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# Environmental Impact Analysis Process



ENVIRONMENTAL ASSESSMENT  
FOR  
STRATEGIC TRAINING RANGE COMPLEX (STRC)  
AND  
STRATEGIC TRAINING CENTER (STC)

DEPARTMENT OF THE AIR FORCE  
HEADQUARTERS STRATEGIC AIR COMMAND  
OFFUTT AIR FORCE BASE, NEBRASKA, 68113



**Air Force  
Environmental Planning Division  
(HQ USAF/CEVP)**

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FINDING OF NO SIGNIFICANT IMPACT  
FOR  
STRATEGIC TRAINING RANGE COMPLEX (STRC)  
AND  
STRATEGIC TRAINING CENTER (STC)

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1.0 Description of Proposed Action and Alternatives.

1.1 Introduction. Strategic Air Command (SAC) proposes to establish a complex of low-level military training routes and supporting operations facilities. The region of influence would include portions of seven states: Montana, Wyoming, South Dakota, North Dakota, Idaho, Colorado, and Nebraska. Development of this program would improve the quality and realism of the SAC aircrew training program while using available flying time more efficiently.

1.2 Project as Proposed. The STRC/STC project would involve establishment of new low-level training routes, development of new and/or relocation of Strategic Training Range (STR) radar scoring sites and establishing an operational command and control center at a base in close proximity to the STRC.

1.3 Alternatives. The three alternatives considered were (1) a limited program implementation in the proposed STRC region, (2) the proposed or limited program implemented in a different region, and (3) a no-action alternative.

2.0 Summary of Environmental Impacts.

2.1 Earth/Soil. There would be no impacts to soil except those normally associated with construction activities. Impacts are expected to be minor at all STR sites and the STC location.

2.2 Water Quality. An increase in surface water suspended particulate concentrations could result from erosion due to construction activities. These impacts would be short-term and at acceptable levels. Potable water supplies and sewage capabilities may need to be increased for STR sites or STC location. This impact would be potentially significant only if the STC were to be located in an area with a critically limited water supply.

2.3 Air Quality. Earth moving and construction activities would affect local air quality, especially particulate (dust) concentrations. Most dust will settle quickly. Minor amounts of fuel

emissions would be generated from construction equipment. In addition, pollutants would be generated in the region by normal emissions from jet aircraft engines. These emissions would not result in significant local or regional air quality degradation.

2.4 Vegetation. Destruction of some vegetation would occur due to construction activities. These impacts would be minimal. In the event endangered species may be potentially affected by construction activities at any of the sites, the Fish and Wildlife Service would be consulted and a site-specific analysis would be accomplished.

2.5 Wildlife/Animals. Impacts to animals may result from the clearing of vegetation and subsequent reduction of forage and habitat; behavioral responses to noise from low-flying aircraft; and bird/aircraft strikes. The displacement of smaller animals because of construction activities is expected to be minor. Most small animals are tolerant of humans and won't be affected. Noise created by low-flying jet aircraft may cause behavioral responses in wildlife, domestic stock, poultry and birds. Studies of the effects of jet aircraft noise on animals/birds indicate most species display startle effects upon initial overflights. However, routes are adjusted to mitigate impacts on noise sensitive or endangered species. Mitigations are also presented for avoiding bird-aircraft strikes.

2.6 Radio Frequency Radiation (RFR) Hazards. RFR personnel hazards have been identified for some specific radar equipment to be located at STR sites. Hazardous RFR levels will be within a fenced area. RFR effect on birds in flight is unclear but is not expected to be significant because of the short length of exposure.

2.7 Economics. Economic impacts stem from the direct effects of the purchase of services and materials and the indirect effects arising from military payrolls. Computer economic forecasts were obtained for relocation of a typical STR site and development of the STC. These forecasts predicted the greatest percentage of change in "total business volume" and "local personal income." The changes would be beneficial to those communities gaining Air Force activities but would be an adverse impact to those communities losing an STR site. The greatest economic impact predicted for the loss of an STR site is 2.3 percent change in local personal income. This loss could be more intense in areas of high unemployment but is considered to be a minimal overall impact.

2.8 Land Use. Primary land use impacts are associated with airspace conflicts and over-flight of rural and recreational areas by low flying jet aircraft. Operational airspace conflicts will be resolved by FAA; however, local agricultural aircraft flying between 400 and 1,000 feet within a low-level corridor must be alert to approaching military aircraft. Jet aircraft engine

noise may annoy people in rural and recreational areas under a low-level route centerline and the population near the STC base. Low-level route impacts are mitigated by avoiding population centers during development of routes. Site-specific analyses would determine effects near STR sites and the STC base.

2.9 Noise. Noise impacts of the program are due to intrusions of loud jet aircraft engine sound on ambient noise levels. Aircraft traversing routes would adversely impact the noise level of the surrounding area. The maximum single event noise level would be 108 dB. This noise level is generated by the B-52G aircraft flying 400 feet directly overhead. Single event noise levels, although aesthetically displeasing, would be of short duration and would not cause a degradation in hearing ability. Community annoyance would be mitigated by avoiding population centers and environmentally sensitive areas.

3.0 Finding. Based on the analysis of the potential environmental impacts associated with this project, no significant impact is anticipated upon implementation of the STRC/STC program. Upon identification of specific routes, STR sites and the proposed STC base, individual site-specific analyses will be completed to determine if this finding should be changed.

#### 4.0 Contacts.

4.1 Complaint Reports. Complaints about low-flying US aircraft should be referred to the public affairs office at the nearest Air Force base. The staffs are available during daytime duty hours in the offices. During nonduty hours and on weekends and holidays, one member is always on call and may be reached through the base operator or unit command post. A listing of public affairs offices within the STRC operations area is attached to this finding. The following facts are necessary for Air Force action to begin:

- Name and telephone number of complainant.
- Geographical location of complainant, e.g., name of town or nearest community.
- Information to pinpoint the affected home, ranch, or farm, e.g., exact distance and direction from a town, highway, river, etc. Also indicate any landmarks, such as water-towers, storage silos, sheds, farm buildings, distinctive markings, and color of buildings.
- Date and time of overflight.
- Identification of the aircraft, if possible, and direction of its flight.

4.2 Environmental Assessment. Questions regarding this finding or the environmental assessment, or requests for copies, should be addressed to: HQ SAC/DEVQ, Offutt AFB NE 68113, (402) 294-5854.

*Bradford C Grems*

BRADFORD C. GREMS, III, Lt Col, USAF  
Chairman, Environmental Protection Committee  
DCS/Engineering & Services

1 Atch  
Public Affairs Offices

STRC PUBLIC AFFAIRS OFFICES IN AND AROUND THE STRC

341 SMW/PA  
Strategic Air Command  
Malmstrom AFB MT 406-731-2427

90 SMW/PA  
Strategic Air Command  
F E Warren AFB WY 307-775-3381

2849 ABH/PA  
Air Force Logistics Command  
Hill AFB UT 801-777-3166

366 TFW/PA  
Tactical Air Command  
Mountain Home AFB ID 208-828-6675

LTTC/PA  
Air Training Command  
Lowry AFB CO 303-370-2161

44 SMW/PA  
Strategic Air Command  
Ellsworth AFB SD 605-399-2151

91 SMW/PA  
Strategic Air Command  
Minot AFB ND 201-727-4761

Headquarters  
Strategic Air Command  
Offutt AFB NE 402-294-4130

**ENVIRONMENTAL ASSESSMENT**

**STRATEGIC TRAINING RANGE COMPLEX  
AND  
STRATEGIC TRAINING CENTER**

**UNITED STATES AIR FORCE  
STRATEGIC AIR COMMAND**

This environmental assessment analyzes the environmental impacts of developing a low-level military training route complex and supporting operations center in the western Great Plains and eastern Rocky Mountain regions. Three alternatives are analyzed: 1) limited program implementation, 2) alternate region location, and 3) no action.

Questions should be addressed to Environmental Quality Division, Environmental Planning Directorate, Engineering and Services, Headquarters, Strategic Air Command, Offutt AFB, Nebraska 68113 (402-294-5854).

## SUMMARY

This Environmental Assessment (EA) analyzes the environmental impacts of the proposed action and three alternatives. The proposed action is to establish a complex of low level military training routes and supporting operations facilities. The region proposed is a 400x400 mile area. The region of influence includes portions of seven states in the Great Plains and Rocky Mountains (MT, WY, ID, ND, SD, NE, and CO). Development of this program would allow military aircrews diverse terrain and routing structure, which is necessary to simulate a realistic warfare environment.

The three alternatives considered in this proposal are a limited program implementation in the proposed STRC region, an alternative whereby the proposed or limited program would be implemented in a different region, and a no action alternative.

