

January 31, 2007

Mr. Nicholas Sabatini
Associate Administrator for Aviation Safety
Federal Aviation Administration
800 Independence Avenue
Washington, DC 20591

Dear Nick:

The Performance Based Aviation Rulemaking Committee is pleased to forward to you the final coordinated recommendations for FAA Order 8260.42B, HELICOPTER AIR NAVIATION (RNAV) INSTRUMENT PROCEDURE CONSTRUCTION. It is the recommendation of PARC that the resulting version replace FAA Order 8260.42A HELICOPTER GLOBAL POSITIONING SYSTEM (GPS) NONPRECISION APPROACH CRITERIA. The revised Order includes interim criterion and policy after Order 8260.42A was issued on June 11, 1997, as well as reflecting new criteria and policy.

The Vertical Flight Working Group formed an Action Team with representation from the following organizations, and who have 100% concurred with the attached comments and recommendations. These are the same organizations FAA typically provides its Orders for public comments.

Helicopter Association International (HAI)
American Helicopter Society (AHS)
Association of Air Medical Services (AAMS)
National EMS Pilots Association (NEMSPA)
Eastern Region Helicopter Society (ERHC)

The Action Team also had on its membership test pilots and aeronautical/systems engineers from Sikorsky Aircraft Corporation and Gulf Stream, representation from Bell/Textron, Avionics and Systems Engineers from Garmin and UNS, and advisors and government representatives from FAA AFS-420, AFS-410, AFS-800, and FAA's WAAS Program Office.

The Action Team prepared sixty-four (64) comments and recommendations. Besides the revised order, the group prepared three (3) Attachments intended to assist the FAA. The Action Team requests special attention to Comment 2 thru 4; 5; 6 thru 7; 9 thru 16; 18; 31 thru 32. The following comments are also offered:

- Heliport Design Recommendations per AC 150/5390-2B, to include grandfathering provisions of existing heliports therein, which was coordinated with industry by FAA Airports Division prior to issue, should used within Order 8260.42B v. establishing new heliport requirements within TERPS.
- Proceed Visually policy that requires seeing the 'landing area' as per the current FAA AFS-400 February 1999 PinS Policy should be continued within Order 8260.42B v. new requirements having to see the FATO.
- There should be provisions under the specials program to continue using 'canopy height' v. the proposed '199 foot AAO' for the final approach segment. CFR Part-77 does not provide notification requirements for heliports, as is provided for airports, however,

- under the specials program an equivalent level of safety can be established on a case by case basis.
- The restrictive angle of bank and tailwind tables in Order 8260.42B should be supplemented with provisions under the specials program that would allow the use of ICAO criteria/tables, and which furthers potential harmonization with ICAO. Provisions for adopting ICAO angle of bank and tailwind values are also consistent with performance based principles.
 - Converting the 2-mile radius proceed VFR Obstacle Identification Surface to become an Obstacle Clearance Surface, and increase the MDA accordingly, will have a drastic and negative impact upon the helicopter industry's IFR capabilities. The current policy of requiring the operator to maintain VFR weather minimums to proceed VFR to landing should be continued.
 - The maximum Visual Segment Descent Angle (VSDA) for proceed visually procedures should be increased from the current 7.5 degrees to 8.13 degrees; which is consistent with FAA flight testing results of the Helicopter Visual Segment Evaluation (HVSE) and as per test 'data driven decisions' for FAA criterion and policy development.
 - FAA should initiate immediate efforts as necessary to provide SAAAR and RNP criteria and policy for the helicopter industry, as it has done and doing for the fixed wing industry.
 - FAA should initiate heliport lighting testing supportive of replacing HILS (Heliport Instrument Lighting System) as the only lighting systems offering lighting credit.
 - Harmonization of FAA criterion and policy with ICAO PansOps is important and desired when possible.

It is requested that the FAA review the attachments and advise PARC by March 1st on it's plan and schedule to respond to the revised order and recommendations. The working group stands prepared to coordinate with the FAA as necessary to further discuss and resolve any questions on the attachments in finalizing the update to the order.

Lastly, I feel that it's appropriate to acknowledge the significance of this work effort by the PARC VFWG Order 8260.42B Action Team led by Steve Hickok. This Order is critical for the improvement in the implementation of Copter RNAV (GPS) operations, and the comprehensive review provided with these comments and recommendations was only possible due to the efforts and commitment of the Industry members, representing the primary helicopter organizations, and specialists from AFS-410, AFS-420, AFS-800, and the contractor support provided by the WAAS program office.

Sincerely,



Dave Nakamura
Chairman, PARC

Cc: J. McGraw
J. Williams
S. Hickok
PARC Members

Attachment 1: 8260.42 v. PansOps Table I-2-3-1

Wind Tables Compared: ICAO v. 8260.42B							
.42B Table 2-2 (Note 1)		ICAO Table I-2-3-1 (<u>Minimum</u> Wind that 'could' be applied)					
MSL	TW (kts)	MSL	Departure	En Route	Holding	IAF, IF, FAF	Missed
SL	47	SL		47	47		
	(Note 2)	500		48	48		
1000	49	1000		49	49		
1500	50	1500		50	50		
2000	51	2000		51	51		
2500	52	2500		52	52		
3000	53	3000		53	53		
3500	54	3500		54	54		
4000	55	4000		55	55		
4500	56	4500		56	56		
5000	57	5000		57	57		
5500	58	5500		58	58		
6000	59	6000		59	59		
6500	60	6500		60	60		
7000	61	7000		61	61		
7500	62	7500		62	62		
8000	63	8000		63	63		
8500	64	8500		64	64		
9000	65	9000		65	65		
9500	66	9500		66	66		
10000	67	10000		67	67		

95% omnidirectional wind or - **30 kts** - (All Altitudes)

95% omnidirectional wind or - **30 kts** - (All Altitudes)

95% omnidirectional wind or - **25 kts** - (All Altitudes)

Note 1: applied to all segments

Note 2: there is nothing provided for 500'. (500' provided for/applied under ICAO table)

