Powder River

Powder River Training Complex
Ellsworth Air Force Base, South Dakota
Environmental Impact Statement

Final

November 2014

Appendices

List of Appendices

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APPENDIX A
AERONAUTICAL PROPOSAL AND AIRSPACE OPERATIONS

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PROPOSED ESTABLISHMENT
Of
Powder River Training Complex Military Operations Areas
North & South Dakota, Montana, Wyoming

AIRSPACE STUDY 14-AGL-06NR

SUMMARY: The Federal Aviation Administration (FAA) is considering a request by the United States Air Force (USAF) to expand the Powder River Training Complex (PRTC) Military Operations Areas (MOA). This circular includes background on the USAF's request, a description of the proposed training airspace, and an invitation for public comment. We solicit your input regarding aeronautical impacts of the proposal before making a final determination.

BACKGROUND: The 28th Bomb Wing (28th BW), at Ellsworth Air Force Base (AFB), South Dakota, is the proponent for this proposal. The unit operates the B-1 Lancer, the USAF's only supersonic, all weather, day-night conventional heavy bomber. An additional user of the PRTC would be the 5th BW at Minot AFB, North Dakota. The unit operates the B-52, a subsonic heavy bomber also capable of all weather, day-night operations. For both units, on-going aircraft upgrades, advanced munitions, next-generation air and surface threats, and evolving tactics require expanded special use airspace (SUA) to properly train aircrews.

The current military airspace structure was designed to meet the cold war-type mission model. Threat arrays were unsophisticated compared to modern surface-to-air missiles and 5th generation adversary fighter aircraft. Munitions were mostly unguided and employed from short ranges. Tactics were designed around single aircraft penetrating adversarial airspace at low altitude. Missions were largely pre-planned with little real-time coordination involved.

Doctrine for modern air warfare has changed dramatically. The payload, extended range & loiter times, communications, and precision targeting capabilities of America's heavy bomber force now make them ideal platforms for Close Air Support, Time Sensitive Targeting, Forward Airborne Controller, Non-Traditional Intelligence, Surveillance & Reconnaissance, and Destruction of Enemy Air Defenses missions. Sophisticated threats result in defenses driving multi-ship formations, complex tactics, and integrated countermeasures. Weapons can be employed from well beyond visual range with great precision.

As a result of these changes, the existing Powder River A & B MOAs no longer provide a robust training environment necessary to maximize lethality and enhance survivability of the B-1 and B-52 fleets. Crews must fly to Nevada or Utah to find SUA that has the size, simulated threat arrays & targets, and terrain characteristics to meet current training requirements. The proposed PRTC, by enabling more local training, would have saved an estimated $21 million in flying hour costs for Fiscal Year 2013. More importantly, the shorter sortie durations would allow an aircraft to fly more than one mission per day, effectively doubling the training capacity of crews at Ellsworth and Minot.

Nearly all combat operations today require coordinated employment among many different aircraft. Large Force Exercises (LFE) combining multiple types of aircraft could be employed together against simulated threat aircraft at realistic ranges by linking some or all of the proposed MOAs. Typically, these LFEs would consist of multiple bombers, fighters, air refueling tankers, command & control aircraft, and ground forces for fully integrated training scenarios. The proponent estimates LFEs will occur approximately 10 days per year for 4 hours per day.

CONCEPT OF OPERATIONS: The PRTC would consist of four primary MOAs (Powder River 1, 2, 3, 4) separated by corridors, or Gap MOAs (Gap A, B, C). A map is attached as graphical depiction of the PRTC and for reference.

Gap MOAs are designed as an option for non-participating aircraft to transit between active primary MOAs in the case when two adjacent primary MOAs are active simultaneously. Gap MOAs would only be activated for **military** use during LFEs, and not scheduled for normal day-to-day military training.

Powder River 1-4 MOAs would be available for use 0730-1200 and 1800-2330 Mountain Time, Monday-Thursday, and 0730-1200 Mountain Time on Friday, other times by NOTAM. Estimated actual usage would vary between 3 to 6 hours per day, depending on which MOA is in use, approximately 240 days per year. Please refer to the individual MOA descriptions for more detailed information.

Proposed altitudes are generally from 500 feet AGL to, but not including Flight Level 180 (FL 180). Most MOAs in the PRTC are segmented into different altitude blocks to use only the airspace needed for the training event and maximize access of non-participating aircraft to airspace not used for training. Please refer to the MOA descriptions for specific stratification of the segmentation.

The PRTC excludes airspace within 3 nautical miles (3-NM) and 1,500 feet above ground level (AGL) from all public use airports within its proposed boundaries. Please refer to the individual MOA descriptions for which airports would have airspace exclusions.

Supersonic flight is proposed during LFEs **only** and with the following restrictions:
Bombers – No supersonic flight below 20,000 feet mean sea level (MSL).
Fighters – No supersonic flight below 10,000 feet AGL.

Chaff and flares would be employed in accordance with USAF directives. The proposed minimum release altitude for flares is 2,000 feet AGL.

PROPOSAL: Detailed descriptions of the MOAs are listed below. Refer to the enclosed map for a graphical presentation of the proposal.

Powder River 1A Low MOA, Montana

Boundaries: Beginning at Lat. N45°55'56" Long. W107°44'15";
to Lat. N46°00'42", Long. W107°22'33";
to Lat. N46°01'35", Long. W107°16'56";
to Lat. N46°03'09", Long. W107°11'15";
to Lat. N46°04'54", Long. W107°02'59";
Clockwise along BIL VORTAC, 68 DME arc;
to Lat. N45°42'43", Long. W107°00'42";
to Lat. N45°40'30", Long. W107°13'42";
to Lat. N45°41'48", Long. W107°44'07";
Counter Clockwise along BIL VORTAC, 38 DME arc;
to the point of beginning.

Designated altitudes: 500 feet AGL to, but not including 12,000 feet MSL. Except 1,500 feet AGL within a 3-NM radius of the following airport: Fairgrounds Airpark, MT.

Times of use: 0730-1200 and 1800-2330 Mountain Time, Monday-Thursday; 0730-1200 Mountain Time, Friday; other times by NOTAM. Estimate of expected area use is 3 hours per day, approximately 240 days per year.

Controlling agency: FAA, Salt Lake ARTCC.

Using agency: U.S. Air Force, 28th BW, Ellsworth AFB, SD.

Powder River 1A High MOA, Montana

Boundaries: Beginning at Lat. N45°55'56" Long. W107°44'15";
to Lat. N46°00'42", Long. W107°22'33";
to Lat. N46°01'35", Long. W107°16'56";
to Lat. N46°03'09", Long. W107°11'15";
to Lat. N46°04'54", Long. W107°02'59";
Clockwise along BIL VORTAC, 68 DME arc;
to Lat. N45°42'43", Long. W107°00'42";
to Lat. N45°40'30", Long. W107°13'42";
to Lat. N45°41'48", Long. W107°44'07";
Counter Clockwise along BIL VORTAC, 38 DME arc;
to the point of beginning.

Designated altitudes: 12,000 feet MSL to, but not including FL 180.

Times of use: By NOTAM, (LFE Only *)

Controlling agency: FAA, Salt Lake ARTCC.

Using agency: U.S. Air Force, 28th BW, Ellsworth AFB, SD.

Powder River 1B Low MOA, Montana

Boundaries: Beginning at Lat. N46°04'54", Long. W107°02'59";
to Lat. N46°11'59", Long. W106°29'32";
Counter Clockwise along MLS VORTAC, 25 DME arc;
to Lat. N45°57'58", Long. W105°59'23";
to Lat. N45°40'57", Long. W105°55'50";
to Lat. N45°47'00", Long. W106°35'30";
to Lat. N45°42'43", Long. W107°00'42";
Counter Clockwise along BIL VORTAC, 68 DME arc;
to the point of beginning.

Designated altitudes: 500 feet AGL to, but not including 12,000 feet MSL. Except 1,500 feet AGL within a 3-NM radius of the following airport: Colstrip Airport, MT.

Times of use 0730-1200 and 1800-2330 Mountain Time, Monday-Thursday; 0730-1200 Mountain Time, Friday; other times by NOTAM. Estimate of expected area use is 3 hours per day, approximately 240 days per year.

Controlling agency FAA, Salt Lake ARTCC.

Using agency U.S. Air Force, 28th BW, Ellsworth AFB, SD.

Powder River 1B High MOA, Montana

Boundaries: Beginning at Lat. N46°04'54", Long. W107°02'59";
to Lat. N46°11'59", Long. W106°29'32";
Counter Clockwise along MLS VORTAC, 25 DME arc;
to Lat. N45°57'58", Long. W105°59'23";
to Lat. N45°40'57", Long. W105°55'50";
to Lat. N45°47'00", Long. W106°35'30";
to Lat. N45°42'43", Long. W107°00'42";
Counter Clockwise along BIL VORTAC, 68 DME arc;
to the point of beginning.

Designated altitudes: 12,000 feet MSL to, but not including FL 180.

Times of use: 0730-1200 and 1800-2330 Mountain Time, Monday-Thursday; 0730-1200 Mountain Time, Friday; other times by

	NOTAM. Estimate of expected area use is 3 hours per day, approximately 240 days per year.
Controlling agency:	FAA, Salt Lake ARTCC.
Using agency:	U.S. Air Force, 28th BW, Ellsworth AFB, SD.

Powder River 1C Low MOA, Montana

Boundaries:	Beginning at Lat. N45°41'48", Long. W107°44'07"; to Lat. N45°40'30", Long. W107°13'42"; to Lat. N45°42'43", Long. W107°00'42"; Clockwise along BIL VORTAC, 68 DME arc; to Lat. N45°14'11", Long. W107°14'21"; to Lat. N45°13'23", Long. W107°17'55"; to Lat. N45°31'00", Long. W107°34'19"; to Lat. N45°35'23", Long. W107°46'46"; Counter Clockwise along BIL VORTAC, 38 DME arc; to the point of beginning.
Designated altitudes	500 feet AGL to, but not including 12,000 feet MSL. Except 1,500 feet AGL within a 3-NM radius of the following airport: Fairgrounds Airpark, MT.
Times of use	0730-1200 and 1800-2330 Mountain Time, Monday-Thursday; 0730-1200 Mountain Time, Friday; other times by NOTAM. Estimate of expected area use is 3 hours per day, approximately 240 days per year.
Controlling agency	FAA, Salt Lake ARTCC.
Using agency	U.S. Air Force, 28th BW, Ellsworth AFB, SD.
NPS Mitigation	The Little Bighorn noise avoidance area boundaries: N45-28.6561 W107-15.5057 to N45-26.0787 W107-19.9172 to N45-25.8566 W107-23.2907 to N45-31.3973 W107-31.4971 to N45-33.0734 W107-32.2886 to N45-37.3357 W107-32.6526 to N45-39.7426 W107-26.7047 to N45-39.1091 W107-21.5969 to N45-33.0471 W107-15.0289 to beginning. Hours: From 1-hour prior, to 1-hour after, NPS Hours of Operation. Altitude: The area bounded above will not be over-flown below 5,000 feet AGL during the hours listed above.

Special Events: The area bounded above will also be avoided when special events are coordinated.
Supersonic: No Supersonic within PR1C Low MOA.

Powder River 1C High MOA, Montana

Boundaries: Beginning at Lat. N45°41'48", Long. W107°44'07";
to Lat. N45°40'30", Long. W107°13'42";
to Lat. N45°42'43", Long. W107°00'42";
Clockwise along BIL VORTAC, 68 DME arc;
to Lat. N45°14'11", Long. W107°14'21";
to Lat. N45°13'23", Long. W107°17'55";
to Lat. N45°31'00", Long. W107°34'19";
to Lat. N45°35'23", Long. W107°46'46";
Counter Clockwise along BIL VORTAC, 38 DME arc;
to the point of beginning.

Designated altitudes: 12,000 feet MSL to, but not including FL 180.

Times of use: By NOTAM. (LFE Only *)

Controlling agency FAA, Salt Lake ARTCC.

Using agency U.S. Air Force, 28th BW, Ellsworth AFB, SD.

NPS Mitigation Supersonic: No Supersonic within PR1C High MOA.

Powder River 1D Low MOA, Montana

Boundaries: Beginning at Lat. N45°42'43", Long. W107°00'42";
to Lat. N45°47'00", Long. W106°35'30";
to Lat. N45°40'57", Long. W105°55'50";
to Lat. N44°48'11", Long. W105°45'03";
to Lat. N44°40'27", Long. W105°52'49";
to Lat. N44°47'38", Long. W106°28'48";
Counter Clockwise along SHR VORTAC, 25 DME arc;
to Lat. N45°14'11", Long. W107°14'21";
Counter Clockwise along BIL VORTAC, 68 DME arc;
to the point of beginning.

Designated altitudes: 500 feet AGL to but not including 12,000 feet MSL. Except 1,500 feet AGL within a 3-NM radius of the following airport: St Labre Mission Airport, MT. Except 12,000 feet MSL within the confines of the Northern Cheyenne Indian Reservation.

Times of use: 0730-1200 and 1800-2330 Mountain Time, Monday-Thursday; 0730-1200 Mountain Time, Friday; other times by

NOTAM. Estimate of expected area use is 3 hours per day, approximately 240 days per year.

Controlling agency FAA, Salt Lake ARTCC.

Using agency U.S. Air Force, 28th BW, Ellsworth AFB, SD.

Powder River 1D High MOA, Montana

Boundaries: Beginning at Lat. N45°42'43", Long. W107°00'42";
to Lat. N45°47'00", Long. W106°35'30";
to Lat. N45°40'57", Long. W105°55'50";
to Lat. N44°48'11", Long. W105°45'03";
to Lat. N44°40'27", Long. W105°52'49";
to Lat. N44°47'38", Long. W106°28'48";
Counter Clockwise along SHR VORTAC, 25 DME arc;
to Lat. N45°14'11", Long. W107°14'21";
Counter Clockwise along BIL VORTAC, 68 DME arc;
to the point of beginning.

Designated altitudes: 12,000 feet MSL to, but not including FL 180.

Times of use: 0730-1200 and 1800-2330 Mountain Time, Monday-Thursday; 0730-1200 Mountain Time, Friday; other times by NOTAM. Estimate of expected area use is 3 hours per day, approximately 240 days per year.

Controlling agency: FAA, Salt Lake ARTCC.

Using agency: U.S. Air Force, 28th BW, Ellsworth AFB, SD.

Powder River 2 Low MOA, Montana

Boundaries: Beginning at Lat. N45°59'27", Long. W105°45'07";
Counter Clockwise along the MLS VORTAC, 25 DME arc;
to Lat. N46°08'55", Long. W105°27'24";
to Lat. N45°53'08", Long. W104°33'46";
to Lat. N45°37'48", Long. W103°52'28";
to Lat. N45°29'05", Long. W103°17'10";
to Lat. N45°03'44", Long. W103°17'58";
to Lat. N44°45'30", Long. W104°24'39";
to Lat. N44°48'11", Long. W104°30'09";
to Lat. N44°46'11", Long. W104°41'00";
to Lat. N44°40'02", Long. W104°44'44";
to Lat. N44°33'01", Long. W105°10'34";
Counter Clockwise along the GCC VORTAC, 20 DME arc;
to Lat. N44°39'45", Long. W105°23'20";
to Lat. N44°47'12", Long. W105°30'41";

to the point of beginning.

Designated altitudes: 500 feet AGL to, but not including 12,000 feet MSL. Except 1,500 feet AGL within a 3-NM radius of the following airports: Broadus Airport, MT; Ekalaka Airport, MT; and Harding County Airport, SD.

Times of use: 0730-1200 and 1800-2330 Mountain Time, Monday-Thursday; 0730 - 1200 Mountain Time, Friday; other times by NOTAM. Estimate of expected area use is 6 hours per day, approximately 240 days per year.

Controlling agency: FAA, Denver ARTCC.

Using agency: U.S. Air Force, 28th BW, Ellsworth AFB, SD.

Powder River 2 High MOA, Montana

Boundaries: Beginning at Lat. N45°59'27", Long. W105°45'07";
Counter Clockwise along MLS VORTAC, 25 DME arc;
to Lat. N46°08'55", Long. W105°27'24";
to Lat. N45°53'08", Long. W104°33'46";
to Lat. N45°37'48", Long. W103°52'28";
to Lat. N45°29'05", Long. W103°17'10";
to Lat. N45°03'44", Long. W103°17'58";
to Lat. N44°45'30", Long. W104°24'39";
to Lat. N44°48'11", Long. W104°30'09";
to Lat. N44°46'11", Long. W104°41'00";
to Lat. N44°40'02", Long. W104°44'44";
to Lat. N44°33'01", Long. W105°10'34";
Counter Clockwise along GCC VORTAC, 20 DME arc;
to Lat. N44°39'45", Long. W105°23'20";
to Lat. N44°47'12", Long. W105°30'41";
to the point of beginning.

Designated altitude: 12,000 feet MSL to, but not including FL 180.

Times of use: 0730-1200 and 1800-2330 Mountain Time, Monday-Thursday; 0730-1200 Mountain Time, Friday; other times by NOTAM. Estimate of expected area use is 6 hours per day, approximately 240 days per year.

Controlling agency: FAA, Denver ARTCC.

Using agency: U.S. Air Force, 28th BW, Ellsworth AFB, SD.

Powder River 3 Low MOA, North Dakota

Boundaries: Beginning at Lat. N46°24'23", Long. W105°21'08";
to Lat. N46°30'59", Long. W104°39'10";
to Lat. N46°32'45", Long. W104°20'36";
to Lat. N46°36'34", Long. W104°02'08";
to Lat. N46°41'37", Long. W103°27'25";
Counter Clockwise along DIK VORTAC, 30 DME arc;
to Lat. N46°22'24", Long. W102°56'07";
to Lat. N45°47'47", Long. W102°59'01";
to Lat. N45°35'42", Long. W103°01'21";
to Lat. N45°52'07", Long. W103°44'36";
to Lat. N46°03'21", Long. W104°31'24";
to Lat. N46°18'08", Long. W105°21'51";
Counter Clockwise along MLS VORTAC, 25 DME arc;
to the point of beginning.

Designated altitudes: 500 feet AGL to, but not including 12,000 feet MSL.
Except 2,000 feet AGL within a 3-NM radius of: the following airports: Baker Municipal, MT and Bowman Field, ND. (Note 4)

Times of use: 0730-1200 and 1800-2330 Mountain Time, Monday-Thursday;
0730-1200 Mountain Time, Friday; other times by NOTAM.
Estimate of expected area use is 3 hours per day, approximately 240 days per year.

Controlling agency: FAA, Salt Lake ARTCC.

Using agency: U.S. Air Force, 28th BW, Ellsworth AFB, SD.

Powder River 3 High MOA, North Dakota

Boundaries: Beginning at Lat. N46°24'23", Long. W105°21'08";
to Lat. N46°30'59", Long. W104°39'10";
to Lat. N46°32'45", Long. W104°20'36";
to Lat. N46°36'34", Long. W104°02'08";
to Lat. N46°41'37", Long. W103°27'25";
Counter Clockwise along DIK VORTAC, 30 DME arc;
to Lat. N46°22'24", Long. W102°56'07";
to Lat. N45°47'47", Long. W102°59'01";
to Lat. N45°35'42", Long. W103°01'21";
to Lat. N45°52'07", Long. W103°44'36";
to Lat. N46°03'21", Long. W104°31'24";
to Lat. N46°18'08", Long. W105°21'51";
Counter Clockwise along MLS VORTAC, 25 DME arc;
to the point of beginning.

Designated altitudes: 12,000 feet MSL to, but not including FL 180.

Times of use: 0730-1200 and 1800-2330 Mountain Time, Monday-Thursday; 0730-1200 Mountain Time, Friday; other times by NOTAM. Estimate of expected area use is 3 hours per day, approximately 240 days per year.

Controlling agency: FAA, Salt Lake ARTCC.

Using agency: U.S. Air Force, 28th BW, Ellsworth AFB, SD.

Powder River 4 High MOA, North Dakota

Boundaries - Beginning at Lat. N46°21'48", Long. W102°41'42";
Counter Clockwise along the DIK VORTAC, 30 DME arc;
to Lat. N46°45'43", Long. W102°03'39";
to Lat. N46°44'43", Long. W101°43'10";
to Lat. N46°15'44", Long. W101°19'47";
to Lat. N46°13'38", Long. W101°06'17";
to Lat. N46°02'30", Long. W101°13'20";
to Lat. N45°56'25", Long. W101°17'59";
to Lat. N45°50'12", Long. W101°21'01";
to Lat. N45°24'13", Long. W101°37'02";
Counter Clockwise along the DPR VORTAC, 20 DME arc;
to Lat. N45°17'23", Long. W102°04'35";
to Lat. N45°30'13", Long. W102°44'07";
to Lat. N45°48'35", Long. W102°44'37";
to the point of beginning.

Designated altitudes: 12,000 feet MSL to, but not including FL 180.

Times of use: 0730 - 1200 and 1800 - 2330 Mountain Time, Monday - Thursday; 0730 - 1200 Mountain Time, Friday; other times by NOTAM. Estimate of expected area use is 3 hours per day, approximately 240 days per year.

Controlling agency: FAA, Minneapolis ARTCC

Using agency: U.S. Air Force, 28th BW, Ellsworth AFB, SD

Gap A Low MOA, Montana

Boundaries: Beginning at Lat. N45°57'58" Long. W105°59'23";
Counter Clockwise along the MLS VORTAC, 25 DME arc;
to Lat. N45°59'27" Long. W105°45'07";
to Lat. N44°47'12" Long. W105°30'41";
to Lat. N44°48'11" Long. W105°45'03";
to the point of beginning.

Designated altitudes: 500 feet AGL to, but not including 12,000 feet MSL.

Times of use: By NOTAM. (LFE Only *)

Controlling agency: FAA, Denver ARTCC

Using agency: U.S. Air Force, 28th BW, Ellsworth AFB, SD

Gap A High MOA, Montana

Boundaries: Beginning at Lat. N45°57'58", Long. W105°59'23";
Counter Clockwise along the MLS VORTAC, 25 DME arc;
to Lat. N45°59'27", Long. W105°45'07";
to Lat. N44°47'12", Long. W105°30'41";
to Lat. N44°48'11", Long. W105°45'03";
to the point of beginning.

Designated altitudes: 12,000 feet MSL to but not including FL 180.

Times of use: By NOTAM. (LFE Only*)

Controlling agency: FAA, Denver ARTCC

Using agency: U.S. Air Force, 28th BW, Ellsworth AFB, SD

Gap B Low MOA, Montana

Boundaries: Beginning at Lat. N46°08'55", Long. W105°27'24";
Counter Clockwise along the MLS VORTAC, 25 DME arc;
to Lat. N46°18'08", Long. W105°21'51";
to Lat. N46°03'21", Long. W104°31'24";
to Lat. N45°52'07", Long. W103°44'36";
to Lat. N45°35'42", Long. W103°01'21";
to Lat. N45°30'13", Long. W102°44'07";
to Lat. N45°29'05", Long. W103°17'10";
to Lat. N45°37'48", Long. W103°52'28";
to Lat. N45°53'08", Long. W104°33'46";
to the point of beginning.

Designated altitudes: 500 feet AGL to, but not including 12,000 feet MSL. Except 1,500 feet AGL within a 3-NM radius of the following airports: Ekalaka Airport, MT; and Harding County Airport, SD.

Times of use: By NOTAM. (LFE Only*)

Controlling agency: FAA, Salt Lake ARTCC

Using agency: U.S. Air Force, 28th BW, Ellsworth AFB, SD

Gap B High MOA, Montana

Boundaries: Beginning at Lat. N46°08'55", Long. W105°27'24";
Counter Clockwise along the MLS VORTAC, 25 DME arc;
to Lat. N46°18'08", Long. W105°21'51";
to Lat. N46°03'21", Long. W104°31'24";
to Lat. N45°52'07", Long. W103°44'36";
to Lat. N45°35'42", Long. W103°01'21";
to Lat. N45°30'13", Long. W102°44'07";
to Lat. N45°29'05", Long. W103°17'10";
to Lat. N45°37'48", Long. W103°52'28";
to Lat. N45°53'08", Long. W104°33'46";
to the point of beginning.

Designated altitude: 12,000 feet MSL to, but not including FL 180.

Times of use: By NOTAM. (LFE Only*)

Controlling agency: FAA, Salt Lake ARTCC

Using agency: U.S. Air Force, 28th BW, Ellsworth AFB, SD

Gap C Low MOA, North Dakota

Boundaries: Beginning at Lat. N46°22'24", Long. W102°56'07";
Counter Clockwise along the DIK VORTAC, 30 DME arc;
to Lat. N46°21'48", Long. W102°41'42";
to Lat. N45°48'35", Long. W102°44'37";
to Lat. N45°30'13", Long. W102°44'07";
to Lat. N45°35'42", Long. W103°01'21";
to Lat. N45°47'47", Long. W102°59'01";
to the point of beginning.

Designated altitudes: 500 feet AGL to but not including 12,000 feet MSL. Except 2,000 feet AGL within a 3-NM radius of the following airport: Hettinger Municipal Airport, ND.

Times of use: By NOTAM. (LFE Only*)

Controlling agency: FAA, Minneapolis ARTCC

Using agency: U.S. Air Force, 28th BW, Ellsworth AFB, SD

Gap C High MOA, North Dakota

Boundaries: Beginning at Lat. N46°22'24", Long. W102°56'07";
Counter Clockwise along the DIK VORTAC, 30 DME arc;
to Lat. N46°21'48", Long. W102°41'42";
to Lat. N45°48'35", Long. W102°44'37";
to Lat. N45°30'13", Long. W102°44'07";
to Lat. N45°35'42", Long. W103°01'21";
to Lat. N45°47'47", Long. W102°59'01";
to the point of beginning.

Designated altitudes: 12,000 feet MSL to, but not including FL 180.

Times of use: By NOTAM. (LFE Only*)

Controlling agency: FAA, Minneapolis ARTCC

Using agency: U.S. Air Force, 28th BW, Ellsworth AFB, SD

Powder River A MOA, Montana - Delete

Powder River B MOA, Wyoming - Delete

MISCELLANEOUS: No restrictions will be imposed on nonparticipating Visual Flight Rules (VFR) aircraft. VFR pilots are expected to exercise vigilance while transiting the MOA. They are strongly encouraged to contact the nearest flight service station and request the latest NOTAM information, or contact the controlling ARTCC to ascertain the status of the MOAs.

COMMENTS INVITED: The purpose of this notice is to invite interested persons to submit in writing any comments they may have regarding the overall aeronautical aspects of the proposal presented in this notice. Comments which provide the factual basis supporting the views and suggestions presented are the most helpful. Persons wishing to comment should submit correspondence to:

Manager, Operations Support Group, ATO Central Service Center, AJV-C2
Airspace Study 14-AGL-06NR
Department of Transportation
Federal Aviation Administration
2601 Meacham Blvd
Fort Worth, TX 76137

Comments received on or before April 3, 2014, will be considered before final action is taken on the proposal. The proposal may change in light of comments received.

NOTICE DISTRIBUTION: Persons interested in being placed on a mailing list for future notices should submit such requests to the Federal Aviation Administration at the address listed above.

FOR FURTHER INFORMATION, CONTACT:

Department of Transportation
Federal Aviation Administration
ATO Central Service Center, Operations Support Group
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Enclosure
Map

cc: AJV-W2; ASW-910; ASW-920; ASW-930; ANM-910; ANM-920; ANM-930; AJR-32; AJR-33; AJR-34; AGL-BIS-ADO; ANM-DEN-ADO; ANM-HLN-ADO; Salt Lake ARTCC-530; Denver ARTCC-530; Minneapolis ARTCC-530; AJW-3743; AJW-3744; North Dakota State Aviation Director, South Dakota State Aviation Director, Wyoming State Aviation Director, Montana State Aviation Director
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A.2 AIRSPACE OPERATIONS

Figures A-1 through A-18 listed below, were found in the Draft EIS as Figures 3.1-7 through 3.1-24. They illustrate Federal Aviation Administration (FAA) Instrument Flight Rules (IFR) flight traffic and were specifically used to address potential impacts above FL260.

With the modified alternatives presented in the Final EIS (FEIS) Section 2.0 that exclude operations above FL260, most of the relevant information on the figures is no longer applicable. For continuity and a few references to representative IFR operations below FL260, the figures were retained in this appendix. Updated FAA data for operations are included in FEIS Table 3.1-2. FEIS Figure 3.2.1 shows the B-1 maneuvers for discussion in noise. The relevant information is included in the FEIS for the impact analysis.

List of Figures

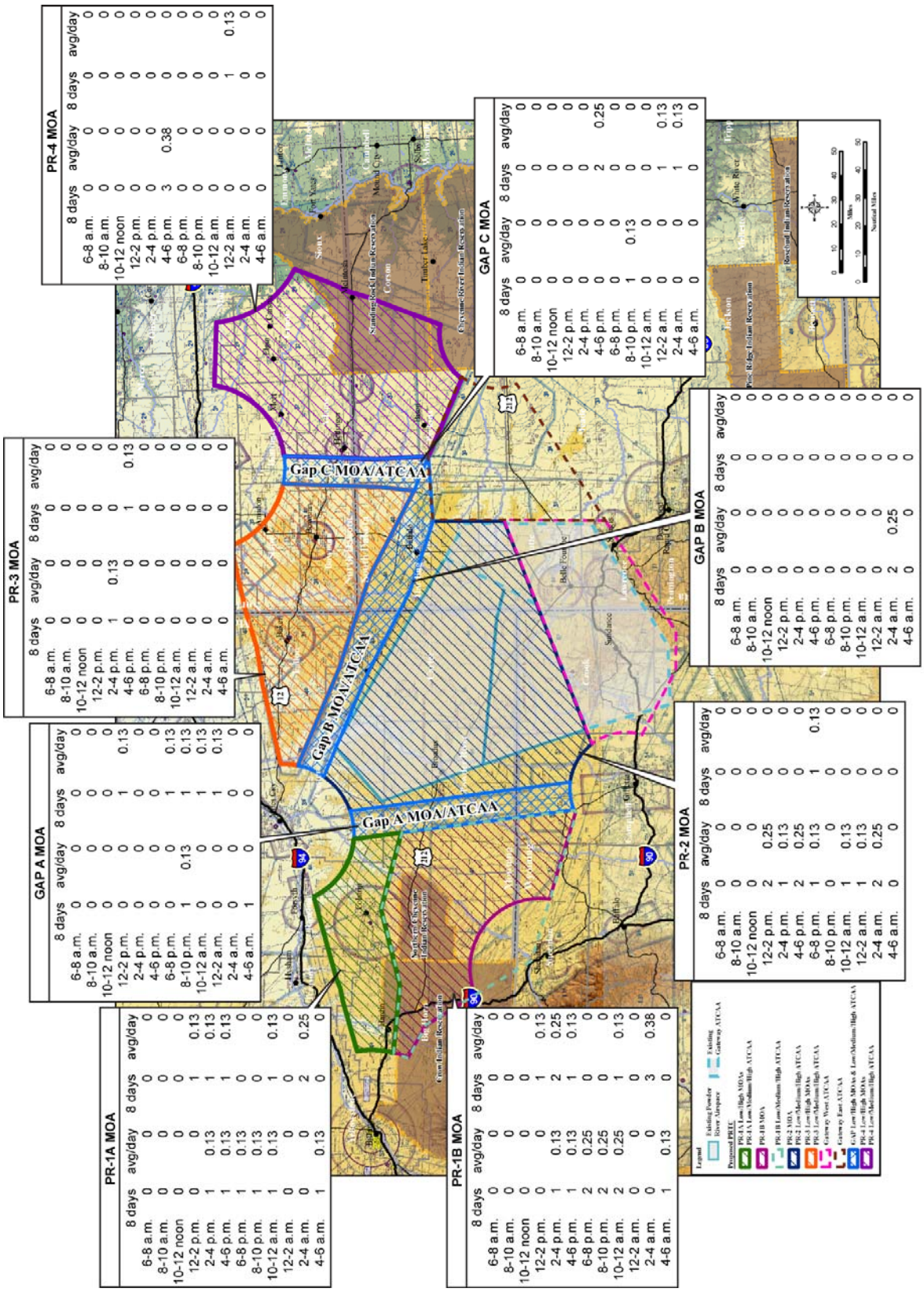


Figure A-1. MOA Average Daily FAA Documented Aircraft Operations Below 2,000 Feet AGL

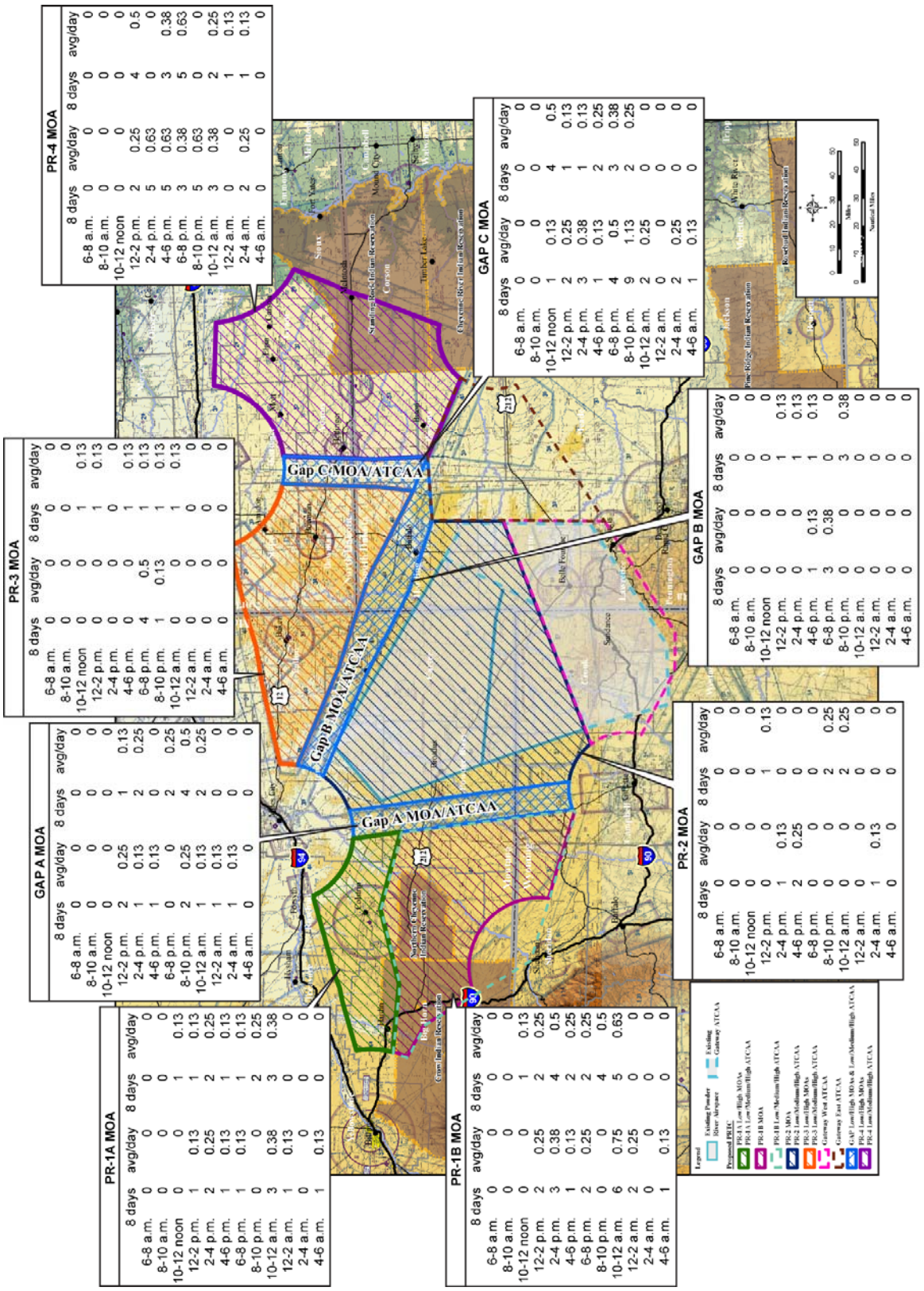
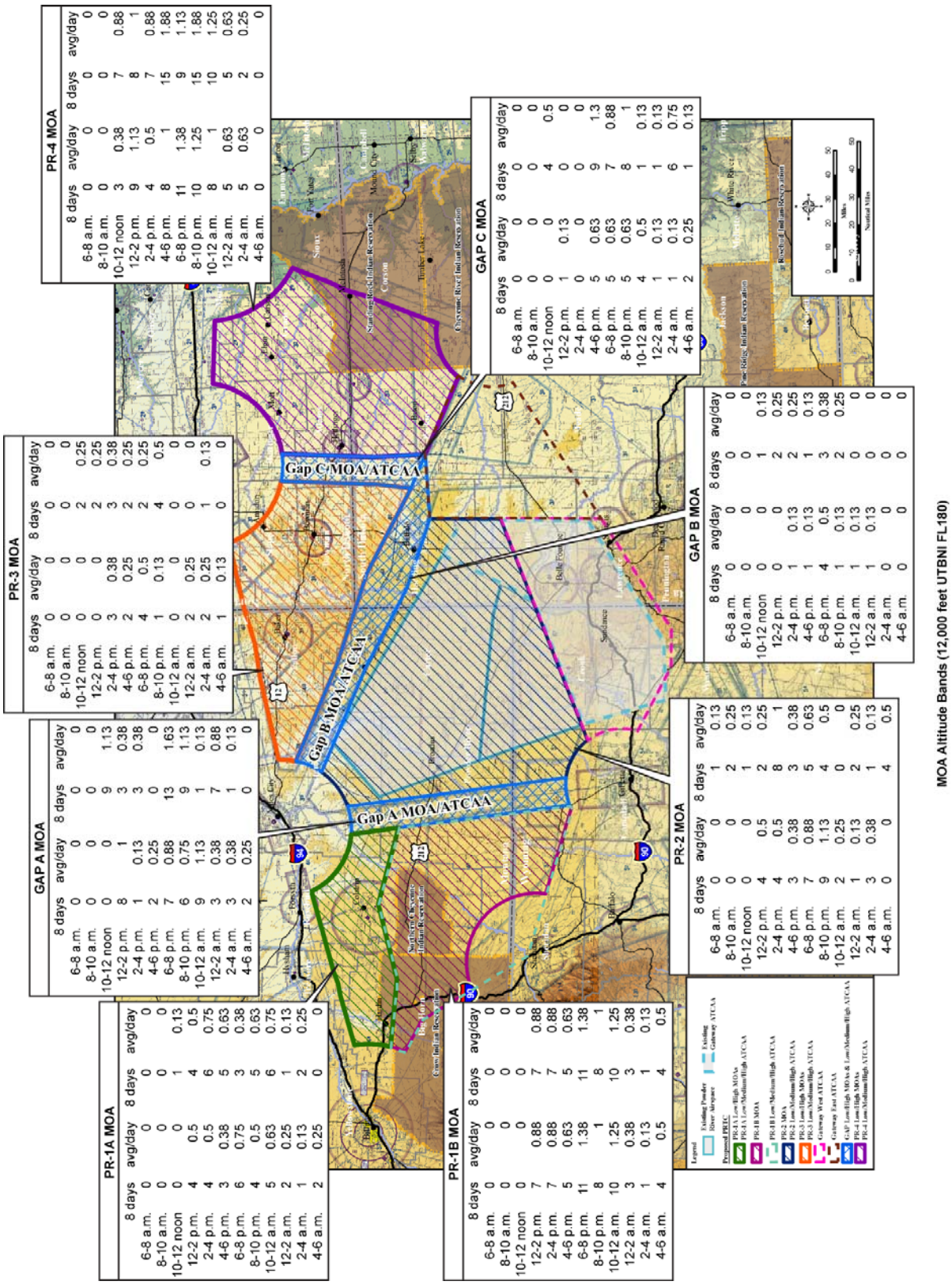


Figure A-2. MOA Average Daily FAA Documented Aircraft Operations from 2,000 Feet AGL to, but not including, 12,000 Feet MSL



PR-4 MOA

	8 days	avg/day
6-8 a.m.	0	0
8-10 a.m.	0	0
10-12 noon	0	0
12-2 p.m.	3	0.38
2-4 p.m.	9	1.13
4-6 p.m.	4	0.5
6-8 p.m.	8	1
8-10 p.m.	11	1.38
10-12 a.m.	10	1.25
12-2 a.m.	8	1
2-4 a.m.	5	0.63
4-6 a.m.	5	0.63

	8 days	avg/day
6-8 a.m.	0	0
8-10 a.m.	0	0
10-12 noon	0	0
12-2 p.m.	3	0.38
2-4 p.m.	7	0.88
4-6 p.m.	8	1
6-8 p.m.	15	1.88
8-10 p.m.	9	1.13
10-12 a.m.	15	1.88
12-2 a.m.	10	1.25
2-4 a.m.	5	0.63
4-6 a.m.	2	0.25
	0	0

PR-3 MOA

	8 days	avg/day
6-8 a.m.	0	0
8-10 a.m.	0	0
10-12 noon	0	0
12-2 p.m.	0	0
2-4 p.m.	3	0.38
4-6 p.m.	2	0.25
6-8 p.m.	4	0.5
8-10 p.m.	1	0.13
10-12 a.m.	0	0
12-2 a.m.	2	0.25
2-4 a.m.	2	0.25
4-6 a.m.	1	0.13

	8 days	avg/day
6-8 a.m.	0	0
8-10 a.m.	0	0
10-12 noon	0	0
12-2 p.m.	2	0.25
2-4 p.m.	2	0.25
4-6 p.m.	4	0.5
6-8 p.m.	0	0
8-10 p.m.	0	0
10-12 a.m.	1	0.13
12-2 a.m.	0	0
2-4 a.m.		
4-6 a.m.		

GAP C MOA

	8 days	avg/day
6-8 a.m.	0	0
8-10 a.m.	0	0
10-12 noon	0	0
12-2 p.m.	1	0.13
2-4 p.m.	0	0
4-6 p.m.	5	0.63
6-8 p.m.	5	0.63
8-10 p.m.	5	0.63
10-12 a.m.	4	0.5
12-2 a.m.	1	0.13
2-4 a.m.	1	0.13
4-6 a.m.	2	0.25

	8 days	avg/day
6-8 a.m.	0	0
8-10 a.m.	0	0
10-12 noon	0	0
12-2 p.m.	4	0.5
2-4 p.m.	0	0
4-6 p.m.	1	0.13
6-8 p.m.	9	1.13
8-10 p.m.	10	1.25
10-12 a.m.	8	1
12-2 a.m.	5	0.63
2-4 a.m.	6	0.75
4-6 a.m.	13	1.63
	7	0.88
	3	0.38
	3	0.38
	0	0
	9	1.13
	1	0.13
	7	0.88
	3	0.38
	1	0.13
	0	0

GAP A MOA

	8 days	avg/day
6-8 a.m.	0	0
8-10 a.m.	0	0
10-12 noon	0	0
12-2 p.m.	8	1
2-4 p.m.	1	0.13
4-6 p.m.	2	0.25
6-8 p.m.	7	0.88
8-10 p.m.	6	0.75
10-12 a.m.	9	1.13
12-2 a.m.	3	0.38
2-4 a.m.	3	0.38
4-6 a.m.	2	0.25

	8 days	avg/day
6-8 a.m.	0	0
8-10 a.m.	0	0
10-12 noon	0	0
12-2 p.m.	9	1.13
2-4 p.m.	3	0.38
4-6 p.m.	0	0
6-8 p.m.	13	1.63
8-10 p.m.	9	1.13
10-12 a.m.	1	0.13
12-2 a.m.	7	0.88
2-4 a.m.	1	0.13
4-6 a.m.	0	0

GAP B MOA

	8 days	avg/day
6-8 a.m.	0	0
8-10 a.m.	0	0
10-12 noon	0	0
12-2 p.m.	0	0
2-4 p.m.	1	0.13
4-6 p.m.	2	0.25
6-8 p.m.	2	0.25
8-10 p.m.	3	0.38
10-12 a.m.	2	0.25
12-2 a.m.	0	0
2-4 a.m.	0	0
4-6 a.m.	0	0

PR-2 MOA

	8 days	avg/day
6-8 a.m.	0	0
8-10 a.m.	0	0
10-12 noon	0	0
12-2 p.m.	4	0.5
2-4 p.m.	4	0.5
4-6 p.m.	3	0.38
6-8 p.m.	7	0.88
8-10 p.m.	9	1.13
10-12 a.m.	2	0.25
12-2 a.m.	1	0.13
2-4 a.m.	3	0.38
4-6 a.m.	0	0

	8 days	avg/day
6-8 a.m.	0	0
8-10 a.m.	0	0
10-12 noon	0	0
12-2 p.m.	0	0
2-4 p.m.	8	1
4-6 p.m.	3	0.38
6-8 p.m.	5	0.63
8-10 p.m.	4	0.5
10-12 a.m.	4	0.5
12-2 a.m.	2	0.25
2-4 a.m.	1	0.13
4-6 a.m.	4	0.5

PR-1A MOA

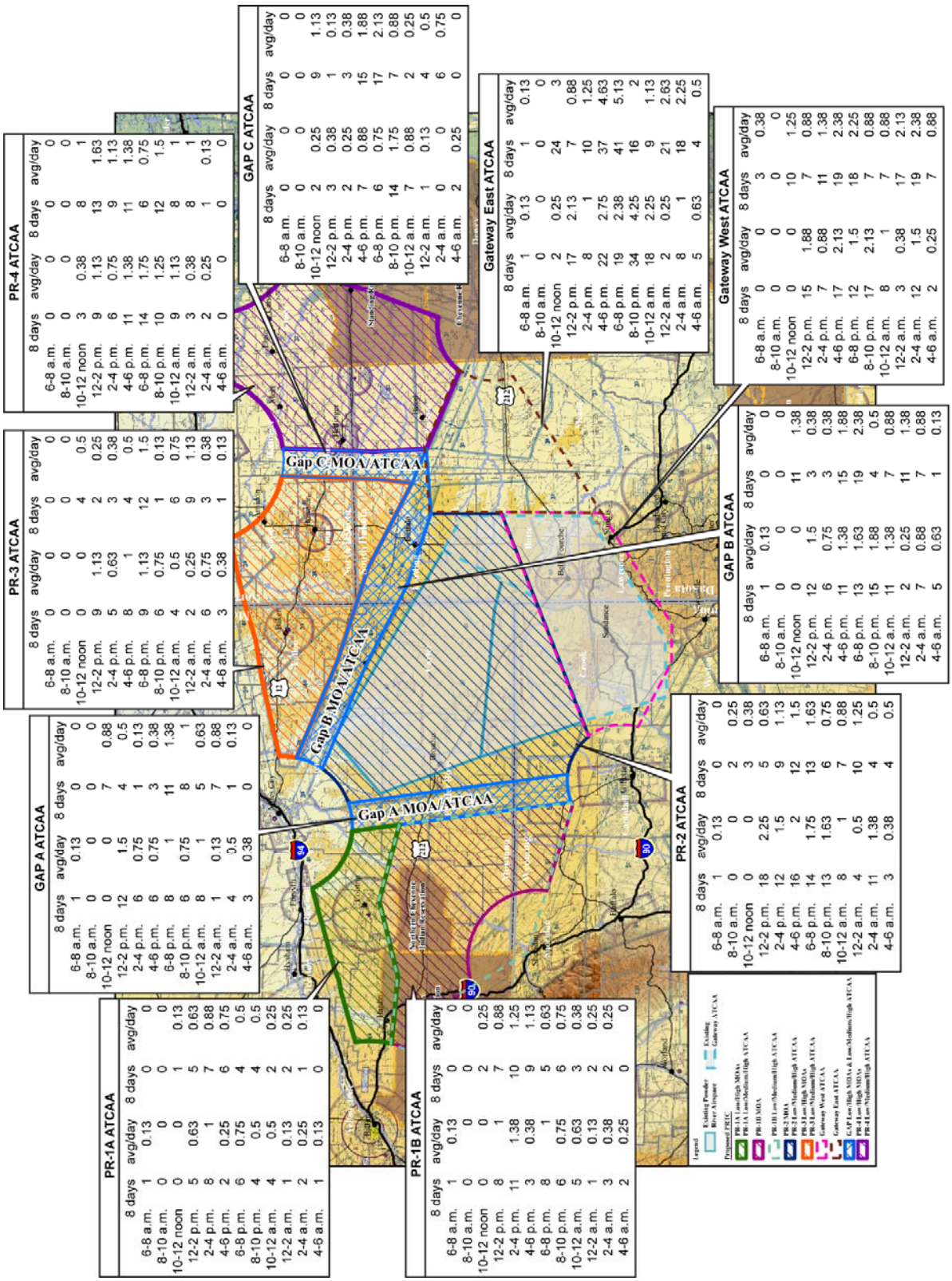
	8 days	avg/day
6-8 a.m.	0	0
8-10 a.m.	0	0
10-12 noon	0	0
12-2 p.m.	4	0.5
2-4 p.m.	4	0.5
4-6 p.m.	3	0.38
6-8 p.m.	6	0.75
8-10 p.m.	4	0.5
10-12 a.m.	5	0.63
12-2 a.m.	2	0.25
2-4 a.m.	1	0.13
4-6 a.m.	2	0.25

	8 days	avg/day
6-8 a.m.	0	0
8-10 a.m.	0	0
10-12 noon	0	0
12-2 p.m.	1	0.13
2-4 p.m.	3	0.38
4-6 p.m.	5	0.63
6-8 p.m.	6	0.75
8-10 p.m.	5	0.63
10-12 a.m.	6	0.75
12-2 a.m.	1	0.13
2-4 a.m.	2	0.25
4-6 a.m.	0	0

PR-1B MOA

	8 days	avg/day
6-8 a.m.	0	0
8-10 a.m.	0	0
10-12 noon	0	0
12-2 p.m.	7	0.88
2-4 p.m.	7	0.88
4-6 p.m.	5	0.63
6-8 p.m.	11	1.38
8-10 p.m.	8	1
10-12 a.m.	10	1.25
12-2 a.m.	3	0.38
2-4 a.m.	1	0.13
4-6 a.m.	4	0.5

Figure A-3. MOA Average Daily FAA Documented Aircraft Operations from 12,000 Feet MSL to, but not including, FL180.



PR-1A ATCAA

	8 days	avg/day	8 days	avg/day
6-8 a.m.	1	0.13	0	0
8-10 a.m.	0	0	0	0
10-12 noon	0	0	2	0.25
12-2 p.m.	0	0	3	0.38
2-4 p.m.	18	2.25	5	0.63
4-6 p.m.	12	1.5	9	1.13
6-8 p.m.	16	2	12	1.5
8-10 p.m.	14	1.75	13	1.63
10-12 a.m.	13	1.63	6	0.75
12-2 a.m.	8	1	7	0.88
2-4 a.m.	4	0.5	10	1.25
4-6 a.m.	11	1.38	4	0.5
	3	0.38	4	0.5

PR-1B ATCAA

	8 days	avg/day	8 days	avg/day
6-8 a.m.	1	0.13	0	0
8-10 a.m.	0	0	0	0
10-12 noon	0	0	2	0.25
12-2 p.m.	8	1	7	0.88
2-4 p.m.	11	1.38	10	1.25
4-6 p.m.	3	0.38	9	1.13
6-8 p.m.	8	1	5	0.63
8-10 p.m.	6	0.75	6	0.75
10-12 a.m.	5	0.63	3	0.38
12-2 a.m.	1	0.13	2	0.25
2-4 a.m.	3	0.38	2	0.25
4-6 a.m.	2	0.25	0	0

PR-2 ATCAA

	8 days	avg/day	8 days	avg/day
6-8 a.m.	1	0.13	0	0
8-10 a.m.	0	0	2	0.25
10-12 noon	0	0	3	0.38
12-2 p.m.	18	2.25	5	0.63
2-4 p.m.	12	1.5	9	1.13
4-6 p.m.	16	2	12	1.5
6-8 p.m.	14	1.75	13	1.63
8-10 p.m.	13	1.63	6	0.75
10-12 a.m.	8	1	7	0.88
12-2 a.m.	4	0.5	10	1.25
2-4 a.m.	11	1.38	4	0.5
4-6 a.m.	3	0.38	4	0.5

GAP A ATCAA

	8 days	avg/day	8 days	avg/day
6-8 a.m.	1	0.13	0	0
8-10 a.m.	0	0	0	0
10-12 noon	0	0	7	0.88
12-2 p.m.	12	1.5	4	0.5
2-4 p.m.	6	0.75	1	0.13
4-6 p.m.	6	0.75	3	0.38
6-8 p.m.	8	1	11	1.38
8-10 p.m.	6	0.75	8	1
10-12 a.m.	8	1	5	0.63
12-2 a.m.	1	0.13	7	0.88
2-4 a.m.	4	0.5	1	0.13
4-6 a.m.	3	0.38	0	0

PR-3 ATCAA

	8 days	avg/day	8 days	avg/day
6-8 a.m.	0	0	0	0
8-10 a.m.	0	0	0	0
10-12 noon	0	0	4	0.5
12-2 p.m.	9	1.13	2	0.25
2-4 p.m.	5	0.63	3	0.38
4-6 p.m.	8	1	4	0.5
6-8 p.m.	9	1.13	12	1.5
8-10 p.m.	6	0.75	1	0.13
10-12 a.m.	4	0.5	6	0.75
12-2 a.m.	2	0.25	9	1.13
2-4 a.m.	6	0.75	3	0.38
4-6 a.m.	3	0.38	1	0.13

PR-4 ATCAA

	8 days	avg/day	8 days	avg/day
6-8 a.m.	0	0	0	0
8-10 a.m.	0	0	0	0
10-12 noon	3	0.38	8	1
12-2 p.m.	9	1.13	13	1.63
2-4 p.m.	6	0.75	9	1.13
4-6 p.m.	11	1.38	11	1.38
6-8 p.m.	14	1.75	6	0.75
8-10 p.m.	10	1.25	12	1.5
10-12 a.m.	9	1.13	8	1
12-2 a.m.	3	0.38	8	1
2-4 a.m.	2	0.25	1	0.13
4-6 a.m.	0		0	0

GAP C ATCAA

	8 days	avg/day	8 days	avg/day
6-8 a.m.	0	0	0	0
8-10 a.m.	0	0	0	0
10-12 noon	2	0.25	9	1.13
12-2 p.m.	3	0.38	1	0.13
2-4 p.m.	2	0.25	3	0.38
4-6 p.m.	7	0.88	15	1.88
6-8 p.m.	6	0.75	17	2.13
8-10 p.m.	14	1.75	7	0.88
10-12 a.m.	7	0.88	2	0.25
12-2 a.m.	1	0.13	4	0.5
2-4 a.m.	0	0	6	0.75
4-6 a.m.	2	0.25	0	0

Gateway East ATCAA

	8 days	avg/day	8 days	avg/day
6-8 a.m.	1	0.13	1	0.13
8-10 a.m.	0	0	0	0
10-12 noon	2	0.25	24	3
12-2 p.m.	17	2.13	7	0.88
2-4 p.m.	8	1	10	1.25
4-6 p.m.	22	2.75	37	4.63
6-8 p.m.	19	2.38	41	5.13
8-10 p.m.	34	4.25	16	2
10-12 a.m.	18	2.25	9	1.13
12-2 a.m.	2	0.25	21	2.63
2-4 a.m.	8	1	18	2.25
4-6 a.m.	5	0.63	4	0.5

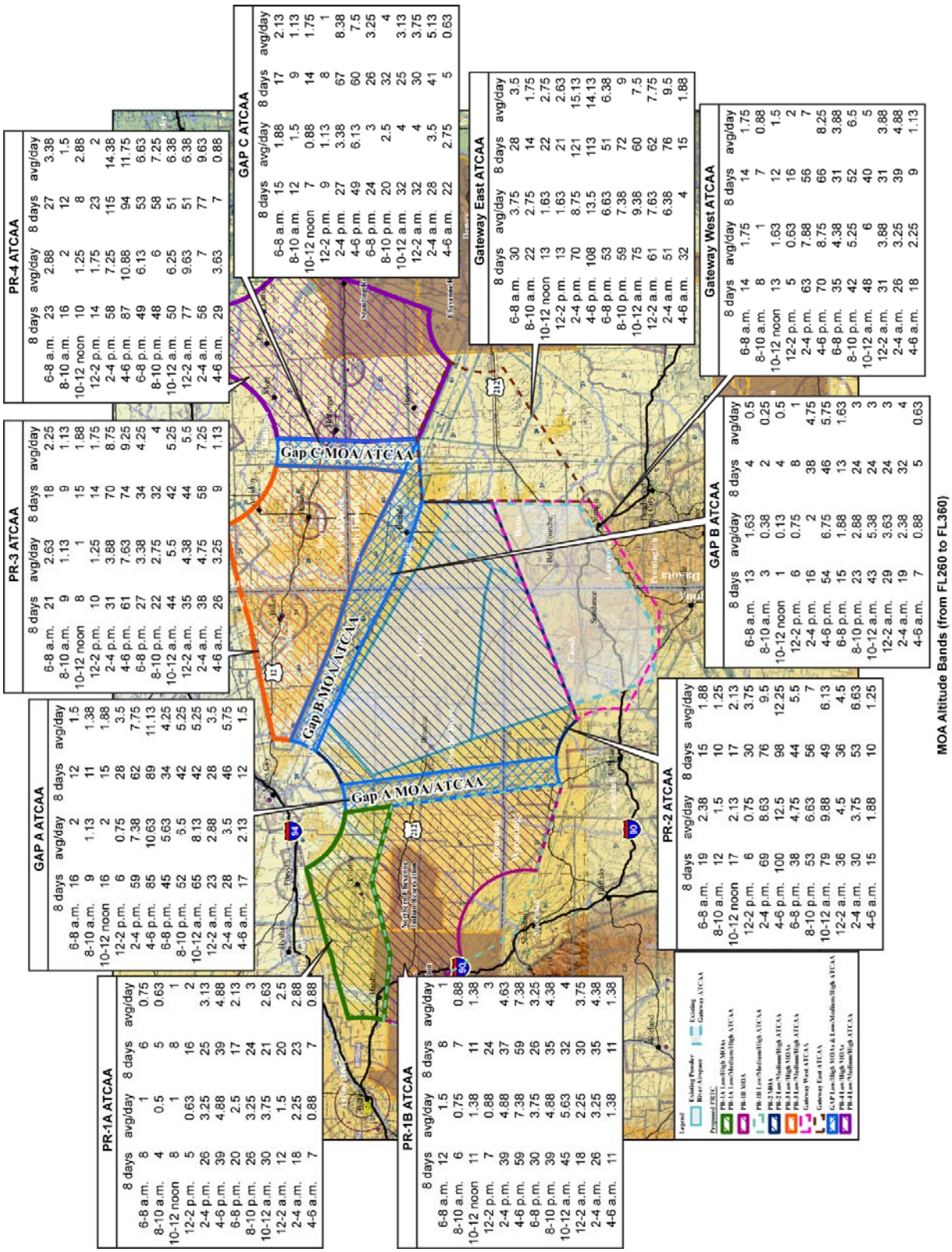
GAP B ATCAA

	8 days	avg/day	8 days	avg/day
6-8 a.m.	1	0.13	0	0
8-10 a.m.	0	0	0	0
10-12 noon	0	0	11	1.38
12-2 p.m.	12	1.5	3	0.38
2-4 p.m.	6	0.75	3	0.38
4-6 p.m.	11	1.38	15	1.88
6-8 p.m.	13	1.63	19	2.38
8-10 p.m.	15	1.88	4	0.5
10-12 a.m.	11	1.38	7	0.88
12-2 a.m.	2	0.25	11	1.38
2-4 a.m.	7	0.88	7	0.88
4-6 a.m.	5	0.63	1	0.13

Gateway West ATCAA

	8 days	avg/day	8 days	avg/day
6-8 a.m.	0	0	3	0.38
8-10 a.m.	0	0	0	0
10-12 noon	0	0	10	1.25
12-2 p.m.	15	1.88	7	0.88
2-4 p.m.	7	0.88	11	1.38
4-6 p.m.	17	2.13	19	2.38
6-8 p.m.	12	1.5	18	2.25
8-10 p.m.	17	2.13	7	0.88
10-12 a.m.	8	1	7	0.88
12-2 a.m.	3	0.38	17	2.13
2-4 a.m.	12	1.5	19	2.38
4-6 a.m.	2	0.25	7	0.88

Figure A-4. ATCAA Average Daily FAA Documented Aircraft Operations From FL180 To FL260



PR-1A ATCAA

	8 days	avg/day	8 days	avg/day
6-8 a.m.	8	1	6	0.75
8-10 a.m.	4	0.5	5	0.63
10-12 noon	8	1	8	1
12-2 p.m.	5	0.63	16	2
2-4 p.m.	26	3.25	25	3.13
4-6 p.m.	39	4.88	39	4.88
6-8 p.m.	20	2.5	17	2.13
8-10 p.m.	26	3.25	24	3
10-12 a.m.	30	3.75	21	2.63
12-2 a.m.	12	1.5	20	2.5
2-4 a.m.	18	2.25	23	2.88
4-6 a.m.	7	0.88	7	0.88

PR-1B ATCAA

	8 days	avg/day	8 days	avg/day
6-8 a.m.	12	1.5	8	1
8-10 a.m.	6	0.75	7	0.88
10-12 noon	11	1.38	11	1.38
12-2 p.m.	7	0.88	24	3
2-4 p.m.	39	4.88	37	4.63
4-6 p.m.	59	7.38	59	7.38
6-8 p.m.	30	3.75	26	3.25
8-10 p.m.	39	4.88	35	4.38
10-12 a.m.	45	5.63	32	4
12-2 a.m.	18	2.25	30	3.75
2-4 a.m.	26	3.25	35	4.38
4-6 a.m.	11	1.38	11	1.38

PR-2 ATCAA

	8 days	avg/day	8 days	avg/day
6-8 a.m.	19	2.38	15	1.88
8-10 a.m.	12	1.5	10	1.25
10-12 noon	17	2.13	17	2.13
12-2 p.m.	6	0.75	30	3.75
2-4 p.m.	69	8.63	76	9.5
4-6 p.m.	100	12.5	98	12.25
6-8 p.m.	38	4.75	44	5.5
8-10 p.m.	53	6.63	56	7
10-12 a.m.	79	9.88	49	6.13
12-2 a.m.	36	4.5	36	4.5
2-4 a.m.	30	3.75	53	6.63
4-6 a.m.	15	1.88	10	1.25

GAP A ATCAA

	8 days	avg/day	8 days	avg/day
6-8 a.m.	16	2	12	1.5
8-10 a.m.	9	1.13	11	1.38
10-12 noon	16	2	15	1.88
12-2 p.m.	6	0.75	28	3.5
2-4 p.m.	59	7.38	62	7.75
4-6 p.m.	85	10.63	89	11.13
6-8 p.m.	45	5.63	34	4.25
8-10 p.m.	52	6.5	42	5.25
10-12 a.m.	65	8.13	42	5.25
12-2 a.m.	23	2.88	28	3.5
2-4 a.m.	28	3.5	46	5.75
4-6 a.m.	17	2.13	12	1.5

PR-3 ATCAA

	8 days	avg/day	8 days	avg/day
6-8 a.m.	21	2.63	18	2.25
8-10 a.m.	9	1.13	9	1.13
10-12 noon	8	1	15	1.88
12-2 p.m.	10	1.25	14	1.75
2-4 p.m.	31	3.88	70	8.75
4-6 p.m.	61	7.63	74	9.25
6-8 p.m.	27	3.38	34	4.25
8-10 p.m.	22	2.75	32	4
10-12 a.m.	44	5.5	42	5.25
12-2 a.m.	35	4.38	44	5.5
2-4 a.m.	38	4.75	58	7.25
4-6 a.m.	26	3.25	9	1.13

PR-4 ATCAA

	8 days	avg/day	8 days	avg/day
6-8 a.m.	23	2.88	27	3.38
8-10 a.m.	16	2	12	1.5
10-12 noon	10	1.25	8	2.88
12-2 p.m.	14	1.75	23	2
2-4 p.m.	58	7.25	115	14.38
4-6 p.m.	87	10.88	94	11.75
6-8 p.m.	49	6.13	53	6.63
8-10 p.m.	48	6	58	7.25
10-12 a.m.	50	6.25	51	6.38
12-2 a.m.	77	9.63	51	6.38
2-4 a.m.	56	7	77	9.63
4-6 a.m.	29	3.63	7	0.88

GAP C ATCAA

	8 days	avg/day	8 days	avg/day
6-8 a.m.	15	1.88	17	2.13
8-10 a.m.	12	1.5	9	1.13
10-12 noon	7	0.88	14	1.75
12-2 p.m.	9	1.13	8	1
2-4 p.m.	27	3.38	67	8.38
4-6 p.m.	49	6.13	60	7.5
6-8 p.m.	24	3	26	3.25
8-10 p.m.	20	2.5	32	4
10-12 a.m.	32	4	25	3.13
12-2 a.m.	32	4	30	3.75
2-4 a.m.	28	3.5	41	5.13
4-6 a.m.	22	2.75	5	0.63

Gateway East ATCAA

	8 days	avg/day	8 days	avg/day
6-8 a.m.	30	3.75	28	3.5
8-10 a.m.	22	2.75	14	1.75
10-12 noon	13	1.63	22	2.75
12-2 p.m.	13	1.63	21	2.63
2-4 p.m.	70	8.75	121	15.13
4-6 p.m.	108	13.5	113	14.13
6-8 p.m.	53	6.63	51	6.38
8-10 p.m.	59	7.38	72	9
10-12 a.m.	75	9.38	60	7.5
12-2 a.m.	61	7.63	62	7.75
2-4 a.m.	51	6.38	76	9.5
4-6 a.m.	32	4	15	1.88

