

## Appendix E Summary of Alternatives

### ALTERNATIVES

MOA	Attributes and Operations <sup>1</sup>	1 - No Action	2 - Proposed Action	3 - No Horizontal Expansion	4 - Limited Supersonic
<b>Tombstone</b>	Times of Use	0600-2100 M-F; other times by NOTAM	0600-2100 daily, other times by NOTAM	0600-2100 daily, other times by NOTAM	0600-2100 daily, other times by NOTAM
	Horizontal Dimensions	3,968 sqmi	4,766 sqmi	No change	4,766 sqmi
	Vertical Dimensions	A and B: 500 feet AGL to 14,500 feet MSL C: 14,500 feet MSL to FL180	Combine A,B,C: 100 feet AGL to FL180	Combine A,B,C: 100 feet AGL to FL180	Combine A,B,C: 100 feet AGL to FL180
	Chaff/Flare Authorization (minimum release altitude)	No/Yes (5,000 feet AGL)	Authorize chaff; 2,000 feet AGL minimum release	Authorize chaff; 2,000 feet AGL minimum release	Authorize chaff; 2,000 feet AGL minimum release
	Supersonic Authorization	30,000 feet MSL	5,000 feet AGL	5,000 feet AGL	10,000 feet AGL
	Annual sorties	3,450	+4,550 (8,000 total)	+3,450 (6,900 total)	+4,550 (8,000 total)
	Day/Night Percent	89 / 11	No change	No change	No change
	Percent Including Supersonic	0	1	1	1
Chaff/Flare Annual Usage	0 / 16,240	7,000 / 30,000	5,810 / 24,900	7,000 / 30,000	
<b>Outlaw</b>	Times of Use	0700-1800 M-F 1800-2200 M-F by NOTAM Intermittent weekends by NOTAM	0600-2200 M-F, other times by NOTAM	0600-2200 M-F, other times by NOTAM	0600-2200 M-F, other times by NOTAM
	Horizontal Dimensions	2,627 sqmi	No change	No change	No change
	Vertical Dimensions	8,000 feet MSL or 3,000 feet AGL (whichever is higher) to FL180	500 feet AGL to FL180 ATCAA raised to FL510 by default <sup>2</sup>	500 feet AGL to FL180 ATCAA raised to FL510 by default	500 feet AGL to FL180 ATCAA raised to FL510 by default
	Chaff/Flare Authorization (minimum release altitude)	Yes/Yes (3,000 feet AGL)	2,000 feet AGL minimum release	2,000 feet AGL minimum release	2,000 feet AGL minimum release
	Supersonic Authorization	30,000 feet MSL	5,000 feet AGL	5,000 feet AGL	10,000 feet AGL
	Annual sorties	5,190	+1,420 (6,610 total)	+2,520 (7,710 total)	+1,420 (6,610 total)
	Day/Night Percent	89 / 11	No change	No change	No change
	Percent Including Supersonic	12	14	14	14
Chaff/Flare Annual Usage	17,690 / 19,050	24,560 / 26,460	25,750 / 31,560	24,560 / 26,460	
<b>Jackal</b>	Times of Use	0700-1800 M-F 1800-2200 M-F by NOTAM Intermittent weekends by NOTAM	0600-2200 M-F, other times by NOTAM	0600-2200 M-F, other times by NOTAM	0600-2200 M-F, other times by NOTAM
	Horizontal Dimensions	4,714 sqmi	No change	No change	No change
