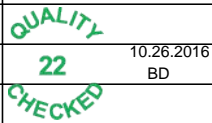


Flight Procedure Tracking Form		Action: FLIGHT CHECK	Task Type: IAP	Date Open: 11/02/2015	Task #: 2015110227346801001	Request #: 20151102273468
Procedure: RNAV (RNP) Y RWY 30R AMDT 1			Airport ID: KMSP	Airport: MINNEAPOLIS-ST PAUL INTL/WOLD-CHAMBERLAIN		Reimbursable #: NO
City: MINNEAPOLIS	ST: MN	GPS #:	Estimated Chart Date: 01/05/2017		FICO #:	
Fac ID: N/A		Fac. Type:		Specialist: JAMES ROGERS		
Procedure Review						
	Rec'd	Rel'd	Full Name	Comments		
Lead:	05/16/2016					
QA:						
Liaison:						
Procedure Comments:			Remark Type: INFORMATION			
<p>8260.1 (1): DESCENT GRADIENT OSMOH TO HIGHA (325.0) GREATER THAN MAX (318.0). 8260.1 (2): INTERMEDIATE SEGMENT LENGTH GREATER THAN 15NM.</p> <p>ACTIVE DATA USED FOR KMSP AIRPORT. ACTIVE DATA USED FOR THE RUNWAY.</p> <p>ASSIGNED MAGVAR: 0E 2015</p> <p>CONTACT: JACOB POWERS 405.954.8702 / PETE GETZ 405.954.4919, AJV-5420 POCS</p>						

1. FLIGHT PROCEDURE IDENTIFICATION:

MINNEAPOLIS, MN (MSP)
MINNEAPOLIS-ST PAUL INTL/WOLD-CHAMBERLAIN
RNAV (RNP) Y RWY 30R

2. WAIVER REQUIRED AND APPLICABLE STANDARD:

Order 8260.58, Volume 5, Table 2-1.

3. REASON FOR WAIVER (JUSTIFICATION FOR NONSTANDARD TREATMENT):

Descent Gradient for segment OSMOH to HIGHA (325 ft/NM) is greater than the Maximum Descent Gradient (318 ft/NM).

4. EQUIVALENT LEVEL OF SAFETY PROVIDED:

Overall descent gradient from OSMOH (IF) to JACKO (FAF) is 318.27 ft./nm and a check was performed to confirm no step down fixes in this intermediate segment exceed 318 ft./nm. Descent gradient from HIGHA to JACKO is 314.14 ft./nm. Descent gradient from COTTG to JACKO is 309.92 ft./nm. Descent gradient from RVERR to JACKO is 318.47 ft./nm. The 318.27 ft./nm overall descent gradient from IF to FAF provides a stabilized approach. Altitudes and fix locations in the segment causing excessive descent gradients are at the Lead Carrier/ATC's request. Higher gradients resulting from arithmetic rounding are permissible." The gradient from HIGHA to the PFAF (314.14'/nm) does not exceed 318'/nm and therefore complies with the AFS-420 email (see attached).

5. ALTERNATIVE ACTIONS DEEMED NOT FEASIBLE:

See attached email coordination in regards to this issue.

6. COORDINATION WITH USER ORGANIZATIONS (SPECIFY):

The following justifications were discussed and developed by the WorkGroup, design specialists, and approved by the Central PBN Co-Leads (Karol/Brent). PBN office and AFS 420.

7. SUBMITTED BY:

DATE	OFFICE IDENTIFICATION	TITLE	SIGNATURE
	AJV-5400	Manager, Instrument Flight Procedures Group	Steven L Szukala

8. AFS ACTIONS:

☐ APPROVED ☐ DISAPPROVED ☐ NOT REQUIRED

COMMENTS:

DATE	ROUTING SYMBOL	SIGNATURE
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1. FLIGHT PROCEDURE IDENTIFICATION:

MINNEAPOLIS, MN (MSP)
MINNEAPOLIS-ST PAUL INTL/WOLD-CHAMBERLAIN
RNAV (RNP) Y RWY 30R

2. WAIVER REQUIRED AND APPLICABLE STANDARD:

Current criteria does not state a maximum intermediate segment length for RNP approaches. This request is in anticipation of criteria implementation following design completion and during procedure development that will limit intermediate segments to 15nm in length.

3. REASON FOR WAIVER (JUSTIFICATION FOR NONSTANDARD TREATMENT):

Reference software identified the Intermediate Segment from OSMOH to JACKO is Distance: 15.71 NM and is greater than 15 nautical miles in length. The OSMOH fix location and altitude of 8000' MSL were determined by the work group to provide ideal ATC lateral and vertical separation for arrivals and departures while optimizing the descent profile for arriving aircraft. Because of these factors, OSMOH's location and altitude cannot be changed without serious negative impact to both ATC and users. ATC has no intention or desire to use this erroneous intermediate fix for vectoring, and this fix will result in unnecessary chart clutter. An additional fix will also take up valuable memory space in some FMS computers and poses the potential to unnecessarily increase pilot work load. Immediately upon passing OSMOH, aircrews would be required to unnecessarily monitor navigation to an unnecessary fix during a busy phase of flight.