GAP B ATCAA

	8 days	avg/day	8 days	avg/day
6-8 a.m.	13	1.63	4	0.5
8-10 a.m.	3	0.38	2	0.25
10-12 noon	1	0.13	4	0.5
12-2 p.m.	6	0.75	8	1
2-4 p.m.	16	2	38	4.75
4-6 p.m.	54	6.75	46	5.75
6-8 p.m.	15	1.88	13	1.63
8-10 p.m.	23	2.88	24	3
10-12 a.m.	43	5.38	24	3
12-2 a.m.	29	3.63	24	3
2-4 a.m.	19	2.38	32	4
4-6 a.m.	7	0.88	5	0.63

Gateway West ATCAA

	8 days	avg/day	8 days	avg/day
6-8 a.m.	14	1.75	14	1.75
8-10 a.m.	8	1	7	0.88
10-12 noon	13	1.63	12	1.5
12-2 p.m.	5	0.63	16	2
2-4 p.m.	63	7.88	56	7
4-6 p.m.	70	8.75	66	8.25
6-8 p.m.	35	4.38	31	3.88
8-10 p.m.	42	5.25	52	6.5
10-12 a.m.	48	6	40	5
12-2 a.m.	31	3.88	31	3.88
2-4 a.m.	26	3.25	39	4.88
4-6 a.m.	18	2.25	9	1.13

Figure A-5. ATCAA Average Daily FAA Documented Aircraft Operations From FL260 To FL360

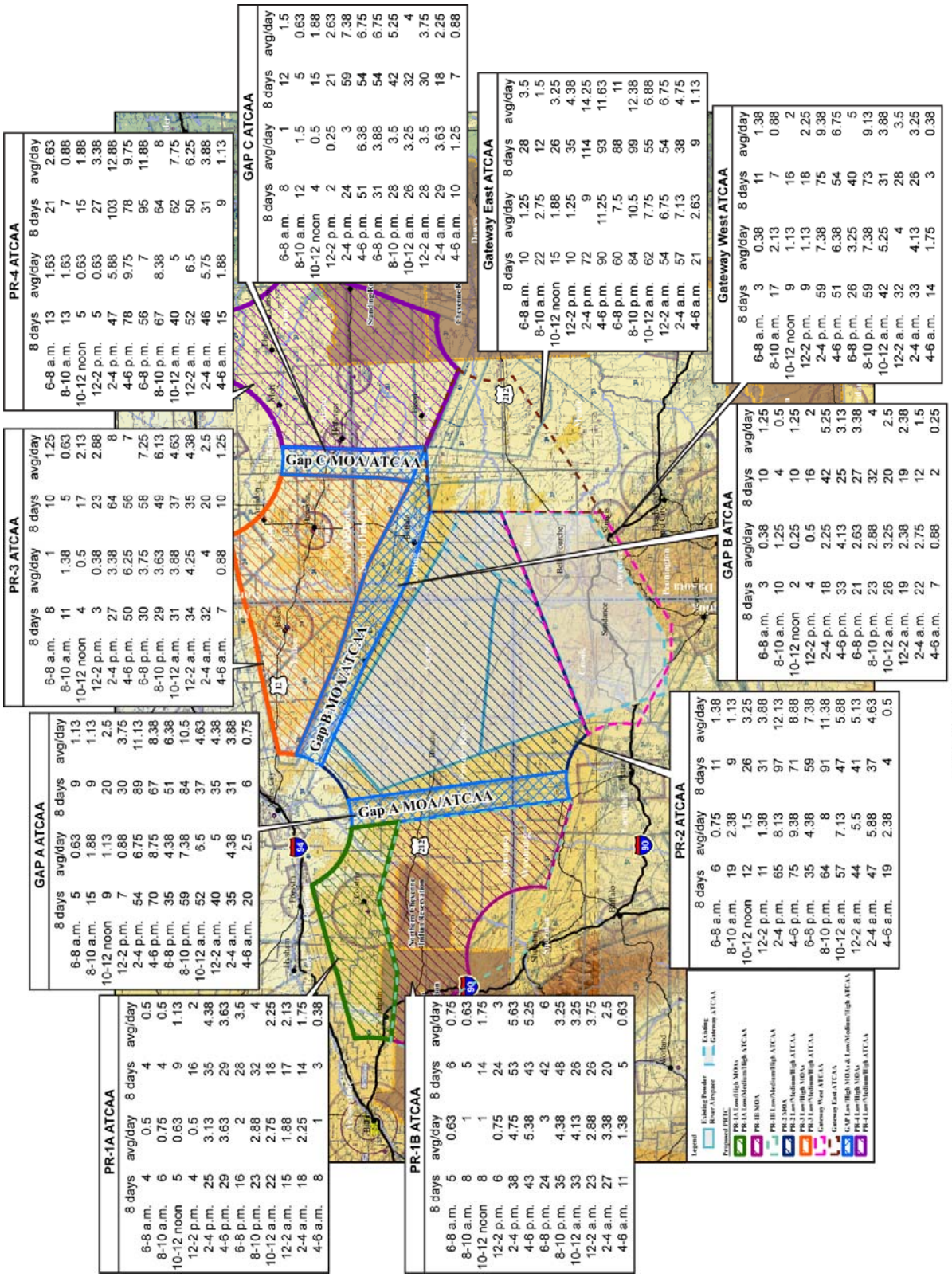


Figure A-6. ATCAA Average Daily FAA Documented Aircraft Operations Above FL360 To FL600

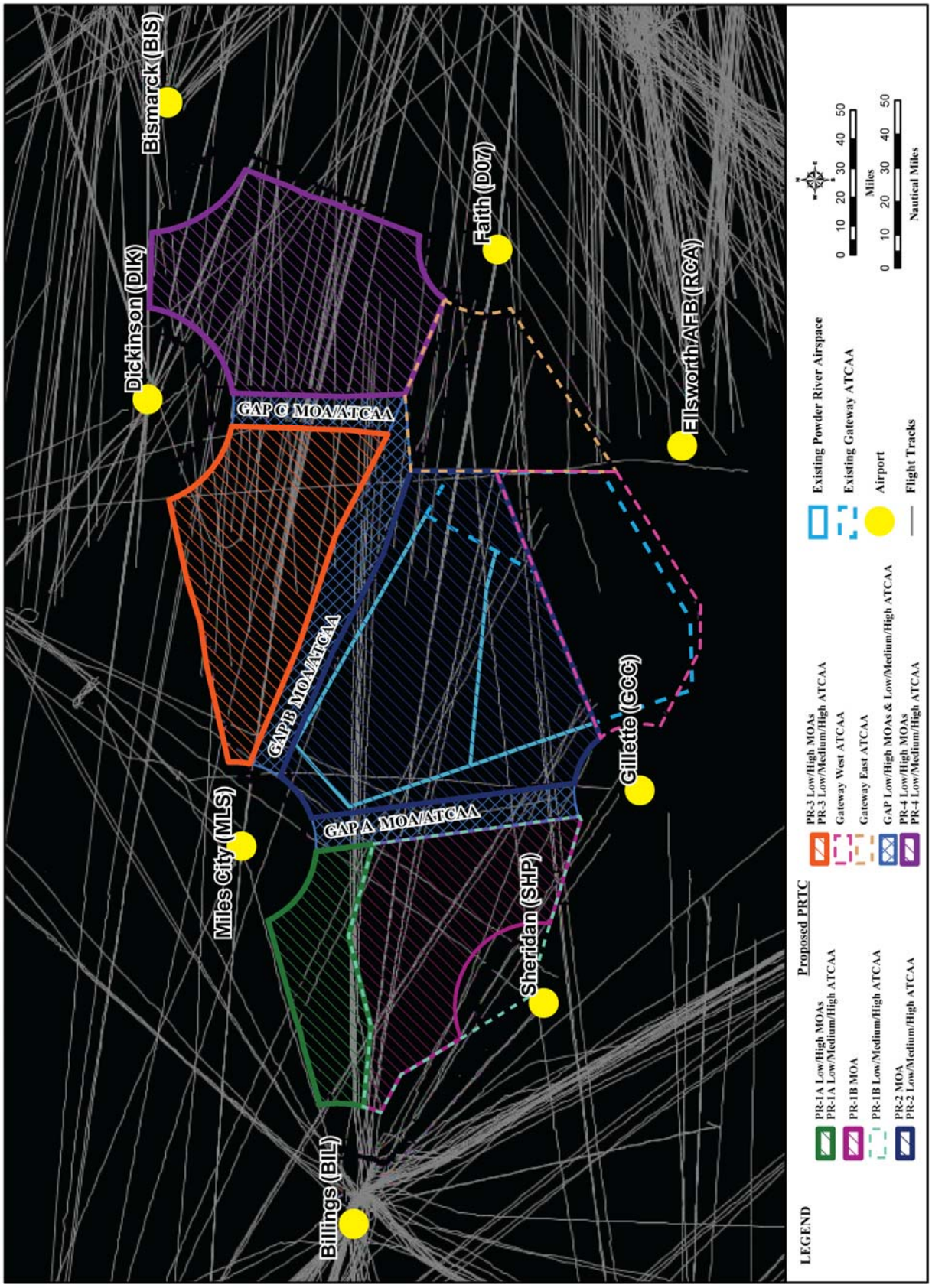


Figure A-7. Winter below 4,000 feet MSL

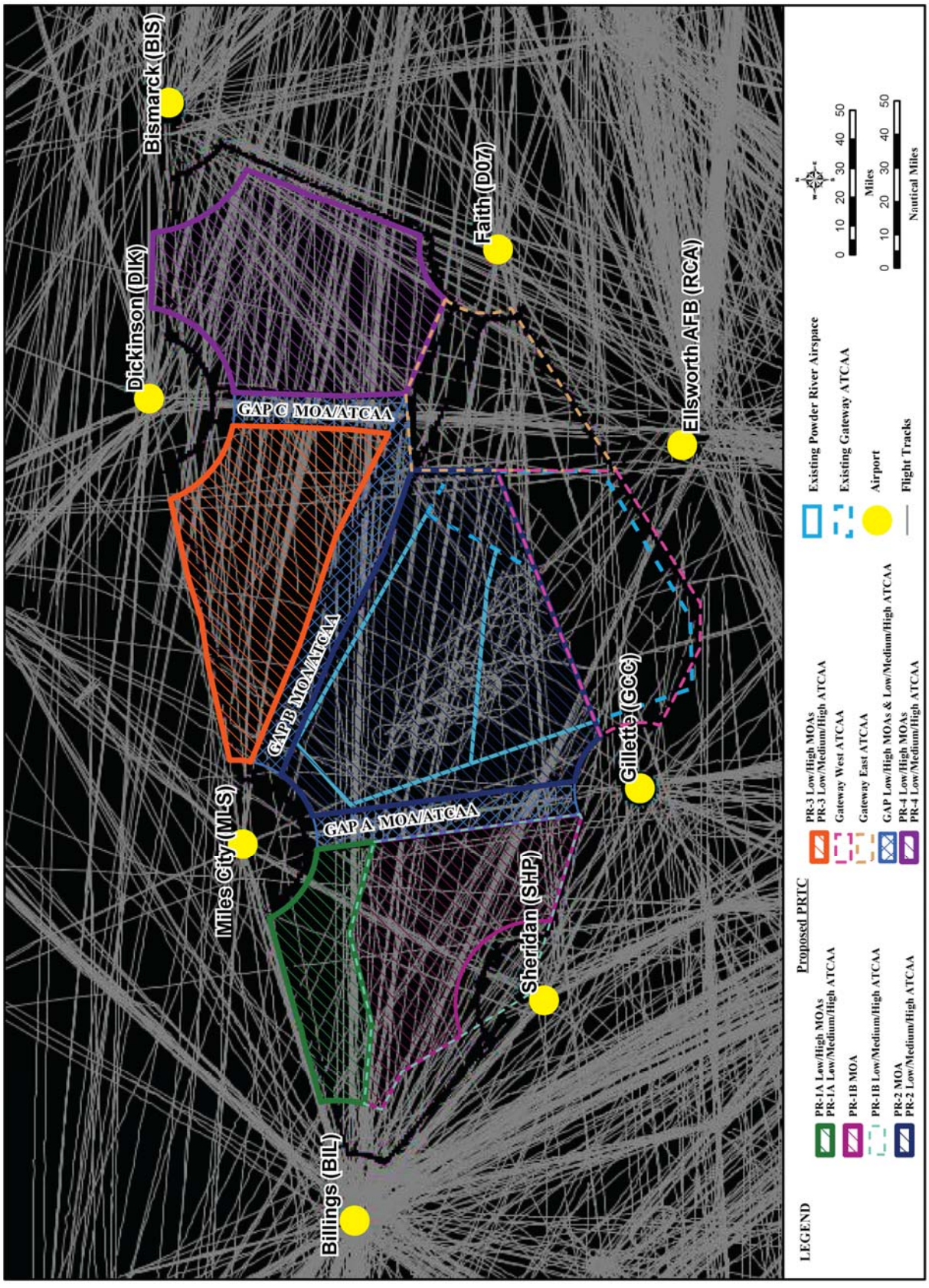


Figure A-8. Winter from 4,000 feet MSL to, but not including, 10,000 feet MSL

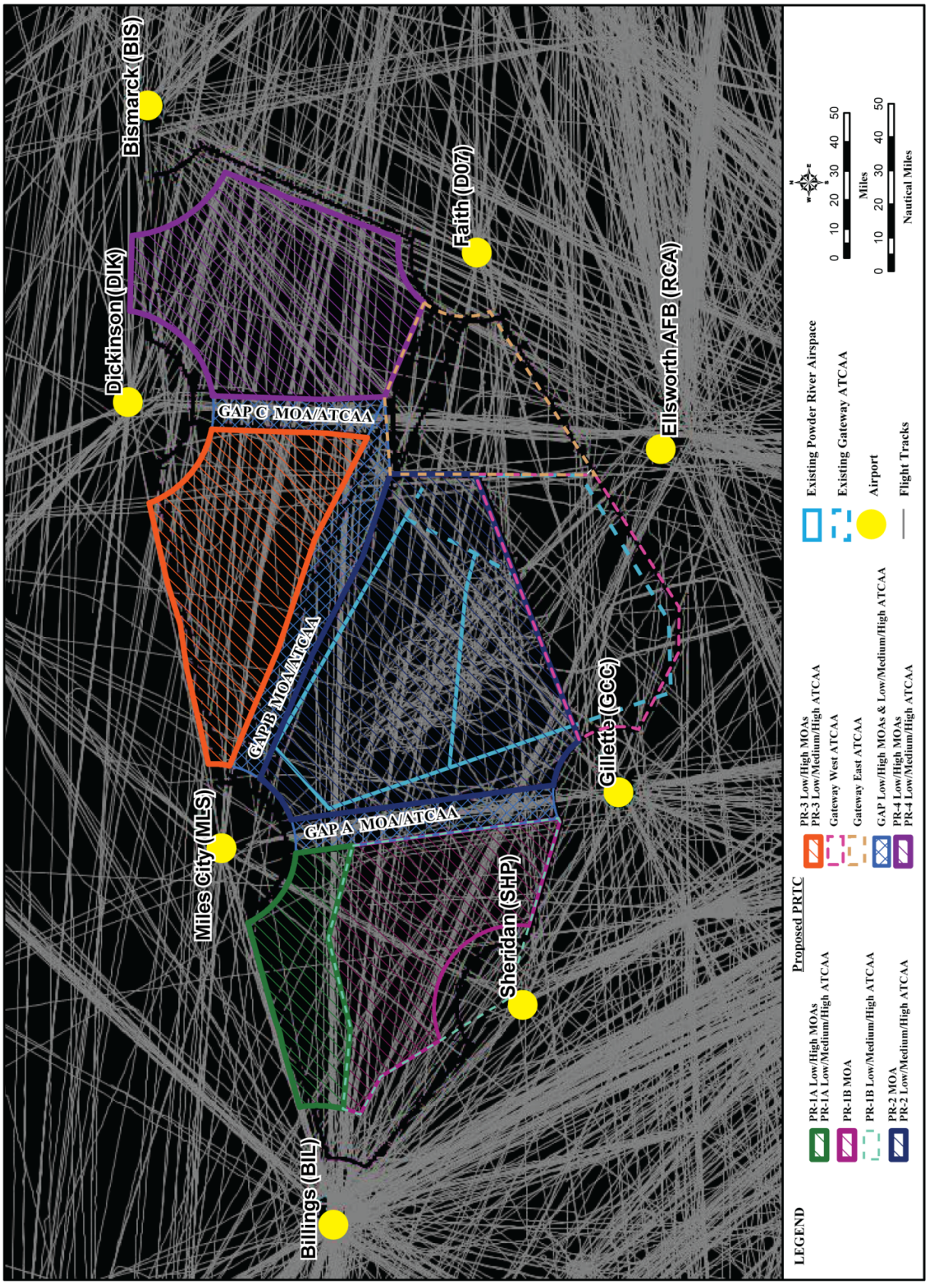


Figure A-9. Winter from 10,000 feet MSL to, but not including, FL180

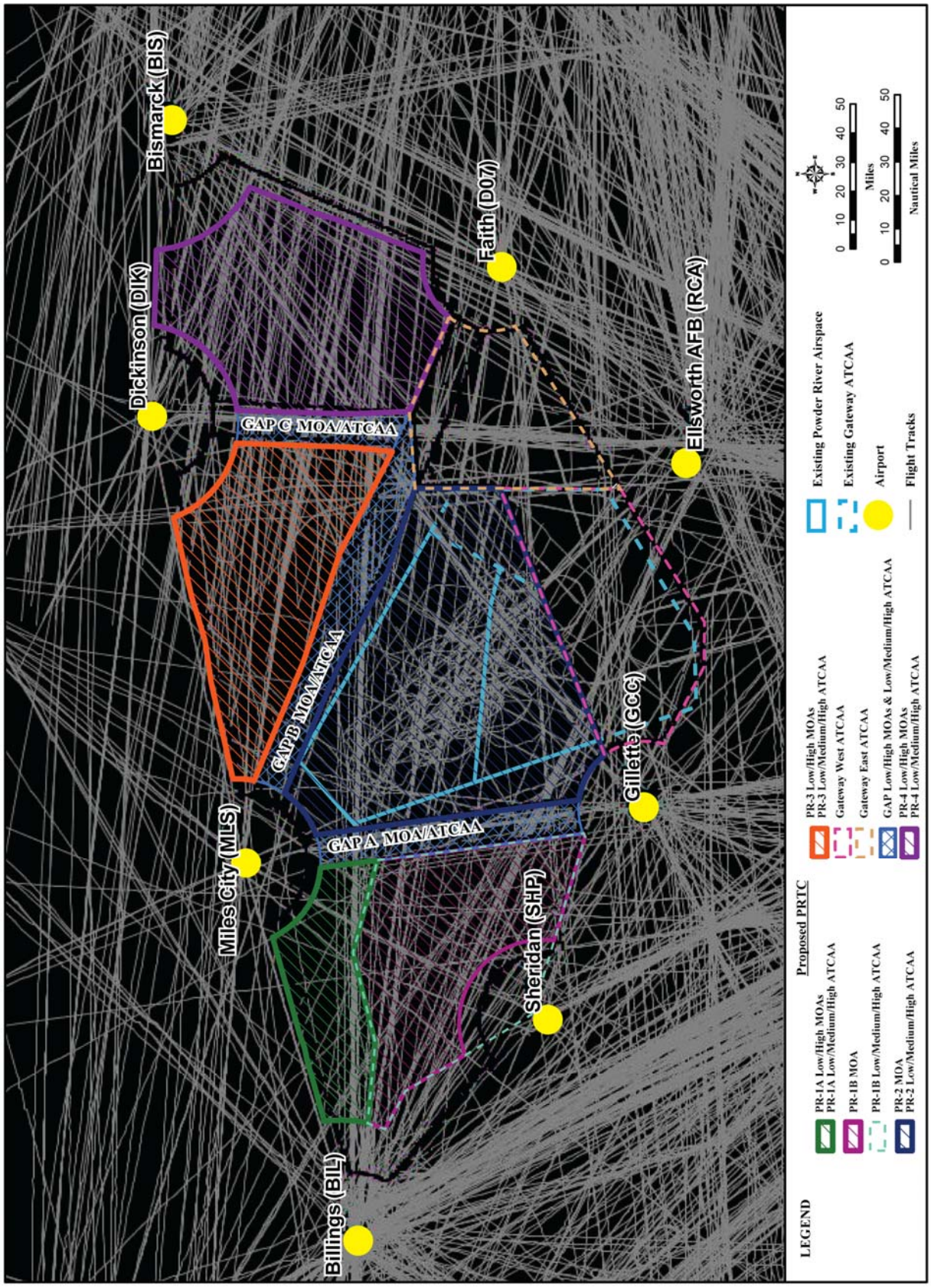


Figure A-10. Winter Low ATCAA from FL180 to FL260

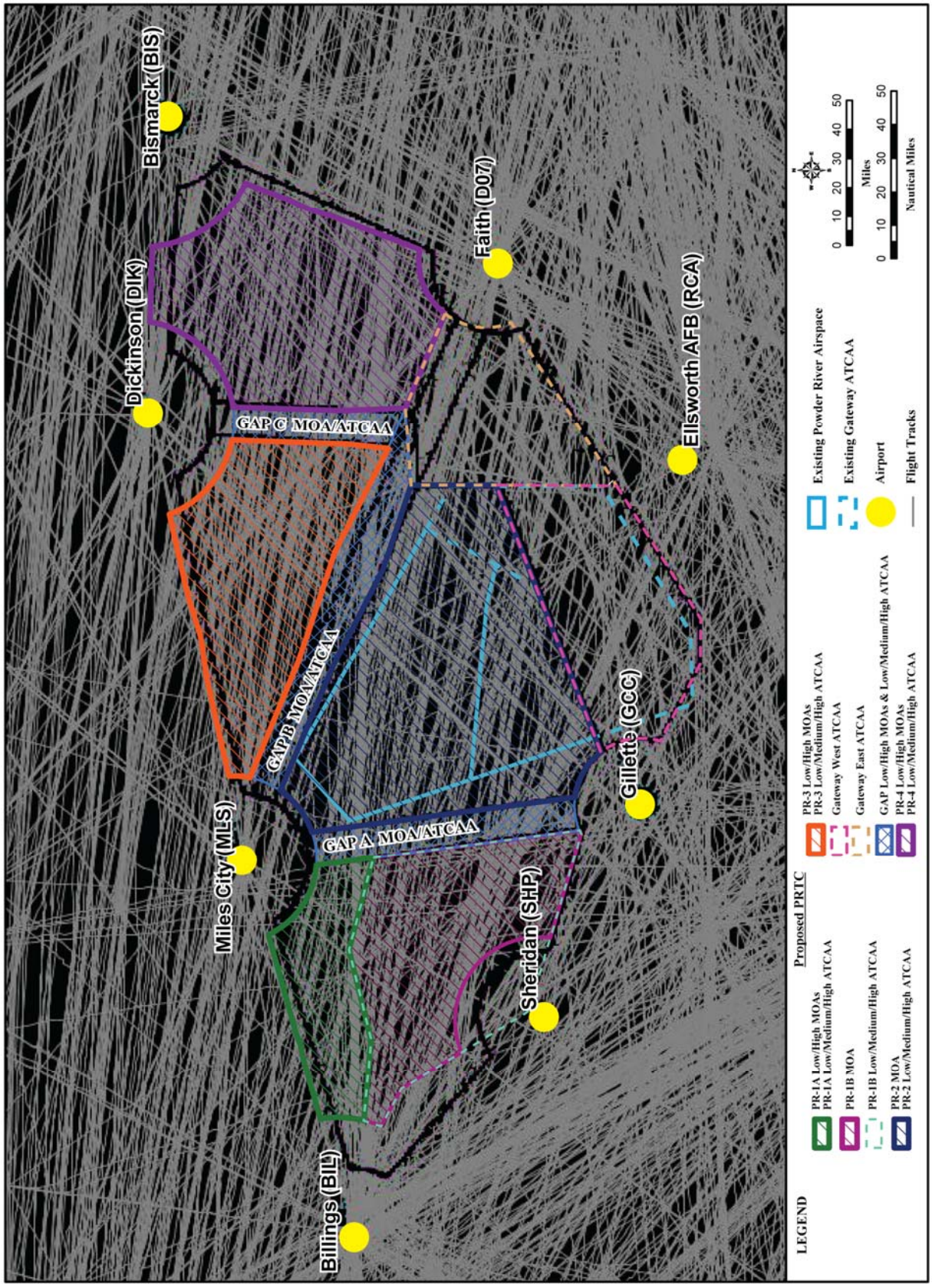


Figure A-11. Winter Medium ATCAA from FL260 to FL370

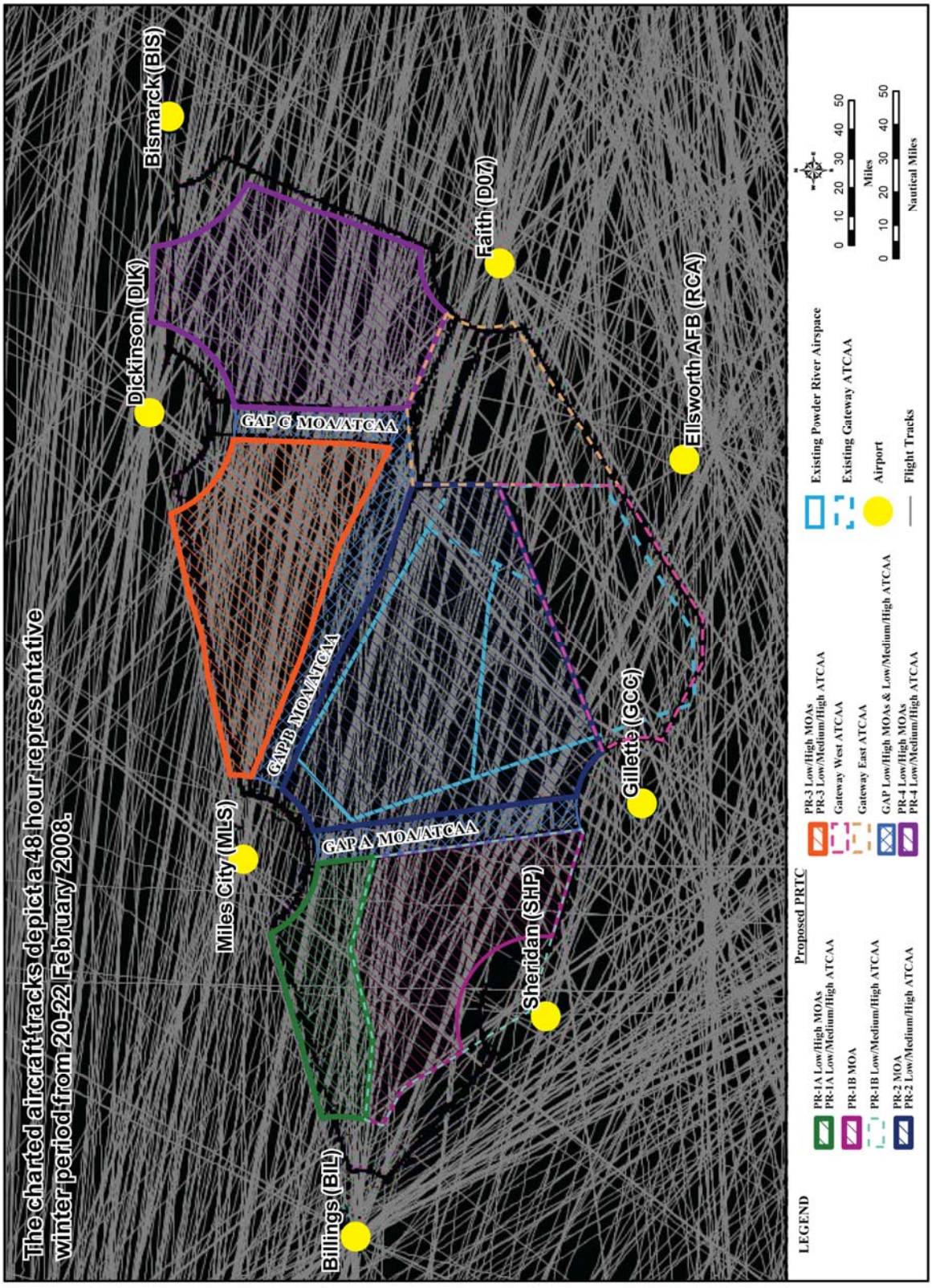


Figure A-12. Winter High ATCAA above FL370 to FL600

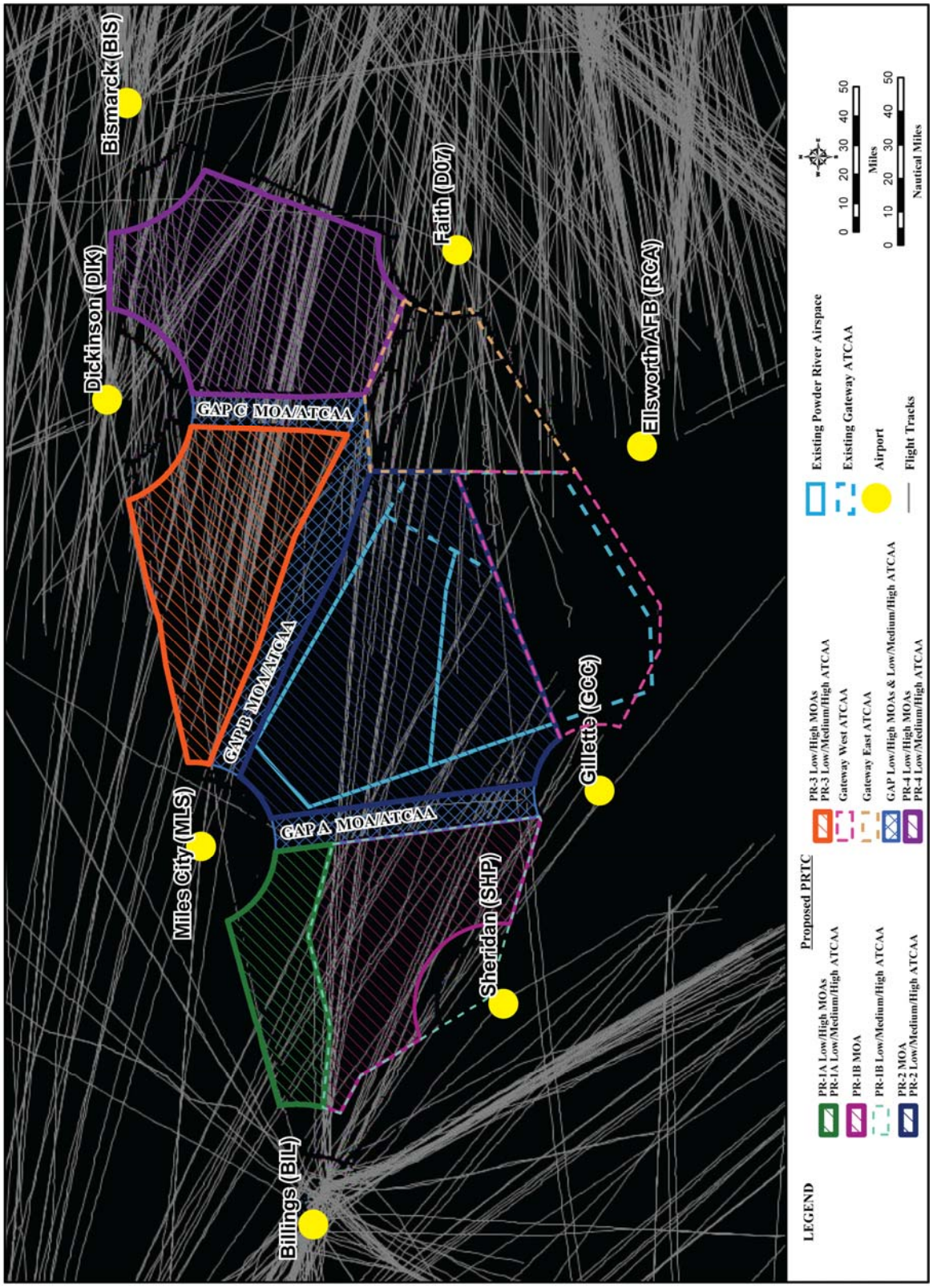


Figure A-13. Summer below 4,000 feet MSL

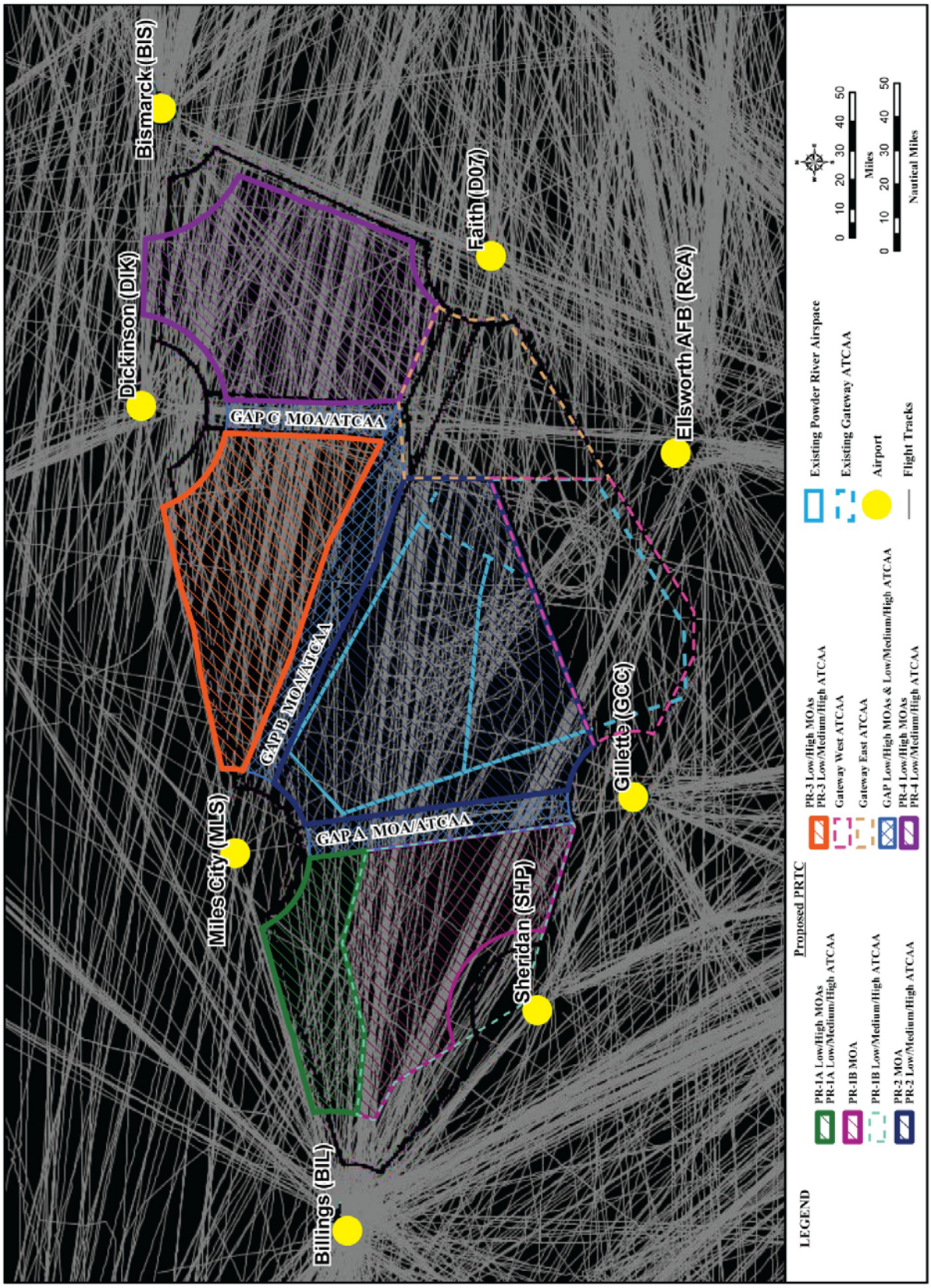


Figure A-14. Summer from 4,000 feet MSL to, but not including 10,000 feet MSL

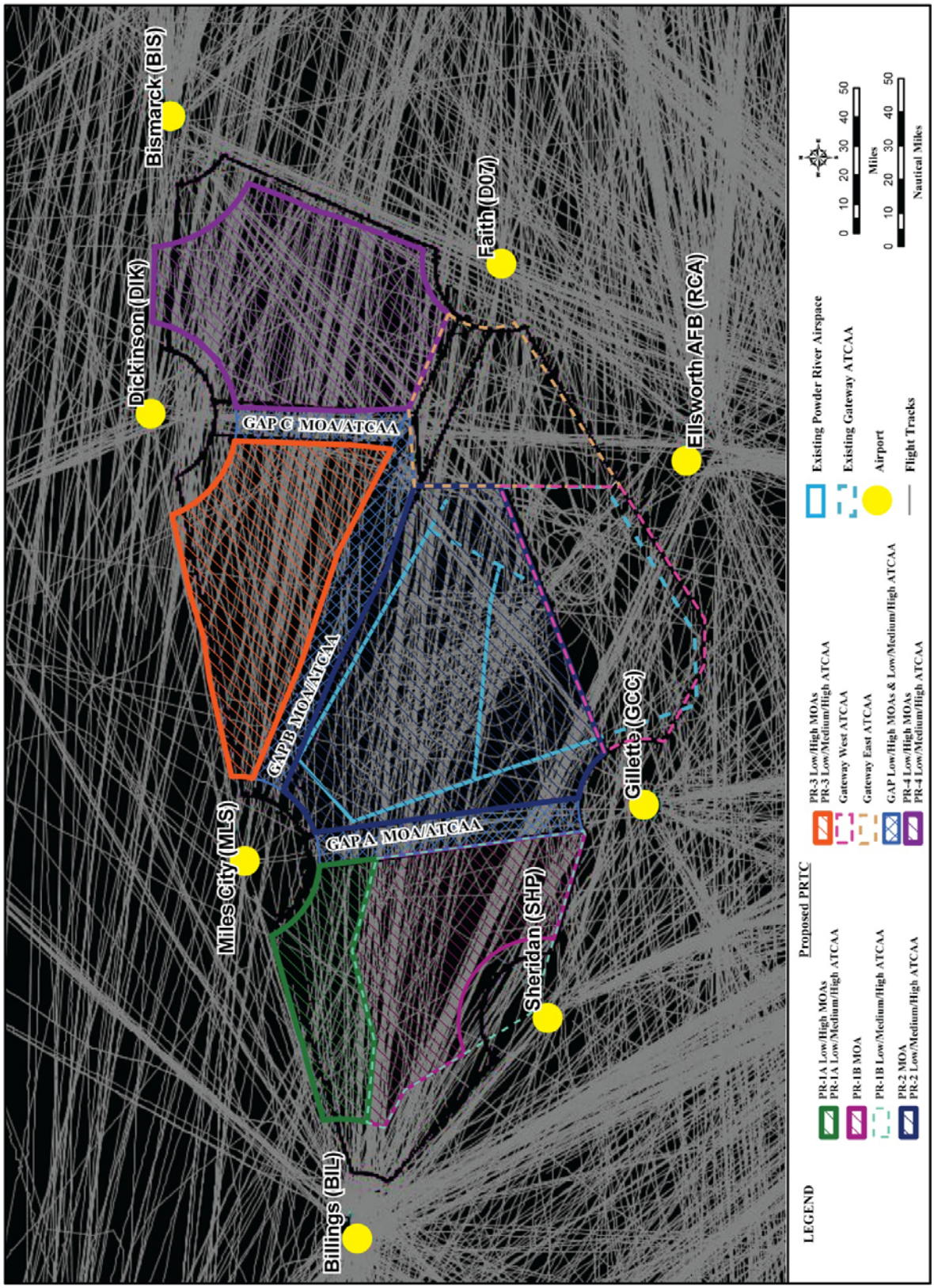


Figure A-15. Summer from 10,000 feet MSL to, but not including FL180

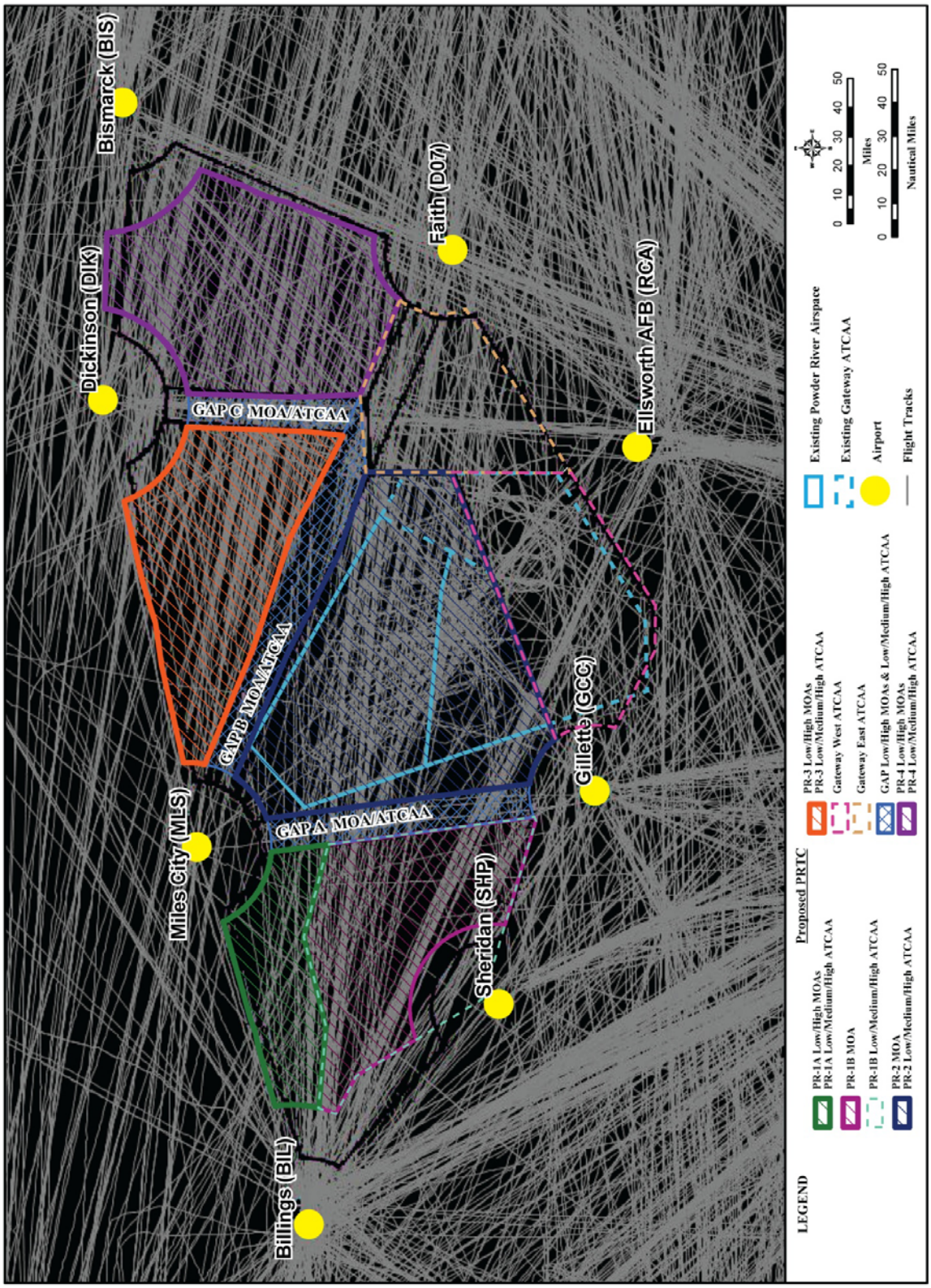


Figure A-16. Summer Low ATCAA from FL180 to FL260

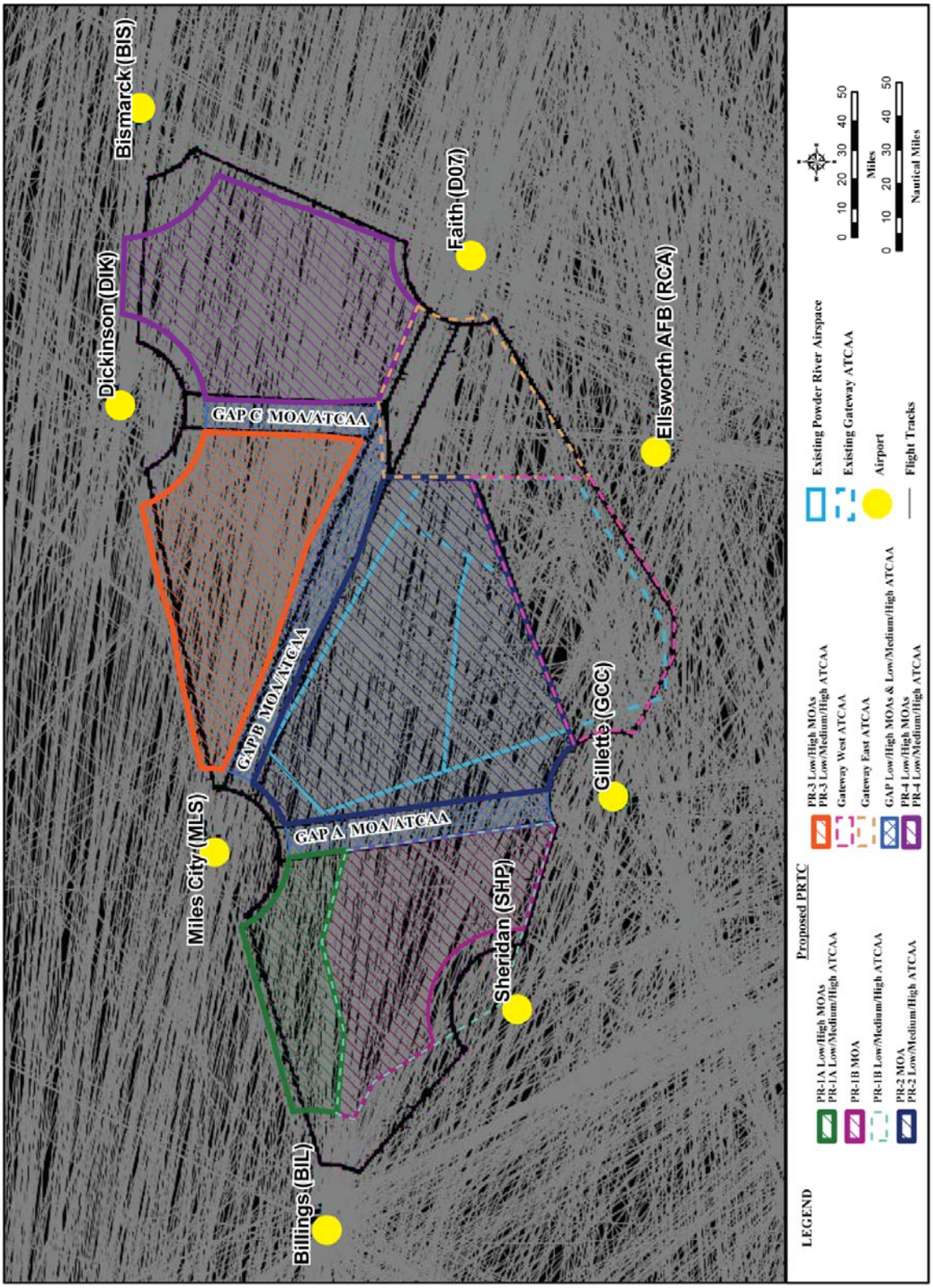


Figure A-17. Summer from FL260 to FL370

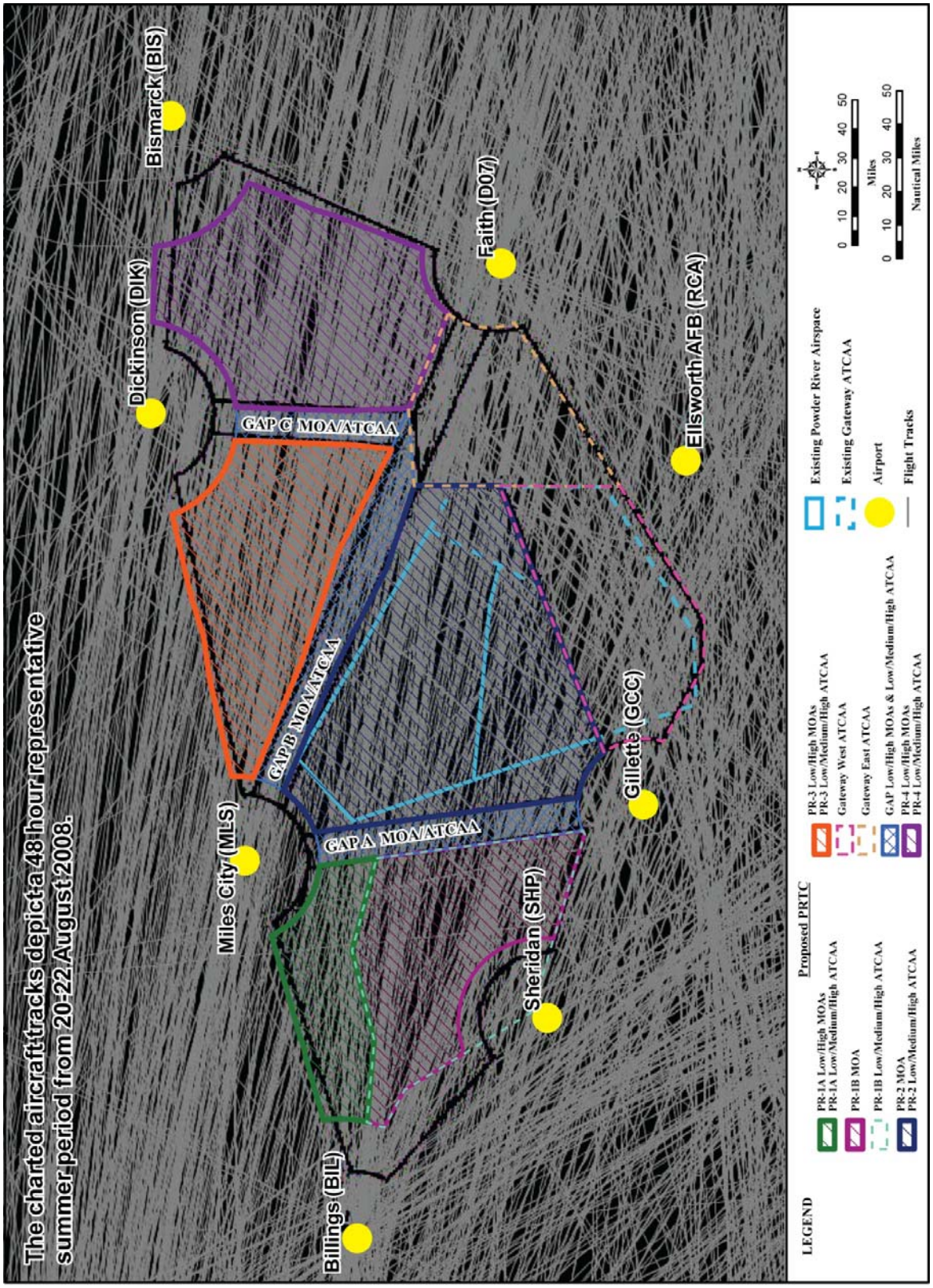


Figure A-18. Summer High ATCAA above FL370 to FL600

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APPENDIX B
POTENTIAL TRANSIENT AIRCRAFT

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FACT SHEET

U.S. Air Force Fact Sheet

A-10 THUNDERBOLT II

Mission

The A-10 Thunderbolt II has excellent maneuverability at low air speeds and altitude, and is an highly accurate weapons-delivery platform. The aircraft can loiter near battle areas for extended periods of time and operate under 1,000-foot ceilings (303.3 meters) with 1.5-mile (2.4 kilometers) visibility. The wide combat radius and short takeoff and landing capability permit operations in and out of locations near front lines. Using night vision goggles, A-10 pilots can conduct their missions during darkness.

The Thunderbolt IIs have Night Vision Imaging Systems, or NVIS, goggle compatible single-seat cockpits forward of their wings and a large bubble canopy which provides pilots all-around vision. The pilots are protected by titanium armor that also protects parts of the flight-control system. The redundant primary structural sections allow the aircraft to enjoy better survivability during close air support than did previous aircraft.

The aircraft can survive direct hits from armor-piercing and high explosive projectiles up to 23mm. Their self-sealing fuel cells are protected by internal and external foam. Manual systems back up their redundant hydraulic flight-control systems. This permits pilots to fly and land when hydraulic power is lost.

The Thunderbolt II can be serviced and operated from bases with limited facilities near battle areas. Many of the aircraft's parts are interchangeable left and right, including the engines, main landing gear and vertical stabilizers.

Avionics equipment includes multi-band communications; Global Positioning System and inertial navigations systems; infrared and electronic countermeasures against air-to-air and air-to-surface threats. And, it has a Pave Penny laser spot tracker system; a heads-up display to display flight and weapons delivery information; and a low altitude safety and targeting enhancement system, which provides constantly computed impact and release points for accurate ordnance delivery. There is also a low-altitude autopilot and a ground collision avoidance system.

The A-10 is currently undergoing the precision engagement modification, which adds upgraded cockpit displays, moving map, hands on throttle and stick, digital stores management, LITENING and Sniper advanced targeting pod integration, situational awareness data link or SADL, variable message format, or VMF, GPS-guided weapons, and upgraded DC power. Precision engagement modified aircraft are designated as the A-10C.

The Thunderbolt II can employ a wide variety of conventional munitions, including general purpose bombs, cluster bomb units, laser guided bombs, joint direct attack munitions or JDAM), wind corrected munitions dispenser or WCMD, AGM-65 Maverick and AIM-9 Sidewinder

missiles, rockets, illumination flares, and the GAU-8/A 30mm cannon, capable of firing 3,900 rounds per minute to defeat a wide variety of targets including tanks.

Background
The first production A-10A was delivered to Davis-Monthan Air Force Base, Ariz., in October 1975. It was designed specially for the close air support mission and had the ability to combine large military loads, long loiter and wide combat radius, which proved to be vital assets to the United States and its allies during Operation Desert Storm and Operation Noble Anvil.

The upgraded A-10C reached initial operation capability in September 2007. Specifically designed for close air support, its combination of large and varied ordnance load, long loiter time, accurate weapons delivery, austere field capability, and survivability has proven invaluable to the United States and its allies. The aircraft has participated in operations Desert Storm, Southern Watch, Provide Comfort, Desert Fox, Noble Anvil, Deny Flight, Deliberate Guard, Allied Force, Enduring Freedom and Iraqi Freedom.

General Characteristics
Primary Function: A-10 -- close air support, A-10C - airborne forward air control
Contractor: Fairchild Republic Co.
Power Plant: Two General Electric TF34-GE-100 turbofans
Thrust: 9,065 pounds each engine
Wingspan: 57 feet, 6 inches (17.42 meters)
Length: 53 feet, 4 inches (16.16 meters)
Height: 14 feet, 8 inches (4.42 meters)
Weight: 29,000 pounds (13,154 kilograms)
Maximum Takeoff Weight: 51,000 pounds (22,950 kilograms)
Fuel Capacity: 11,000 pounds (7,257 kilograms)
Payload: 16,000 pounds (7,257 kilograms)
Speed: 420 miles per hour (Mach 0.56)
Range: 800 miles (695 nautical miles)
Ceiling: 45,000 feet (13,636 meters)
Armament: One 30 mm GAU-8/A seven-barrel Gatling gun; up to 16,000 pounds (7,200 kilograms) of mixed ordnance on eight under-wing and three under-fuselage pylon stations, including 500 pound (225 kilograms) Mk-82 and 2,000 pounds (900 kilograms) Mk-84 series low/high drag bombs, incendiary cluster bombs, combined effects munitions, mine dispensing munitions, AGM-65 Maverick missiles and laser-guided/electro-optically guided bombs; infrared countermeasure flares; electronic countermeasure chaff; jammer pods; 2.75-inch (6.99 centimeters) rockets; illumination flares and AIM-9 Sidewinder missiles.
Crew: One
Unit Cost: Not available
Initial operating capability: A-10A, 1977; A-10C, 2007
Inventory: Active force, A-10, 143 and A-10C, 70; Reserve, A-10, 46 and OA-10, 6; ANG, A-10, 84 and OA-10, 18

Point of Contact
Air Combat Command, Public Affairs Office; 130 Andrews St., Suite 202; Langley AFB, VA 23665-1987; DSN 574-5007 or 757-764-5007; e-mail: accpa.operations@langley.af.mil

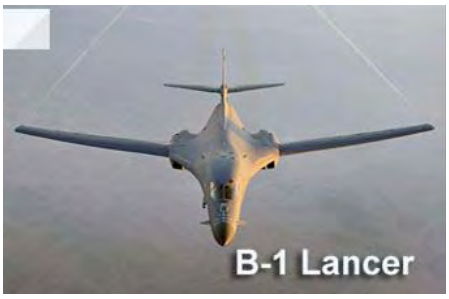
FACT SHEET

U.S. Air Force Fact Sheet

B-1B LANCER

Mission

Carrying the largest payload of both guided and unguided weapons in the Air Force inventory, the multi-mission B-1 is the backbone of America's long-range bomber force. It can rapidly deliver massive quantities of precision and non-precision weapons against any adversary, anywhere in the world, at any time.



Features

The B-1B's blended wing/body configuration, variable-geometry wings and turbofan afterburning engines, combine to provide long range, maneuverability and high speed while enhancing survivability. Forward wing settings are used for takeoff, landings, air refueling and in some high-altitude weapons employment scenarios. Aft wing sweep settings - the main combat configuration -- are typically used during high subsonic and supersonic flight, enhancing the B-1B's maneuverability in the low- and high-altitude regimes. The B-1B's speed and superior handling characteristics allow it to seamlessly integrate in mixed force packages. These capabilities, when combined with its substantial payload, excellent radar targeting system, long loiter time and survivability, make the B-1B a key element of any joint/composite strike force.

The B-1 is a highly versatile, multi-mission weapon system. The B-1B's synthetic aperture radar is capable of tracking, targeting and engaging moving vehicles as well as self-targeting and terrain-following modes. In addition, an extremely accurate Global Positioning System-aided Inertial Navigation System enables aircrews to navigate without the aid of ground-based navigation aids as well as engage targets with a high level of precision. The Combat Track II radios provide a secure beyond line of sight reach back connectivity until Link-16 is integrated on the aircraft. In a time sensitive targeting environment, the aircrew can use targeting data from the Combined Air Operations Center over Combat Track II, then to strike emerging targets rapidly and efficiently. This capability was effectively demonstrated during operations Enduring Freedom and Iraqi Freedom.

The B-1B's onboard self-protection electronic jamming equipment, radar warning receiver (ALQ-161) and expendable countermeasures (chaff and flare) system and a towed decoy system (ALE-50) complements its low-radar cross-section to form an integrated, robust defense system that supports penetration of hostile airspace. The ALQ-161 electronic countermeasures system detects and identifies the full spectrum of adversary threat emitters then applies the appropriate jamming technique either automatically or through operator inputs.

Current modifications build on this foundation. Radar sustainability and capability upgrades will provide a more reliable system and may be upgraded in the future to include an ultra high-resolution capability and automatic target recognition. The addition of a fully integrated data link, or FIDL, will add Link-16 communications capability. FIDL combined with associated cockpit upgrades will provide the crew with a much more flexible, integrated cockpit, and will

allow the B-1 to operate in the fast-paced integrated battlefield of the future. Several obsolete and hard to maintain electronic systems are also being replaced to improve aircraft reliability.

Background
The B-1A was initially developed in the 1970s as a replacement for the B-52. Four prototypes of this long-range, high speed (Mach 2.2) strategic bomber were developed and tested in the mid-1970s, but the program was canceled in 1977 before going into production. Flight testing continued through 1981.

The B-1B is an improved variant initiated by the Reagan administration in 1981. Major changes included the addition of additional structure to increase payload by 74,000 pounds, an improved radar and reduction of the radar cross section by an order of magnitude. The inlet was extensively modified as part of this RCS reduction, necessitating a reduction in maximum speed to Mach 1.2.

The first production B-1 flew in October 1984, and the first B-1B was delivered to Dyess Air Force Base, Texas, in June 1985. Initial operational capability was achieved on Oct. 1, 1986. The final B-1B was delivered May 2, 1988.

The B-1B holds almost 50 world records for speed, payload, range, and time of climb in its class. The National Aeronautic Association recognized the B-1B for completing one of the 10 most memorable record flights for 1994. The most recent records were made official in 2004.

The B-1B was first used in combat in support of operations against Iraq during Operation Desert Fox in December 1998. In 1999, six B-1s were used in Operation Allied Force, delivering more than 20 percent of the total ordnance while flying less than 2 percent of the combat sorties.

During the first six months of Operation Enduring Freedom, eight B-1s dropped nearly 40 percent of the total tonnage delivered by coalition air forces. This included nearly 3,900 JDAMs, or 67 percent of the total. In Operation Iraqi Freedom, the aircraft has flown less 1 percent of the combat missions while delivering 43 percent of the JDAMs used. The B-1 continues to be deployed today, flying missions daily in suppport of continuing oerations.

General Characteristics
Primary Function: Long-range, multi-role, heavy bomber
Contractor: Boeing, North America (formerly Rockwell International, North American Aircraft); Offensive avionics, Boeing Military Airplane; defensive avionics, EDO Corporation
Power plant: Four General Electric F101-GE-102 turbofan engine with afterburner
Thrust: 30,000-plus pounds with afterburner, per engine
Wingspan: 137 feet (41.8 meters) extended forward, 79 feet (24.1 meters) swept aft
Length: 146 feet (44.5 meters)
Height: 34 feet (10.4 meters)
Weight: approximately 190,000 pounds (86,183 kilograms)
Maximum Takeoff Weight: 477,000 pounds (216,634 kilograms)
Fuel Capacity: 265,274 pounds (120,326 kilograms)
Payload: 75,000 pounds (34,019 kilograms)
Speed: 900-plus mph (Mach 1.2 at sea level)
Range: Intercontinental
Ceiling: More than 30,000 feet (9,144 meters)
Armament: 84 500-pound Mk-82 or 24 2,000-pound Mk-84 general purpose bombs; up to 84 500-pound Mk-62 or 8 2,000-pound Mk-65 Quick Strike naval mines; 30 cluster munitions (CBU-87, -89, -97) or 30 Wind-Corrected Munitions Dispensers (CBU-103, -104, -105); up to 24 2,000-pound GBU-31 or 15 500-pound GBU-38 Joint Direct Attack Munitions; up to 24 AGM-158A Joint Air-to-Surface Standoff Missiles
Crew: Four (aircraft commander, copilot, and two weapon systems officers)
Unit Cost: $283.1 million (fiscal 98 constant dollars)
Initial operating capability: October 1986
Inventory: Active force, 66 (test, 2); ANG, 0; Reserve, 0

Point of Contact
Air Combat Command, Public Affairs Office; 130 Andrews St., Suite 202; Langley AFB, VA 23665-1987; DSN 574-5007 or 757-764-5007; e-mail: accpa.operations@langley.af.mil

FACT SHEET

U.S. Air Force Fact Sheet

B-2 SPIRIT

Mission

The B-2 Spirit is a multi-role bomber capable of delivering both conventional and nuclear munitions. A dramatic leap forward in technology, the bomber represents a major milestone in the U.S. bomber modernization program. The B-2 brings massive firepower to bear, in a short time, anywhere on the globe through previously impenetrable defenses.

Features

Along with the B-52, the B-2 provides the penetrating flexibility and effectiveness inherent in manned bombers. Its low-observable, or "stealth," characteristics give it the unique ability to penetrate an enemy's most sophisticated defenses and threaten its most valued, and heavily defended, targets. Its capability to penetrate air defenses and threaten effective retaliation provides a strong, effective deterrent and combat force well into the 21st century.

The revolutionary blending of low-observable technologies with high aerodynamic efficiency and large payload gives the B-2 important advantages over existing bombers. Its low-observability provides it greater freedom of action at high altitudes, thus increasing its range and a better field of view for the aircraft's sensors. Its unrefueled range is approximately 6,000 nautical miles (9,600 kilometers).

The B-2's low observability is derived from a combination of reduced infrared, acoustic, electromagnetic, visual and radar signatures. These signatures make it difficult for the sophisticated defensive systems to detect, track and engage the B-2. Many aspects of the low-observability process remain classified; however, the B-2's composite materials, special coatings and flying-wing design all contribute to its "stealthiness."

The B-2 has a crew of two pilots, a pilot in the left seat and mission commander in the right, compared to the B-1B's crew of four and the B-52's crew of five.

Background

The first B-2 was publicly displayed on Nov. 22, 1988, when it was rolled out of its hangar at Air Force Plant 42, Palmdale, Calif. Its first flight was July 17, 1989. The B-2 Combined Test Force, Air Force Flight Test Center, Edwards Air Force Base, Calif., is responsible for flight testing the engineering, manufacturing and development aircraft on the B-2.

Whiteman AFB, Mo., is the only operational base for the B-2. The first aircraft, Spirit of Missouri, was delivered Dec. 17, 1993. Depot maintenance responsibility for the B-2 is performed by Air Force contractor support and is managed at the Oklahoma City Air Logistics Center at Tinker AFB, Okla.

The combat effectiveness of the B-2 was proved in Operation Allied Force, where it was responsible for destroying 33 percent of all Serbian targets in the first eight weeks, by flying

nonstop to Kosovo from its home base in Missouri and back. In support of Operation Enduring Freedom, the B-2 flew one of its longest missions to date from Whiteman to Afghanistan and back. The B-2 completed its first-ever combat deployment in support of Operation Iraqi Freedom, flying 22 sorties from a forward operating location as well as 27 sorties from Whiteman AFB and releasing more than 1.5 million pounds of munitions. The aircraft received full operational capability status in December 2003. On Feb. 1, 2009, the Air Force's newest command, Air Force Global Strike Command, assumed responsibility for the B-2 from Air Combat Command.