The "limited program" alternative would be to establish the STRC but not the STC. Impacts associated with this alternative would be the same as the STRC proposed action but would be generally less significant for the STC (depending on the base chosen and the circumstances). The "different region" alternative would be to establish the same proposed actions, but in the northwest. This would result in impacts similar to those of the proposed action, but may cause annoyance to more people located under the routes. The no action alternative would be to continue establishing and closing individual routes and STR sites. This alternative would not provide the quality of training essential to maintain our national strategic warfare capability.

Preparation of this document included a large degree of public involvement. Numerous local and state agencies were asked to provide comments, including recreation commissions, preservation offices, fish and wildlife services, and historical societies. Little or no controversy exists concerning the proposal. Some concern has been expressed about the effect of noise on residents, domestic stock, and wildlife; however, the majority of responses to this proposal express no environmental concern with regard to the proposed action.

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ENVIRONMENTAL ASSESSMENT  
FOR  
STRATEGIC TRAINING RANGE COMPLEX  
AND  
STRATEGIC TRAINING CENTER

SECTION I. INTRODUCTION

This Environmental Assessment (EA) is a programmatic analysis of the environmental impacts of the proposed Strategic Training Range Complex (STRC) and Strategic Training Center (STC). The assessment is being prepared in compliance with the National Environmental Policy Act (NEPA) to aid in the decision to develop low-level routes, select Strategic Training Range (STR) operations sites, and identify a base for the STC.

The collective impacts of the STRC/STC program are addressed herein. As the program develops, each proposed action component will be individually analyzed. Studies will continue on future low-level flight paths, and site-specific considerations will be given to STRC operations sites and the STC base. The general analysis (programmatic) with subsequent individual analyses of the components of the program is referred to as tiering. The method of tiering allows analysis and adoption of each individual action, on its own merit, as a logical step in the program, but without commitment to the program as a whole.

Section II of the EA addresses the overall project and will contain the purpose, need, and description of the proposed actions. Section III will address the collective environmental impacts associated with the overall project. Alternatives are presented in Section IV. References used for this study are listed in Section V. Comments received and responses to these comments are in Section VI. Comments on this EA or requests for copies should be addressed to: HQ SAC/DEVQ, Offutt AFB NE 68113, (402)294-5854.

## SECTION II. DESCRIPTION OF THE PROPOSED PROJECT. (3)

### A. BACKGROUND AND NEED:

In 1976, SAC's introduction to the RED FLAG exercise area in Nevada demonstrated some of the deficiencies in the SAC training program. The ability to fly low level along less restrictive routes using Emergency War Order (EWO) speeds and altitudes while being harassed by both ground and air threats produced a favorable response from SAC aircrews. It also highlighted the lack of proficiency by some SAC aircrews to use SAC tactical doctrine, evasive maneuvers, and other defensive tactics. SAC's experience with RED FLAG has proven the benefits derived from a more realistic real-world training environment.

Although RED FLAG provides benefits to SAC aircrews, this exercise area has certain disadvantages. The RED FLAG range only provides about 20 minutes of B-52 flights at low level prior to penetrating the concentrated threat area around the target. In an actual nuclear exchange, SAC aircrews would expect to spend a much longer time at low level with varying degrees of threat concentrations. Additionally, the Nevada desert, where RED FLAG is located, does not provide a geographic similarity to the terrain that SAC aircrews would operate over during EWO conditions. Realism for SAC aircrews is further diminished by the conventional scenario followed in RED FLAG.

The deficiencies in SAC's aircrew training program that were brought to light by RED FLAG, the limited opportunities for SAC to participate in RED FLAG, and RED FLAG's inherent limitations, indicated the necessity for SAC to develop a new concept for warfare training.

### B. PURPOSE

The Strategic Training Range Complex (STRC) concept provides the opportunity to improve the quality and realism of the SAC aircrew training program while using available flying time more efficiently. It would provide a program which accomplishes vital training and reinforces the total crew concept and mission accomplishment. The program would allow units to concentrate on EWO training at the STRC/STC, while accomplishing air refueling and instrument training at the home unit.

The proposed STRC is designed to provide aircrews with an opportunity to train in a realistic, simulated warfare flight environment. Present repetitious training in fixed, low-level routes would be reduced by the routing flexibility provided by the STRC. The STRC would increase both quality and quantity of training per flying hour, without increasing total flying hours,

and will provide an environment for the development and testing of new procedures and tactics. Additionally, more efficient use of routes, STR sites and personnel would be effected.

### C. PROPOSED ACTIONS

#### Phase I

The STRC region has a limited number of Strategic Training Range (STR) sites (fixed or mobile) available for use. Routes and sites presently available which would become a part of the STRC concept are shown in Appendix 1. These routes have existed for time periods of six months to many years. A north/south route was added during this phase to connect the Montana/Dakotas complex (IRs 403, 404, 426) with the Wyoming complex (IRs 428, 498, 499). During this phase, additional route segments and mobile sites would be developed. B-52/FB-111 crews would continue use of this routing. Actions within this phase are being enacted, but do not represent a commitment to the entire program.

#### Phase II

Phase II would begin when the STRC has routes and sites sufficient for adequate operational training of all B-52/FB-111 units. Crews in excess of 750 nautical miles (approximately two hours flying time) from the STRC would deploy to a closer host base within the STRC region, i.e., Ellsworth, Minot, Grand Forks and Malstrom AFBs. Units within flying range would deploy from home base. This phase would continue until the STC opens for operation.

#### Phase III

Phase III would begin when the STC is established at an existing base. All B-52/FB-111 units would be required to train semi-annually at the STC. Units could continue to train from home or host bases. During this phase, planning would commence for the establishment of military operating areas and weapons release ranges to further accommodate training.

Achievement of the STRC goal would require the concentration of a majority of SAC's bomb scoring and threat simulation equipment in a common geographic area. This concentration of resources becomes counterproductive in terms of efficient use of flying time if nonproductive transit time from home units to the STRC is increased. In order to eliminate these increases in transit times, the concept of the Strategic Training Center (STC) was conceived.

The purpose of the STC is to provide operational command and control, training, exercise implementation, and testing for the STRC system. The STC would be placed at a base in proximity to the STRC, providing an aircrew staging area and eliminating nonproductive transit time. A permanent staff and maintenance cadre would be assigned to the center, with aircrews and maintenance augmentation on TDY status. This arrangement would enhance the development and testing of new training procedures by providing a forum for exchange of ideas and experiences among TDY aircrews, while allowing the staff to concentrate primarily on air operations. Additionally, this centralized location would allow for the development of a tactical and strategic command and control center which would act as the integrative center of the STRC.

#### D. DESCRIPTION OF PROPOSED ACTIONS

##### Strategic Training Range Complex (STRC)

##### Instrument Route (IR) Complex:

The following factors were considered necessary to the route complex to provide the desired benefits: a) large enough to offer adequate time at low level; b) flexible enough to allow simultaneous individual unit and STC usage; c) diverse enough to insure first-look routes at all times; d) operationally and environmentally capable of supporting low level flight activity for all B-52/FB-111 units; and e) include Military Operating Areas (MOAs) for interceptor activity and ranges that can be used for drop zones; and (f) a variety of terrain, vegetation and weather.

The proposed STRC would be comprised of interconnecting low-level routes and route segments. To form the STRC route complex, future routes would be designed around and include in the complex the following existing SAC IRs:

IR 401

IR 402

IR 404

IR 426

IR 428

IR 498

IR 499

The proposed STRC area includes Montana, Wyoming, eastern Idaho, northern Colorado, and the western portions of North Dakota, South Dakota, and Nebraska. This area would provide aircrew diversification and Terrain Avoidance/Terrain Following Radar (TA/TFR) training over both mountainous and flat and rolling terrain.

The low-level route complex would provide sufficient combinations of route segments to insure bomber aircrews are afforded diversification and "first-look" training. A large number of route options are envisioned. In addition to its use for daily training activity, the STRC would be used to support military airspace exercises. Exercises would differ from daily training activity in that whole units would be tested over the same routes (15-minute intervals) creating higher density traffic over specific routes.

"First-look" training, which provides the aircrew unfamiliar terrain, would be accomplished by incorporating the following route design criteria: a) multiple entry/exit points; b) routing capable of reversal and interconnection; and c) maneuver areas affording multiple axes of attack. Routing would be provided through Military Operating Areas (MOAs) for high and low altitude fighter intercepts and through ranges for weapon releases. Operational control and scheduling of aircraft over route segments would be the responsibility of the STC operation staff.