4. EQUIVALENT LEVEL OF SAFETY PROVIDED:

- Segment length limitations in TERPS are usually driven by positive course guidance and required obstacle clearance (ROC) concerns. Deviation from desired flight paths induced by electronic signal errors at great distances from ground based nav aids is eliminated with RNP navigation systems which provide the equivalent of full time positive course guidance required by ground based procedures.
- This entire procedure is a downwind flight path contained within 15nm of the runway threshold and therefore does not expose the aircraft to any additional ROC issues from pressure changes that may be present with excessive distances from the airport altimeter source. A vertical profile is part of this RNP procedure and will not result in long segments of the minimum 500' of required obstacle clearance typically associated with "dive and drive" procedure designs.
- This procedure was built in TARGETS with OSMOH coded as an IAF and a fix 3nm down track from OSMOH coded as an IF and evaluated for obstacles and terrain with no ROC issues identified. This demonstrates the segment in question, though coded as in intermediate segment, meets the ROC requirements of an initial approach segment.

5. ALTERNATIVE ACTIONS DEEMED NOT FEASIBLE:

An alternative design was presented and considered by the workgroup that coded OSMOH as an Initial Approach Fix (IAF) and utilized an additional fix 3nm down track from OSMOH that would be coded as an Intermediate Fix (IF). The segment distance from OSMOH (IF) to HIGHA is 6.16nm and provides sufficient space to plot an IF fix 3nm from OSMOH that will support 90° turns at OSMOH.

6. COORDINATION WITH USER ORGANIZATIONS (SPECIFY):

The following justifications were discussed and developed by the WorkGroup, design specialists, and approved by the Central PBN Co-Leads (Karol/Brent). We also held a TelCon on 20160307 to pre-Brief AFS on the concepts and intention of the designs. Danny Hamilton, Keith Butcher, and TJ Nichols were in attendance and all felt like we were on solid ground with our requests considering they weren't looking at the final designs and we were talking in concept only. Please forward any questions to: Karol Archer (karol.archer@faa.gov) and/or Brent Luna (r.brent.luna@gmail.com) if the need arises as these procedures work their way through the pipeline.

7. SUBMITTED BY:

DATE	OFFICE IDENTIFICATION	TITLE	SIGNATURE
	AJV-5400	Manager, Instrument Flight Procedures Group	Steven L Szukala

8. AFS ACTIONS:

☐ APPROVED ☐ DISAPPROVED ☐ NOT REQUIRED


COMMENTS:

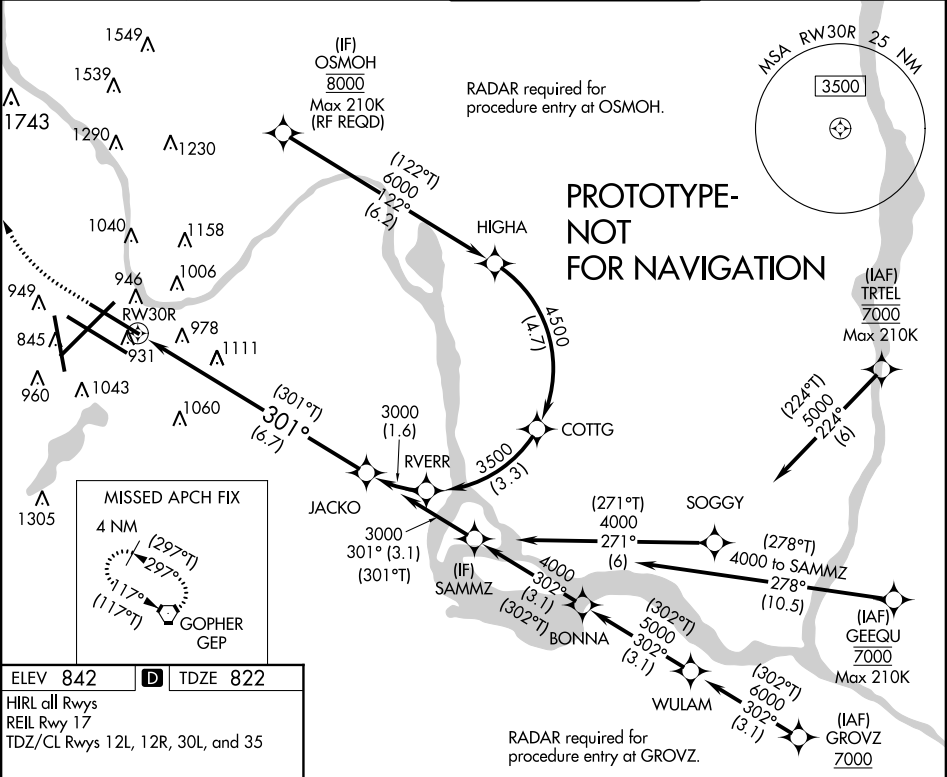
DATE	ROUTING SYMBOL	SIGNATURE
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APP CRS	Rwy Idg	8000
301°	TDZE	822
	Apt Elev	842