The prime contractor, responsible for overall system design and integration, is Northrop Grumman Integrated Systems Sector. Boeing Military Airplanes Co., Hughes Radar Systems Group, General Electric Aircraft Engine Group and Vought Aircraft Industries, Inc., are key members of the aircraft contractor team.

General Characteristics
Primary function: Multi-role heavy bomber
Contractor: Northrop Grumman Corp. and **Contractor Team:** Boeing Military Airplanes Co., Hughes Radar Systems Group, General Electric Aircraft Engine Group and Vought Aircraft Industries, Inc.
Power Plant: Four General Electric F118-GE-100 engines
Thrust: 17,300 pounds each engine
Wingspan: 172 feet (52.12 meters)
Length: 69 feet (20.9 meters)
Height: 17 feet (5.1 meters
Weight: 160,000 pounds (72,575 kilograms)
Maximum Takeoff Weight: 336,500 pounds (152,634 kilograms)
Fuel Capacity: 167,000 pounds (75750 kilograms)
Payload: 40,000 pounds (18,144 kilograms)
Speed: High subsonic
Range: Intercontinental
Ceiling: 50,000 feet (15,240 meters)
Armament: Conventional or nuclear weapons
Crew: Two pilots
Unit cost: Approximately $1.157 billion (fiscal 98 constant dollars)
Initial operating capability: April 1997
Inventory: Active force: 20 (1 test); ANG: 0; Reserve: 0

Point of Contact
Air Force Global Strike Command , Public Affairs Office; 245 Davis Ave. E, Room 240; Barksdale AFB, LA 71110; DSN 781-0854/0819; commercial 318-456-0854/0819; afgsc.pa@barksdale.af.mil.

FACT SHEET

U.S. Air Force Fact Sheet

B-52 STRATOFORTRESS

Mission

The B-52 is a long-range, heavy bomber that can perform a variety of missions. The bomber is capable of flying at high subsonic speeds at altitudes up to 50,000 feet (15,166.6 meters). It can carry nuclear or precision guided conventional ordnance with worldwide precision navigation capability.

Features

In a conventional conflict, the B-52 can perform strategic attack, close-air support, air interdiction, offensive counter-air and maritime operations. During Desert Storm, B-52s delivered 40 percent of all the weapons dropped by coalition forces. It is highly effective when used for ocean surveillance, and can assist the U.S. Navy in anti-ship and mine-laying operations. Two B-52s, in two hours, can monitor 140,000 square miles (364,000 square kilometers) of ocean surface.

All B-52s are equipped with two electro-optical viewing sensors, a forward-looking infrared and advanced targeting pods to augment targeting, battle assessment, and flight safety, thus further improving its combat ability.

Pilots wear night vision goggles, or NVG, to enhance their vision during night operations. Night vision goggles provide greater safety during night operations by increasing the pilot's ability to visually clear terrain, avoid enemy radar and see other aircraft in a lights-out environment.

Starting in 1989, on-going modifications incorporate the global positioning system, heavy stores adapter beams for carrying 2,000 pound munitions, and a full array of advance weapons currently under development.

The use of aerial refueling gives the B-52 a range limited only by crew endurance. It has an unrefueled combat range in excess of 8,800 miles (14,080 kilometers).

Background

For more than 40 years B-52 Stratofortresses have been the backbone of the manned strategic bomber force for the United States. The B-52 is capable of dropping or launching the widest array of weapons in the U.S. inventory. This includes gravity bombs, cluster bombs, precision guided missiles and joint direct attack munitions. Updated with modern technology the B-52 will be capable of delivering the full complement of joint developed weapons and will continue into the 21st century as an important element of our nation's defenses. Current engineering analyses show the B-52's life span to extend beyond the year 2040.

The B-52A first flew in 1954, and the B model entered service in 1955. A total of 744 B-52s were built with the last, a B-52H, delivered in October 1962. The first of 102 B-52H's was delivered to Strategic Air Command in May 1961. The H model can carry up to 20 air launched cruise missiles. In addition, it can carry the conventional cruise missile that was launched in

several contingencies during the 1990s, starting with Operation Desert Storm and culminating with Operation Iraqi Freedom.

The aircraft's flexibility was evident in Operation Desert Storm and again during Operations Allied Force. B-52s struck wide-area troop concentrations, fixed installations and bunkers, and decimated the morale of Iraq's Republican Guard. On Sept. 2 to 3, 1996, two B-52H's struck Baghdad power stations and communications facilities with 13 AGM-86C conventional air launched cruise missiles, or CALCMs, as part of Operation Desert Strike. This mission was the longest distance flown for a combat mission involving a 34-hour, 16,000 statute mile round trip from Barksdale Air Force Base, La.

In 2001, the B-52 contributed to the success in Operation Enduring Freedom, providing the ability to loiter high above the battlefield and provide close air support through the use of precision guided munitions.

The B-52 also played a role in Operation Iraqi Freedom. On March 21, 2003, B-52Hs launched approximately 100 CALCMs during a night mission.

Only the H model is still in the Air Force inventory and is assigned to the 5th Bomb Wing at Minot AFB, N.D. and the 2nd Bomb Wing at Barksdale AFB, La., which fall under Air Force Global Strike Command. The aircraft is also assigned to the Air Force Reserve Command's 917th Wing at Barksdale.

General Characteristics
Primary Function: Heavy bomber
Contractor: Boeing Military Airplane Co.
Power plant: Eight Pratt & Whitney engines TF33-P-3/103 turbofan
Thrust: Each engine up to 17,000 pounds
Wingspan: 185 feet (56.4 meters)
Length: 159 feet, 4 inches (48.5 meters)
Height: 40 feet, 8 inches (12.4 meters)
Weight: Approximately 185,000 pounds (83,250 kilograms)
Maximum Takeoff Weight: 488,000 pounds (219,600 kilograms)
Fuel Capacity: 312,197 pounds (141,610 kilograms)
Payload: 70,000 pounds (31,500 kilograms)
Speed: 650 miles per hour (Mach 0.86)
Range: 8,800 miles (7,652 nautical miles)
Ceiling: 50,000 feet (15,151.5 meters)
Armament: Approximately 70,000 pounds (31,500 kilograms) mixed ordnance -- bombs, mines and missiles. (Modified to carry air-launched cruise missiles)
Crew: Five (aircraft commander, pilot, radar navigator, navigator and electronic warfare officer
Unit Cost: $53.4 million (fiscal 98 constant dollars)
Initial operating capability: April 1952
Inventory: Active force, 85; ANG, 0; Reserve, 9

Point of Contact
Air Force Global Strike Command, Public Affairs Office; 245 Davis Ave. E
Room 230; Barksdale AFB, LA 71110; 318- 456-0854/0819; or DSN 781-0854/0819; e-mail: afgsc.pa@barksdale.af.mil

FACT SHEET

U.S. Air Force Fact Sheet

C-130 HERCULES

Mission

The C-130 Hercules primarily performs the tactical portion of the airlift mission. The aircraft is capable of operating from rough, dirt strips and is the prime transport for air dropping troops and equipment into hostile areas. The C-130 operates throughout the U.S. Air Force, serving with Air Mobility Command, Air Force Special Operations Command, Air Combat Command, U.S. Air Forces in Europe, Pacific Air Forces, Air National Guard and the Air Force Reserve Command, fulfilling a wide range of operational missions in both peace and war situations. Basic and specialized versions of the aircraft airframe perform a diverse number of roles, including airlift support, Antarctic ice resupply, aeromedical missions, weather reconnaissance, aerial spray missions, firefighting duties for the U.S. Forest Service and natural disaster relief missions.

Features

Using its aft loading ramp and door the C-130 can accommodate a wide variety of oversized cargo, including everything from utility helicopters and six-wheeled armored vehicles to standard palletized cargo and military personnel. In an aerial delivery role, it can airdrop loads up to 42,000 pounds or use its high-flotation landing gear to land and deliver cargo on rough, dirt strips.

The flexible design of the Hercules enables it to be configured for many different missions, allowing for one aircraft to perform the role of many. Much of the special mission equipment added to the Hercules is removable, allowing the aircraft to revert back to its cargo delivery role if desired. Additionally, the C-130 can be rapidly reconfigured for the various types of cargo such as palletized equipment, floor-loaded material, airdrop platforms, container delivery system bundles, vehicles and personnel or aeromedical evacuation.

The C-130J is the latest addition to the C-130 fleet and will replace aging C-130E's. The C-130J incorporates state-of-the-art technology to reduce manpower requirements, lower operating and support costs, and provides life-cycle cost savings over earlier C-130 models. Compared to older C-130s, the J model climbs faster and higher, flies farther at a higher cruise speed, and takes off and lands in a shorter distance. The C-130J-30 is a stretch version, adding 15 feet to fuselage, increasing usable space in the cargo compartment.

C-130J/J-30 major system improvements include: advanced two-pilot flight station with fully integrated digital avionics; color multifunctional liquid crystal displays and head-up displays; state-of-the-art navigation systems with dual inertial navigation system and global positioning system; fully integrated defensive systems; low-power color radar; digital moving map display; new turboprop engines with six-bladed, all-composite propellers; digital auto pilot; improved fuel, environmental and ice-protection systems; and an enhanced cargo-handling system.

Background
Four decades have elapsed since the Air Force issued its original design specification, yet the remarkable C-130 remains in production. The initial production model was the C-130A, with four Allison T56-A-11 or -9 turboprops. A total of 219 were ordered and deliveries began in December 1956. The C-130B introduced Allison T56-A-7 turboprops and the first of 134 entered Air Force service in May 1959.

Introduced in August of 1962, the 389 C-130E's that were ordered used the same Allison T56-A-7 engine, but added two 1,290 gallon external fuel tanks and an increased maximum takeoff weight capability. June 1974 introduced the first of 308 C-130H's with the more powerful Allison T56-A-15 turboprop engine. Nearly identical to the C-130E externally, the new engine brought major performance improvements to the aircraft.

The latest C-130 to be produced, the C-130J entered the inventory in February 1999. With the noticeable difference of a six-bladed composite propeller coupled to a Rolls-Royce AE2100D3 turboprop engine, the C-130J brings substantial performance improvements over all previous models, and has allowed the introduction of the C-130J-30, a stretch version with a 15-foot fuselage extension. To date, the Air Force has taken delivery of 68 C-130J aircraft from Lockheed Martin Aeronautics Company.

Active-duty locations for the C-130 and its variations are Dyess Air Force Base, Texas; Little Rock AFB, Ark.; Ramstein Air Base, Germany; and Yokota AB, Japan.

Air Force Reserve locations for assigned C-130 models are Dobbins Air Reserve Base, Ga.; Keesler AFB, Miss.; Maxwell AFB, Ala.; Minnesota-St. Paul Joint Air Reserve Station, Minn.; Niagara Falls ARS, N.Y.; Peterson AFB, Colo.; Pittsburgh ARS, Pa.; Pope AFB, N.C. and Youngstown ARS, Ohio.

Air National Guard locations for C-130 and its variations are Baltimore (Martin State Airport), Md.; Boise Air Terminal, Idaho; Joint Reserve Base Carswell, Texas; Channel Island Air National Guard Station, Calif.; Charlotte/Douglas International Airport, N.C.; Cheyenne Municipal Airport, Wyo.; Kulis Air National Guard Base , Alaska; Little Rock AFB, Ark.; Louisville IAP, Ky.; Munoz ANGB, Puerto Rico; Mansfield Lahm Airport, Ohio; Minnesota-St. Paul ARS, Minn.; Nashville IAP, Tenn.; New Castle County ANGB, Del; Greater Peoria Regional Airport, Ill.; Quonset State Airport, R.I.; Reno-Tahoe IAP, Nev.; Savannah IAP, Ga.; Schenectady MAP, N.Y.; Rosecrans Memorial Airport, Mo.; and Yeager Airport, W.V.

General Characteristics
Primary Function: Global airlift
Contractor: Lockheed Martin Aeronautics Company
Power Plant:
C-130E: Four Allison T56-A-7 turboprops; 4,200 prop shaft horsepower
C-130H: Four Allison T56-A-15 turboprops; 4,591prop shaft horsepower
C-130J: Four Rolls-Royce AE 2100D3 turboprops; 4,700 horsepower
Length: C-130E/H/J: 97 feet, 9 inches (29.3 meters)
C-130J-30: 112 feet, 9 inches (34.69 meters)
Height: 38 feet, 10 inches (11. 9 meters)
Wingspan: 132 feet, 7 inches (39.7 meters)
Cargo Compartment:
C-130E/H/J: length, 40 feet (12.31 meters); width, 119 inches (3.12 meters); height, 9 feet (2.74 meters). Rear ramp: length, 123 inches (3.12 meters); width, 119 inches (3.02 meters)
C-130J-30: length, 55 feet (16.9 meters); width, 119 inches (3.12 meters); height, 9 feet (2.74 meters). Rear ramp: length, 123 inches (3.12 meters); width, 119 inches (3.02 meters)
Speed:
C-130E: 345 mph/300 ktas (Mach 0.49) at 20,000 feet (6,060 meters)
C-130H: 366 mph/318 ktas (Mach 0.52) at 20,000 feet (6,060 meters)
C-130J: 417 mph/362 ktas (Mach 0.59) at 22,000 feet (6,706 meters)
C-130J-30: 410 mph/356 ktas (Mach 0.58) at 22,000 feet (6,706 meters)

Ceiling:
C-130J: 28,000 feet (8,615 meters) with 42,000 pounds (19,090 kilograms) payload
C-130J-30: 26,000 feet (8,000 meters) with 44,500 pounds (20,227 kilograms) payload.
C-130H: 23,000 feet (7,077 meters) with 42,000 pounds (19,090 kilograms) payload.
C-130E: 19,000 feet (5,846 meters) with 42,000 pounds (19,090 kilograms) payload
Maximum Takeoff Weight:
C-130E/H/J: 155,000 pounds (69,750 kilograms)
C-130J-30: 164,000 pounds (74,393 kilograms)
Maximum Allowable Payload:
C-130E, 42,000 pounds (19,090 kilograms)
C-130H, 42,000 pounds (19,090 kilograms)
C-130J, 42,000 pounds (19,090 kilograms)
C-130J-30, 44,000 (19,958 kilograms)
Maximum Normal Payload:
C-130E, 36,500 pounds (16,590 kilograms)
C-130H, 36,500 pounds (16,590 kilograms)
C-130J, 34,000 pounds (15,422 kilograms)
C-130J-30, 36,000 pounds (16,329 kilograms)
Range at Maximum Normal Payload:
C-130E, 1,150 miles (1,000 nautical miles)
C-130H, 1,208 miles (1,050 nautical miles)
C-130J, 2,071 miles (1,800 nautical miles)
C-130J-30, 1,956 miles (1,700 nautical miles)
Range with 35,000 pounds of Payload:
C-130E, 1,438 miles (1,250 nautical miles)
C-130H, 1,496 miles (1,300 nautical miles)
C-130J, 1,841 miles (1,600 nautical miles)
C-130J-30, 2,417 miles (2,100 nautical miles)
Maximum Load:
C-130E/H/J: 6 pallets or 74 litters or 16 CDS bundles or 92 combat troops or 64 paratroopers, or a combination of any of these up to the cargo compartment capacity or maximum allowable weight.
C-130J-30: 8 pallets or 97 litters or 24 CDS bundles or 128 combat troops or 92 paratroopers, or a combination of any of these up to the cargo compartment capacity or maximum allowable weight.
Crew: C-130E/H: Five (two pilots, navigator, flight engineer and loadmaster)
C-130J/J-30: Three (two pilots and loadmaster)
Aeromedical Evacuation Role: A basic crew of five (two flight nurses and three medical technicians) is added for aeromedical evacuation missions. Medical crew may be decreased or increased as required by the needs of patients.
Unit Cost: C-130E, $11.9, C-130H, $30.1, C-130J, $48.5 (FY 1998 constant dollars in millions)
Date Deployed: C-130A, Dec 1956; C-130B, May 1959; C-130E, Aug 1962; C-130H, Jun 1974; C-130J, Feb 1999
Inventory: Active force, 145; Air National Guard, 181; Air Force Reserve, 102

Point of Contact
Air Mobility Command, Public Affairs Office; 503 Ward Drive Ste 214, Scott AFB, IL 62225-5335, DSN 779-7821 or 618-229-7821.

FACT SHEET

U.S. Air Force Fact Sheet

F-15 EAGLE

Mission

The F-15 Eagle is an all-weather, extremely maneuverable, tactical fighter designed to permit the Air Force to gain and maintain air supremacy over the battlefield.

Features

The Eagle's air superiority is achieved through a mixture of unprecedented maneuverability and acceleration, range, weapons and avionics. It can penetrate enemy defense and outperform and outfight any current enemy aircraft. The F-15 has electronic systems and weaponry to detect, acquire, track and attack enemy aircraft while operating in friendly or enemy-controlled airspace. The weapons and flight control systems are designed so one person can safely and effectively perform air-to-air combat.

The F-15's superior maneuverability and acceleration are achieved through high engine thrust-to-weight ratio and low wing loading. Low wing-loading (the ratio of aircraft weight to its wing area) is a vital factor in maneuverability and, combined with the high thrust-to-weight ratio, enables the aircraft to turn tightly without losing airspeed.

A multimission avionics system sets the F-15 apart from other fighter aircraft. It includes a head-up display, advanced radar, inertial navigation system, flight instruments, ultrahigh frequency communications, tactical navigation system and instrument landing system. It also has an internally mounted, tactical electronic-warfare system, "identification friend or foe" system, electronic countermeasures set and a central digital computer.

The pilot's head-up display projects on the windscreen all essential flight information gathered by the integrated avionics system. This display, visible in any light condition, provides information necessary to track and destroy an enemy aircraft without having to look down at cockpit instruments.

The F-15's versatile pulse-Doppler radar system can look up at high-flying targets and down at low-flying targets without being confused by ground clutter. It can detect and track aircraft and small high-speed targets at distances beyond visual range down to close range, and at altitudes down to treetop level. The radar feeds target information into the central computer for effective weapons delivery. For close-in dogfights, the radar automatically acquires enemy aircraft, and this information is projected on the head-up display. The F-15's electronic warfare system provides both threat warning and automatic countermeasures against selected threats.

A variety of air-to-air weaponry can be carried by the F-15. An automated weapon system enables the pilot to perform aerial combat safely and effectively, using the head-up display and the avionics and weapons controls located on the engine throttles or control stick. When the pilot changes from one weapon system to another, visual guidance for the required weapon

automatically appears on the head-up display.

The Eagle can be armed with combinations of different air-to-air weapons: AIM-120 advanced medium range air-to-air missiles on its lower fuselage corners, AIM-9L/M Sidewinder or AIM-120 missiles on two pylons under the wings, and an internal 20mm Gatling gun in the right wing root.

The F-15E is a two-seat, dual-role, totally integrated fighter for all-weather, air-to-air and deep interdiction missions. The rear cockpit is upgraded to include four multi-purpose CRT displays for aircraft systems and weapons management. The digital, triple-redundant Lear Siegler flight control system permits coupled automatic terrain following, enhanced by a ring-laser gyro inertial navigation system.

For low-altitude, high-speed penetration and precision attack on tactical targets at night or in adverse weather, the F-15E carries a high-resolution APG-70 radar and low-altitude navigation and targeting infrared for night pods

Background
The first F-15A flight was made in July 1972, and the first flight of the two-seat F-15B (formerly TF-15A) trainer was made in July 1973. The first Eagle (F-15B) was delivered in November 1974. In January 1976, the first Eagle destined for a combat squadron was delivered.

The single-seat F-15C and two-seat F-15D models entered the Air Force inventory beginning in 1979. These new models have Production Eagle Package (PEP 2000) improvements, including 2,000 pounds (900 kilograms) of additional internal fuel, provision for carrying exterior conformal fuel tanks and increased maximum takeoff weight of up to 68,000 pounds (30,600 kilograms).

The F-15 Multistage Improvement Program was initiated in February 1983, with the first production MSIP F-15C produced in 1985. Improvements included an upgraded central computer; a Programmable Armament Control Set, allowing for advanced versions of the AIM-7, AIM-9, and AIM-120A missiles; and an expanded Tactical Electronic Warfare System that provides improvements to the ALR-56C radar warning receiver and ALQ-135 countermeasure set. The final 43 included a Hughes APG-70 radar.

F-15C, D and E models were deployed to the Persian Gulf in 1991 in support of Operation Desert Storm where they proved their superior combat capability. F-15C fighters accounted for 34 of the 37 Air Force air-to-air victories. F-15E's were operated mainly at night, hunting SCUD missile launchers and artillery sites using the LANTIRN system.

They have since been deployed for air expeditionary force deployments and operations Southern Watch (no-fly zone in Southern Iraq), Provide Comfort in Turkey, Allied Force in Bosnia, Enduring Freedom in Afghanistan and Iraqi Freedom in Iraq.

General Characteristics
Primary function: Tactical fighter
Contractor: McDonnell Douglas Corp.
Power plant: Two Pratt & Whitney F100-PW-100, 220 or 229 turbofan engines with afterburners
Thrust: (C/D models) 23,450 pounds each engine
Wingspan: 42.8 feet (13 meters)
Length: 63.8 feet (19.44 meters)
Height: 18.5 feet (5.6 meters)
Weight: 31,700 pounds
Maximum takeoff weight: (C/D models) 68,000 pounds (30,844 kilograms)
Fuel Capacity: 36,200 pounds (three external plus conformal fuel tanks)
Payload: depends on mission
Speed: 1,875 mph (Mach 2 class)
Ceiling: 65,000 feet (19,812 meters)
Range: 3,450 miles (3,000 nautical miles) ferry range with conformal fuel tanks and three

external fuel tanks
Crew: F-15A/C: one. F-15B/D/E: two
Armament: One internally mounted M-61A1 20mm 20-mm, six-barrel cannon with 940 rounds of ammunition; four AIM-9 Sidewinder and four AIM-120 AMRAAMs or eight AIM-120 AMRAAMs, carried externally.
Unit Cost: A/B models - $27.9 million (fiscal 98 constant dollars);**C/D models** - $29.9 million (fiscal 98 constant dollars)
Initial operating capability: September 1975
Inventory: Total force, 522

Point of Contact
Air Combat Command, Public Affairs Office; 130 Andrews St., Suite 213; Langley AFB, VA 23665-1987; DSN 574-5007 or 757-764-5007; e-mail: accpa.operations@langley.af.mil

FACT SHEET

U.S. Air Force Fact Sheet

F-16 FIGHTING FALCON

Mission

The F-16 Fighting Falcon is a compact, multi-role fighter aircraft. It is highly maneuverable and has proven itself in air-to-air combat and air-to-surface attack. It provides a relatively low-cost, high-performance weapon system for the United States and allied nations.

Features

In an air combat role, the F-16's maneuverability and combat radius (distance it can fly to enter air combat, stay, fight and return) exceed that of all potential threat fighter aircraft. It can locate targets in all weather conditions and detect low flying aircraft in radar ground clutter. In an air-to-surface role, the F-16 can fly more than 500 miles (860 kilometers), deliver its weapons with superior accuracy, defend itself against enemy aircraft, and return to its starting point. An all-weather capability allows it to accurately deliver ordnance during non-visual bombing conditions.

In designing the F-16, advanced aerospace science and proven reliable systems from other aircraft such as the F-15 and F-111 were selected. These were combined to simplify the airplane and reduce its size, purchase price, maintenance costs and weight. The light weight of the fuselage is achieved without reducing its strength. With a full load of internal fuel, the F-16 can withstand up to nine G's -- nine times the force of gravity -- which exceeds the capability of other current fighter aircraft.

The cockpit and its bubble canopy give the pilot unobstructed forward and upward vision, and greatly improved vision over the side and to the rear. The seat-back angle was expanded from the usual 13 degrees to 30 degrees, increasing pilot comfort and gravity force tolerance. The pilot has excellent flight control of the F-16 through its "fly-by-wire" system. Electrical wires relay commands, replacing the usual cables and linkage controls. For easy and accurate control of the aircraft during high G-force combat maneuvers, a side stick controller is used instead of the conventional center-mounted stick. Hand pressure on the side stick controller sends electrical signals to actuators of flight control surfaces such as ailerons and rudder.

Avionics systems include a highly accurate enhanced global positioning and inertial navigation systems, or EGI, in which computers provide steering information to the pilot. The plane has UHF and VHF radios plus an instrument landing system. It also has a warning system and modular countermeasure pods to be used against airborne or surface electronic threats. The fuselage has space for additional avionics systems.

Background

The F-16A, a single-seat model, first flew in December 1976. The first operational F-16A was delivered in January 1979 to the 388th Tactical Fighter Wing at Hill Air Force Base, Utah.

The F-16B, a two-seat model, has tandem cockpits that are about the same size as the one in the A model. Its bubble canopy extends to cover the second cockpit. To make room for the second cockpit, the forward fuselage fuel tank and avionics growth space were reduced. During training, the forward cockpit is used by a student pilot with an instructor pilot in the rear cockpit.

All F-16s delivered since November 1981 have built-in structural and wiring provisions and systems architecture that permit expansion of the multirole flexibility to perform precision strike, night attack and beyond-visual-range interception missions. This improvement program led to the F-16C and F-16D aircraft, which are the single- and two-place counterparts to the F-16A/B, and incorporate the latest cockpit control and display technology. All active units and many Air National Guard and Air Force Reserve units have converted to the F-16C/D.

The F-16 was built under an unusual agreement creating a consortium between the United States and four NATO countries: Belgium, Denmark, the Netherlands and Norway. These countries jointly produced with the United States an initial 348 F-16s for their air forces. Final airframe assembly lines were located in Belgium and the Netherlands. The consortium's F-16s are assembled from components manufactured in all five countries. Belgium also provides final assembly of the F100 engine used in the European F-16s. Recently, Portugal joined the consortium. The long-term benefits of this program will be technology transfer among the nations producing the F-16, and a common-use aircraft for NATO nations. This program increases the supply and availability of repair parts in Europe and improves the F-16's combat readiness.

USAF F-16 multirole fighters were deployed to the Persian Gulf in 1991 in support of Operation Desert Storm, where more sorties were flown than with any other aircraft. These fighters were used to attack airfields, military production facilities, Scud missiles sites and a variety of other targets.

During Operation Allied Force, USAF F-16 multirole fighters flew a variety of missions to include suppression of enemy air defense, offensive counter air, defensive counter air, close air support and forward air controller missions. Mission results were outstanding as these fighters destroyed radar sites, vehicles, tanks, MiGs and buildings.

Since Sept. 11, 2001, the F-16 has been a major component of the combat forces committed to the Global War on Terrorism flying thousands of sorties in support of operations Noble Eagle (Homeland Defense), Enduring Freedom in Afghanistan and Iraqi Freedom

General Characteristics
Primary Function: Multirole fighter
Contractor: Lockheed Martin Corp.
Power Plant: F-16C/D: one Pratt and Whitney F100-PW-200/220/229 or General Electric F110-GE-100/129
Thrust: F-16C/D, 27,000 pounds
Wingspan: 32 feet, 8 inches (9.8 meters)
Length: 49 feet, 5 inches (14.8 meters)
Height: 16 feet (4.8 meters)
Weight: 19,700 pounds without fuel (8,936 kilograms)
Maximum Takeoff Weight: 37,500 pounds (16,875 kilograms)
Fuel Capacity: 7,000 pounds internal (3,175 kilograms); typical capacity, 12,000 pounds with two external tanks (5443 kilograms)
Payload: Two 2,000-pound bombs, two AIM-9 and 1,040-gallon external tanks
Speed: 1,500 mph (Mach 2 at altitude)
Range: More than 2,002 miles ferry range (1,740 nautical miles)
Ceiling: Above 50,000 feet (15 kilometers)
Armament: One M-61A1 20mm multibarrel cannon with 500 rounds; external stations can carry up to six air-to-air missiles, conventional air-to-air and air-to-surface munitions and electronic countermeasure pods
Crew: F-16C, one; F-16D, one or two
Unit cost: F-16A/B , $14.6 million (fiscal 98 constant dollars); **F-16C/D,**$18.8 million (fiscal 98

constant dollars)
Initial operating capability: F-16A, January 1979; F-16C/D Block 25-32, 1981; F-16C/D Block 40-42, 1989; and F-16C/D Block 50-52, 1994
Inventory: Total force, F-16C/D, 1,280

Point of Contact
Air Combat Command, Public Affairs Office; 130 Andrews St., Suite 202; Langley AFB, VA 23665-1987; DSN 574-5007 or 757-764-5007; e-mail: accpa.operations@langley.af.mil

FACT SHEET

U.S. Air Force Fact Sheet

F-22 RAPTOR

Mission

The F-22 Raptor is the Air Force's newest fighter aircraft. Its combination of stealth, supercruise, maneuverability, and integrated avionics, coupled with improved supportability, represents an exponential leap in warfighting capabilities. The Raptor performs both air-to-air and air-to-ground missions allowing full realization of operational concepts vital to the 21st century Air Force.

The F-22, a critical component of the Global Strike Task Force, is designed to project air dominance, rapidly and at great distances and defeat threats attempting to deny access to our nation's Air Force, Army, Navy and Marine Corps. The F-22 cannot be matched by any known or projected fighter aircraft.

Features

A combination of sensor capability, integrated avionics, situational awareness, and weapons provides first-kill opportunity against threats. The F-22 possesses a sophisticated sensor suite allowing the pilot to track, identify, shoot and kill air-to-air threats before being detected. Significant advances in cockpit design and sensor fusion improve the pilot's situational awareness. In the air-to-air configuration the Raptor carries six AIM-120 AMRAAMs and two AIM-9 Sidewinders.

The F-22 has a significant capability to attack surface targets. In the air-to-ground configuration the aircraft can carry two 1,000-pound GBU-32 Joint Direct Attack Munitions internally and will use on-board avionics for navigation and weapons delivery support. In the future air-to-ground capability will be enhanced with the addition of an upgraded radar and up to eight small diameter bombs. The Raptor will also carry two AIM-120s and two AIM-9s in the air-to-ground configuration.

Advances in low-observable technologies provide significantly improved survivability and lethality against air-to-air and surface-to-air threats. The F-22 brings stealth into the day, enabling it not only to protect itself but other assets.

The F-22 engines produce more thrust than any current fighter engine. The combination of sleek aerodynamic design and increased thrust allows the F-22 to cruise at supersonic airspeeds (greater than 1.5 Mach) without using afterburner -- a characteristic known as supercruise. Supercruise greatly expands the F-22 's operating envelope in both speed and range over current fighters, which must use fuel-consuming afterburner to operate at supersonic speeds.

The sophisticated F-22 aerodesign, advanced flight controls, thrust vectoring, and high thrust-to-weight ratio provide the capability to outmaneuver all current and projected aircraft. The F-22 design has been extensively tested and refined aerodynamically during the development

process.

The F-22's characteristics provide a synergistic effect ensuring F-22A lethality against all advanced air threats. The combination of stealth, integrated avionics and supercruise drastically shrinks surface-to-air missile engagement envelopes and minimizes enemy capabilities to track and engage the F-22 . The combination of reduced observability and supercruise accentuates the advantage of surprise in a tactical environment.

The F-22 will have better reliability and maintainability than any fighter aircraft in history. Increased F-22 reliability and maintainability pays off in less manpower required to fix the aircraft and the ability to operate more efficiently.

Background
The Advanced Tactical Fighter entered the Demonstration and Validation phase in 1986. The prototype aircraft (YF-22 and YF-23) both completed their first flights in late 1990. Ultimately the YF-22 was selected as best of the two and the engineering and manufacturing development effort began in 1991 with development contracts to Lockheed/Boeing (airframe) and Pratt & Whitney (engines). EMD included extensive subsystem and system testing as well as flight testing with nine aircraft at Edwards Air Force Base, Calif. The first EMD flight was in 1997 and at the completion of its flight test life this aircraft was used for live-fire testing.

The program received approval to enter low rate initial production in 2001. Initial operational and test evaluation by the Air Force Operational Test and Evaluation Center was successfully completed in 2004. Based on maturity of design and other factors the program received approval for full rate production in 2005. Air Education and Training Command, Air Combat Command and Pacific Air Forces are the primary Air Force organizations flying the F-22. The aircraft designation was the F/A-22 for a short time before being renamed F-22A in December 2005.

General Characteristics
Primary Function: Air dominance, multi-role fighter
Contractor: Lockheed-Martin, Boeing
Power Plant: Two Pratt & Whitney F119-PW-100 turbofan engines with afterburners and two-dimensional thrust vectoring nozzles.
Thrust: 35,000-pound class (each engine)
Wingspan: 44 feet, 6 inches (13.6 meters)
Length: 62 feet, 1 inch (18.9 meters)
Height: 16 feet, 8 inches (5.1 meters)
Weight: 43,340 pounds (19,700 kilograms)
Maximum Takeoff Weight: 83,500 pounds (38,000 kilograms)
Fuel Capacity: Internal: 18,000 pounds (8,200 kilograms); with 2 external wing fuel tanks: 26,000 pounds (11,900 kilograms)
Payload: Same as armament air-to-air or air-to-ground loadouts; with or without 2 external wing fuel tanks.
Speed: Mach 2 class with supercruise capability
Range: More than 1,850 miles ferry range with 2 external wing fuel tanks (1,600 nautical miles)
Ceiling: Above 50,000 feet (15 kilometers)
Armament: One M61A2 20-millimeter cannon with 480 rounds, internal side weapon bays carriage of two AIM-9 infrared (heat seeking) air-to-air missiles and internal main weapon bays carriage of six AIM-120 radar-guided air-to-air missiles (air-to-air loadout) or two 1,000-pound GBU-32 JDAMs and two AIM-120 radar-guided air-to-air missiles (air-to-ground loadout)
Crew: One
Unit Cost: $143 million
Initial operating capability: December 2005
Inventory: Total force, 137

Point of Contact
Air Combat Command, Public Affairs Office; 130 Andrews St., Suite 202; Langley AFB, VA 23665-1987; DSN 574-5007 or 757-764-5007; e-mail: accpa.operations@langley.af.mil

APPENDIX C
CHARACTERISTICS OF CHAFF

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APPENDIX C CHARACTERISTICS OF CHAFF

Defensive countermeasures are used by military aircraft during training in response to simulated threats. Chaff is a self-protection device that permits an aircraft threatened by enemy radar-directed munitions to distract and/or avoid the threat.

Chaff consists of extremely small strands (or dipoles) of an aluminum-coated crystalline silica core. When released from an aircraft, chaff initially forms a sphere, then disperses in the air and eventually drifts to the ground. The chaff effectively reflects radar signals in various bands (depending on the length of the chaff fibers) and forms a very large image or electronic "cloud" of reflected signals on a radar screen. When the aircraft is obscured from radar detection by the cloud, the aircraft can safely maneuver or leave an area.

Chaff is made as small and light as possible so that it will remain in the air long enough to confuse enemy radar. The chaff fibers are thinner than a human hair (i.e., generally 25.4 microns in diameter), and range in length from 0.3 to over 1 inch. The weight of chaff material in the RR-170 or RR-188 cartridge is approximately 95 grams or 3.35 ounces (United States Air Force [Air Force] 1997). Since chaff can obstruct radar, its use is coordinated with the Federal Aviation Administration (FAA). RR-170 and RR-188 chaff are the same size. RR-188 chaff has D and E band dipoles removed to avoid interference with FAA radar. RR-170 chaff dipoles are cut to disguise the aircraft and produce a more realistic training experience in threat avoidance.

1.0 CHAFF CHARACTERISTICS

Chaff is comprised of silica, aluminum, and stearic acid, which are generally prevalent in the environment. Silica (silicon dioxide) belongs to the most common mineral group, silicate minerals. Silica is inert in the environment and does not present an environmental concern with respect to soil chemistry. Aluminum is the third most abundant element in the earth's crust, forming some of the most common minerals, such as feldspars, micas, and clays. Natural soil concentrations of aluminum ranging from 10,000 to 300,000 parts per million have been documented (Lindsay 1979). These levels vary depending on numerous environmental factors, including climate, parent rock materials from which the soils were formed, vegetation, and soil moisture alkalinity/acidity. The solubility of aluminum is greater in acidic and highly alkaline soils than in neutral pH conditions. Aluminum eventually oxidizes to Al_2O_3 (aluminum oxide) over time, depending on its size and form and the environmental conditions.

The chaff fibers have an anti-clumping agent (Neofat – 90 percent stearic acid and 10 percent palmitic acid) to assist with rapid dispersal of the fibers during deployment (Air Force 1997). Stearic acid is an animal fat that degrades when exposed to light and air.

A single bundle of chaff consists of the chaff fibers in an 8-inch long rectangular tube or cartridge, a plastic piston, a cushioned spacer, and two plastic end caps (1/8-inch thick, 1-inch x 1-inch or 1-inch x 2-inch). The chaff dispenser remains in the aircraft. The plastic end caps and spacer fall to the ground when chaff is dispensed. The spacer is a spongy material (felt) designed to absorb the force of release. Figure C-1 illustrates the components of a chaff cartridge. Table C-1 lists the components of the silica core and the aluminum coating. Table C-2 presents the characteristics of RR-188 or RR-170 chaff.

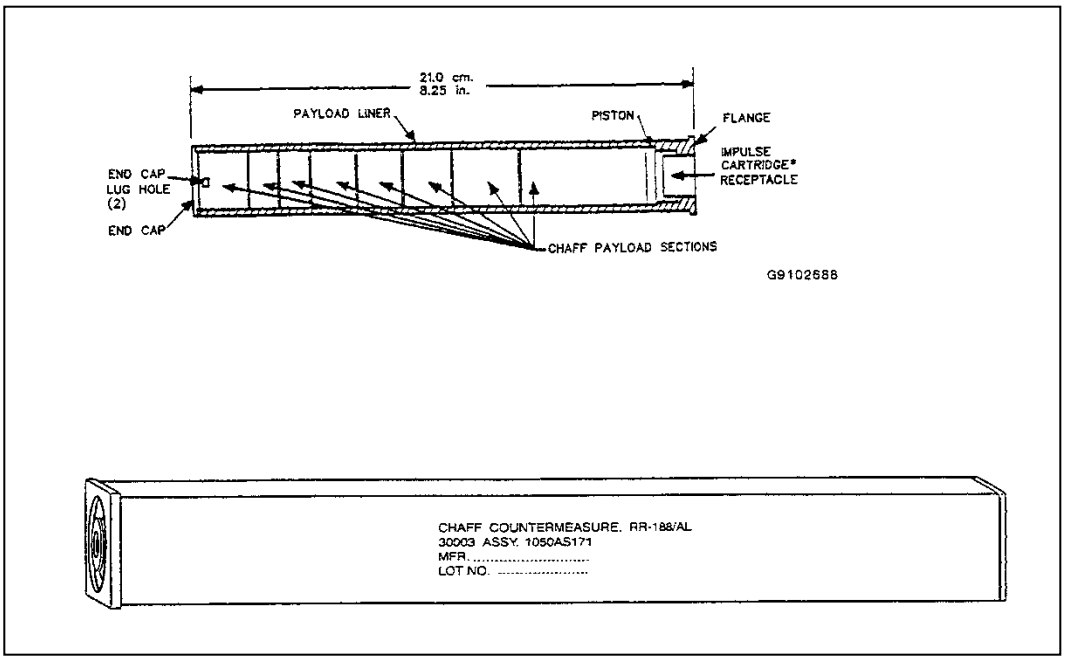

Figure C-1. RR-188 or RR-170 Chaff Cartridge

Table C-1. Components of RR-188 or RR-170 Chaff

Element	*Chemical Symbol*	*Percent (by weight)*
Silica Core		
Silicon dioxide	SiO_2	52-56
Aluminum Oxide	Al_2O_3	12-16
Calcium Oxide and Magnesium Oxide	CaO and MgO	16-25
Boron Oxide	B_2O_3	8-13
Sodium Oxide and Potassium Oxide	Na_2O and K_2O	1-4
Iron Oxide	Fe_2O_3	1 or less
Aluminum Coating (Typically Alloy 1145)		
Aluminum	Al	99.45 minimum
Silicon and Iron	Si and Fe	0.55 maximum
Copper	Cu	0.05 maximum
Manganese	Mn	0.05 maximum
Magnesium	Mg	0.05 maximum
Zinc	Zn	0.05 maximum
Vanadium	V	0.05 maximum
Titanium	Ti	0.03 maximum
Others		0.03 maximum

Source: Air Force 1997

Table C-2. Characteristics of RR-188 or RR-170 Chaff

Attribute	*RR-188 or RR-170*
Composition	Aluminum coated silica
Ejection Mode	Pyrotechnic
Configuration	Rectangular tube cartridge
Size	8 x 1 x 1 inches (8 cubic inches)
Number of Dipoles	5.46 million
Dipole Size (cross-section)	1 mil (diameter)
Impulse Cartridge	BBU-35/B
Other Comments	Cartridge stays in aircraft; less interference with FAA radar (no D and E bands)

Source: Air Force 1997

The B-1 uses RR-170 A/AL chaff. Figure C-2 is a photograph of an open RR-170 chaff cartridge with all the pieces. RR-170 A/AL has the same material as the RR-188 chaff cartridge. The RR-170 A/AL has chaff dipoles cut differently from the RR-188 chaff. RR-188 chaff was originally used for tracking because the dipole did not interfere with FAA radars, but newer radars can now also detect RR-188 chaff.

The B-52 uses RR-112/AC chaff which is not deployed from a cartridge. RR-112/AC chaff comes in rolls which are like the chaff in Figure C-2. The rolls are in a box which is installed in the B-52. A mechanical system then measures out the chaff to form a brief electronic cloud to mask the B-52 from radar threats.

The F-22 uses the same chaff material in a slightly different chaff cartridge to expedite clean ejection of the chaff. The chaff cartridge design is less likely to leave debris of any kind in the dispenser bay yet still provides robust chaff dispensing. F-22 delayed-opening chaff is packaged in two sets of soft packs that retain approximately the same number of dipoles per cut as RR-170 chaff. The differences are two end caps and six parchment paper wraps that facilitate deployment. Two end caps, two pistons, six approximately 2-inch by 4-inch paper pieces, and chaff fibers fall to the ground with each chaff cartridge deployed. Other aircraft participating in LFE training discharge comparable chaff fibers and similar residual pieces to those described for RR-170 chaff.

2.0 CHAFF EJECTION

Chaff is ejected from aircraft pyrotechnically using a BBU-35/B impulse cartridge. Pyrotechnic ejection uses hot gases generated by an explosive impulse charge. The gases push the small piston down the chaff-filled tube. A small plastic end cap is ejected, followed by the chaff fibers, and, in the case of F-22 chaff, three mylar pieces. The plastic tube remains within the aircraft. Debris from the ejection consists of two small, square pieces of plastic 1/8-inch thick (i.e., the piston and the end cap), three mylar strips, and the felt spacer. Table C-3 lists the characteristics of BBU-35/B impulse cartridges used to pyrotechnically eject chaff.

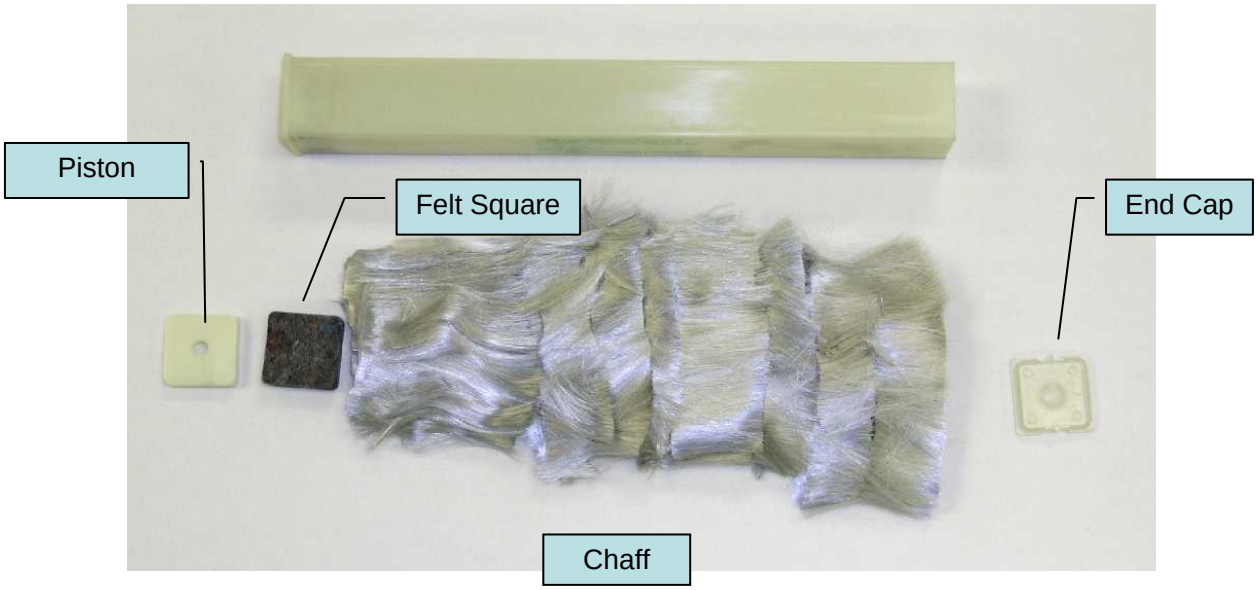

Figure C-2. RR-170 A/AL Chaff

Table C-3. BBU-35/B Impulse Charges Used to Eject Chaff

Component	*BBU-35/B*
Overall Size Overall Volume Total Explosive Volume	0.625 inches x 0.530 inches 0.163 inches^3 0.034 inches^3
Bridgewire	Trophet A 0.0025 inches x 0.15 inches
Initiation Charge	0.008 cubic inches 130 mg 7,650 psi boron 20% potassium perchlorate 80% *
Booster Charge	0.008 cubic inches 105 mg 7030 psi boron 18% potassium nitrate 82%
Main Charge	0.017 cubic inches 250 mg loose fill RDX ** pellets 38.2% potassium perchlorate 30.5% boron 3.9% potassium nitrate 15.3% super floss 4.6% Viton A 7.6%

Source: Air Force 1997

Upon release from an aircraft, chaff forms a cloud approximately 30 meters in diameter in less than one second under normal conditions. Quality standards for chaff cartridges require that they demonstrate ejection of 98 percent of the chaff in undamaged condition, with a reliability of 95 percent at a 95 percent confidence level. They must also be able to withstand a variety of environmental conditions that might be encountered during storage, shipment, and operation. The net result is that chaff is normally manufactured to tolerance levels in excess of 99 percent reliability.

Table C-4 lists performance requirements for chaff.

Table C-4. Performance Requirements for Chaff

Condition	*Performance Requirement*	
High Temperature	Up to +165 degrees Fahrenheit	
Low Temperature	Down to –65 °F	
Temperature Shock	Shock from –70 °F to +165 °F	
Temperature Altitude	Combined temperature altitude conditions up to 70,000 feet	
Humidity	Up to 95 percent relative humidity	
Sand and Dust	Sand and dust encountered in desert regions subject to high sand dust conditions and blowing sand and dust particles	
Accelerations/Axis	G-Level	Time (minute)
Transverse-Left (X)	9.0	1
Transverse-Right (-X)	3.0	1
Transverse (Z)	4.5	1
Transverse (-Z)	13.5	1
Lateral-Aft (-Y)	6.0	1
Lateral-Forward (Y)	6.0	1
Shock (Transmit)	Shock encountered during aircraft flight	
Vibration	Vibration encountered during aircraft flight	
Free Fall Drop	Shock encountered during unpackaged item drop	
Vibration (Repetitive)	Vibration encountered during rough handling of packaged item	
Three Foot Drop	Shock encountered during rough handling of packaged item	

Note: Cartridge must be capable of total ejection of chaff from the cartridge liner under these conditions.
Source: Air Force 1997

3.0 POLICIES AND REGULATIONS ON CHAFF USE

Current Air Force policy on use of chaff and flares was established by the Airspace Subgroup of Headquarters Air Force Flight Standards Agency in 1993. It requires units to obtain frequency clearance

from the Air Force Frequency Management Center and the FAA prior to using chaff to ensure that training with chaff is conducted on a non-interference basis. This ensures electromagnetic compatibility between the FAA, the Federal Communications Commission, and Department of Defense (DoD) agencies. The Air Force does not place any restrictions on the use of chaff provided those conditions are met (Air Force 1997).

Air Force Instruction (AFI) 13-201, U.S. Air Force Airspace Management, September 2001. This guidance establishes practices to decrease disturbance from flight operations that might cause adverse public reaction. It emphasizes the Air Force's responsibility to ensure that the public is protected to the maximum extent practicable from hazards and effects associated with flight operations.

AFI 11-214 Air Operations Rules and Procedures, December 2005. This instruction delineates procedures for chaff and flare use. It prohibits use unless in an approved area.

4.0 ENVIRONMENTAL EFFECTS OF CHAFF

The potential for effects of chaff deposition and fragmentation in the environment has been of interest to agencies and the public. There has also been interest by land management agencies in the military use of chaff. This interest is largely driven by concern that the fragmentation of chaff fibers was not documented. Does chaff begin breaking down almost immediately following ejection? Does it become small enough to be inhaled by man or by wildlife? Conversely, if the chaff does not fragment, could chaff particles be ingested by livestock or wildlife? What would be the environmental effects of chaff particles?

A variety of studies on the effects of chaff have been conducted over the past 40 years for the Army, Navy, Air Force, National Guard Bureau, and Canadian Forces Headquarters (Government Accountability Office [GAO] 1998). The focus of these studies ranged from effects on livestock from ingestion of chaff (Canada Department of Agriculture 1972) to environmental impacts from the deposition of chaff fibers on marine and terrestrial ecosystems (Air Force 1997). In the early 1990s, ACC prepared a study on the known environmental consequences of chaff and other defensive measures (Air Force 1997). None of the studies demonstrated significant environmental effects of chaff.

In response to continuing concern on the part of private citizens with the military's use of chaff, Senator Harry Reid (Nevada) requested that the GAO conduct an independent evaluation of chaff use. The subsequent GAO report (1998) acknowledged that citizens and various public interest groups continued to express concerns of potentially harmful or undesirable effects of chaff on the environment. The report recommended that the Secretaries of the Air Force, Army, and Navy determine the merits of open questions made in previous chaff reports and whether additional actions are needed to address them.

4.1 ATMOSPHERIC EFFECTS

The DoD engaged a "Select Blue Ribbon Panel" of independent, non-government scientists to 1) review the environmental effects of radio frequency (RF) chaff used by the United States (U.S.) military; and 2) to make recommendations to decrease scientific uncertainty where significant environmental effects of RF chaff are possible. The report of the Blue Ribbon Panel (Spargo 1999) identified a variety of issues of interest, and included specific recommendations for the further evaluation of chaff use.

The fate of chaff fibers after release was of particular interest to the Blue Ribbon Panel. The panel requested additional data on the degree of chaff fragmentation and the potential for re-suspension of

chaff or chaff fragments in the natural environment. Two issues related to chaff fragmentation and re-suspension were identified (Spargo 1999).

> **Atmospheric effects:** What fraction of emitted chaff breaks up from mid-air turbulence into respirable particles?
>
> **Ground effects:** What fraction of chaff reaching the ground is subsequently abraded, re-suspended, and reduced to respirable sized particles?

An independent study on chaff fragmentation and re-suspension rates was initiated to evaluate these issues. *The Fate and Distribution of Radio-Frequency Chaff*, Desert Research Institute (DRI) was released on 1 April 2002. A parallel independent study also addressed chaff fragmentation and re-suspension (Cook 2002).

Both studies used atmospheric chaff fragmentation tests and a fluidized bed to simulate chaff fragmentation in the atmosphere. The ground chaff fragmentation tests used wind generation in a portable environmental chamber to simulate chaff fragmentation after it falls to the ground.

4.2 MID-AIR TURBULENCE EFFECTS

Chaff in the military training environment released at altitudes below 30,000 feet above ground level (AGL) are typically deposited on the ground within ten hours of formation (DRI 2002). Atmospheric fragmentation, which appears to occur, takes place within the first 2 hours of release, likely immediately after release, when the density of fibers within the cloud is at its greatest. The DRI findings suggest that in the simulated mid-air column, relatively little fragmentation occurs between 2 and 8 hours (DRI 2002).

The experimental data obtained from tests were not sufficiently robust to definitively conclude when most chaff fragmentation occurs. Most fragmentation could occur immediately upon ejection or within the first 2 hours after ejection. While chaff fragmentation in the DRI tests appeared to be minor, some fragmentation did occur, and there was some degree of formation of particles sufficiently small as to be considered respirable. Abrasion tests suggested that on the order of one part mass in 10^7 may be abraded to particulate matter less than 10 micrograms in diameter (PM_{10}) or smaller (DRI 2002). The data sampling and testing did result in a small fraction of chaff being converted to respirable particles. The data suggest that this is not a significant factor in the fate of training chaff in the mid-air column. DRI concluded that virtually none of the airborne chaff was degraded to respirable size particles of PM_{10} or less. Based on these tests, there is little environmental risk from airborne chaff abrading to respirable particles prior to the chaff being deposited on the surface.

4.3 SURFACE EFFECTS AND FRAGMENTATION

The 1998 GAO report recommended that the Secretaries of the Air Force, Army, and Navy determine the merits of open questions made in previous chaff reports and whether additional actions were needed to address them. The Select Blue-Ribbon Panel of independent, non-government scientists (Spargo 1999) identified a need for further investigation of the re-suspension of chaff and chaff fragments once deposited on the surface.

4.3.1 *GROUND SURFACE EFFECTS*

Following deposition on the ground, chaff is subjected to various physical processes that may break the individual fibers into fragments. Processes that may induce fragmentation on the ground include wind-driven re-suspension and deposition, wind-driven interaction with soils, wind-driven interaction with

plants, disturbance by animals, and vehicular traffic. Processes that may induce fragmentation on water include wind and wave action. Field studies on ground fragmentation were conducted to gain information on the relative importance of these processes and to address different test approaches to evaluate post-deposition fragmentation (DRI 2002; Cook 2002).

Results of these studies indicate that, once deposited on the ground, chaff undergoes rapid fragmentation. Typically between 5 and 10 percent of the chaff in these tests was reduced to particles less than 10 microns in length over a 2-hour period. In nature, assuming similar wind, soil interaction, and other processes are at work, it seems likely that most chaff would be reduced to fragments less than 10 microns within a matter of days of deposition. Chaff fragmentation on the ground surface is primarily wind driven. Increasing airflow in these studies resulted in increasing fragmentation. This suggests that higher wind levels in the ambient environment would lead to increased fragmentation (DRI 2002).

Baseline sampling results from this study indicated minimal chaff concentrations (1 microgram/square foot) in the soil of an area heavily utilized for military aircraft training using chaff. This may indicate extensive fragmentation and dispersal of chaff used for training purposes on the range. The naturally occurring materials that comprise chaff, wind driven turbulence, fragmentation, and dispersal of PM_{10} size particles provide a sufficient basis to explain this finding. In essence, chaff particles, once on the ground, appear to rapidly degrade and become indiscernible from ambient silica and aluminum soil materials (DRI 2002, Cook 2002).

4.3.2 *AQUATIC SURFACE AND SUBSTRATE EFFECTS*

Potential aquatic and marine effects of chaff have been of interest to both the Air Force and the Navy. Aquatic environments are sensitive to any chemicals released from any sources. The questions asked regarding chaff in an aquatic environment deal with the dissolution of the chaff in the water or marine environment, the potential resulting release of chemicals which could be mobile within the aquatic ecosystems, and the potential sensitivity of aquatic organisms to released chemicals (Farrell and Siciliano 2005). Although not specifically tested, chaff fragments in a marine environment would be subject to both wind and wave action. This suggests that chaff fragmentation in an aquatic marine environment would be similar to chaff fragmentation observed in ground fragmentation tests.

Chaff deposition on the water surface would be subject to physical factors and would be expected to become part of the underlying sediment. The Navy sponsored a series of studies to address the potential for chaff materials to concentrate in the sediment. An area in the Chesapeake Bay was identified as a location for Navy-sponsored studies. A series of studies were performed in the Chesapeake Bay to address whether chaff release was contributing to aluminum levels in the Chesapeake Bay (Wilson *et al.* 2001). An estimated 500 tons of chaff had been deposited over the bay during aircraft and Navy maneuvers for both research and training purposes from the mid-1970s to 1995. As part of the Wilson study, a series of sediment sampling locations were tested at various sampling depths to determine whether increased aluminum could be detected. A background sampling location at approximately the same depths was sampled in an area not subject to chaff deposition.

The studies found no significant difference in mean aluminum concentrations between the sediments that were from the control site and those taken from areas of heavy chaff use. The results did demonstrate some variation in the types of aluminum at the test and control locations. Inorganic monometric aluminum concentrations were significantly lower under the chaff use areas than in the background conditions. Mean concentrations of organic monometric aluminum were significantly higher in the sediment under the high chaff use area than in the control area. Exchangeable aluminum (AL_{EX}) represents aluminum bound to the soil by an electrostatic charge. AL_{EX} is a good indicator of soil

acidity and of the concentration of potential toxic aluminum present. AL_{EX} concentrations under the heavy chaff use area were numerically lower but not significantly different from those of the control area (Wilson *et al.* 2001).

Sediment sampling in the Chesapeake Bay area did not indicate that aluminum concentrations below the flight path were significantly increased as a result of chaff use. Aluminum concentrations in fish, plants, or other biota were not assessed in the sediment survey.

Aluminum is not known to accumulate to any great extent in most invertebrates under non-acid conditions. It is unlikely that much, if any, of the aluminum present as a result of chaff use would be available for uptake by aquatic plants, fish, or other biota. The conclusions reached by Wilson *et al.* suggested that deployment of chaff resulted in minimal but statistically significant increases in nontoxic aluminum in sediment under the flight path. Concentrations of aluminum of toxicological interest were significantly lower under the heavy chaff use area than in background sediment samples (Wilson *et al.* 2001).

Additional studies were conducted to evaluate the potential for chaff concentrations to be harmful to aquatic organisms. A Chesapeake Bay study by Systems Consultants for the U.S. Navy found no evidence that chaff was acutely toxic to six species of aquatic organisms (Arfsten *et al.* 2002). Concentrations of chaff between 10 to 100 times the exposure levels expected to be found in the Chesapeake Bay were placed in tanks containing a variety of aquatic organisms. American oysters, blue mussels, blue crab, and killifish were among the species tested. There was no significance in mortality as a result of exposure to concentrations of chaff of one to two orders of magnitude greater than expected chaff concentrations (Arfsten *et al.* 2002).

Chaff was not found to result in concentrations of aluminum which would produce environmental impacts in the Chesapeake Bay environment. Part of the reason for this may be that chaff is comprised of nearly entirely aluminum and silicate with some trace elements. Aluminum and silicate are the most common minerals in the earth's crust. Ocean waters are in constant exposure to crust materials, and there would be little reason to believe that the addition of small amounts of aluminum and silicate from chaff would have any effect on either the marine environment or sediment.

Before becoming part of the sediment, could chaff particles have environmental consequences? Chaff particles in the aquatic environment are similar to natural particles produced by sponges. The most abundant ocean shallow water sponges have siliceous spicules (small spikes) which are very similar to chaff. All fresh water sponges also contain spicules. Sponge spicules are simple, straight, needle-like silicon dioxide spikes, often with sharp pointed ends. Sponge spicules range from 1 to 30 micrometers (µm) in diameter and from 40 to 850 µm in length. Chaff fibers are approximately 25 µm in diameter and can break down to different lengths. Thus, naturally occurring sponge spicules are approximately the same diameter and can be the same length as chaff fibers. Both marine and fresh water sponges are abundant in the environment and aquatic animals regularly come in contact with spicules. A variety of species feed on sponges, including ring-necked ducks, crayfish, sea urchins, clams, shrimp, larval king crabs, and hawks-bill turtles. These species do not purposefully consume spicules but they do come in contact with spicules as a result of consuming sponges. Aquatic organisms are regularly exposed to and consume materials of the same size and similar composition to chaff fibers (Spargo 1999). This contact and consumption would reduce the likelihood that free floating chaff particles would result in environmental consequences.

Chaff in an aquatic environment has not been found to significantly increase the concentration of any toxic aluminum constituents in sediments under airspace that has undergone 25 years of chaff operations. Concentrations of chaff in test environments were not found to result in a significant

change in mortality to a variety of marine organisms in the Chesapeake Bay area. No effect was seen in marine organisms exposed to concentrations of 10 times and 100 times the expected environmental exposure. Marine and fresh water sponges normally create chaff-like spicules and foraging species are exposed to and consume these spicules on a regular basis with no detrimental effect. Chaff release in airspace above an aquatic environment is not expected to affect the environment and likely is not discernible within the environment.

4.4 CHAFF EFFECTS ON RADAR SYSTEMS

Chaff is designed to interfere with radar so that a maneuvering aircraft can escape a radar lock from an opposing radar. This use of chaff in training could affect weather monitoring radar. Weather radar has become increasingly important to predicting both flight and ground weather effects.

4.4.1 *WEATHER TRACKING RADAR*

The primary weather surveillance radar operated by the National Weather Service (NWS), FAA, and the DoD is the Weather Surveillance Radar-1988 Doppler (WSR-88D system) (National Research Council 2002). DoD training uses chaff as a defensive countermeasure. Within the CONUS, the Air Force uses RR-188 chaff to reduce, but not eliminate, chaff caused echoes to weather and other radars. In certain regions of the CONUS, including near DoD training areas in the west and southwest, RR-188 chaff can be seen as a major radar echo contaminant (Elmore *et al.* 2004). Chaff deployed in the training areas can include RR-188 chaff, as well as combat coded chaff which creates a chaff echo.

The Next Generation Weather Radar (NEXRAD) system provides Doppler radar coverage to most of the U.S. Designed in the mid-1980s, NEXRAD is continuing to be upgraded to meet air traffic and weather prediction requirements (National Research Council 2002). As part of the ongoing NEXRAD modernization, the NWS is adding polarimetric capability to existing operational radars. These capabilities improve the radar's ability to identify and classify hydrameteor types, such as rain, hail, ice crystals, and to distinguish non-meteorological types, such as chaff (Ryzhkov *et al.* 2003). Several radar images have distinctive properties which can be differentiated using radar classification algorithms.

4.4.2 *AIRSPACE AND RANGE ISSUES*

The improvements in NEXRAD have enhanced the ability of radar systems to detect RR-188 chaff. Investigations have been conducted to see whether RR-188 training chaff could be deployed and remain within the boundaries of a training airspace. By its very nature, chaff is light and designed to remain airborne to permit the evading aircraft to maneuver while the chaff cloud breaks radar contact. Could chaff be deployed at a low enough altitude that, under specific meteorological conditions, chaff particles would stay within the surface area under the training airspace? In most cases, this is not possible because the meteorological conditions and chaff fall rate are unpredictable. It has not been possible to determine where chaff particles would fall. The chaff plume migrates with the prevailing wind at altitude. In a series of case studies designed to track chaff plumes, the chaff plume from a release at altitudes between 15,000 to 22,000 feet above mean sea level (MSL), under moderate wind and stable atmosphere conditions, produced chaff plumes that traveled over 100 miles in two hours and could be expected to stay aloft for approximately another three hours. The total expected distance traveled by the deployed chaff prior to being deposited on the surface could be in the 120 to 300 mile range (DRI 2002).

The nature of chaff and the diversity of meteorological conditions mean that deployed chaff will continue to be an echo contaminant. This echo effect can be partially addressed through the radar

operators understanding when and where chaff is deployed and, possibly, through additional software or hardware refinement to distinguish and differentiate the chaff echo contamination.

4.5 CHAFF CONCLUSIONS

Although large numbers of chaff bundles are deployed in training, modern chaff is typically not easy to identify in the environment unless the chaff bundle fails to properly deploy and a clump of chaff is deposited on the surface. Chaff particles are difficult to identify in an environment subject to training chaff use for decades. The reasons for the difficulty in identifying chaff or chaff particles is because chaff is found to rapidly fragment on the surface and chaff is primarily composed of silica and aluminum, two of the most common elements in the earth's crust. Multiple studies to identify chaff particles or to locate elevated concentrations on the ground or in substrate have had limited success, primarily because chaff rapidly fragments in the environment and becomes indiscernible from ambient soil particles. No biological effects to marine organisms have been observed even when such organisms are subject to substantially higher concentrations than could be expected to occur as a result of training. The use of parchment paper in place of Mylar for delayed opening chaff reduces the deposition of plastic pieces to the environment to the level experienced with similar non delayed opening chaff.

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APPENDIX D
CHARACTERISTICS AND ANALYSIS OF FLARES

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APPENDIX D CHARACTERISTICS AND ANALYSIS OF FLARES

1.0 INTRODUCTION

Aircraft participating in Large Force Exercises (LFEs) often use a variety of self-protection flares in approved airspace. Self-protection flares are magnesium pellets that, when ignited, burn for 3.5 to 5 seconds at 2,000 degrees Fahrenheit. The burn temperature is hotter than the exhaust of an aircraft, and therefore attracts and decoys heat-seeking weapons targeted on the aircraft. Flares are used in pilot training to develop the near instinctive reactions to a threat that are critical to combat survival. This appendix describes flare characteristics, ejection, risks, and associated regulations.

2.0 FLARE CHARACTERISTICS

Self-protection flares are primarily mixtures of magnesium and Teflon (polytetrafluoroethylene) molded into rectangular shapes (United States Air Force [Air Force] 1997). Longitudinal grooves provide space for materials that aid in ignition. Typically, flares are wrapped with an aluminum-coated mylar or filament-reinforced tape (wrapping) and inserted into an aluminum (0.03 inches thick) case that is closed with a felt spacer and a small plastic end cap (Air Force 1997). The top of the case has a pyrotechnic impulse cartridge that is activated electrically to produce hot gases that push a piston, the flare material, and the end cap out of the aircraft into the airstream.

