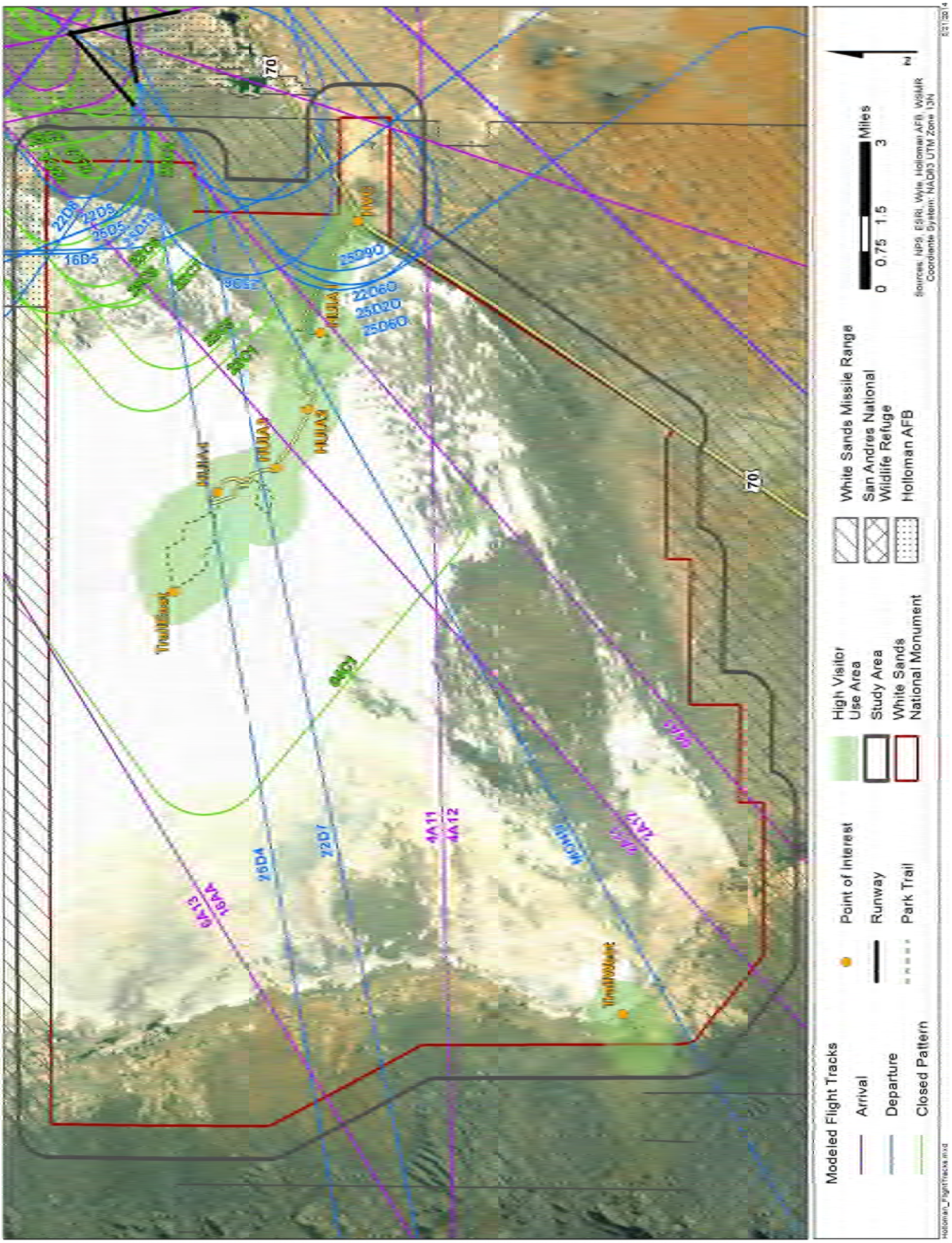

Figure 3-3. Modeled Departure and Arrival Flight Tracks for Average Flying Day

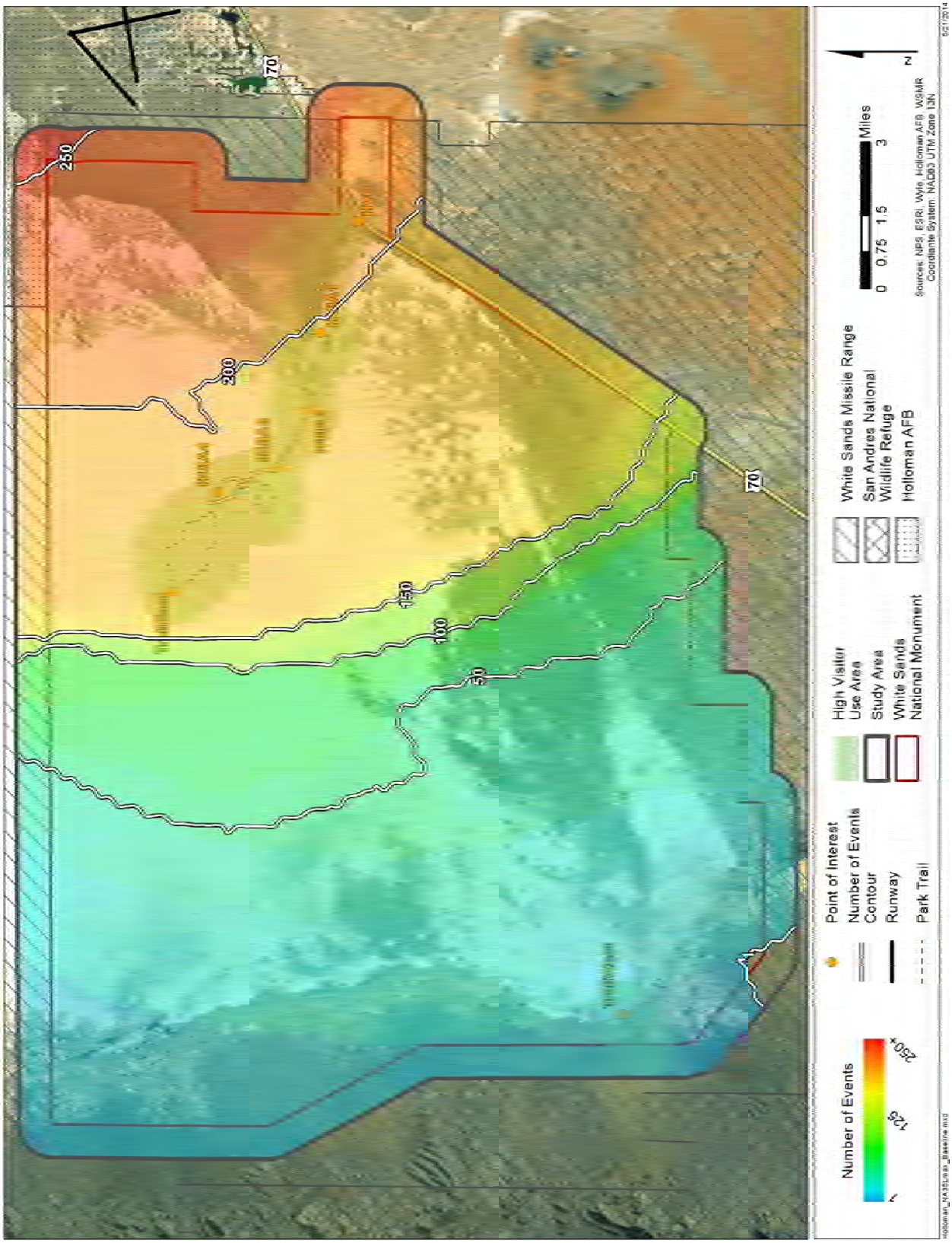

Figure 3-4. NA035ALM Contours and Gradient from Aircraft Operations for the Baseline Scenario