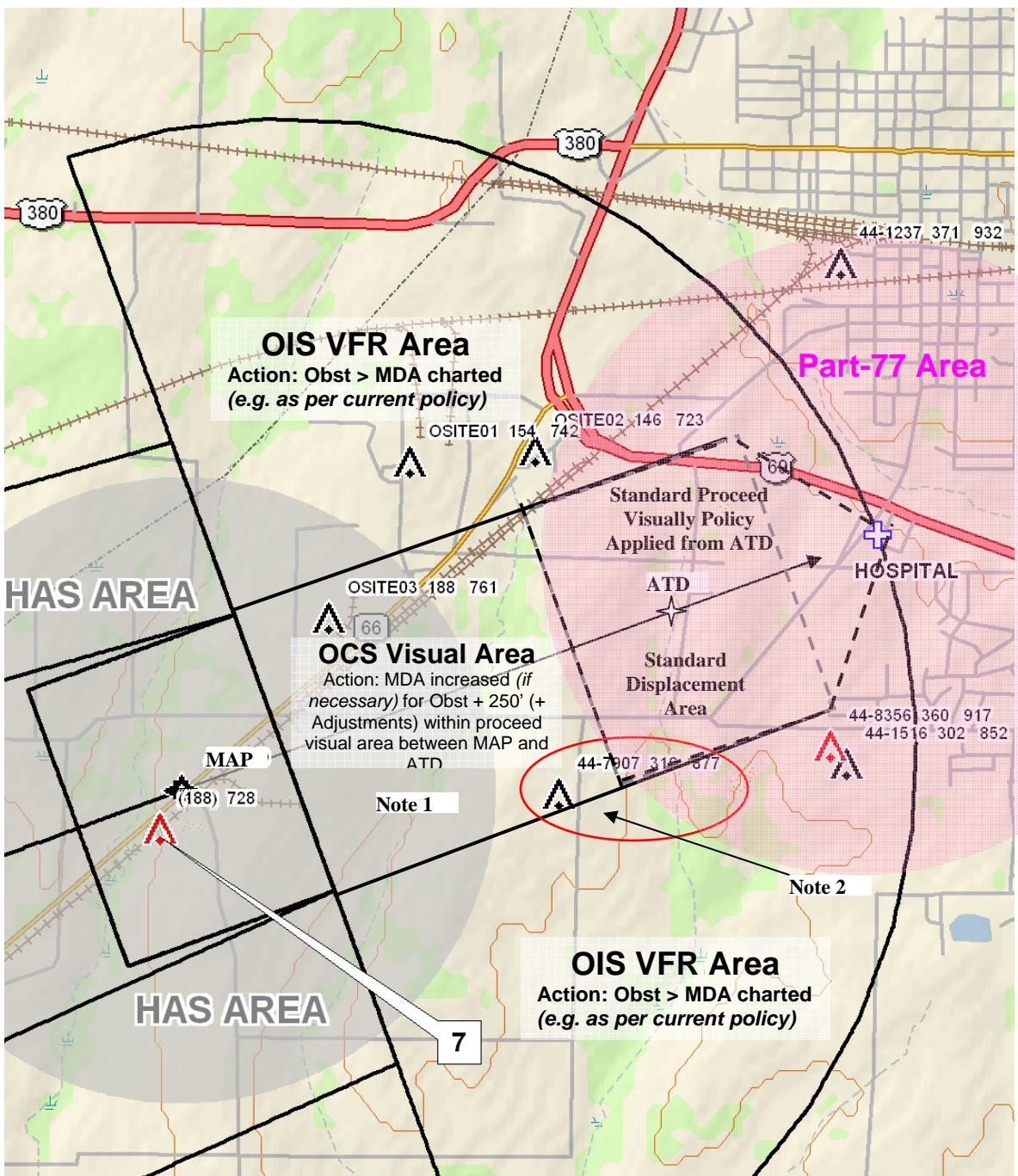
Degree Bank Angles Compared: ICAO v. 8260.42B							
.42B Table 2-3 (Note 3)		ICAO Table I-2-3-1 (Maximum Bank Angle that could be applied) (Note 3)					
< 90 K _{TAS}	> 90 K _{TAS}	MSL	Departure	En Route	Holding	IAF, IF, FAF	Missed
< 90	11.5	< 1000'	15				
		1000' - 3000'	20				
<i>Note 3: degree-bank angle</i>							
<i>Note 4: all altitudes</i>		> 3000'	25				

(Note 4)

(Note 4)

(Note 4)

Attachment 2: Extended Proceed Visually/OCS Visual Area



Note 1: OCS Visual Area (new area). May increase MDA based on obstacles between MAP and ATD. (Note: Maintain MDA from MAP to ATD)

Note 2: Current IAP minimums = 1,000 MSL (421' AGL) 3/4 SM visibility "proceed VFR". Reason developed as proceed VFR was to preclude 2 SM visibility (e.g. it sometimes comes down to compromising either the MDA or visibility mins, or developing an IAP as proceed VFR. Most often this decision is based on obstacles within the missed approach surfaces). These recommendations would provide safety enhancements and also provide more operationally beneficial IAP as a proceed visually option (albeit increased MDA in this example). If applied as recommended new IAP mins would become 1,160' MSL (581' AGL) due to 316 / 877 obstacle within OCS Visual Area (e.g. 160' higher than existing mins) and 3/4 SM visibility (e.g. same visibility as currently allowed for proceed VFR from MAP to ATD). See text discussion pg. 2 this Attachment-2 for conditions and requirements recommended for this option to be applied.

Attachment 2: Extended Proceed Visually/OCS Visual Area

Recommended Conditions for application of Extended Proceed Visually/OCS Visual Area:

1. Only used when MAP is located greater than 1 NM from Heliport to provide proceed visually IAP.
2. Heliport must be within 2 miles (per current policy).
3. Heliport must meet proceed visually requirements (e.g. this is critical for application of an ATD to the 8:1 ingress area)
4. Turn at MAP or ATD (but not both at MAP and ATD) not to exceed 30 degrees is allowed. This allows reading distance from MAP to ATD and course off GPS; which would be compromised if allowing any turns between MAP and ATD.
5. ATD must be located within CFR Part-77 protected surfaces.
6. Visibility minimums not less than 3/4 SM allowed (note: 3/4 SM visibility currently/continued to be allowed for proceed VFR over same surfaces; this recommendation provides increased safety by applying OCS within the extended proceed visually/OCS visual area without increasing visibility; provides incentives to apply this solution with increased safety.)