Total daily flight activity over the STRC complex is expected to be approximately 40 flights for B-52s and 8 flights for FB-111As. These aircraft would be fairly evenly distributed over the routes beginning in Phase II. An estimated number of ten aircraft can be expected to travel a route segment, while about 20 aircraft would overfly nodal points at STR sites. While a "worst case" prediction of 40 percent night time flying is made, night time flying will be very limited.

Strategic Training Range (STR) Sites. The majority of SAC's existing mobile and fixed STR sites must be relocated to provide a more concentrated and realistic training environment than presently exists. A total of 12 sites are planned for the STRC.

Establishment of Mobile STR Sites. Mobile site relocation began on 15 May 1981. Five mobile sites are presently operational. Four of these mobile sites--Powell, Douglas, Gillette, and Little America WY--have both radar bomb scoring (RBS) and electronic counter measure (ECM) scoring capability. Ashton ID contains the Multiple Threat Emitter System (MUTES) for electronic warfare (EW) activity only. Environmental analyses were accomplished on the five sites prior to the lease acquisitions.

### Relocating Fixed STR Sites.

Five existing fixed STR sites and associated equipment will remain in place to support training of units not located in close proximity to the STRC and to provide training facilities for the Combat Crew Training Schools (CCTS).

Six fixed sites would be relocated beginning in FY 83. Approximately five acres would be required for each operational area, and an additional 30-40 acres may or may not be required near each site for family housing. Final site locations would be determined following a period of mobile site operation in the proposed fixed site location, site surveys, and site-specific environmental analyses. Analyses of the new sites will be accomplished as proposed sites are identified.

### Intercept Areas.

Low-level routing would be designed to pass through existing MOAs to the maximum extent possible. MOAs provide air space for "aggressor" aircraft attacks against SAC bombers. Additional MOAs could be designed in coordination with FAA to allow fighters to intercept bomber aircraft prior to descent into low level as well as during low-level navigation and bombing. An environmental analysis will be accomplished upon specific proposal of any new MOA.

Williston and Hayes MOAs would provide the initial air space for fighter intercept activity. Williston MOA is located in northwest North Dakota and northeast Montana. Hayes MOA is located in northcentral Montana. Additional STRC routing would be developed into these areas (Appendix 1).

### Ranges.

Due to excessive amount of time required to develop new bombing ranges, low-level routing would be designed through TAC/ANG/Army controlled ranges as is currently done. Three existing ranges are located within or nearby current STRC routing:

(a) R-7001; located 75 NM southeast of Casper WY. A spur off planned STRC routing would provide entry into and exit from this range.

(b) R-6406; located 80 NM southwest of Salt Lake City UT. Additional routing external to that currently planned would be required through this range.

(c) R-3202; located 25 NM south of Mountain Home ID. Low-level routing external to the currently planned STRC exists to gain access to this range.

Required additional routing would be developed following environmental analyses and negotiations for use of these ranges.

#### Equipment.

The STRC would be equipped to provide a multi-threat Electronic Warfare (EW) environment and radar bomb scoring (RBS) capability. Existing equipment from SAC's current fixed and mobile STR sites would be relocated to form the nucleus of the STRC radar bomb score and threat radio electronic combat simulation capabilities. This equipment would be positioned throughout the STRC to provide a realistic threat environment. Equipment is housed in or on mobile vans approximately 10' X 50' in size.

Radar bomb scoring is provided by the AN/MSQ-77 and AN/MSQ-46, India band automatic tracking radars. The AN/MSQ-2 is an E-Band automatic tracking radar used as a backup for the India band bomb scoring radars.

The electronic warfare signal environment is provided by the following existing/future systems:

- (a) AN/MPS-9, E-Band AAA Simulator.
- (b) AN/MPS-T1, SAM Simulator.
- (c) AN/MPS-T1A, Multiple Threat Emitter System (MUTES).
- (d) AN/MSR-T1, Threat Reaction Analysis Indicator System (TRAINS).
- (e) TRTG, a mobile tactical radar threat generator.
- (f) MTE, a mobile modular threat emitter.

Ground jamming is provided by the AN/TLQ-11 and AN/MLQ-T5 in the India band, and the AN/MLQ-T4 in the India/ Juliet band.

The following new systems (as they become available) would be added to sites throughout the STRC.

(a) MST-T1A (MUTES). This system will be capable of emitting signals simultaneously from an inventory of 61 signals. It will provide the signals necessary to simulate current and future weapon system capabilities.

(b) MSR-T1 (TRAINS). An automated receiver and analysis system that will operate from 0.1 to 18 GHz. It will provide many parameters that will allow a more accurate assessment of aircrew/weapon system performance.

(c) MLQ-T4/T5 - Ground Jammer. The MLQ-T4 will be an I/J band radar jammer and the MLQ-T5 will be an I band only. This system will include functional duplication of known threat radar jammers.

(d) TRTG. The TRTG will simulate aircrew/weapon system responses to highly mobile and unexpected tactical threats. The TRTG will be modular and can be installed in a variety of vehicles to meet mission requirements.

(e) TPQ-43 (Seek Score). A radar bomb scoring system that will be capable of skin, beacon, or optical tracking. This system will be more accurate and require fewer personnel to operate/maintain than existing bomb scoring equipment.

(f) MTE. The MTE will simulate selected parameters of four ground-to-air threats. It will emit one threat at a time. A very mobile system that will have tracking capability of in-band, slaving, or optical.

Manpower Summary. Three additional personnel within HQ SAC would be required for management and scheduling of all STRC activity. These positions would become part of the STC operations staff upon the opening of the STC.

### Strategic Training Center.

#### Description.

The STC would be located at a base near the STRC from which all STRC users could operate. Proximity to the STRC would reduce cost by eliminating nonproductive transit time from home base to route entry point. The STC base would provide a central control and scheduling location for the STRC. Control of the STRC would be vested with the range control division of the STC. Scheduling would be accomplished by the STC scheduling branch with coordination through the range control division. Computer support would be provided by HQ SAC. The STC would provide a forum for the interchange of ideas between crew members, exposing them to a wider range of experiences and knowledge than available at individual bases.

The following factors were specified as necessary for the STC:

(a) Should be an existing base within 300 NM of the geographic center of the STRC area.

(b) Should be an active Air Force installation.

(c) Runway should not require upgrading to support B-52 operations.

#### Operations.

The STC would operate on a 48-week per year schedule. Nonoperational weeks would occur on weeks when the following holidays occur: New Years, Fourth of July, Thanksgiving, and Christmas.

The length of the tour at the center would be one week. Crews would arrive on Mondays and depart on Fridays. All crews and aircraft would be TDY with each crew flying its own aircraft into and out of the center. Maximum crew participation at the center would be 17 B-52 crews and 4 FB-111 crews. Normal center capacity would be designed for 16 B-52 crews and 3 FB-111 crews.

STC sorties would use the short event-oriented sorties training concept. Events pertaining to EWO low-level target area penetration and weapon delivery using TA/TFR, both day and night, flown using SAC tactical doctrine procedures would be accomplished. Each sortie would be flown over a route with emphasis on a successful penetration to a target complex (STR site) through an extensive ground and air threat environment. A mixture of live drops (cement shapes), radar bomb scores, and camera attack bomb runs would be used. No chaff would be dropped.

Maximum crew participation over the STRC routing complex would be approximately 40 B-52 (models G and H) crews and 8 FB-111A crews. These aircrews would fly one sortie each per day for five days. Average sortie length would be approximately three hours for B-52 sorties and one and one-half hours for FB-111A sorties. A different route would be used each day to insure the "first look" capability is maintained. This method would distribute aircraft traffic equally among the routes. Generally, training would be accomplished at speeds of 420 knots for the FB-111A and 340 knots for the B-52. The maximum speeds would be the military rated thrust of 480 knots for FB-111As and 390 knots for B-52s. No sonic booms would be produced at these speeds. Altitudes would vary between 200 ft and 1000 ft AGL. Formation operations could be planned for future activities. A maximum of three aircraft would fly in formation at any one time.

Routes would generally be available 16 hours per day; approximately 40% of the flights could be during evening or nighttime hours.

Scheduling of STRC activity would be computerized to insure conflict-free airspace in the low altitude structure.

Manpower Summary.

	<u>OFFICERS</u>	<u>ENLISTED</u>	<u>CIVILIAN</u>	<u>TOTAL</u>
Command	3	3	1	7
Historian	0	1	0	1
Safety	2	0	0	2
DCO	47	68	1	116
DCM	15	648	1	664
Security	0	10	0	10
Fuels	1	34	0	35
Supply	0	40	8	48
Base Support	5	123	28	156
Communications (AFCC)	<u>1</u>	<u>3</u>	<u>0</u>	<u>4</u>
TOTAL	74	930	39	1043

Less 224 Maintenance authorizations from operational units and 4 AFCC personnel. -228  
815

E. DESCRIPTION OF THE EXISTING ENVIRONMENT

The complex of routes would over-fly land located within an area of approximately 400x400 miles. The area includes portions of seven states: Wyoming, Montana, North Dakota, South Dakota, Nebraska, Colorado, and Idaho.