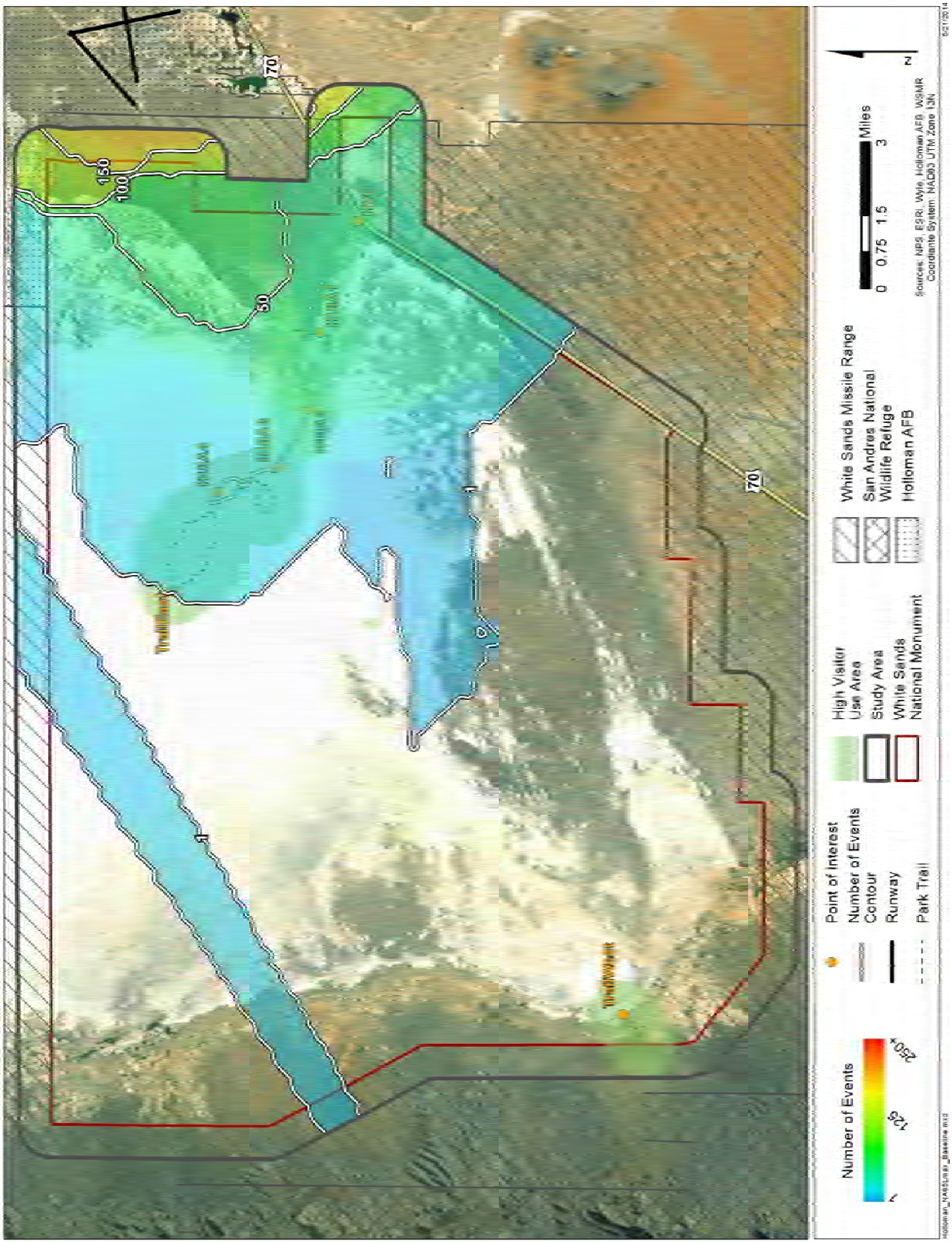

Figure 3-5. NA065ALM Contours and Gradient from Aircraft Operations for the Baseline Scenario

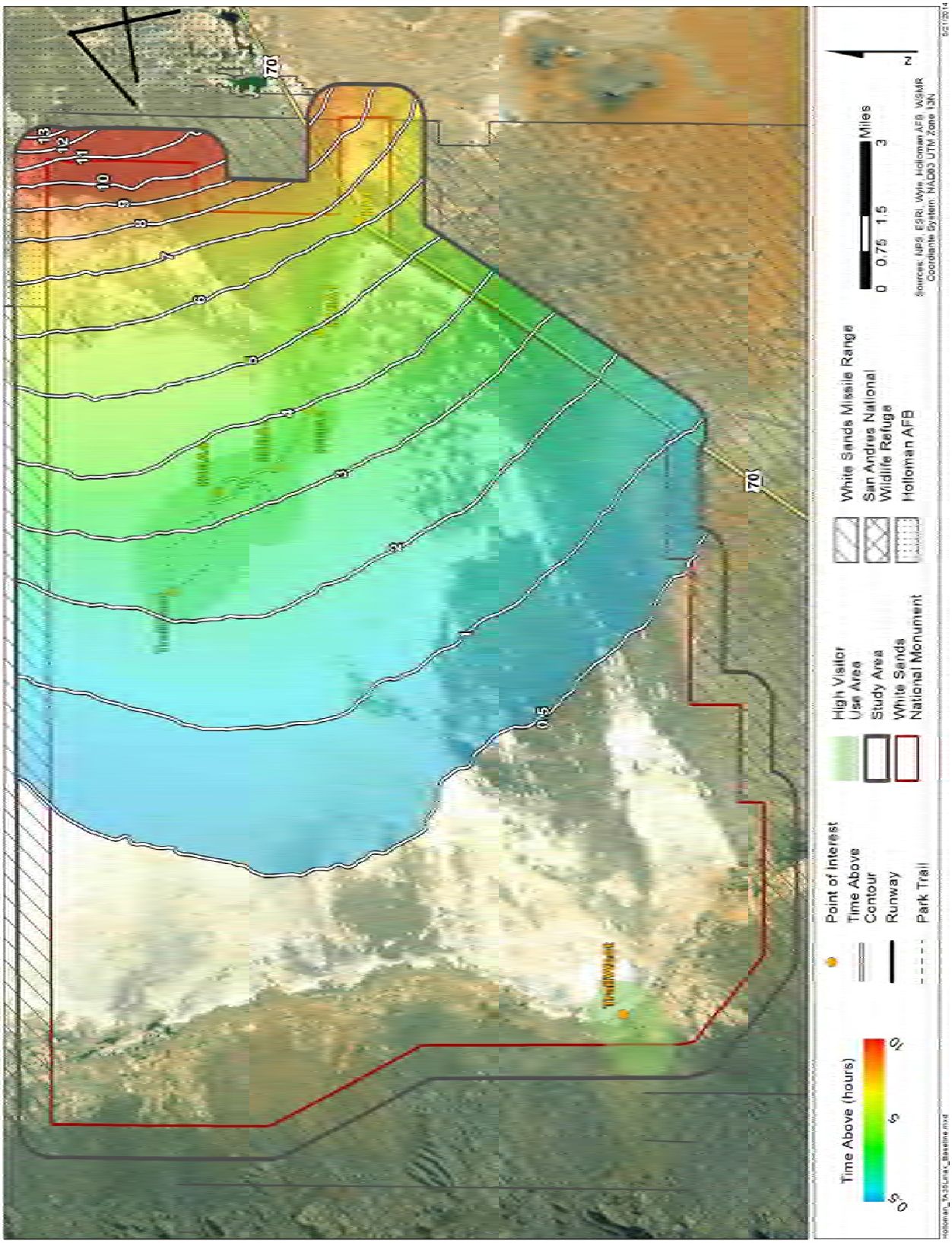

Figure 3-6. TA035ALM Contours and Gradient from Aircraft Operations for the Baseline Scenario

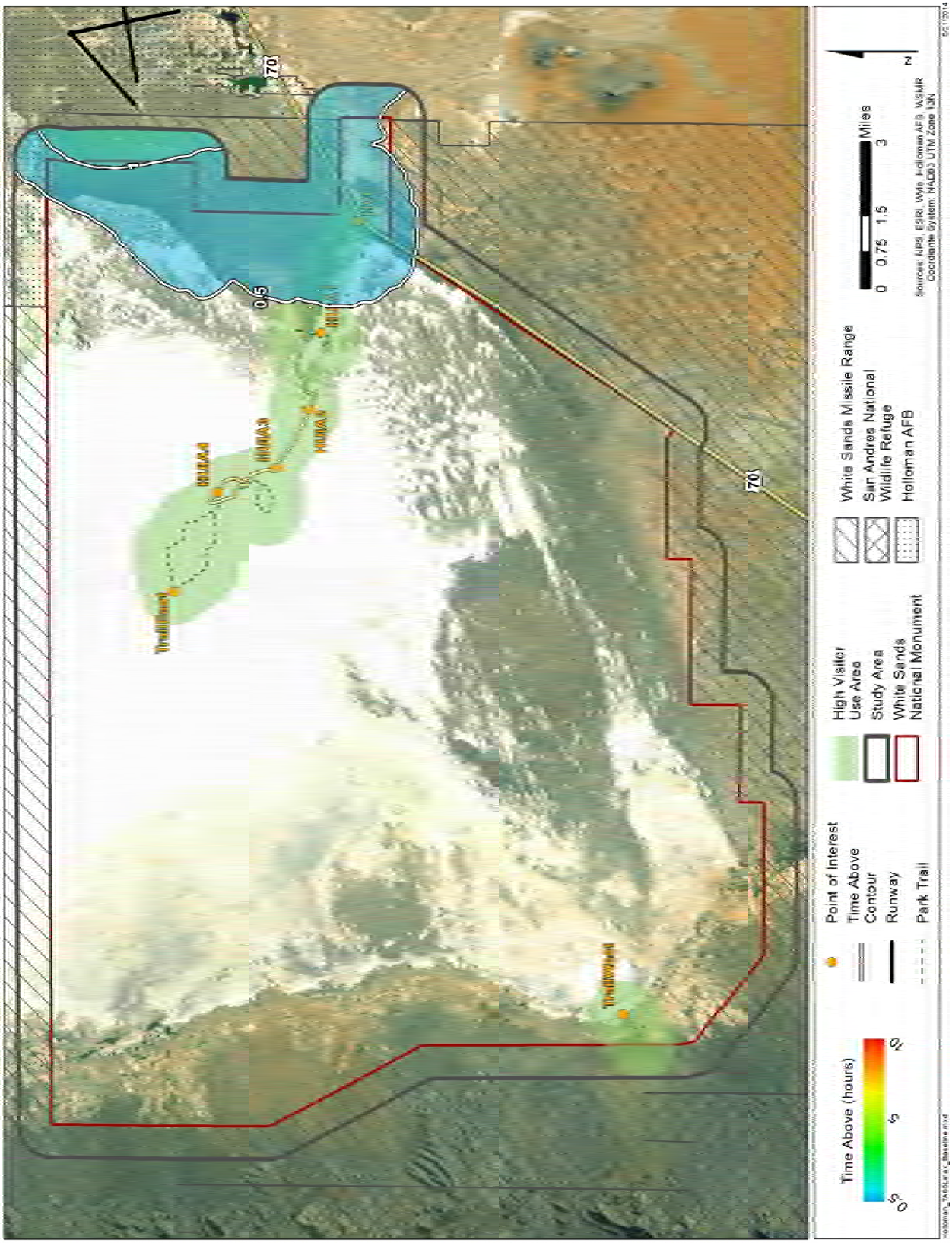

Figure 3-7. TA065ALM Contours and Gradient from Aircraft Operations for the Baseline Scenario