Attachment 3: Missed Approach

FIGURE 1:

.42A (top half) compared to .42B (lower half)

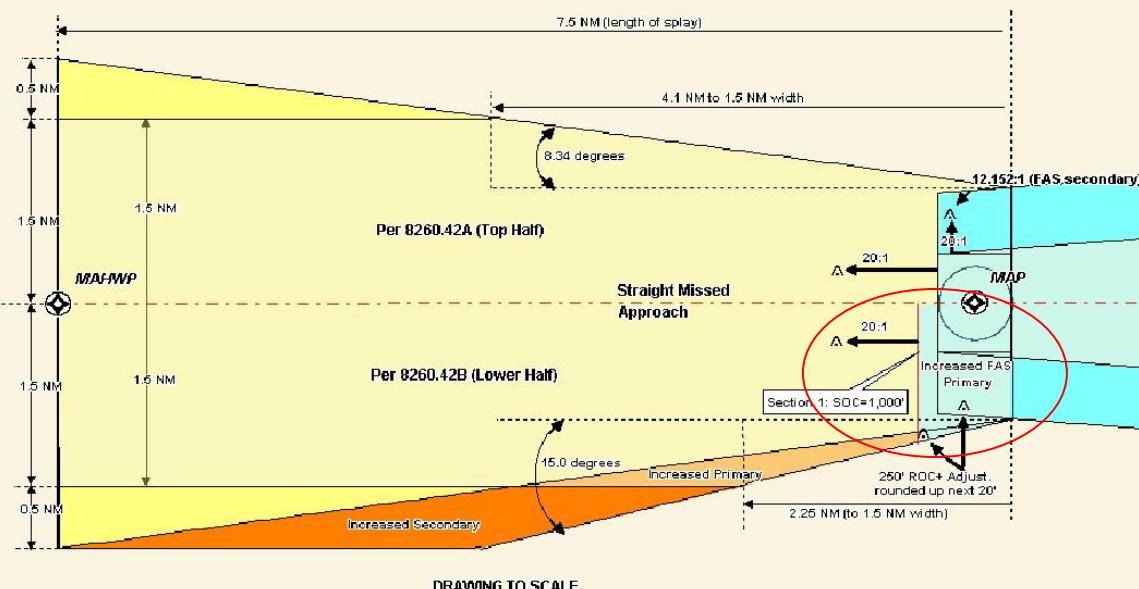
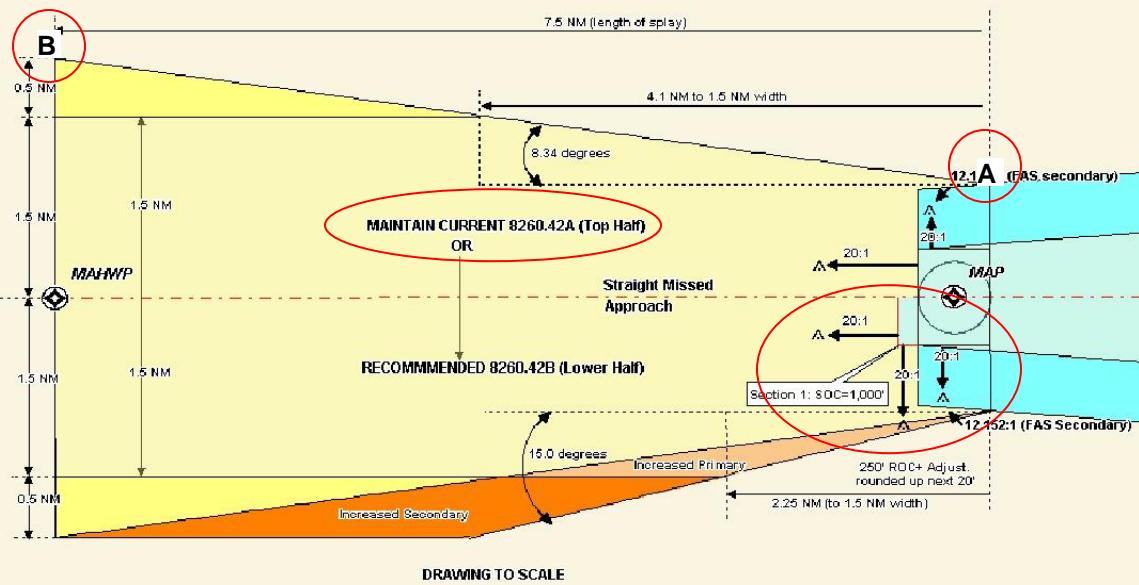


FIGURE 2:

.42A (top half) RECOMMENDATIONS .42B (lower half)