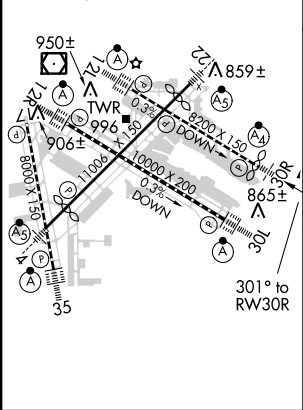
RNAV (RNP) Y RWY 30R




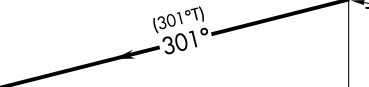

MINNEAPOLIS-ST PAUL INTL/WOLD-CHAMBERLAIN (MSP)

For uncompensated Baro-VNAV systems, procedure NA below -19C (-2F) or above 54C (130F). Simultaneous approach authorized with Rwy 30L and ILS V Rwy 35 (CONVERGING). GPS required. For inoperative ALS, increase RNP 0.15 all Cats visibility to RVR 4500 and RNP 0.30 Cat D visibility to 1 5/8 SM.				MALSF 	MISSED APPROACH: Climb to 1300 then climbing right turn to 3000 direct GEP VORTAC and hold.
ATIS		MINNEAPOLIS APP CON	MINNEAPOLIS TOWER	GND CON	CLNC DEL
ARR 135.35 239.275	118.725 335.5 (Rwy 35)	123.675 273.55 (17-35)	N 121.8 348.6		
DEP 120.8	119.3 335.5 (12L-30R, 4-22, 17)	123.95 273.55 (12L-30R)	S 121.9 348.6		133.2
	126.95 335.5 (12R-30L)	126.7 273.55 (12R-30L, 4-22)	W 127.925 348.6		



ELEV 842	TDZE 822
HIRL all Rwys	
REIL Rwy 17	
TDZ/CL Rwys 12L, 12R, 30L, and 35	



<div>1300</div> <div>↑</div>		<div>3000</div> <div></div>	<div>GEP</div> <div></div>	<div>VGSI and RNAV glidepath not coincident (VGSI Angle 3.00/TCH 71).</div> <div>See planview for multiple IF locations.</div>		<div>JACKO</div> <div>3000</div>
<div></div> <div>RW30R</div>		<div></div> <div><div>(301°T)</div><div>301°</div></div>		<div></div> <div>3000</div>		<div>GP 3.00°</div> <div>TCH 55</div>
		<div>6.7 NM</div>				
CATEGORY	A		B	C	D	
RNP 0.15 DA	1097/40 275 (300-¾)					
RNP 0.30 DA	1298 -1⅜ 476 (500-1⅜)					
AUTHORIZATION REQUIRED						

OLD

MINNEAPOLIS, MINNESOTA

AL-264 (FAA)

15120

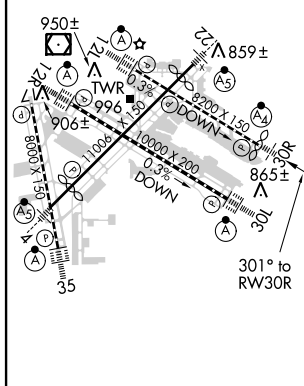
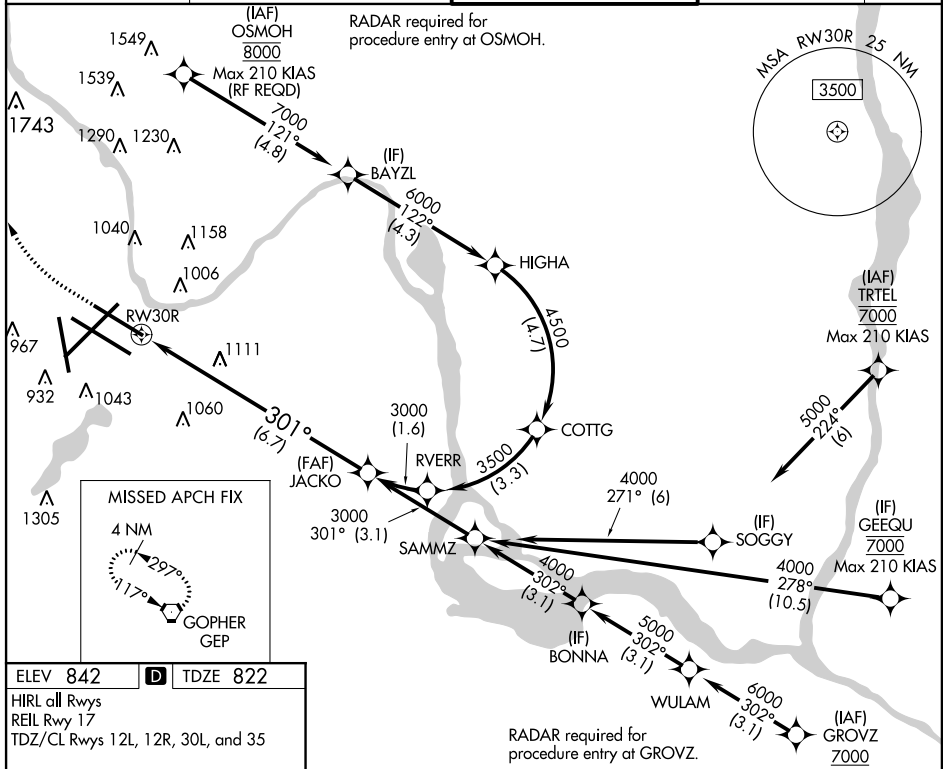
APP CRS	Rwy Idg	8000
301°	TDZE	822
	Apt Elev	842