Table 3-3. NA and TA at POI for Baseline Scenario

Point of Interest		Average Flying Day					
		35 dB Lmax			65 dB Lmax		
ID	Description	NA (events)	TA (minutes)	TA (hours)	NA (events)	TA (minutes)	TA (hours)
01_HVC	Visitor Center	217	383	6.4	35	47	0.8
02_HUIA1	High Visitor Use Area 1	199	300	5.0	35	18	0.3
03_HUIA2	High Visitor Use Area 2	196	241	4.0	44	10	0.2
04_HUIA3	High Visitor Use Area 3	193	199	3.3	13	5	0.1
05_HUIA4	High Visitor Use Area 4	198	199	3.3	12	6	0.1
06_TrailEast	TrailEast	193	141	2.4	12	< 0.5	0.0
07_TrailWest	TrailWest	3	4	0.1	< 0.5	< 0.5	0.0
CDC	Child Development Center	246	773	12.9	190	151	2.5
CDC#2	Child Development Center #2	251	803	13.4	190	165	2.7
Chap	Chapel	251	801	13.4	190	162	2.7
Elem	Elementary School	247	788	13.1	190	157	2.6
Midd	Middle School	251	795	13.2	190	161	2.7

Excluding WHSA's TrailWest and TrailEast, WHSA POI TA ranges from 199 to 383 minutes for the 35 dB threshold and from 6 to 47 minutes for the 65 dB threshold, per average flying day. TrailWest TA35ALM is 4 minutes, and TA65ALM is less than half of a minute. TrailEast TA35ALM is 141 minutes, and TA65ALM is less than half of a minute. Holloman POI TA ranges from 773 to 803 minutes for the 35 dB threshold and 151 to 165 minutes for the 65 dB threshold, per average flying day.

For comparison, a vehicle (car or semi-truck) pass-by event would cause approximately 72 to 82 dB L_{max} at the Visitor Center which is approximately 250 ft from nearest lane of US Hwy 70 (FHWA 2006). Annual average daily traffic for US Hwy 70 is approximately 11,500 (NMDOT 2012). Assuming a vehicle pass-by is 5 seconds in duration (above 65 dB L_{max}), NA and TA for vehicle noise events at the Visitor Center would result in approximately 11,500 events above 65 dB L_{max} for 960 minutes (16 hours), assuming distinct events.

3.2 Proposed Scenario

3.2.1 Flight Operations

Proposed number flight operations would be identical to Baseline except the QF-4 operations would be replaced by QF-16 operations (Swyt 2013b). Table 3-4 contains the proposed annual flight operations. QF-16 operations would total 2,400 annually, within rounding error of the total flight operations of the QF-4 in the Baseline scenario, but its distribution by type of operation would be slightly different. Over 90% of the QF-16 departures would be military departures, (i.e., not afterburner assisted) whereas all of the QF-4 departures are afterburner assisted. The QF-16 operations would be distributed among the various types of closed pattern operations differently than the QF-4. Neither aircraft would have operations during the environmental nighttime period (2200-0700).

3.2.2 Runway and Track Utilization

Runway utilization, flight tracks and flight track utilization would be similar to the Baseline scenario. QF-16 aircraft would be flown similar to the QF-4 in the Baseline scenario in this regard. The difference being that QF-16s would perform Simulated Flame-Out (SFO) pattern.

3.2.3 Flight Profiles

Flight performance characteristics are different between the QF-4 and QF-16 therefore QF-16 flight profiles would be different from the QF-4 profiles in the Baseline scenario. QF-16 profiles were provided by the USAF (MacWilliam 2013). Maps of representative flight profiles for the QF-16 are in Appendix A.

Table 3-4. Annual Flight Operations at Holloman AFB for Proposed Scenario

a) Summary

Aircraft		Departure			Arrival			Pattern*			Grand Total		
Category	Type	Day (0700-2200)	Night (2200-0700)	Total	Day (0700-2200)	Night (2200-0700)	Total	Day (0700-2200)	Night (2200-0700)	Total	Day (0700-2200)	Night (2200-0700)	Total
Based (250 annual flying days)	QF-16C (PW220)	600	-	600	600	-	600	1,200	-	1,200	2,400	-	2,400
	F-16C (PW220)	10,292	-	10,292	10,114	179	10,293	23,175	-	23,175	43,581	179	43,760
	C-12	113	-	113	113	-	113	-	-	-	226	-	226
	OH-58	1,000	-	1,000	1,000	-	1,000	-	-	-	2,000	-	2,000
	T-38	22	-	22	22	-	22	90	-	90	134	-	134
	TORNADO	6,725	246	6,971	6,810	161	6,971	31,133	656	31,789	44,668	1,063	45,731
Transient (365 flying days)	A-10A	66	-	66	66	-	66	-	-	-	132	-	132
	C-130E	175	-	175	175	-	175	-	-	-	350	-	350
	C-17	44	-	44	44	-	44	-	-	-	88	-	88
	C-5A	44	-	44	44	-	44	-	-	-	88	-	88
	F-16C (PW220)	168	-	168	168	-	168	-	-	-	336	-	336
	F-15E (PW229)	113	-	113	113	-	113	-	-	-	226	-	226
	F/A-18C/D	142	-	142	142	-	142	-	-	-	284	-	284
	T-37B	51	-	51	51	-	51	-	-	-	102	-	102
Civilian (365 flying days)	CNA441	409	-	409	409	-	409	-	-	-	818	-	818
	COMP1985	1,643	-	1,643	1,643	-	1,643	-	-	-	3,286	-	3,286
Total		21,607	246	21,853	21,514	340	21,854	55,598	656	56,254	98,719	1,242	99,961

b) Departures detail

Aircraft		Departures								
		Regular/Military Power			Afterburner-assisted			Afterburner Chase		
Category	Type	Day (0700-2200)	Night (2200-0700)	Total	Day (0700-2200)	Night (2200-0700)	Total	Day (0700-2200)	Night (2200-0700)	Total
Based (250 annual flying days)	QF-16C (PW220)	546	-	546	35	-	35	19	-	19
	F-16C (PW220)	6,175	-	6,175	4,117	-	4,117	-	-	-
	C-12	113	-	113	-	-	-	-	-	-
	OH-58	1,000	-	1,000	-	-	-	-	-	-
	T-38	-	-	-	22	-	22	-	-	-
	TORNADO	-	-	-	6,725	246	6,971	-	-	-
Transient (365 flying days)	A-10A	66	-	66	-	-	-	-	-	-
	C-130E	175	-	175	-	-	-	-	-	-
	C-17	44	-	44	-	-	-	-	-	-
	C-5A	44	-	44	-	-	-	-	-	-
	F-16C (PW220)	-	-	-	168	-	168	-	-	-
	F-15E (PW229)	113	-	113	-	-	-	-	-	-
	F/A-18C/D	-	-	-	142	-	142	-	-	-
	T-37B	51	-	51	-	-	-	-	-	-
Civilian (365 flying days)	CNA441	409	-	409	-	-	-	-	-	-
	COMP1985	1,643	-	1,643	-	-	-	-	-	-
Total		10,379	-	10,379	11,209	246	11,455	19	-	19

Table 3-4. Annual Flight Operations at Holloman AFB for Proposed Scenario - *continued*

c) Arrival detail

Aircraft		Arrivals																	
		VFR Non-break/pitch			IFR Non-break/pitch			Pitch/Overhead			Tactical Approach			SFO Straight-in Arrival			SFO Overhead		
Category	Type	Day (0700-2200)	Night (2200-0700)	Total	Day (0700-2200)	Night (2200-0700)	Total	Day (0700-2200)	Night (2200-0700)	Total	Day (0700-2200)	Night (2200-0700)	Total	Day (0700-2200)	Night (2200-0700)	Total	Day (0700-2200)	Night (2200-0700)	Total
Based (250 annual flying days)	QF-16C (PW220)	163	-	163	79	-	79	336	-	336	22	-	22	-	-	-	-	-	-
	F-16C (PW220)	1,652	-	1,652	2,427	128	2,555	5,013	51	5,064	-	-	-	1,022	-	1,022	-	-	-
	C-12	113	-	113	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	OH-58	1,000	-	1,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	T-38	5	-	5	5	-	5	12	-	12	-	-	-	-	-	-	-	-	-
	TORNADO	1,819	-	1,819	111	161	272	4,880	-	4,880	-	-	-	-	-	-	-	-	-
Transient (365 flying days)	A-10A	66	-	66	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	C-130E	175	-	175	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	C-17	44	-	44	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	C-5A	44	-	44	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	F-16C (PW220)	-	-	-	-	-	-	168	-	168	-	-	-	-	-	-	-	-	-
	F-15E (PW229)	-	-	-	-	-	-	113	-	113	-	-	-	-	-	-	-	-	-
	F/A-18C/D	-	-	-	-	-	-	142	-	142	-	-	-	-	-	-	-	-	-
	T-37B	-	-	-	-	-	-	51	-	51	-	-	-	-	-	-	-	-	-
Civilian (365 flying days)	CNA441	409	-	409	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	COMP1985	1,643	-	1,643	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total		7,133	-	7,133	2,622	289	2,911	10,715	51	10,766	22	-	22	1,022	-	1,022	-	-	-