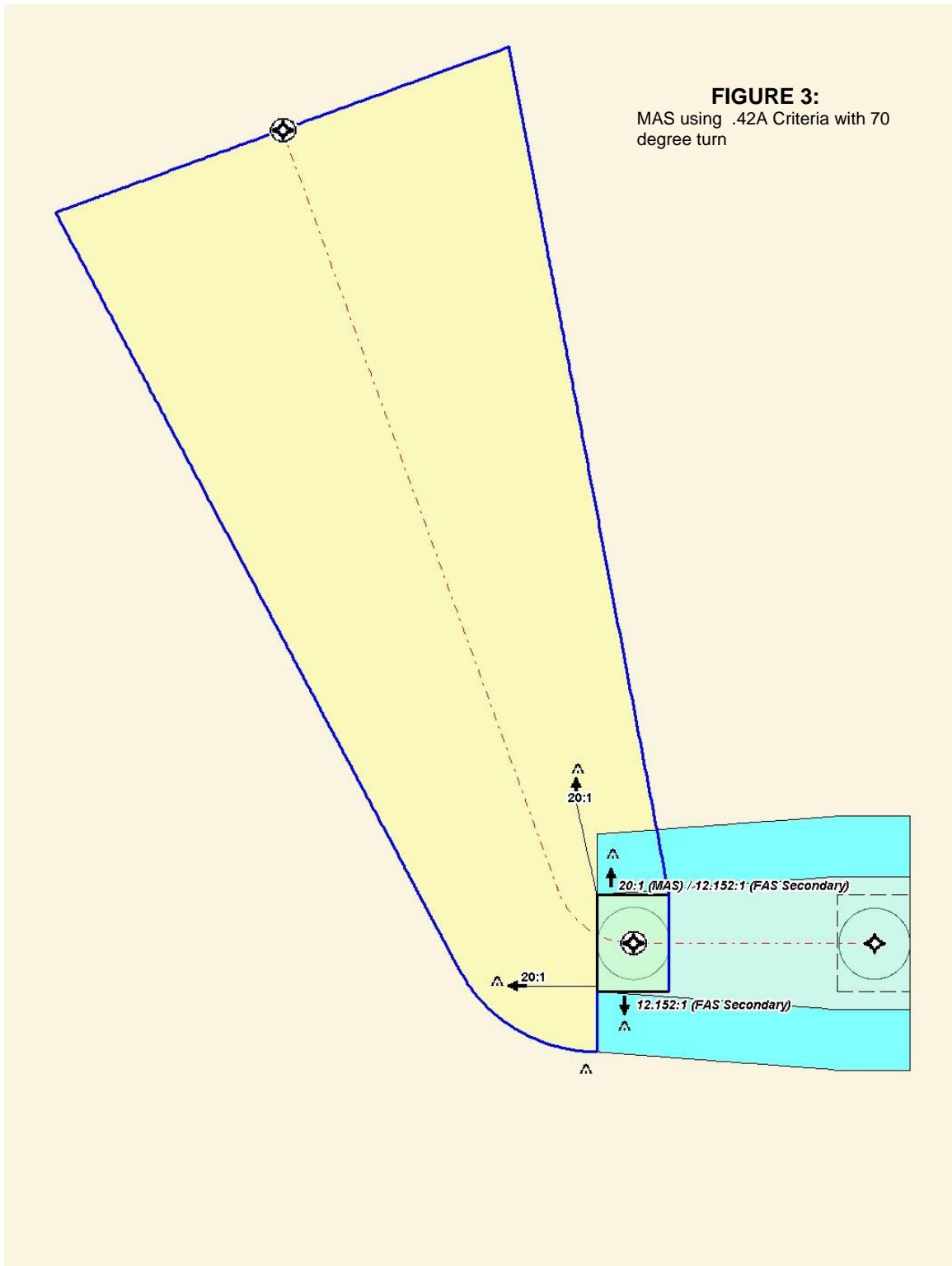


Recommendations:

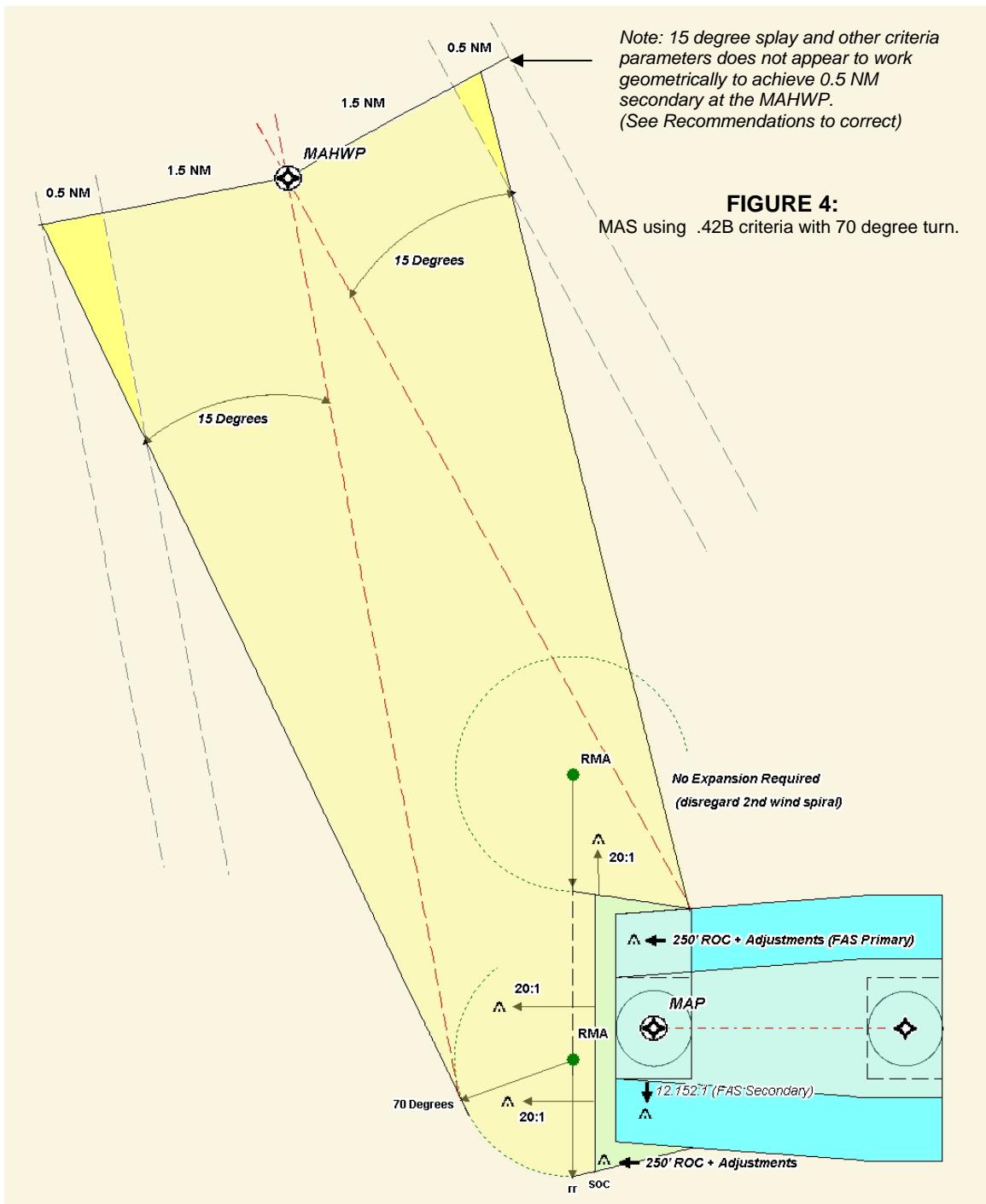
Maintain current criteria per .42A OR

1. Eliminate 15 degree splay and connect at A and B and;
2. Continue as .42A as all MAS primary (not depicted), or as depicted with MAS secondary.
3. Eliminate what is effectively an extension of the FAS primary area.
4. Reduce SOC to FAS Primary Area Width (FAS secondary area already evaluated 12.152:1 and also MAS 20:1 from earliest point to latest point; area outside/abeam FAS secondary already evaluated 20:1)