	Vertical Dimensions	Jackal Low: 100 feet AGL to 11,000 feet MSL or 3,000 feet AGL (whichever is higher) Jackal MOA: 11,000 feet MSL or 3,000 feet AGL (whichever is higher) to FL180	Low: 100 feet AGL to 500 feet AGL Jackal MOA: 500 feet AGL to FL180 ATCAA raised to FL510 by default	100 feet AGL to FL180 ATCAA raised to FL510 by default	Low: 100 feet AGL to 500 feet AGL Jackal MOA: 500 feet AGL to FL180 ATCAA raised to FL510 by default
	Chaff/Flare Authorization (minimum release altitude)	Yes/Yes (3,000 feet AGL)	2,000 feet AGL minimum release	2,000 feet AGL minimum release	2,000 feet AGL minimum release
	Supersonic Authorization	30,000 feet MSL	5,000 feet AGL	5,000 feet AGL	10,000 feet AGL
	Annual sorties (used with Outlaw)	--	--	--	--
	Day/Night Percent	--	--	--	--
	Percent Including Supersonic	--	--	--	--
Chaff/Flare Annual Usage	--	--	--	--	
<b>Morenci</b>	Times of Use	0600-2100 M-F; other times by NOTAM	0600-2200 M-F, other times by NOTAM	0600-2200 M-F, other times by NOTAM	0600-2200 M-F, other times by NOTAM
	Horizontal Dimensions	2,325 sqmi	No change	No change	No change
	Vertical Dimensions	1,500 feet AGL to FL180	No change	No change	No change
	Chaff/Flare Authorization (minimum release altitude)	Yes/Yes (2,000 feet AGL)	No change	No change	No change
	Supersonic Authorization	30,000 feet MSL	5,000 feet AGL	5,000 feet AGL	10,000 feet AGL
	Annual sorties	3,350	+700 (4,050 total)	+700 (4,050 total)	+700 (4,050 total)
	Day/Night Percent	90 / 10	No change	No change	No change
	Percent Including Supersonic	11	No change	No change	No change
Chaff/Flare Annual Usage	13,950 / 13,460	16,920 / 16,330	16,920 / 16,330	16,920 / 16,330	
<b>Reserve</b>	Times of Use	By NOTAM	0600-2200 M-F, other times by NOTAM	0600-2200 M-F, other times by NOTAM	0600-2200 M-F, other times by NOTAM
	Horizontal Dimensions	3,348 sqmi	No change	No change	No change
	Vertical Dimensions	5,000 feet AGL to FL180	No change	No change	No change
	Chaff/Flare Authorization (minimum release altitude)	Yes/Yes (5,000 feet AGL)	No change	No change	No change
	Supersonic Authorization	30,000 feet MSL	5,000 feet AGL	5,000 feet AGL	10,000 feet AGL
	Annual sorties (used with Morenci)	--	--	--	--
	Day/Night Percent	--	--	--	--
	Percent Including Supersonic	--	--	--	--
Chaff/Flare Annual Usage	--	--	--	--	
<b>Bagdad</b>	Times of Use	0600-1900 M-F; other times by NOTAM	0600-0000 M-F, other times by NOTAM	0600-0000 M-F, other times by NOTAM	0600-0000 M-F, other times by NOTAM
	Horizontal Dimensions	1,410 sqmi	No change	No change	No change