The B-1 uses MJU 23 A/B flares and the B-52 uses ALA-17 A, B, or C flares. The F-16 uses M-206 and MJU-7 A/B flares. F-22 uses MJU-10/B flares. The F-15 uses either the MJU-10/B or MJU-7 A/B flare. Table D-1 presents the types of aircraft and flares which could be normally expected during in the Powder River Training Complex (PRTC). There are three types of ignition mechanisms for self-protection flares: non-parasitic, parasitic, and semi-parasitic. The non-parasitic flare is discharged from the aircraft before ignition. The parasitic flare ignites inside the tube within the aircraft and is discharged already burning. The semi-parasitic flare is thrust out of the case by a firing mechanism that also begins the flare ignition process. Both the MJU-10/B and MJU-7 A/B are semi-parasitic flares.

Figure D-1 is a drawing of a simple M-206 flare. It is 1 inch wide, 1 inch high, and 8 inches long. When the firing device is electronically triggered, gas pressure pushes the small nylon or plastic piston. A hole extends through the piston and concurrently starts the flare burning. The piston pushes the flare out of the casing, pops off the plastic end cap, splits the wrapping material, and deploys the flare. Figure D-2 presents an M-206 countermeasure flare and the aluminum case, which stays in the aircraft.

Table D-1. Typical Self-Protection Flares Used for Training in ACC-scheduled Airspace

Attribute	*ALA-17*	*M-206*	*MJU-7 A/B*	*MJU-10/B*	*MJU-23/B and A/B*
Aircraft	B-52, AC-130	A-10, F-16, C-130, C-17	F-16, F-15, C-130	F-15, F-22	B-1B
Mode	Parasitic	Parasitic	Semi-parasitic	Semi-parasitic	Non-parasitic
Configuration	2 cylindrical cartridges in series	Rectangular	Rectangular	Rectangular	Cylindrical
Size	Each cylinder 4.75x2.25 inches (diameter)	1x1x8 inches (8 cubic inches)	1x2x8 inches (16 cubic inches)	2.66x2x8 inches (42.6 cubic inches)	10.5x2.75 inches (diameter) (90.7 cubic inches)
Impulse cartridge	None; electrically activated M-2 squib	M-796	BBU-36/B	BBU-36/B	BBU-46/B
Safety and Initiation (S&I) Device	None	None	Slider assembly	Slider assembly	Slider assembly with ignition charge
Weight (nominal)	Pellet: 18 oz Canister: 10 oz	6.9 ounces	13 ounces	40 ounces	43 ounces
Other Comments	Canister ejected with first unit	None	None	None	None

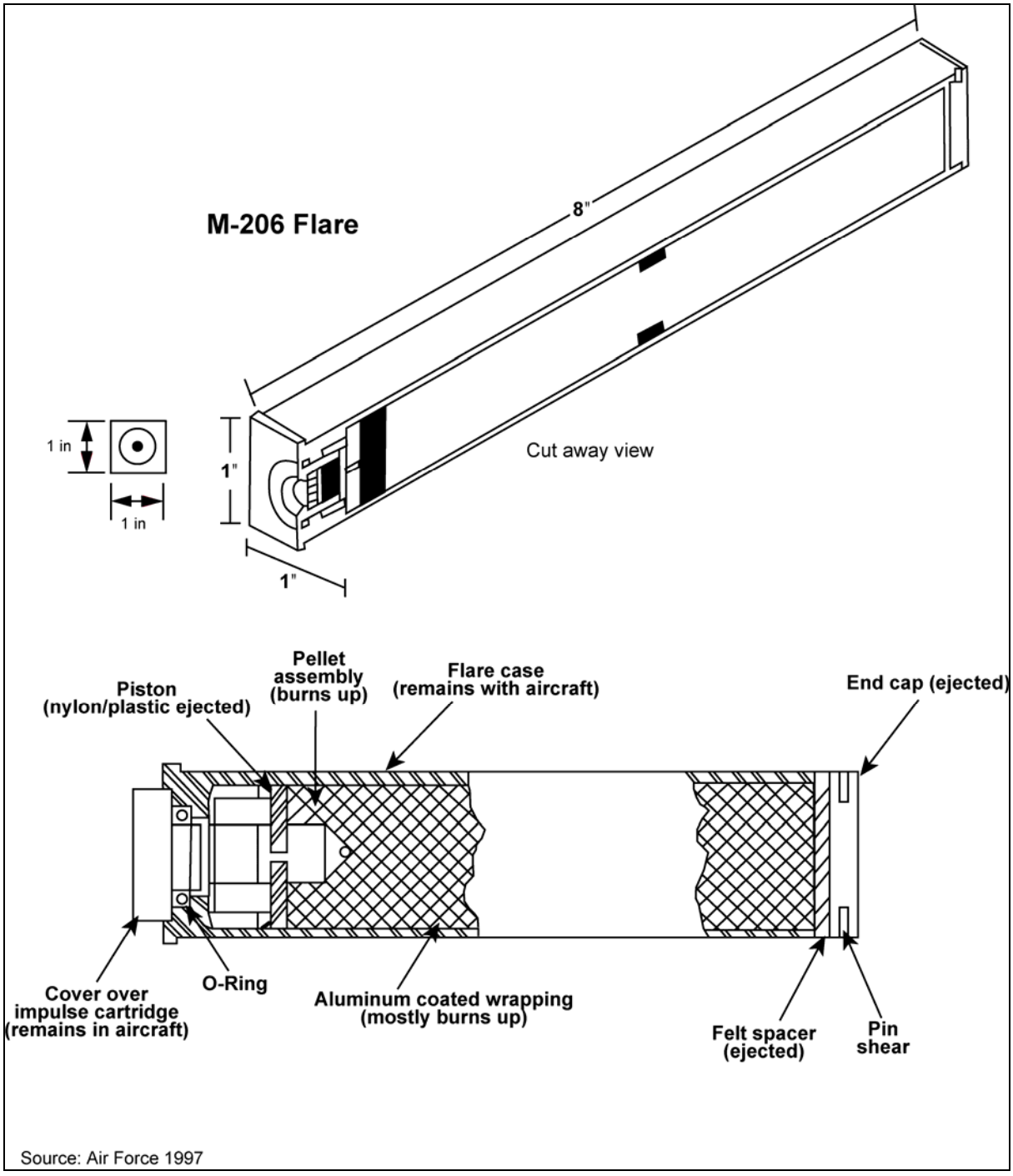

Figure D-1. M-206 Flare

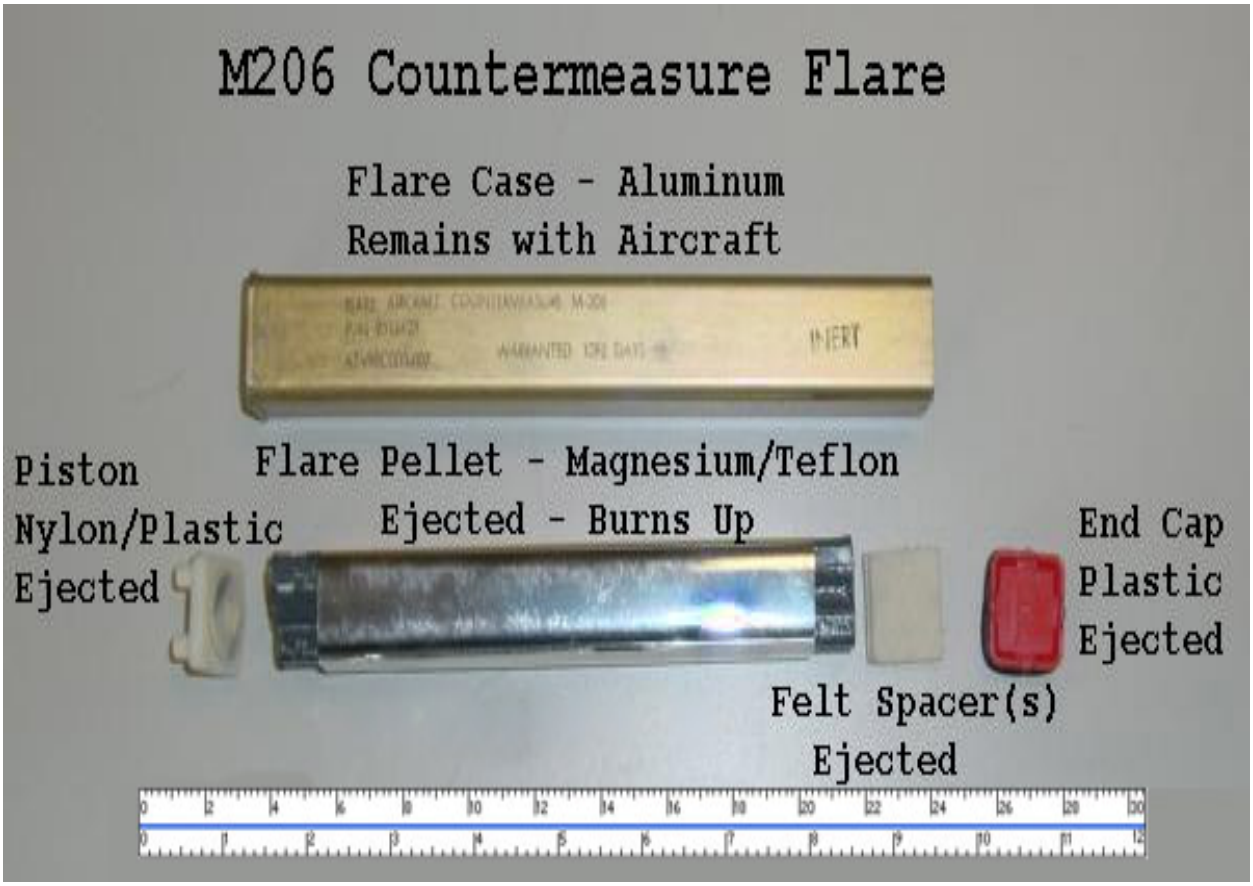

Figure D-2. M-206 Countermeasure Flare

A flare may be compared to a muzzle-loading rifle. There is a firing cap, a powder charge, wadding between the charge and the bullet, and a wad at the end that keeps everything in place. The electrical firing "cap" creates a gas that ejects the plastic or nylon slider, 2 felt spacers that hold everything in place, and the end cap. The "bullet" is a magnesium/Teflon flare pellet that is ejected and burns up in 4 to 5 seconds.

B-1 and B-52 flares would be used during training exercises in PRTC training airspace. The B-1B uses the MJU-23/B flare as noted in Table D-1. The MJU-23/B, shown in Figure D-3 is a non-parasitic cylindrical flare used only on the B-1B aircraft. It is 10.5 inches long and 2.75 inches in diameter. Figure D-4 is a photograph of the parts of the MJU 23/B flare. The MJU-23/B flare includes the same S&I device as the semi-parasitic MJU-7 A/B flare. The MJU-23/B has a plastic end cap with 0.5 inches of black rubber potting compound designed to absorb the shock of hitting spring-loaded doors on the aircraft. The earlier MJU-23/A used an aluminum piston and included strips of felt spacers on the side and circular felt spacers in the cylinder. The newer MJU-23/B replaces the aluminum with a plastic piston, retains circular felt spacers, and reduces the side felt spacer strips. The MJU-23/B uses the BBU-46/B impulse cartridge. The MJU-23A/B B1 bomber flare expels, along with the magnesium/Teflon flare pellet, other non-flare residual materials. Residual materials for the MJU-23A/B include two felt pads, a tin closure cap, a plastic/nylon end cap, and a piston with a Safe and Initiation (S&I) system attached. In most flare deployments, the aluminum wrap around the magnesium pellet will be burned and blown off when the flare ignites upon exiting the flare's case.

The B-52 uses the ALA-17 A/B flare as noted in Table D-1. A drawing of the ALA-17A/B flare is presented in Figure D-5. The flare consist of two independently fired aluminum cylinders, each 4.75 inches long and 2.25 inches in diameter, crimped together end-to end. The ALA-17 A/B flare with the two cylinders is 9.5 inches long, 2.25 inches in diameter, and from the outside, looks similar to the MJU-23/B flare (Figure D-4). When the top cylinder is fired, the flare pellet is ejected from the aircraft, along with the entire bottom cylinder. Impulse cartridges are not used; the flares are fired directly with an electrically activated squib set in potting compound. The M-2 squib weights about 0.0022 ounces and is composed of 40 percent potassium chlorate, 32 percent lead thiocyanate, 18 percent charcoal, and 10 percent Egyptian lacquer (Global Security 2008). Both the upper and lower flare case will expel an aluminum end cap and plastic piston. Both the upper and lower flare are deployed and ignited by the impulse cartridge. Therefore, there is no S&I device in either the upper or lower flare cartridge case. The newer ALA-17 C flare has upper and lower flare cylinders both contained in one aluminum housing, depicted in the cutaway Figure D-6. Both the upper and lower flares are wrapped in aluminum tape and possess individual deployment and ignition systems. A plastic end cap and S&I system are deployed with the individual flare pellets. The lower flare's expended impulse cartridge and aluminum housing/mid-spacer are expelled by deployment of the upper flare. The ALA-17C model full aluminum housing remains in the B-52 dispenser rack.

Figure D-7 is a drawing of an MJU-7 A/B flare. The MJU-7 A/B is a semi-parasitic flare which contains a charge that is ignited as the flare is ejected from the aircraft. The MJU-7 A/B is 2 inches wide, 1 inch high, and 8 inches long. The MJU-7 A/B is similar to the M-206, with a flare pellet, a nylon or plastic slider (or piston), felt spacers, and an end cap. In addition, the MJU-7 A/B contains a safe and initiation (S&I) device which is ejected with flare deployment. The S&I device provides for the ignition and also splits open the wrapping as the flare exits the aircraft. Figure D-8 presents a cutaway view of all parts of the MJU-7 A/B flare.

The flare used by the F-22 is the MJU-10/B flare. Figure D-9 is a drawing of the MJU-10/B flare. The primary difference between the MJU-7 A/B and the MJU-10/B flare types is that the MJU-10/B flare is twice as large as the MJU-7 A/B. Table D-2 provides a summary description of the M-206, MJU-7 A/B, and MJU-10/B flares. The M-206 contains a flare pellet of approximately 7 cubic inches. The MJU-7 A/B flare pellet is approximately 14 cubic inches and the MJU-10/B flare pellet is approximately 36 cubic inches. Table D-3 presents the typical composition of F-22 and F-15 defensive flares. The flares are expelled from the flare cartridges with a BBU-36/B impulse charge. Table D-4 presents the components of this impulse charge.

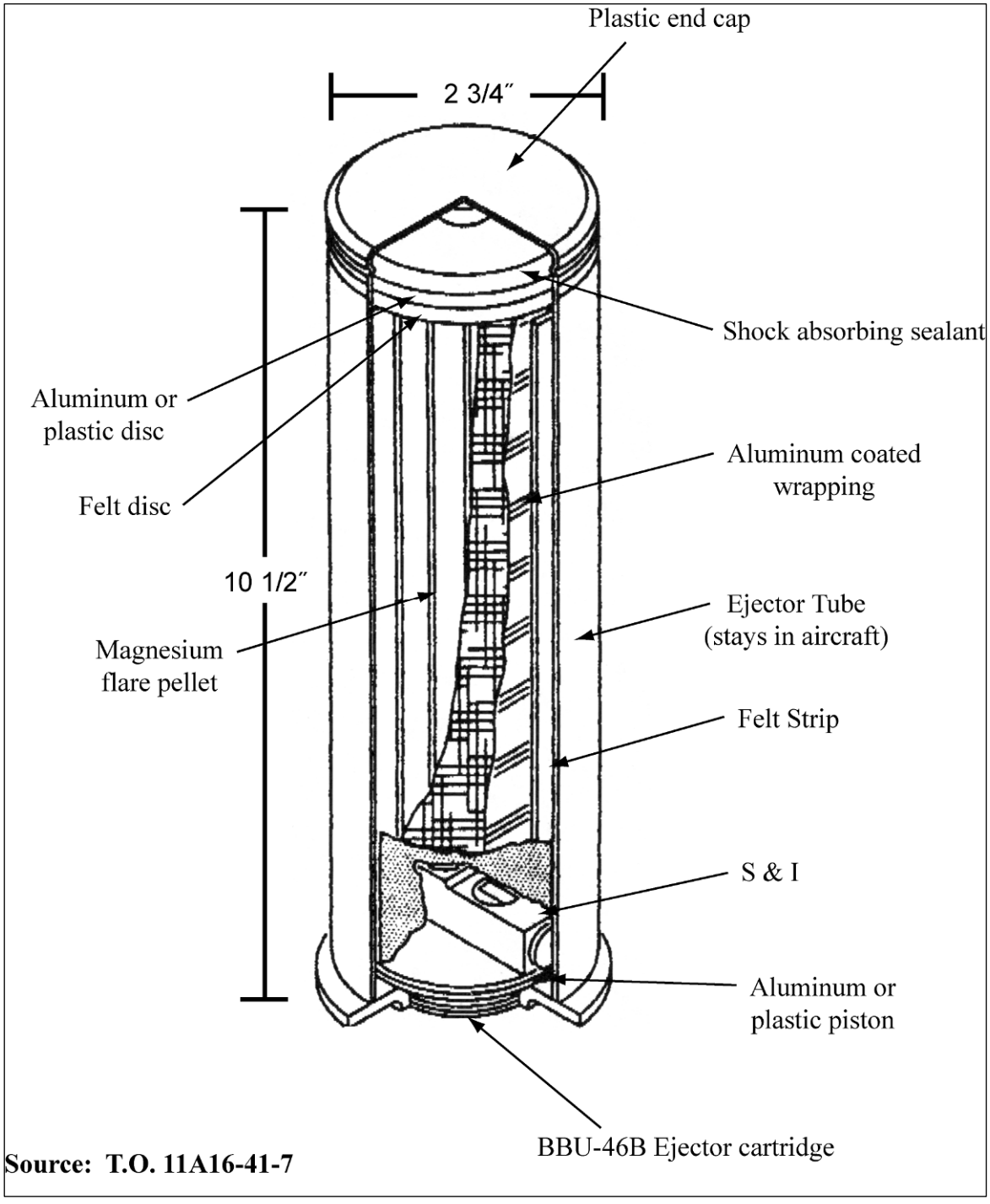

Figure D-3. MJU-23/B Flare Used by B-1B Aircraft

Figure D-4. MJU-23 Flare

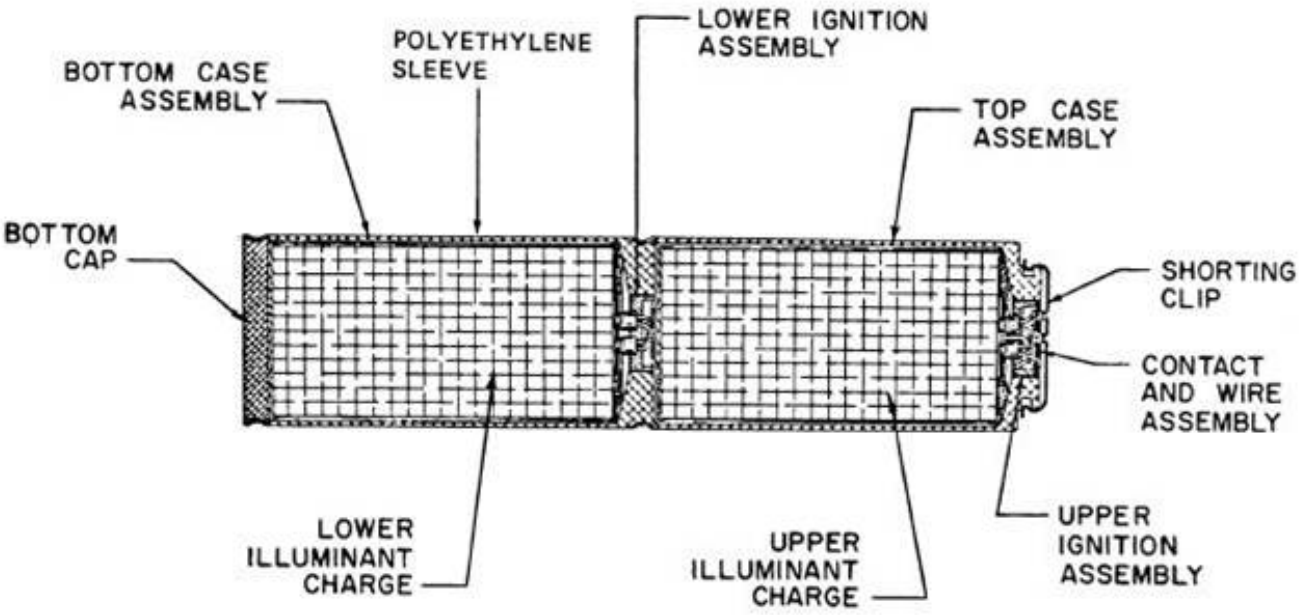

Figure D-5. ALA-17 Flare Cartridge

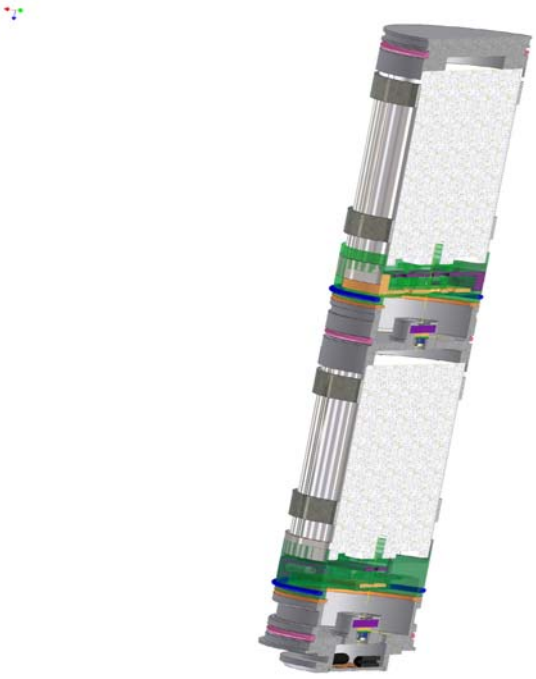

Figure D-6. ALA-17 Cutaway

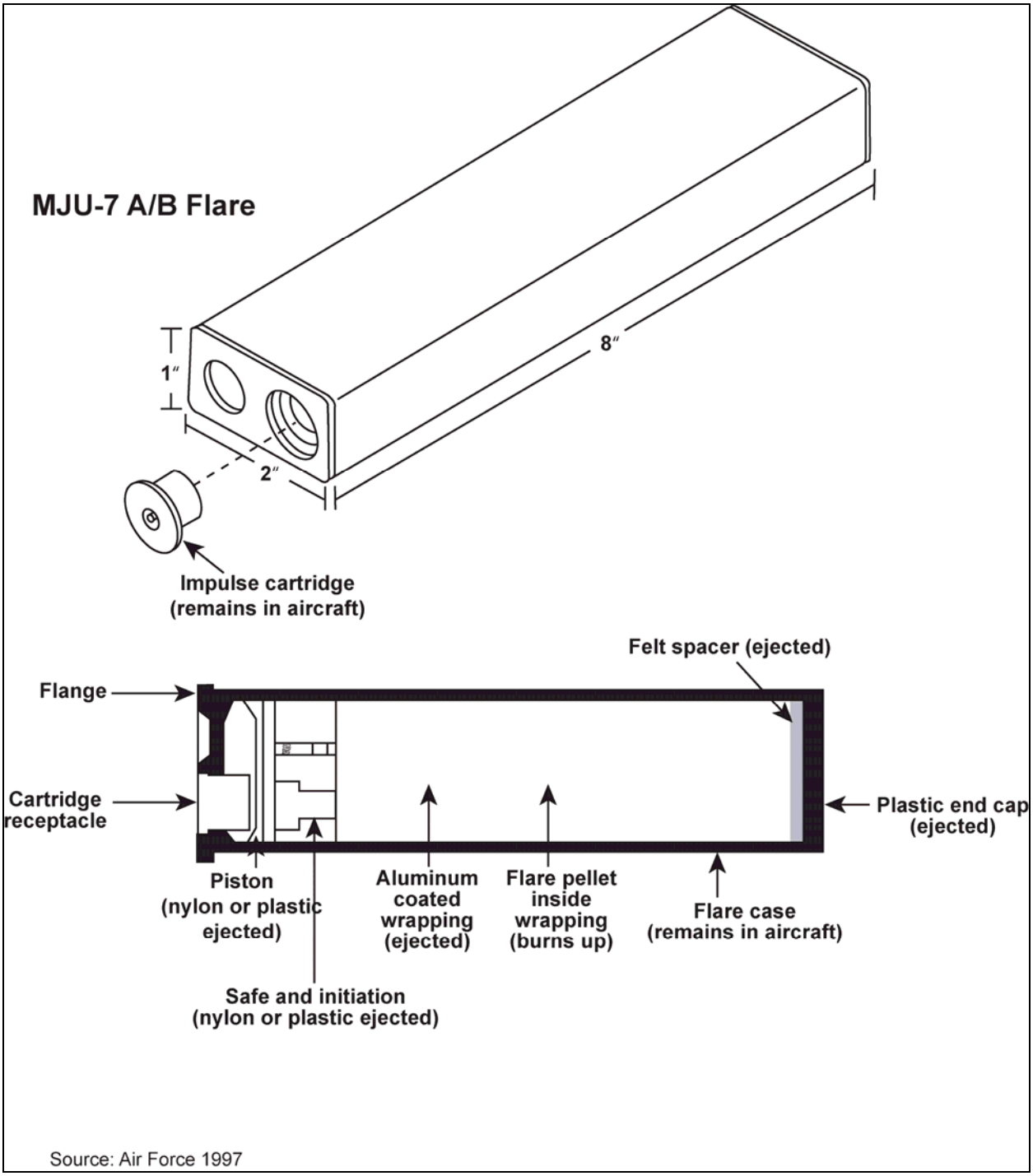

Figure D-7. MJU-7 A/B Flare

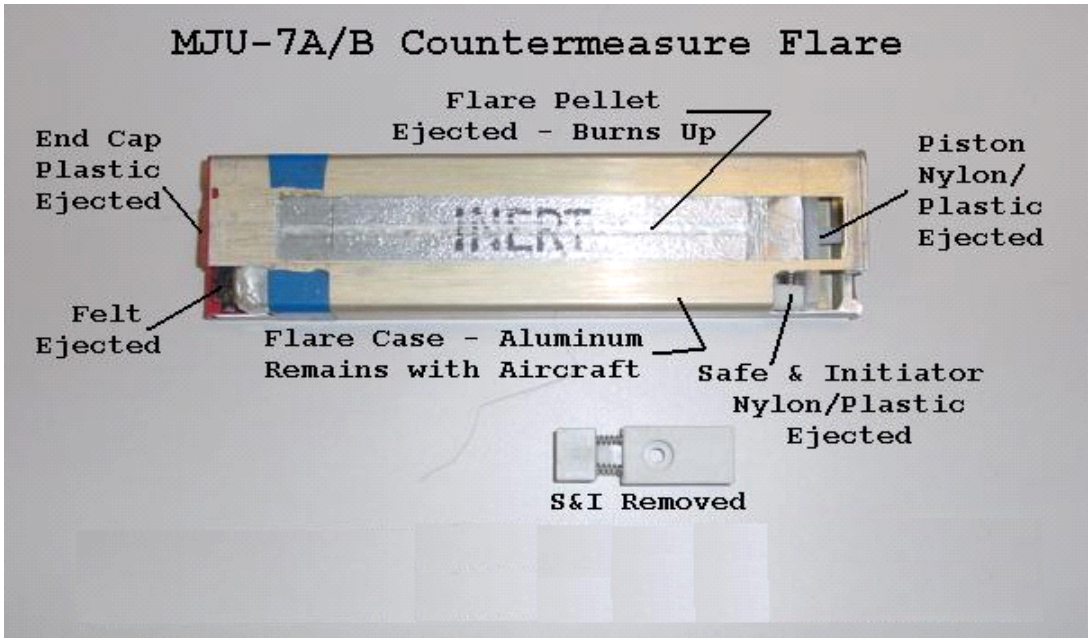

Figure D-8. MJU-7 A/B Countermeasure Flare (cut away view)

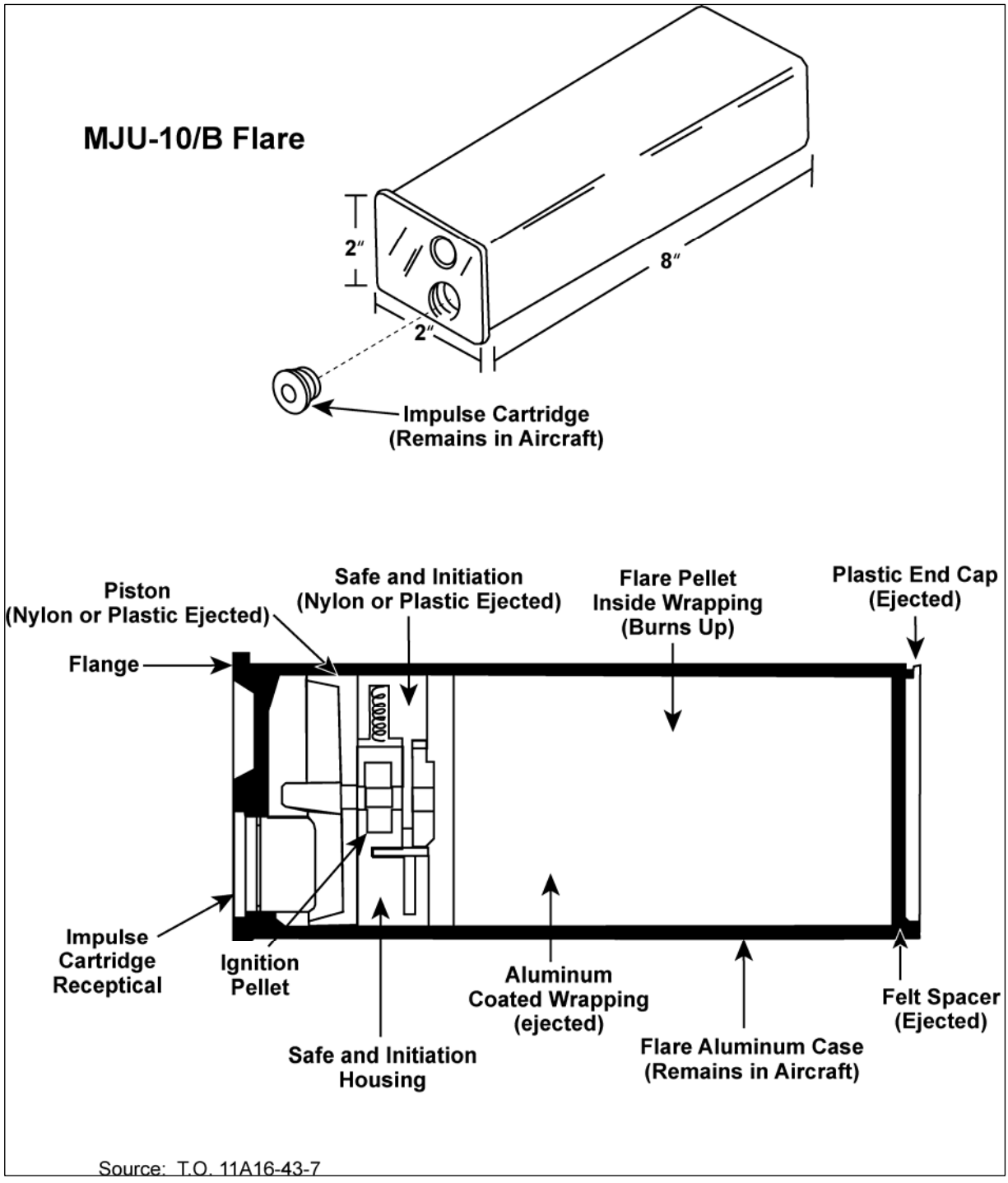

Figure D-9. MJU-10/B Flare

Table D-2. Description of M-206, MJU-7 A/B, and MJU-10/B Flares

Attribute	*M-206*	*MJU-7 A/B*	*MJU-10/B*
Aircraft	F-16, A-10, AC-130, C-17	F-15, F-16, AC-130	F-15, F-22
Mode	Parasitic	Semi-parasitic	Semi-parasitic
Configuration	Rectangle	Rectangle	Rectangle
Size	1x1x8 inches (8 cubic inches)	1x2x8 inches (16 cubic inches)	2x2x8 inches (32 cubic inches)
Impulse Cartridge	M-796	BBU-36/B: MJU-7	BBU-36/B
S&I Device	None	Slider Assembly	Slider Assembly
Weight (nominal)	6.8 ounces	13 ounces	40 ounces
Felt Spacers	1 to 2, 1x1 inch	1 to 2, 1x2 inches	1 to 2, 2x2 inches

Table D-3. Typical Composition of MJU-10/B and MJU-7 A/B Self-Protection Flares

Part	*Components*
Combustible	
Flare Pellet	Polytetrafluoroethylene (Teflon) ($-[C_2F_4]_n$ – n=20,000 units) Magnesium (Mg) Fluoroelastomer (Viton, Fluorel, Hytemp)
First Fire Mixture	Boron (B) Magnesium (Mg) Potassium perchlorate ($KClO_4$) Barium chromate ($BaCrO_4$) Fluoroelastomer
Immediate Fire/ Dip Coat	Polytetrafluoroethylene (Teflon) ($-[C_2F_4]_n$ – n=20,000 units) Magnesium (Mg) Fluoroelastomer
Assemblage (Residual Components)	
Aluminum Wrap	Mylar or filament tape bonded to aluminum tape
End Cap	Plastic (nylon)
Felt Spacers	Felt pads (0.25 inches by cross section of flare)
Safe & Initiation (S&I) Device	Plastic (nylon, tefzel, zytel)
Piston	Plastic (nylon, tefzel, zytel)

Source: Air Force 1997

Table D-4. Components of BBU-36/B Impulse Charges

Component	*BBU-36/B*
Overall Size Overall Volume Total Explosive Volume	0.740 x 0.550 inches 0.236 cubic inches 0.081 cubic inches
Bridgewire	Trophet A
Closure Disk	Scribed disc, washer
Initiation Charge	
Volume	0.01 cubic inches
Weight	100 mg
Compaction	6,200 psi
Composition	42.5 percent boron 52.5 percent potassium perchlorate 5.0 percent Viton A
Booster Charge	
Volume	0.01 cubic inches
Weight	150 mg
Compaction	5,100 psi
Composition	20 percent boron 80 percent potassium nitrate
Main Charge	
Volume	0.061 cubic inches
Weight	655 mg
Compaction	Loose fill
Composition	Hercules #2400 smokeless powder (50-77% nitrocellulose, 15-43 percent nitroglycerine)

Source: Air Force 1997

3.0 ENVIRONMENTAL EFFECTS OF FLARES

3.1 FLARE RELIABILITY

Initial concerns regarding defensive training flare use focused on questions of flare reliability, fire risk, and flare emissions. Flare reliability is important because a flare failure could have a variety of environmental consequences. Reliability is determined by testing the flares after manufacture. Flare testing consists of selecting 80 flares randomly from a lot of several thousand flares. Lot acceptance testing for the MJU-7 A/B, the most heavily used flare, examines the success of ignition and burn, pellet breakup, and indication of dispenser damage. The specification requires that a flare lot pass an ignition and ejection test. In this test, with a sample size of 80, two failures would be acceptable, but three failures would result in the entire flare lot being rejected (Air Force 1997). To ensure that good lots are not erroneously rejected in these tests, the flares would have to be designed to a reliability of 99 percent (assuming a confidence level of 95 percent). Therefore, the reliability of the MJU-7 A/B flare is expected to be approximately 99 percent. Other factors are required to achieve comparable levels of reliability. Flares are manufactured to avoid rejection of the entire lot. These levels of reliability are reasonable when the purpose of the flare is taken into consideration. A flare is designed to protect life and a multi-million dollar investment.

3.2 FLARE FAILURES

There are four different types of flare failure. One failure would be if the flare was electrically triggered but did not release and did not burn. Such a flare would be treated as unexploded ordnance (UXO) when the aircraft returned to the base, and the flare would be removed for disposal.

A second type of flare failure would be if the flare burned but did not release from the aircraft. This would be an extremely dangerous situation for the pilot. There is one known case of this occurring; in 1980, an F-102 aircraft was destroyed and the pilot ejected. Reliability of flare ignition and deployment has been substantially improved since then.

A third type of flare failure would be a released flare at an improper altitude or that did not burn correctly. If a burning flare struck the ground, it could result in a fire, with potential environmental consequences. If a broken part of a flare struck the ground, it would not burn unless subject to temperatures or friction generating temperatures in the one to two thousand degree range.

A fourth type of flare failure is if a flare was released from the aircraft but did not burn, either in whole or part, and becomes a dud flare on the ground. There are two potential locations for a dud flare: on or off military-controlled land. Military-controlled land includes the base airfield where, at times, an unburned flare (the first type of failure) is jolted out of its container during a landing and becomes a dud flare (the fourth type of failure) on or adjacent to the runway. Military-controlled land also includes training ranges over which flares are deployed. Non-military controlled land includes lands managed by other governmental agencies and private lands.

The first type of flare failure results in an unburned flare returning to the base. This would be handled as UXO and would not normally be treated as a potential environmental impact. The second type of flare failure is an extremely rare case of a flare causing a Class A accident with loss of an aircraft and possibly a life. Such a situation would be quantified in terms of flight safety and would be part of the documented Class A accident rates for the specific aircraft. As noted above, there is only one documented case of this type of flare failure.

The third type of flare failure is a flare which is still burning when it strikes the ground. Documented cases of this have occurred. Upon investigation, such cases are nearly always the case of a flare being deployed at too low an altitude.

If a flare struck the ground while still burning, it could ignite surface material and cause a fire. This has occurred at active military training ranges where flare- or munitions-caused fires are documented. In all known cases, the flares burning when they struck the ground were released at a very low altitude. Table D-5 presents the time-to-distance for a falling object, such as a flare. Release at an altitude below 300 feet has the potential for a flare that burns in 4 to 5 seconds to still be burning when it strikes the ground. On active military ranges, firebreaks are established to reduce the potential for fires to spread off the range.

The best way to reduce the risk of flare-caused fires is to establish adequate minimum altitudes for flare release. In 8 seconds, a flare would fall approximately 1,000 feet. An M-206 or an MJU-7 A/B flare is designed to burn out within 150 to 400 feet. Where flares are deployed at a minimum altitude of 1,500 feet above the ground, the likelihood of a flare-caused fire is substantially reduced. In areas where flares are used within training airspace over public or private lands, the minimum altitude for flare deployment is typically between 1,500 to 2,000 feet above ground level (AGL).

Table D-5. Flare Burn-out Rate and Distance

Time (in Sec)	*Acceleration*	*Distance(in feet)*
0.5	32.2	4.025
1.0	32.2	16.100
1.5	32.2	36.225
2.0	32.2	64.400
2.5	32.2	100.625
3.0	32.2	144.900
3.5	32.2	197.225
4.0	32.2	257.600
4.5	32.2	326.025
5.0	32.2	402.500
5.5	32.2	487.025
6.0	32.2	579.600
6.5	32.2	680.225
7.0	32.2	788.900
7.5	32.2	905.625
8.0	32.2	1030.400
8.5	32.2	1163.225
9.0	32.2	1304.100
9.5	32.2	1453.025
10.0	32.2	1610.000

Note: Initial velocity is assumed to be zero.

3.3 DUD FLARES

The fourth type of flare failure is a dud flare on the ground. A dud flare on nonmilitary land, either public or private land, has the potential to produce environmental consequences. United States (U.S.) military training ranges where flares are used were contacted to estimate the potential for locating a dud flare on the ground. The military has personnel experienced with UXO who survey military ranges to identify and remove live ordnance or dud flares. Experience from the Goldwater Range in Arizona

and the Utah Test and Training Range identified very few dud flares on the ground. The surveys were not scientific studies that evaluated the entire military training ranges, but did survey areas within which 95 to 99 percent of the UXO would be expected. In areas where approximately 200,000 flares had been deployed, an estimated 18 duds were found on the ground. This calculates to a ratio of approximately 1 in 10,000.

There is no instance of a dud flare or any flare debris striking an individual. A dud M-206 flare would be an approximately 3/4 pound piece of material falling at a speed of over 100 miles per hour. It is extremely unlikely that an individual could be struck by such a falling object, but if someone were, it could cause severe injury or death. Dud flares are extremely rare, but they are dangerous.

Although very few dud flares would be expected on the ground, and fewer would be expected to be found, any located dud flare should be treated as UXO. Figure D-10 is approximately 40 percent of an M-206 flare and wrapping that did not burn. Apparently, during deployment, the M-206 flare pellet broke before it was completely ignited and the unburned portion was deposited on the military training range. A dud flare would probably not ignite even in a campfire unless it was on a very hot bed of coals. If a dud flare were shot with a bullet or cut with a power saw, the friction could cause it to ignite. If a dud flare were struck by an ax, it is unlikely, but possible, that an ignition could occur. Should a flare be ignited, it would burn at a temperature of 2,000°F and could result in severe injury or death.

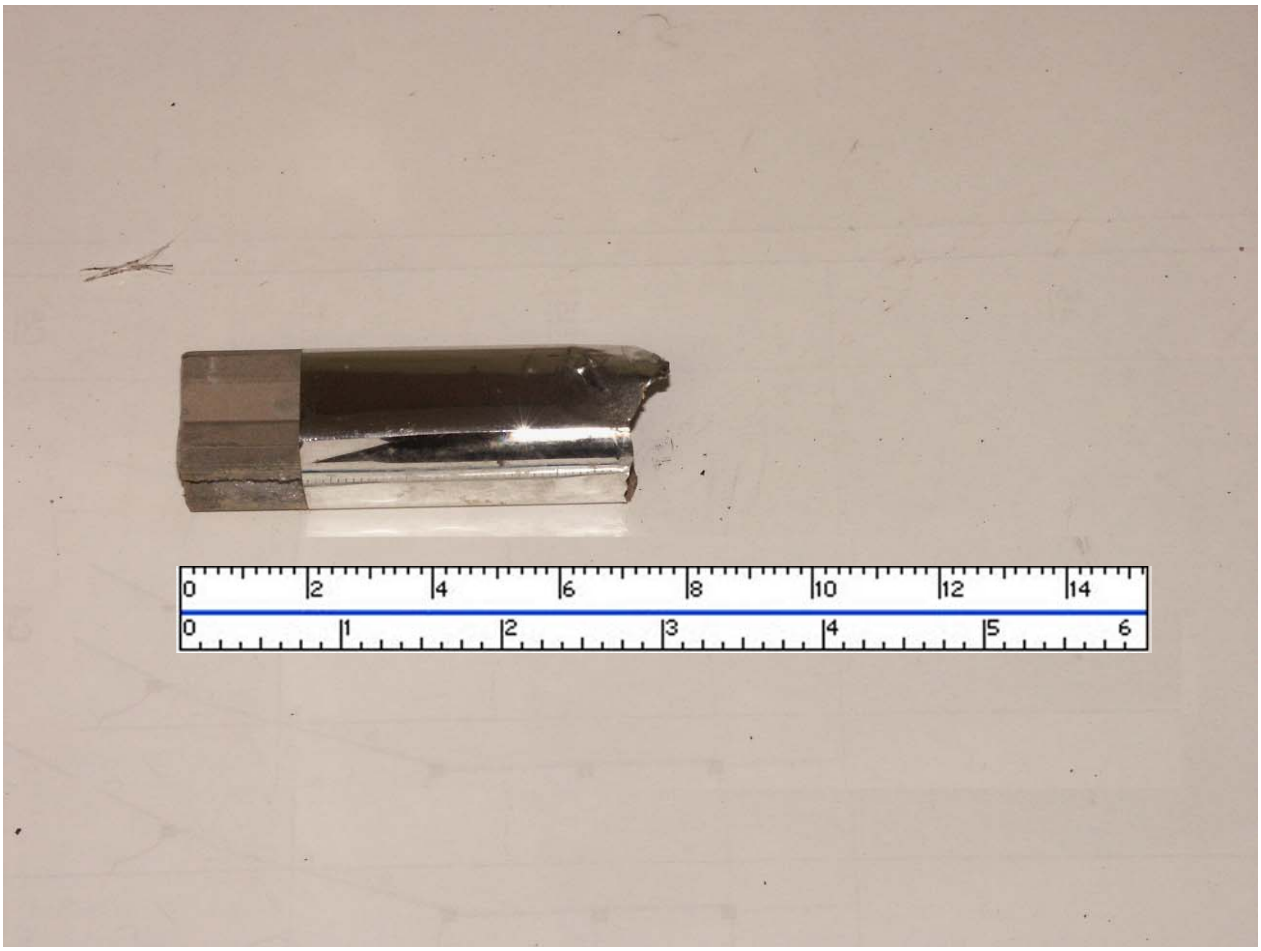

Figure D-10. Approximately 40 Percent of an M-206 Flare

The primary environmental message for anyone in the public finding a dud flare (an extremely unlikely event) is: mark its location but do not touch it. The likelihood of finding a dud flare is extremely remote, and the likelihood of a dud flare igniting is even more remote, but because there would be dud flares on the ground under the airspace, someone has the potential to come upon one. The message is: do not touch it; tell an authority about its location.

The number of dud flares on the ground is few. If a dud flare fell in a water body, it would deteriorate over time. The chemicals released during deterioration would not be expected to be of sufficient quantity to cause a noticeable reduction in the water quality or impact upon marine resources.

3.4 FLARE EMISSIONS

Environmental questions have also been raised regarding flare emissions, including flare ash. Studies on ash components were performed by measuring residual materials after flares were ignited in a furnace (Air Force 1997). Constituents from combustion were identified, and a worst case scenario was estimated to calculate whether flare emissions or flare ash could result in an environmental impact.

The M-206 and MJU-7 A/B do not contain lead although some earlier flares had lead in the firing mechanism, and some flares still contain chromium in the firing mechanism. A statistical model was used to calculate emission concentrations of lead and chromium with the goal of learning what level of flare emissions or ash would be required to achieve toxic levels of lead or chromium. The model calculated that 1.5 million MJU-7 A/B flares would have to be released below an altitude of 400 feet AGL over a 10,000 acre training range before the level of chromium emissions would become a health risk. Approximately 400,000 flares are deployed by Air Combat Command (ACC) aircraft in all ACC training airspace approved for defensive flare training (Air Force 1997). No location has the combination of flare numbers, altitude, and range area. The number of flares is smaller, the minimum release altitude is higher, and the training area is substantially larger. Flare emissions are not now, nor is it feasible that they could become, a health hazard (Air Force 1997).

There are also trace elements of boron in the flare pellet. To achieve a toxic level of boron, flare ash from approximately 4,000 flares would annually need to fall on an acre of land. It would be almost impossible to deposit 4,000 flares on one acre of land. In fact, it would not be possible for a high performance military aircraft to purposefully deposit even one flare on a specific acre of land. Flare emissions and flare ash are not likely to result in measurable air quality or physical effects to the environment.

3.5 FLARE RESIDUAL MATERIALS

Environmental questions have been raised regarding flare materials which are not consumed during the flare burn and which are deposited on the surface following flare deployment. Table D-6 presents the residual materials from representative flares used in PRTC training airspace.

Residual materials identified as MJU-7 wrapping materials are included in Figure D-11 with a pen for scale. This is believed to be the wrapping from an MJU-7 A/B flare and was attributed to training aircraft over private property. Range workers were shown residual flare materials and asked to see if they could find such materials on the range. The workers located a variety of residual materials including the materials pictured in Figures 10, 12, and 13. Figure D-12 is the piston or nylon slider assembly from an M-206 flare. The M-206 is a parasitic flare where ignition occurs as the flare is discharged. The burn occurs very quickly and parts, such as portion of the wrapping material, may not be consumed. Wrapping material is not a risk, but it can be viewed as a piece of unanticipated debris by anyone finding it on public or private land under airspace assessed for flare use.

Table D-6. Residual Material Deposited on the Surface Following Deployment of One Flare

	Flare Type			
Material	***M-206***	***MJU-7/B***	***MJU-10/B***	***MJU-23/B***
End Cap	One 1 inch x 1 inch x 1/4 inch plastic or nylon	One 2 inch x 1 inch x 1/4 inch plastic or nylon	One 2 inch x 2 inch x 1/4 inch plastic or nylon	One 2 3/4 inch diameter x 1/4 inch thick round plastic disc
Piston	One 1 inch x 1 inch x 1/2 inch plastic or nylon	One 2 inch x 1 inch x 1/2 inch plastic or nylon	One 2 inch x 2 inch x 1/2 inch plastic or nylon	One approximately 2 3/4 inch diameter x 1/2 inch aluminum (or plastic) piston
Spacer	One or two 1 inch x 1 inch felt	One or two 2 inch x 1 inch felt	One or two 2 inch x 2 inch felt	One 1/2 inch thick x 2 3/4 inch diameter rubber shock absorber sealant, two (1/8 inch x 2 3/4 inch diameter) felt discs, up to four 1 inch x 10 inch felt strips
Wrapping	One up to 2 inch x 17 inch piece of aluminum-coated stiff duct-tape type material	One up to 3 inch x 17 inch piece of aluminum-coated stiff duct-tape type material	One up to 4 inch x 17 inch piece of aluminum-coated stiff duct-tape type material	One up to 4 1/2 inch x 20 inch piece of aluminum-coated stiff duct-tape type material
S&I Device	N/A	One 2 inch x 1 inch x 1/2 inch nylon and plastic spring device	One 2 inch x 1 inch x 1/2 inch nylon and plastic spring device	One 2 inch x 1 inch x 1/2 inch nylon and plastic spring device

Figure D-11. MJU-7 Residual Flare Wrapping Materials

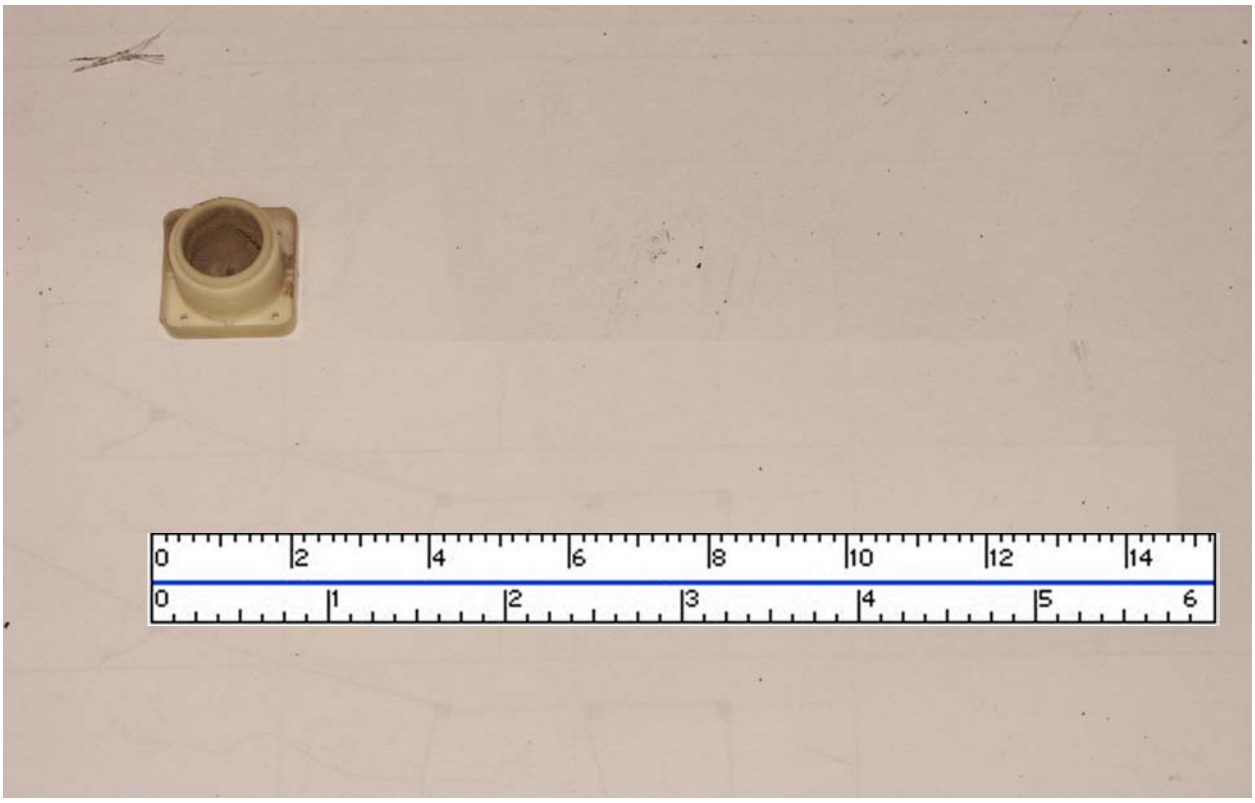

Figure D-12. M-206 Piston

The weight of flare residual materials is of interest to assess whether the materials represent a safety risk. Weights of residual components for representative flares are presented in Table D-7. The M-206 piston and felt cushion together weigh approximately 0.06 ounces. The M-206 and MJU-7 A/B wrapping materials have a high surface-to-weight ratio and do not fall with much force. The heaviest residual component is the S&I device used in several flares (Table D-6). Each S&I device weighs about .07 to .08 ounces depending upon material which may be melted to the S&I device. Two S&I devices are pictured in Figure D-13 with some melted fibers from the wrapping material attached.

Table D-7. M-206 and MJU-7 A/B Component Weights

Component	*Weight*
M-206	
Plastic end cap	0.08896 ounces
Piston and cushion assembly	0.06271 ounces
Felt spacer	0.01896 ounces
Wrapper (2 inches x 13 inches)	0.3135 ounces
MJU-7 A/B	
End cap	0.10500 ounces
S&I Device (clean)	0.6606 ounces
Piston	0.10500 ounces
Felt spacer	0.01604 ounces
Wrapper (3 inches x 13 inches)	0.4696 ounces

Figure D-13. Two S&I Devices Used in MJU-10/B, and Other Flare Types

Calculations were made that take into consideration the weight and surface area of the S&I device. At gravitational rates of acceleration, an S&I device could strike the ground at a momentum of from 0.08 to 0.16 pounds per second (see Table D-8). By comparison, if an element with a momentum of 0.1 pounds per second were to strike an individual's unprotected head, there is a one percent possibility of a concussion (Air Force 1997). This means that if an S&I device struck an unprotected individual with no hat, it could cause injury comparable to that of a marble-sized hailstone.

Table D-8. MJU-7 A/B Component Hazard

	Maximum Surface Area		
Component	***Area (in^2)***	***Terminal Velocity (ft/sec)***	***Momentum (lb-sec)***
S&I Device	1.65	58	0.08
Piston	1.65	23	0.005
End Caps	2.0	21	0.005
	Minimum Surface Area		
S&I Device	0.413	115	0.16
Piston	0.413	46	0.01
End Caps	0.125	84	0.02

Table D-9 quantifies how often an S&I device could be expected to strike a structure, a vehicle, or a person. The assumptions behind this table are that approximately 2,000 MJU-7 A/B-type flares would be annually deployed over an area of 2,000 square miles with a population of one person per square mile. Based on studies performed in the U.S., individuals were, in aggregate, out of doors and

unprotected, with no hat, approximately 10 percent of the time (Tennessee Valley Authority 2003, Klepeis *et al.* 2001). Other assumptions are 2.7 persons per family and 2 structures plus 2 vehicles per family. In an area with one person per square mile and these assumptions, there would be an expected structure hit once in 13 years by a hailstone-sized S&I device under the airspace where MJU-7 A/B flares were used for training. No damage would be expected to the structures.

Table D-9. S&I Device Potential Annual Strikes

Persons Per Square Mile	*Structure*	*Vehicle*	*Person*
0.1	.0075	0.00005	0.0000025
1.0	.075	0.0005	0.000025
10.0	.75	0.005	0.00025

Table D-9 can be used to calculate other population densities and other exposures of a population. For example, if there were a population of one person per square mile with all individuals unprotected one hundred percent of the time (living out of doors with no hat or 10 times the table), there would be an expected 0.00025 person struck by an S&I device annually or one person in 4,000 years. These results demonstrate that it is very unlikely that an individual could be struck by one of these objects with the force of a large hailstone, and if a person were struck on an unprotected head, there would be an approximately one percent chance of a concussion.

Some of the flare materials which fall to the surface after deployment are larger than an S&I device. Table D-6 lists larger pieces from the MJU-10/B and MJU-23/B flares, including the end caps and wrapping. The surface to mass ratio of most of these pieces would not be expected to permit the pieces to achieve a terminal velocity as great as the S&I device. Some parts, such as the ALA-17A/B flare debris include the entire bottom cylinder assembly, as well as the end cap and felt spacers from the top flare. The debris from an ALA-17A/B flare could fall in an orientation that the terminal velocity could produce a momentum in the 0.10 to 0.20 range. The relative low use of these flares reduces potential risk from the bottom cylinder assembly. ACC units are estimated to annually use fewer than 4,000 of these flares worldwide.

End caps, felt spacers, sliders, and wrapping material fall to the earth with each flare deployed. Most flare types have a plastic S&I device which falls to the ground. These dropped objects are extremely unlikely to pose a risk of injury or environmental damage, but the materials would fall to the ground under airspace where such flares are used in training. Figure D-14 is an example of an M-206 flare wrapper on the ground. To the untrained eye, as the wrapping material weathers, the wrapper may have the appearance of a natural object, such as the stick in the foreground. However, individuals finding and identifying these pieces could express annoyance with the residual flare materials.

Figure D-14. A Flare Wrapper Partially Covered by Pine Needles

4.0 FLARE CONCLUSIONS

Section 2.0 describes typical flares used regularly or intermittently in PRTC-scheduled training airspace. The environmental consequences of realistic military training with flares can be summarized as:

- The risk of a fire can be greatly reduced through adjusting the minimum altitude for deployment of self-protection flares. There is still the possibility of a mistake where a flare could be deployed at too low an altitude, but establishing minimum altitudes substantially reduces the potential for that mistake or for a flare-caused fire in the environment.
- Dud flares are infrequent with today's technology. The important environmental piece of information for dud flares is that, if one is found, it should be left where it is, its location should be marked, and authorities should be notified. Environmental analyses could explain that the risk from a falling dud flare striking anything is so low as to be inconsequential. If a dud flare were found, it should not be moved and an authority should be notified.
- There is almost no discernible trace from flare ash. A burning flare can be seen, but there is almost no detectable air or soils pollution that could come from the number of flares burned within a training airspace.
- Residual materials from the M-206, the MJU-7 A/B, MJU-10/B, ALA-17/C, or MJU-23 A/B flares have very little safety risk. Flare debris would have little environmental effect except that it could be an annoyance if found.

5.0 REFERENCES

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APPENDIX E
PUBLIC INVOLVEMENT AND AGENCY CORRESPONDENCE

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Distribution List for Draft EIS

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First Name	Last Name	Title	Organization Name	Address Line 1	Address Line 2	City	State	Postal Code
		Deputy Regional Director - Indian Services	Bureau of Indian Affairs	Great Plains Regional Office	115 4th Ave. SE	Aberdeen	SD	57401
		District Ranger	Black Hills National Forest	Northern Hills Ranger District	2014 N Main St	Spearfish	SD	57783
Pine	Abrahamson		Bowman County Commissioners	14310 98th St SW		Bowman	ND	58623
Fred	Adams		Basin Electric Power Coop	1717 E Interstate Ave		Bismarck	ND	58503
Margaret	Ahlness					Bowman	ND	58623
Hans	Ahlness		Weather Modification, Inc.	3802 20th St N		Fargo	ND	58102
Qusi	Al-Haj		Senator Thune	1313 W Main St		Rapid City	SD	57701
Rayford	Anderson					Buffalo	SD	57720
Dave	Anderson		SDDOT Aeronautics	700 E Broadway Ave		Pierre	SD	57501
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Max	Arnett	Manager	Bowman Municipal Airport	Box 198		Bowman	ND	58623
Jim	Atchison					Colstrip	MT	59323
John & Therese	Baldwin		Baldwin Ranch Co.	HC 78 Box 110		Ismay	MT	59336
Dallis	Basel					Union Center	SD	57787
Michael	Beason		CAP	5172 Ridgeview Rd		Rapid City	SD	57701
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Ken	Beltz					Boyes	MT	59316
Duane	Berke		TDO Aviation	7709 Blue Bird Ln		Black Hawk	SD	57718
Kate	Bertin		Independent Press	PO Box 106		Forsyth	MT	59327
Leslie	Best		Davidson Cattle Co	HC 74 Box 120		Big Horn	MT	59010
Bill	Bickel					Miles City	MT	59301
Leland	Black		Bureau of Indian Affairs	PO Box 40		Lame Deer	MT	59043
Cedric	Black Eagle					Crow Agency	MT	59022
Larry	Blacksmith					Crow Agency	MT	59022
Hubert	Blackwolf					Lame Deer	MT	59043
Clark	Blake					Belle Fourche	SD	57717
Kathy	Bockness		Bureau of Land Management	111 Garryowen Rd		Miles City	MT	59301
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Gregg	Bourland		Bureau of Indian Affairs	Box 325		Eagle Butte	SD	57625
James	Bragg					Bowman	ND	58623
Steve	Brandt		Sarpy Ranch			Hysham	MT	59038
	Brence Family					Ekalaka	MT	59324
Eugene	Brooks					Bowman	ND	58623-

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Gerald	Ellis		Ellis Ranch			Miles City	MT	59301
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Michael	Hamilton					Sheridan	WY	82801
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Terry & Deborah	Hanson					Miles City	MT	59801
Deborah	Hanson					Miles City	MT	59301
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Raymond	Hech					Lame Deer	MT	59043
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John	Helms					Buffalo	SD	57720
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Phil & Peggy	Johnson					Fort Shaw	MT	59443
Russell & Cara	Jorgensen					Forsyth	MT	59327
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Marvin	Kammerer					Rapid City	SD	57701
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Danny	Lanning	Owner	Lanning Ranch Airport	200 Lanning Trail		Alzada	MT	59311
Gene	Larson					Miles City	MT	59301
Robin	LeBeau					Eagle Butte	SD	57625
Kenneth	Lee					Sturgis	SD	57785
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Aaron	Levorsen					Elgin	ND	58533
Carlton	Levorsen					Elgin	ND	58533
Kelly	Lorge					Bowman	ND	58623
Thomas	Lubnau II	Representative	State Representative	4 Cherokee Circle		Gillette	WY	82718
Tom	Luoma					Baker	MT	59313
Tom	Lutey		Billings Gazette	PO Box 36300		Billings	MT	59107-6300
Joe & Kandi	Luther					Big Horn	MT	59010
Dave	Madel					Biddle	MT	59314
Jim	Magagna	Executive Vice President	Wyoming Stock Growers Assoc	PO Box 206		Cheyenne	WY	82003
Mel & Eleanor	Marousek					Belle Fourche	SD	57717
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Phillip	Mason					Sundance	WY	82729
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John	McAulay		McAulay Ranch			Terry	MT	59349
Jimmy & Erna	McClure					Sheridan	WY	82801-0744
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Stan	Michals		GFP	3305 W South		Rapid City	SD	57702
Kyle	Michels					Elgin	ND	58533
Robert	Miller		North Dakota Aeronautics Commission	Box 64		Casselton	ND	58012
John	Miller	Surface Water Quality Program	SD DENR PMB 2020	Joe Foss Building	523 E Capitol	Pierre	SD	57501
Sheri	Miner		Tribal Land Office	PO Box 590		Eagle Butte	SD	57625
Bob	Morland		Bowman County Airport	15 S Main		Bowman	ND	58603
Charles	Murphy	Chairman	Standing Rock Sioux Tribal Council	PO Box D		Fort Yates	ND	58538
Dan	Nelson					Meadows	SD	57644
Jack	Nesbit		Custer County	1010 Main St		Miles City	MT	59301
Gary	Ness		ND Aero Commission	Box 5020		Bismarck	ND	58502
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Darrin	Old Coyote					Crow Agency	MT	59022
Allen	Old Horn					Crow Agency	MT	59022
Allen	Olson					Box Elder	SD	57719
Frank & Dianne	O'Neill					Miles City	MT	59301
Tom & Lillian	Ostendorf					Powderville	MT	59345
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Dean	Pearson		Bowman County	104 1st St NW		Bowman	ND	58623
Kent	Pennington					Big Horn	MT	59010
Donna Rae	Petersen		CRST Cultural Preservation	PO Box 590		Eagle Butte	SD	57625
Ole	Peterson					Colstrip	MT	59323
Ellen	Pfister					Shepherd	MT	59079
Dwight	Pladsen					Rapid City	SD	57702

First Name	Last Name	Title	Organization Name	Address Line 1	Address Line 2	City	State	Postal Code
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Ted & Bonnie	Quade					Broadus	MT	59317
Jeff	Rader					Bozeman	MT	59771
Cindy	Radue					Miles City	MT	59301-9603
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Michael	Rath					Spearfish	SD	57783
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James	Renner					Ismay	MT	59336
Donald	Rieger		Fallon County Commissioners	10 West Fallon	PO Box 846	Baker	MT	59313-0846
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Jerome	Roehrich					New Leipzig	ND	58562
Joell	Romick		Meade County Admin.	1425 Sherman St		Sturgis	SD	57785
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Dennis	Roth					Elgin	ND	58533
Michael	Ruff					Broadus	MT	59317
Robert & Wilma	Rusley		S-X Ranch			Baker	MT	59313
Dona	Rutherford		Devils Tower National Monument	Box 10		Devils Tower	WY	82714
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Brad	Sauer					Miles City	MT	59301
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Kenny	Schultz					Ekalaka	MT	59324
Brian	Schwend	Manager	Schwend Flying Service	PO Box 45		Forsyth	MT	59327
Jack	Schwend					Rosebud	MT	59347
Sherri	Schwenke		U.S. Forest Service	240 W Century		Bismarck	ND	58501
Jon	Scraper					Fargo	ND	58103
Richard	Seidel					Bison	SD	57620
Craig	Shaver	Chair, Property Rights Committee	South Dakota Stockgrowers Assoc	426 St Joseph St		Rapid City	SD	57701
Rico	Short		FAA, Air Traffic Control Command Center	13600 Eds Dr, #100		Herndon	VA	20175
Wade	Sikorski					Baker	MT	59313
Geri	Small	President	Northern Cheyenne Tribal Council	PO Box 128		Lame Deer	MT	59043
Richard	Smith					Redig	SD	57776
Val	Snyder					Sheridan	WY	82801
Raydelle	Sperle					Reva	SD	57651
Roger	Sprague					Forsyth	MT	59327
Virginia	Sprague					Colstrip	MT	59327
Ashley	Stanhope		Farmers Union Oil Co	Box 1199		Baker	MT	59313
Mark	Stelter		NLEDC	PO Box 52		New Leipzig	ND	58562
Wally	Stephens		Nation's Center News	Box 107		Buffalo	SD	57720
Daryl & Geraldine	Storm					Meadow	SD	57644
Eric	Strohacker		Weather Modification, Inc.	3802 20th St N		Fargo	ND	58102
Ryan	Sundberg		Bureau of Land Management	Box 37 BLM Fire		Camp Crook	SD	57724
Larry	Svoboda	NEPA Program Chief	US Environmental Protection Agency, Region 8	1595 Wynkoop Street		Denver	CO	80202-1129
Adrienne	Swallow	Environmental Protection Specialist	Standing Rock Sioux Tribe	PO Box D		Ft Yates	ND	58538
Larry	Taborsky		North Dakota Aeronautics Commission (NDAC)	2301 University Dr., Building 1652-22	PO Box 5020	Bismarck	ND	58502
Jacob	Tall Bull					Lame Deer	MT	59043
Gary & Jean	Tennant	Owner	Tennant Ranch Airport	HC 59, Box 15		Camp Crook	SD	57724
Dustin	Tenold					Reva	SD	57651
David	Thiele		North Dakota National Guard	Fraine Barracks		Bismarck	ND	58504

First Name	Last Name	Title	Organization Name	Address Line 1	Address Line 2	City	State	Postal Code
Jeff	Tichenor		FAA Denver TRACON	26705 E. 68th Ave		Denver	CO	80249
Greg	Tober		Help Flight	12736 Canyon Creek Rd		Molt	MT	59057
Clarence	Ulmer					Belle Fourche	SD	57717
William & Juanita	Unhoch					Sheridan	WY	82801
Wayne	VanDeGraaff		FAA, SLC ARTCC	700 N 2150 W		Salt Lake City	UT	84116
Trent	VanderBoom		Clear Wind	510 Jackson St		Belle Fourche	MT	57717
J. Liessman	Vantine		Crownbutte Wind Power, Inc	111 5th Ave NE		Mandan	ND	58554
Carl	Venne	Chairman	Crow Tribal Council	PO Box 159		Crow Agency	MT	59022
Charles	Verhulst					Reva	SD	57651
Ben	VerWolf					Broadus	MT	59317
Chuck & Colleen	Vetter					Elgin	ND	58533
Bill	Vroman					Buffalo	SD	57720
Larry	Vroman					Buffalo	SD	57720
Ken	Wabaunsee		U.S. Forest Service	5765 W Broadway St.		Missoula	MT	59808
Dean	Wagner					Ralph	SD	57650
Bob	Walters		CRST Council	PO Box 590		Eagle Butte	SD	57625
Dean	Wang		Bank of Baker	PO Box 739		Baker	MT	59313
Warren	Wash	Manager	Broadus Airport	Box 394		Broadus	MT	59317
Pauline	Webb		West River Eagle	Box 210		Eagle Butte	SD	57625
Jeanne	Whalen		Crook Co. WY Land Use Planning	3961 Hwy 24		Aladdin	WY	82710
Glen	White		Hysham Airport	521 Summit		Hysham	MT	59038
Dennis	White					Forsyth	MT	59327
Marcus	White Bull		U.S. Forest Service	PO Box 37		Camp Crook	SD	57724
Virginia	Whitefeather					Dupree	SD	57623
Dean	Wink		Meade County Commissioner Dist 1	PO Box 137		Howes	SD	57748
Mike	Wobbema		North Dakota National Guard	Fraine Barracks		Bismarck	ND	58504
David	Wolfskill		Eagle Aviation	300 Aviation Pl		Spearfish	SD	57783
Bert & Helen	Woods					Ashland	MT	59003
Jason	Woolston					Baker	MT	59313
Noel	Young					Sheridan	WY	82801
Phyllis	Young					Ft Yates	ND	58538
Clayton	Zacher					Elgin	ND	58533
Penny	Zimmerman		Senator Jon Tester	122 W Towne St		Glendive	MT	59330

Sample IICEP Letters and Distribution Lists

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SAMPLE IICEP LETTER 1

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS AIR COMBAT COMMAND
LANGLEY AIR FORCE BASE, VIRGINIA

JUN 3 2008

MEMORANDUM FOR U.S. Fish and Wildlife Service
134 Union Blvd
Lakewood, CO 80228

FROM: HQ ACC/A7P
129 Andrews Street, Suite 122
Langley AFB VA 23665-2769

SUBJECT: Powder River Training Complex, Environmental Impact Statement (EIS)

1. The United States Air Force (Air Force) is in the process of preparing an EIS to assess the potential environmental consequences of a proposal to expand and enhance the existing Powder River Complex (PRC) near Ellsworth Air Force Base (AFB) SD. The proposal would create the Powder River Training Complex (PRTC). The PRTC would more effectively use limited resources and finite flying hours by providing locally the realistic training needed by B-1 and B-52 aircrews flying from Ellsworth AFB SD and Minot AFB ND, respectively. This airspace proposal addresses the training and other limitations affecting the existing PRC training assets as they are currently configured.