Attachment 3: Missed Approach

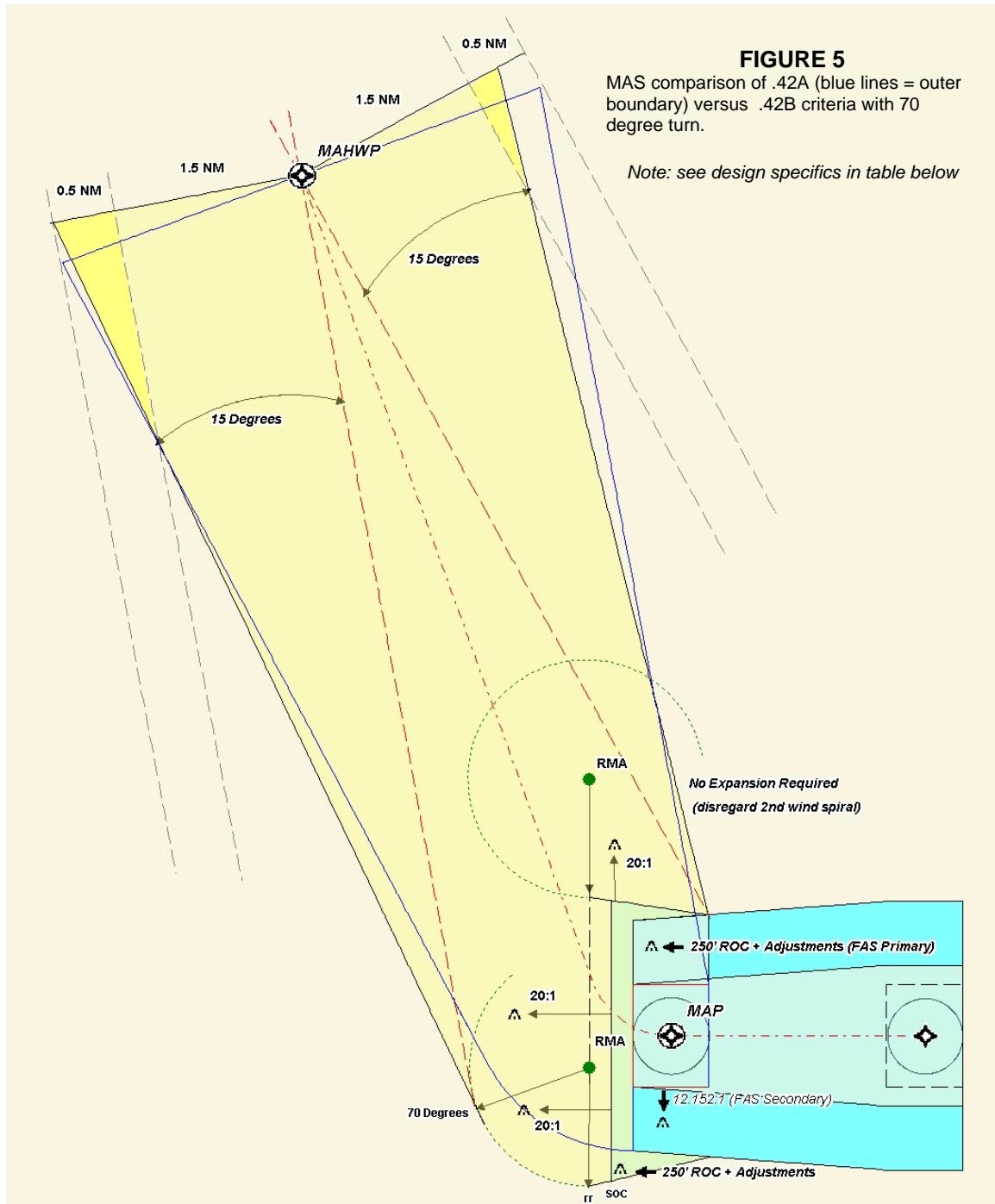


Attachment 3: Missed Approach



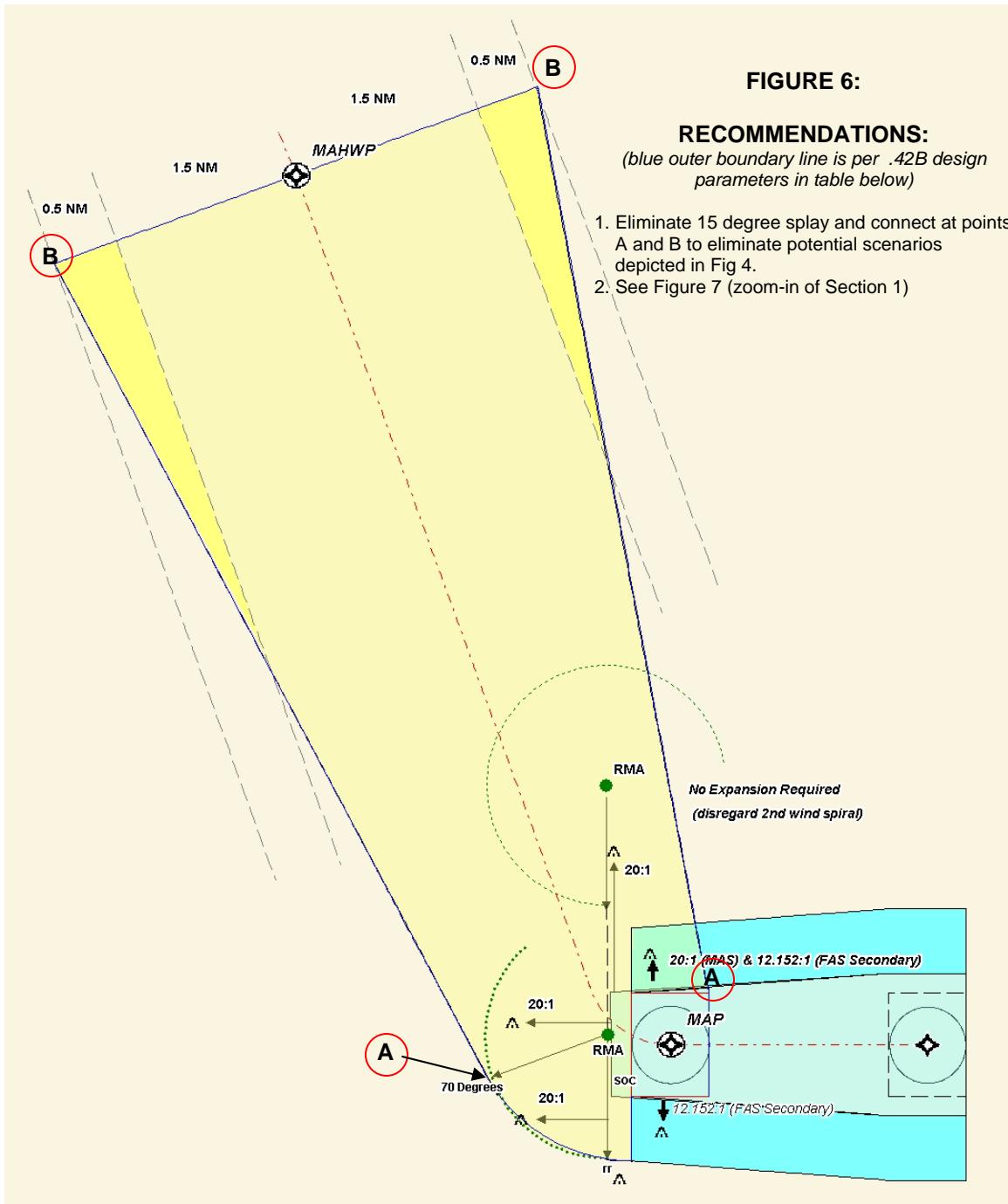
8260.42B	Component	Assumptions	Intermediate Calculations	Distance from MAP	Source
	MAP to Latest Point MAP can be received (nm)			0.30	8260.42B Table 2-1
	Distance to SOC (1000 feet)			0.16	8260.42B Paragraph 6.4.3
	Altitude (enter MDA/MSL)	3000			Site Specific
Note 1	V_{KIAS} (for SAAAR comparisions enter V_{mini})	70			8260.42B Paragraph 6.5.1.a.
	V_{KTAS}		74.20		8260.42B Paragraph 6.5.1.a.
Note 2	r_f (feet) (enter wind)	25	1004.58	0.17	8260.42B Paragraph 6.5.1.a.
	R_{MA} - no wind radius of missed approach (nm)		0.51		8260.42B Paragraph 6.5.1.e.(1)
Note 3	TR - Turn Rate (deg/sec): (enter degree angle)	9	2.331		8260.42B Paragraph 6.5.1.e.(2)
Note 4	Tail Wind (TW) (enter highest altitude wind)	53	53		8260.42B Table 2-2
	Wr - Wind Spiral Pitch (nm/deg)		0.006315		8260.42B Paragraph 6.5.1.e.(2)
	Degrees of Turn	70		0.95	Procedure Specific
	Total Distance from MAP (nm)			1.58	