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### ALTERNATIVES

MOA	Attributes and Operations <sup>1</sup>	1 - No Action	2 - Proposed Action	3 - No Horizontal Expansion	4 - Limited Supersonic
	Vertical Dimensions	7,000 feet MSL or 5,000 feet AGL (whichever is higher) to FL180	500 feet AGL to FL180	500 feet AGL to FL180	500 feet AGL to FL180
	Chaff/Flare Authorization (minimum release altitude)	Yes/Yes (5,000 feet AGL)	2,000 feet AGL minimum release	2,000 feet AGL minimum release	2,000 feet AGL minimum release
	Supersonic Authorization	10,000 feet MSL	No change	No change	No change
	Annual sorties	6,920	+2,200 (9,120 total)	+2,200 (9,120 total)	+2,200 (9,120 total)
	Day/Night Percent	88 / 12	No change	No change	No change
	Percent Including Supersonic	65	66	66	66
	Chaff/Flare Annual Usage	14,390 / 15,570	19,050 / 20,610	19,050 / 20,610	19,050 / 20,610
<b>Gladden</b>	Times of Use	0600-1900 M-F; other times by NOTAM	0600-0000 M-F, other times by NOTAM	0600-0000 M-F, other times by NOTAM	0600-0000 M-F, other times by NOTAM
	Horizontal Dimensions	2,476 sqmi	No change	No change	No change
	Vertical Dimensions	7,000 feet MSL or 5,000 feet AGL (whichever is higher) to FL180	500 feet AGL to FL180	500 feet AGL to FL180	500 feet AGL to FL180
	Chaff/Flare Authorization (minimum release altitude)	Yes/Yes (5,000 feet AGL)	2,000 feet AGL minimum release	2,000 feet AGL minimum release	2,000 feet AGL minimum release
	Supersonic Authorization	10,000 feet MSL	No change	No change	No change
	Annual sorties (used with Bagdad)	--	--	--	--
	Day/Night Percent	--	--	--	--
	Percent Including Supersonic	--	--	--	--
	Chaff/Flare Annual Usage	--	--	--	--
<b>Sells</b>	Times of Use	0600-1900 M-F, other times by NOTAM	0600-0000 M-F, other times by NOTAM	0600-0000 M-F, other times by NOTAM	0600-0000 M-F, other times by NOTAM
	Horizontal Dimensions	4,854 sqmi	No change	No change	No change
	Vertical Dimensions	Low: 3,000 feet AGL to 10,000 feet MSL Sells: 10,000 feet MSL to FL180	No change	No change	No change
	Chaff/Flare Authorization (minimum release altitude)	Yes/Yes (3,000 feet AGL)	No change	No change	No change
	Supersonic Authorization	10,000 feet MSL	No change	No change	No change
	Annual sorties	14,790	+3,020 (17,810 total)	+3,020 (17,810 total)	+3,020 (17,810 total)
	Day/Night Percent	85 / 15	No change	No change	No change
	Percent Including Supersonic	60	No change	No change	No change
	Chaff/Flare Annual Usage	31,490 / 34,560	37,890 / 41,580	37,890 / 41,580	37,890 / 41,580
<b>Ruby</b>	Times of Use	0600-1900 M-F; other times by NOTAM	0600-0000 M-F, other times by NOTAM	0600-0000 M-F, other times by NOTAM	0600-0000 M-F, other times by NOTAM
	Horizontal Dimensions	770 sqmi	No change	No change	No change
	Vertical Dimensions	10,000 feet MSL to FL180	No change	No change	No change
	Chaff/Flare Authorization (minimum release altitude)	Yes/Yes (2,000 feet AGL)	No change	No change	No change
	Supersonic Authorization	Not authorized	No change	No change	No change
	Annual sorties	5,490	+2,120 (7,610 total)	+2,120 (7,610 total)	+2,120 (7,610 total)
	Day/Night Percent	90 / 10	No change	No change	No change
	Percent Including Supersonic	0	No change	No change	No change
	Chaff/Flare Annual Usage	20,890 / 20,770	28,450 / 28,280	28,450 / 28,280	28,450 / 28,280
<b>Fuzzy</b>	Times of Use	0700-1900 daily; other times by NOTAM	0600-0000 M-F, other times by NOTAM	0600-0000 M-F, other times by NOTAM	0600-0000 M-F, other times by NOTAM
	Horizontal Dimensions	588 sqmi	No change	No change	No change
	Vertical Dimensions	100 feet AGL to 10,000 feet MSL	No change	No change	No change
	Chaff/Flare Authorization (minimum release altitude)	Yes/Yes (2,000 feet AGL)	No change	No change	No change
	Supersonic Authorization	Not authorized	No change	No change	No change
	Annual sorties (used with Ruby)	--	--	--	--
	Day/Night Percent	--	--	--	--
	Percent Including Supersonic	--	--	--	--
	Chaff/Flare Annual Usage	--	--	--	--

**Notes :**

<sup>1</sup> Annual sorties, breakdown of day/night sorties, percent of sorties that include supersonic, and chaff and flare usage are not attributes. Adjusting the attributes of the MOA determines the operations that can occur in that MOA.

<sup>2</sup> Outlaw and Jackal ATCAAs are defined in an LOA to FL510, but ceiling defaults to FL290 unless scheduled concurrently with Morenci and Reserve ATCAAs.