Table 3-4. Annual Flight Operations at Holloman AFB for Proposed Scenario - *concluded*

d) Pattern detail

Aircraft		Closed Pattern*																	
		VFR Inside			VFR Outside			VFR Outside w/Pitch			IFR Box			Drone Box			SFO		
Category	Type	Day (0700-2200)	Night (2200-0700)	Total	Day (0700-2200)	Night (2200-0700)	Total	Day (0700-2200)	Night (2200-0700)	Total	Day (0700-2200)	Night (2200-0700)	Total	Day (0700-2200)	Night (2200-0700)	Total	Day (0700-2200)	Night (2200-0700)	Total
Based (250 annual flying days)	QF-16C (PW220)	453	-	453	100	-	100	180	-	180	30	-	30	245	-	245	192	-	192
	F-16C (PW220)	3,586	-	3,586	-	-	-	16,933	-	16,933	1,328	-	1,328	-	-	-	1,328	-	1,328
	C-12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	OH-58	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	T-38	70	-	70	1	-	1	6	-	6	13	-	13	-	-	-	-	-	-
	TORNADO	21,024	656	21,680	9,321	-	9,321	788	-	788	-	-	-	-	-	-	-	-	-
Transient (365 flying days)	A-10A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	C-130E	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	C-17	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	C-5A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	F-16C (PW220)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	F-15E (PW229)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	F/A-18C/D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	T-37B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Civilian (365 flying days)	CNA441	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	COMP1985	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total		**25,133**	**656**	**25,789**	**9,422**	**-**	**9,422**	**17,907**	**-**	**17,907**	**1,371**	**-**	**1,371**	**245**	**-**	**245**	**1,520**	**-**	**1,520**

**Each circuit counted as 2 operations.*

3.2.4 Run-Up Operations

Run-up operations would be similar to the Baseline scenario except QF-4 run-ups would be deleted and QF-16 run-ups would be added. Tables A-3 and A-4 (Appendix A) show the modeled pre-flight and maintenance run-ups for the Proposed scenario, respectively.

QF-16 aircraft would perform a single-engine run-up on the runway prior to brake release, 15 seconds at 80%NC. Single-engine high-power maintenance run-ups would be conducted at the trim pad at a rate of 1 every 10 days, on average, with afterburner being used for as much as 2.5 minutes for each event. None of the QF-16 run-ups would be during the DNL nighttime period.

3.2.5 Noise Exposure

Figure 3-8 shows the resultant 65-85 dB DNL contours, in 5 dB increments. DNL is also shown as color shading in the figure. The contours and shading is very similar to the DNL exposure for the Baseline scenario. Refer to section 3.1.5 for discussion of contour extents.

Figure 3-9 compares the 65 dB and 75 dB DNL contours from the Proposed and Baseline scenarios. This figure shows the Proposed operations would cause a slight reduction in the extents of these contours, most noticeably to the north of the airfield and in the WHSA.

Table 3-5 contains the DNL for the on-base and WHSA POI. DNL for on-base POI would range from 70 to 72 dB (identical to Baseline). DNL for WHSA POI would range between 43 and 54 dB except for TrailWest which would have a DNL of 20 dB. The maximum DNL at WHSA POI of 54 dB (at High Use Visitor Area #1) would be 2 dB less than the maximum DNL at WHSA POI from the Baseline scenario. High Use Visitor Area #2 would experience a 1 dB reduction in DNL, relative to Baseline.

Figures 3-10 through 3-17 show the NA and TA contours for the two selected L_{max} thresholds for the Baseline scenario and comparisons to Baseline. All discussion from Section 3.1.5, regarding the No Action scenario NA and TA contours, also applies to the Proposed Action NA and TA contours.

Table 3-6 lists the NA and TA values for these POI for the Proposed scenario. Excluding WHSA's TrailWest, WHSA POI NA would range from 193 to 215 events for the 35 dB threshold and from 12 to 44 events for the 65 dB threshold, per average flying day. TrailWest NA35ALM would be 3 events. TrailWest NA65ALM would be less than 0.5 event. Holloman POI NA would ranges from 245 to 250 for the 35 dB threshold and from 188 to 189 for the 65 dB threshold, per average flying day.

For the 35 dB threshold, NA would decrease by 1-2 events at most POI except TrailEast and TrailWest which see no change. For the 65 dB threshold, NA would decrease for all Holloman POI by 1-2 events, but would see no change at all WHSA POI.

Relative to Baseline, TA decreases up to 4 minutes for the selected POI. Excluding WHSA's TrailWest, WHSA POI TA35ALM would range from 141 to 379 minutes. TrailWest TA35ALM would be 4 minutes. Excluding WHSA's TrailWest and TrailEast, WHSA POI TA65ALM would range from 6 to 47 minutes per average flying day for the Proposed scenario. TrailWest and TrailEast TA65ALM would be less than half of a minute. Holloman POI TA would range from 770 to 799 minutes for the 35 dB threshold and from 151 to 163 minutes for the 65 dB threshold, per average flying day.

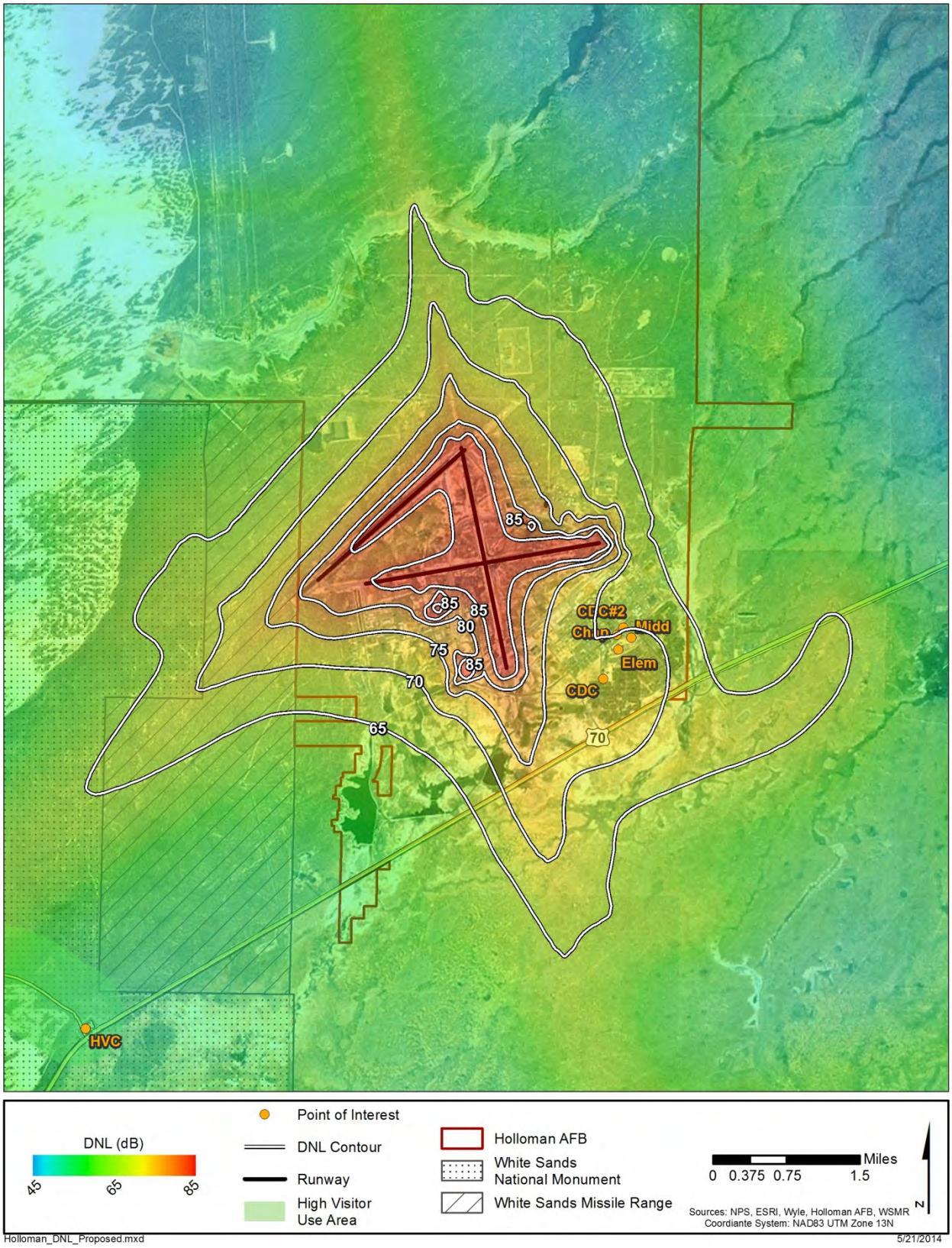

Figure 3-8. Aircraft DNL Contours and Gradient from Operations for the Proposed Scenario