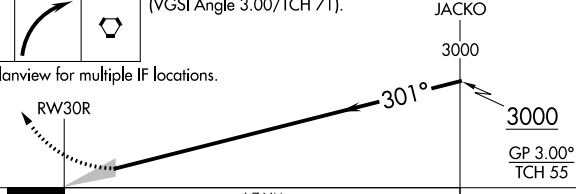
RNAV (RNP) Y RWY 30R

MINNEAPOLIS-ST PAUL INTL/WOLD-CHAMBERLAIN (MSP)

▼ For uncompensated Baro-VNAV systems, procedure NA below -19°C (-2°F) or above 54°C (130°F). For inop MALSF, increase RNP 0.15 all Cats visibility to RVR 4500 and RNP 0.30 Cat D visibility to 1½ mile. GPS required.	MALSF	MISSED APPROACH: Climb to 1300 then climbing right turn to 3000 direct GEP VORTAC and hold.
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ATIS	MINNEAPOLIS APP CON	MINNEAPOLIS TOWER	GND CON	CLNC DEL
ARR 135.35 239.275	118.725 335.5 (Rwy 35)	123.675 273.55 (17-35)	N 121.8 348.6	
DEP 120.8	119.3 335.5 (12L-30R, 4-22, 17)	123.95 273.55 (12L-30R)	S 121.9 348.6	133.2
	126.95 335.5 (12R-30L)	126.7 273.55 (12R-30L, 4-22)	W 127.925 348.6	



1300	3000	GEP	VGSI and RNAV glidepath not coincident (VGSI Angle 3.00/TCH 71).	
				
See planview for multiple IF locations.				
				