The STRC seven-state area includes two distinct topographic regions: a) the western area of the Great Plains Province and, b) the Northern and Central Rocky Mountain Range.

Great Plains (Figure 1). The western portion of the Great Plains is a broad highland, historically known as the Great American Desert. The northern part of the province, the Missouri Plateau, is highly eroded terrain. In the glaciated section, deposits left by glaciers have smoothed the surface. The unglaciated section is rougher and includes the Badlands. An isolated mountain range, the Black Hills, juts above the plateau. South of the plateau is the High Plains section which has been little eroded. The climate of the plains produces some of the widest and most violent seasonal variations in the nation - soaring temperatures, sudden storms, and prolonged cold spells.

THE PLAINS STATES' VARIED TERRAIN (18)

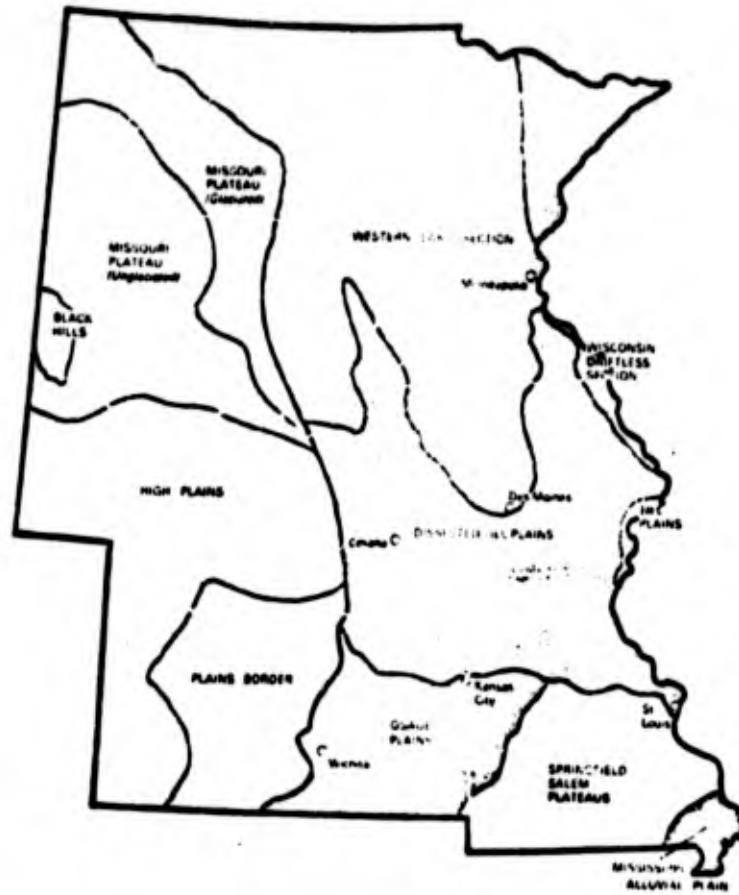


Figure 1

Mountain Region (Figure 2). The Central and Northern Rockies are part of the Cordillera mountain system. Widespread volcanic action, thrusting faults, and deformation of sedimentary rocks produced the rugged and generally austere Rockies. Much of the eastern part of the Cordillera system is not mountainous but is composed of intermountain basins and plains (Figure 3) floored with the sedimentary waste eroded from the mountains. The Rockies comprise one of the country's most popular tourist attractions, yet some of the high mountain areas remain untouched by man and have been set aside as wilderness areas. The irregular topography of the intermountain region creates tiny climatic regions that differ drastically according to elevation and exposure. Lowlands are usually dry but the mountains are usually humid and forested below the timberline.

The Continental Divide separates rivers flowing toward the Gulf of Mexico from those flowing toward the Pacific. North-east of the divide is the Upper Missouri Basin. The Missouri system includes the Yellowstone and its tributaries the Powder, Tongue, and Little Big Horn. From the west of the Continental Divide the Colorado River joins its tributary Green River.

Due to the lack of precipitation, the region has been sparsely settled. Ghost towns dot the land and few cities have a population over 10,000. Yet, this presence of wide open uninhabited space is a feature which draws more residents each year.

Environmental attributes of the region of influence are described in more detail in the following sections. Data on individual states are presented in Appendices 2 through 8; however, the information is not limited to the STRC region of influence.

ROCKY MOUNTAIN RANGES (16)

EASTERN DIVISION OF THE ROCKY MOUNTAIN RANGE (16)



Figure 2

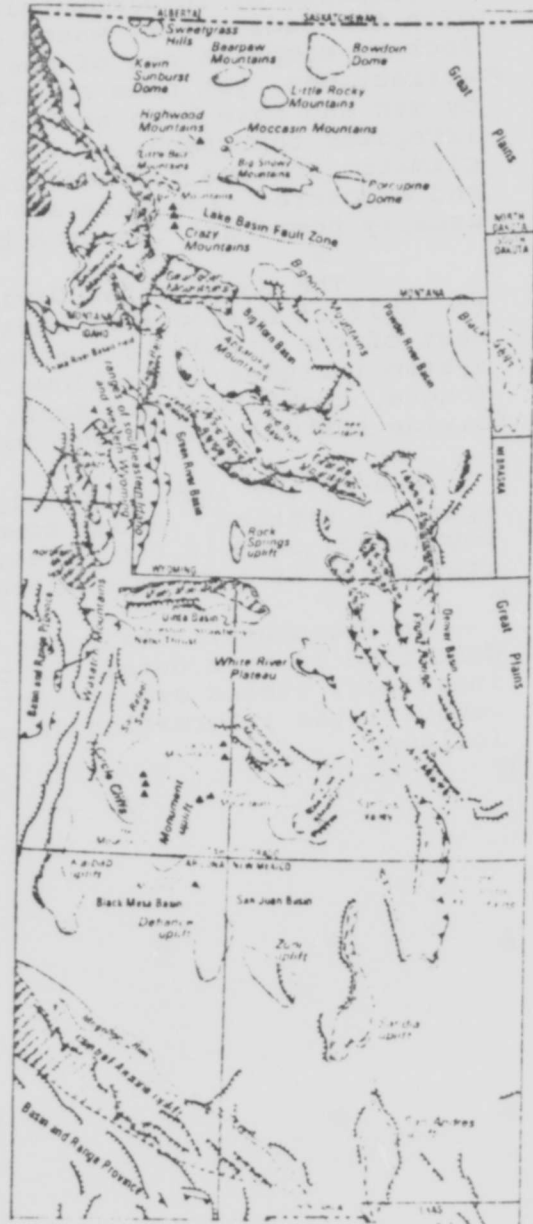


Figure 3

### SECTION III. POTENTIAL IMPACTS OF THE PROPOSED ACTION ON THE ENVIRONMENT

#### A. EARTH (3.1)

##### Characteristics

An important single effect on land following human activities is erosion. Erosion is caused by actions of water and/or wind. Water erosion causes displacement of the upper surface of the soil and is the more serious of the two. Wind erosion is similar, but leaves coarse and less productive material. Removal of vegetation cover exposes the soil to the forces of water and wind.

##### Potential Environmental Impact

Construction projects proposed for a STR site may include a 5,000 sq. ft. operations building, 57,000 sq. ft. of family housing, 7,200 sq. ft. support facilities and a 4,000 sq. ft. recreation court. STR site requirements will vary based on availability of the local community to provide support. Grading and land preparation associated with construction of the operations buildings and family housing support will involve the clearing of vegetative cover and organic surface material, thereby increasing the possibility of soil erosion. Cut and fill activities could also alter natural drainage pattern, change the gradient of slopes, and create fill areas upon which vegetative cover is not immediately reestablished. Construction equipment would cause compaction of the soil, also making the reestablishment of vegetation difficult.

Environmental impacts of soil erosion and soil compaction can best be mitigated by limiting activity within the construction site and scheduling it in such a way that appropriate vegetative cover would be established prior to the onset of destructive seasons. Natural drainage patterns can often be maintained by preparing sodded waterways or installing culverts. Catch basins built near construction sites can reduce the quantity of eroded soil articles reaching streams and lakes.

#### B. WATER QUALITY (3.2)

##### Characteristics

Water pollution is impairment of water quality by man's activity. All natural waters have the capability to assimilate certain amounts of waste without apparent effect on the environment.