Attachment 3: Missed Approach



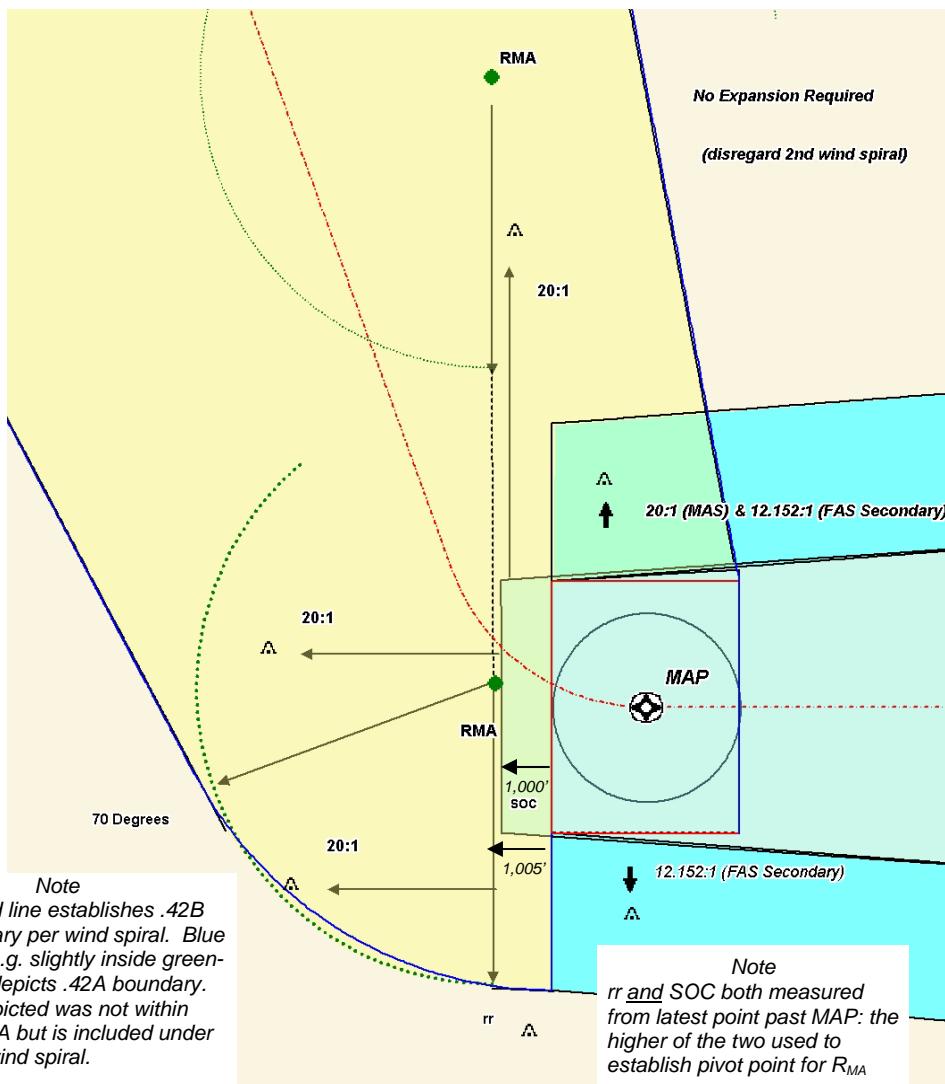
8260.42B	Component	Assumptions	Intermediate Calculations	Distance from MAP	Source
	MAP to Latest Point MAP can be received (nm)			0.30	8260.42B Table 2-1
	Distance to SOC (1000 feet)			0.16	8260.42B Paragraph 6.4.3
	Altitude (enter MDA/MSL)	3000			Site Specific
Note 1	V_{KIAS} (for SAAAR comparisions enter V_{min})	70			8260.42B Paragraph 6.5.1.a.
	V_{KTAS}		74.20		8260.42B Paragraph 6.5.1.a.
Note 2	rr (feet) (enter wind)	25	1004.58	0.17	8260.42B Paragraph 6.5.1.a.
	R_{MA} - no wind radius of missed approach (nm)		0.51		8260.42B Paragraph 6.5.1.e.(1)
Note 3	TR - Turn Rate (deg/sec); (enter degree angle)	9	2.331		8260.42B Paragraph 6.5.1.e.(2)
Note 4	Tail Wind (TW) (enter highest altitude wind)	53	53		8260.42B Table 2-2
	Wr - Wind Spiral Pitch (nm/deg)		0.006315		8260.42B Paragraph 6.5.1.e.(2)
	Degrees of Turn	70		0.95	Procedure Specific
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Attachment 3: Missed Approach



8260.42B	Component	Assumptions	Intermediate Calculations	Distance from MAP	Source
	MAP to Latest Point MAP can be received (nm)			0.30	8260.42B Table 2-1
	Distance to SOC (1000 feet)			0.16	8260.42B Paragraph 6.4.3
	Altitude (enter MDA/MSL)	3000			Site Specific
Note 1	V_{KIAS} (for SAAAR comparisions enter V_{mini})	70			8260.42B Paragraph 6.5.1.a.
	V_{KTAS}		74.20		8260.42B Paragraph 6.5.1.a.
Note 2	r_r (feet) (enter wind)	25	1004.58	0.17	8260.42B Paragraph 6.5.1.a.
	R_{MA} - no wind radius of missed approach (nm)		0.51		8260.42B Paragraph 6.5.1.e.(1)
Note 3	TR - Turn Rate (deg/sec): (enter degree angle)	9	2.331		8260.42B Paragraph 6.5.1.e.(2)
Note 4	Tail Wind (TW) (enter highest altitude wind)	53	53		8260.42B Table 2-2
	Wr - Wind Spiral Pitch (nm/deg)		0.006315		8260.42B Paragraph 6.5.1.e.(2)
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Attachment 3: Missed Approach



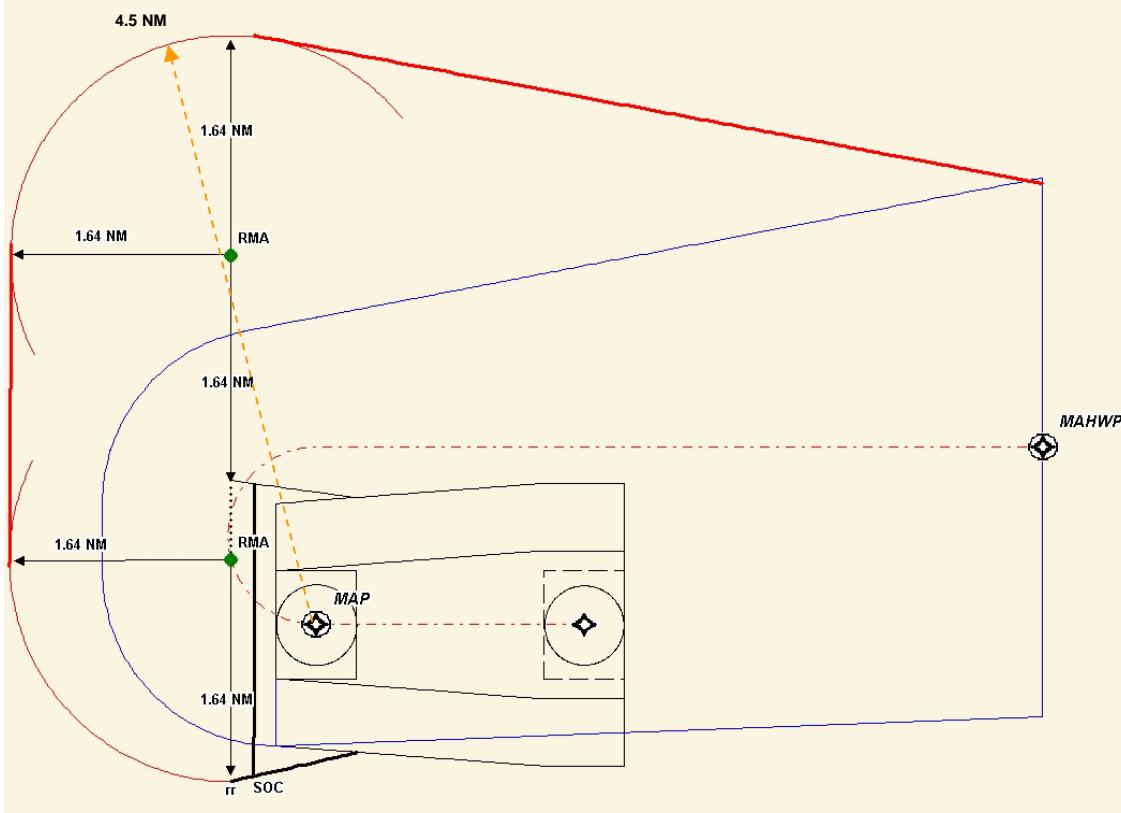
**FIGURE 7:
RECOMMENDATIONS (Section 1):**