CATEGORY	A	B	C	D
RNP 0.15 DA		1097/40	275 (300-¾)	
RNP 0.30 DA		1305-1¾	483 (500-1¾)	
AUTHORIZATION REQUIRED				

MINNEAPOLIS, MINNESOTA
Orig 30APR15

MINNEAPOLIS-ST PAUL INTL/WOLD-CHAMBERLAIN (MSP)
44°53'N-93°13'W
RNAV (RNP) Y RWY 30R

NC-1, 30 APR 2015 to 28 MAY 2015

NC-1, 30 APR 2015 to 28 MAY 2015

TERMINAL AIRSPACE DATA REQUIREMENTS

CITY: **MINNEAPOLIS**

STATE: **MN**

AIRPORT NAME: **MINNEAPOLIS-ST PAUL INTL/WOLD CHAMBERLAIN**

ID: **KMSP**

PROCEDURE: **RNAV (RNP) Y RWY 30R**

AMDT: **1**

DOCKET#: **NOT REQUIRED**

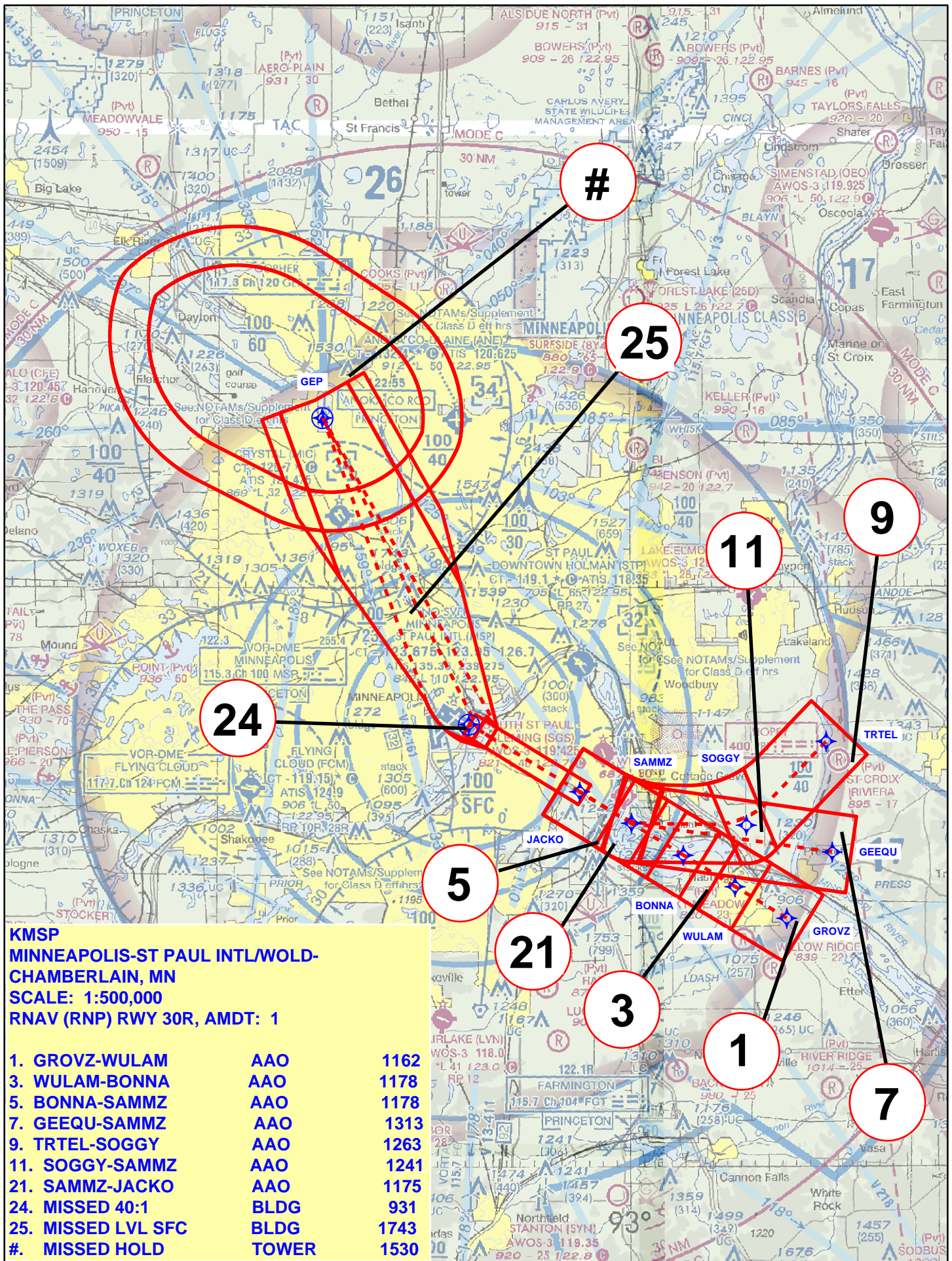
(96-AXX-X/Required/Not Required)

ALL DIST TO 1/100 NM; ELEV TO NEAREST FT; COORD TO 1/100 SEC; DEG TO 1/100 DG.

- | | | | |
|---|----------------------------------|--------------------------------|---------------|
| 1. Distance from | <u>THLD</u> | to 1000' point | <u>3.22</u> |
| <small>(Enter THLD, FAF, ARP, FACILITY, as appropriate)</small> | | | |
| 2. Width of | <u>FINAL</u> | segment at 1000' point | <u>1.20</u> |
| <small>(Enter appropriate segment, final, intermediate, etc.)</small> | | | |
| 3. True Course of | <u>FINAL</u> | segment containing 1000' point | <u>301.44</u> |
| 4. High Terrain in | <u>FINAL</u> | segment containing 1000' point | <u>932</u> |
| 5. Distance from | <u>THLD</u> | to 1500' point | <u>4.79</u> |
| <small>(If 1500' point in PT maneuvering area or holding pattern note in remarks)</small> | | | |
| 6. Width of | <u>FINAL</u> | segment at 1500' point | <u>1.20</u> |
| 7. True Course of | <u>FINAL</u> | segment containing 1500' point | <u>301.44</u> |
| 8. High Terrain in | <u>FINAL</u> | segment containing 1500' point | <u>932</u> |
| 9. Threshold Coordinates (if straight-in) ... | <u>*445253.54N / 0931140.67W</u> | | |
| 10. ARP Coordinates | <u>445255.10N / 0931318.40W</u> | | |
| 11. Runway Approach End and distance furthest from ARP | RWY | <u>30R</u> | |
| | Distance | <u>1.19</u> | NM |
| 12. FAF Coordinates | <u>444924.96N / 0930340.22W</u> | | |