## Potential Environmental Impact

Construction activities may result in increased deposition of sediment material via erosion and/or actual construction. These increased sediment deposits in surface waters can cause changes in biotic communities and aesthetic values. An increase in suspension loads can physically remove some planktonic species. The organisms can adhere to particulate matter and precipitate from the water column. Turbidity may also interfere with normal fish activities. Gills could be clogged. Reduced visibility would affect food procurement. Some benthic organisms may be covered with sediment during the construction and erosion period. Depositions of large quantities of sediment materials can severely impact benthic communities, especially arthropod and mollusk populations. Reduction in light transmission can cause a committant change in primary producer efficiency.

An increase in surface water suspended particulate concentrations may impact the recreational and aesthetic value of surface waters by influencing clarity, light penetration, temperature, dissolved constituents, absorption of toxic materials, and the composition, distribution and rate of sedimentation of materials. These effects relate not only to aesthetic values, but also control or limit biological productivity and aquatic life.

Construction related to the STR sites and STC operations building could result in increased turbidity in area surface waters during the period of construction and erosion. The magnitude and duration of the increased sediment loads should, however, be minimal. Also, there should be no release of chemical constituents into surface waters; facilities will not include heavy industries or intensive agrarian activities. Short-term environmental effects would be at acceptable levels, and long-term or chronic impacts non-existent.

Impacts associated with the STC could also include increasing potable water and sewage capabilities to encompass the addition of personnel. Impacts associated with these actions should be at acceptable levels. If the selected base is situated in an area with critical water supply, additional studies should be initiated to determine the influence of the additional people on the existing water supply.

### C. AIR QUALITY (3.3)

#### Characteristics

Air quality is determined by the relationship of the elements of the atmosphere (temperature, wind, humidity, precipitation, and pressure) and topography with emissions from human activities.

The atmospheric elements and topography determine the diffusion factor in a given region. The stability (or instability) of the atmosphere determines to what extent air pollution can build up in a given region. Substantial variation in the diffusion factor exists depending upon the combination of the above elements.

The human input variables used for this study are particulates, sulphur oxides, hydrocarbons, nitrogen oxides, and carbon monoxide.

Particulate Matter (PM) is the most widely distributed air pollutant. The environment, in general, contains a certain level of particulate matter in the form of separate minute particles suspended in the air. Particulates are present even in the cleanest air at the most remote locations uninhabited by man. Primary effects of particulates on air quality range from decreased visibility to health problems.

Sulphur Oxides (SOx) are common air pollutants generated by combustion of fossil fuel. This pollutant is a nonflammable, nonexplosive, transparent gas which has a pungent irritating odor.

Hydrocarbons (HC) is a term used for a large group of organic compounds emitted from the burning of petroleum fuels. Auto exhausts make up over half of the mixture of hydrocarbons emitted into the atmosphere by man.

Nitrogen Oxides (NOx) is a term used to represent the composite concentration of nitrogen oxides in the atmosphere, resulting from the reaction of nitrogen with oxygen. Although a large portion of nitrogen oxides are produced by natural sources, they are generally emitted by exhausts from high temperature combustion sources, producing photochemical smog.

Carbon Monoxide (CO) is the most commonly occurring air pollutant. Most carbon monoxide is produced by the incomplete combustion of carbonaceous materials used for fuels heating, industry, refuse burning and automobile fuels.

Concentrations of pollutants do not remain constant over a given region or time. The diffusion factor greatly determines the concentration level. The impact of air pollutants on the environment depends on the concentration level and the total amount of exposure over a period of time.

#### Potential Environmental Impact

Federal Air Quality Control Regions which could be affected are listed in Appendix 14. The STRC/STC proposal can affect air quality in two ways: 1) construction associated with STR sites

and STC operations buildings, and 2) aircraft emissions over the route complex and the STC base. The air quality areas listed below do not meet primary ambient air quality standards for the pollutants shown. The pollutants generated by the STRC/STC project will contribute to the air quality degradation in some of these areas, but the increase in pollutants would be minimal as is shown by Table 2.

Pocatello ID: SO<sub>2</sub> and PM  
Service Springs ID: PM  
Colstrip MT: PM  
Butte MT: PM  
Laurel MT: SO<sub>2</sub>  
East Helena MT: SO<sub>2</sub>  
Billings MT: CO  
Great Falls MT: CO  
Trona Industrial Area, WY: PM

Construction. During construction, air quality would be affected due to PM created by grading and cut-and-fill operations associated with road and building construction. The temporary contribution of airborne particle matter would be minimal. Most generated dust can be expected to settle quickly. Revegetation of these areas will inhibit further related dust generation. Dust control measures (repetitive site waterings and equipment speed controls) can be used at construction sites and should greatly minimize the airborne particulate matter. Construction equipment used at the STR site and the STC would create some pollutants due to emissions from the burning of petroleum fuels. Pollutants resulting from this source would be minimal, temporary and unnoticeable.

Aircraft Emissions. Air quality will be slightly affected by the normal emissions from jet aircraft engines. These pollutant emissions include carbon monoxide, hydrocarbons, nitrogen oxide, particulate matter, and sulfur oxide. Existing ambient air quality data are presented in Appendices 15-19. It can readily be seen that the proposed STRC region is generally a good air quality region. The amount of pollutants in pounds per mile and tons per year are shown in Tables 1 and 2. As can be seen by comparing the emissions in Table 2 to Appendices 15-19, the small amount of material emitted into the atmosphere would be insignificant. In addition, wind direction and speed are highly variable at the altitudes flown and would rapidly dissipate the emissions to ambient air quality levels.

TABLE 1  
AIR EMISSIONS (4)

(in pounds per mile)

<u>AIRCRAFT</u>	<u>CO</u>	<u>HC</u>	<u>No<sub>x</sub></u>	<u>PM</u>	<u>SO<sub>x</sub></u>
FB-111A	.028	.005	.330	.010	.024
B-52G	.315	.014	1.355	.168	.137
B-52H	.293	.089	1.085	.240	.128

TABLE 2  
AIR EMISSIONS  
(in tons per year)\*

<u>AIRCRAFT</u>	<u>CO</u>	<u>HC</u>	<u>No<sub>x</sub></u>	<u>PM</u>	<u>SO<sub>x</sub></u>
FB-111A	19.51	3.48	229.92	6.97	16.72
B-52G	<u>1776.66</u>	<u>78.96</u>	<u>7642.46</u>	<u>947.55</u>	<u>772.71</u>
Tons/year (STRC area)	1796.17	82.44	7872.38	954.52	789.43
Tons/sq mi/yr (STRC area)	.0112	.0005	.0492	.0060	.0049

\*based on 40 B-52G and 8 FB-111A, 5 days per week, 48 weeks per year, and mission flying times and speeds of 3 hours at 340 knots for B-52 and 1½ hours at 420 knots for FB-111 (intermediate fuel flow).

#### D. VEGETATION (3.4)

##### Characteristics

A reduction of native vegetation can result in decreased quantity of wildlife habitat. Destruction of natural vegetation in particularly fragile ecosystems--such as desert--can have a greater impact than an area with a more moderate climate because reestablishment of native vegetation is very slow.

Displacement of field crops and/or prime farm land would reduce the amount of land available for human and animal food production. Wildlife could also be affected since many animals and birds obtain food and cover from field crops.

##### Potential Environmental Impact

Land preparation associated with construction of operations buildings and family housing support will involve the clearing of vegetative cover. Vegetation can be reestablished once the construction is complete. A primary concern with clearing of vegetation at the proposed sites is the impact to rare, threatened or endangered species found in the project areas. STR sites are proposed in Idaho, Montana, Wyoming, and/or South Dakota. The SMC would be located in Montana, South Dakota or North Dakota. The U.S. Fish and Wildlife Service has published a list of native threatened or endangered plants (Oct 1, 1980). Only two plants are listed which may occur in the vicinity of construction projects--Osgood mountains milk-vetch: *Astragalus yoder-williamsii*, and MacFarlanis four-oclock: *Mirabilis macfarlanei*. Both are located in Idaho. It cannot be determined at this time if either of these species will be affected.

Due to the short duration of the construction projects and the minimal amount of acreage to be disturbed, the adverse impacts to natural vegetation will be short-term and/or minimal. Mitigation measures can be instituted to insure minimal disturbance of plant communities during construction activities. Although removal of native vegetation is unavoidable, plant communities can, in time, reestablish themselves. Access roads to the STR sites can be planned in such a way that a minimum of natural vegetation will be destroyed. Special care should be taken to avoid unnecessary removal of vegetation. Any specific threatened or endangered species shall be identified and consultation will be conducted with the Fish and Wildlife Service. Movement of surface material need not exceed the minimum necessary to complete construction. Housing areas would be landscaped in a manner appropriate to surrounding areas.