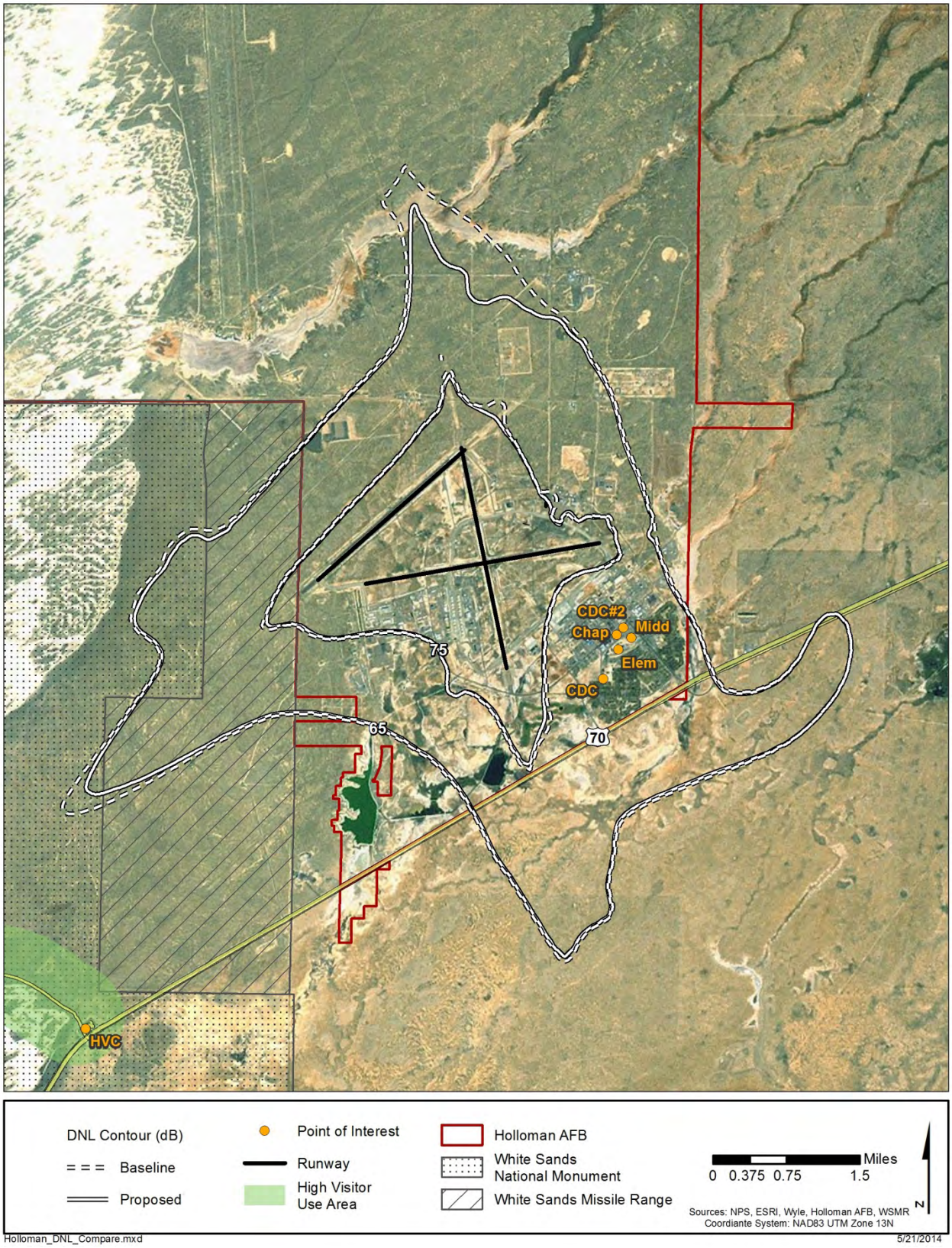

Figure 3-9. Comparison of Select DNL Contours from Baseline and Proposed Scenarios

Table 3-5. DNL at POI for Proposed Scenario

Point of Interest			DNL (dB)	
Grouping	ID	Description	Proposed	Change re Baseline
WSNM	01_HVC	Visitor Center	54	0
	02_HUIA1	High Visitor Use Area 1	53	-2
	03_HUIA2	High Visitor Use Area 2	43	-1
	04_HUIA3	High Visitor Use Area 3	44	0
	05_HUIA4	High Visitor Use Area 4	52	0
	06_Trail East	TrailEast	43	0
	07_Trail West	TrailWest	20	0
Holloman AFB	CDC	Child Development Center	72	0
	CDC#2	Child Development Center #2	70	0
	Chap	Chapel	70	0
	Elem	Elementary School	71	0
	Midd	Middle School	71	0

Table 3-6. NA and TA at POI for Proposed Scenario

			Average Flying Day							
			35 dB Lmax				65 dB Lmax			
Grouping	ID	Description	NA (events)	Change re Baseline	TA (minutes)	Change re Baseline	NA (events)	Change re Baseline	TA (minutes)	Change re Baseline
WSNM	01_HVC	Visitor Center	215	-2	379	-4	35	0	47	0
	02_HUIA1	High Visitor Use Area 1	198	-1	298	-2	35	0	18	0
	03_HUIA2	High Visitor Use Area 2	194	-2	240	-1	44	0	9	-1
	04_HUIA3	High Visitor Use Area 3	191	-2	199	0	13	0	5	0
	05_HUIA4	High Visitor Use Area 4	196	-2	199	0	12	0	6	0
	06_Trail~1	TrailEast	193	0	141	0	12	0	< 0.5	0
	07_Trail~1	TrailWest	3	0	4	0	< 0.5	0	< 0.5	0
Holloman AFB	CDC	Child Development Center	245	-1	770	-3	188	-2	151	0
	CDC#2	Child Development Center #2	250	-1	799	-4	189	-1	163	-2
	Chap	Chapel	250	-1	798	-3	189	-1	161	-1
	Elem	Elementary School	246	-1	784	-4	188	-2	156	-1
	Midd	Middle School	250	-1	791	-4	188	-2	159	-2

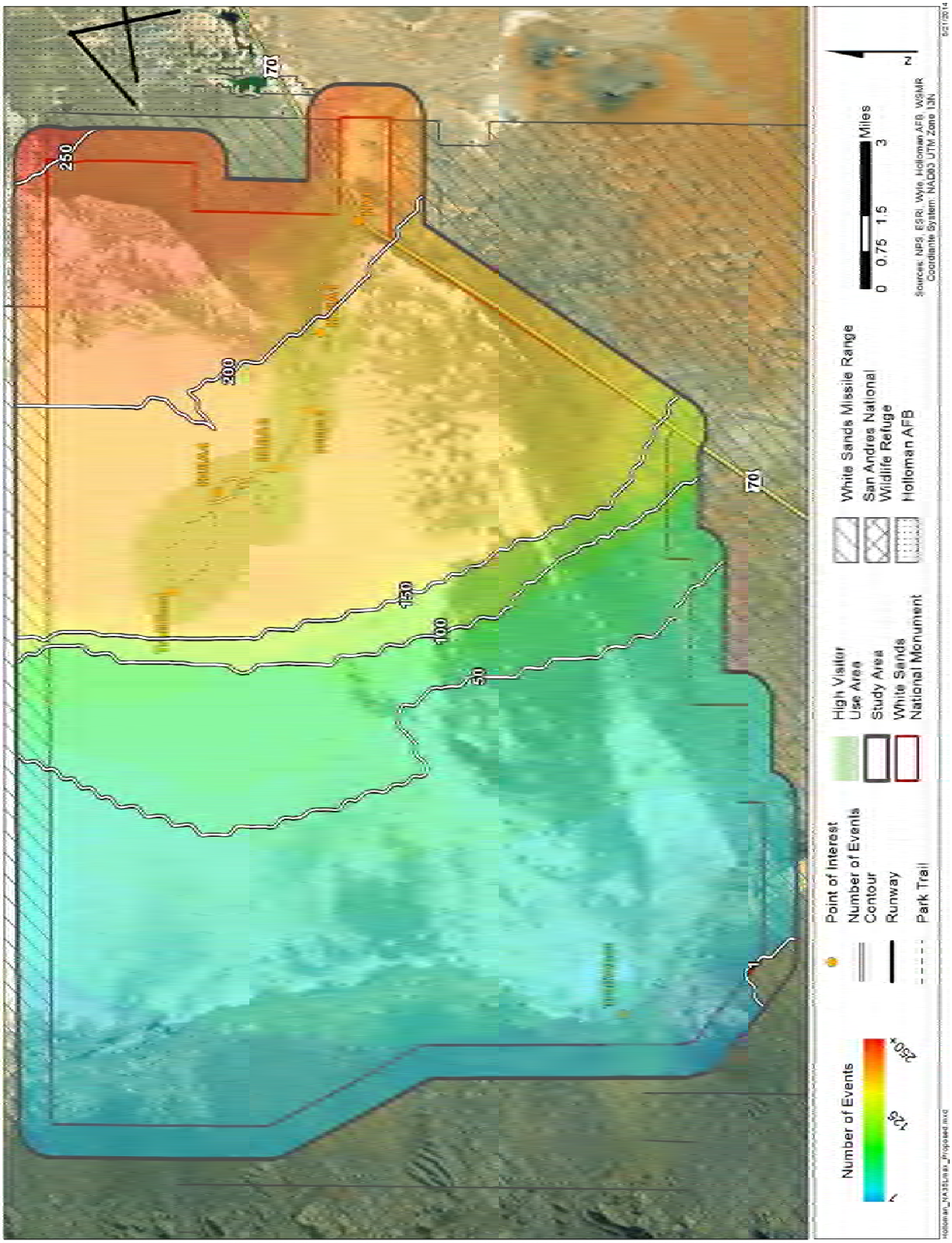

Figure 3-10. NA035ALM Contours and Gradient from Aircraft Operations for the Proposed Scenario