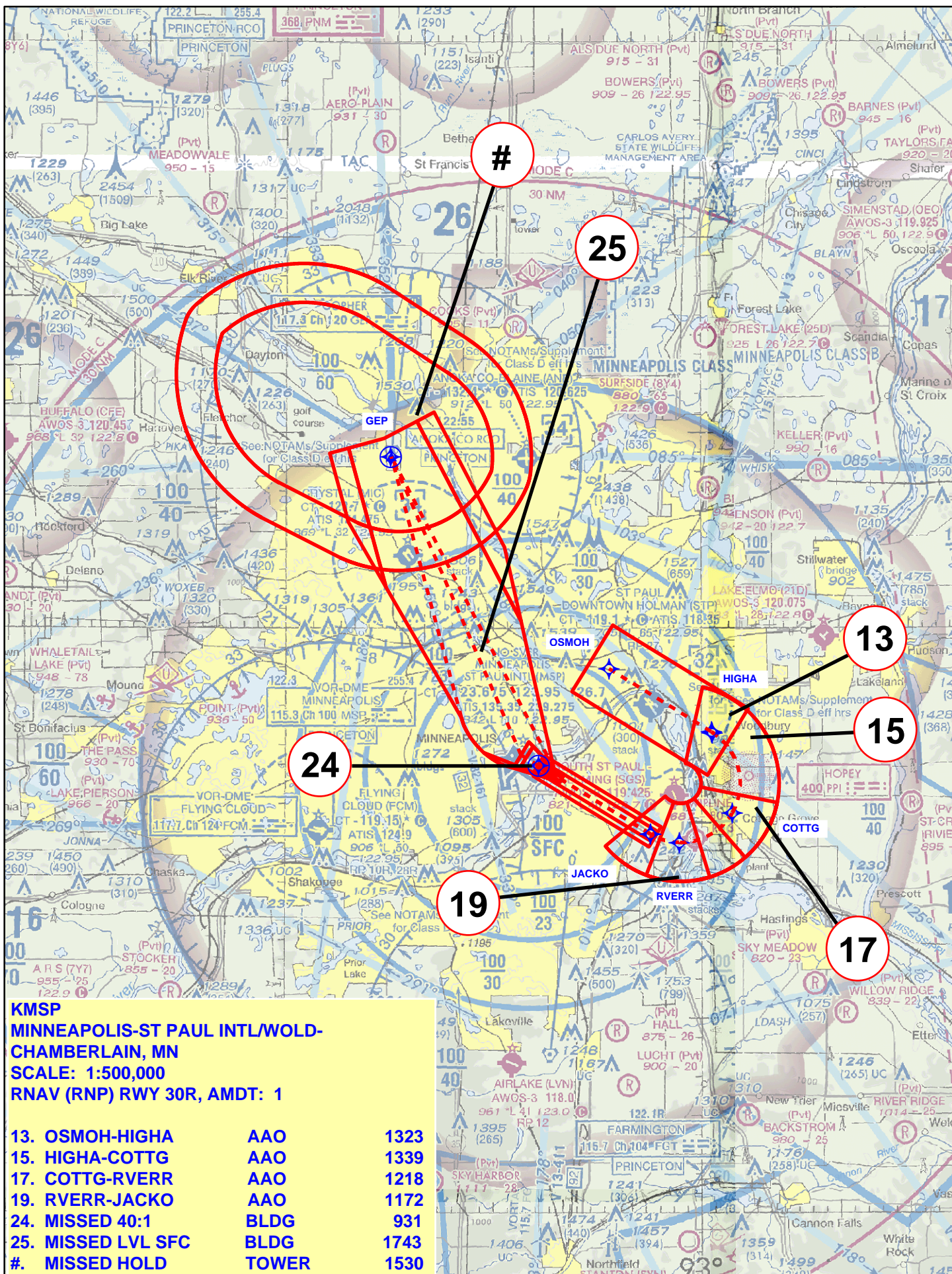
REMARKS: Approach/Drawing attached.

