CITY, S DAK
VOR Rwy 14

ASOS 118.52		ELLSWORTH Approach (R) 119.5		*RAPID CITY Tower CTAF 125.85		*Ground 121.9	
VOR RAP 112.3	Final Apch Crs 141°	Minimum Alt FERMI 4800' (1609')	MDA(H) (CONDITIONAL) 3780' (589')	Apt Elev 3204' TDZE 3191'		<p>MSA RAP VOR</p>	
<p>MISSED APCH: Climb to 5600' direct RAP VOR and hold. Continue climb-in-hold to 5600'.</p> <p>Alt Set: INCHES Trans level: FL 180 Trans alt: 18000'</p> <p>1. DME or Radar required. 2. Use local altimeter setting; if not received, use Ellsworth AFB altimeter setting. 3. VDP not authorized when using Ellsworth AFB altimeter setting. 4. Pilot controlled lighting 125.85.</p>							



Gnd speed-Kts	70	90	100	120	140	160	REIL PAPI-L	5600' ↑	D →	RAP 112.3
Descent Angle [3.06°]	379	487	541	650	758	866				
MAP at D5.2 or FERMI to MAP	4.8	4:07	3:12	2:53	2:24	2:03				

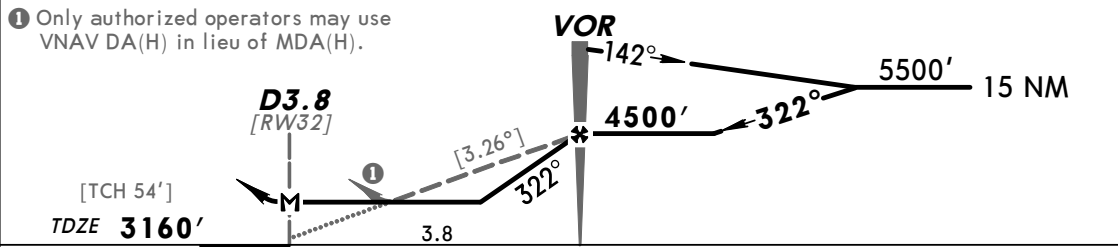
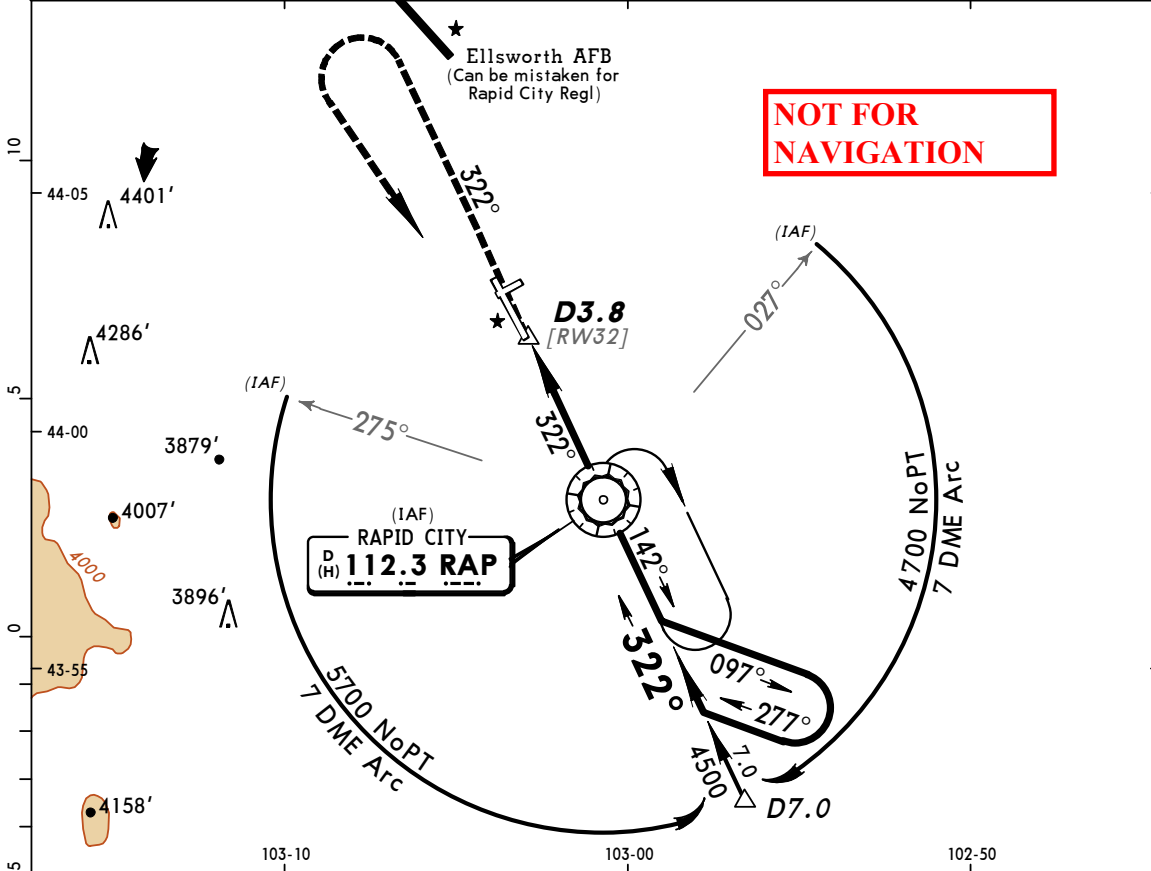
	STRAIGHT-IN LANDING RWY 14		Max Kts	CIRCLE-TO-LAND	
	MDA(H) 3780' (589') With Local Altimeter Setting	MDA(H) 3820' (629') With Ellsworth AFB Altimeter Setting		With Local Altimeter Setting	With Ellsworth AFB Altimeter Setting
A	1	1	90	3780' (576') - 1	3820' (616') - 1
B	1	1	120	3840' (636') - 1	3880' (676') - 1
C	1½	1½	140	3840' (636') - 1¾	3880' (676') - 2
D	1¾	1¾	165	3840' (636') - 2	3880' (676') - 2¼