Another major concern with respect to vegetation is the possibility of STR sites being constructed on prime farmland. With the aid of irrigation in the region, much prime farmland has been identified. This land is generally near community centers which may be considered for family housing sites. Construction on prime farmland would result in the permanent loss of valuable cropland. When considering the adverse impact of a loss of from five to 40 acres compared to the amount of available prime farmland, this impact alone is of little significance. However, these agricultural lands are decreasing at a significant rate nationwide.

The use or additional use of off-the-road vehicles (ORVs) by STR or STC personnel and their families would disturb or permanently destroy natural vegetation in areas of bike paths. ORV areas should be strictly controlled to prevent this destruction.

#### E. WILDLIFE (3.4.2)

##### Characteristics

Most wildlife species are found in association with a particular habitat type. Common vertebrate species in the STRC/STC region include deer, coyotes, bobcats, jack rabbits, and small rodents. The rodent species provide an excellent food source for the local hawks and owls. Raptorial birds are also attracted by the high rodent population, and the area supports a wide variety of birds. Listings of the wildlife of the region are in Appendix 20. Individual state listings are in Appendices 2 through 8. The U.S. Fish and Wildlife Service (Oct 1, 1980) has listed several endangered or threatened species of mammals and birds in the seven-state region. These species are listed below:

- Black Footed Ferret - Mustela nigripes.
- Grizzly Bear - Ursus arctos horribilis.
- Whooping Crane - Grus americana.
- Eskimo Curlew - Numenius borealis.
- Bald Eagle - Haliaeetus leucocephalus.
- American Peregrine Falcon - Falco peregrinus anatum.
- Arctic Peregrine Falcon - Falco peregrinus tundrius.

Threatened and endangered species (any species which is in danger of extinction throughout all or a portion of its range) would be affected in the same manner as other species. The significance of impacts on these species would be considerably greater. The complete disappearance of a plant or animal species represents the loss of a component of the ecosystem which may adversely affect the way in which the system operates. Extreme care must be taken to insure the unique habitats of threatened or endangered species are not degraded or eliminated.

## Potential Environmental Impact

Smaller wildlife (primarily rodents and mammals) would be displaced during construction, possibly causing a slight population depression of wildlife in project areas. Most species would be mobile enough to emigrate to nearby habitats and may return to STR sites after project completion. Most small animals and birds are relatively tolerant of humans and won't be affected unless their habitat is physically destroyed.

The introduction of loud noise in a rural or pristine area may have an impact on domestic and/or wild animals and avian species (24b). Effects of noise exposure has been demonstrated in laboratory animals and, to some extent, in farm animals, but effects are difficult to assess in wildlife. Until more information exists, judgments of environmental impact must be based on existing information. It is assumed that noise produces the same general types of effects on animals as it does on humans. As in humans, the information that the perception of the sound carries, rather than the sound itself, may initiate a reaction.

Transient loud noise generally induces a reaction of alarm in many species, but reactions can vary with the different species. While an animal's first reaction to a new noise source is fear and avoidance, the major vertebrates quickly learn to ignore the noise source (24a). Some areas of high intensity noise, such as air bases, attract numbers of wildlife, including raptors (7). The level of acceptability of noise around airports is 100-110 CNL (23c). In Norway and Sweden, steam engine noises attracted Elk and created problems with stray animals on the line (24a).

Studies have been conducted on dairy herds (23b), swine (25), minks (23b), turkeys (24), mice (23), and chickens (23). Most animals respond by pausing in their activity, then quickly resuming previous activities. Upon initial low-level flights, an animal or herd may attempt to flee the sound or hide and protect their young; however, this rarely results in physical damage to the animal unless they are closely confined (Combs).

Migrating birds could also be affected by aircraft within the migratory route. Bird/aircraft strikes are hazardous to both the birds and the aircrews. Routes are developed to cross migration paths at 90-degree angles to minimize the chances of conflict.

\*CNL (Composite Noise Level) is a formulation similar to the term Ldn which is used herein.

A study to determine the effects of low-level jets and sonic booms on Peregrine Falcons and other raptors was completed in 1980 by David Ellis. Dr Ellis concluded that in general, "the birds were incredibly tolerant of stimulus loads which would likely be unacceptable to humans." (9)

In developing low level routes, adjustments are made to avoid environmentally sensitive areas to insure minimum noise impacts. The following routes have been adjusted:

OB-51	to avoid whooping crane migratory pathway
IRs 173 and 122	to minimize noise on poultry farms
IRs 444 and 566	to minimize noise on cattle and feedlots
IR 428	to avoid uncharted state wildlife area where large Elk herds are present
IR 502	seasonally adjusted to avoid duck migrations
IR 801	investigated Peregrine Falcon nest siting; no adjustments were necessary

#### F. RADIO FREQUENCY RADIATION HAZARDS

##### Characteristics

The generic term radiofrequency radiation (RFR) includes other terms such as electromagnetic radiation, nonionizing electromagnetic radiation, microwave radiation, electromagnetic fields, microwave fields, and others. Air Force has used the radiation protection guidelines promulgated by the Occupational Safety and Health Administration (OSHA). The permissible exposure levels for RFR in the frequency range between 10 MHz and 300 MHz for the general population is 10 mW/sq cm for persons occupationally exposed for greater than six minutes; or 3,600 mW/sq cm for any six-minute period.

Biological effects of RFR depend on the frequency of the incident radiation field, the size and shape of the individual, and the individual's ability to dissipate the absorbed energy via normal biological response. For perception of an individual pulse by a human, the pulse duration must be about 10 microseconds or longer and the pulse power density must exceed a threshold value of about 300 mW/sq cm. (12).

## Potential Environmental Impacts

RFR levels have been determined for each piece of equipment used at STR sites. The AN/MPS-T1 with the G-band dish antenna (worst case), has a RFR hazard of 10 mW/sq cm up to 280 feet and within the main beam. Personnel or residents within this distance would be exposed to a hazardous radiation level. Warning signs are required to be posted for personnel. The operations site will encompass the 280 ft hazard zone and will be fenced to prevent unnecessary RFR exposure to the public.

Experimental results with animals indicate that pulses are perceived as sound without direct stimulation of the auditory nerves. Temporary repelling or attracting of species that are sensitive to noise and other human disturbances associated with the radar operation could occur.

Birds in flight could potentially be affected by the radar beam. Of ecological interest are migrating birds or individual endangered or threatened species. Anticipated effects, if any, on birds in flight are unclear. The maximum length of exposure would be a few seconds while the birds fly through the beam. Because of the short exposure period, adverse effects should not result from RFR. Also, animal behaviorists and ornithologists consider radar as a legitimate tool for studying animal migration, navigation, and homing. (12). Therefore, no effects to birds are expected.

### G. ECONOMICS (4.0)

#### Characteristics

The potential impact on the economic structure from changes in Air Force activities stems from the direct effects of the purchases of services and materials and the indirect effects arising from military payrolls.

The more diverse an economy and more closely it is related to growth areas of the national economy, the more stable it is. Direct purchases and indirect purchases through payrolls have effects. The severity of the change in stability is directly proportional to the degree of dependence of the regional economy on the affected activity for incomes and employment. Numerous changes and costs may occur in such areas as education, transportation, public welfare, health, utilities, and natural resources as a direct result of relocation of STR sites and location of the STC.

Despite extremely arid conditions in much of the STRC region, a substantial agricultural economy has developed through irrigation and dry farming techniques. The most important source of income throughout the region is cattle and sheep raising. Abundant mineral deposits in this region provide much of the nation's metallic and nonmetallic resources as well as oil from oil-shale sedimentary rock. Lack of water has slowed the development of industry in the region and manufacturing remains undeveloped. Tourism has been steadily increasing as the forests have been set aside as national parks and forests (see Appendix 21). Yellowstone National Park alone attracts over one and a half million people each year.

#### Potential Environmental Impact

Using computer modeling (22), potential economic effects were forecast for two communities--one losing an STR site and the other gaining an STR site. The information obtained was compiled in Appendix 22, Figure 2, to show the economic impact to a local small community that may be affected by an STR site. The figures are based on data shown in Appendix 22, Figure 1.

The same model was used to forecast potential economic impacts of the STC on a given local community. Three separate data inputs were given for separate, unrelated bases, and the information was compiled. This data is presented in Appendix 23, Figures 1 and 2. As shown in the appendices, the socioeconomic changes in local communities as a result of the STR sites (<2%) and the STC (<5%) are expected to be minimal.

#### H. LAND USE

##### Characteristics

The primary consideration in land use impact is the extent to which an activity is compatible with existing public and private land. Overflight of land may affect land usage and will, in addition, affect airspace useage. Activities involving land acquisition or excessing can also affect local land use plans.