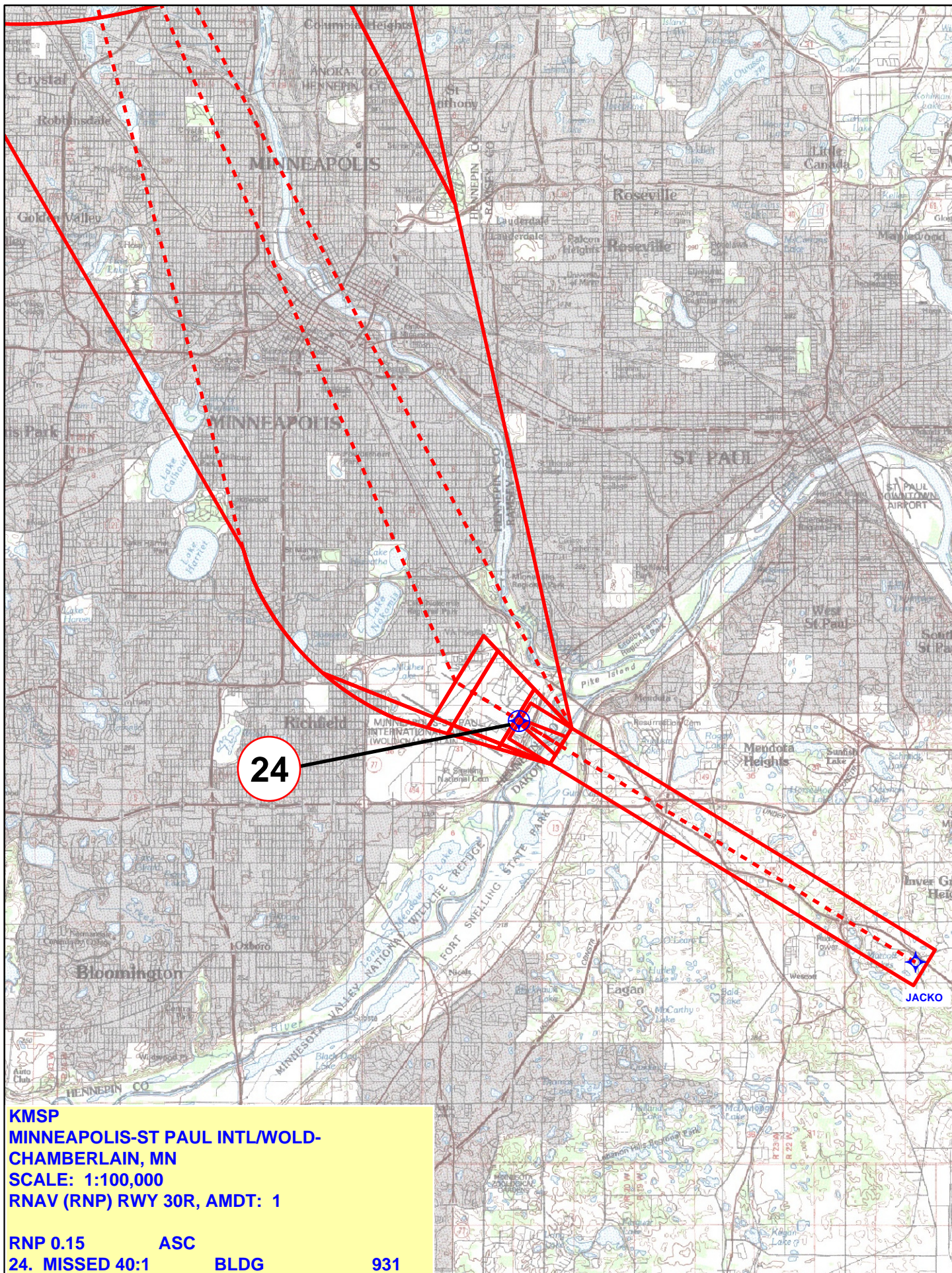
***RUNWAY THLD DISPLACED 200FT**



KMSP
MINNEAPOLIS-ST PAUL INTL/WOLD-CHAMBERLAIN, MN
SCALE: 1:500,000
RNAV (RNP) RWY 30R, AMDT: 1

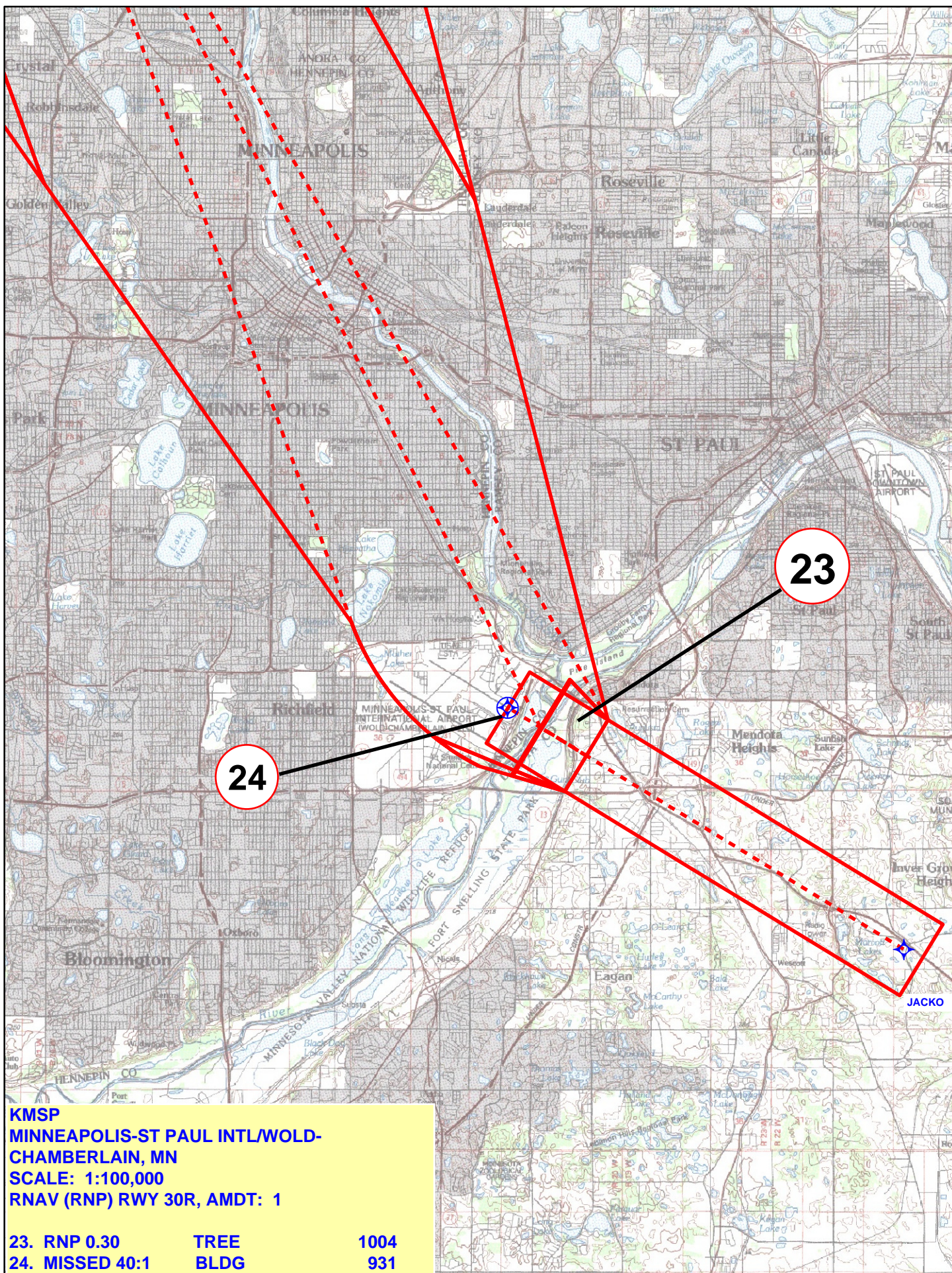
1. GROVZ-WULAM	AAO	1162
3. WULAM-BONNA	AAO	1178
5. BONNA-SAMMZ	AAO	1178
7. GEEQU-SAMMZ	AAO	1313
9. TRTEL-SOGGY	AAO	1263
11. SOGGY-SAMMZ	AAO	1241
21. SAMMZ-JACKO	AAO	1175
24. MISSED 40:1	BLDG	931
25. MISSED LVL SFC	BLDG	1743
#. MISSED HOLD	TOWER	1530