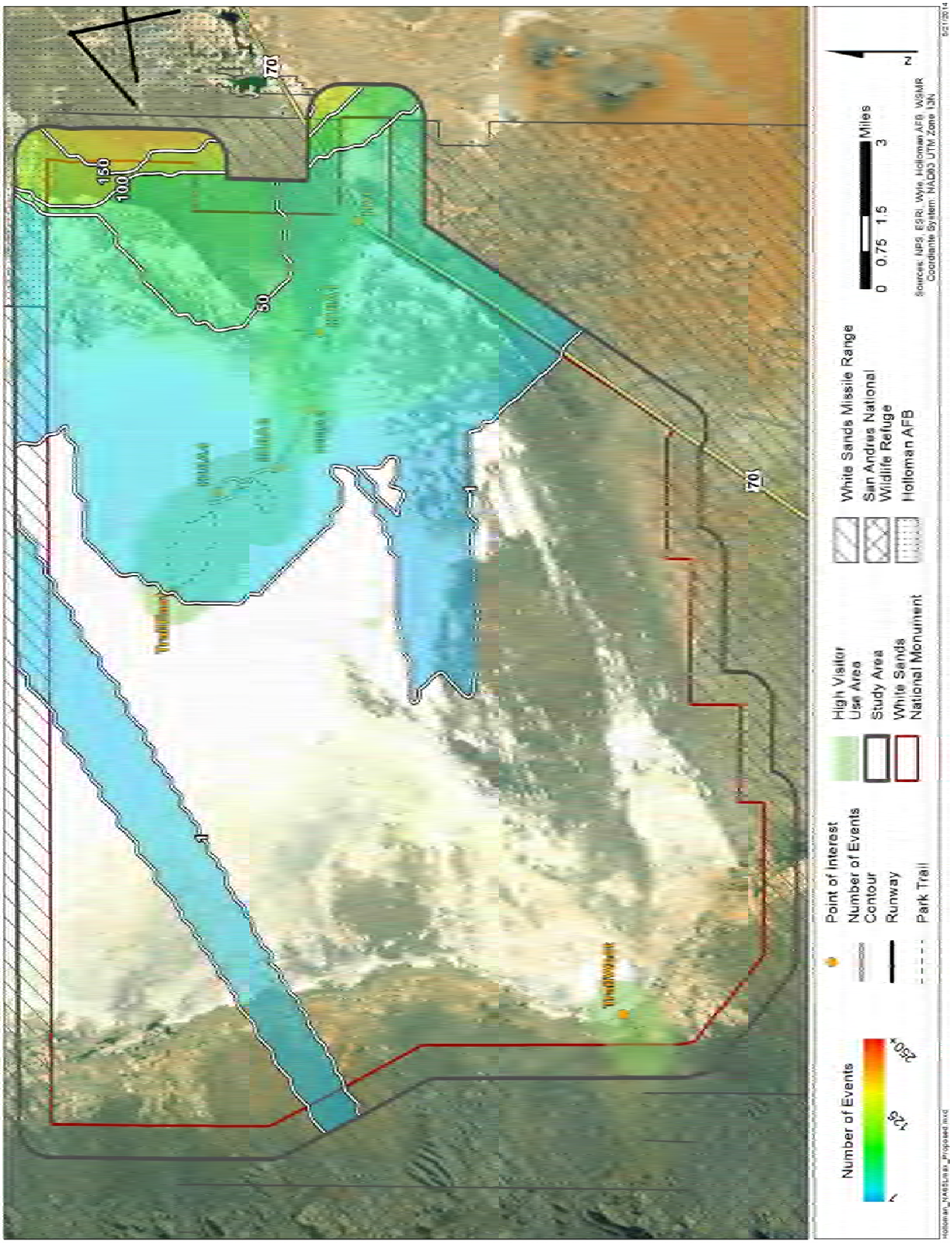

Figure 3-11. NA065ALM Contours and Gradient from Aircraft Operations for the Proposed Scenario

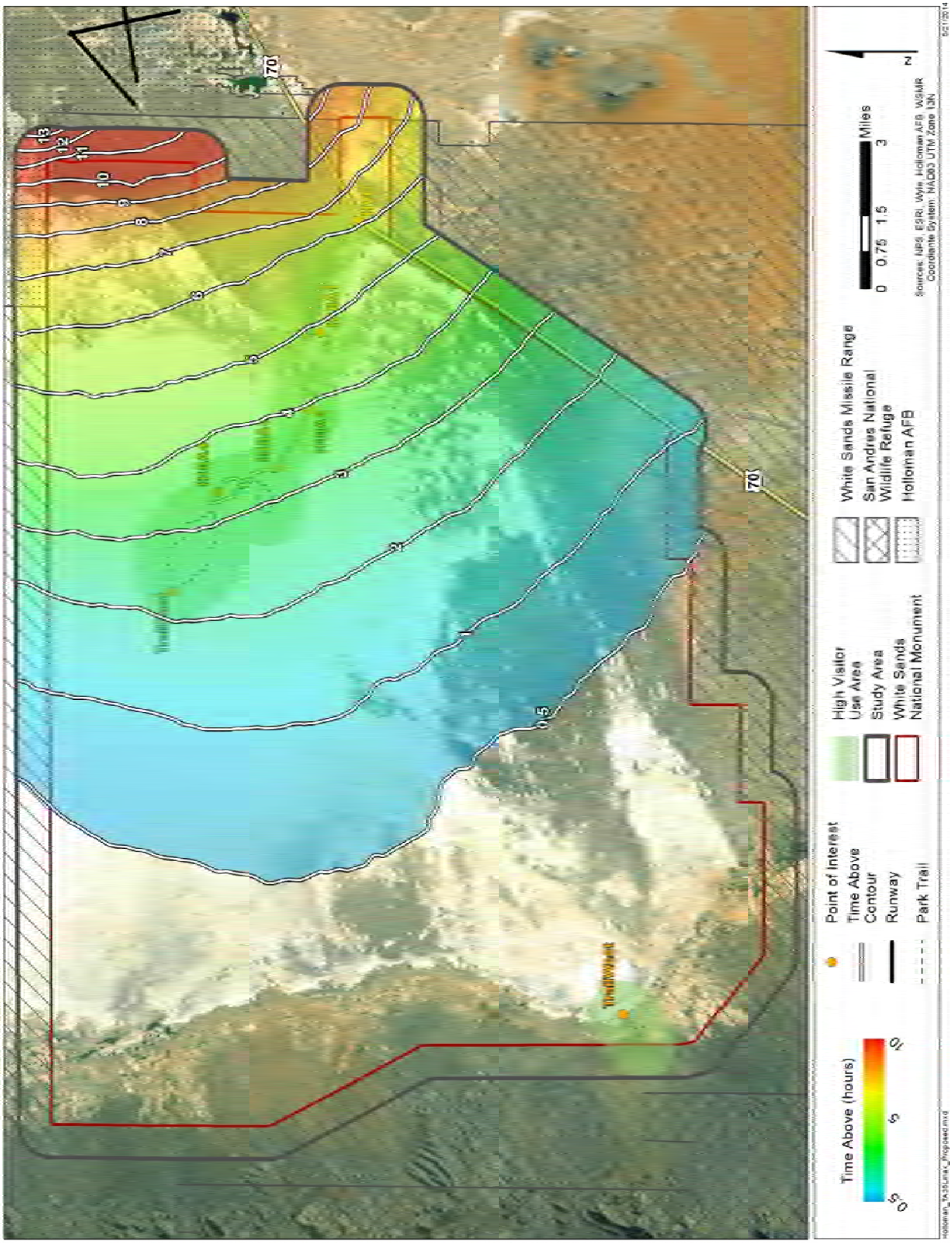

Figure 3-12. TA035ALM Contours and Gradient from Aircraft Operations for the Proposed Scenario