##### Potential Environmental Impact

Airspace: Airspace conflicts can result in air traffic congestion. This, in turn, may lead to increased accident potential. Conflicts can be a result of air traffic near or at an airport, or uncoordinated use of the same airspace by two or more disassociated aircraft. Low level flights (between 400 ft and 1000 ft AGL) in a predominantly rural region could have effects on local airport traffic. Of primary importance are local

aircraft which have no flight plans. Pilots of these aircraft generally fly during daylight hours and remain in local areas. Crop dusters would make up the greatest percentage of this group. All military low level routes are, therefore, first coordinated with local air traffic control centers; then with FAA. New low level routes are well publicized to ensure awareness by local air users.

Noise. Noise is a primary determinant in land use compatibility. Low level military training aircraft create loud and disturbing noise. Noise indirectly affects land use in that it can affect human and animal activities (direct effects are presented in the Wildlife and Noise sections).

Impacts of noise are greatest on residences, education and religious services, medical services and outdoor recreation. For this reason, low level training routes are planned to avoid populated areas. Annoyance would be experienced by people whose residence is near a low flying aircraft path.

Popular outdoor recreation areas are also generally avoided during development of the route. Remote natural resource areas (national parks, forests and wilderness areas) are generally extensive in size and sparsely populated or uninhabited. The characteristics which make them important to preserve for future generations are compatible with low level aircraft training. It is unlikely that a significant number of people enjoying the serenity of these areas would be disturbed by STRC aircraft.

Historical monuments or sites could be affected by sound vibration; however, damaging shock waves would not be generated. People enjoying these areas could be annoyed by aircraft noise. Most historical buildings would be located in or near population centers and would not be affected. Noise sensitive historical sites will be identified and avoided when possible.

STR Sites. The STR sites could affect the land use of local communities. These sites would be aesthetically displeasing to many residents. The AN/MPS-T1 G-Band would include a radio frequency radiation (RFR) hazard to people living within a 280 ft radius. Radar operation may also affect fluorescent lights directly around the site. Since sites are generally located in sparsely populated areas, these effects are unlikely. Sufficient property would be leased or acquired which would preclude possibility of RFR effects outside the site perimeter. Security fencing would be provided around the site perimeter. Housing areas, if needed, would conform to local land-use plans to prevent overburdening utilities, schools and traffic flow.

STC. The STC, although located on an Air Force base, could affect local communities because of the increase in personnel and aircraft. The addition of approximately 1,000 people to a community could have a significant effect on transportation, utilities, waste treatment facilities and institutions. The addition of 20 aircraft per day would increase the noise level and accident potential. The significance of these effects would depend on the location of the base. A site-specific analysis will determine these effects following identification of the proposed STC base.

## I. NOISE

### Characteristics

There have been claims about deleterious physiological and psychological effects of sound on man. Variables which affect sound include loudness, duration, and frequency content. As the loudness and/or duration increases, the effects of sound on the body increases. Sounds which contain high frequencies (such as jet aircraft) or contain, or are, pure tones are more disturbing than those which do not.

Loudness of a sound is measured in terms of decibels (dB) and is measured with a sound level meter incorporating an "A" weighted electronic network which closely correlates to the response of the human ear. Levels of dB(A) may be changed to reflect different distances between the sound source and measurements by applying the rule of adding or subtracting 6dB(A) per halving or doubling of distance. The Day-Night Average Sound Level (Ldn) is used to describe the relative contribution of aircraft operations to the sound environment.

### Potential Environmental Impact

The propagation of sounds along transmission paths depends on the nature of the terrain, weather conditions, and the acoustical properties of an individual's immediate environment. Sound can affect humans in three ways: 1) physiological, 2) psychological, and 3) aesthetics. Noise produces the same general types of affects on animals as it does on humans. (See Section E, Wildlife).

Physiological. High intensity noise constricts the blood vessels, increases pulse and respiration rates, increases tension and fatigue, and can cause dizziness and loss of balance. These effects are generally temporary and, to some extent, adaption does occur. Persistent high level noise can cause temporary or permanent hearing impairment. Noise can affect the depth, continuity, duration, and recuperative value of sleep.

Hearing loss or degradation depends on three factors: sensitivity to noise, duration of the noise, and loudness of the noise. When noise levels are high enough and last long enough, hearing loss may result. An average person can hear nothing at zero dB, a whisper five feet away at 30 dB, and conversation in a normal room at 60 dB. Other sound intensity levels and human speech-hearing is shown in Figure 4. OSHA lists an eight-hour constant exposure to sound levels of 90 dB as that which would subject workers to a marked susceptibility to threshold shifts. People can tolerate many brief exposures in excess of this level if they are spaced in time. A symphony orchestra averages about 70 dB, but the loudest passage nears 100 dB; the softer passages allow time for the ears to recover.

(24a) Intensity Levels and Human Speech-Hearing (13) (26)

dB

140	Threshold of pain
125	Jet takeoff
120	Discotheque
110	Toads and frogs in breeding season
100	Discomfort for speech begins around this level
85	Heavy city traffic
80	Loud speech
60	Average speech conversational level
40	Faint speech at 3 ft distance
30	Whisper (average)
20	Rustling leaves
0	Threshold of hearing (young adult)

Figure 4

Psychological. Although noise does not cause mental illness, it can cause psychological responses such as anger, irritability, increased nervousness, annoyance, and sleep loss. An experiment, conducted to determine awakening rates due to aircraft noise, showed increased rates of awakening as the intensity of flyover noise increased, and was also dependent on the sleep stage of the respondent. Age groups responded differently. Awakening responses to a flyover noise created by an aircraft 500 feet overhead (107 PN dB\*) for a duration of five seconds is: 70 percent for ages 69 and 72; 10 percent for ages 41 and 54; and 5 percent for ages 7 and 8. (23a)

\* PN dB is perceived noise level, a measurement similar to the A-weighted measurements used herein.

Aesthetics. Any activity that alters the quality of the perceived environment can be considered to affect aesthetics. These activities do so by changing the characteristics of the nature of beauty as perceived by individuals. The following conditions bear significantly on the degree of aesthetic impact:

a. Observers state of mind--factors of current perceptual setting and environmental life style, coupled with past experiences and future expectations, can produce varying impressions of aesthetic quality.

b. The observers background--cultural, economic, and social background can determine perceived aesthetic qualities.

c. Context of the observation--the setting of an aesthetic observation may bear upon its acceptability, e.g., it is "out of place."

TYPICAL RANGE OF OUTDOOR COMMUNITY  
NOISE EXPOSURE LEVELS (15)