TERPS AMEND OF 14 NOV 2013

KRAP/RAP
RAPID CITY REGL

RAPID CITY, S DAK
VOR Rwy 32

ASOS 118.52		ELLSWORTH Approach (R) 119.5		*RAPID CITY Tower CTAF 125.85		*Ground 121.9	
VOR RAP 112.3	Final Apch Crs 322°	Minimum Alt VOR 4500' (1340')	MDA(H) (CONDITIONAL) 3440' (280')	Apt Elev 3204' TDZE 3160'		<p>MSA RAP VOR</p>	
MISSED APCH: Climb to 5500' outbound via RAP VOR R-322 then LEFT turn direct RAP VOR and hold.							
Alt Set: INCHES Trans level: FL 180 Trans alt: 18000' 1. Use local altimeter setting; if not received, use Ellsworth AFB altimeter setting. 2. VGSI and descent angles not coincident. 3. Pilot controlled lighting 125.85.							



Gnd speed-Kts	70	90	100	120	140	160	MALSR PAPI 5500' via RAP 112.3 R-322
Descent Angle [3.26°]	404	519	577	692	808	923	
MAP at D3.8 or VOR to MAP	3:8	3:15	2:32	2:17	1:54	1:38	

TERPS	STRAIGHT-IN LANDING RWY 32				CIRCLE-TO-LAND			
	MDA(H) 3440' (280') With Local Altimeter Setting		MDA(H) 3480' (320') With Ellsworth AFB Altimeter Setting		With Local Altimeter Setting		With Ellsworth AFB Altimeter Setting	
	RAIL out		ALS out		RAIL out		ALS out	
	A				Max Kts	MDA(H)	MDA(H)	
	B	RVR 40	RVR 55	RVR 45	90	3660'(456')-1	3700'(496')-1	
C	or 3/4	or 1	or 7/8	120	3840'(636')-1	3880'(676')-1		
D				140	3840'(636')-1 3/4	3880'(676')-2		
				165	3840'(636')-2	3880'(676')-2 1/4		

TERPS AMEND 24G 5 FEB 2015