1. Calculate rr as per .42B and use the greater distance of either rr or SOC and establish R_{MA} as depicted measured from MAP-latest point. (Note: rr in this example used = 1,004.58 feet v. the 1,000' SOC)
2. SOC (1,000 feet) = width of FAS primary area. Extension of FAS primary area (e.g. 250' ROC + Adjustments)
3. Eliminate FAS expansion and converting secondary area into primary area on turning side. (note: PTS and GPS system operation dictate that the aircraft will not be outside of primary area; as depicted, obstacles in this section of the secondary area/on turning side abeam the earliest and latest point of the MAP is BOTH FAS secondary area (12.152:1) and MAS primary area (20:1))

8260.42B	Component	Assumptions	Intermediate Calculations	Distance from MAP	Source
	MAP to Latest Point MAP can be received (nm)			0.30	8260.42B Table 2-1
	Distance to SOC (1000 feet)			0.16	8260.42B Paragraph 6.4.3
	Altitude (enter MDA/MSL)	3000			Site Specific
Note 1	V _{KIAS} (for SAAAR comparisions enter V _{mini})	70			8260.42B Paragraph 6.5.1.a.
	V _{KTAS}		74.20		8260.42B Paragraph 6.5.1.a.
Note 2	rr (feet) (enter wind)	25	1004.58	0.17	8260.42B Paragraph 6.5.1.a.
	R _{MA} - no wind radius of missed approach (nm)		0.51		8260.42B Paragraph 6.5.1.e.(1)
Note 3	TR - Turn Rate (deg/sec): (enter degree angle)	9	2.331		8260.42B Paragraph 6.5.1.e.(2)
Note 4	Tail Wind (TW) (enter highest altitude wind)	53	53		8260.42B Table 2-2
	Wr - Wind Spiral Pitch (nm/deg)		0.006315		8260.42B Paragraph 6.5.1.e.(2)
	Degrees of Turn	70		0.95	Procedure Specific
	Total Distance from MAP (nm)			1.58	

Attachment 3: Missed Approach

FIGURE 8:
Compares .42A and .42B for 180° turning missed



Notes: this sketch is to scale and depicts comparison of 180 degree turning missed .42A v. .42B

Recommendations have not been attempted without full PARC VFWG .42B Action Team participation, however, it is assumed the recommendations per Section 1 (Fig. 7) would be applicable (*note: as depicted herein per .42B without modifying Section 1 per recommendations*)

1. Blue line represents current .42A outer boundary area. Turn radius fixed 1.3 NM beginning at the latest point.
2. Red line represents outer boundary per .42B and using wind spirals.
3. As illustrated, outer boundary area per .42B far exceeds what is necessary. This grants greater validity and importance upon SAAAR applications (e.g. lower V_{mini} = smaller wind spiral) and greater importance upon adopting ICAO Table 1-2-3-1 Bank Angles (e.g. .42B limits bank angle to 9 degrees in this application v. 15 degrees per ICAO: *note: see impact of 15 degree bank angle in table 2 below; returns outer boundary under SAAAR application to approximately what is currently possible with .42A*).
4. See design parameters used for this comparison evaluation (per .42B) Table 1 below.

Table 1:		Assumptions	Intermediate Calculations	Distance from MAP	Source
8260.42B	Component				
	MAP to Latest Point MAP can be received (nm)			0.30	8260.42B Table 2-1
	Distance to SOC (1000 feet)			0.16	8260.42B Paragraph 6.4.3
	Altitude (enter MDA/MSL)	3000			Site Specific
Note 1	V_{KIAS} (for SAAAR comparisions enter V_{mini})	70			8260.42B Paragraph 6.5.1.a.
	V_{KTAS}		74.20		8260.42B Paragraph 6.5.1.a.
Note 2	rr (feet) (enter wind)	25	1004.58	0.17	8260.42B Paragraph 6.5.1.a.
	R_{MA} - no wind radius of missed approach (nm)		0.51		8260.42B Paragraph 6.5.1.e.(1)
Note 3	TR - Turn Rate (deg/sec): (enter degree angle)	9	2.331		8260.42B Paragraph 6.5.1.e.(2)
Note 4	Tail Wind (TW) (enter highest altitude wind)	53	53		8260.42B Table 2-2
	Wr - Wind Spiral Pitch (nm/deg)		0.006315		8260.42B Paragraph 6.5.1.e.(2)
	Degrees of Turn	180		1.64	Procedure Specific
	Total Distance from MAP (nm)			2.27	
					2-1
					ap 6.4.3

	Altitude (enter MDA/MSL)	3000		Site Specific
Note 1	V_{KIAS} (for SAAAR comparisions enter V_{mini})	70		8260.42B Paragraph 6.5.1.a.
	V_{KTAS}		74.20	8260.42B Paragraph 6.5.1.a.
Note 2	rr (feet) (enter wind)	25	1004.58	0.17
	R_{MA} - no wind radius of missed approach (nm)		0.30	8260.42B Paragraph 6.5.1.e.(1)
Note 3	TR - Turn Rate (deg/sec): (enter degree angle)	15	3.944	8260.42B Paragraph 6.5.1.e.(2)
Note 4	Tail Wind (TW) (enter highest altitude wind)	53	53	8260.42B Table 2-2
	Wr - Wind Spiral Pitch (nm/deg)		0.003733	8260.42B Paragraph 6.5.1.e.(2)
	Degrees of Turn	180		Procedure Specific
	Total Distance from MAP (nm)			1.60

Table 2:

Everything the same as table 1 except 15° TR (to illustrate importance of SAAAR)