2. The proposed action would restructure and reconfigure the existing Powder River Military Operations Areas (MOAs) and associated Air Traffic Control Assigned Airspaces (ATCAAs). The PRTC proposal would establish two air refueling routes, create additional low altitude MOA (500 feet Above Ground Level [AGL] up to but not including 18,000 feet above Mean Sea Level [MSL]) and high-altitude ATCAA (18,000-60,000 MSL) combinations in portions of South Dakota, North Dakota, Wyoming and Montana. The proposal would support additional ground-based assets to simulate threats and an increase in aircraft training flights, permit the use of training chaff and flares, and authorize supersonic flight above 10,000 AGL. Three action alternatives and a no-action alternative have currently been identified for analyses and are discussed in the attached meeting brochure (Atch 1).

3. The purpose of this correspondence is to initiate informal Section 7 consultation in compliance with the Endangered Species Act (ESA) and to request information regarding federally listed threatened, endangered, candidate, and species proposed for listing under the ESA that occur or may occur in the proposed airspace. All or portions of the following locations have the potential of being affected by the proposal's overhead training airspace due to one or more of the alternatives: ***Montana***—Crow and Northern Cheyenne Reservations and the counties of Big Horn, Carter, Custer, Fallon, Powder River, Rosebud, Treasure, and Yellowstone; ***North Dakota***—Standing Rock Reservation and Adams, Billings, Bowman, Golden Valley, Grant, Hettinger, Morton, Sioux, Slope, and Stark counties; ***South Dakota***—Standing Rock and Cheyenne River Reservations, and Butte, Corson, Harding, Lawrence, Meade, Pennington, Perkins, Ziebach counties; and ***Wyoming***: Campbell, Crook, Sheridan, and Weston counties.

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4. The Air Force is committed to community outreach and recognizing that open communication of issues is a critical element of the EIS process, the Air Force will host public meetings in communities underlying and/or adjacent to the proposed airspace as identified in the meeting flyer at attachment 2. Community meetings are also being coordinated on each Native American Reservation. Meetings with public, agency, and Native American stakeholders during this scoping process will help identify the full range of reasonable alternatives, potential impacts, and key issues to be considered in the environmental impact analysis process.

5. To ensure the Air Force has sufficient time to consider your input in the preparation of the Draft EIS, please provide information and/or comments to Ms. Linda DeVine, HQ ACC/A7PP at the above address with a copy to SAIC, Dr. Thomas W. Mulroy, 5464 Carpintoria Avenue, Carpinteria CA 93013, not later than August 4, 2008. If you any specific questions about this proposal, please feel free to contact Ms. Linda DeVine at (757) 764-9434, by electronic-mail at acc.prtc@langley.af.mil. You may also obtain information including the two attachments to this letter, from our website at www.accplanning.org. Thank you in advance for your assistance in this matter.

Sincerely,

BRUCE W. MACDONALD, P.E.
Acting Chief, Programs Division

Attachment:
1. Scoping Meeting Brochure
2. Flyer

Global Power For America

The National Environmental Policy Act guides the PRTC EIS.

NEPA requires federal decision makers to consider potential environmental consequences of proposed actions and reasonable alternatives, including a No-Action Alternative in an EIS. The EIS complies with environmental regulations and documents potential impacts to the natural and human environment.

Resources initially identified for analysis in the EIS include (but are not limited to) the following:

- **Airspace Operations** Airspace, Noise, Air Quality, and Safety (ground and air)
- **Natural Resources** Physical and Biological Resources
- **Cultural Resources** Cultural, Native American, Traditional, and Historic Resources
- **Human Resources** Land Use, Quality of Life, Socioeconomics, and Environmental Justice

The EIS Process Timeline

■ Opportunities for Public Involvement

- Notice of Intent (NOI) Published in Federal Register
- ↓ **Scoping** ■
- ↓ Preparation of Draft EIS
- ↓ Notice of Availability of Draft EIS
- ↓ **60-Day Public Comment Period** ■
- ↓ Preparation of Final EIS
- ↓ Notice of Availability of Final EIS
- ↓ 30-Day Waiting Period
- ↓ Record of Decision

Your input is essential to the environmental analysis process!

Providing Comments

To provide comments, please fill out a comment sheet. Please give your comments to an Air Force representative or place it in the comment box. Comment forms, or your own letter, may also be mailed to:

Ms. Linda DeVine
HQ ACC/A7PP
129 Andrews Street, Room 317
Langley AFB, VA 23665-2769

To ensure your comments are considered in the Draft EIS, please submit your comments before ***August 4, 2008.***

Public comments on this Draft EIS are requested pursuant to the NEPA, 42 USC 4321, et seq. All written comments received during the comment period will be made available to the public and considered during EIS preparation. Your provision of private address information with your comment is voluntary. Your private address information will not be released in the EIS or for any other purpose, unless required by law. However, your private address information will be used to compile the mailing list for EIS distribution. Failure to provide such information will result in your name not being included on the distribution list.

Scoping Meetings for the Powder River Training Complex (PRTC) Environmental Impact Statement (EIS)

Welcome!

The United States Air Force is conducting scoping meetings for the PRTC EIS. The Air Force is preparing an EIS to determine the potential environmental consequences of a proposal to expand the Powder River Complex to create the PRTC. The PRTC would allow for more effective use of limited resources and finite flying hours by providing, locally, the realistic training needed by B-1 and B-52 aircrews flying from Ellsworth and Minot AFBs. The options being analyzed could:

1. Restructure and reconfigure the existing PRC Military Operations Areas (MOAs) and associated Air Traffic Control Assigned Airspace (ATCAA) and add new MOA/ATCAA airspace with a floor of 500 feet above ground level (AGL).
2. Increase sortie-operations (aircraft training) in the new and modified training airspace.
3. Support additional ground-based simulated threat emitters under the MOAs.
4. Authorize use of training chaff and flares throughout the new and modified airspace.
5. Permit supersonic flight above 10,000 feet AGL.

Scoping meetings provide the public an opportunity to learn about the proposed PRTC and provide input into this environmental impact analysis process. The scoping process helps us identify and address community-specific issues and concerns regarding the proposed airspace use.

Meeting Agenda

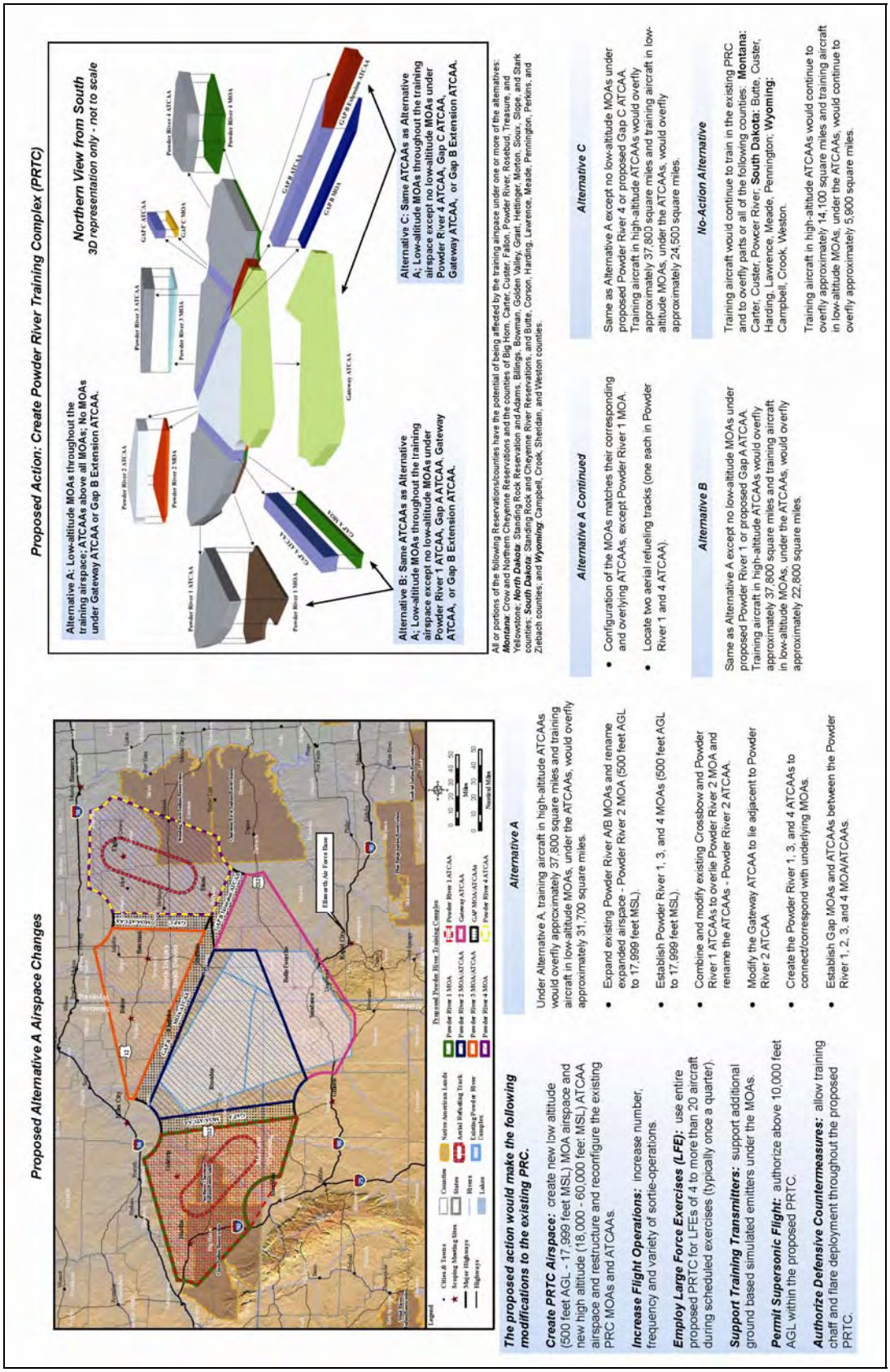
Open House........................4:00 p.m. - 7:00 p.m.

- View video presentation
- Visit information booths
- Discuss proposal with Air Force personnel
- Submit written comments

The Air Force is committed to community outreach and will consider your input to determine the scope of the issues to be addressed and to help identify the significant environmental issues to be analyzed in depth. Your involvement and input are vital to help us focus the environmental analysis.

Why is the PRTC Needed?

- Aircrews need adequately sized, configured, and available airspace to train as they fight during worldwide deployment.
- Increasing training in local airspace optimizes the limited amount of training hours allocated.
- Reducing commute time to remote training ranges like Nevada Test and Training Range (NTTR) reduces fuel consumption.
- Use of chaff and flares allows aircrews to deploy defensive countermeasures as they would in combat.
- Supersonic training assists aircrews to train for show of force and for quick reaction to enemy threats in combat.
- More effectively use limited resources and finite flying hours.


Proposed Action: Create Powder River Training Complex (PRTC)
Northern View from South
3D representation only - not to scale
Alternative A: Low-altitude MOAs throughout the training airspace; ATCAAs above all MOAs; No MOAs under Gateway ATCA or Gap B Extension ATCAA.
Alternative B: Same ATCAAs as Alternative A; Low-altitude MOAs throughout the training airspace except no low-altitude MOAs under Powder River 1 ATCAA, Gap A ATCAA, Gateway ATCAA, or Gap B Extension ATCAA.
Alternative C: Same ATCAAs as Alternative A; Low-altitude MOAs throughout the training airspace except no low-altitude MOAs under Powder River 4 ATCAA, Gap C ATCAA, Gateway ATCAA, or Gap B Extension ATCAA.
All or portions of the following Reservations/counties have the potential of being affected by the training airspace under one or more of the alternatives: **Montana**: Crow and Northern Cheyenne Reservations and the counties of Big Horn, Carter, Custer, Fallon, Powder River, Rosebud, Treasure, and Yellowstone; **North Dakota**: Standing Rock Reservation and Adams, Billings, Bowman, Golden Valley, Grant, Hettinger, Morton, Sioux, Slope, and Stark counties; **South Dakota**: Standing Rock and Cheyenne River Reservations, and Butte, Corson, Harding, Lawrence, Meade, Pennington, Perkins, and Ziebach counties; and **Wyoming**: Campbell, Crook, Sheridan, and Weston counties.
Proposed Alternative A Airspace Changes
Alternative A
Under Alternative A, training aircraft in high-altitude ATCAAs would overfly approximately 37,800 square miles and training aircraft in low-altitude MOAs, under the ATCAAs, would overfly approximately 31,700 square miles.
• Expand existing Powder River A/B MOAs and rename expanded airspace - Powder River 2 MOA (500 feet AGL to 17,999 feet MSL).
• Establish Powder River 1, 3, and 4 MOAs (500 feet AGL to 17,999 feet MSL).
• Combine and modify existing Crossbow and Powder River 1 ATCAAs to overlie Powder River 2 MOA and rename the ATCAAs - Powder River 2 ATCAA.
• Modify the Gateway ATCAA to lie adjacent to Powder River 2 ATCAA.
• Create the Powder River 1, 3, and 4 ATCAAs to connect/correspond with underlying MOAs.
• Establish Gap MOAs and ATCAAs between the Powder River 1, 2, 3, and 4 MOA/ATCAAs.
Alternative A Continued
• Configuration of the MOAs matches their corresponding and overlying ATCAAs, except Powder River 1 MOA.
• Locate two aerial refueling tracks (one each in Powder River 1 and 4 ATCAA).
Alternative B
Same as Alternative A except no low-altitude MOAs under proposed Powder River 1 or proposed Gap A ATCAA. Training aircraft in high-altitude ATCAAs would overfly approximately 37,800 square miles and training aircraft in low-altitude MOAs, under the ATCAAs, would overfly approximately 22,800 square miles.
Alternative C
Same as Alternative A except no low-altitude MOAs under proposed Powder River 4 or proposed Gap C ATCAA. Training aircraft in high-altitude ATCAAs would overfly approximately 37,800 square miles and training aircraft in low-altitude MOAs, under the ATCAAs, would overfly approximately 24,500 square miles.
No-Action Alternative
Training aircraft would continue to train in the existing PRC and to overfly parts or all of the following counties: **Montana**: Carter, Custer, Powder River; **South Dakota**: Butte, Custer, Harding, Lawrence, Meade, Pennington; **Wyoming**: Campbell, Crook, Weston.
Training aircraft in high-altitude ATCAAs would continue to overfly approximately 14,100 square miles and training aircraft in low-altitude MOAs, under the ATCAAs, would continue to overfly approximately 5,900 square miles.
The proposed action would make the following modifications to the existing PRC.
Create PRTC Airspace: create new low altitude (500 feet AGL - 17,999 feet MSL) MOA airspace and new high altitude (18,000 - 60,000 feet MSL) ATCAA airspace and restructure and reconfigure the existing PRC MOAs and ATCAAs.
Increase Flight Operations: increase number, frequency and variety of sortie-operations.
Employ Large Force Exercises (LFE): use entire proposed PRTC for LFEs of 4 to more than 20 aircraft during scheduled exercises (typically once a quarter).
Support Training Transmitters: support additional ground based simulated emitters under the MOAs.
Permit Supersonic Flight: authorize above 10,000 feet AGL within the proposed PRTC.
Authorize Defensive Countermeasures: allow training chaff and flare deployment throughout the proposed PRTC.

Powder River

Powder River Training Complex • Environmental Impact Statement

Please Attend!

Scoping Meetings for the Powder River Training Complex (PRTC) Environmental Impact Statement (EIS)

Ellsworth Air Force Base (AFB), South Dakota proposes to modify their training airspace.

Please attend a public scoping meeting to:

- ☑ Learn more about the proposal
- ☑ Provide community-specific input
- ☑ Be included on our mailing list

Public Scoping Meetings

Open House 4:00 p.m. to 7:00 p.m.
Public invited to attend at any time. Information will be available throughout.

South Dakota

Rapid City
Monday, June 16, 2008
Rapid City Public Library
610 Quincy Street

Belle Fourche
Tuesday, June 17, 2008
Community Center
(Dakota Room)
1111 National Street

Buffalo
Monday, July 14, 2008
Harding County Memorial
Recreation Center
West Allison Street

Bison
Tuesday, July 15, 2008
Bison School Cafeteria
200 East Carr Street

Wyoming

Sundance
Wednesday, June 18, 2008
Crook County Public Library
414 East Main Street

Gillette
Thursday, June 19, 2008
Campbell County
Fire Department
106 Rohan Avenue

Sheridan
Friday, June 20, 2008
Sheridan Senior Center
North Entrance
211 Smith Street

Montana

Hardin
Monday, June 23
Hardin Chamber of Commerce
10 E. Railroad Street

Colstrip
Tuesday, June 24, 2008
Isabel Bills Community
Learning Center,
520 Poplar Drive

Miles City
Wednesday, June 25, 2008
Miles Community College
2715 Dickinson

Ekalaka
Thursday, June 26, 2008
St. Joan of Arc Parish Hall
Church Street

Broadus
Friday, June 27, 2008
Powder River County District
High School
500 North Trautman

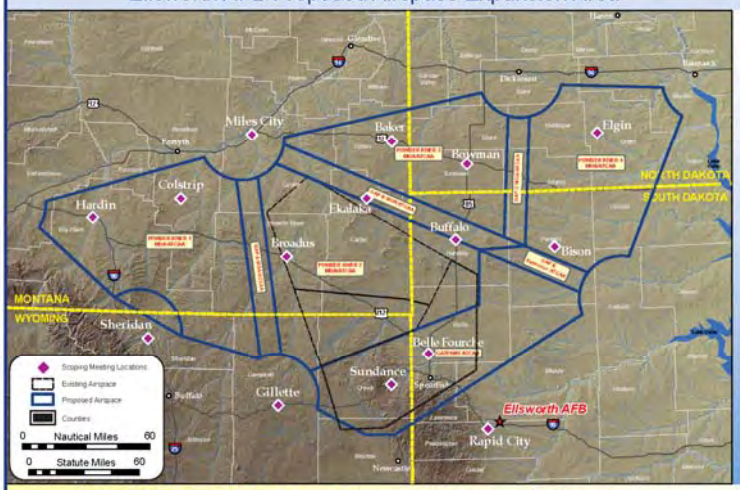
Baker
Tuesday, July 8, 2008
Baker High School
1015 South Third Street West

North Dakota

Bowman
Wednesday, July 9, 2008
City Hall Meeting Room
101 1st Street Southwest

Elgin
Thursday, July 10, 2008
Elgin Community Center
305 North Main Street

Ellsworth AFB Proposed Airspace Expansion Area



For more information about the meeting contact:

28th Bomb Wing
Ellsworth AFB, Public Affairs
(605) 385-5056

Send comments to:

Ms. Linda DeVine
EIS Project Manager
HQ ACC/A7PP
129 Andrews Street, Room 317
Langley AFB, VA 23665-2769

For additional information visit our website at www.accplanning.org

DISTRIBUTION LIST

U.S. Fish and Wildlife Service
South Dakota Ecological Services Field Office
420 S. Garfield Avenue, Suite 400
Pierre, SD 57501-5408

U.S. Fish and Wildlife Service
Wyoming Ecological Services Field Office
5353 Yellowstone Road, Ste. 308A
Cheyenne, WY 82009-4178

U.S. Fish and Wildlife Service
North Dakota Field Office
3425 Miriam Avenue
Bismarck, ND 58501-7926

U.S. Fish and Wildlife Service
Montana Field Office
585 Shepard Way
Helena, MT 59601

U.S. Fish and Wildlife Service
134 Union Blvd
Lakewood, CO 80228

SAMPLE IICEP LETTER 2

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS AIR COMBAT COMMAND
LANGLEY AIR FORCE BASE, VIRGINIA

JUN 3 2008

MEMORANDUM FOR State Historical Society of North Dakota
612 East Boulevard Avenue
Bismarck, ND 58505-0830

FROM: HQ ACC/A7P
129 Andrews Street
Langley AFB VA 23665-2769

SUBJECT: Powder River Training Complex, Environmental Impact Statement (EIS)

1. The United States Air Force (Air Force) is in the process of preparing an EIS to assess the potential environmental consequences of a proposal to expand and enhance the existing Powder River Complex (PRC) near Ellsworth Air Force Base (AFB) SD. The proposal would create the Powder River Training Complex (PRTC). The PRTC would more effectively use limited resources and finite flying hours by providing locally the realistic training needed by B-1 and B-52 aircrews flying from Ellsworth AFB SD and Minot AFB ND, respectively. This airspace proposal addresses the training and other limitations affecting the existing PRC training assets as they are currently configured.

2. The proposed action would restructure and reconfigure the existing Powder River Military Operations Areas (MOAs) and associated Air Traffic Control Assigned Airspaces (ATCAAs). The PRTC proposal would establish two air refueling routes, create additional low altitude MOA (500 feet Above Ground Level [AGL] up to, but not including, 18,000 feet above Mean Sea Level [MSL]) and high-altitude ATCAA (18,000-60,000 MSL) combinations in portions of South Dakota, North Dakota, Wyoming and Montana. The proposal would support additional ground-based assets to simulate threats and an increase in aircraft training flights, permit the use of training chaff and flares, and authorize supersonic flight above 10,000 AGL. Three action alternatives and a no-action alternative have currently been identified for analyses and are discussed in the attached meeting brochure (Atch 1).

3. The purpose of this correspondence is to initiate the Section 106 process of the National Historic Preservation Act (NHPA) of 1966 (as amended) in the potentially affected areas. We are in the early stages of gathering information concerning previous archaeological and historic studies for the areas under the affected region. We would appreciate any assistance you could provide in identifying and retrieving this important information, as well as concerns you may have about the potential effects of the proposal on significant cultural resources. All or portions of the following locations have the potential of being affected by the proposal's overhead training airspace due to one or more of the alternatives: ***Montana***—Crow and Northern Cheyenne Reservations and the counties of Big Horn, Carter, Custer, Fallon, Powder River, Rosebud, Treasure, and Yellowstone; ***North Dakota***—Standing Rock Reservation and Adams, Billings, Bowman, Golden Valley, Grant, Hettinger, Morton, Sioux, Slope, and Stark counties; ***South Dakota***—Standing Rock and Cheyenne River Reservations, and Butte, Corson,

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Harding, Lawrence, Meade, Pennington, Perkins, Ziebach counties; and ***Wyoming***: Campbell, Crook, Sheridan, and Weston counties.

4. The Air Force is committed to community outreach. Recognizing that open communication of issues is a critical element of the EIS process, the Air Force will host public meetings in communities underlying and/or adjacent to the proposed airspace as identified in the meeting flyer at attachment 2. The Air Force intends to coordinate public involvement for the purpose of Section 106 review under the NHPA with public involvement in the EIS prepared under the Environmental Impact Analysis Process. The 28 Bomb Wing Commander at Ellsworth AFB has initiated consultation with the tribal leaders of the Crow, Northern Cheyenne, Standing Rock and Cheyenne River Nations and community meetings are being coordinated on each Native American Reservation. Meetings with public, agency, and Native American stakeholders during this scoping process will help identify the full range of reasonable alternatives, potential impacts, and key issues to be considered in the environmental impact analysis process.

5. To ensure the Air Force has sufficient time to consider your input in the preparation of the Draft EIS, please provide information and/or comments to Ms. Linda DeVine, HQ ACC/A7PP at the above address not later than August 4, 2008. If you have any specific questions about this proposal, please feel free to contact Ms. Linda DeVine at (757) 764-9434, or by electronic-mail at acc.prtc@langley.af.mil. You may also obtain information including the two attachments to this letter, from our website at www.accplanning.org. Thank you in advance for your assistance in this matter.

BRUCE W. MACDONALD, P.E.
Acting Chief, Programs Division

Attachment:
1. Scoping Meeting Brochure
2. Flyer

Global Power For America

Scoping Meetings
for the Powder River Training Complex (PRTC)
Environmental Impact Statement (EIS)

The National Environmental Policy Act guides the PRTC EIS.

NEPA requires federal decision makers to consider potential environmental consequences of proposed actions and reasonable alternatives, including a No-Action Alternative in an EIS. The EIS complies with environmental regulations and documents potential impacts to the natural and human environment.

Resources initially identified for analysis in the EIS include (but are not limited to) the following:

- **Airspace Operations** Airspace, Noise, Air Quality, and Safety (ground and air)
- **Natural Resources** Physical and Biological Resources
- **Cultural Resources** Cultural, Native American, Traditional, and Historic Resources
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The EIS Process Timeline

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2. **Scoping** ■
3. Preparation of Draft EIS
4. Notice of Availability of Draft EIS
5. **60-Day Public Comment Period** ■
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8. 30-Day Waiting Period
9. Record of Decision

Your input is essential to the environmental analysis process!

Providing Comments

To provide comments, please fill out a comment sheet. Please give your comments to an Air Force representative or place it in the comment box. Comment forms, or your own letter, may also be mailed to:

Ms. Linda DeVine
HQ ACC/A7PP
129 Andrews Street, Room 317
Langley AFB, VA 23665-2769

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Welcome!

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Meeting Agenda

Open House........................4:00 p.m. - 7:00 p.m.

- View video presentation
- Visit information booths
- Discuss proposal with Air Force personnel
- Submit written comments

The Air Force is committed to community outreach and will consider your input to determine the scope of the issues to be addressed and to help identify the significant environmental issues to be analyzed in depth. Your involvement and input are vital to help us focus the environmental analysis.

Why is the PRTC Needed?

- Aircrews need adequately sized, configured, and available airspace to train as they fight during worldwide deployment.
- Increasing training in local airspace optimizes the limited amount of training hours allocated.
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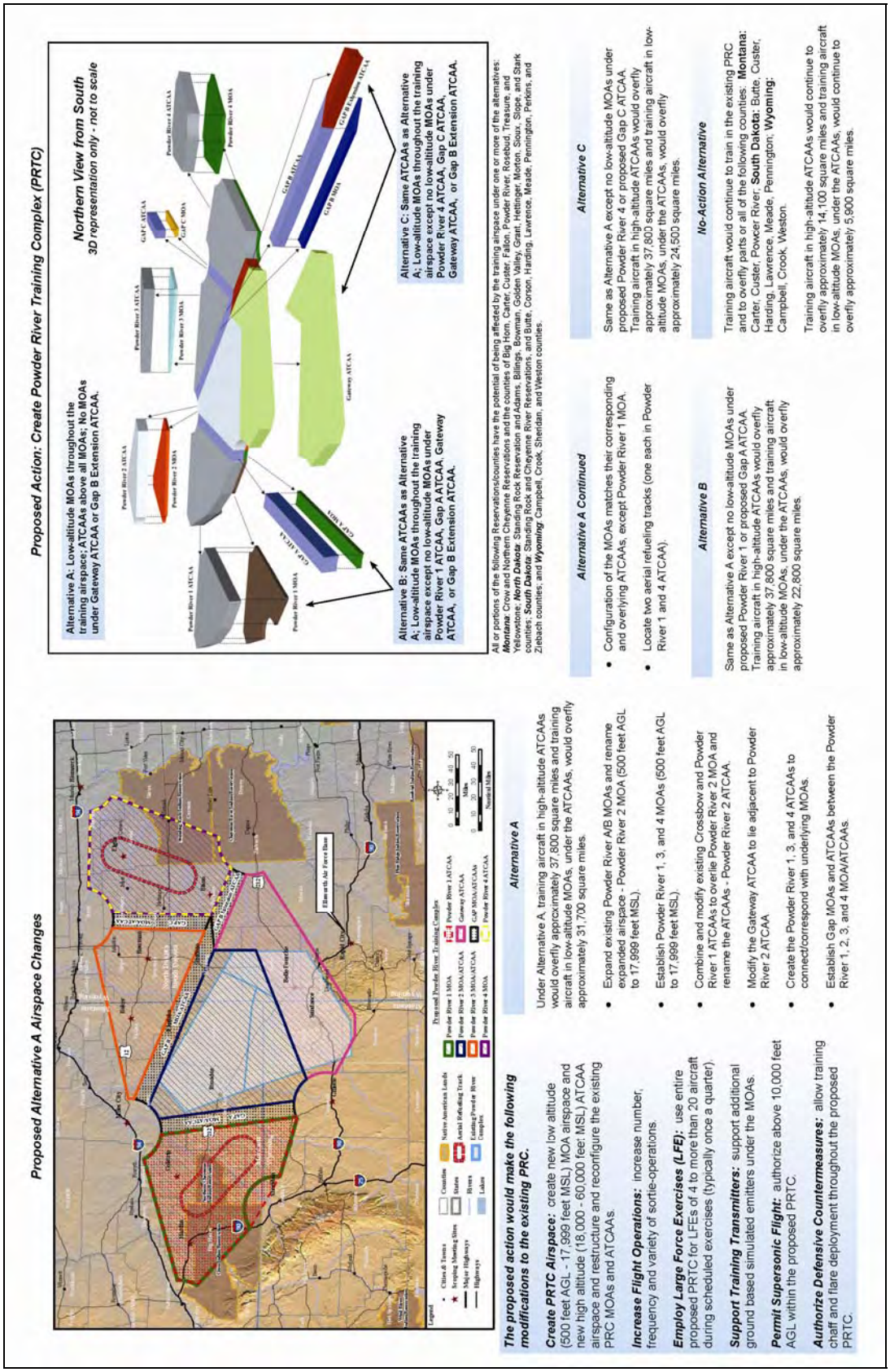
- Supersonic training assists aircrews to train for show of force and for quick reaction to enemy threats in combat.
- More effectively use limited resources and finite flying hours.


Proposed Action: Create Powder River Training Complex (PRTC)
Northern View from South
3D representation only - not to scale
Alternative A: Low-altitude MOAs throughout the training airspace; ATCAAs above all MOAs; No MOAs under Gateway ATCAA or Gap B Extension ATCAA.
Alternative B: Same ATCAAs as Alternative A; Low-altitude MOAs throughout the training airspace except no low-altitude MOAs under Powder River 1 ATCAA, Gap A ATCAA, Gateway ATCAA, or Gap B Extension ATCAA.
Alternative C: Same ATCAAs as Alternative A; Low-altitude MOAs throughout the training airspace except no low-altitude MOAs under Powder River 4 ATCAA, Gap C ATCAA, Gateway ATCAA, or Gap B Extension ATCAA.
All or portions of the following Reservations/counties have the potential of being affected by the training airspace under one or more of the alternatives: Montana: Crow and Northern Cheyenne Reservations and the counties of Big Horn, Carter, Custer, Fallon, Powder River, Rosebud, Treasure, and Yellowstone; North Dakota: Standing Rock Reservation and Adams, Billings, Bowman, Golden Valley, Grant, Hettinger, Morton, Sioux, Slope, and Stark counties; South Dakota: Standing Rock and Cheyenne River Reservations, and Butte, Corson, Harding, Lawrence, Meade, Pennington, Perkins, and Ziebach counties; and Wyoming: Campbell, Crook, Sheridan, and Weston counties.
Alternative A Continued
Configuration of the MOAs matches their corresponding and overlying ATCAAs, except Powder River 1 MOA.
Locate two aerial refueling tracks (one each in Powder River 1 and 4 ATCAA).
Alternative C
Same as Alternative A except no low-altitude MOAs under proposed Powder River 4 or proposed Gap C ATCAA. Training aircraft in high-altitude ATCAAs would overfly approximately 37,800 square miles and training aircraft in low-altitude MOAs, under the ATCAAs, would overfly approximately 24,500 square miles.
Alternative B
Same as Alternative A except no low-altitude MOAs under proposed Powder River 1 or proposed Gap A ATCAA. Training aircraft in high-altitude ATCAAs would overfly approximately 37,800 square miles and training aircraft in low-altitude MOAs, under the ATCAAs, would overfly approximately 22,800 square miles.
No-Action Alternative
Training aircraft would continue to train in the existing PRC and to overfly parts or all of the following counties: Montana: Carter, Custer, Powder River; South Dakota: Butte, Custer, Harding, Lawrence, Meade, Pennington; Wyoming: Campbell, Crook, Weston.
Training aircraft in high-altitude ATCAAs would continue to overfly approximately 14,100 square miles and training aircraft in low-altitude MOAs, under the ATCAAs, would continue to overfly approximately 5,900 square miles.
Proposed Alternative A Airspace Changes
Alternative A
The proposed action would make the following modifications to the existing PRC.
Create PRTC Airspace: create new low altitude (500 feet AGL - 17,999 feet MSL) MOA airspace and new high altitude (18,000 - 60,000 feet MSL) ATCAA airspace and restructure and reconfigure the existing PRC MOAs and ATCAAs.
Increase Flight Operations: increase number, frequency and variety of sortie-operations.
Employ Large Force Exercises (LFE): use entire proposed PRTC for LFEs of 4 to more than 20 aircraft during scheduled exercises (typically once a quarter).
Support Training Transmitters: support additional ground based simulated emitters under the MOAs.
Permit Supersonic Flight: authorize above 10,000 feet AGL within the proposed PRTC.
Authorize Defensive Countermeasures: allow training chaff and flare deployment throughout the proposed PRTC.
Under Alternative A, training aircraft in high-altitude ATCAAs would overfly approximately 37,800 square miles and training aircraft in low-altitude MOAs, under the ATCAAs, would overfly approximately 31,700 square miles.
Expand existing Powder River A/B MOAs and rename expanded airspace - Powder River 2 MOA (500 feet AGL to 17,999 feet MSL).
Establish Powder River 1, 3, and 4 MOAs (500 feet AGL to 17,999 feet MSL).
Combine and modify existing Crossbow and Powder River 1 ATCAAs to overlie Powder River 2 MOA and rename the ATCAAs - Powder River 2 ATCAA.
Modify the Gateway ATCAA to lie adjacent to Powder River 2 ATCAA.
Create the Powder River 1, 3, and 4 ATCAAs to connect/correspond with underlying MOAs.
Establish Gap MOAs and ATCAAs between the Powder River 1, 2, 3, and 4 MOA/ATCAAs.
Ellsworth Air Force Base
Transient Powder River Training Complex
Powder River 1 MOA
Powder River 2 MOA/ATCAA
Powder River 3 MOA/ATCAA
Powder River 4 MOA
Gateway ATCAA
Gap MOA/ATCAAs
Powder River 4 ATCAA
Legend
Cities & Towns
Keeping Standing Silos
Major Highways
Highways
Counties
States
Rivers
Lakes
Native American Lands
Aerial Refueling Track
Existing Powder River Complex

Powder River

Powder River Training Complex • Environmental Impact Statement

Please Attend!

Scoping Meetings for the Powder River Training Complex (PRTC) Environmental Impact Statement (EIS)

Ellsworth Air Force Base (AFB), South Dakota proposes to modify their training airspace.

Please attend a public scoping meeting to:

- ☑ Learn more about the proposal
- ☑ Provide community-specific input
- ☑ Be included on our mailing list

Public Scoping Meetings

Open House 4:00 p.m. to 7:00 p.m.
Public invited to attend at any time. Information will be available throughout.

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Rapid City Public Library
610 Quincy Street

Belle Fourche
Tuesday, June 17, 2008
Community Center
(Dakota Room)
1111 National Street

Buffalo
Monday, July 14, 2008
Harding County Memorial
Recreation Center
West Allison Street

Bison
Tuesday, July 15, 2008
Bison School Cafeteria
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Fire Department
106 Rohan Avenue

Sheridan
Friday, June 20, 2008
Sheridan Senior Center
North Entrance
211 Smith Street

Montana

Hardin
Monday, June 23
Hardin Chamber of Commerce
10 E. Railroad Street

Colstrip
Tuesday, June 24, 2008
Isabel Bills Community
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520 Poplar Drive

Miles City
Wednesday, June 25, 2008
Miles Community College
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Ekalaka
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St. Joan of Arc Parish Hall
Church Street

Broadus
Friday, June 27, 2008
Powder River County District
High School
500 North Trautman

Baker
Tuesday, July 8, 2008
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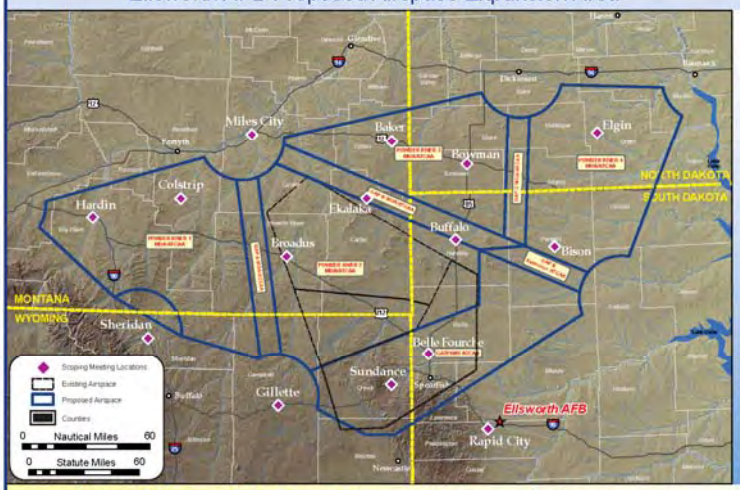
1015 South Third Street West

North Dakota

Bowman
Wednesday, July 9, 2008
City Hall Meeting Room
101 1st Street Southwest

Elgin
Thursday, July 10, 2008
Elgin Community Center
305 North Main Street

Ellsworth AFB Proposed Airspace Expansion Area



For more information about the meeting contact:

28th Bomb Wing
Ellsworth AFB, Public Affairs
(605) 385-5056

Send comments to:

Ms. Linda DeVine
EIS Project Manager
HQ ACC/A7PP
129 Andrews Street, Room 317
Langley AFB, VA 23665-2769

For additional information visit our website at www.accplanning.org

DISTRIBUTION LIST

South Dakota State Historical Society
900 Governors Drive
Pierre, SD 57501-2217

State Historical Society of North Dakota
612 East Boulevard Avenue
Bismarck, ND 58505-0830

State Parks & Cultural Resources Historic Preservation Office
2301 Central Avenue
Cheyenne, WY 82002

Montana Historical Society
225 N. Roberts
PO Box 20121
Helena, MT 59620

Wyoming State Parks/Historic Sites HQ
2301 Central Avenue
Cheyenne, WY 82002

SAMPLE IICEP LETTER 3

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS AIR COMBAT COMMAND
LANGLEY AIR FORCE BASE, VIRGINIA

JUN 3 2008

The Honorable Jerry Jimison
City of Glendive
300 S Merrill
Glendive, MT 59330

Dear Mayor Jimison:

The United States Air Force (Air Force) is in the process of preparing an Environmental Impact Statement (EIS) to assess the potential environmental consequences of a proposal to expand and enhance the existing Powder River Complex (PRC) near Ellsworth Air Force Base (AFB) SD. The proposal would create the Powder River Training Complex (PRTC). The PRTC would more effectively use limited resources and finite flying hours by providing locally the realistic training needed by B-1 and B-52 aircrews flying from Ellsworth AFB SD and Minot AFB ND, respectively. This airspace proposal addresses the training and other limitations affecting the existing PRC training assets as they are currently configured.

The proposed action would restructure and reconfigure the existing Powder River Military Operations Areas (MOAs) and associated Air Traffic Control Assigned Airspaces (ATCAAs). The PRTC proposal would establish two air refueling routes, create additional low altitude MOA (500 feet Above Ground Level [AGL] up to, but not including, 18,000 feet above Mean Sea Level [MSL]) and high-altitude ATCAA (18,000-60,000 MSL) combinations in portions of South Dakota, North Dakota, Wyoming and Montana. The proposal would support additional ground-based assets to simulate threats and an increase in aircraft training flights, permit the use of training chaff and flares, and authorize supersonic flight above 10,000 AGL. Three action alternatives and a no-action alternative have currently been identified for analyses and are discussed in the attached meeting brochure (Atch 1). All or portions of the following locations have the potential of being affected by the proposal's overhead training airspace due to one or more of the alternatives: ***Montana***—Crow and Northern Cheyenne Reservations and the counties of Big Horn, Carter, Custer, Fallon, Powder River, Rosebud, Treasure, and Yellowstone; ***North Dakota***—Standing Rock Reservation and Adams, Billings, Bowman, Golden Valley, Grant, Hettinger, Morton, Sioux, Slope, and Stark counties; ***South Dakota***—Standing Rock and Cheyenne River Reservations, and Butte, Corson, Harding, Lawrence, Meade, Pennington, Perkins, Ziebach counties; and ***Wyoming***: Campbell, Crook, Sheridan, and Weston counties.

Recognizing that open communication of issues is a critical element of the EIS process, the Air Force will host public meetings in communities underlying and/or adjacent to the proposed airspace as identified in the meeting flyer at attachment 2. Community meetings are also being coordinated on each Native American Reservation. The Air Force intends to coordinate public involvement for the purpose of Section 106 review under the National Historic Preservation Act with public involvement in the EIS prepared under the Environmental Impact Analysis Process. Meetings with public, agency, and Native American stakeholders during this

Global Power For America

scoping process will help identify the full range of reasonable alternatives, potential impacts, and key issues to be considered in the environmental impact analysis process.

The Air Force is committed to community outreach and as an additional effort to inform the public of these meetings, we request your assistance in posting the enclosed flyer in a conspicuous place within your community. The scoping meetings will be in an open-house format, where Air Force representatives will describe the proposed action and alternatives, explain the National Environmental Policy Act, outline opportunities for public involvement, and answer questions about the proposal. The public meetings will be held from 4:00 to 7:00 p.m., and interested parties or citizens are welcome to come at any time since information will be provided throughout the duration of the open house. The Air Force will publish notices of EIS preparation and upcoming public scoping meetings in local newspapers.

Public and agency comments received during the meetings, as well as written comments received by the Air Force during the scoping period and throughout the environmental process, will be considered in the preparation of the EIS. The Air Force will accept comments at any time during the environmental process; however, to ensure the Air Force has sufficient time to consider public input in the preparation of the Draft EIS, comments should be submitted to Ms. Linda DeVine, HQ ACC/A7PP, 129 Andrews Street, Rm 317, Langley AFB VA 23665-2769, by August 4, 2008.

If you any specific questions about this proposal or desire additional information, please contact the public affairs office at Ellsworth AFB SD, 605-385-5056. You may also obtain information including the two attachments to this letter, from our website at www.accplanning.org. Thank you in advance for your assistance in this matter.

Sincerely

BRUCE W. MACDONALD, P.E.
Acting Chief, Programs Division

Attachments:
1. Scoping Meeting Brochure
2. Flyer

Global Power For America

The National Environmental Policy Act guides the PRTC EIS.

NEPA requires federal decision makers to consider potential environmental consequences of proposed actions and reasonable alternatives, including a No-Action Alternative in an EIS. The EIS complies with environmental regulations and documents potential impacts to the natural and human environment.

Resources initially identified for analysis in the EIS include (but are not limited to) the following:

- **Airspace Operations**
  Airspace, Noise, Air Quality, and Safety (ground and air)
- **Natural Resources**
  Physical and Biological Resources
- **Cultural Resources**
  Cultural, Native American, Traditional, and Historic Resources
- **Human Resources**
  Land Use, Quality of Life, Socioeconomics, and Environmental Justice

The EIS Process Timeline

■ Opportunities for Public Involvement

Notice of Intent (NOI) Published in Federal Register
↓
Scoping ■
↓
Preparation of Draft EIS
↓
Notice of Availability of Draft EIS
↓
60-Day Public Comment Period ■
↓
Preparation of Final EIS
↓
Notice of Availability of Final EIS
↓
30-Day Waiting Period
↓
Record of Decision

Your input is essential to the environmental analysis process!

Providing Comments

To provide comments, please fill out a comment sheet. Please give your comments to an Air Force representative or place it in the comment box. Comment forms, or your own letter, may also be mailed to:

Ms. Linda DeVine
HQ ACC/A7PP
129 Andrews Street, Room 317
Langley AFB, VA 23665-2769

To ensure your comments are considered in the Draft EIS, please submit your comments before ***August 4, 2008.***

Public comments on this Draft EIS are requested pursuant to the NEPA, 42 USC 4321, et seq. All written comments received during the comment period will be made available to the public and considered during EIS preparation. Your provision of private address information with your comment is voluntary. Your private address information will not be released in the EIS or for any other purpose, unless required by law. However, your private address information will be used to compile the mailing list for EIS distribution. Failure to provide such information will result in your name not being included on the distribution list.

Scoping Meetings
for the Powder River Training Complex (PRTC) Environmental Impact Statement (EIS)

Welcome!

The United States Air Force is conducting scoping meetings for the PRTC EIS. The Air Force is preparing an EIS to determine the potential environmental consequences of a proposal to expand the Powder River Complex to create the PRTC. The PRTC would allow for more effective use of limited resources and finite flying hours by providing, locally, the realistic training needed by B-1 and B-52 aircrews flying from Ellsworth and Minot AFBs. The options being analyzed could:

1. Restructure and reconfigure the existing PRC Military Operations Areas (MOAs) and associated Air Traffic Control Assigned Airspace (ATCAA) and add new MOA/ATCAA airspace with a floor of 500 feet above ground level (AGL).
2. Increase sortie-operations (aircraft training) in the new and modified training airspace.
3. Support additional ground-based simulated threat emitters under the MOAs.
4. Authorize use of training chaff and flares throughout the new and modified airspace.
5. Permit supersonic flight above 10,000 feet AGL.

Scoping meetings provide the public an opportunity to learn about the proposed PRTC and provide input into this environmental impact analysis process. The scoping process helps us identify and address community-specific issues and concerns regarding the proposed airspace use.

Meeting Agenda

Open House........................4:00 p.m. - 7:00 p.m.

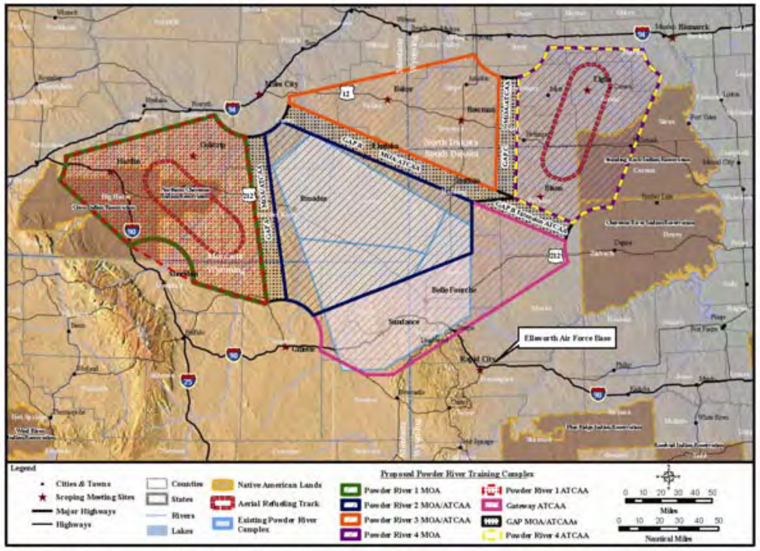
- View video presentation
- Visit information booths
- Discuss proposal with Air Force personnel
- Submit written comments

The Air Force is committed to community outreach and will consider your input to determine the scope of the issues to be addressed and to help identify the significant environmental issues to be analyzed in depth. Your involvement and input are vital to help us focus the environmental analysis.

Why is the PRTC Needed?

- Aircrews need adequately sized, configured, and available airspace to train as they fight during worldwide deployment.
- Increasing training in local airspace optimizes the limited amount of training hours allocated.
- Reducing commute time to remote training ranges like Nevada Test and Training Range (NTTR) reduces fuel consumption.
- Use of chaff and flares allows aircrews to deploy defensive countermeasures as they would in combat.
- Supersonic training assists aircrews to train for show of force and for quick reaction to enemy threats in combat.
- More effectively use limited resources and finite flying hours.

Proposed Alternative A Airspace Changes



The proposed action would make the following modifications to the existing PRC.

Create PRTC Airspace: create new low altitude (500 feet AGL - 17,999 feet MSL) MOA airspace and new high altitude (18,000 - 60,000 feet MSL) ATCAA airspace and restructure and reconfigure the existing PRC MOAs and ATCAAs.

Increase Flight Operations: increase number, frequency and variety of sortie-operations.

Employ Large Force Exercises (LFE): use entire proposed PRTC for LFEs of 4 to more than 20 aircraft during scheduled exercises (typically once a quarter).

Support Training Transmitters: support additional ground based simulated emitters under the MOAs.

Permit Supersonic Flight: authorize above 10,000 feet AGL within the proposed PRTC.

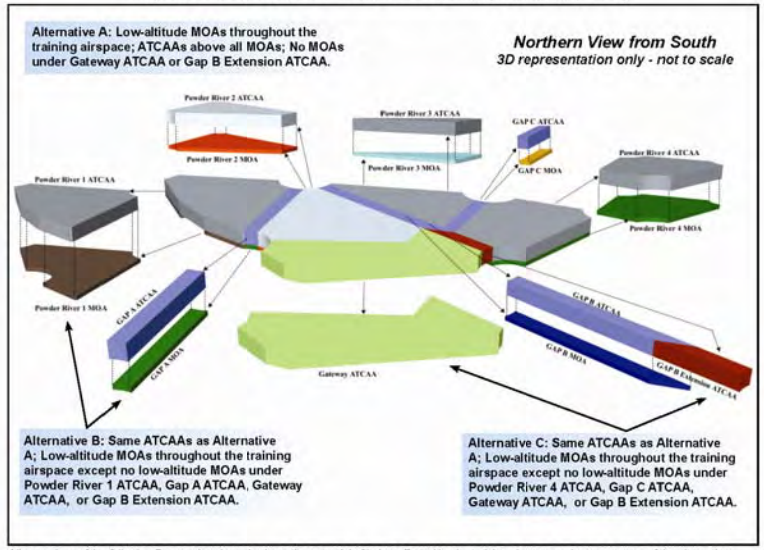
Authorize Defensive Countermeasures: allow training chaff and flare deployment throughout the proposed PRTC.

Alternative A

Under Alternative A, training aircraft in high-altitude ATCAAs would overfly approximately 37,800 square miles and training aircraft in low-altitude MOAs, under the ATCAAs, would overfly approximately 31,700 square miles.

- Expand existing Powder River A/B MOAs and rename expanded airspace - Powder River 2 MOA (500 feet AGL to 17,999 feet MSL).
- Establish Powder River 1, 3, and 4 MOAs (500 feet AGL to 17,999 feet MSL).
- Combine and modify existing Crossbow and Powder River 1 ATCAAs to overlie Powder River 2 MOA and rename the ATCAAs - Powder River 2 ATCAA.
- Modify the Gateway ATCAA to lie adjacent to Powder River 2 ATCAA.
- Create the Powder River 1, 3, and 4 ATCAAs to connect/correspond with underlying MOAs.
- Establish Gap MOAs and ATCAAs between the Powder River 1, 2, 3, and 4 MOA/ATCAAs.

Proposed Action: Create Powder River Training Complex (PRTC)



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Alternative A Continued

- Configuration of the MOAs matches their corresponding and overlying ATCAAs, except Powder River 1 MOA.
- Locate two aerial refueling tracks (one each in Powder River 1 and 4 ATCAA).

Alternative B

Same as Alternative A except no low-altitude MOAs under proposed Powder River 1 or proposed Gap A ATCAA. Training aircraft in high-altitude ATCAAs would overfly approximately 37,800 square miles and training aircraft in low-altitude MOAs, under the ATCAAs, would overfly approximately 22,800 square miles.

Alternative C

Same as Alternative A except no low-altitude MOAs under proposed Powder River 4 or proposed Gap C ATCAA. Training aircraft in high-altitude ATCAAs would overfly approximately 37,800 square miles and training aircraft in low-altitude MOAs, under the ATCAAs, would overfly approximately 24,500 square miles.

No-Action Alternative

Training aircraft would continue to train in the existing PRC and to overfly parts or all of the following counties: **Montana:** Carter, Custer, Powder River; **South Dakota:** Butte, Custer, Harding, Lawrence, Meade, Pennington; **Wyoming:** Campbell, Crook, Weston.

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Powder River

Powder River Training Complex • Environmental Impact Statement

Please Attend!

Scoping Meetings for the Powder River Training Complex (PRTC) Environmental Impact Statement (EIS)

Ellsworth Air Force Base (AFB), South Dakota proposes to modify their training airspace.

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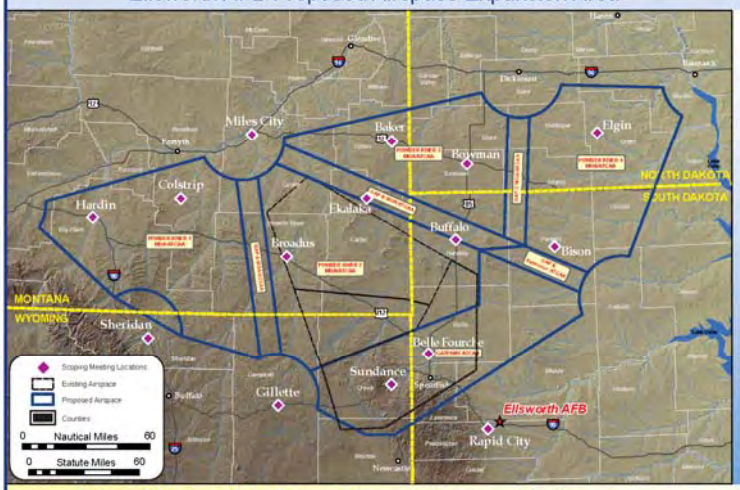

For more information about the meeting contact:

28th Bomb Wing
Ellsworth AFB, Public Affairs
(605) 385-5056

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EIS Project Manager
HQ ACC/A7PP
129 Andrews Street, Room 317
Langley AFB, VA 23665-2769

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Wibaux, MT 59353

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Scott Turo
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Nisland, SD 57762

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Faith, SD 57626

Mike Weyrich
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Whitewood, SD 57793

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Lemmon, SD 57638

Tom Nelson
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Lead, SD 57754

Don Voorhees
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Hill City, SD 57745

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Tim DeJaegher
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Dayton, WY 82836

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Cowley Town Hall
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Cowley, WY 82420

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Pine Haven, WY 82721

Cliff Clevenger
Town Hall
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Ranchester, WY 82839

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Ron Adams
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406 N Cheyenne
Hardin, MT 59034

Darrell Bends
Lodge Grass City Hall
212 Hester Avenue N
Lodge Grass, MT 59050

Ken Olson
City of Laurel
115 W 1st Street
Laurel, MT 59044

Lyn James
City of Bowman
PO Box 12
Bowman, ND 58623

Darin Maus
City of Golva
16991 49th SW
Golva, ND 58632

Robert Loghry
City of Stanton
304 Main Street
Stanton, ND 58571

John Warford
City of Bismarck
221 N 5th Street
PO Box 5503
Bismarck, ND 58506

Darrell Bjerke
City of Beulah
PO Box 276
Beulah, ND 58523

Dave Kinskey
City of Sheridan
55 Grinnell Plaza
Sheridan, WY 82801

Lyman Amsden
City of Broadus
210 E Holt Street
Broadus, MT 59317

Clayton Hornung
City of Baker
PO Box 1512
Baker, MT 59313

Joe Whalen
City of Miles City
17 S 8th, PO Box 910
Miles City, MT 59301

Daniel Murion
City of Forsyth
Forsyth City Hall
247 N 9th
Forsyth, MT 59327

Rosalee Brimmer
Town of Moorcroft
104 North Bighorn Avenue
PO Box 70
Moorcroft, WY 82721

Duane Evenson
City of Gillette
1411 W Fourth Street
Gillette, WY 82716

SAMPLE IICEP LETTER 4

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS AIR COMBAT COMMAND
LANGLEY AIR FORCE BASE, VIRGINIA

JUN 3 2008

MEMORANDUM FOR Bureau of Indian Affairs
Standing Rock Agency
PO Box E
Fort Yates, ND 58538

FROM: HQ ACC/A7P
129 Andrews Street
Langley AFB VA 23665-2769

SUBJECT: Powder River Training Complex, Environmental Impact Statement (EIS)

1. The United States Air Force (Air Force) is in the process of preparing an EIS to assess the potential environmental consequences of a proposal to expand and enhance the existing Powder River Complex (PRC) near Ellsworth Air Force Base (AFB) SD. The proposal would create the Powder River Training Complex (PRTC). The PRTC would more effectively use limited resources and finite flying hours by providing locally the realistic training needed by B-1 and B-52 aircrews flying from Ellsworth AFB SD and Minot AFB ND, respectively. This airspace proposal addresses the training and other limitations affecting the existing PRC training assets as they are currently configured.

2. The proposed action would restructure and reconfigure the existing Powder River Military Operations Areas (MOAs) and associated Air Traffic Control Assigned Airspaces (ATCAAs). The PRTC proposal would establish two air refueling routes, create additional low altitude MOA (500 feet Above Ground Level [AGL] up to, but not including, 18,000 feet above Mean Sea Level [MSL]) and high-altitude ATCAA (18,000-60,000 MSL) combinations in portions of South Dakota, North Dakota, Wyoming and Montana. The proposal would support additional ground-based assets to simulate threats and an increase in aircraft training flights, permit the use of training chaff and flares, and authorize supersonic flight above 10,000 AGL. Three action alternatives and a no-action alternative have currently been identified for analyses and are discussed in the attached meeting brochure (Atch 1).

3. All or portions of the following locations have the potential of being affected by the proposal's overhead training airspace due to one or more of the alternatives: ***Montana***—Crow and Northern Cheyenne Reservations and the counties of Big Horn, Carter, Custer, Fallon, Powder River, Rosebud, Treasure, and Yellowstone; ***North Dakota***—Standing Rock Reservation and Adams, Billings, Bowman, Golden Valley, Grant, Hettinger, Morton, Sioux, Slope, and Stark counties; ***South Dakota***—Standing Rock and Cheyenne River Reservations, and Butte, Corson, Harding, Lawrence, Meade, Pennington, Perkins, Ziebach counties; and ***Wyoming***: Campbell, Crook, Sheridan, and Weston counties.

4. The Air Force is committed to community outreach. Recognizing that open communication of issues is a critical element of the EIS process, the Air Force will host public meetings in

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communities underlying and/or adjacent to the proposed airspace as identified in the meeting flyer at attachment 2. The Air Force intends to coordinate public involvement for the purpose of Section 106 review under the NHPA with public involvement in the EIS prepared under the Environmental Impact Analysis Process. The 28 Bomb Wing Commander at Ellsworth AFB has initiated consultation with the tribal leaders of the Crow, Northern Cheyenne, Standing Rock and Cheyenne River Nations and community meetings are being coordinated on each Native American Reservation. Meetings with public, agency, and Native American stakeholders during this scoping process will help identify the full range of reasonable alternatives, potential impacts, and key issues to be considered in the environmental impact analysis process.

5. To ensure the Air Force has sufficient time to consider your input in the preparation of the Draft EIS, please provide information and/or comments to Ms. Linda DeVine, HQ ACC/A7PP at the above address not later than August 4, 2008. If you have any specific questions about this proposal, please feel free to contact Ms. Linda DeVine at (757) 764-9434, or by electronic-mail at acc.prtc@langley.af.mil. You may also obtain information including the two attachments to this letter, from our website at www.accplanning.org. Thank you in advance for your assistance in this matter.

BRUCE W. MACDONALD, P.E.
Acting Chief, Programs Division

Attachment:
1. Scoping Meeting Brochure
2. Flyer

Global Power For America

The National Environmental Policy Act guides the PRTC EIS.

NEPA requires federal decision makers to consider potential environmental consequences of proposed actions and reasonable alternatives, including a No-Action Alternative in an EIS. The EIS complies with environmental regulations and documents potential impacts to the natural and human environment.

Resources initially identified for analysis in the EIS include (but are not limited to) the following:

- **Airspace Operations** Airspace, Noise, Air Quality, and Safety (ground and air)
- **Natural Resources** Physical and Biological Resources
- **Cultural Resources** Cultural, Native American, Traditional, and Historic Resources
- **Human Resources** Land Use, Quality of Life, Socioeconomics, and Environmental Justice

The EIS Process Timeline

■ Opportunities for Public Involvement

Notice of Intent (NOI) Published in Federal Register
↓
Scoping ■
↓
Preparation of Draft EIS
↓
Notice of Availability of Draft EIS
↓
60-Day Public Comment Period ■
↓
Preparation of Final EIS
↓
Notice of Availability of Final EIS
↓
30-Day Waiting Period
↓
Record of Decision

Your input is essential to the environmental analysis process!