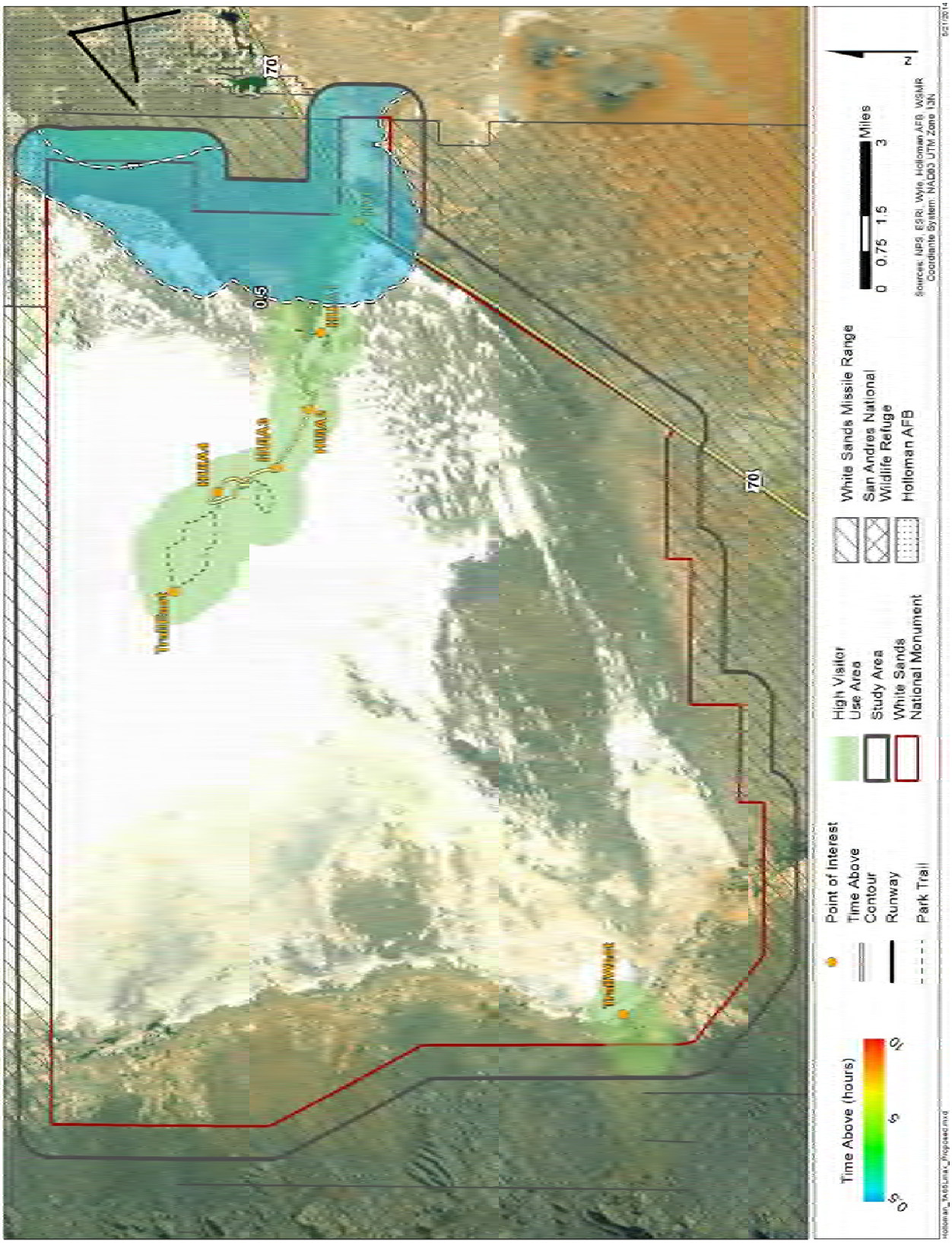

Figure 3-13. TA065ALM Contours and Gradient from Aircraft Operations for the Proposed Scenario

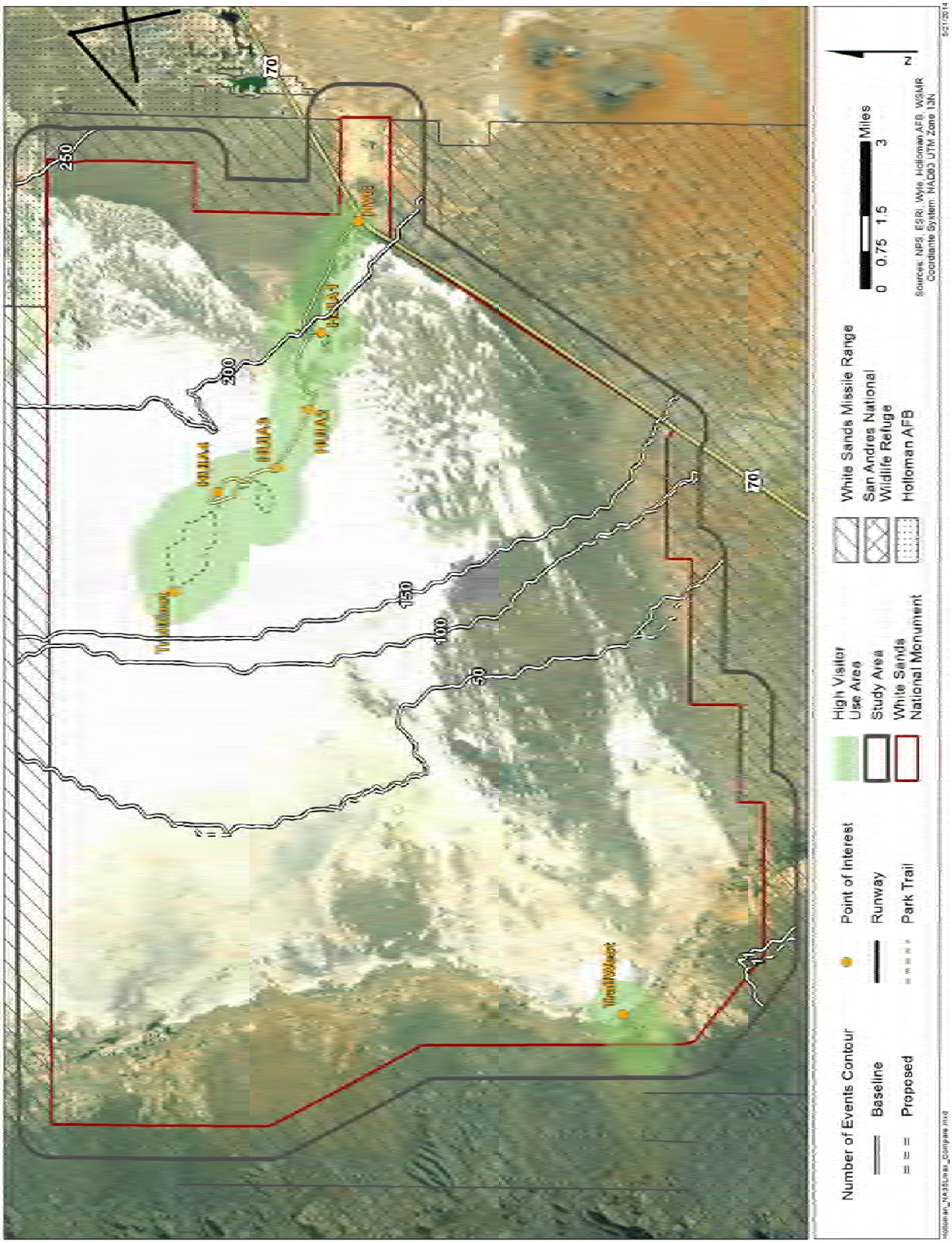

Figure 3-14. Comparison of NA035ALM Contours from Baseline and Proposed Scenarios