KMSP
MINNEAPOLIS-ST PAUL INTL/WOLD-
CHAMBERLAIN, MN
SCALE: 1:100,000
RNAV (RNP) RWY 30R, AMDT: 1

RNP 0.15 ASC
24. MISSED 40:1 BLDG 931



KMSP
MINNEAPOLIS-ST PAUL INTL/WOLD-
CHAMBERLAIN, MN
SCALE: 1:100,000
RNAV (RNP) RWY 30R, AMDT: 1

23. RNP 0.30	TREE	1004
24. MISSED 40:1	BLDG	931

FIPC BASIC FORM							
PROCEDURE: RNAV (RNP) Y RWY 30R ORIG			AIRPORT NAME: MINNEAPOLIS-ST PAUL INTL/WOLD-		AIRPORT ID: KMSP	SPECIAL CONTROL NO: BG-01-132-15	
FAC ID: KMSP30RY		CITY: MINNEAPOLIS			ST: MN	ORIG CHART DATE: 04/30/2015	
DFL TYPE: PROC/P	THIRD PARTY: <input type="checkbox"/> YES	EST. TIME ON SITE: 0.4	REIMB. NUMBER:		PTS TASK ID:		
PREFLIGHT NOTES							
REVIEWER: scott wiebe					DATE: 02/05/2015		
COMMENTS:					CHECK ONE:		
					<input checked="" type="checkbox"/> FLT CK REQ <input type="checkbox"/> NFCR <input type="checkbox"/> REJECT		
							YES
					CPV COMPLETE?		X
PROCEDURE RESULTS							
INSPECTION DATE: 02/05/2015		CREW #: VN219	N #: N69	INSTRUMENT PROCEDURE STATUS: <input checked="" type="checkbox"/> SAT <input type="checkbox"/> SAT W/CHANGES <input type="checkbox"/> UNSAT		ARINC CODING: <input type="checkbox"/> SAT <input checked="" type="checkbox"/> SAT/GOLD <input type="checkbox"/> UNSAT	
FLIGHT INSPECTOR SIGNATURE: scott wiebe @ 02/05/2015 14:58			PRINTED NAME: WIEBE, GREGORY SCOTT				NOTAM INITIATED? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
FLIGHT INSPECTOR REMARKS: Sat as requested.							
IN-FLIGHT OBSTACLE REPORT							
OBSTRUCTION ID #:	COORDINATES OR LOCATION:		GNSS ALTITUDE (MSL):		BAROMETRIC ALTITUDE (MSL):		HEIGHT ABOVE GROUND LEVEL:

Periodic Review

Joseph L. Zeder

02-26-16

MINNEAPOLIS-ST PAUL INTL/WOLD-CHAMBERLAIN AIRPORT
MINNEAPOLIS, MN (KMSP)

RNAV _RNP_ Y RWY 30R ORIG

Summary/Findings

PERIODIC REVIEW TERMINATED

-ORIGINAL PROCEDURE PUBLISHED ON 04/30/2015.

ADDITIONAL INFORMATION:

-AIRSPACE LETTER IS IN PROCEDURE FOLDER.

REVIEWED BY: NICHOLAS K. JACKSON (LOCKHEED MARTIN) 02-26-2016

Actions/Notes

J ZEDER 07/12/2016

NOTAM REQUIRED; NO

AMENDMENT REQUIRED: NO

PROCEDURE AMENDMENT 1 PUBLISHING 1/7/2017 REVIEW TERMINATED