Providing Comments

To provide comments, please fill out a comment sheet. Please give your comments to an Air Force representative or place it in the comment box. Comment forms, or your own letter, may also be mailed to:

Ms. Linda DeVine
HQ ACC/A7PP
129 Andrews Street, Room 317
Langley AFB, VA 23665-2769

To ensure your comments are considered in the Draft EIS, please submit your comments before ***August 4, 2008.***

Public comments on this Draft EIS are requested pursuant to the NEPA, 42 USC 4321, et seq. All written comments received during the comment period will be made available to the public and considered during EIS preparation. Your provision of private address information with your comment is voluntary. Your private address information will not be released in the EIS or for any other purpose, unless required by law. However, your private address information will be used to compile the mailing list for EIS distribution. Failure to provide such information will result in your name not being included on the distribution list.

Scoping Meetings for the Powder River Training Complex (PRTC) Environmental Impact Statement (EIS)

Welcome!

The United States Air Force is conducting scoping meetings for the PRTC EIS. The Air Force is preparing an EIS to determine the potential environmental consequences of a proposal to expand the Powder River Complex to create the PRTC. The PRTC would allow for more effective use of limited resources and finite flying hours by providing, locally, the realistic training needed by B-1 and B-52 aircrews flying from Ellsworth and Minot AFBs. The options being analyzed could:

1. Restructure and reconfigure the existing PRC Military Operations Areas (MOAs) and associated Air Traffic Control Assigned Airspace (ATCAA) and add new MOA/ATCAA airspace with a floor of 500 feet above ground level (AGL).
2. Increase sortie-operations (aircraft training) in the new and modified training airspace.
3. Support additional ground-based simulated threat emitters under the MOAs.
4. Authorize use of training chaff and flares throughout the new and modified airspace.
5. Permit supersonic flight above 10,000 feet AGL.

Scoping meetings provide the public an opportunity to learn about the proposed PRTC and provide input into this environmental impact analysis process. The scoping process helps us identify and address community-specific issues and concerns regarding the proposed airspace use.

Meeting Agenda

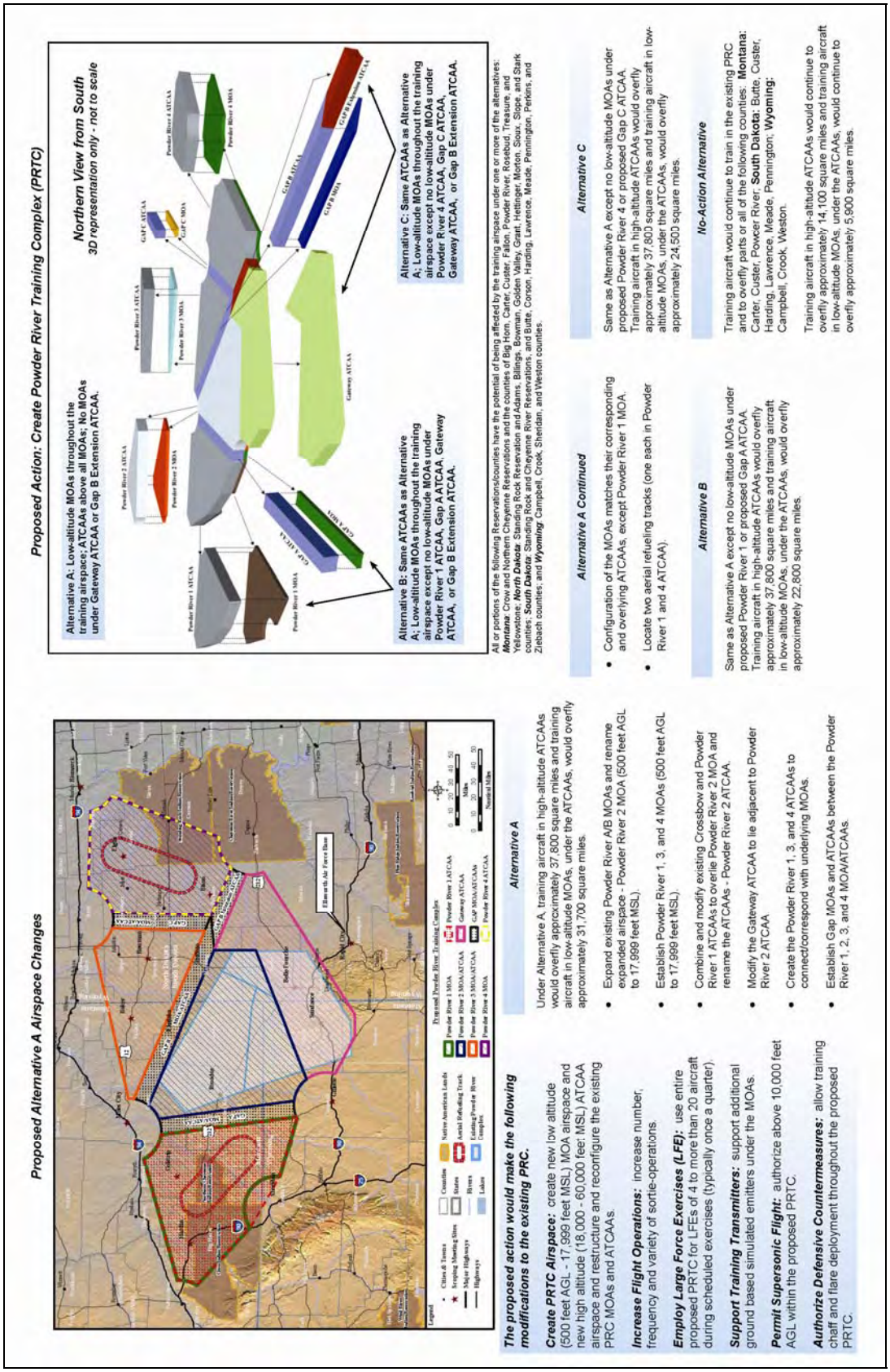
Open House........................4:00 p.m. - 7:00 p.m.

- View video presentation
- Visit information booths
- Discuss proposal with Air Force personnel
- Submit written comments

The Air Force is committed to community outreach and will consider your input to determine the scope of the issues to be addressed and to help identify the significant environmental issues to be analyzed in depth. Your involvement and input are vital to help us focus the environmental analysis.

Why is the PRTC Needed?

- Aircrews need adequately sized, configured, and available airspace to train as they fight during worldwide deployment.
- Increasing training in local airspace optimizes the limited amount of training hours allocated.
- Reducing commute time to remote training ranges like Nevada Test and Training Range (NTTR) reduces fuel consumption.
- Use of chaff and flares allows aircrews to deploy defensive countermeasures as they would in combat.
- Supersonic training assists aircrews to train for show of force and for quick reaction to enemy threats in combat.
- More effectively use limited resources and finite flying hours.


Proposed Action: Create Powder River Training Complex (PRTC)
Northern View from South
3D representation only - not to scale
Alternative A: Low-altitude MOAs throughout the training airspace; ATCAAs above all MOAs; No MOAs under Gateway ATCA or Gap B Extension ATCAA.
Alternative B: Same ATCAAs as Alternative A; Low-altitude MOAs throughout the training airspace except no low-altitude MOAs under Powder River 1 ATCAA, Gap A ATCAA, Gateway ATCAA, or Gap B Extension ATCAA.
Alternative C: Same ATCAAs as Alternative A; Low-altitude MOAs throughout the training airspace except no low-altitude MOAs under Powder River 4 ATCAA, Gap C ATCAA, Gateway ATCAA, or Gap B Extension ATCAA.
All or portions of the following Reservations/counties have the potential of being affected by the training airspace under one or more of the alternatives: **Montana**: Crow and Northern Cheyenne Reservations and the counties of Big Horn, Carter, Custer, Fallon, Powder River, Rosebud, Treasure, and Yellowstone; **North Dakota**: Standing Rock Reservation and Adams, Billings, Bowman, Golden Valley, Grant, Hettinger, Morton, Sioux, Slope, and Stark counties; **South Dakota**: Standing Rock and Cheyenne River Reservations, and Butte, Corson, Harding, Lawrence, Meade, Pennington, Perkins, and Ziebach counties; and **Wyoming**: Campbell, Crook, Sheridan, and Weston counties.
Alternative A Continued
Configuration of the MOAs matches their corresponding and overlying ATCAAs, except Powder River 1 MOA.
Locate two aerial refueling tracks (one each in Powder River 1 and 4 ATCAA).
Alternative B
Same as Alternative A except no low-altitude MOAs under proposed Powder River 1 or proposed Gap A ATCAA. Training aircraft in high-altitude ATCAAs would overfly approximately 37,800 square miles and training aircraft in low-altitude MOAs, under the ATCAAs, would overfly approximately 22,800 square miles.
Alternative C
Same as Alternative A except no low-altitude MOAs under proposed Powder River 4 or proposed Gap C ATCAA. Training aircraft in high-altitude ATCAAs would overfly approximately 37,800 square miles and training aircraft in low-altitude MOAs, under the ATCAAs, would overfly approximately 24,500 square miles.
No-Action Alternative
Training aircraft would continue to train in the existing PRC and to overfly parts or all of the following counties: **Montana**: Carter, Custer, Powder River; **South Dakota**: Butte, Custer, Harding, Lawrence, Meade, Pennington; **Wyoming**: Campbell, Crook, Weston.
Training aircraft in high-altitude ATCAAs would continue to overfly approximately 14,100 square miles and training aircraft in low-altitude MOAs, under the ATCAAs, would continue to overfly approximately 5,900 square miles.
Proposed Alternative A Airspace Changes
Alternative A
Under Alternative A, training aircraft in high-altitude ATCAAs would overfly approximately 37,800 square miles and training aircraft in low-altitude MOAs, under the ATCAAs, would overfly approximately 31,700 square miles.
Expand existing Powder River A/B MOAs and rename expanded airspace - Powder River 2 MOA (500 feet AGL to 17,999 feet MSL).
Establish Powder River 1, 3, and 4 MOAs (500 feet AGL to 17,999 feet MSL).
Combine and modify existing Crossbow and Powder River 1 ATCAAs to overlie Powder River 2 MOA and rename the ATCAAs - Powder River 2 ATCAA.
Modify the Gateway ATCAA to lie adjacent to Powder River 2 ATCAA.
Create the Powder River 1, 3, and 4 ATCAAs to connect/correspond with underlying MOAs.
Establish Gap MOAs and ATCAAs between the Powder River 1, 2, 3, and 4 MOA/ATCAAs.
The proposed action would make the following modifications to the existing PRC.
Create PRTC Airspace: create new low altitude (500 feet AGL - 17,999 feet MSL) MOA airspace and new high altitude (18,000 - 60,000 feet MSL) ATCAA airspace and restructure and reconfigure the existing PRC MOAs and ATCAAs.
Increase Flight Operations: increase number, frequency and variety of sortie-operations.
Employ Large Force Exercises (LFE): use entire proposed PRTC for LFEs of 4 to more than 20 aircraft during scheduled exercises (typically once a quarter).
Support Training Transmitters: support additional ground based simulated emitters under the MOAs.
Permit Supersonic Flight: authorize above 10,000 feet AGL within the proposed PRTC.
Authorize Defensive Countermeasures: allow training chaff and flare deployment throughout the proposed PRTC.

Please Attend!

Scoping Meetings for the Powder River Training Complex (PRTC) Environmental Impact Statement (EIS)

Ellsworth Air Force Base (AFB), South Dakota proposes to modify their training airspace.

Please attend a public scoping meeting to:

- ☑ Learn more about the proposal
- ☑ Provide community-specific input
- ☑ Be included on our mailing list

Community Scoping Meetings

Public invited to attend at any time. Information will be available throughout.

South Dakota

McLaughlin
Friday, July 11, 2008
3 - 5 p.m.
Bear Soldier District Gym

Buffalo
Monday, July 14, 2008
4 - 7 p.m.
Harding County Memorial Recreation Center
West Allison Street

Bison
Tuesday, July 15, 2008
4 - 7 p.m.
Bison School Cafeteria
200 East Carr Street

Dupree
Wednesday, July 16, 2008
4 - 7 p.m.
Multi-Purpose Building
Rodeo Drive, Highway 212
West Side

Wyoming

Gillette
Thursday, June 19, 2008
4 - 7 p.m.
Campbell County Fire Department
106 Rohan Avenue

Sheridan
Friday, June 20, 2008
4 - 7 p.m.
Sheridan Senior Center
North Entrance
211 Smith Street

Montana

Crow Agency
Monday, June 23, 2008
9:30 - 11:30 a.m.
Apsaalooke Center
8731 South Heritage Road

Hardin
Monday, June 23
4 - 7 p.m.
Hardin Chamber of Commerce
10 E. Railroad Street

Lame Deer
Tuesday, June 24, 2008
9:30 - 11:30 a.m.
Tribal Administration Building
Council Chambers
600 South Cheyenne Avenue

Colstrip
Tuesday, June 24, 2008
4 - 7 p.m.
Isabel Bills Community Learning Center,
520 Poplar Drive

Miles City
Wednesday, June 25, 2008
4 - 7 p.m.
Miles Community College
2715 Dickinson

Broadus
Friday, June 27, 2008
4 - 7 p.m.
Powder River County District High School
500 North Trautman

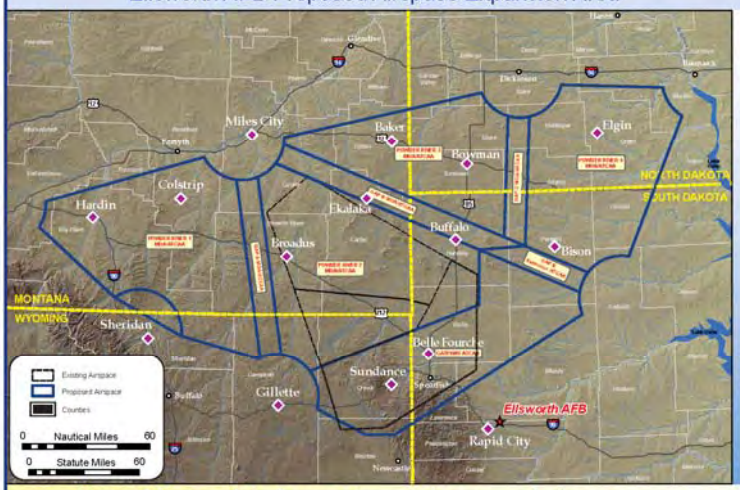
North Dakota

Bowman
Wednesday, July 9, 2008
4 - 7 p.m.
City Hall Meeting Room
101 1st Street Southwest

Elgin
Thursday, July 10, 2008
4 - 7 p.m.
Elgin Community Center
305 North Main Street

Fort Yates
Friday, July 11, 2008
6 - 8 p.m.
AJ Agard Community Center

Ellsworth AFB Proposed Airspace Expansion Area



For more information about the meeting contact:

28th Bomb Wing
Ellsworth AFB, Public Affairs
(605) 385-5056

Send comments to:

Ms. Linda DeVine
EIS Project Manager
HQ ACC/A7PP
129 Andrews Street, Room 317
Langley AFB, VA 23665-2769

For additional information visit our website at www.accplanning.org

DISTRIBUTION LIST

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Bureau of Indian Affairs
Standing Rock Agency
PO Box E
Fort Yates, ND 58538

Ed Parisian
Bureau of Indian Affairs
Rocky Mt Regional Office
316 N. 26th St.
Billings, MT 59101

Daniel Picard
Bureau of Indian Affairs
Pine Ridge Agency
PO Box 1203
Pine Ridge, SD 57770

Terrence Virden
Bureau of Indian Affairs
Midwest Regional Office
One Federal Drive, Rm. 550
Ft. Snelling, MN 55111-4007

Bureau of Indian Affairs
Great Plains Regional Office
115 4th Ave. SE
Aberdeen, SD 57401

Bureau of Indian Affairs
Cheyenne River Agency
PO Box 325
Eagle Butte, SD 57625

SAMPLE IICEP LETTER 5

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS AIR COMBAT COMMAND
LANGLEY AIR FORCE BASE, VIRGINIA

JUN 3 2008

Chippewa-Cree Business Committee
Rocky Boy Route, Box 544
Box Elder, MT 59521

Dear Sir/Madam,

The United States Air Force (Air Force) is in the process of preparing an EIS to assess the potential environmental consequences of a proposal to expand and enhance the existing Powder River Complex (PRC) near Ellsworth Air Force Base (AFB) SD. The proposal would create the Powder River Training Complex (PRTC). The PRTC would more effectively use limited resources and finite flying hours by providing locally the realistic training needed by B-1 and B-52 aircrews flying from Ellsworth AFB SD and Minot AFB ND, respectively. This airspace proposal addresses the training and other limitations affecting the existing PRC training assets as they are currently configured.

The proposed action would restructure and reconfigure the existing Powder River Military Operations Areas (MOAs) and associated Air Traffic Control Assigned Airspaces (ATCAAs). The PRTC proposal would establish two air refueling routes, create additional low altitude MOA (500 feet Above Ground Level [AGL] up to, but not including, 18,000 feet above Mean Sea Level [MSL]) and high-altitude ATCAA (18,000-60,000 MSL) combinations in portions of South Dakota, North Dakota, Wyoming and Montana. The proposal would support additional ground-based assets to simulate threats and an increase in aircraft training flights, permit the use of training chaff and flares, and authorize supersonic flight above 10,000 AGL. Three action alternatives and a no-action alternative have currently been identified for analyses and are discussed in the attached meeting brochure (Atch 1).

As part of this Environmental Impact Analysis Process, the Air Force would like to consider your concerns and initiate Government-to-Government consultation regarding the proposed action. We are in the early stages of gathering information concerning previous archaeological and historic studies for the areas under the affected region. We would appreciate any assistance you could provide in identifying and retrieving this important information, as well as concerns you may have about the potential effects of the proposal on significant cultural resources. All or portions of the following locations have the potential of being affected by the proposal's overhead training airspace due to one or more of the alternatives: ***Montana***—Crow and Northern Cheyenne Reservations and the counties of Big Horn, Carter, Custer, Fallon, Powder River, Rosebud, Treasure, and Yellowstone; ***North Dakota***—Standing Rock Reservation and Adams, Billings, Bowman, Golden Valley, Grant, Hettinger, Morton, Sioux, Slope, and Stark counties; ***South Dakota***—Standing Rock and Cheyenne River Reservations, and Butte, Corson, Harding, Lawrence, Meade, Pennington, Perkins, Ziebach counties; and ***Wyoming***: Campbell, Crook, Sheridan, and Weston counties.

The Air Force is committed to community outreach. Recognizing that open communication of issues is a critical element of the EIS process, the Air Force will host public

Global Power For America

meetings in communities underlying and/or adjacent to the proposed airspace as identified in the meeting flyer at attachment 2. The Air Force intends to coordinate public involvement for the purpose of Section 106 review under the NHPA with public involvement in the EIS prepared under the Environmental Impact Analysis Process. Meetings with public, agency, and Native American stakeholders during this scoping process will help identify the full range of reasonable alternatives, potential impacts, and key issues to be considered in the environmental impact analysis process.

To ensure the Air Force has sufficient time to consider your input in the preparation of the Draft EIS, please provide information and/or comments to Ms. Linda DeVine, HQ ACC/A7PP at the above address not later than August 4, 2008. If you have any specific questions about this proposal, please feel free to contact Ms. Linda DeVine at (757) 764-9434, or by electronic-mail at acc.prtc@langley.af.mil. You may also obtain information including the two attachments to this letter, from our website at www.accplanning.org. Thank you in advance for your assistance in this matter.

Sincerely,

BRUCE W. MACDONALD, P.E.
Acting Chief, Programs Division

Attachment:
1. Scoping Meeting Brochure
2. Flyer

Global Power For America

The National Environmental Policy Act guides the PRTC EIS.

NEPA requires federal decision makers to consider potential environmental consequences of proposed actions and reasonable alternatives, including a No-Action Alternative in an EIS. The EIS complies with environmental regulations and documents potential impacts to the natural and human environment.

Resources initially identified for analysis in the EIS include (but are not limited to) the following:

- **Airspace Operations** Airspace, Noise, Air Quality, and Safety (ground and air)
- **Natural Resources** Physical and Biological Resources
- **Cultural Resources** Cultural, Native American, Traditional, and Historic Resources
- **Human Resources** Land Use, Quality of Life, Socioeconomics, and Environmental Justice

The EIS Process Timeline

■ Opportunities for Public Involvement

1. Notice of Intent (NOI) Published in Federal Register
2. ↓ **Scoping** ■
3. ↓ Preparation of Draft EIS
4. ↓ Notice of Availability of Draft EIS
5. ↓ **60-Day Public Comment Period** ■
6. ↓ Preparation of Final EIS
7. ↓ Notice of Availability of Final EIS
8. ↓ 30-Day Waiting Period
9. ↓ Record of Decision

Your input is essential to the environmental analysis process!

Providing Comments

To provide comments, please fill out a comment sheet. Please give your comments to an Air Force representative or place it in the comment box. Comment forms, or your own letter, may also be mailed to:

Ms. Linda DeVine
HQ ACC/A7PP
129 Andrews Street, Room 317
Langley AFB, VA 23665-2769

To ensure your comments are considered in the Draft EIS, please submit your comments before ***August 4, 2008.***

Public comments on this Draft EIS are requested pursuant to the NEPA, 42 USC 4321, et seq. All written comments received during the comment period will be made available to the public and considered during EIS preparation. Your provision of private address information with your comment is voluntary. Your private address information will not be released in the EIS or for any other purpose, unless required by law. However, your private address information will be used to compile the mailing list for EIS distribution. Failure to provide such information will result in your name not being included on the distribution list.

Scoping Meetings for the Powder River Training Complex (PRTC) Environmental Impact Statement (EIS)

Welcome!

The United States Air Force is conducting scoping meetings for the PRTC EIS. The Air Force is preparing an EIS to determine the potential environmental consequences of a proposal to expand the Powder River Complex to create the PRTC. The PRTC would allow for more effective use of limited resources and finite flying hours by providing, locally, the realistic training needed by B-1 and B-52 aircrews flying from Ellsworth and Minot AFBs. The options being analyzed could:

1. Restructure and reconfigure the existing PRC Military Operations Areas (MOAs) and associated Air Traffic Control Assigned Airspace (ATCAA) and add new MOA/ATCAA airspace with a floor of 500 feet above ground level (AGL).
2. Increase sortie-operations (aircraft training) in the new and modified training airspace.
3. Support additional ground-based simulated threat emitters under the MOAs.
4. Authorize use of training chaff and flares throughout the new and modified airspace.
5. Permit supersonic flight above 10,000 feet AGL.

Scoping meetings provide the public an opportunity to learn about the proposed PRTC and provide input into this environmental impact analysis process. The scoping process helps us identify and address community-specific issues and concerns regarding the proposed airspace use.

Meeting Agenda

Open House........................4:00 p.m. - 7:00 p.m.

- View video presentation
- Visit information booths
- Discuss proposal with Air Force personnel
- Submit written comments

The Air Force is committed to community outreach and will consider your input to determine the scope of the issues to be addressed and to help identify the significant environmental issues to be analyzed in depth. Your involvement and input are vital to help us focus the environmental analysis.

Why is the PRTC Needed?

- Aircrews need adequately sized, configured, and available airspace to train as they fight during worldwide deployment.
- Increasing training in local airspace optimizes the limited amount of training hours allocated.
- Reducing commute time to remote training ranges like Nevada Test and Training Range (NTTR) reduces fuel consumption.
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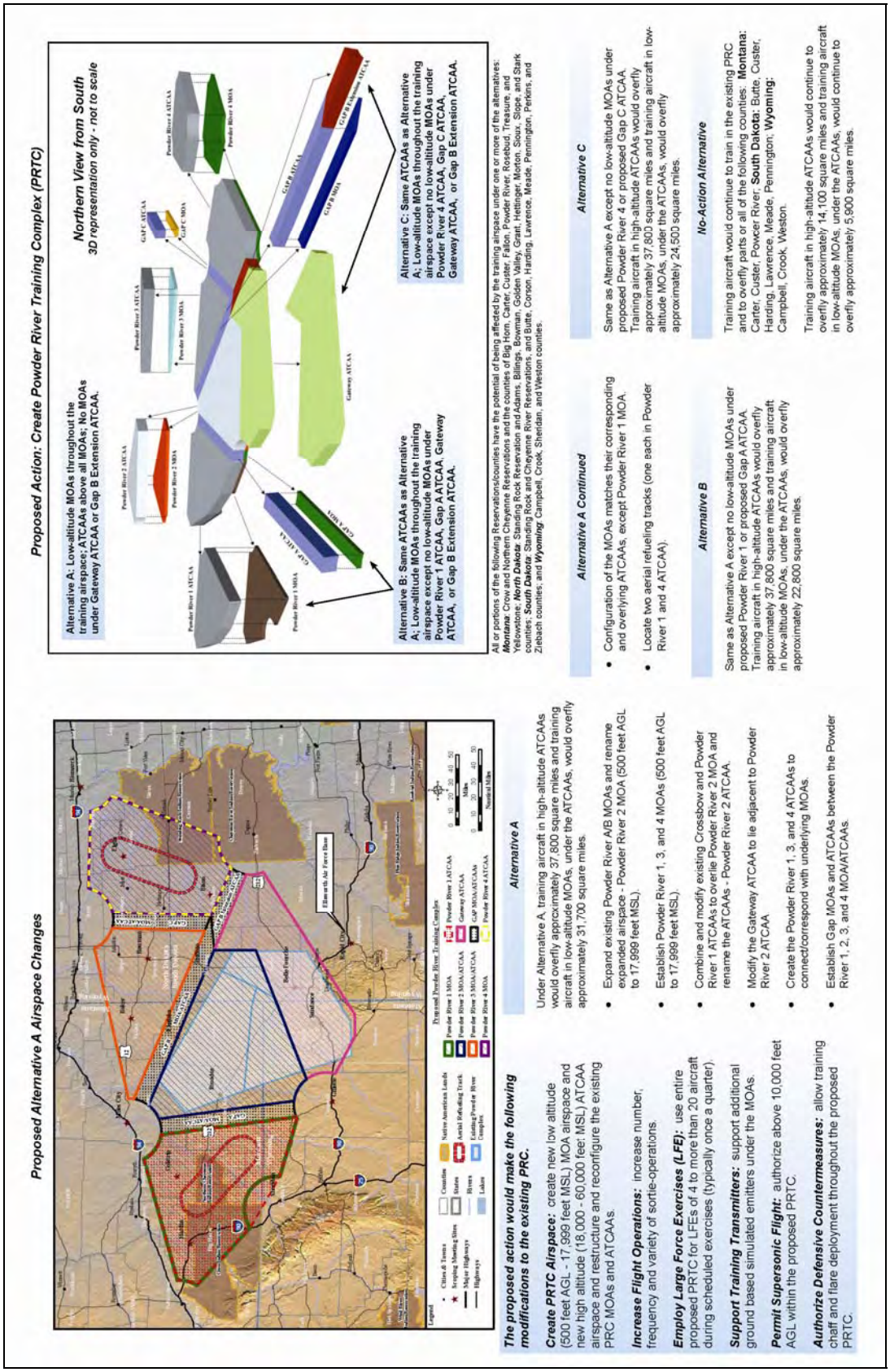
- More effectively use limited resources and finite flying hours.


Proposed Action: Create Powder River Training Complex (PRTC)
Northern View from South
3D representation only - not to scale
Alternative A: Low-altitude MOAs throughout the training airspace; ATCAAs above all MOAs; No MOAs under Gateway ATCA or Gap B Extension ATCAA.
Alternative B: Same ATCAAs as Alternative A; Low-altitude MOAs throughout the training airspace except no low-altitude MOAs under Powder River 1 ATCAA, Gap A ATCAA, Gateway ATCAA, or Gap B Extension ATCAA.
Alternative C: Same ATCAAs as Alternative A; Low-altitude MOAs throughout the training airspace except no low-altitude MOAs under Powder River 4 ATCAA, Gap C ATCAA, Gateway ATCAA, or Gap B Extension ATCAA.
All or portions of the following Reservations/counties have the potential of being affected by the training airspace under one or more of the alternatives: **Montana**: Crow and Northern Cheyenne Reservations and the counties of Big Horn, Carter, Custer, Fallon, Powder River, Rosebud, Treasure, and Yellowstone; **North Dakota**: Standing Rock Reservation and Adams, Billings, Bowman, Golden Valley, Grant, Hettinger, Morton, Sioux, Slope, and Stark counties; **South Dakota**: Standing Rock and Cheyenne River Reservations, and Butte, Corson, Harding, Lawrence, Meade, Pennington, Perkins, and Ziebach counties; and **Wyoming**: Campbell, Crook, Sheridan, and Weston counties.
Alternative A Continued
Configuration of the MOAs matches their corresponding and overlying ATCAAs, except Powder River 1 MOA.
Locate two aerial refueling tracks (one each in Powder River 1 and 4 ATCAA).
Alternative B
Same as Alternative A except no low-altitude MOAs under proposed Powder River 1 or proposed Gap A ATCAA. Training aircraft in high-altitude ATCAAs would overfly approximately 37,800 square miles and training aircraft in low-altitude MOAs, under the ATCAAs, would overfly approximately 22,800 square miles.
Alternative C
Same as Alternative A except no low-altitude MOAs under proposed Powder River 4 or proposed Gap C ATCAA. Training aircraft in high-altitude ATCAAs would overfly approximately 37,800 square miles and training aircraft in low-altitude MOAs, under the ATCAAs, would overfly approximately 24,500 square miles.
No-Action Alternative
Training aircraft would continue to train in the existing PRC and to overfly parts or all of the following counties: **Montana**: Carter, Custer, Powder River; **South Dakota**: Butte, Custer, Harding, Lawrence, Meade, Pennington; **Wyoming**: Campbell, Crook, Weston.
Training aircraft in high-altitude ATCAAs would continue to overfly approximately 14,100 square miles and training aircraft in low-altitude MOAs, under the ATCAAs, would continue to overfly approximately 5,900 square miles.
Proposed Alternative A Airspace Changes
Alternative A
Under Alternative A, training aircraft in high-altitude ATCAAs would overfly approximately 37,800 square miles and training aircraft in low-altitude MOAs, under the ATCAAs, would overfly approximately 31,700 square miles.
Expand existing Powder River A/B MOAs and rename expanded airspace - Powder River 2 MOA (500 feet AGL to 17,999 feet MSL).
Establish Powder River 1, 3, and 4 MOAs (500 feet AGL to 17,999 feet MSL).
Combine and modify existing Crossbow and Powder River 1 ATCAAs to overlie Powder River 2 MOA and rename the ATCAAs - Powder River 2 ATCAA.
Modify the Gateway ATCAA to lie adjacent to Powder River 2 ATCAA.
Create the Powder River 1, 3, and 4 ATCAAs to connect/correspond with underlying MOAs.
Establish Gap MOAs and ATCAAs between the Powder River 1, 2, 3, and 4 MOA/ATCAAs.
The proposed action would make the following modifications to the existing PRC.
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Authorize Defensive Countermeasures: allow training chaff and flare deployment throughout the proposed PRTC.

Powder River

Powder River Training Complex • Environmental Impact Statement

Please Attend!

Scoping Meetings for the Powder River Training Complex (PRTC) Environmental Impact Statement (EIS)

Ellsworth Air Force Base (AFB), South Dakota proposes to modify their training airspace.

Please attend a public scoping meeting to:

- ☑ Learn more about the proposal
- ☑ Provide community-specific input
- ☑ Be included on our mailing list

Community Scoping Meetings

Public invited to attend at any time. Information will be available throughout.

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Friday, July 11, 2008
3 - 5 p.m.
Bear Soldier District Gym

Buffalo
Monday, July 14, 2008
4 - 7 p.m.
Harding County Memorial Recreation Center
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Bison School Cafeteria
200 East Carr Street

Dupree
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4 - 7 p.m.
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West Side

Wyoming

Gillette
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4 - 7 p.m.
Campbell County Fire Department
106 Rohan Avenue

Sheridan
Friday, June 20, 2008
4 - 7 p.m.
Sheridan Senior Center
North Entrance
211 Smith Street

Montana

Crow Agency
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9:30 - 11:30 a.m.
Apsaalooke Center
8731 South Heritage Road

Hardin
Monday, June 23
4 - 7 p.m.
Hardin Chamber of Commerce
10 E. Railroad Street

Lame Deer
Tuesday, June 24, 2008
9:30 - 11:30 a.m.
Tribal Administration Building
Council Chambers
600 South Cheyenne Avenue

Colstrip
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Fort Yates
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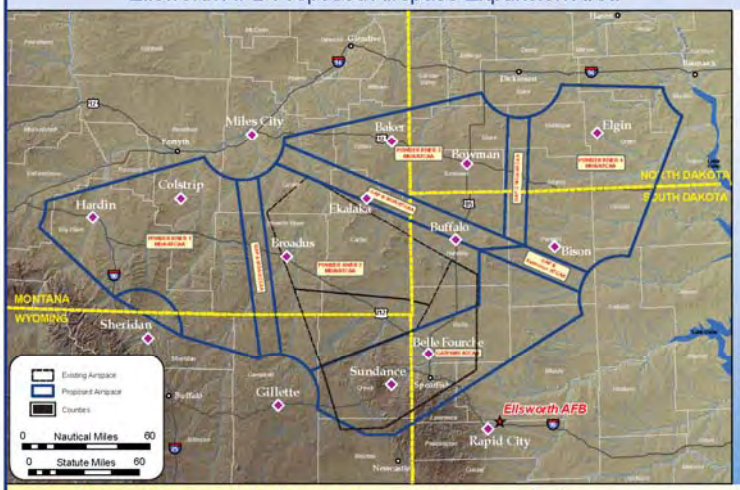
Ellsworth AFB Proposed Airspace Expansion Area



For more information about the meeting contact:

28th Bomb Wing
Ellsworth AFB, Public Affairs
(605) 385-5056

Send comments to:

Ms. Linda DeVine
EIS Project Manager
HQ ACC/A7PP
129 Andrews Street, Room 317
Langley AFB, VA 23665-2769

For additional information visit our website at www.accplanning.org

DISTRIBUTION LIST

Chippewa-Cree Business Committee
Rocky Boy Route, Box 544
Box Elder, MT 59521

Turtle Mountain Tribal Council
PO Box 900
Highway 5 West
Belcourt, ND 58316

Three Affiliated Tribes Business Council
404 Frontage Road
New Town, ND 58763

Eastern Shoshone Tribal Council
15 North Fork Road
PO Box 538
Fort Washakie, WY 82514

Rosebud Sioux Tribe
PO Box 430
Rosebud, SD 57570

Arapaho Business Council
PO Box 396
Fort Washakie, WY 82514

Oglala Sioux Tribal Council
PO Box 2070
Pine Ridge, SD 57770

Confederated Salish and Kootenai Tribe
PO Box 278
51383 Highway 93 North
Pablo, MT 59855

Fort Belknap Community Council
RR1, Box 66
Harlem, MT 59526

Fort Peck Tribal Executive Board
PO Box 1027
501 Medicine Bear Road
Poplar, MT 59255

Spirit Lake Sioux Tribal Council
PO Box 359
Fort Totten, ND 58335

SAMPLE IICEP LETTER 6

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS AIR COMBAT COMMAND
LANGLEY AIR FORCE BASE, VIRGINIA

JUN 12 2008

Ms. Clara Caufield
Northern Cheyenne Tribal Administration Offices
600 S. Cheyenne Ave.
Lame Deer, MT 59043

Dear Ms. Caufield,

The United States Air Force (Air Force) is in the process of preparing an EIS to assess the potential environmental consequences of a proposal to expand and enhance the existing Powder River Complex (PRC) near Ellsworth Air Force Base (AFB) SD. The proposal would create the Powder River Training Complex (PRTC). The PRTC would more effectively use limited resources and finite flying hours by providing locally the realistic training needed by B-1 and B-52 aircrews flying from Ellsworth AFB SD and Minot AFB ND, respectively. This airspace proposal addresses the training and other limitations affecting the existing PRC training assets as they are currently configured.

The proposed action would restructure and reconfigure the existing Powder River Military Operations Areas (MOAs) and associated Air Traffic Control Assigned Airspaces (ATCAAs). The PRTC proposal would establish two air refueling routes, create additional low altitude MOA (500 feet Above Ground Level [AGL] up to, but not including, 18,000 feet above Mean Sea Level [MSL]) and high-altitude ATCAA (18,000-60,000 MSL) combinations in portions of South Dakota, North Dakota, Wyoming and Montana. The proposal would support additional ground-based assets to simulate threats and an increase in aircraft training flights, permit the use of training chaff and flares, and authorize supersonic flight above 10,000 AGL. Three action alternatives and a no-action alternative have currently been identified for analyses and are discussed in the attached meeting brochure (Atch 1).

As part of this Environmental Impact Analysis Process, and in continuance of Government-to-Government consultation initiated by Colonel Scott Vander Hamm, 28 BW/CC, Ellsworth AFB SD, we request your assistance in gathering information concerning previous archaeological and historic studies for the areas under the affected region. We would appreciate any assistance you could provide in identifying and retrieving this important information, as well as concerns you may have about the potential effects of the proposal on significant cultural resources. All or portions of the following locations have the potential of being affected by the proposal's overhead training airspace due to one or more of the alternatives: ***Montana***—Crow and Northern Cheyenne Reservations and the counties of Big Horn, Carter, Custer, Fallon, Powder River, Rosebud, Treasure, and Yellowstone; ***North Dakota***—Standing Rock Reservation and Adams, Billings, Bowman, Golden Valley, Grant, Hettinger, Morton, Sioux, Slope, and Stark counties; ***South Dakota***—Standing Rock and Cheyenne River Reservations, and Butte, Corson, Harding, Lawrence, Meade, Pennington, Perkins, Ziebach counties; and ***Wyoming***: Campbell, Crook, Sheridan, and Weston counties.

Global Power For America

The Air Force is committed to community outreach and we appreciate the opportunity to hold a community meeting at the Northern Cheyenne Tribal Administration Building Council Chambers on Tuesday, June 24, 2008 from 9:30 – 11:30 a.m. Open communication of issues is a critical element of the EIS process, and we would appreciate your assistance in posting the attached meeting flyers (Atch 2) around the community and encouraging public participation. The Air Force intends to coordinate public involvement for the purpose of Section 106 review under the NHPA with public involvement in the EIS prepared under the Environmental Impact Analysis Process. Meetings with public, agency, and Native American stakeholders during this scoping process will help identify the full range of reasonable alternatives, potential impacts, and key issues to be considered in the environmental impact analysis process.

To ensure the Air Force has sufficient time to consider your input in the preparation of the Draft EIS, please provide information and/or comments to Ms. Linda DeVine, HQ ACC/A7PP, 129 Andrews Street, Rm 317, Langley AFB VA 23665-2769 not later than August 4, 2008. If you have any specific questions about this request, please feel free to contact Ms. Linda DeVine at (757) 764-9434, or by electronic-mail at acc.prtc@langley.af.mil. You may also obtain information including the two attachments to this letter, from our website at www.accplanning.org. Thank you in advance for your assistance in this matter.

Sincerely,

BRUCE W. MACDONALD, P.E.
Acting Chief, Programs Division

Attachment:
1. Scoping Meeting Brochure
2. Flyer

Global Power For America

The National Environmental Policy Act guides the PRTC EIS.

NEPA requires federal decision makers to consider potential environmental consequences of proposed actions and reasonable alternatives, including a No-Action Alternative in an EIS. The EIS complies with environmental regulations and documents potential impacts to the natural and human environment.

Resources initially identified for analysis in the EIS include (but are not limited to) the following:

- **Airspace Operations**
  Airspace, Noise, Air Quality, and Safety (ground and air)
- **Natural Resources**
  Physical and Biological Resources
- **Cultural Resources**
  Cultural, Native American, Traditional, and Historic Resources
- **Human Resources**
  Land Use, Quality of Life, Socioeconomics, and Environmental Justice

The EIS Process Timeline

■ Opportunities for Public Involvement

Notice of Intent (NOI) Published in Federal Register
↓
Scoping ■
↓
Preparation of Draft EIS
↓
Notice of Availability of Draft EIS
↓
60-Day Public Comment Period ■
↓
Preparation of Final EIS
↓
Notice of Availability of Final EIS
↓
30-Day Waiting Period
↓
Record of Decision

Your input is essential to the environmental analysis process!

Providing Comments

To provide comments, please fill out a comment sheet. Please give your comments to an Air Force representative or place it in the comment box. Comment forms, or your own letter, may also be mailed to:

Ms. Linda DeVine
HQ ACC/A7PP
129 Andrews Street, Room 317
Langley AFB, VA 23665-2769

To ensure your comments are considered in the Draft EIS, please submit your comments before ***August 4, 2008.***

Public comments on this Draft EIS are requested pursuant to the NEPA, 42 USC 4321, et seq. All written comments received during the comment period will be made available to the public and considered during EIS preparation. Your provision of private address information with your comment is voluntary. Your private address information will not be released in the EIS or for any other purpose, unless required by law. However, your private address information will be used to compile the mailing list for EIS distribution. Failure to provide such information will result in your name not being included on the distribution list.

Scoping Meetings
for the Powder River Training Complex (PRTC)
Environmental Impact Statement (EIS)

Welcome!

The United States Air Force is conducting scoping meetings for the PRTC EIS. The Air Force is preparing an EIS to determine the potential environmental consequences of a proposal to expand the Powder River Complex to create the PRTC. The PRTC would allow for more effective use of limited resources and finite flying hours by providing, locally, the realistic training needed by B-1 and B-52 aircrews flying from Ellsworth and Minot AFBs. The options being analyzed could:

1. Restructure and reconfigure the existing PRC Military Operations Areas (MOAs) and associated Air Traffic Control Assigned Airspace (ATCAA) and add new MOA/ATCAA airspace with a floor of 500 feet above ground level (AGL).
2. Increase sortie-operations (aircraft training) in the new and modified training airspace.
3. Support additional ground-based simulated threat emitters under the MOAs.
4. Authorize use of training chaff and flares throughout the new and modified airspace.
5. Permit supersonic flight above 10,000 feet AGL.

Scoping meetings provide the public an opportunity to learn about the proposed PRTC and provide input into this environmental impact analysis process. The scoping process helps us identify and address community-specific issues and concerns regarding the proposed airspace use.

Meeting Agenda

Open House........................4:00 p.m. - 7:00 p.m.

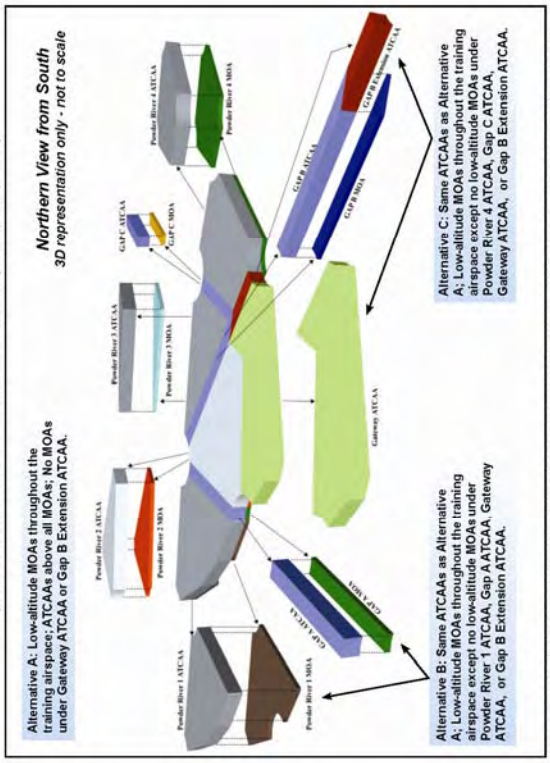
- View video presentation
- Visit information booths
- Discuss proposal with Air Force personnel
- Submit written comments

The Air Force is committed to community outreach and will consider your input to determine the scope of the issues to be addressed and to help identify the significant environmental issues to be analyzed in depth. Your involvement and input are vital to help us focus the environmental analysis.

Why is the PRTC Needed?

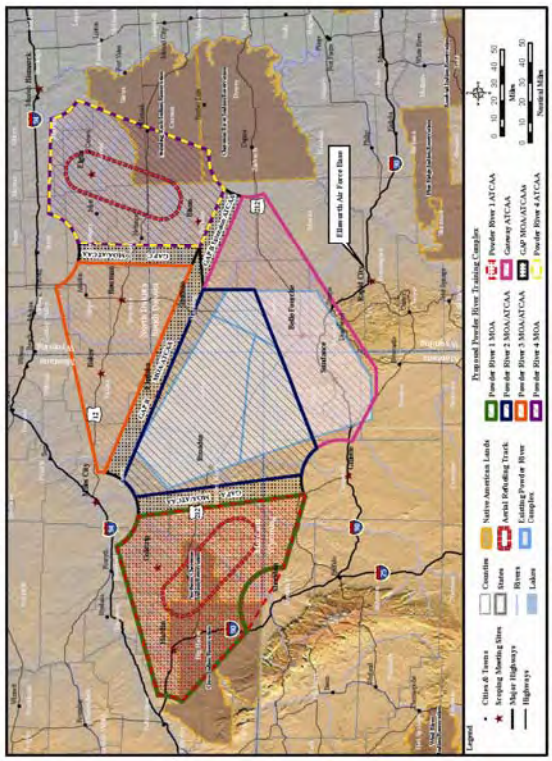
- Aircrews need adequately sized, configured, and available airspace to train as they fight during worldwide deployment.
- Increasing training in local airspace optimizes the limited amount of training hours allocated.
- Reducing commute time to remote training ranges like Nevada Test and Training Range (NTTR) reduces fuel consumption.
- Use of chaff and flares allows aircrews to deploy defensive countermeasures as they would in combat.
- Supersonic training assists aircrews to train for show of force and for quick reaction to enemy threats in combat.
- More effectively use limited resources and finite flying hours.

Proposed Action: Create Powder River Training Complex (PRTC)



All or portions of the following Reservations/counties have the potential of being affected by the training airspace under one or more of the alternatives: ***Montana***: Crow and Northern Cheyenne Reservations and the counties of Big Horn, Carter, Custer, Fallon, Powder River, Rosebud, Treasure, and Yellowstone; ***North Dakota***: Standing Rock Reservation and Adams, Billings, Bowman, Golden Valley, Grant, Hettinger, Morton, Sioux, Slope, and Stark counties; ***South Dakota***: Standing Rock and Cheyenne River Reservations, and Butte, Corson, Harding, Lawrence, Meade, Pennington, Perkins, and Ziebach counties; and ***Wyoming***: Campbell, Crook, Sheridan, and Weston counties.

Proposed Alternative A Airspace Changes



The proposed action would make the following modifications to the existing PRC.

Create PRTC Airspace: create new low altitude (500 feet AGL - 17,999 feet MSL) MOA airspace and new high altitude (18,000 - 60,000 feet MSL) ATCAA airspace and restructure and reconfigure the existing PRC MOAs and ATCAAs.

Increase Flight Operations: increase number, frequency and variety of sortie-operations.

Employ Large Force Exercises (LFE): use entire proposed PRTC for LFEs of 4 to more than 20 aircraft during scheduled exercises (typically once a quarter).

Support Training Transmitters: support additional ground based simulated emitters under the MOAs.

Permit Supersonic Flight: authorize above 10,000 feet AGL within the proposed PRTC.

Authorize Defensive Countermeasures: allow training chaff and flare deployment throughout the proposed PRTC.

Alternative A

Under Alternative A, training aircraft in high-altitude ATCAAs would overfly approximately 37,800 square miles and training aircraft in low-altitude MOAs, under the ATCAAs, would overfly approximately 31,700 square miles.

- Expand existing Powder River A/B MOAs and rename expanded airspace - Powder River 2 MOA (500 feet AGL to 17,999 feet MSL).
- Establish Powder River 1, 3, and 4 MOAs (500 feet AGL to 17,999 feet MSL).
- Combine and modify existing Crossbow and Powder River 1 ATCAAs to overlie Powder River 2 MOA and rename the ATCAAs - Powder River 2 ATCAA.
- Modify the Gateway ATCAA to lie adjacent to Powder River 2 ATCAA.
- Create the Powder River 1, 3, and 4 ATCAAs to connect/correspond with underlying MOAs.
- Establish Gap MOAs and ATCAAs between the Powder River 1, 2, 3, and 4 MOA/ATCAAs.

Alternative A Continued

- Configuration of the MOAs matches their corresponding and overlying ATCAAs, except Powder River 1 MOA.
- Locate two aerial refueling tracks (one each in Powder River 1 and 4 ATCAA).

Alternative B

Same as Alternative A except no low-altitude MOAs under proposed Powder River 1 or proposed Gap A ATCAA. Training aircraft in high-altitude ATCAAs would overfly approximately 37,800 square miles and training aircraft in low-altitude MOAs, under the ATCAAs, would overfly approximately 22,800 square miles.

Alternative C

Same as Alternative A except no low-altitude MOAs under proposed Powder River 4 or proposed Gap C ATCAA. Training aircraft in high-altitude ATCAAs would overfly approximately 37,800 square miles and training aircraft in low-altitude MOAs, under the ATCAAs, would overfly approximately 24,500 square miles.

No-Action Alternative

Training aircraft would continue to train in the existing PRC and to overfly parts or all of the following counties: **Montana:** Carter, Custer, Powder River; **South Dakota:** Butte, Custer, Harding, Lawrence, Meade, Pennington; **Wyoming:** Campbell, Crook, Weston.

Training aircraft in high-altitude ATCAAs would continue to overfly approximately 14,100 square miles and training aircraft in low-altitude MOAs, under the ATCAAs, would continue to overfly approximately 5,900 square miles.

Please Attend!

Scoping Meetings for the Powder River Training Complex (PRTC) Environmental Impact Statement (EIS)

Ellsworth Air Force Base (AFB), South Dakota proposes to modify their training airspace.

Please attend a public scoping meeting to:

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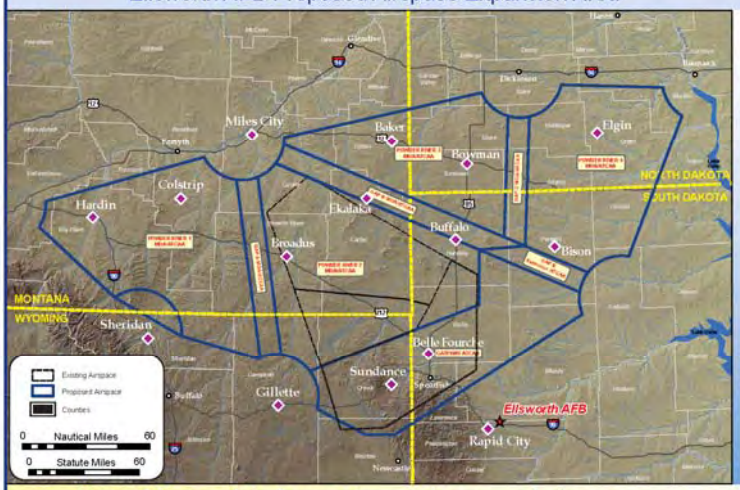


For more information about the meeting contact:

28th Bomb Wing
Ellsworth AFB, Public Affairs
(605) 385-5056

Send comments to:

Ms. Linda DeVine
EIS Project Manager
HQ ACC/A7PP
129 Andrews Street, Room 317
Langley AFB, VA 23665-2769

For additional information visit our website at www.accplanning.org

DISTRIBUTION LIST

Kathleen Burrage
Crow Nation Office of Legal Counsel
Batcheeitche Avenue
PO Box 340
Crow Agency, MT 59022

Clara Caufield
Northern Cheyenne Tribal Administration Offices
600 S. Cheyenne Ave.
Lame Deer, MT 59043

Donald Red Thunder
Land Operations Office
Building 2001
Main Street
Eagle Butte, SD 57625

Richard Bird
Chairman, Economic Committee
PO Box D
Fort Yates, ND 58538

Chairman Joseph Brings Plenty
Cheyenne River Sioux Tribal Council
PO Box 590
Eagle Butte, SD 57625

SAMPLE IICEP LETTER 7

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS AIR COMBAT COMMAND
LANGLEY AIR FORCE BASE, VIRGINIA

JUN 3 2008

MEMORANDUM FOR DISTRIBUTION

FROM: HQ ACC/A7P
129 Andrews Street, Room 317
Langley AFB VA 23665-2769

SUBJECT: Powder River Training Complex, Environmental Impact Statement (EIS)

1. The United States Air Force (Air Force) is in the process of preparing an EIS to assess the potential environmental consequences of a proposal to expand and enhance the existing Powder River Complex (PRC) near Ellsworth Air Force Base (AFB) SD. The proposal would create the Powder River Training Complex (PRTC). The PRTC would more effectively use limited resources and finite flying hours by providing locally the realistic training needed by B-1 and B-52 aircrews flying from Ellsworth AFB SD and Minot AFB ND, respectively. This airspace proposal addresses the training and other limitations affecting the existing PRC training assets as they are currently configured.

2. The proposed action would restructure and reconfigure the existing Powder River Military Operations Areas (MOAs) and associated Air Traffic Control Assigned Airspaces (ATCAAs). The PRTC proposal would establish two air refueling routes, create additional low altitude MOA (500 feet Above Ground Level [AGL] up to, but not including, 18,000 feet above Mean Sea Level [MSL]) and high-altitude ATCAA (18,000-60,000 MSL) combinations in portions of South Dakota, North Dakota, Wyoming and Montana. The proposal would support additional ground-based assets to simulate threats and an increase in aircraft training flights, permit the use of training chaff and flares, and authorize supersonic flight above 10,000 AGL. Three action alternatives and a no-action alternative have currently been identified for analyses and are discussed in the attached meeting brochure (Atch 1). All or portions of the following locations have the potential of being affected by the proposal's overhead training airspace due to one or more of the alternatives: ***Montana***—Crow and Northern Cheyenne Reservations and the counties of Big Horn, Carter, Custer, Fallon, Powder River, Rosebud, Treasure, and Yellowstone; ***North Dakota***—Standing Rock Reservation and Adams, Billings, Bowman, Golden Valley, Grant, Hettinger, Morton, Sioux, Slope, and Stark counties; ***South Dakota***—Standing Rock and Cheyenne River Reservations, and Butte, Corson, Harding, Lawrence, Meade, Pennington, Perkins, Ziebach counties; and ***Wyoming***: Campbell, Crook, Sheridan, and Weston counties.

3. Recognizing that open communication of issues is a critical element of the EIS process, the Air Force will host numerous public meetings in communities underlying and/or adjacent to the proposed action (Atch 2). The scoping meetings will be in held in an open-house format, where Air Force representatives will describe the proposed action and alternatives, the National Environmental Policy Act process which we are undertaking, outline opportunities for public involvement, and answer questions on the proposal. The meetings will last from 4:00 to 7:00 pm

Global Power For America

at all locations, and interested parties or citizens are welcome to come at any time since information will be provided throughout the duration of the open house.

4. Meetings with public and agency stakeholders during this scoping process will help identify the full range of reasonable alternatives, potential impacts, and key issues throughout the environmental impact analysis process. The Air Force intends to coordinate public involvement for the purpose of Section 106 review under the National Historic Preservation with public involvement in the EIS prepared under this Environmental Impact Analysis Process. The Federal Aviation Administration has accepted the Air Force's request to be a cooperating agency for this action and has appointed the Central Service Area as their office of primary responsibility for this EIS.

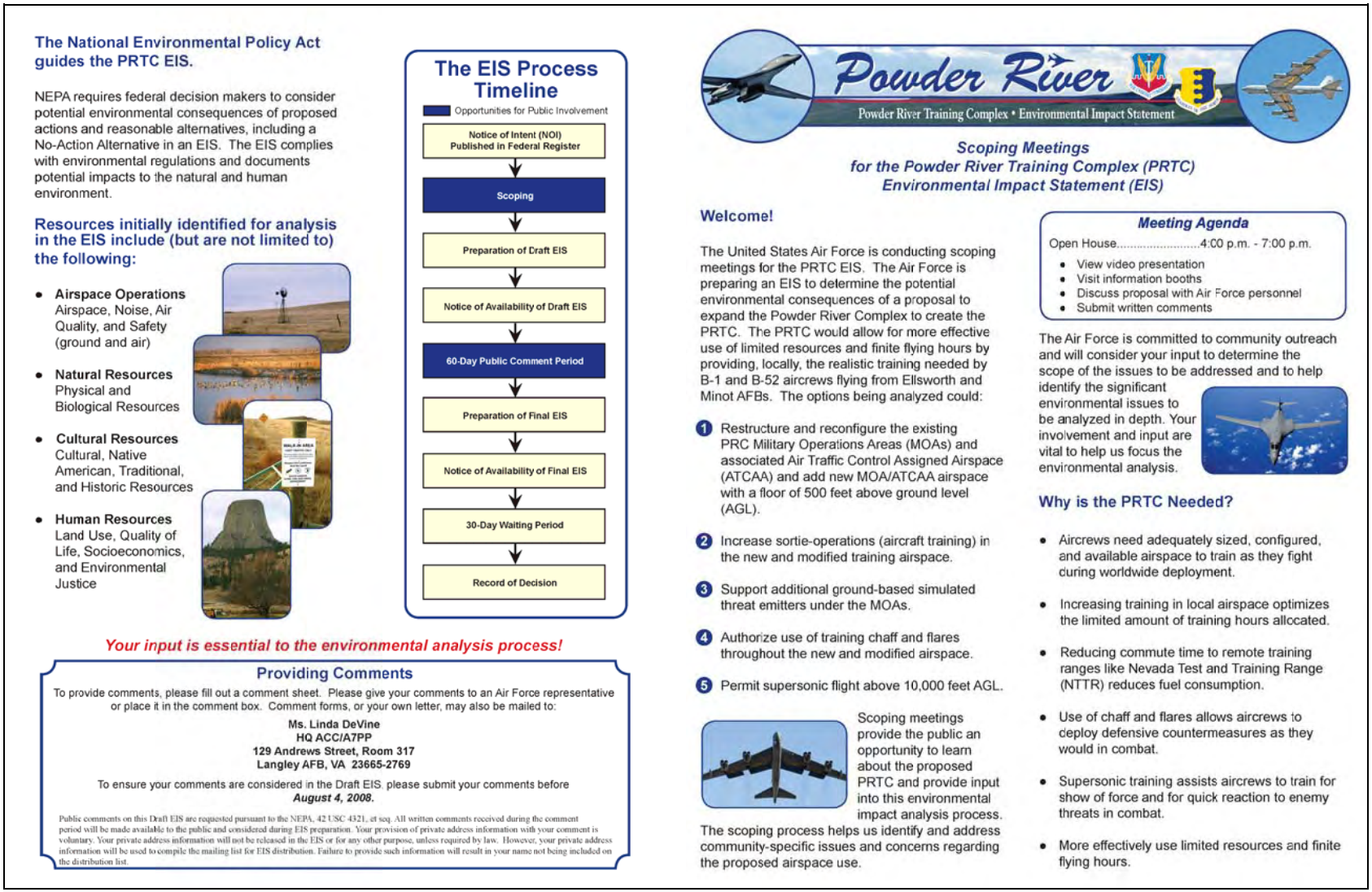
5. The Air Force will accept comments at any time during the environmental process and any information you feel would assist us in this process would be appreciated. To ensure the Air Force has sufficient time to consider public input in the preparation of the draft EIS, information and comments should be submitted to Ms. Linda DeVine, HQ ACC/A7PP, 129 Andrews Street, Room 317, Langley AFB VA 23665-2769 by August 4, 2008.

6. If you have any specific questions about this proposal, please feel free to contact Ms. DeVine at (757) 764-9434, by electronic-mail at acc.prtc@langley.af.mil or contact the public affairs office at Ellsworth AFB SD, 605-385-5056. You may also obtain information including the two attachments to this letter, from our website at www.accplanning.org. Thank you in advance for your assistance in this matter.

BRUCE W. MACDONALD, P.E.
Acting Chief, Programs Division

Attachments:
1. Scoping Meeting Brochure
2. Flyer

Global Power For America



Powder River

Powder River Training Complex • Environmental Impact Statement

Scoping Meetings for the Powder River Training Complex (PRTC) Environmental Impact Statement (EIS)

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- Discuss proposal with Air Force personnel
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- Aircrews need adequately sized, configured, and available airspace to train as they fight during worldwide deployment.
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- Notice of Availability of Draft EIS
- 60-Day Public Comment Period
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- Record of Decision

Your input is essential to the environmental analysis process!

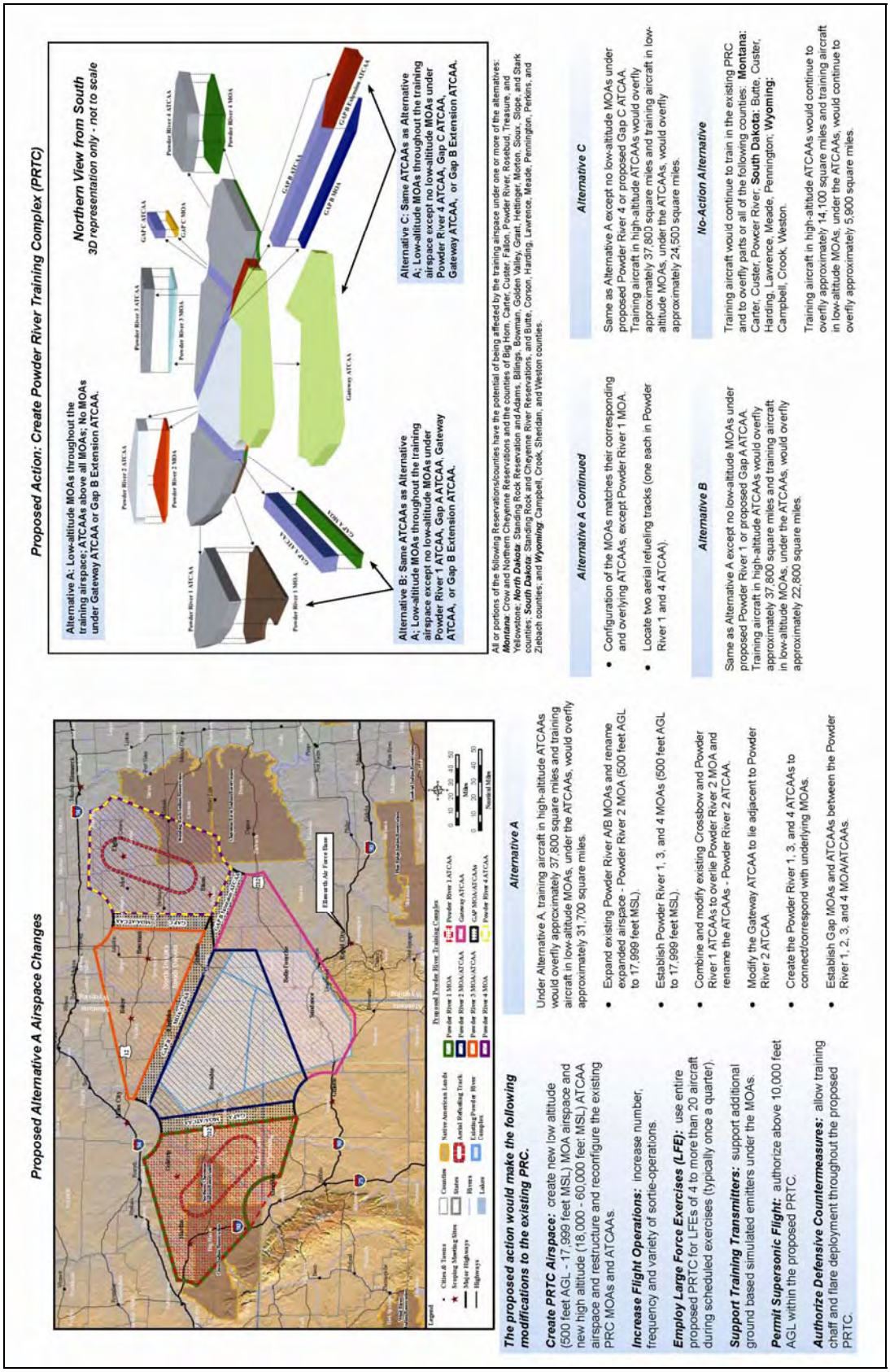
Providing Comments

To provide comments, please fill out a comment sheet. Please give your comments to an Air Force representative or place it in the comment box. Comment forms, or your own letter, may also be mailed to:

Ms. Linda DeVine
HQ ACC/A7PP
129 Andrews Street, Room 317
Langley AFB, VA 23665-2769

To ensure your comments are considered in the Draft EIS, please submit your comments before ***August 4, 2008.***

Public comments on this Draft EIS are requested pursuant to the NEPA, 42 USC 4321, et seq. All written comments received during the comment period will be made available to the public and considered during EIS preparation. Your provision of private address information with your comment is voluntary. Your private address information will not be released in the EIS or for any other purpose, unless required by law. However, your private address information will be used to compile the mailing list for EIS distribution. Failure to provide such information will result in your name not being included on the distribution list.