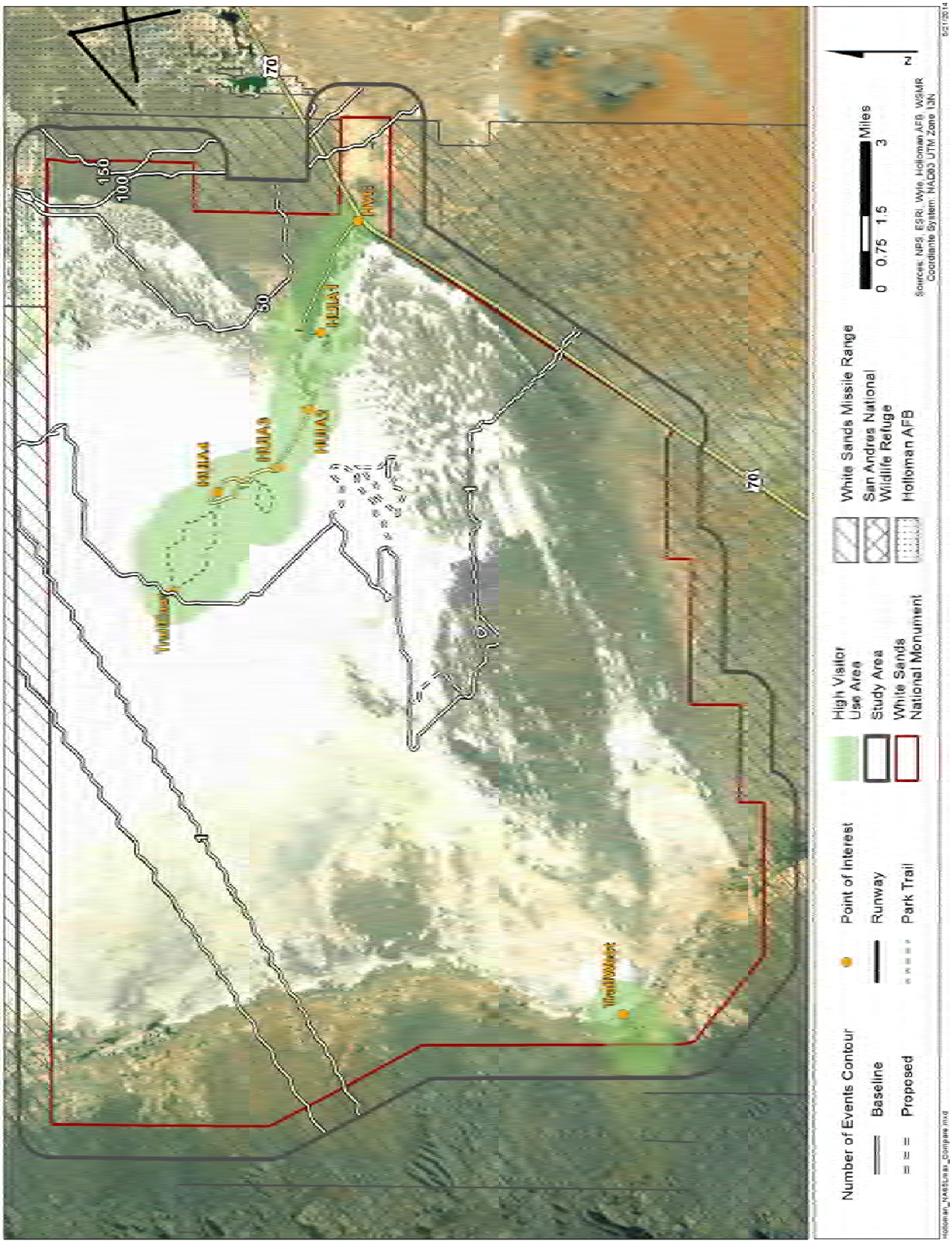

Figure 3-15. Comparison of NA065ALM Contours from Baseline and Proposed Scenarios

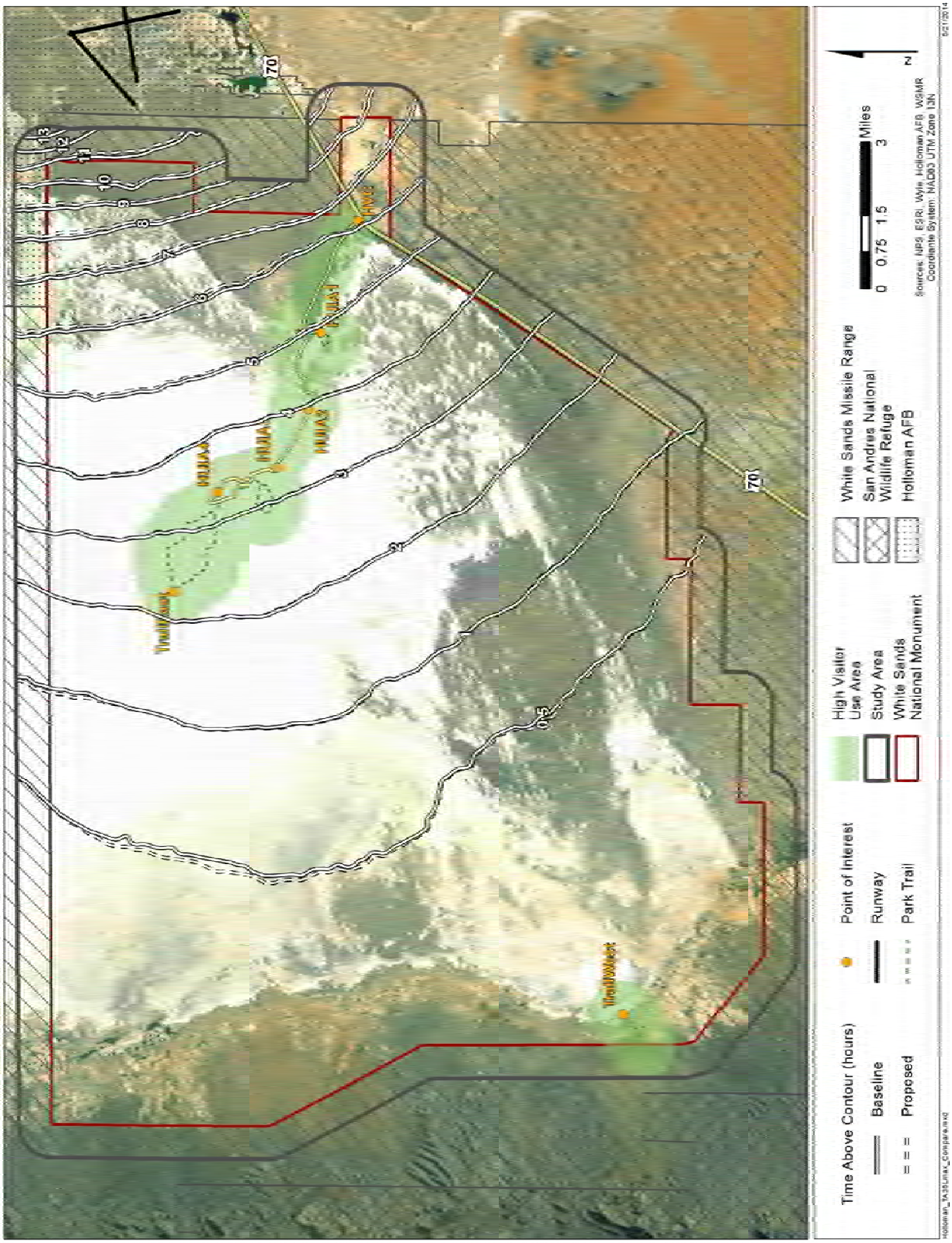

Figure 3-16. Comparison of TA035ALM Contours from Baseline and Proposed Scenarios

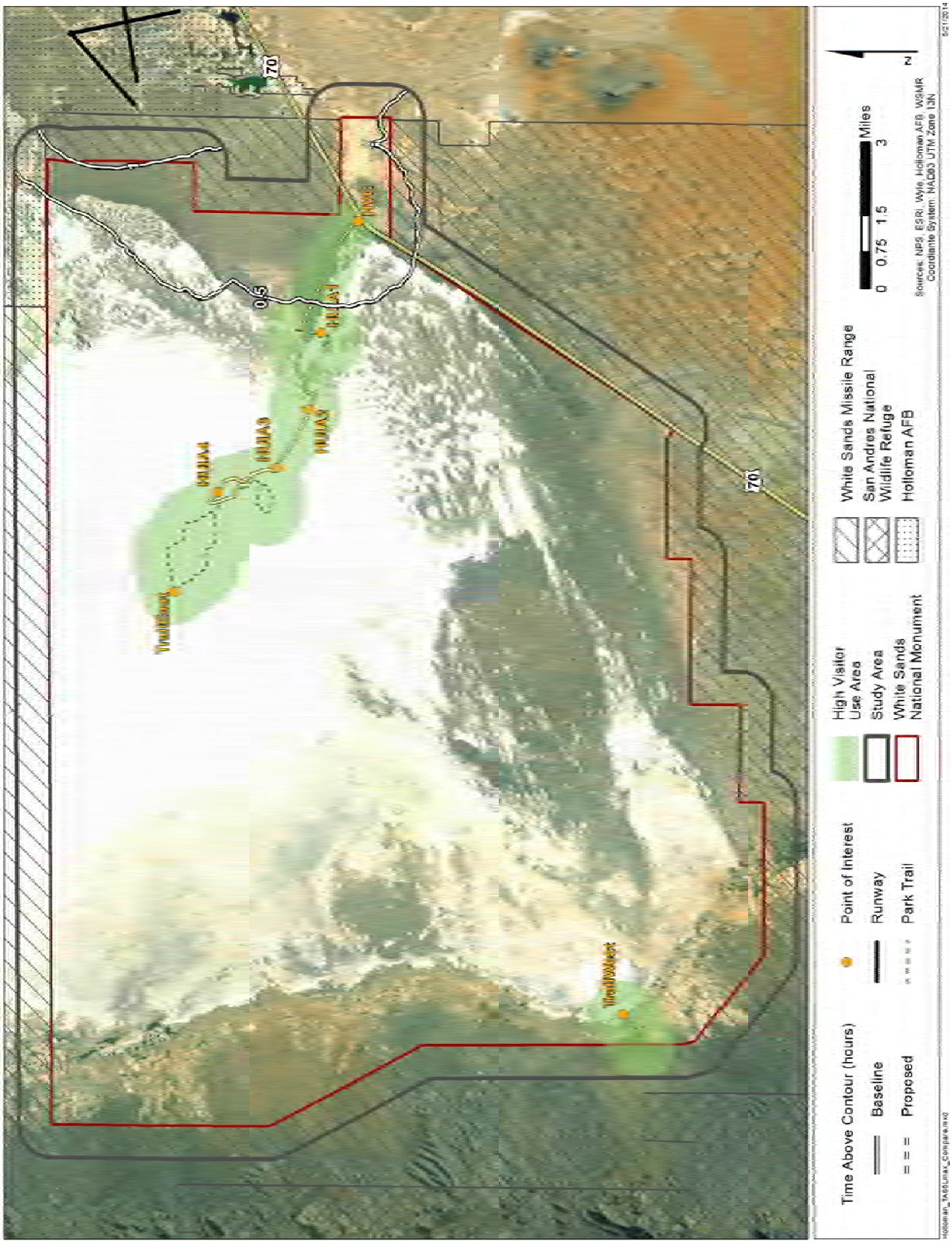

Figure 3-17. Comparison of TA065ALM Contours from Baseline and Proposed Scenarios