Proposed Action: Create Powder River Training Complex (PRTC)
Northern View from South
3D representation only - not to scale
Alternative A: Low-altitude MOAs throughout the training airspace; ATCAAs above all MOAs; No MOAs under Gateway ATCAA or Gap B Extension ATCAA.
Alternative B: Same ATCAAs as Alternative A; Low-altitude MOAs throughout the training airspace except no low-altitude MOAs under Powder River 1 ATCAA, Gap A ATCAA, Gateway ATCAA, or Gap B Extension ATCAA.
Alternative C: Same ATCAAs as Alternative A; Low-altitude MOAs throughout the training airspace except no low-altitude MOAs under Powder River 4 ATCAA, Gap C ATCAA, Gateway ATCAA, or Gap B Extension ATCAA.
All or portions of the following Reservations/counties have the potential of being affected by the training airspace under one or more of the alternatives: Montana: Crow and Northern Cheyenne Reservations and the counties of Big Horn, Carter, Custer, Fallon, Powder River, Rosebud, Treasure, and Yellowstone; North Dakota: Standing Rock Reservation and Adams, Billings, Bowman, Golden Valley, Grant, Hettinger, Morton, Sioux, Slope, and Stark counties; South Dakota: Standing Rock and Cheyenne River Reservations, and Butte, Corson, Harding, Lawrence, Meade, Pennington, Perkins, and Ziebach counties; and Wyoming: Campbell, Crook, Sheridan, and Weston counties.
Alternative A Continued
Configuration of the MOAs matches their corresponding and overlying ATCAAs, except Powder River 1 MOA.
Locate two aerial refueling tracks (one each in Powder River 1 and 4 ATCAA).
Alternative C
Same as Alternative A except no low-altitude MOAs under proposed Powder River 4 or proposed Gap C ATCAA. Training aircraft in high-altitude ATCAAs would overfly approximately 37,800 square miles and training aircraft in low-altitude MOAs, under the ATCAAs, would overfly approximately 24,500 square miles.
Alternative B
Same as Alternative A except no low-altitude MOAs under proposed Powder River 1 or proposed Gap A ATCAA. Training aircraft in high-altitude ATCAAs would overfly approximately 37,800 square miles and training aircraft in low-altitude MOAs, under the ATCAAs, would overfly approximately 22,800 square miles.
No-Action Alternative
Training aircraft would continue to train in the existing PRC and to overfly parts or all of the following counties: Montana: Carter, Custer, Powder River; South Dakota: Butte, Custer, Harding, Lawrence, Meade, Pennington; Wyoming: Campbell, Crook, Weston.
Training aircraft in high-altitude ATCAAs would continue to overfly approximately 14,100 square miles and training aircraft in low-altitude MOAs, under the ATCAAs, would continue to overfly approximately 5,900 square miles.
Proposed Alternative A Airspace Changes
Alternative A
The proposed action would make the following modifications to the existing PRC.
Create PRTC Airspace: create new low altitude (500 feet AGL - 17,999 feet MSL) MOA airspace and new high altitude (18,000 - 60,000 feet MSL) ATCAA airspace and restructure and reconfigure the existing PRC MOAs and ATCAAs.
Increase Flight Operations: increase number, frequency and variety of sortie-operations.
Employ Large Force Exercises (LFE): use entire proposed PRTC for LFEs of 4 to more than 20 aircraft during scheduled exercises (typically once a quarter).
Support Training Transmitters: support additional ground based simulated emitters under the MOAs.
Permit Supersonic Flight: authorize above 10,000 feet AGL within the proposed PRTC.
Authorize Defensive Countermeasures: allow training chaff and flare deployment throughout the proposed PRTC.
Under Alternative A, training aircraft in high-altitude ATCAAs would overfly approximately 37,800 square miles and training aircraft in low-altitude MOAs, under the ATCAAs, would overfly approximately 31,700 square miles.
Expand existing Powder River A/B MOAs and rename expanded airspace - Powder River 2 MOA (500 feet AGL to 17,999 feet MSL).
Establish Powder River 1, 3, and 4 MOAs (500 feet AGL to 17,999 feet MSL).
Combine and modify existing Crossbow and Powder River 1 ATCAAs to overlie Powder River 2 MOA and rename the ATCAAs - Powder River 2 ATCAA.
Modify the Gateway ATCAA to lie adjacent to Powder River 2 ATCAA.
Create the Powder River 1, 3, and 4 ATCAAs to connect/correspond with underlying MOAs.
Establish Gap MOAs and ATCAAs between the Powder River 1, 2, 3, and 4 MOA/ATCAAs.
Ellsworth Air Force Base
Transient Powder River Training Complex
Powder River 1 MOA
Powder River 2 MOA/ATCAA
Powder River 3 MOA/ATCAA
Powder River 4 MOA
Gateway ATCAA
Gap MOA/ATCAAs
Powder River 4 ATCAA
Legend
Cities & Towns
Keeping Standing Silos
Major Highways
Highways
Counties
States
Rivers
Lakes
Native American Lands
Aerial Refueling Track
Existing Powder River Complex

Powder River

Powder River Training Complex • Environmental Impact Statement

Please Attend!

Scoping Meetings for the Powder River Training Complex (PRTC) Environmental Impact Statement (EIS)

Ellsworth Air Force Base (AFB), South Dakota proposes to modify their training airspace.

Please attend a public scoping meeting to:

- ☑ Learn more about the proposal
- ☑ Provide community-specific input
- ☑ Be included on our mailing list

Public Scoping Meetings

Open House 4:00 p.m. to 7:00 p.m.
Public invited to attend at any time. Information will be available throughout.

South Dakota

Rapid City
Monday, June 16, 2008
Rapid City Public Library
610 Quincy Street

Belle Fourche
Tuesday, June 17, 2008
Community Center
(Dakota Room)
1111 National Street

Buffalo
Monday, July 14, 2008
Harding County Memorial
Recreation Center
West Allison Street

Bison
Tuesday, July 15, 2008
Bison School Cafeteria
200 East Carr Street

Wyoming

Sundance
Wednesday, June 18, 2008
Crook County Public Library
414 East Main Street

Gillette
Thursday, June 19, 2008
Campbell County
Fire Department
106 Rohan Avenue

Sheridan
Friday, June 20, 2008
Sheridan Senior Center
North Entrance
211 Smith Street

Montana

Hardin
Monday, June 23
Hardin Chamber of Commerce
10 E. Railroad Street

Colstrip
Tuesday, June 24, 2008
Isabel Bills Community
Learning Center,
520 Poplar Drive

Miles City
Wednesday, June 25, 2008
Miles Community College
2715 Dickinson

Ekalaka
Thursday, June 26, 2008
St. Joan of Arc Parish Hall
Church Street

Broadus
Friday, June 27, 2008
Powder River County District
High School
500 North Trautman

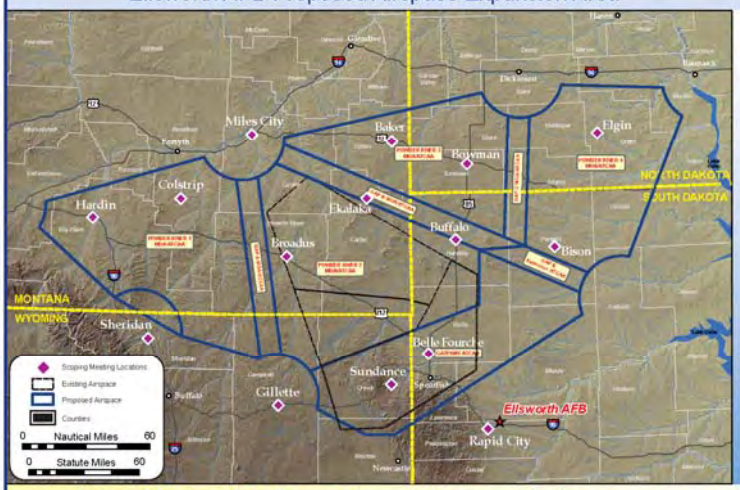
Baker
Tuesday, July 8, 2008
Baker High School
1015 South Third Street West

North Dakota

Bowman
Wednesday, July 9, 2008
City Hall Meeting Room
101 1st Street Southwest

Elgin
Thursday, July 10, 2008
Elgin Community Center
305 North Main Street

Ellsworth AFB Proposed Airspace Expansion Area



For more information about the meeting contact:

28th Bomb Wing
Ellsworth AFB, Public Affairs
(605) 385-5056

Send comments to:

Ms. Linda DeVine
EIS Project Manager
HQ ACC/A7PP
129 Andrews Street, Room 317
Langley AFB, VA 23665-2769

For additional information visit our website at www.accplanning.org

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Global Power For America

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North Dakota Department of Agriculture
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Bismarck, ND 58505-0020

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Steven Doohen
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Soldiers & Sailors Memorial Building
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Pierre, SD 57501-5070

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Historic Preservation Office
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Karl Altenburg
North Dakota Wing Civil Air Patrol
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PO Box 2057
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Global Power For America

Melissa Bears
Town Clerk
PO Box 278
Hulett, WY 82720

Neiman Sawmill
Attn: Wes Bush
PO Box 218
Hulett, WY 82720

Wes Bush
PO Box 472
Hulett, WY 82720

Devil's Tower National Park
Dorothy Fire Cloud
Hwy 110 Bldg 170
Devils Tower, WY 82714

SAMPLE IICEP LETTER 8

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS AIR COMBAT COMMAND
LANGLEY AIR FORCE BASE, VIRGINIA

JUN 3 2008

The Honorable Jon Tester
United States Senator
Granite Tower
222 N 32nd St, Suite 101
Billings, MT 59101

Dear Senator Tester:

The United States Air Force (USAF) is in the process of preparing an Environmental Impact Statement (EIS) to assess the potential environmental consequences of a proposal to expand and enhance the existing Powder River Complex (PRC) near Ellsworth Air Force Base (AFB) SD. The proposal would create the Powder River Training Complex (PRTC). The PRTC would more effectively use limited resources and finite flying hours by providing locally the realistic training needed by B-1 and B-52 aircrews flying from Ellsworth AFB SD and Minot AFB ND, respectively. This airspace proposal addresses the training and other limitations affecting the existing PRC training assets as they are currently configured.

The proposed action would restructure and reconfigure the existing Powder River Military Operations Areas (MOAs) and associated Air Traffic Control Assigned Airspaces (ATCAAs). The PRTC proposal would establish two air refueling routes, create additional low altitude MOA (500 feet Above Ground Level [AGL] up to, but not including, 18,000 feet above Mean Sea Level [MSL]) and high-altitude ATCAA (18,000-60,000 MSL) combinations in portions of South Dakota, North Dakota, Wyoming, and Montana. The proposal would support additional ground-based assets to simulate threats and an increase in aircraft training flights, permit the use of training chaff and flares, and authorize supersonic flight above 10,000 AGL. Three action alternatives and a no-action alternative have currently been identified for analysis and are discussed in the attached meeting brochure (Atch 1). All or portions of the following locations have the potential to be affected by the proposal's overhead training airspace due to one or more of the alternatives: ***Montana***—Crow and Northern Cheyenne Reservations and the counties of Big Horn, Carter, Custer, Fallon, Powder River, Rosebud, Treasure, and Yellowstone; ***North Dakota***—Standing Rock Reservation and Adams, Billings, Bowman, Golden Valley, Grant, Hettinger, Morton, Sioux, Slope, and Stark counties; ***South Dakota***—Standing Rock and Cheyenne River Reservations, and Butte, Corson, Harding, Lawrence, Meade, Pennington, Perkins, Ziebach counties; and ***Wyoming***: Campbell, Crook, Sheridan, and Weston counties.

The Air Force is committed to community outreach. Recognizing that open communication of issues is a critical element of the EIS process, the Air Force will host public meetings in communities underlying and/or adjacent to the proposed airspace (Atch 2). Community meetings are also being coordinated on each Native American Reservation. Meetings with public, agency, and Native American stakeholders during this scoping process will help identify the full range of reasonable alternatives, potential impacts, and key issues to be considered in the environmental impact analysis process.

Global Power For America

The scoping meetings will be in an open-house format, during which Air Force representatives will describe the proposed action and alternatives, explain the National Environmental Policy Act, outline opportunities for public involvement, and answer questions about the proposal. The public meetings will be held from 4:00 to 7:00 p.m., and interested parties are welcome to come at any time information will be provided throughout the duration of the open house. The Air Force will publish notices of EIS preparation and upcoming public scoping meetings in local newspapers.

Public and agency comments received during the meetings, as well as written comments received by the Air Force during the scoping period and throughout the environmental process, will be considered in the preparation of the EIS. The Air Force will accept comments at any time during the environmental process; however, to ensure the Air Force has sufficient time to consider public input in the preparation of the Draft EIS, comments should be submitted to Ms. Linda DeVine, HQ ACC/A7PP, 129 Andrews Street, Rm 317, Langley AFB VA 23665-2769, by August 4, 2008.

If you any specific questions about this proposal, please contact Ms. Linda DeVine at (757) 764-9434 or via e-mail at acc.prtc@langley.af.mil. Thank you in advance for your assistance in this matter.

Sincerely,

ROBERT J. STAIB
Colonel, USAF
Acting Director of Installations and Mission Support (A7)

Attachments:
1. Scoping Meeting Brochure
2. Flyer

Global Power For America

Scoping Meetings
for the Powder River Training Complex (PRTC)
Environmental Impact Statement (EIS)

Welcome!

The United States Air Force is conducting scoping meetings for the PRTC EIS. The Air Force is preparing an EIS to determine the potential environmental consequences of a proposal to expand the Powder River Complex to create the PRTC. The PRTC would allow for more effective use of limited resources and finite flying hours by providing, locally, the realistic training needed by B-1 and B-52 aircrews flying from Ellsworth and Minot AFBs. The options being analyzed could:

1. Restructure and reconfigure the existing PRC Military Operations Areas (MOAs) and associated Air Traffic Control Assigned Airspace (ATCAA) and add new MOA/ATCAA airspace with a floor of 500 feet above ground level (AGL).
2. Increase sortie-operations (aircraft training) in the new and modified training airspace.
3. Support additional ground-based simulated threat emitters under the MOAs.
4. Authorize use of training chaff and flares throughout the new and modified airspace.
5. Permit supersonic flight above 10,000 feet AGL.

Scoping meetings provide the public an opportunity to learn about the proposed PRTC and provide input into this environmental impact analysis process. The scoping process helps us identify and address community-specific issues and concerns regarding the proposed airspace use.

Meeting Agenda

Open House........................4:00 p.m. - 7:00 p.m.

- View video presentation
- Visit information booths
- Discuss proposal with Air Force personnel
- Submit written comments

The Air Force is committed to community outreach and will consider your input to determine the scope of the issues to be addressed and to help identify the significant environmental issues to be analyzed in depth. Your involvement and input are vital to help us focus the environmental analysis.

Why is the PRTC Needed?

- Aircrews need adequately sized, configured, and available airspace to train as they fight during worldwide deployment.
- Increasing training in local airspace optimizes the limited amount of training hours allocated.
- Reducing commute time to remote training ranges like Nevada Test and Training Range (NTTR) reduces fuel consumption.
- Use of chaff and flares allows aircrews to deploy defensive countermeasures as they would in combat.
- Supersonic training assists aircrews to train for show of force and for quick reaction to enemy threats in combat.
- More effectively use limited resources and finite flying hours.

The National Environmental Policy Act guides the PRTC EIS.

NEPA requires federal decision makers to consider potential environmental consequences of proposed actions and reasonable alternatives, including a No-Action Alternative in an EIS. The EIS complies with environmental regulations and documents potential impacts to the natural and human environment.

Resources initially identified for analysis in the EIS include (but are not limited to) the following:

- **Airspace Operations**
  Airspace, Noise, Air Quality, and Safety (ground and air)
- **Natural Resources**
  Physical and Biological Resources
- **Cultural Resources**
  Cultural, Native American, Traditional, and Historic Resources
- **Human Resources**
  Land Use, Quality of Life, Socioeconomics, and Environmental Justice

The EIS Process Timeline

■ Opportunities for Public Involvement

Notice of Intent (NOI) Published in Federal Register
↓
Scoping ■
↓
Preparation of Draft EIS
↓
Notice of Availability of Draft EIS
↓
60-Day Public Comment Period ■
↓
Preparation of Final EIS
↓
Notice of Availability of Final EIS
↓
30-Day Waiting Period
↓
Record of Decision

Your input is essential to the environmental analysis process!

Providing Comments

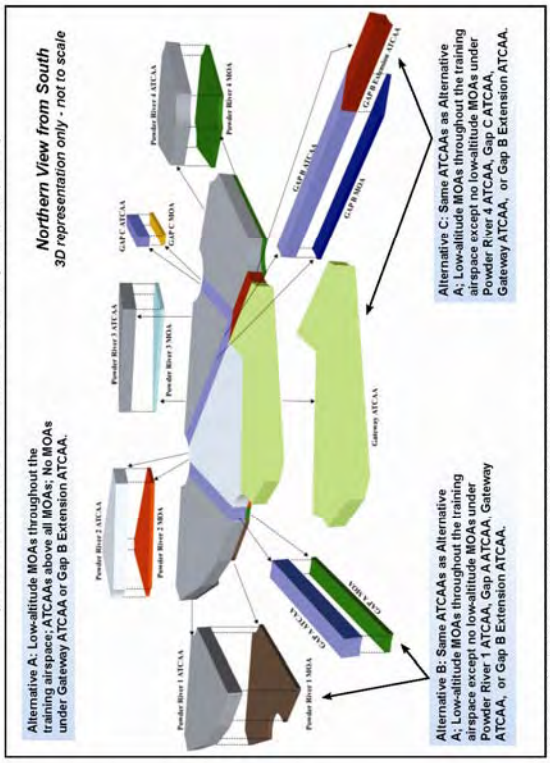
To provide comments, please fill out a comment sheet. Please give your comments to an Air Force representative or place it in the comment box. Comment forms, or your own letter, may also be mailed to:

Ms. Linda DeVine
HQ ACC/A7PP
129 Andrews Street, Room 317
Langley AFB, VA 23665-2769

To ensure your comments are considered in the Draft EIS, please submit your comments before ***August 4, 2008.***

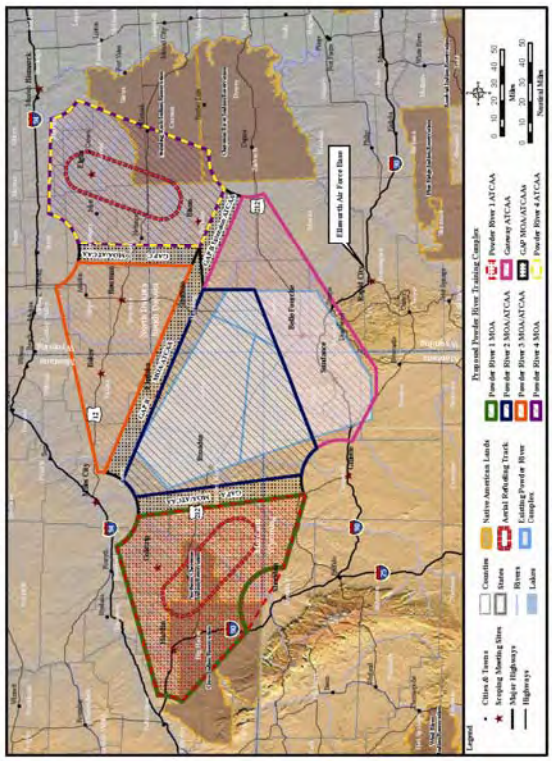
Public comments on this Draft EIS are requested pursuant to the NEPA, 42 USC 4321, et seq. All written comments received during the comment period will be made available to the public and considered during EIS preparation. Your provision of private address information with your comment is voluntary. Your private address information will not be released in the EIS or for any other purpose, unless required by law. However, your private address information will be used to compile the mailing list for EIS distribution. Failure to provide such information will result in your name not being included on the distribution list.

Proposed Action: Create Powder River Training Complex (PRTC)



All or portions of the following Reservations/counties have the potential of being affected by the training airspace under one or more of the alternatives: ***Montana***: Crow and Northern Cheyenne Reservations and the counties of Big Horn, Carter, Custer, Fallon, Powder River, Rosebud, Treasure, and Yellowstone; ***North Dakota***: Standing Rock Reservation and Adams, Billings, Bowman, Golden Valley, Grant, Hettinger, Morton, Sioux, Slope, and Stark counties; ***South Dakota***: Standing Rock and Cheyenne River Reservations, and Butte, Corson, Harding, Lawrence, Meade, Pennington, Perkins, and Ziebach counties; and ***Wyoming***: Campbell, Crook, Sheridan, and Weston counties.

Proposed Alternative A Airspace Changes



The proposed action would make the following modifications to the existing PRC.

Create PRTC Airspace: create new low altitude (500 feet AGL - 17,999 feet MSL) MOA airspace and new high altitude (18,000 - 60,000 feet MSL) ATCAA airspace and restructure and reconfigure the existing PRC MOAs and ATCAAs.

Increase Flight Operations: increase number, frequency and variety of sortie-operations.

Employ Large Force Exercises (LFE): use entire proposed PRTC for LFEs of 4 to more than 20 aircraft during scheduled exercises (typically once a quarter).

Support Training Transmitters: support additional ground based simulated emitters under the MOAs.

Permit Supersonic Flight: authorize above 10,000 feet AGL within the proposed PRTC.

Authorize Defensive Countermeasures: allow training chaff and flare deployment throughout the proposed PRTC.

Alternative A

Under Alternative A, training aircraft in high-altitude ATCAAs would overfly approximately 37,800 square miles and training aircraft in low-altitude MOAs, under the ATCAAs, would overfly approximately 31,700 square miles.

- Expand existing Powder River A/B MOAs and rename expanded airspace - Powder River 2 MOA (500 feet AGL to 17,999 feet MSL).
- Establish Powder River 1, 3, and 4 MOAs (500 feet AGL to 17,999 feet MSL).
- Combine and modify existing Crossbow and Powder River 1 ATCAAs to overlie Powder River 2 MOA and rename the ATCAAs - Powder River 2 ATCAA.
- Modify the Gateway ATCAA to lie adjacent to Powder River 2 ATCAA.
- Create the Powder River 1, 3, and 4 ATCAAs to connect/correspond with underlying MOAs.
- Establish Gap MOAs and ATCAAs between the Powder River 1, 2, 3, and 4 MOA/ATCAAs.

Alternative A Continued

- Configuration of the MOAs matches their corresponding and overlying ATCAAs, except Powder River 1 MOA.
- Locate two aerial refueling tracks (one each in Powder River 1 and 4 ATCAA).

Alternative B

Same as Alternative A except no low-altitude MOAs under proposed Powder River 1 or proposed Gap A ATCAA. Training aircraft in high-altitude ATCAAs would overfly approximately 37,800 square miles and training aircraft in low-altitude MOAs, under the ATCAAs, would overfly approximately 22,800 square miles.

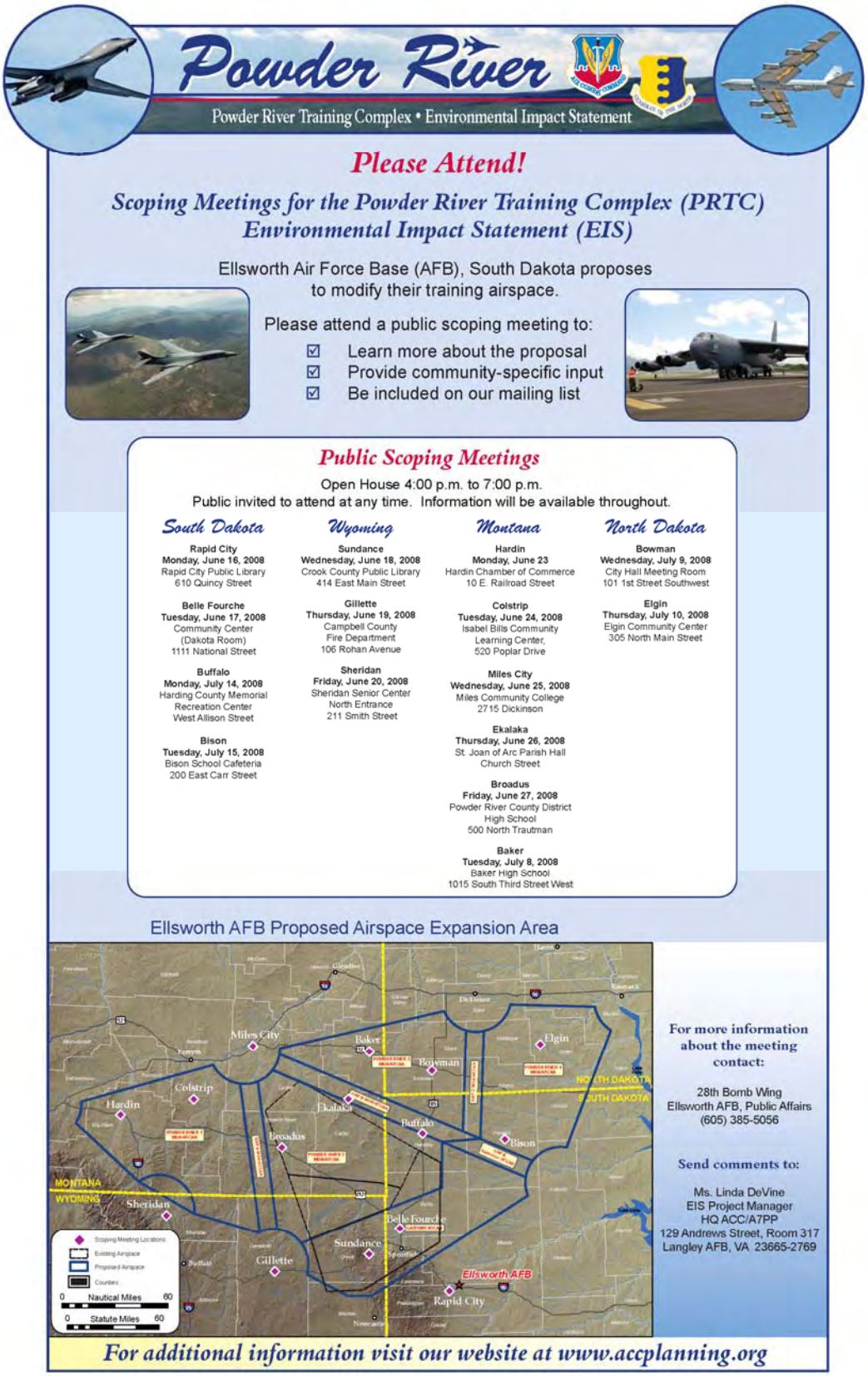
Alternative C

Same as Alternative A except no low-altitude MOAs under proposed Powder River 4 or proposed Gap C ATCAA. Training aircraft in high-altitude ATCAAs would overfly approximately 37,800 square miles and training aircraft in low-altitude MOAs, under the ATCAAs, would overfly approximately 24,500 square miles.

No-Action Alternative

Training aircraft would continue to train in the existing PRC and to overfly parts or all of the following counties: **Montana:** Carter, Custer, Powder River; **South Dakota:** Butte, Custer, Harding, Lawrence, Meade, Pennington; **Wyoming:** Campbell, Crook, Weston.

Training aircraft in high-altitude ATCAAs would continue to overfly approximately 14,100 square miles and training aircraft in low-altitude MOAs, under the ATCAAs, would continue to overfly approximately 5,900 square miles.


Powder River
Powder River Training Complex • Environmental Impact Statement
Please Attend!
Scoping Meetings for the Powder River Training Complex (PRTC)
Environmental Impact Statement (EIS)
Ellsworth Air Force Base (AFB), South Dakota proposes to modify their training airspace.
Please attend a public scoping meeting to:
☑ Learn more about the proposal
☑ Provide community-specific input
☑ Be included on our mailing list
Public Scoping Meetings
Open House 4:00 p.m. to 7:00 p.m.
Public invited to attend at any time. Information will be available throughout.
South Dakota
Rapid City
Monday, June 16, 2008
Rapid City Public Library
610 Quincy Street
Belle Fourche
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Community Center
(Dakota Room)
1111 National Street
Buffalo
Monday, July 14, 2008
Harding County Memorial
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West Allison Street
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Ekalaka
Broadus
Buffalo
Bison
MONTANA
WYOMING
NORTH DAKOTA
SOUTH DAKOTA
Sheridan
Belle Fourche
Sundance
Gillette
Ellsworth AFB
Rapid City
Scoping Meeting Locations
Existing Airspace
Proposed Airspace
Counties
0 Nautical Miles 60
0 Statute Miles 60
For more information about the meeting contact:
28th Bomb Wing
Ellsworth AFB, Public Affairs
(605) 385-5056
Send comments to:
Ms. Linda DeVine
EIS Project Manager
HQ ACC/A7PP
129 Andrews Street, Room 317
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For additional information visit our website at www.accplanning.org

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SAMPLE IICEP LETTER 9

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS AIR COMBAT COMMAND
LANGLEY AIR FORCE BASE, VIRGINIA

JUN 3 2008

MEMORANDUM FOR DISTRIBUTION

FROM: HQ ACC/A7P
129 Andrews Street, Room 317
Langley AFB VA 23665-2769

SUBJECT: Powder River Training Complex, Environmental Impact Statement (EIS)

1. The United States Air Force (Air Force) is in the process of preparing an EIS to assess the potential environmental consequences of a proposal to expand and enhance the existing Powder River Complex (PRC) near Ellsworth Air Force Base (AFB) SD. The proposal would create the Powder River Training Complex (PRTC). The PRTC would more effectively use limited resources and finite flying hours by providing locally the realistic training needed by B-1 and B-52 aircrews flying from Ellsworth AFB SD and Minot AFB ND, respectively. This airspace proposal addresses the training and other limitations affecting the existing PRC training assets as they are currently configured.

2. The proposed action would restructure and reconfigure the existing Powder River Military Operations Areas (MOAs) and associated Air Traffic Control Assigned Airspaces (ATCAAs). The PRTC proposal would establish two air refueling routes, create additional low altitude MOA (500 feet Above Ground Level [AGL] up to, but not including, 18,000 feet above Mean Sea Level [MSL]) and high-altitude ATCAA (18,000-60,000 MSL) combinations in portions of South Dakota, North Dakota, Wyoming and Montana. The proposal would support additional ground-based assets to simulate threats and an increase in aircraft training flights, permit the use of training chaff and flares, and authorize supersonic flight above 10,000 AGL. Three action alternatives and a no-action alternative have currently been identified for analyses and are discussed in the attached meeting brochure (Atch 1). All or portions of the following locations have the potential of being affected by the proposal's overhead training airspace due to one or more of the alternatives: ***Montana***—Crow and Northern Cheyenne Reservations and the counties of Big Horn, Carter, Custer, Fallon, Powder River, Rosebud, Treasure, and Yellowstone; ***North Dakota***—Standing Rock Reservation and Adams, Billings, Bowman, Golden Valley, Grant, Hettinger, Morton, Sioux, Slope, and Stark counties; ***South Dakota***—Standing Rock and Cheyenne River Reservations, and Butte, Corson, Harding, Lawrence, Meade, Pennington, Perkins, Ziebach counties; and ***Wyoming***: Campbell, Crook, Sheridan, and Weston counties.

3. Recognizing that open communication of issues is a critical element of the EIS process, the Air Force will host numerous public meetings in communities underlying and/or adjacent to the proposed action (Atch 2). Meetings with public and agency stakeholders during this scoping process will help identify the full range of reasonable alternatives, potential impacts, and key issues throughout the environmental impact analysis process. The Federal Aviation Administration has accepted the Air Force's request to be a cooperating agency for this action

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and has appointed the Central Service Area as their office of primary responsibility for this environmental impact analysis process.

4. The Air Force is committed to community outreach and as an additional effort to inform the public of these meetings, we request your assistance in posting the enclosed Scoping Meeting flyer in a conspicuous place within your community. The scoping meetings will be in held in an open-house format, where Air Force representatives will describe the proposed action and alternatives, the National Environmental Policy Act process which we are undertaking, outline opportunities for public involvement, and answer questions on the proposal. The meetings will last from 4:00 to 7:00 pm at all locations, and interested parties or citizens are welcome to come at any time since information will be provided throughout the duration of the open house.

5. The Air Force will accept comments at any time during the environmental process. However, to ensure the Air Force has sufficient time to consider public input in the preparation of the draft EIS, comments should be submitted to Ms. Linda DeVine, HQ ACC/A7PP, 129 Andrews Street, Room 317, Langley AFB VA 23665-2769 by August 4, 2008.

6. Please direct specific questions about this proposal to the public affairs office at Ellsworth AFB SD, 605-385-5056. You may also obtain information including the two attachments to this letter, from our website at www.accplanning.org. Thank you in advance for your assistance in this matter.

BRUCE W. MACDONALD, P.E.
Acting Chief, Programs Division

Attachments:
1. Scoping Meeting Brochure
2. Flyer

Global Power For America

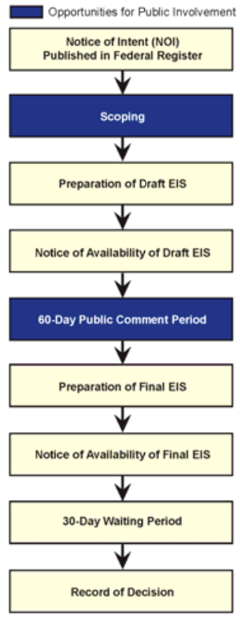
The National Environmental Policy Act guides the PRTC EIS.

NEPA requires federal decision makers to consider potential environmental consequences of proposed actions and reasonable alternatives, including a No-Action Alternative in an EIS. The EIS complies with environmental regulations and documents potential impacts to the natural and human environment.

Resources initially identified for analysis in the EIS include (but are not limited to) the following:

- **Airspace Operations**
  Airspace, Noise, Air Quality, and Safety (ground and air)
- **Natural Resources**
  Physical and Biological Resources
- **Cultural Resources**
  Cultural, Native American, Traditional, and Historic Resources
- **Human Resources**
  Land Use, Quality of Life, Socioeconomics, and Environmental Justice

The EIS Process Timeline



Your input is essential to the environmental analysis process!

Providing Comments

To provide comments, please fill out a comment sheet. Please give your comments to an Air Force representative or place it in the comment box. Comment forms, or your own letter, may also be mailed to:

Ms. Linda DeVine
HQ ACC/A7PP
129 Andrews Street, Room 317
Langley AFB, VA 23665-2769

To ensure your comments are considered in the Draft EIS, please submit your comments before ***August 4, 2008.***

Public comments on this Draft EIS are requested pursuant to the NEPA, 42 USC 4321, et seq. All written comments received during the comment period will be made available to the public and considered during EIS preparation. Your provision of private address information with your comment is voluntary. Your private address information will not be released in the EIS or for any other purpose, unless required by law. However, your private address information will be used to compile the mailing list for EIS distribution. Failure to provide such information will result in your name not being included on the distribution list.

Scoping Meetings
for the Powder River Training Complex (PRTC)
Environmental Impact Statement (EIS)

Welcome!

The United States Air Force is conducting scoping meetings for the PRTC EIS. The Air Force is preparing an EIS to determine the potential environmental consequences of a proposal to expand the Powder River Complex to create the PRTC. The PRTC would allow for more effective use of limited resources and finite flying hours by providing, locally, the realistic training needed by B-1 and B-52 aircrews flying from Ellsworth and Minot AFBs. The options being analyzed could:

1. Restructure and reconfigure the existing PRC Military Operations Areas (MOAs) and associated Air Traffic Control Assigned Airspace (ATCAA) and add new MOA/ATCAA airspace with a floor of 500 feet above ground level (AGL).
2. Increase sortie-operations (aircraft training) in the new and modified training airspace.
3. Support additional ground-based simulated threat emitters under the MOAs.
4. Authorize use of training chaff and flares throughout the new and modified airspace.
5. Permit supersonic flight above 10,000 feet AGL.

Scoping meetings provide the public an opportunity to learn about the proposed PRTC and provide input into this environmental impact analysis process. The scoping process helps us identify and address community-specific issues and concerns regarding the proposed airspace use.

Meeting Agenda

Open House........................4:00 p.m. - 7:00 p.m.

- View video presentation
- Visit information booths
- Discuss proposal with Air Force personnel
- Submit written comments

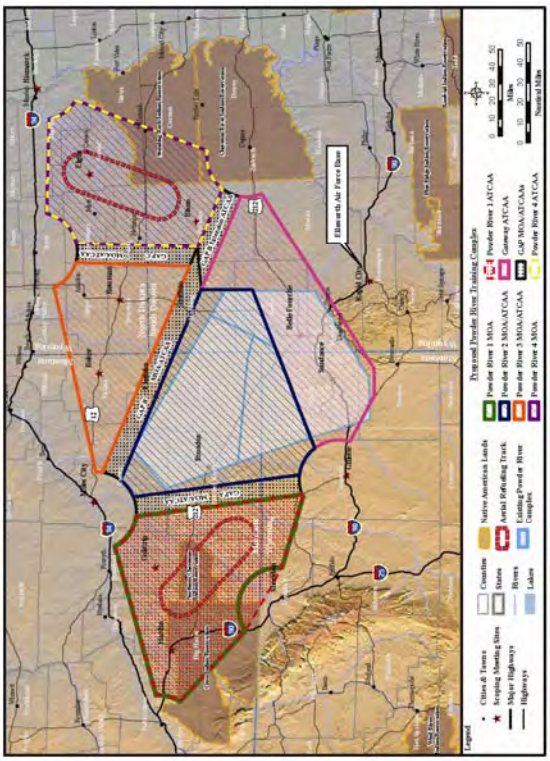
The Air Force is committed to community outreach and will consider your input to determine the scope of the issues to be addressed and to help identify the significant environmental issues to be analyzed in depth. Your involvement and input are vital to help us focus the environmental analysis.

Why is the PRTC Needed?

- Aircrews need adequately sized, configured, and available airspace to train as they fight during worldwide deployment.
- Increasing training in local airspace optimizes the limited amount of training hours allocated.
- Reducing commute time to remote training ranges like Nevada Test and Training Range (NTTR) reduces fuel consumption.
- Use of chaff and flares allows aircrews to deploy defensive countermeasures as they would in combat.
- Supersonic training assists aircrews to train for show of force and for quick reaction to enemy threats in combat.
- More effectively use limited resources and finite flying hours.

Proposed Action: Create Powder River Training Complex (PRTC)

Proposed Alternative A Airspace Changes



The proposed action would make the following modifications to the existing PRC.

Create PRTC Airspace: create new low altitude (500 feet AGL - 17,999 feet MSL) MOA airspace and new high altitude (18,000 - 60,000 feet MSL) ATCAA airspace and restructure and reconfigure the existing PRC MOAs and ATCAAs.

Increase Flight Operations: increase number, frequency and variety of sortie-operations.

Employ Large Force Exercises (LFE): use entire proposed PRTC for LFEs of 4 to more than 20 aircraft during scheduled exercises (typically once a quarter).

Support Training Transmitters: support additional ground based simulated emitters under the MOAs.

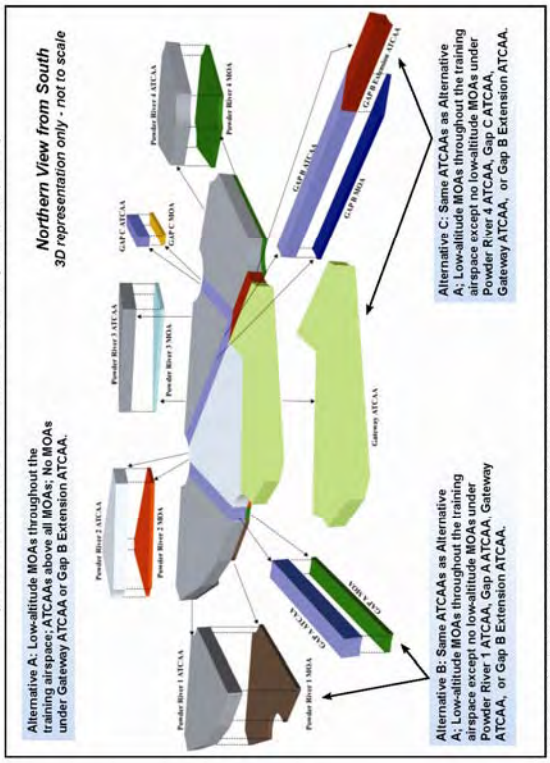
Permit Supersonic Flight: authorize above 10,000 feet AGL within the proposed PRTC.

Authorize Defensive Countermeasures: allow training chaff and flare deployment throughout the proposed PRTC.

Alternative A

Under Alternative A, training aircraft in high-altitude ATCAAs would overfly approximately 37,800 square miles and training aircraft in low-altitude MOAs, under the ATCAAs, would overfly approximately 31,700 square miles.

- Expand existing Powder River A/B MOAs and rename expanded airspace - Powder River 2 MOA (500 feet AGL to 17,999 feet MSL).
- Establish Powder River 1, 3, and 4 MOAs (500 feet AGL to 17,999 feet MSL).
- Combine and modify existing Crossbow and Powder River 1 ATCAAs to overlie Powder River 2 MOA and rename the ATCAAs - Powder River 2 ATCAA.
- Modify the Gateway ATCAA to lie adjacent to Powder River 2 ATCAA.
- Create the Powder River 1, 3, and 4 ATCAAs to connect/correspond with underlying MOAs.
- Establish Gap MOAs and ATCAAs between the Powder River 1, 2, 3, and 4 MOA/ATCAAs.



All or portions of the following Reservations/counties have the potential of being affected by the training airspace under one or more of the alternatives: ***Montana***: Crow and Northern Cheyenne Reservations and the counties of Big Horn, Carter, Custer, Fallon, Powder River, Rosebud, Treasure, and Yellowstone; ***North Dakota***: Standing Rock Reservation and Adams, Billings, Bowman, Golden Valley, Grant, Hettinger, Morton, Sioux, Slope, and Stark counties; ***South Dakota***: Standing Rock and Cheyenne River Reservations, and Butte, Corson, Harding, Lawrence, Meade, Pennington, Perkins, and Ziebach counties; and ***Wyoming***: Campbell, Crook, Sheridan, and Weston counties.

Alternative A Continued

- Configuration of the MOAs matches their corresponding and overlying ATCAAs, except Powder River 1 MOA.
- Locate two aerial refueling tracks (one each in Powder River 1 and 4 ATCAA).

Alternative B

Same as Alternative A except no low-altitude MOAs under proposed Powder River 1 or proposed Gap A ATCAA. Training aircraft in high-altitude ATCAAs would overfly approximately 37,800 square miles and training aircraft in low-altitude MOAs, under the ATCAAs, would overfly approximately 22,800 square miles.

Alternative C

Same as Alternative A except no low-altitude MOAs under proposed Powder River 4 or proposed Gap C ATCAA. Training aircraft in high-altitude ATCAAs would overfly approximately 37,800 square miles and training aircraft in low-altitude MOAs, under the ATCAAs, would overfly approximately 24,500 square miles.

No-Action Alternative

Training aircraft would continue to train in the existing PRC and to overfly parts or all of the following counties: **Montana:** Carter, Custer, Powder River; **South Dakota:** Butte, Custer, Harding, Lawrence, Meade, Pennington; **Wyoming:** Campbell, Crook, Weston.

Training aircraft in high-altitude ATCAAs would continue to overfly approximately 14,100 square miles and training aircraft in low-altitude MOAs, under the ATCAAs, would continue to overfly approximately 5,900 square miles.

Please Attend!

Scoping Meetings for the Powder River Training Complex (PRTC) Environmental Impact Statement (EIS)

Ellsworth Air Force Base (AFB), South Dakota proposes to modify their training airspace.

Please attend a public scoping meeting to:

- ☑ Learn more about the proposal
- ☑ Provide community-specific input
- ☑ Be included on our mailing list

Public Scoping Meetings

Open House 4:00 p.m. to 7:00 p.m.
Public invited to attend at any time. Information will be available throughout.

South Dakota

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Monday, June 16, 2008
Rapid City Public Library
610 Quincy Street

Belle Fourche
Tuesday, June 17, 2008
Community Center
(Dakota Room)
1111 National Street

Buffalo
Monday, July 14, 2008
Harding County Memorial
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10 E. Railroad Street

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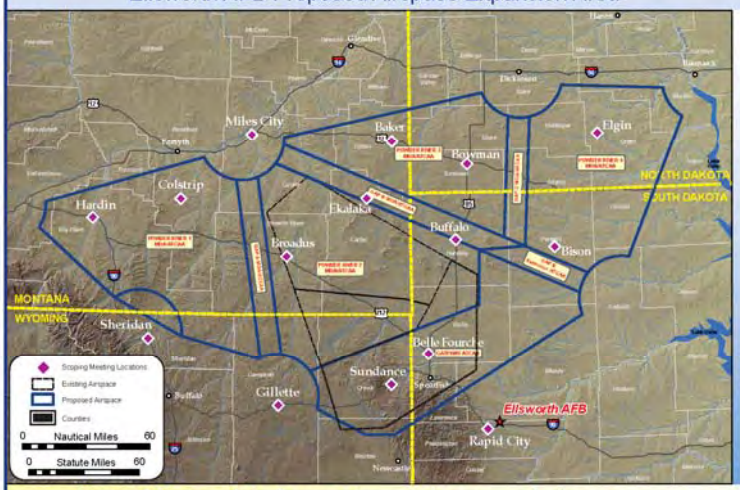
Elgin Community Center
305 North Main Street

Ellsworth AFB Proposed Airspace Expansion Area



For more information about the meeting contact:

28th Bomb Wing
Ellsworth AFB, Public Affairs
(605) 385-5056

Send comments to:

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Glendive, MT 59330

Tom Gaston
Manager
Custer County Airport
12202 Aviation Pl.
Custer, SD 57730

Matt Remymse
Manager
Dickinson-Theodore Roosevelt Regional
Airport
11120 42nd St SW
Dickinson, ND 58601-9282
Thomas Binford
Interim Director
Billings Logan Intl Airport
Aviation and Transit Department
1901 Terminal Circle, Room 216
Billings, MT 59105
Byrand Streeter
Manager
Mondell Field Airport
PO Box 699
Newcastle, WY 82701

John Stopka
Manager
Sheridan County Airport
908 W Brundage Lane
Sheridan, WY 82801

Fulton Castleberry
Manager
Castleberry Airport
Box 25
Ekalaka, MT 59324

Troy Fruit
Manager
Ekalaka Airport
County Courthouse
Ekalaka, MT 59324

Jay Lundell
Manager
Gillette-Campbell County Airport
2000 Airport Road, Suite 108
Gillette, WY 82716

Mike Gunia
Manager
Linton Municipal Airport
7390 4th Ave SE
Linton, ND 58552

Keith Miller
Manager
Hot Springs Municipal Airport
HC 52 Box 123
Hot Springs, SD 57747

Randy Hedge
Manager
Edgemont Municipal Airport
PO Box 131
Edgemont, SD 57735

Rapid City Regional Hospital Heliport
353 Fairmont Blvd.
Rapid City, SD 57701

Brad Schmidt
Manager
Frank Wiley Field Airport
PO Box 910
Miles City, MT 59301

Global Power For America

Donald Dunn
Manager/Owner
Dunn Airport
Star Route, Box 549
Meadow, SD 57644

Tripp County Commissioners
200 E Third Street
Winner, SD 57580-1841

McIntosh City Hall
212 Main Street
McIntosh, SD 57641

Isabel City Hall
108 E Kansas
Isabel, SD 57633

Walworth County Commissioners
PO Box 199
Selby, SD 57472-0199

Perkins County Commissioners
PO Box 126
Bison, SD 57620-0126

Carbon County Commissioners
17 W 11th
Red Lodge, MT 59068-0887

Terry Town Hall
114 Laundre Ave
Terry, MT 59349

Musselshell County Commissioners
506 Main Street
Roundup, MT 59072-2426

Johnson County Commissioners
76 N Main Street
Buffalo, WY 82834-1847

Weston County Commissioners
1 W Main Street
Newcastle, WY 82701-2121

Campbell County Commissioners
PO Box 37
Mound City, SD 57646-0037

Big Horn County Commissioners
420 West C Street
PO Box 31
Basin, WY 82410-0000

Custer County Commissioners
420 Mount Rushmore Road
Custer, SD 57730-1951

Hettinger County Commissioners
336 Pacific Avenue
Mott, ND 58646

Carter County Commissioners
214 Park Street
PO Box 315
Ekalaka, MT 59324-0315

Powder River County Commissioners
PO Box 270
Broadus, MT 59317-0270

Big Horn County Commissioners
PO Box 908
121 3rd Street
Hardin, MT 59034-0908

Treasure County Commissioners
307 Rapelje
Hysham, MT 59038-0392

Rosebud County Commissioners
1200 Main Street
Forsyth, MT 59327-0047

Yellowstone County Commissioners
PO Box 35000
Billings, MT 59107-5000

Haakon County Commissioners
PO Box 698
Philip, SD 57567-0698

Golden Valley County Commissioners
107 Kemp Street
Golden Valley, MT 59074

Custer County Commissioners
1010 Main Street
Miles City, MT 59301-3419

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Grant County Commissioners
106 2nd Avenue NE
Carson, ND 58529

Bowman County Commissioners
104 1st Street NW
Bowman, ND 58623

Butte County Commissioners
839 Fifth Avenue
Belle Fourche, SD 57717-1729

Ziebach County Commissioners
PO Box 68
Dupree, SD 57623-0068

Corson County Commissioners
PO Box 255
McIntosh, SD 57641-0255

Aurora County Commissioners
PO Box 397
Plankinton, SD 57368-0397

Perkins County Commissioners
PO Box 126
County Courthouse
Bison, SD 57620-0126

Commissioners
Emmons County
PO Box 905
Linton, ND 58552

Sioux County Commissioners
302 2nd Avenue
Fort Yates, ND 58538

Slope County Commissioners
206 S Main Street
Amidon, ND 58620

Pennington County Commissioners
315 St. Joseph Street
Rapid City, SD 57701-2885

Meade County Commissioners
1425 Sherman Street
Sturgis, SD 57785-1403

Pennington County Commissioners
315 Saint Joseph Street, Ste. 156
Rapid City, SD 57701

Crook County Commissioners
PO Box 37
Sundance, WY 82729-0037

Lawrence County Commissioners
90 Sherman Street
Deadwood, SD 57732

Sheridan County Commissioners
224 S. Main St., Ste. B1
Sheridan, WY 82801

Adams County Commissioners
602 Adams Avenue
Hettinger, ND 58639

Lawrence County Commissioners
90 Sherman Street
Deadwood, SD 57732

Harding County Commissioners
PO Box 26
Buffalo, SD 57720-0026

Fall River County Commissioners
906 N River Street
Hot Springs, SD 57747-1390

Fallon County Commissioners
10 West Fallon
PO Box 846
Baker, MT 59313-0846

Commissioners
Burleigh County
PO Box 5518
Bismarck, ND 58506

Dennis Johnson
Commission President
Dickinson City Commission
99 2nd Street East
Dickinson, ND 58601

Commissioners
Oliver County
115 W Main Street Box 188
Center, ND 58530

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Commissioners
Mercer County
PO Box 39
Stanton, ND 58571

Commissioners
Dunn County
205 Owens Street
Manning, ND 58642

Commissioners
McKenzie County
201 5th St NW
PO Box 543
Watford City, ND 58854

Commissioners
Morton County
210 2nd Avenue NW
Mandan, ND 58554

Eleanor Marousek
Butte County Historical Society
1119 Elkhorn Drive
Belle Fourche, SD 57717

Rosalee Brimmer
Town of Moorcroft
104 North Bighorn Avenue
PO Box 70
Moorcroft, WY 82721

Ruth Benson
Executive Director
Campbell County Economic Development Corporation
PO Box 3948
201 W Lakeway Rd, Suite 1004

Dewey County Commissioners
PO Box 277
Timber Lake, SD 57656-0277

Campbell County Commissioners Office
500 S Gillette Avenue, Suite #1100
Gillette, WY 82716

Sturgis City Council
1040 Second St., Suite 103
Sturgis, SD 57785

Butte County Commissioners
839 Fifth Avenue
Belle Fourche, SD 57717

Gillette City Council
201 E 5th Street
PO Box 3003
Gillette, WY 82717

Lavina Town Office
117 Main Street
Lavina, MT 59046

City of Halliday
Halliday, ND 58636

Meade County Commissioners
1425 Sherman Street
Sturgis, SD 57785

Josh Lindstrom
President
Bowman Area Chamber of Commerce
PO Box 1143
13 1/2 East Divide
Bowman, ND 58623-1143

Robert Nelson
President
Flasher City Commission
106 N Main Street
Flasher, ND 58535

City of Regent
PO Box 86
Regent, ND 58650

Fromberg Town Hall
118 W River
Fromberg, MT 59029

City of Bridger
201 S B
Bridger, MT 59014

Roxanne Schrantz
Auditor
City of Hazelton
342 Main Street
Hazelton, ND 58544

Prairie County Commissioners
217 W Park
Terry, MT 59349-0125

Powder River County Commissioners
PO Box 270
Broadus, MT 59317-0270

Stillwater County Commissioners
400 3rd Avenue North
Columbus, MT 59019-7165

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Pete Lehmann
Government Analyst
Air Traffic Services
Aircraft Owners and Pilots Association
421 Aviation Way
Frederick, MD 21701-4798

Gary Ness
Director
North Dakota Aeronautics Commission
2301 University Dr., Building 1652-22
PO Box 5020
Bismarck, ND 58502

John Boe
Chairman
Langdon Airport Authority
324 8th Ave
Langdon, ND 58249

Powder River Chamber of Commerce
119 E. Wilson Street
Broadus, MT 59317

Dickinson Area Chamber of Commerce
314 3rd Ave West
Dickinson, ND 58602

Sonja Woods
Library Director
Miles City Public Library
One South Tenth Street
Miles City, MT 59301

Bill Cochran
Library Director
Parmly Billings Library
510 North Broadway
Billings, MT 59101

Patty Myers
Executive Director
Campbell County Public Library
2101 South 4J Road
Gillette, WY 82718

Linda Kerr
President
Carter County Chamber of Commerce
PO Box 108
Ekalaka, MT 59324

Dannette Cremer
President
Miles City Area Chamber of Commerce
511 Pleasant Street
Miles City, MT 59301

Randy Hansen
Government Relations Director
Experimental Aircraft Association (EAA)
PO Box 3086
Oshkosh, WI 54903

Forsyth Area Chamber of Commerce and Agriculture
PO Box 448
Forsyth, MT 59327

Mike Schulte
Acting President
Wyoming Pilots Association
3904 Central Avenue, Suite A#134
Cheyenne, WY 82001

Darlene Staffeldt
State Librarian
Montana State Library
PO Box 201800
1515 East 6th Avenue
Helena, MT 59620-1800

Doris Ott
State Librarian
North Dakota State Library
604 E Boulevard Avenue
Bismarck, ND 58505-0800

Sharon Henry
Library Director
Grace Balloch Memorial Library
625 Fifth Street
Spearfish, SD 57783

Larry Taborsky
Vice President
North Dakota Pilots Association
PO Box 5020
Bismarck, ND 58502

Russ Dahl
President
Montana Pilots' Association
498 BIA RT 1
Nashua, MT 59248

Grove Rathbun
President
South Dakota Pilots Association
1265 Duffer Drive
Rapid City, SD 57702

Karol Zachmann
President
Baker Chamber of Commerce
Box 549
Baker, MT 59313

Marci Mock
Circulation Manager
Sheridan County Fulmer Public Library
335 W Alger Street
Sheridan, WY 82801

Jeanette Lundquist
Director
Deadwood Public Library
435 Williams Street
Deadwood, SD 57732

Pat Engebretson
Librarian
Belle Fourche Public Library
905 5th Avenue
Belle Fourche, SD 57717

Dan Siebersma
State Librarian
South Dakota State Library
Mercedes MacKay Building
800 Governors Drive
Pierre, SD 57501

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Jill Mackey
Director
Crook County Public Library
414 Main Street
PO Box 910
Sundance, WY 82729

Diana Oedekoven
Library Director
Gillette College Library
300 W Sinclair
Gillette, WY 82718

MaryKay Bullard
Branch Librarian
Bicentennial Library
415 Willow Avenue
Colstrip, MT 59323

Vera Abrams
Library Director
Fallon County Library
6 West Fallon Avenue
Baker, MT 59313

Sarah Regan Snavely
Library Director
Bowman Regional Public Library
18 East Divide Street
Bowman, ND 58623

Sheridan College Griffith Memorial Library
3059 Coffeen Avenue
PO Box 1500
Sheridan, WY 82801

Greta Chapman
Director
Rapid City Public Library
610 Quincy Street
Rapid City, SD 57701

Diane Stuver
Library Director
Henry A Malley Memorial Library
102 South Lincoln
Broadus, MT 59317

Cheryl Tollefson
Library Director
Dickinson Area Public Library
139 3rd Street West
Dickinson, ND 58602

Jennifer Cole
Library Director
Ekalaka Public Library
115 S Main Street
Ekalaka, MT 59324

Cheryl Heser
Library Director
Rosebud County Library
201 North 9th Avenue
Forsyth, MT 59327

Lesley Boughton
State Librarian
Wyoming State Library
516 S Greeley Hwy
Cheyenne, WY 82002

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Cooperating Agency Correspondence

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DEPARTMENT OF THE AIR FORCE
WASHINGTON DC

OFFICE OF THE ASSISTANT SECRETARY

SEP 2 8 2007

SAF/IEE
1665 Air Force Pentagon
Washington DC 20330-1665

Ms. Nancy B. Kalinowski
Director, System Operations
Federal Aviation Administration
Airspace & Aeronautical Information Management
800 Independence Avenue, S.W.
Washington DC 20591

Dear Ms. Kalinowski

In accordance with the President's Council on Environmental Quality National Environmental Policy Act Regulations 40 CFR § 1501.6, *Cooperating Agencies*, the Air Force requests the participation of the Federal Aviation Administration (FAA) as a cooperating agency in the preparation of two unrelated Air Force Environmental Impact Statements (EIS) for:

a. Extension and modifications to the White Elk Military Operating Area in Nevada. This airspace initiative would support Ready Aircrew Program training of the 388 Fighter Wing, Hill AFB, Utah, during times when the Utah Test and Training Range is being used for higher priority testing.

b. Modification of the Powder River Training Complex in Montana, Wyoming, North Dakota and South Dakota. This airspace initiative would support the 28th Bomb Wing, Ellsworth AFB, South Dakota, among others, by providing realistic combat training that maximizes valuable aircrew flying hours while saving millions of dollars annually.

As a cooperating agency, the Air Force requests the FAA participate in various portions of the EIS development as may be required. Specifically, the Air Force asks the FAA to support as a cooperating agency by:

- Participating in the scoping process
- Assuming responsibility, upon request by the Air Force, for developing information and preparing analyses on issues for which the FAA has special expertise; and
- Making staff support available to enhance interdisciplinary review capability.

Please respond in writing to this request. Should you or your staff have any questions regarding this memo, our Headquarters Air Combat Command points of contact are Ms Sheryl K. Parker, A7PP, (757) 764-9334 for the White Elk, and Ms Linda DeVine, A7PP, (757)-764-9434 for the Powder River.

Sincerely

FOR

KEVIN W. BILLINGS
Deputy Assistant Secretary
(Environment, Safety and Occupational Health)

10/23/07 15:31 FAX 001

U.S. Department
of Transportation
Federal Aviation Administration

RECEIVED OCT 15 2007

System Operations Airspace and
Aeronautical Information Management
800 Independence Ave., SW.
Washington, DC 20591

OCT 10 2007

Kevin W. Billings
Deputy Assistant Secretary
(Environment, Safety and Occupational Health)
SAF/IEE
1665 Air Force Pentagon
Washington, DC 20330-1665

Dear Mr. Billings:

Thank you for your letter of September 28, 2007 requesting Federal Aviation Administration participation in the environmental processes associated with two unrelated U. S. Air Force (USAF) proposals. We understand that the USAF is proposing to extend and modify the White Elk Military Operations Area (MOA) in Nevada; and, is also proposing to modify the Powder River Training Complex (PRTC), which includes airspace in the Montana, Wyoming, North Dakota, and South Dakota areas.

We are pleased to participate as a cooperating agency, in accordance with the National Environmental Policy Act of 1969, as Amended, and its' implementing regulations. Since the proposals contemplate activities associated with Special Use Airspace (SUA), the FAA will cooperate following the guidelines described in the Memorandum of Understanding between the FAA and the Department of Defense Concerning SUA Environmental Actions, dated October 4, 2005.

The FAA Western Service Area will be the primary focal point for matters related to the White Elk MOA, while the Central Service Area will be the primary focal point for matters related to the PRTC environmental processes. I have forwarded a copy of this letter and your letter to the Western System Support Group Manager, Mr. Clark Desing who can be contacted directly at (425) 917-6700; and to the Central System Support Group Manager, Mr. Don Smith who can be contacted directly at (817) 222-5530. The FAA looks forward to working with the USAF on the environmental process associated with the two proposals identified above.

Sincerely,

Edith V. Parish,
Acting Director

cc: Central and Western Service Areas, System Support

Consultation and Coordination Letters

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STATE HISTORICAL SOCIETY OF NORTH DAKOTA

June 18, 2008

Ms. Linda DeVine
HQ ACC/A7PP
129 Andrews Street
Langley AFB VA 23665-2769

ND SHPO 08-0893: Powder River Training Complex, Environmental Impact Statement (EIS), North Dakota

Dear Ms. DeVine;

We received your preliminary information regarding ND SHPO 08-0893: Powder River Training Complex, Environmental Impact Statement (EIS) in North Dakota and other western states. We seek additional information regarding practices that have the potential to impact cultural resources, including low-altitude training, the nature and distribution of "chaff" and "flares" and the type and distribution of "ground-based assets."

Thank you for the opportunity to review this project. We look forward to further consultation regarding this project. If you have any questions please contact Susan Quinnell, Review and Compliance Coordinator at (701) 328-3576, squinnell@nd.gov or Paul Picha, Chief Archaeologist, (701) 328-3574.

Sincerely,

Merlan E. Paaverud, Jr.
State Historic Preservation Officer (North Dakota)

North Dakota Heritage Center • 612 East Boulevard Avenue, Bismarck, ND 58505-0830 • Phone 701-328-2666 • Fax: 701-328-3710
Email: histsoc@nd.gov • Web site: http://www.nd.gov/hist• TTY: 1-800-366-6888

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South Dakota Department of Tourism and State Development

July 7, 2008

Ms. Linda DeVine
HQ ACC/A7PP
129 Andrews Street, Room 317
Langley AFB, VA 23665-2769

Project: 080604006F – Power River Training Complex, Environmental Impact Statement
Location: Multiple Counties
(DOD/Air Force)

Dear Ms. DeVine:

Thank you for the opportunity to comment on the above referenced project. The South Dakota Office of the State Historic Preservation Officer (SHPO) would like to provide the following list of areas in South Dakota that may be considered Traditional Cultural Properties and/or places of religious and cultural significance to Indian Tribes. The list also includes contact information for each land managing agency associated with the resource.

Bear Butte National Historic Landmark:	Bear Butte State Park PO Box 688; E Hwy 79 Sturgis, SD 57785
National Park Service:	Ernest Quintana, Regional Director National Park Service, MWRO 601 River Front Drive Omaha, NE 68102
Black Hills:	District Ranger Black Hills National Forest Northern Hills Ranger District 2014 N. Main Street Spearfish, SD 57783
Custer National Forest:	Forest Supervisor Custer National Forest 1310 Main Street Billings, MT 59105

Office of Tourism
Governor's Office of Economic Development
Tribal Government Relations
711 E Wells Ave / Pierre, SD 57501-3369
Phone: 605-773-3301 / Fax: 605-773-3256
travelsd.com / sdgreatprofts.com /
sdtribalrelations.com

South Dakota Arts Council
800 Governors Dr. / Pierre, SD 57501-2294
Phone: 605-773-3131 or 1-800-423-6665 in SD
Fax: 605-773-6962
sdac@state.sd.us / sdarts.org

South Dakota State Historical Society
900 Governors Dr. / Pierre, SD 57501-2217
Phone: 605-773-3458 / Fax: 605-773-6041
sdhistory.org

South Dakota Housing Development Authority
PO Box 1237 / Pierre, SD 57501-1237
Phone: 605-773-3181 / Fax: 605-773-5154
sdhda.org

Please note the above list is not all inclusive. For additional information concerning the identification of historic properties, we recommend contacting the appropriate consulting parties as outlined in 36 CFR part 800 – Protection of historic properties. For your convenience a list of Indian Tribes and contact information has been included.

Should you require additional information, please contact Paige Hoskinson Olson, Review and Compliance Coordinator, at (605) 773-6004. Your concern for the non-renewable cultural heritage of our state is appreciated.

Sincerely,

Jay D. Vogt
State Historic Preservation Officer

Paige Hoskinson Olson
Review and Compliance Coordinator

Enclosure: South Dakota Tribal Chairman and Tribal Historic Preservation Offices

South Dakota Tribal Chairman and Tribal Historic Preservation Offices

Chairman: Joseph Brings Plenty
Cheyenne River Sioux Tribe
PO Box 590
Eagle Butte, SD 57625-0590
Phone (605) 964-4155
Fax (605) 964-4151

THPO:
Cheyenne River Sioux Tribe
Tribal Historic Preservation Office
PO Box 590
Eagle Butte, SD 57625
Phone (605) 964-7554
Fax (605) 964-7552

Chairman: Brandon Sazue Sr.
Crow Creek Sioux Tribe
PO Box 50
Ft. Thompson, SD 57339-0050
Phone (605) 245-2221
Fax (605) 245-2470

Chairman: Josh Weston
Flandreau-Santee Sioux Tribe
PO Box 283
Flandreau, SD 57028-0283
Phone (605) 997-3512
Fax (605) 997-3878

Chairman: Michael Jandreau
Lower Brule Sioux Tribe
PO Box 187
Lower Brule, SD 57548-0187
Phone (605) 473-5561
Fax (605) 473-5606

Cultural Resources: Scott Jones
Lower Brule Sioux Tribe
PO Box 187
Lower Brule, SD 57548-0187
Phone (605) 473-5561
Fax (605) 473-5606

Chairman: John Yellow Bird Steele
Oglala Sioux Tribe
PO Box 2070
Pine Ridge, SD 57770-2070
Phone (605) 867-5821
Fax (605) 867-1449

Cultural Resources: Joyce Whiting
Oglala Sioux Tribe
US Highway 18
Behind Tribal Building
Pine Ridge, SD 57770
(605) 867-1271

Chairman: Rodney Bordeaux
Rosebud Sioux Tribe
PO Box 430
Rosebud, SD 57570-0430
Phone (605) 747-2381
Fax (605) 747-2243

THPO: Russell Eagle Bear
Rosebud Sioux Tribe
Tribal Historic Preservation Office
PO Box 658
Rosebud, SD 57570-0658
Phone (605) 747-2381
Fax (605) 747-4227
Kathy Arcoren
Phone (605) 747-4255
rstthpo@yahoo.com

Chairman: Mike Selvage
Sisseton-Wahpeton Oyate
PO Box 509
Agency Village, SD 57262-0509
Phone (605) 698-3911
Fax (605) 698-3708

Chairman: Ron His Horse Is Thunder
Standing Rock Sioux Tribe
PO Box D
Ft. Yates, ND 58538-0522
Phone (701) 854-8500
Fax (701) 854-7299

Chairman: Robert Cournoyer
Yankton Sioux Tribe
PO Box 248
Marty, SD 57361-0248
Phone (605) 384-3641
Fax (605) 384-5687

Chairman: Marcus D. Wells, Jr.
Mandan, Hidatsa & Arikara Nation
Three Affiliated Tribes
404 Frontage Road
New Town, ND 58763
Phone: (701) 627-4781
Fax (701) 627-4748

THPO: Dianne Desrosiers
Sisseton-Wahpeton Oyate
PO Box 907
Sisseton, SD 57262
Phone (605) 698-4972
Fax (605) 698-7054

THPO: Tim Mentz, Sr.
Standing Rock Sioux Tribe
Tribal Historic Preservation Office
PO Box D
Fort Yates, ND 58538
Phone (701) 854-2120
Fax (701) 854-2138

THPO:
Mandan, Hidatsa & Arikara Nation
Three Affiliated Tribes
404 Frontage Road
New Town, ND 58763
Phone: (701) 627-4781
Fax (701) 627-4748

THPO: Brady Grant
Turtle Mountain Band of Chippewa
PO Box 900
Belcourt, North Dakota 58316
(701) 477-2604

THPO: Pam Halverson
Lower Sioux Indian Community
PO Box 308
39527 Res Hwy 1
Morton MN 56270
(507)697-6185

THPO: Curley Youpee
Fort Peck
PO Box 836
Poplar MT 59255
(406) 768-5155

THPO: Joanne White
Northern Arapaho Tribe
533 Ethete Rd
Ethete, WY 82520

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United States Department of the Interior

FISH AND WILDLIFE SERVICE
Ecological Services
420 South Garfield Avenue, Suite 400
Pierre, South Dakota 57501-5408

June 13, 2008

Ms. Linda DeVine
HQ ACC/A7PP
129 Andrews Street, Suite 122
Langley Air Force Base, Virginia 23665-2769

Re: Powder River Training Complex,
Environmental Impact Statement,
Multiple Counties in South Dakota

Dear Ms. DeVine:

This letter is in response to your request dated June 3, 2008, for environmental comments regarding the above referenced project involving the expansion and enhancement of the existing Powder River Complex near Ellsworth Air Force Base. The area under consideration includes Standing Rock and Cheyenne River Reservations and Butte, Corson, Harding, Lawrence, Meade, Pennington, Perkins, and Ziebach Counties in South Dakota.

Please consult National Wetlands Inventory maps (available online at http://wetlands.fws.gov/) for any wetlands that exist in the area of proposed activity. If a project may impact wetlands or other important fish and wildlife habitats, the U.S. Fish and Wildlife Service (Service), in accordance with the National Environmental Policy Act of 1969 (42 U.S.C. 4321-4347) and other environmental laws and rules, recommends complete avoidance of these areas, if possible; then minimization of any adverse impacts; and finally, replacement of any lost acres; in that order. Alternatives should be examined and the least damaging practical alternative selected. If wetland impacts are unavoidable, a mitigation plan addressing the number and types of wetland acres to be impacted and the methods of replacement should be prepared and submitted to the resource agencies for review.

Work requiring the alteration or disturbance of wetlands or streams may require a permit from the U.S. Army Corps of Engineers (Corps) according to the regulations set forth in section 10 of the Rivers and Harbors Act or section 404 of the Clean Water Act. You may contact the Corps' Regulatory Office at 28563 Powerhouse Road, Room 118, Pierre, South Dakota 57501, Telephone No. (605) 224-8531.

Enclosed is a list of endangered species by county. In accordance with section 7(c) of the Endangered Species Act, as amended, 16 U.S.C. 1531 et seq., we have determined that the following federally listed species may occur in the project area (this list is considered valid for 90 days):

Species	Status	Expected Occurrence
Whooping crane (Grus americana)	Endangered	Migration.
Least tern (Sterna antillarum)	Endangered	Migration, Nesting.
Piping plover (Charadrius melodus)	Threatened	Migration, Nesting.
Black-footed ferret (Mustela nigripes)	Endangered/Proposed (Experimental Populations Only)	Potential Resident in Pennington County
Topeka shiner (Notropis topeka)	Endangered	Known Resident.
Bald eagle (Haliaeetus leucocephalus)	Delisted	Migration, Winter Resident, Possible Nesting.

Whooping cranes migrate through South Dakota on their way to northern breeding grounds and southern wintering areas. They occupy numerous habitats such as cropland and pastures; wet meadows; shallow marshes; shallow portions of rivers, lakes, reservoirs, and stock ponds; and both freshwater and alkaline basins for feeding and loafing. Overnight roosting sites frequently require shallow water in which they stand and rest. Should construction/activities occur during spring or fall migration, the potential for disturbances to whooping cranes exists. Disturbance (flushing the birds) stresses them at critical times of the year. We recommend that you remain vigilant for these birds. There is little that can be done to reduce disturbance besides ceasing construction at sites where the birds have been observed. The birds normally do not stay in any one area for long during migration. Any whooping crane sightings should be reported to this office.

Least terns and piping plovers are known to nest on the Missouri River and the Cheyenne River, and they may occur along the Moreau River. These species use sparsely vegetated interchannel sandbars, islands, and shorelines for nesting, foraging, and brood-rearing. They are sensitive to human disturbances which often limit reproduction. Surveys for nesting piping plovers and least terns should be performed prior to any construction, and no construction should take place within one-quarter (1/4) mile of any known piping plover or least tern nest. The birds typically breed in South Dakota between the dates of May 1 and August 15.

Several populations of black-footed ferrets have been reintroduced into South Dakota. Sustainable black-footed ferret populations are exclusively dependent on black-tailed prairie dog colonies for food and habitat. Any black-tailed prairie dog towns >80 acres in size or any towns that are part of a ≥1,000 acre complex of prairie dog colonies may be considered black-footed ferret habitat, and surveys for black-footed ferrets may be required prior to any construction on colonies meeting the above requirements.

Topeka shiners are known to occupy numerous small streams within eastern South Dakota, and most are concentrated within the Big Sioux, Vermillion, and James River watersheds. If any work/activities will be conducted in streams, please contact our office to determine which best management practices would minimize potential adverse impacts to the Topeka shiner.

Although the bald eagle has been delisted from the Endangered Species List, it is still protected under the Bald and Golden Eagle Protection Act and the Migratory Bird Treaty Act. Bald eagles occur throughout South Dakota, and new nests are appearing each year. The birds are associated with large trees, such as cottonwoods, and large lake or river systems, such as the Missouri River. New nests may have been constructed this spring. The best means of avoiding impacts to these birds is by performing activities outside the nesting season of January to August. No construction should occur within one-quarter (1/4) mile of any known active bald eagle nest, and the Service requests notification if any nests are found within one (1) mile of a proposed construction site. Any nests found should be reported to this office.

If the Federal action agency or their designated representative determines that the project "may adversely affect" listed species in South Dakota, it should request formal consultation from this office. If a "may affect - not likely to adversely affect" determination is made for this project, it should be submitted to this office for concurrence. If a "no effect" determination is made, further consultation may not be necessary. However, a copy of the determination should be sent to this office. For more information regarding Federal action agency responsibilities as related to section 7 of the Endangered Species Act, please refer to the Service's Endangered Species Act Consultation Handbook, available online at http://endangered.fws.gov/consultations/index.html.

If changes are made in the project plans or operating criteria, or if additional information becomes available, the Service should be informed so that the above determinations can be reconsidered.

The Service appreciates the opportunity to provide comments. If you have any questions on these comments, please contact Charlene Bessken of this office at (605) 224-8693, Extension 231.

Sincerely,

Pete Gober
Field Supervisor
South Dakota Field Office

Enclosure

cc: Corps/Regulatory; Pierre, SD
(Attention: Steve Naylor)
SAIC; Carpinteria, CA
(Attention: Dr. Thomas W. Mulroy)

U.S. Fish & Wildlife Service

Mountain-Prairie Region
South Dakota Ecological Services Field Office

ENDANGERED SPECIES BY COUNTY LIST
(updated 18 December 2007)

STATE: SOUTH DAKOTA

The Bald Eagle was removed from the List of Endangered and Threatened Wildlife effective August 8, 2007. The protections provided to the bald eagle under the Bald and Golden Eagle Protection Act and the Migratory Bird Treaty Act will continue to remain in place after the species is delisted. National Bald Eagle Management Guidelines have been developed. This rule change does not affect the bald eagle's status as a threatened or endangered species under State laws or suspend any other legal protections provided by State law.

T - Threatened
E - Endangered
XN - Proposed/Experimental Population
CH - Critical Habitat
PCH - Proposed Critical Habitat

COUNTY	GROUP	SPECIES	CERTAINTY OF OCCURRENCE	STATUS
AURORA	BIRD	CRANE, WHOOPING	KNOWN	E
	FISH	SHINER, TOPEKA	KNOWN	E
BEADLE	BIRD	CRANE, WHOOPING	KNOWN	E
	FISH	SHINER, TOPEKA	KNOWN	E
BENNETT	BIRD	CRANE, WHOOPING	KNOWN	E
	INSECT	BEETLE, AMERICAN BURYING[2]	KNOWN	E
	PLANT	ORCHID, WESTERN PRAIRIE FRINGED[1]	POSSIBLE	T
BON HOMME	BIRD	PLOVER, PIPING	KNOWN	T (CH)
		TERN, LEAST	KNOWN	E
	FISH	STURGEON, PALLID	KNOWN	E
BROOKINGS	INSECT	BEETLE, AMERICAN BURYING[2]	POSSIBLE	E
	FISH	SHINER, TOPEKA	KNOWN	E

	PLANT	ORCHID, WESTERN PRAIRIE FRINGED[1]	POSSIBLE	T
BROWN	BIRD	CURLEW, ESKIMO	EXTREMELY RARE	E
	FISH	SHINER, TOPEKA	KNOWN	E
BRULE	BIRD	CRANE, WHOOPING	KNOWN	E
		PLOVER, PIPING	POSSIBLE	T
	FISH	STURGEON, PALLID	KNOWN	E
BUFFALO	BIRD	CRANE, WHOOPING	KNOWN	E
		PLOVER, PIPING	POSSIBLE	T
	FISH	STURGEON, PALLID	KNOWN	E
BUTTE	BIRD	CRANE, WHOOPING	KNOWN	E
CAMPBELL	BIRD	CRANE, WHOOPING	KNOWN	E
		PLOVER, PIPING	KNOWN	T (CH)
		TERN, LEAST	KNOWN	E
	FISH	STURGEON, PALLID	POSSIBLE	E
CHARLES MIX	BIRD	CRANE, WHOOPING	KNOWN	E
		PLOVER, PIPING	KNOWN	T (CH)
		TERN, LEAST	KNOWN	E
	FISH	STURGEON, PALLID	KNOWN	E
CLARK	BIRD	CRANE, WHOOPING	KNOWN	E
	FISH	SHINER, TOPEKA[3]	KNOWN	E
CLAY	BIRD	PLOVER, PIPING	KNOWN	T (CH)

		TERN, LEAST	KNOWN	E
	FISH	SHINER, TOPEKA	KNOWN	E
		STURGEON, PALLID	POSSIBLE	E
	MOLLUSK	MUSSEL, SCALESHELL[6]	HISTORICAL, MISSOURI RIVER	E
	PLANT	ORCHID, WESTERN PRAIRIE FRINGED[1]	POSSIBLE	T
CODINGTON	BIRD	CRANE, WHOOPING	KNOWN	E
	FISH	SHINER, TOPEKA	POSSIBLE	E
CORSON	BIRD	CRANE, WHOOPING	KNOWN	E
		PLOVER, PIPING	KNOWN	T (CH)
		TERN, LEAST	KNOWN	E
	FISH	SHINER, TOPEKA	HISTORICAL	E
		STURGEON, PALLID	POSSIBLE	E
CUSTER	MAMMAL	FERRET, BLACK-FOOTED	KNOWN	E
DAVISON	FISH	SHINER, TOPEKA	KNOWN	E
DAY	BIRD	PLOVER, PIPING	KNOWN	T
DEUEL	FISH	SHINER, TOPEKA[3]	KNOWN	E
DEWEY	BIRD	CRANE, WHOOPING	KNOWN	E
		PLOVER, PIPING	KNOWN	T (CH)
		TERN, LEAST	KNOWN	E

	FISH	SHINER, TOPEKA	HISTORICAL	E
		STURGEON, PALLID	KNOWN	E
	MAMMAL	FERRET, BLACK-FOOTED[4]	KNOWN	XN
DOUGLAS	BIRD	CRANE, WHOOPING	KNOWN	E
EDMUNDS	BIRD	CRANE, WHOOPING	KNOWN	E
FALL RIVER				
FAULK	BIRD	CRANE, WHOOPING	KNOWN	E
GRANT	FISH	SHINER, TOPEKA[3]	POSSIBLE	E
GREGORY	BIRD	CRANE, WHOOPING	KNOWN	E
		PLOVER, PIPING	KNOWN	T (CH)
		TERN, LEAST	KNOWN	E
	INSECT	BEETLE, AMERICAN BURYING[2]	KNOWN	E
	FISH	STURGEON, PALLID	KNOWN	E
	MAMMAL	FERRET, BLACK-FOOTED[4]	POSSIBLE	XN
HAAKON	BIRD	CRANE, WHOOPING	KNOWN	E
		PLOVER, PIPING	KNOWN	T
		TERN, LEAST	KNOWN	E
	INSECT	BEETLE, AMERICAN BURYING[2]	POSSIBLE	E
HAMLIN	FISH	SHINER, TOPEKA[3]	KNOWN	E
HAND	BIRD	CRANE, WHOOPING	KNOWN	E
HANSON	FISH	SHINER, TOPEKA	KNOWN	E
HARDING				
HUGHES	BIRD	CRANE, WHOOPING	KNOWN	E
		PLOVER, PIPING	KNOWN	T (CH)

		TERN, LEAST	KNOWN	E
	FISH	STURGEON, PALLID	KNOWN	E
HUTCHINSON	FISH	SHINER, TOPEKA	KNOWN	E
	PLANT	ORCHID, WESTERN PRAIRIE FRINGED[1]	POSSIBLE	T
HYDE	BIRD	CRANE, WHOOPING	KNOWN	E
JACKSON	BIRD	CRANE, WHOOPING	KNOWN	E
	MAMMAL	FERRET, BLACK-FOOTED[4]	POSSIBLE	XN
JERAULD	BIRD	CRANE, WHOOPING	KNOWN	E
	FISH	SHINER, TOPEKA[3]	KNOWN	E
JONES	BIRD	CRANE, WHOOPING	KNOWN	E
KINGSBURY	BIRD	CRANE, WHOOPING	KNOWN	E
		PLOVER, PIPING	KNOWN	T
	FISH	SHINER, TOPEKA[3]	KNOWN	E
LAKE	FISH	SHINER, TOPEKA[3]	KNOWN	E
	PLANT	ORCHID, WESTERN PRAIRIE FRINGED[1]	POSSIBLE	T
LAWRENCE	BIRD	CRANE, WHOOPING	KNOWN	E
LINCOLN	FISH	SHINER, TOPEKA	KNOWN	E
	PLANT	ORCHID, WESTERN PRAIRIE FRINGED[1]	POSSIBLE	T
LYMAN	BIRD	CRANE, WHOOPING	KNOWN	E
		PLOVER, PIPING	POSSIBLE	T
MARSHALL				
MCCOOK	FISH	SHINER, TOPEKA	KNOWN	E
	PLANT	ORCHID, WESTERN PRAIRIE FRINGED[1]	POSSIBLE	T
MCPHERSON	BIRD	CRANE, WHOOPING	KNOWN	E
MEADE	BIRD	CRANE, WHOOPING	KNOWN	E
		TERN, LEAST	KNOWN	E
MELLETTE	BIRD	CRANE, WHOOPING	KNOWN	E
	MAMMAL	FERRET, BLACK-FOOTED[4]	POSSIBLE	XN
MINER	FISH	SHINER, TOPEKA	KNOWN	E
	PLANT	ORCHID, WESTERN PRAIRIE	POSSIBLE	T

		FRINGED[1]		
MINNEHAHA	FISH	SHINER, TOPEKA	KNOWN	E
	PLANT	ORCHID, WESTERN PRAIRIE FRINGED[1]	POSSIBLE	T
MOODY	FISH	SHINER, TOPEKA	KNOWN	E
	PLANT	ORCHID, WESTERN PRAIRIE FRINGED[1]	POSSIBLE	T
PENNINGTON	BIRD	CRANE, WHOOPING	KNOWN	E
		TERN, LEAST	KNOWN	E
	MAMMAL	FERRET, BLACK-FOOTED[4]	KNOWN	XN
PERKINS	BIRD	CRANE, WHOOPING	KNOWN	E
POTTER	BIRD	CRANE, WHOOPING	KNOWN	E
		PLOVER, PIPING	KNOWN	T (CH)
		TERN, LEAST	KNOWN	E
	FISH	STURGEON, PALLID	KNOWN	E
ROBERTS	PLANT	ORCHID, WESTERN PRAIRIE FRINGED[1]	POSSIBLE	T
SANBORN	FISH	SHINER, TOPEKA	KNOWN	E
SHANNON	BIRD	CRANE, WHOOPING	KNOWN	E
	MAMMAL	FERRET, BLACK-FOOTED[4]	KNOWN	XN
	PLANT	ORCHID, WESTERN PRAIRIE FRINGED[1]	POSSIBLE	T
SPINK	BIRD	CRANE, WHOOPING	KNOWN	E
	FISH	SHINER, TOPEKA[3]	POSSIBLE	E
STANLEY	BIRD	CRANE, WHOOPING	KNOWN	E
		PLOVER, PIPING	KNOWN	T (CH)
		TERN, LEAST	KNOWN	E
	FISH	STURGEON, PALLID	KNOWN	E
SULLY	BIRD	CRANE, WHOOPING	KNOWN	E
		PLOVER, PIPING	KNOWN	T (CH)
		TERN, LEAST	KNOWN	E
	FISH	STURGEON, PALLID	KNOWN	E
TODD	INSECT	BEETLE, AMERICAN BURYING[2]	KNOWN	E
	MAMMAL		KNOWN	XN

		FERRET, BLACK-FOOTED[4]		
	PLANT	ORCHID, WESTERN PRAIRIE FRINGED[1]	POSSIBLE	T
TRIPP	BIRD	CRANE, WHOOPING	KNOWN	E
	INSECT	BEETLE, AMERICAN BURYING[2]	KNOWN	E
	MAMMAL	FERRET, BLACK-FOOTED[4]	POSSIBLE	XN
TURNER	FISH	SHINER, TOPEKA	KNOWN	E
	PLANT	ORCHID, WESTERN PRAIRIE FRINGED[1]	POSSIBLE	T
UNION	BIRD	PLOVER, PIPING	KNOWN	T
		TERN, LEAST	KNOWN	E
	INSECT	BEETLE, AMERICAN BURYING[2]	POSSIBLE	E
	FISH	SHINER, TOPEKA	KNOWN	E
		STURGEON, PALLID	POSSIBLE	E
	MOLLUSK	MUSSEL, SCALESHELL	Historic, Missouri River	E
	PLANT	ORCHID, WESTERN PRAIRIE FRINGED[1]	POSSIBLE	T
WALWORTH	BIRD	CRANE, WHOOPING	KNOWN	E
		PLOVER, PIPING	KNOWN	T (CH)
		TERN, LEAST	KNOWN	E
	FISH	STURGEON, PALLID	POSSIBLE	E
YANKTON	BIRD	CURLEW, ESKIMO	EXTREMELY RARE	E
		PLOVER, PIPING	KNOWN	T (CH)
		TERN, LEAST	KNOWN	E
	FISH	SHINER, TOPEKA[3]	POSSIBLE	E
		STURGEON, PALLID	POSSIBLE	E
	MOLLUSK	MUSSEL, SCALESHELL[6]	Historic, Missouri River	E
		PEARLYMUSSEL, HIGGINS EYE[5,6]	One Dead Specimen Found	E
	PLANT	ORCHID, WESTERN PRAIRIE FRINGED[1]	POSSIBLE	T
ZIEBACH	BIRD	CRANE, WHOOPING	KNOWN	E
		PLOVER, PIPING	KNOWN	T (CH)
		TERN, LEAST	KNOWN	E
	MAMMAL	FERRET, BLACK-FOOTED[4]	POSSIBLE	XN

[1] The counties indicated for the Western Prairie Fringed Orchid are counties with potential habitat. Currently, there are no known populations of this species in South Dakota. Status surveys have been completed for the orchid in South Dakota. However, because of the ecology of this species, there is a possibility that plants may be overlooked.

[2] The American Burying Beetle is presently known to occur in Gregory, Tripp and Todd counties. One specimen was recently trapped in Bennett County. A comprehensive status survey has never been completed for the American burying beetle in South Dakota. Until status surveys have been completed, the beetle could and may occur in any county with suitable habitat. Suitable habitat is considered to be any site with significant humus or topsoil suitable for burying carrion.

[3] Although Topeka Shiners have not been formally documented within Clark, Grant, Jerauld, Kingsbury, Lake, Spink, or Yankton Counties, the shiners may still occur in these areas because the counties contain portions of known Topeka Shiner inhabited rivers and/or tributary streams.

[4] Block clearance is a strategy developed by the Service to determine the likelihood of black-footed ferret occurrence in a geographic area and provide sufficient information to allow the Service to assess an area for the biological potential for contributing to recovery of the ferret. The act of block clearing an area negates the need to conduct future ferret surveys to comply with section 7 of the Endangered Species Act. The exception is for National Park Service lands and US Fish and Wildlife Service lands - ferrets are considered threatened in those areas. Black-footed ferrets have been reintroduced in Badlands National Park, Buffalo Gap National Grasslands and Cheyenne River Sioux Tribe Reservation.

[5] A fresh dead shell of a Higgins Eye Pearlymussel was found below Gavins Point Dam on October 27, 2004.

[6] Shells of these species have been found, but no populations have been located.

Any corrections or additions to this list should be submitted to Pete Gober, U.S. Fish and Wildlife Service, South Dakota Field Office, Ecological Services, 420 South Garfield Avenue, Pierre, SD; Telephone (605)224-8693, ext. 224.

Return to SD Endangered Species Page FWS South Dakota Home Page

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DEPARTMENT OF THE AIR FORCE
HEADQUARTERS AIR COMBAT COMMAND
LANGLEY AIR FORCE BASE, VIRGINIA

May 17, 2011

MEMORANDUM FOR Mr. Scott Larson, Field Supervisor
USFWS Ecological Services Field Office
420 Garfield Avenue, Suite 400
Pierre, South Dakota 57501-5408

The U.S. Fish and Wildlife Service concurs with your conclusion that the described project will not adversely affect listed species. Contact this office if changes are made or new information becomes available.
5/24/11 Scott Larson
Date SD Field Supervisor USFWS

FROM: HQ ACC/A7P
129 Andrews Street, Suite 337
Langley AFB VA 23665-2969

SUBJECT: Proposed Powder River Training Complex (Telecom April 7, 2011)

1. The Air Force appreciates the opportunity to consult with your office under Section 7 of the Endangered Species Act (ESA) with regards to potential affects to endangered species as identified in the Draft Environmental Impact Statement (EIS) for the proposed creation of the Powder River Training Complex (PRTC).

2. Based on your teleconference with Ms. Linda DeVine on April 07, 2011, the U.S. Air Force understands that your primary concern is based on the potential for adverse effects to endangered whooping crane (*Grus Americana*) during the spring (March/April) and fall (September/October) migration periods. The Air Force acknowledges that whooping crane activity has been known to occur in the counties of Corson, Ziebach and Perkins SD and Sioux, Adams, Grant and Hettinger ND; all of which lie beneath the proposed Powder River 4 Low Military Operations Area (MOA).

3. In accordance with the Endangered Species Act, the U.S. Air Force requests your concurrence with the Air Force's determination of may affect, not likely to adversely affect, federally listed threatened and endangered species. This determination is made based on the findings contained in Sections 3.6.3 and 4.6.3 of the Draft EIS for the PRTC. To further minimize the potential for a bird strike to occur with the endangered whooping crane, the Air Force would observe the following conditions: .

a. The 28 OSS would avoid use of the proposed Powder River 4 Low (500' AGL through 12,000' MSL) MOA when notified by the USFWS of whooping crane activity during their spring and fall migration periods, typically occurring during the months of March, April, September and October. The USFWS, Pierre SD would notify the 28 OSS/OSO and request avoidance of the proposed Powder River 4 Low MOA due to whooping crane activity/sightings in the counties of Corson, Ziebach and Perkins SD, and Sioux, Adams, Grant and Hettinger ND; all of which lie beneath the proposed Powder River 4 Low Military Operations Area (MOA). The USFWS, Pierre SD would notify the 28 OSS/OSO once whooping cranes have migrated through the area. The Air Force

understands that migration activity typically takes a couple of days, but it could last as long as 4-6 days if adverse weather conditions are present.

b. Ellsworth AFB would send a letter to the USFWS SD Field Office (Field supervisor), Pierre SD, in March of each year providing updated names and telephone numbers of Ellsworth AFB's point of contact to be notified of whooping crane sightings. The letter would include projected scheduled use times of the proposed Powder River 4 Low MOA to the extent practicable.

5. Please contact the EIS Project Manager, Ms. Linda DeVine, at (757) 764-9434 with any questions you may have, to discuss this determination request, or to discuss any additional consultation requirements. Thank you for your continued assistance in this matter.

DIMASALANG F. JUNIO
Colonel, USAF
Chief, Programs Division (A7P)

Cc: Mr. Robert F. Stewart, REO, USDOI
28 OSS/OS
28 CES/CC

Global Power For America

DEPARTMENT OF THE AIR FORCE
AIR FORCE CIVIL ENGINEER CENTER
JOINT BASE SAN ANTONIO LACKLAND TEXAS

30 May 14

MEMORANDUM FOR MR. SCOTT LARSON
USFWS Ecological Services Field Office
420 Garfield Avenue, Suite 400
Pierre, SD 57501-5408

FROM: AFCEC/CZN
2261 Hughes Ave. Ste 155
JBSA Lackland, TX, 78236-9853

SUBJECT: Proposed Powder River Training Complex

1. The Air Force appreciates the continuing opportunity to consult with your office under Section 7 of the Endangered Species Act (ESA) with regards to the potential effects to endangered species related to creation of the Powder River Training Complex (PRTC).

2. Our 2010 Draft Environmental Impact Statement (DEIS) identified five federally listed animal species (the endangered interior least tern [*Sterna antillarum athalassos]*, the threatened piping plover [*Charadrius melodus]*, the endangered whooping crane [*Grus Americana]*, the endangered Black-footed ferret [*Mustela nigripes]*, and Topeka shiner [*Notropis Topeka]*), and two candidate species (the western distinct population segment of the yellow-billed cuckoo [*Coccyzus americanus]* and the greater sage grouse [*Centrocercus urophasianus])* as known to occur or having potential to occur under the proposed PRTC airspace. In May 2011, the Air Force determined, based on the findings contained in Sections 3.6.3 and 4.6.3 of the DEIS, that the PRTC "may affect, [but was] not likely to adversely affect, federally listed threatened and endangered species." Your office concurred with this determination on 24 May 2011.

3. Minimizing the likelihood of aircraft striking whooping cranes was an important part of our 2011 discussions. At that time, the Air Force agreed to avoid use of the Powder River 4 Low Military Operations Area (MOA) (500 feet above ground level [AGL] through 12,000 feet mean sea level [MSL]) when notified by the USFWS of whooping crane activity during their spring and fall migration periods, typically occurring during the months of March, April, September, and October. In response to public comment and agency correspondence, the Air Force recently modified its proposed action and removed this low MOA from the current proposal. This action should alleviate any present concerns related to whooping crane migration through Corson, Ziebach, and Perkins counties in South Dakota, and Sioux, Adams, Grant, and Hettinger counties in North Dakota. We encourage USFWS to contact the 28th Operations Support Squadron (28 OSS) per previous correspondence if any new concerns regarding the whooping crane arise.

4. Since 2011, the Air Force has identified new species of concern for inclusion in the Final Environmental Impact Statement (FEIS). Earlier this year, we reviewed the USFWS species by county lists (http://www.fws.gov/endangered/) for the following counties:

- ***Montana***: Big Horn, Carter, Custer, Fallon, Powder River, Rosebud, and Treasure
- ***North Dakota***: Adams, Billings, Bowman, Golden Valley, Grant, Hettinger, Morton, Sioux, Slope, and Stark
- ***South Dakota***: Butte, Corson, Harding, Lawrence, Mead, Perkins, and Ziebach
- ***Wyoming***: Campbell, Crook, Sheridan, and Weston

Five additional federally listed species were identified (one bird, two mammals, one fish, and one plant) and will be added to the discussion of effects on threatened, endangered, and other special status species in Sections 3.6.3.3 and 4.6.3 of the FEIS. The FEIS is currently in revision and we expect to release it to the public in the near future. Based on that information, which is summarized in Attachment 1 to this letter, the Air Force has determined that its modified proposed action will not affect the Pallid sturgeon *(caphirhynchus albus),* and may effect, but is unlikely to adversely affect the Red knot *(Calidris canutus rufa)*, Northern long-eared bat *(Myotis septentrionalis)*, Canada lynx *(Lynx Canadensis)*, and Ute ladies'-tresses *(Spiranthes diluvialis)*. We request your concurrence with that determination.

5. Finally, the Air Force understands USFWS concerns related to protection of the greater sage grouse, particularly during the mating season at the end of April and beginning of May. While the Air Force cannot avoid all overflight of greater sage grouse habitat, the project team noted during the 22 May 14 teleconference with your office that seasonal avoidance of sensitive habitats from sunrise to 1000 local time could significantly decrease potential impacts on the sage grouse. Therefore, 28 OSS will establish voluntary, reasonable, and temporary avoidance procedures to minimize potential impacts to sensitive areas identified by USFWS. We request that you provide a list of sensitive dates and habitats to 28 OSS annually. The Air Force looks forward to a continuing partnership with USFWS to conserve sage grouse habitat while performing critical combat training in the region.

6. Thank you for your continuing support of this project. Please contact me at (210) 925- 3175 or Ms. Judy Keith at (210) 925-3367 at any time if you would like to discuss any further concerns.

D. JASON MURLEY, Capt, USAF
Deputy Chief, AF NEPA Center

Attachment 1: Additional Federally Listed Species Identified with Potential to Occur under the Proposed PRTC Airspace

Attachment 1

Additional Federally Listed Species Identified with Potential to Occur under the Proposed PRTC Airspace

Common Name	*Scientific Name*	*Airspace States and Counties of Occurrence*				*FED*[1]	*Expected Occurrence and Habitat*	*Effects determination*
		ND	*SD*	*MT*	*WY*			
Birds								
Red knot	*Calidris canutus rufa*		All Counties			PT	Potential during migration. Long-distance migrants flying more than 9,300 miles from south to north in spring and repeat in reverse every autumn. Stopover habitat includes aquatic areas where easily digested foods can be readily consumed. Breeding occurs outside of the ROI in the central Canadian Arctic from northern Hudson Bay to the southern Queen Elizabeth Islands.	Rare migrant in ROI. The potential for a bird-aircraft strike is so low as to be discountable. Chaff and flare use would not adversely affect the species due to the wide dispersion and low density of chaff fibers and the low likelihood of project-related fire coupled with the species' use of wetland habitats. Behavioral response to infrequent low-level overflights would be insignificant and not be expected to reach the level at which take would occur. Effects determination: The project **may affect, but is not likely to adversely affect the red knot.**
Mammals								
Northern long-eared bat	*Myotis septentrionalis*		All Counties		County-level range not defined	PE	Historical occurrence within the ROI. Species range includes 39 states. Roost in caves, mines, and both live and dead trees.	Possible occurrence in ROI. The potential for a bat-aircraft strike is so low as to be discountable. Chaff and flare use would not adversely affect the species. Behavioral response to infrequent low-level overflights would be insignificant and not be expected to reach the level at which take would occur. Effects determination: The project **may affect, but is not likely to adversely affect the Northern long-eared bat**.

Attachment 1

Additional Federally Listed Species Identified with Potential to Occur under the Proposed PRTC Airspace

Common Name	*Scientific Name*	*Airspace States and Counties of Occurrence*				*FED*[1]	*Expected Occurrence and Habitat*	*Effects determination*
		ND	*SD*	*MT*	*WY*			
Canada lynx	*Lynx canadensis*				Sheridan	T	Historical occurrence documented along the western border of Sheridan County, outside of the ROI. Live in subalpine/coniferous forests. Critical habitat limited to western Wyoming.	Canada lynx is not known to be resident within the ROI and therefore the effects determination is **no effect of the project on Canada lynx**. Should the Canada lynx enter the ROI the following would apply: Chaff and flare use would not adversely affect the species. Behavioral response to infrequent low-level overflights would be insignificant and not be expected to reach the level at which take would occur. Effects determination should the Canada lynx enter the project ROI: The project **may affect, but is not likely to adversely affect the Canada lynx** should it enter the ROI.
Fish								
Pallid sturgeon	*Scaphirhynchus albus*	Morton, Sioux	Corson	Custer		E	Historical occurrence within the ROI. Large-river ecosystems and associated floodplains, backwaters, chutes, sloughs, islands, sandbars, and main channel waters.	Since the pallid sturgeon is not present within the ROI, the effects determination is **no effect of the project on pallid sturgeon**. Chaff and flare use would not adversely affect the species' historic habitat due to dispersion; behavioral response to low-level overflights is not known or expected in fish.
Plants								
Ute ladies'-tresses	*Spiranthes diluvialis*				All Counties	T	Historical occurrence across ROI. Primarily associated with stream terraces, floodplains, oxbows, seasonally flooded river terraces, sub-irrigated or spring-fed abandoned stream channels and valleys, and lakeshores.	Chaff and flare use would not adversely affect the Ute ladies-tresses' historic habitat due to dispersion of chaff, very low likelihood of a flare reaching the ground and starting a fire and lack of susceptibility of the habitat to unlikely range fire. Behavioral response to low-level overflights is not known or expected in plants. Effects determination: **The project may affect, but is not likely to adversely affect the Ute ladies'-tresses**

Note: 1. Federal Listing as E=endangered; PE = Proposed Endangered; T=threatened; PT=proposed threatened.
Source: USFWS 2014a, USFWS 2014b, USFWS 2014c, USFWS 2014d, USFWS 2014e

References:

United States Fish and Wildlife Service (USFWS). 2014a. USFWS Species Profile – Red knot (*Calidris canutus rufa*) Available at http://www.fws.gov/northeast/redknot/pdf/Redknot_BWfactsheet092013.pdf.

____. 2014b. USFWS Species Profile – northern long-eared Bat (*Myotis septentrionalis*) Available at http://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=A0JE

___. 2014c. USFWS Species Profile - Canada Lynx (*Lynx canadensis*) Available at http://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=A073

____. 2014d. USFWS Species Profile - Ute ladies'-tresses (*Spiranthes diluvialis*) Available at: http://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=Q2WA

____. 2014e. USFWS Species Profile – Pallid sturgeon (*Scaphirhynchus albus*) Available at: http://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=E06X

United States Department of the Interior

FISH AND WILDLIFE SERVICE

Ecological Services
420 South Garfield Avenue, Suite 400
Pierre, South Dakota 57501-5408

June 27, 2014

D. Jason Murley, Captain, USAF
Deputy Chief, AF NEPA Center
Air Force Civil Engineer Center
2261 Hughes Avenue, Suite 155
JBSA Lackland, TX 78236-9853

Re: Section 7 Consultation for the Proposed Powder River Training Complex

Dear Mr. Murley:

We have received your request dated June 16, 2014, for additional consultation under Section 7 of the Endangered Species Act (Act) for the creation of the Powder River Training Complex (PRTC). We previously consulted on five federally listed species; the Piping plover (*Charadrius melodus*), Whooping crane (*Grus americana*), Interior least tern (*Sterna antillarum athalassos*), Black-footed ferret (*Mustela nigrpes*), and Topeka shiner (*Notropis topeka*) contained in Table 3.6-4 (Attachment 2) of the Draft Environmental Impact Statement (*DEIS*) issued in 2010. Your office made a "may affect, not likely to adversely affect" determination for those species which we concurred with on May 24, 2011. Your recent June 16, 2014 request, identifies five additional species (Attachment 1), four of which; the Red Knot (*Calidris cantus rufa*), Northern long-eared bat (*Myotis septentrionalis*), Canada lynx (*Lynx canadensis*), and Ute ladies'-tresses (*Spiranthes diluvalias*) you determined the PRTC "may affect, but is not likely to adversely affect" and one species, the Pallid sturgeon (*Caphirynchus albus*), you determined "no effect" and then asked for our concurrence on those determinations. We concur with your "may affect, not likely to adversely affect" determination for the four additional species and inform you that there is no requirement under the implementing regulations of the Act (50 CFR Part 402) for action agencies to receive concurrence with "no effect" determinations, therefore the responsibility for "no effect" determinations remains with your agency.

In regards to the Whooping crane, you had proposed in the DEIS to create a Powder River 4 Low and High Military Operations Area (MOA) which would have expanded low level flight operations into the whooping crane migration corridor in South and North Dakota. Your June 16, 2014 letter indicates the low MOA will be eliminated which should minimize the likelihood of an aircraft strike with migrating whooping cranes passing through the low MOA. Additionally you indicated that the 28th Operations Support Squadron (28 OSS) would continue to work with us in the future if new concerns in regards to the whooping crane arise. We support this change and will work with the 28 OSS if concerns arise in the future.

In regards to the greater sage-grouse (GSG), a candidate species originally identified in the DEIS, you proposed in your June 16 letter to "*establish voluntary, reasonable, and temporary*" avoidance measures to minimize potential impacts to the species. This is intended to minimize impacts to GSG during lek attendance (or mating season). In your letter you identified "*the end of April and*

beginning of May" as the dates of lek attendance with the time period from sunrise to 10:00 am local time when low levels flights would be restricted to minimize potential impacts to the GSG. While we believe the time period of sunrise to 10:00 am local time may be sufficient, we note that lek attendance generally occurs from early-March through mid-May (Connelly et al. 2011) and recommend those dates be included rather than the end of April to beginning of May.

Additionally, you requested that we provide a list of sensitive dates and areas to be avoided and that we provide this in an annual update to the 28 OSS. In order to meet your request we recommend an avoidance period of sunrise to 10:00 am local time from early-March through mid-May in those areas identified by the individual states of South Dakota, North Dakota, Montana, and Wyoming as core GSG areas. We have also provided a map to the Ellsworth personnel working on this issue that identifies the GSG core areas that are within the PRTC and recommend these core area maps (Attached) form the basis where the date and timing restrictions to minimize impacts to GSG are employed. There may be opportunities on an annual basis to identify more specific areas where restrictions might apply and we will continue to work with the Ellsworth Air Force Base annually to provide the latest information.

The U.S. Fish and Wildlife Service is evaluating the GSG for a listing decision anticipated in 2015. If this species becomes listed, the Air Force should revisit your determinations to update your section 7 consultation for this species.

If changes are made in the project plans or operating criteria, or if additional information becomes available, the Service should be informed so that the above determinations can be reconsidered.

The Service appreciates the opportunity to provide comments on this project. If you have any questions on these comments, please contact Terry Quesinberry of this office at (605) 224-8693, Extension 234.

Sincerely,

Scott Larson

Scott V. Larson
Field Supervisor
South Dakota Field Office

Enclosures (3)

Literature Cited

Connelly, J.W., C.A. Hagen, and M.A. Schroder. 2011. Characteristics and dynamics of Greater Sage-Grouse populations. Pp 53-67 *in* S.T. Knick and J. W. Connelly (editors). Greater Sage-Grouse: ecology and conservation of a landscape species and its habitats. Studies in Avian Biology (vol. 38), University of California Press, Berkley, CA.

Attachment 1

Additional Federally Listed Species Identified with Potential to Occur under the Proposed PRTC Airspace

Common Name	*Scientific Name*	*AIRSPACE STATES AND COUNTIES OF OCCURRENCE*				*FED*[1]	*Expected Occurrence and Habitat*	*Effects determination*
		ND	*SD*	*MT*	*WY*			
Birds								
Red knot	*Calidris canutus rufa*		All Counties			PT	Potential during migration. Long-distance migrants flying more than 9,300 miles from south to north in spring and repeat in reverse every autumn. Stopover habitat includes aquatic areas where easily digested foods can be readily consumed. Breeding occurs outside of the ROI in the central Canadian Arctic from northern Hudson Bay to the southern Queen Elizabeth Islands.	Rare migrant in ROI. The potential for a bird-aircraft strike is so low as to be discountable. Chaff and flare use would not adversely affect the species due to the wide dispersion and low density of chaff fibers and the low likelihood of project-related fire coupled with the species' use of wetland habitats. Behavioral response to infrequent low-level overflights would be insignificant and not be expected to reach the level at which take would occur. Effects determination: The project **may affect, but is not likely to adversely affect the red knot.**
Mammals								
Northern long-eared bat	*Myotis septentrionalis*		All Counties		County-level range not defined	PE	Historical occurrence within the ROI. Species range includes 39 states. Roost in caves, mines, and both live and dead trees.	Possible occurrence in ROI. The potential for a bat-aircraft strike is so low as to be discountable. Chaff and flare use would not adversely affect the species. Behavioral response to infrequent low-level overflights would be insignificant and not be expected to reach the level at which take would occur. Effects determination: The project **may affect, but is not likely to adversely affect the Northern long-eared bat**.

Attachment 1

Additional Federally Listed Species Identified with Potential to Occur under the Proposed PRTC Airspace

Common Name	*Scientific Name*	*AIRSPACE STATES AND COUNTIES OF OCCURRENCE*				*FED*[1]	*Expected Occurrence and Habitat*	*Effects determination*
		ND	*SD*	*MT*	*WY*			
Canada lynx	*Lynx canadensis*				Sheridan	T	Historical occurrence documented along the western border of Sheridan County, outside of the ROI. Live in subalpine/coniferous forests. Critical habitat limited to western Wyoming.	Canada lynx is not known to be resident within the ROI and therefore the effects determination is **no effect of the project on Canada lynx**. Should the Canada lynx enter the ROI the following would apply: Chaff and flare use would not adversely affect the species. Behavioral response to infrequent low-level overflights would be insignificant and not be expected to reach the level at which take would occur. Effects determination should the Canada lynx enter the project ROI: The project **may affect, but is not likely to adversely affect the Canada lynx** should it enter the ROI.
Fish								
Pallid sturgeon	*Scaphirhynchus albus*	Morton, Sioux	Corson	Custer		E	Historical occurrence within the ROI. Large-river ecosystems and associated floodplains, backwaters, chutes, sloughs, islands, sandbars, and main channel waters.	Since the pallid sturgeon is not present within the ROI, the effects determination is **no effect of the project on pallid sturgeon**. Chaff and flare use would not adversely affect the species' historic habitat due to dispersion; behavioral response to low-level overflights is not known or expected in fish.
Plants								
Ute ladies'-tresses	*Spiranthes diluvialis*				All Counties	T	Historical occurrence across ROI. Primarily associated with stream terraces, floodplains, oxbows, seasonally flooded river terraces, sub-irrigated or spring-fed abandoned stream channels and valleys, and lakeshores.	Chaff and flare use would not adversely affect the Ute ladies-tresses' historic habitat due to dispersion of chaff, very low likelihood of a flare reaching the ground and starting a fire and lack of susceptibility of the habitat to unlikely range fire. Behavioral response to low-level overflights is not known or expected in plants. Effects determination: **The project may affect, but is not likely to adversely affect the Ute ladies'-tresses**

Note: 1. Federal Listing as E=endangered; PE = Proposed Endangered; T=threatened; PT=proposed threatened.
Source: USFWS 2014a, USFWS 2014b, USFWS 2014c, USFWS 2014d, USFWS 2014e

Attachment 2

Table 3.6-4. Federally Listed Species Known to Occur or with Potential to Occur under the Proposed PRTC Airspace (Page 1 of 2)

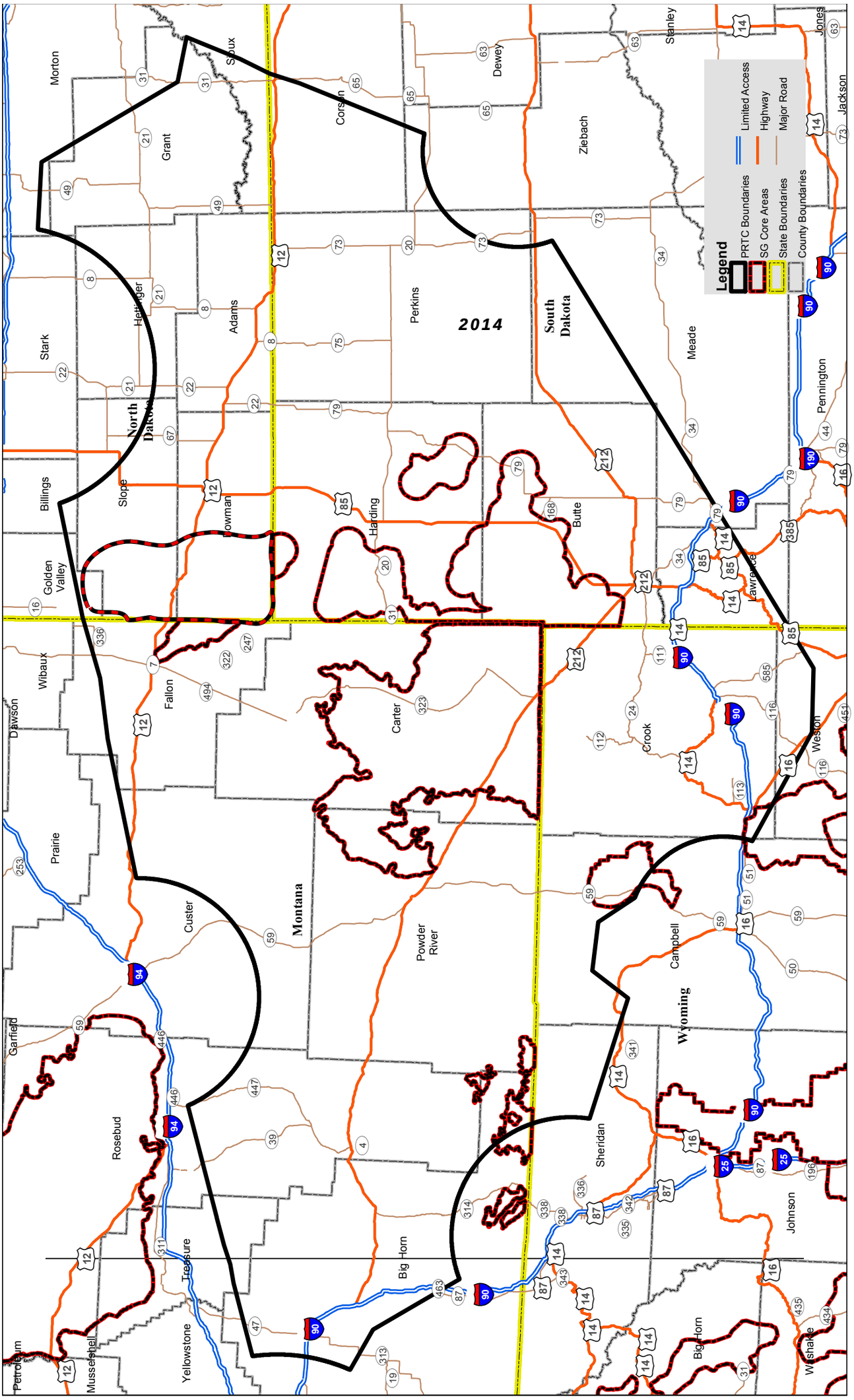
Common Name	Scientific Name	Airspace States and Counties of Occurrence				FED[1]	Expected Occurrence and Habitat
		ND	SD	MT	WY		
Birds							
Piping plover	*Charadrius melodus*	All Counties – rare	Corson	Fallon, Custer?		T	Potential during migration, nesting occurs along Missouri and Cheyenne rivers and may occur along Moreau River. Uses sandbars, islands, shorelines.
Whooping crane	*Grus americana*	All counties - rare	Butte, Corson, Meade, Perkins, Pennington, Ziebach	Custer, Fallon, Yellowstone	Very rare migrant	E	Potential during migration. Uses sloughs, marshes, rivers, lakes, ponds, croplands, and pastures.
Interior least tern	*Sterna antillarum athalassos*	Morton, Sioux	Meade	Custer, Rosebud		E	Potential during migration, nesting occurs along Missouri and Cheyenne rivers and may occur along Moreau River. Uses sandbars, islands, shorelines.
Yellow-billed cuckoo	*Coccyzus americanus*				Crook, Sheridan	C	Cottonwood –riparian areas
Greater sage-grouse	*Centrocercus urophasianus*	Bowman, Slope, Golden Valley	Butte, Harding, with incidental observations in Perkins and Meade	Carter, Fallon, Custer, Powder River, Rosebud, Big Horn, Treasure	Campbell, Crook, Sheridan, Weston,	C	Dependent upon large stands of mature sagebrush year round for foraging and cover. Flat, open grassland needed for breeding (leks). Historically occurred across the entire ROI; eastern portion of range has subsided.

Attachment 2

Table 3.6-4. Federally Listed Species Known to Occur or with Potential to Occur under the Proposed PRTC Airspace
(Page 2 of 2)

Common Name	Scientific Name	Airspace States and Counties of Occurrence				FED[1]	Expected Occurrence and Habitat
		ND	SD	MT	WY		
Mammals							
Black-footed ferret	*Mustela nigripes*		Six parcels in western portion of state, includes Badlands and Wind Cave national parks	Four parcels in state, one in southeastern portion on N. Cheyenne Reservation		E, N/E in MT, WY, SD	Historical occurrence across ROI. All current populations have been re- introduced; suitable habitat includes prairie dog towns >80 acres or any towns part of a >1,000 acre complex of prairie dog colonies
Fish							
Topeka shiner	*Notropis topeka*		Corson (historical)			E	Historical occurrence only. All current populations are found in small streams within eastern SD, within the Big Sioux, Vermillion, and James River watersheds

Note: 1. Federal Listing as N/E = Nonessential Experimental, referring to reintroduced populations
"?" indicates uncertainty as to county occurrence.
Sources: USFWS 2006; USFWS 2007; USFWS 2008a; WY Natural Diversity Database (WYNDD) 2003; Montana Sage Grouse Work Group 2005; SD Wildlife Division, Department of Game, Fish and Parks 2008; McCarthy and Kobriger 2005.


Legend
PRTC Boundaries
SG Core Areas
State Boundaries
County Boundaries
Limited Access
Highway
Major Road
2014
North Dakota
South Dakota
Montana
Wyoming
Morton
Grant
Sioux
Corson
Dewey
Ziebach
Stanley
Jones
Jackson
Stark
Hettinger
Adams
Perkins
Meade
Pennington
Billings
Slope
Bowman
Harding
Butte
Golden Valley
Lawrence
Wibaux
Dawson
Fallon
Carter
Crook
Weston
Prairie
Custer
Powder River
Campbell
Garfield
Rosebud
Sheridan
Johnson
Treasure
Big Horn
Yellowstone
Musselshell
Petroleum
Wash

List of Repositories

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2800 Central Avenue
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MacKay Building
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Sundance WY 82729

Marci Mock
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APPENDIX F
RELEVANT STATUTES, REGULATIONS, AND GUIDELINES

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APPENDIX F RELEVANT STATUTES, REGULATIONS, AND GUIDELINES

GENERAL

National Environmental Policy Act (NEPA) of 1969 (Public Law [PL] 91-190, 42 United States Code [USC] 4347, as amended). Requires federal agencies to take the environmental consequences of proposed actions into consideration in their decision-making process. The intent of NEPA is to protect, restore or enhance the environment through well informed federal decisions. The Council on Environmental Quality (CEQ) was established under NEPA to implement and oversee federal policy in this process.

40 Code of Federal Regulation (CFR) Parts 1500-1508 Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act. Parts 1500 through 1508 of this title provide regulations applicable to and binding on all federal agencies for implementing the procedural provisions of the National Environmental Policy Act of 1969, as amended (Pub. L.91-190, 42 USC 4321 *et seq*.) (NEPA or the Act) except where compliance would be inconsistent with other statutory requirements.

Air Force Instruction 32-7061, Environmental Impact Analysis Process (EIAP), as promulgated at 32 CFR Part 989. Air Force implementation of the procedural provisions of NEPA and CEQ regulations.

***AFPD 32-70, Environmental Quality*.** Requires that the Air Force comply with applicable federal, state, and local environmental laws and regulations, including NEPA. Executive Order (EO) 11514, Protection and Enhancement of Environmental Quality, as amended by EO 11991, sets policy directing the federal government in providing leadership in protecting and enhancing the environment.

Intergovernmental Coordination Act and EO 12372, Intergovernmental Review of Federal Programs. Requires federal agencies to cooperate with and consider state and local views in implementing a federal proposal. AFI 32-7061 requires proponents to implement a process known as Interagency and Intergovernmental Coordination for Environmental Planning (IICEP), which is used for the purpose of agency coordination and implements scoping requirements.

Ensuring Quality of Information Disseminated to the Public by the Department of Defense. This memorandum, signed February 10, 2003 requires that all components of the Department of Defense adopt standards of data quality for information they disseminate.

AIRSPACE

Federal Aviation Act of 1958. Created the Federal Aviation Administration (FAA) and charges the FAA Administrator with ensuring the safety of aircraft and the efficient utilization of the National Airspace System, within the jurisdiction of the United States.

Federal Aviation Administration Regulation 14 CFR Part 71 (1975). Delineates the designation of federal airways, area low routes, controlled airspace, and navigational reporting points.

Federal Aviation Administration Regulation 14 CFR Part 73 (1975). Defines special use airspace and prescribes the requirements for the use of that airspace.

Federal Aviation Administration Regulation 14 CFR Part 91 (1990). Describes the rules governing the operation of aircraft within the United States.

FAA Order JO 7400.2. Includes policy, criteria, and procedures applicable to modification and the establishment of Special Use Airspace, including Military Operations Areas.

FAA Order 7110.65. Prescribes air traffic control procedures and phraseology for use by personnel providing air traffic control services in the United States.

RANGE MANAGEMENT

AFI 13-212 Range Planning and Operations (9 August 2012). Ensures that Air Force ranges are planned, operated, and managed in a safe manner; that all required equipment and facilities are available to support range use, and that proper security for range assets is present.

NOISE ENVIRONMENT

Executive Order (EO) 12088 Federal Compliance with Pollution Control Standards (1978). Requires the head of each executive agency to be responsible for ensuring that all necessary actions are taken for the prevention, control, and abatement of environmental pollution, including noise pollution, with respect to federal facilities and activities under the control of the agency.

Federal Interagency Committee on Urban Noise (1980). Defines noise levels for various land uses and may result in areas that will not qualify for federal mortgage insurance. Additional sections allow for noise attenuation measures that are often required for HUD approval.

United States Environmental Protection Agency (USEPA) Report 550/9-74-004 Information of Levels of Environmental Noise Requisite to Protect Public Health and Welfare With an Adequate Margin of Safety (1974). This USEPA report summarizes the findings of numerous studies related to sleep disturbance, speech interference, and other potential noise impacts to human health and welfare and establishes guidelines based on these findings.

SAFETY

AFI 32-2001 Fire Emergency Services Program (27 February 2014). Defines the requirements for Air Force installation fire protection programs, including equipment, response times, and training.

AFI 32-3001 Explosive Ordnance Disposal Program (8 October 2004). Regulates and provides procedures for explosives safety and handling. Defines criteria for quantity distances, clear zones, and facilities associated with ordnance.

AFI 91-202 The US Air Force Mishap Prevention Program (5 August 2011). Establishes mishap prevention program requirements, assigns responsibilities for program elements, and contains program management information.

AFI 91-301 Air Force Occupational and Environmental Safety, Fire Protection, and Health (AFOSH) (1 June 1996). Program implements AFPD 91-3, Occupational Safety and Health by outlining the AFOSH Program. The purpose of the AFOSH Program is to minimize loss of Air Force resources and to protect Air Force people from occupational deaths, injuries, or illnesses by managing risks.

Air Force Manual 91-201 Explosives Safety Standards (12 January 2011). Establishes safety standards, provides planning guidance, and defines safety requirements for explosives operations of any

kind (including testing, disassembling, modifying, storing, transporting, and handling explosives or ammunition) at Air Force facilities.

Department of Defense Flight Information Publication. Indicates locations of potential hazards (e.g., bird aggregations, obstructions, and noise sensitive locations) under military airspace and defines horizontal and/or vertical avoidance measures. Updated monthly to present current conditions.

MATERIALS MANAGEMENT

Hazardous Materials Transportation Act (HTMA) of 1975 Title I Section 101. Establishes criteria for shippers and carriers that manage hazardous materials and includes training and qualifications of persons handling hazardous materials.

Resource Conservation and Recovery Act (RCRA) of 1976. Regulates the storage, transportation, treatment, and disposal of hazardous waste that could adversely affect the environment.

Occupational Safety and Health Administration (OSHA) Asbestos Standard (29CFR 1926.58) (1970). Lists federal requirements during construction activities for handling and removal of asbestos from equipment and building structures. The chemical hazard communication program (29CFR 1910.120) requires the identification, information, and training on chemical hazards to be available to employees using hazardous materials and instituted material safety data sheets (MSDS) which provide this information.

Solid Waste Disposal Act (SWDA) and Amendments of 1980. Amends RCRA with additional regulation of energy and materials conservation and the establishment of a National Advisory Council.

Hazardous and Solid Waste Amendments (HSWA) of 1984. Significantly expands the scope and requirements of RCRA and mandated underground storage tank (UST) regulations.

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980 and the Superfund Amendments and Reauthorization Act (SARA) of 1986. Provides liability and compensation for cleanup and emergency response from hazardous substances discharged into the environment and the cleanup of hazardous disposal sites.

AFI 32-7080 Pollution Prevention Program (12 May 1994).

AFI 32-7042 Waste Management (15 April 2009).

AFI 32-7005 Facility Environmental Protection Committee (25 February 1994).

AFI 32-7086 Hazardous Material Management (24 March 2008).

AFI 32-4002 Facility Hazardous Emergency Planning and Response (1 December 1997).

Military Munitions Rule, Title 40 CFR Part 266, Subpart M, "Military Munitions."

PHYSICAL RESOURCES

Federal Water Pollution Control Act of 1948. Establishes procedures and programs for the restoration and maintenance of the chemical, physical, and biological integrity of the nation's waters, thus protecting habitat conditions in aquatic and wetland ecosystems.

Clean Water Act of 1977 (33 USC 1251-1387). Requires a National Pollution Discharge Elimination System (NPDES) permit for all discharges into waters of the United States to reduce pollution

that could affect any form of life. Section 404 of this act regulates development in streams and wetlands and requires a permit from the U.S. Army Corps of Engineers.

EO 19988 Floodplain Management (1977). Requires that governmental agencies, in carrying out their responsibilities, provide leadership and take action to restore and preserve the natural and beneficial values served by floodplains.

BIOLOGICAL RESOURCES

Lacey Act of 1900 (16 USC 3371-13378). Brings the unlawful taking of fish, wildlife, and plants under federal jurisdiction by prohibiting specimens taken illegally from being shipped across state boundaries.

Migratory Bird Treaty Act of 1918 (16 USC 701-715s). Establishes protection for migratory birds and their parts (including eggs, nests, and feathers) from hunting, capture, or sale.

Bald Eagle Protection Act of 1940 (16 USC 668-668c). Protects bald eagles and golden eagles by prohibiting the take, possession, or transportation of these species, dead or alive, and includes protection of their nests and eggs.

Fish and Wildlife Coordination Act of 1958 (16 USC 661-666c as amended). Provides for conservation and management of fish and wildlife by encouraging cooperation between the U.S. Fish and Wildlife Service and other federal, state, public, and private agencies.

Wilderness Act of 1964 (16 USC 1131). Directs the Secretary of the Interior to review every roadless area greater than or equal to 5,000 acres and every roadless island (regardless of size) within National Wildlife Refuge and National Park Systems and to recommend to the President the suitability of each such area or island for inclusion in the National Wilderness Preservation System. The act provides criteria for determining suitability and establishes restrictions on activities that can be undertaken on designated areas.

Endangered Species Act of 1973 (16 USC 1531-1544, as amended). Establishes measures for the conservation of plant and animal species listed, or proposed for listing, as threatened or endangered, including the protection of critical habitat necessary for their continued existence.

EO 11990 Protection of Wetlands (1977). Requires the governmental agencies, in carrying out their responsibilities, to provide leadership and take action to minimize the destruction, loss, or degradation of wetlands and to preserve and enhance the natural and beneficial values of wetlands. Factors to be considered include conservation and long-term productivity of existing flora and fauna, species and habitat diversity and stability, hydrologic utility, fish, and wildlife.

Fish and Wildlife Conservation Act of 1980 (16 USC 2901-2911 as amended). Promotes state programs, and authorizes funding for grants, aimed at developing and implementing comprehensive state non-game fish and wildlife management plans.

North American Wetlands Conservation Act (16 USC 4401-4412) (1989). Supports the management and preservation of waterfowl by funding the implementation of the North American Waterfowl Management Plan and the Tripartite Agreement on wetlands between Canada, the U.S., and Mexico.

CULTURAL RESOURCES

***National Historic Preservation Act of 1966*, as amended.** Provides the principal authority used to protect historic properties, establishes the National Register of Historic Places (NRHP), and

defines, in Section 106, the requirements for federal agencies to consider the effects of an action on properties listed on, or eligible for, the NRHP.

Archaeological Resources Protection Act (ARPA) of 1979 (16 USC section 470aa-47011). Ensures the protection and preservation of archaeological sites on federal or Native American lands and establishes a permitting system to allow legitimate scientific study of such resources.

Protection of Historic and Cultural Properties (36 CFR section 800) (2000). Provides an explicit set of procedures for federal agencies to meet their obligations under the National Historic Preservation Act including inventorying resources and consultation with State Historic Preservation Officers (SHPOs) and federally recognized tribes.

Native American Graves Protection and Repatriation Act of 1990 (25 USC 3001-3013). Requires protection and repatriation of Native American burial items found or, or taken from, federal or tribal lands, and requires repatriation of burial items controlled by federal agencies or museums receiving federal funds.

AFI 32-7065 Cultural Resource Management (1 June 2004). Sets guidelines for protecting and managing cultural resources on lands managed by the Air Force.

American Indian Religious Freedom Act of 1978 (42 USC section 1996). States that it is the policy of the United States to protect and preserve for American Indians their inherent right of freedom to believe, express, and exercise the traditional religions including but not limited to access to sites, use and possession of sacred objects, and the freedom to worship through ceremonial and traditional rites.

EO 13007 Indian Sacred Sites (1996). Requires that, to the extent practicable, federal agencies accommodate access to, and ceremonial use of, sacred sites by Native American religious practitioners, and to avoid adversely affecting the physical integrity of sacred sites.

EO 13084 Consultation and Coordination with Indian Tribal Governments (1998). Requires that federal agencies have an effective process to permit elected officials and other representatives of Indian tribal governments to provide meaningful and timely input in the development of regulatory policies on matters that significantly or uniquely affect their communities.

***Department of Defense (DoD) American Indian and Alaska Native Policy (21 November 1999*).** This policy emphasizes the importance of respecting and consulting with tribal governments on a government-to-government basis and requires an assessment, through consultation, of proposed DoD actions that may have the potential to significantly affect protected tribal resources, tribal rights, and Indian lands before decisions are made by the services.

LAND USE

Department of Transportation Act of 1966 (49 USC 303), Section 4(f) (formerly 49 USC 1651 (b)(2) and 49 USC 1653f). Protection of certain public lands and all historic sites was originally mandated in Section 4(f) of the 1966 Department of Transportation Act. Public law 90-495 (amended in 1968) amended Section 4(f) to its most commonly known form. In 1983, PL 97-449 re-codified the Act from 49 USC 1651 to 49 USC 303. Congress has amended this Act three other times without substantive changes. It is referred to as Section 4(f) in the Federal Highway Administration Environmental Procedures (23 CFR 772). It declares a national policy to preserve, where possible, "the natural beauty of the countryside and public park and recreation lands, wildlife and waterfowl refuges, and historic sites." It protects cultural resources that are on or eligible for the National Register of Historic Places.

Section 6(f) (3)-Land and Water Conservation Funds Act. Section 6(f)(3) of the 1964 Land and Water Conservation Funds (L&WCF) Act requires that all property acquired or developed with L&WCF assistance be maintained perpetually in public recreation use. Title 36, Chapter 1, Part 59 describes post-completion compliance responsibilities. These responsibilities apply to each 6(f) property regardless of the extent of program participation. The State is responsible for compliance and enforcement of these provisions and to ensure consistency with the contractual agreement with the National Park Service.

ENVIRONMENTAL JUSTICE

EO 12898 Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations (1995). Requires federal agencies to identify and address disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority and low-income populations. The essential purpose of EO 12898 is to ensure the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies.

AF Guidance, Interim Guide for Environmental Justice Analysis with the Environmental Impact Analysis Process (November 1997). Provides guidance for implementation of EO 12898 in relevant Air Force environmental impact assessments.

EO 13045 Protection of Children from Environmental Health Risks and Safety Risks (1998). This Executive Order directs federal agencies to identify and assess environmental health and safety risks that may disproportionately affect children.