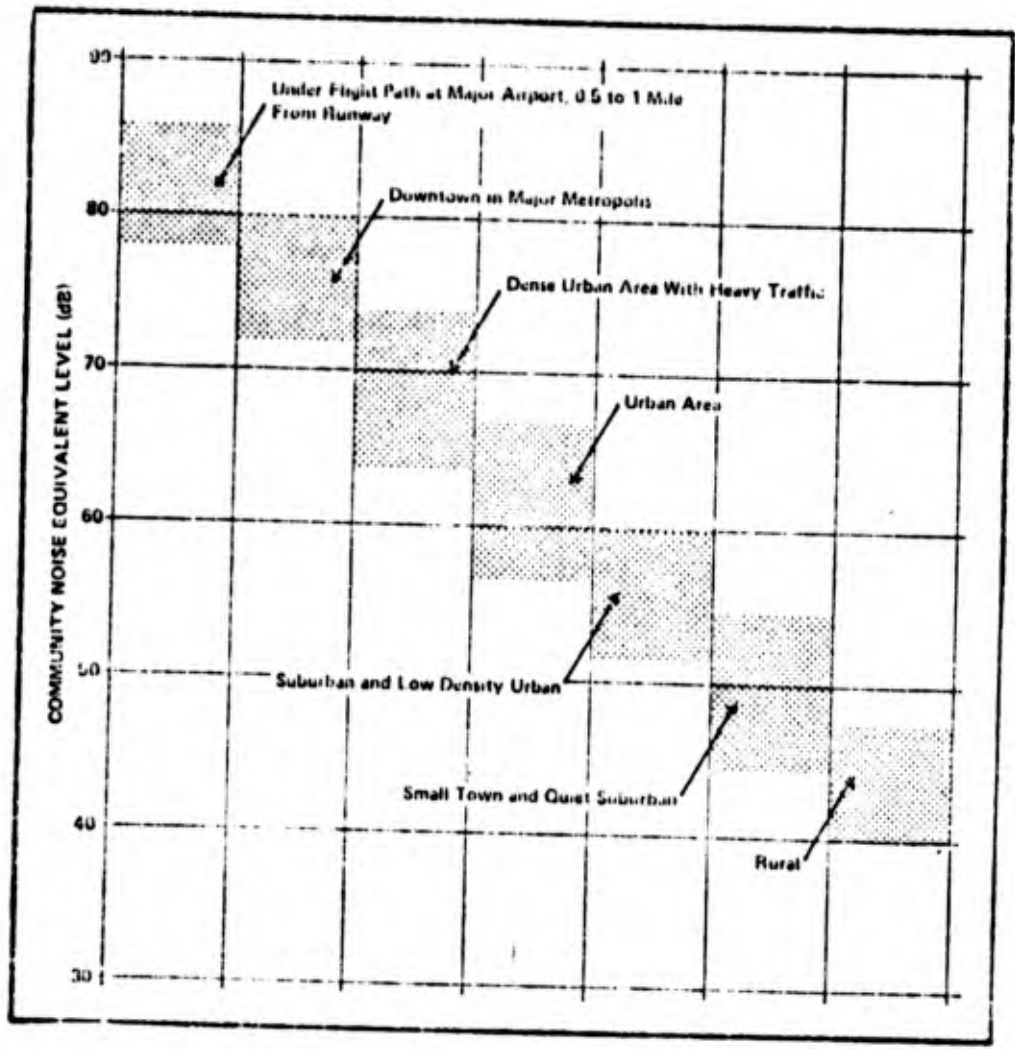


Figure 5

TABLE 3  
SUMMARY OF COMMUNITY ANNOYANCE

<u>LOCATION</u>	<u>MINIMUM DISTANCE (SLANT/RANGE)</u>	<u>MAXIMUM NOISE LEVELS (14) SINGLE EVENT*/CUMULATIVE**</u>		<u>% INDIVIDUALS (15) HIGHLY ANNOYED</u>
DIRECTLY BELOW ROUTE	200'/FB-111 400'B/B-52	108dB	Ldn 78	60%
NEAREST OCCUPIED STRUCTURES	3040'	85dB	Ldn 60	20%
NEAREST POPULATION CENTERS	6080'	75dB	Ldn 52	10%

\* Based on all flights by B52G (FB-111 and B-52H aircraft are quieter). Figures based on cruise power/air-to-ground propagation characteristics.

\*\*Assuming 10 aircraft per day per route and 40% of operations at night.

Jet aircraft traversing routes in the STRC will cause an impact in the noise level in the surrounding area. Although no sonic booms will be generated, responses to jet aircraft flying directly overhead is comparable. Additionally, noise generated by B-52 aircraft would last longer than a sonic boom. Noise levels generated will not exceed those shown in Table 3. The table represents noise levels and a summary of annoyance. The B-52G model was used for analysis purposes because it is the loudest of the aircraft which would use the route complex. The summary of annoyance is based on the cumulative noise level.

The noise levels shown are applicable to the outdoor environment only. Varying degrees of noise attenuation can be expected as a result of building construction elements. A detailed discussion on levels of noise in the indoor environment can be found in the March 1974 EPA document entitled "Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety."

Because the community is rural and not subjected to noise, a correctional factor of +10 was used for the Ldn values to determine the adjusted "annoyed" values. These increases are reflected in Table 4. As can be seen by comparing the rural setting noise level of 40-47 dB (Figure 5) to aircraft single event noise levels, considerable increases of sound will be experienced by individuals within 6000 feet.

Table 4  
ADJUSTED COMMUNITY ANNOYANCE

<u>MAXIMUM CUMULATIVE NOISE (Ldn)</u>	<u>% INDIVIDUALS HIGHLY ANNOYED</u>
78	70%
60	40%
52	25%

During planning, the route is flown by conventional aircraft to identify population centers, obstructions, and environmentally sensitive areas (i.e., large livestock herds, poultry farms). Conventional aircraft again fly the route within 10 days before jet aircraft begins use. Specific flight restriction criteria is presented in Appendix 24.

A constant amount of flying time will be distributed over a large area. Single or cumulative event noise impacts should be minimal due to the large area of sparse population, the smaller number of aircraft using any one route, and the transitory nature of the flights.

## SECTION IV - ALTERNATIVES TO THE PROPOSED ACTION(S)

A. ALTERNATIVE ACTIONS. Three alternatives to the proposed action are considered herein: 1) A limited program, 2) different region, and 3) no action. A fourth alternative, the total use of flight simulators, is not a reasonable alternative. Although flight simulators can be used to supplement in-flight training, they cannot totally replace this type of training, which is essential to validate aircrews' skills in the low level environment.

Limited Program Implementation. The limited program implementation alternative would be to establish in the proposed or alternate region the complex of routes and STR operations sites, but not the STC. Under this alternative all SAC bases operationally capable, within or near the complex, would be temporarily utilized by aircrews flying the STCR. Operations and scheduling of the STCR would be the responsibility of HQ SAC/DOTN at Offutt AFB NE. The environmental impacts of the STCR would be generally the same as those presented for the IR routes and STR sites in the proposed action. Environmental impacts resulting from aircrews/aircraft performing temporary duty at various regional bases would differ from that of the proposed action. Because operations personnel would remain at their current locations, no large influx of people into a single community would be experienced. Noise and accident potential would increase at all bases accommodating STCR flight crews, however, these increases would not individually be as great as they would be for the STC.

Different Region. This alternative would be to implement the STCR/STC program in a different region of the country. The following regions were considered: Midwest, Northeast, Northwest, Southeast and Southwest. Three main criteria were used as a base: 1) airspace availability, 2) varied terrain, and 3) population density. Because airspace is not available in the following regions they were eliminated from consideration as reasonable alternatives: Northeast, Southeast, Southwest and Midwest. Limited airspace is available in the Northwest. The terrain is varied and population density is relatively sparse. Therefore, the Northwest is considered a reasonable alternative to the proposed action.

Existing Environment. For purposes of this assessment, a region of influence is designated within a 300-mile radius of 45°N latitude and 117°W longitude. Area within this circle includes portions of eight states: Washington, Oregon, California, Idaho, Nevada, Utah, Montana and Wyoming.

The Northwest alternative region includes several different topographic regions: 1) Northern and Central Rocky Mountain Range, 2) Columbia Plateau, 3) Troughs of the Coastal

Margin, and 4) Cascades. (See Figure 2) The Northern and Central Rocky Mountain Range region is included in the proposed action and described in Section IE.

The Columbia Plateau is that low-land area between the Rocky Mountains of the Cordilleras and the Klamath Mountains of the Cascades and Sierra Nevadas. This area ranges from semi-arid in the Columbia Basin in the north to the arid desert area of Nevada.

The Cascades provide a variety of topography ranging from the rugged peaks of the Klamath Mountains to gentle rolling hills in western Oregon and southwest Washington. West of these hills are the low-land plains of the Troughs of the Coastal Margin which include Oregon's Willamette Valley and the basin of Puget Sound.

Climate in the Northwest alternative region is as varied as that in the proposed STRC region, but includes the mild Marine West Coast climate of raw winters and summers with frequent fog. This climate produces some of the greatest forests in the United States. Rivers and waterways in the Northwest include the Columbia, Colorado and the Sacramento system.

This region is sparsely populated in the area of southeastern Oregon, Nevada, southwestern Idaho, Montana and Wyoming. Heavily populated areas include most of Washington, Oregon and parts of Idaho.

The economic base of the Northwest is more diverse than the proposed action region. Manufacturing and government income dispersements are the leading income producers in Utah, California, Washington and Oregon. Livestock raising is a principal activity in the entire Northwest region except Washington. Truck crops and a number of other fruits and vegetables are grown in California and Washington and are canned and processed in local plants. Exploitation and processing of natural resources from the extensive forests provide Washington and Oregon with their foremost industries.

**B. POTENTIAL ENVIRONMENTAL IMPACT.** Impacts of proposed Air Force actions or limited program actions on the Northwestern region would be similar to those presented in Section III for the proposed action. Vegetation types disturbed may differ depending on the locations identified for the STR sites and the STC. The impacts of noise on wildlife and humans would be more significant in this area due to a larger habitat area and more dense population than in the proposed area. Also, since airspace is limited, less flexibility would be available in establishing routes which avoid populated or environmentally sensitive areas. Three SAC bases are in the proximity of the Northwestern region for the

location of the STC. Impacts which could result from the STC operation would be similar to those of the proposed action and are included in Section III.

No Action. The no action alternative is not to implement the STRC/STC program. Current individual low level routes would remain in use. As current routes become routine and of little value to aircrews, new routes would be developed and current routes would be changed or discontinued. This alternative would provide for minimal aircrew experience over unfamiliar terrain. Current fixed and mobile sites would remain, temporarily; however, as new routes are developed and discontinued, mobile sites would be moved. Operational and environmental restrictions and limitations have rendered some current fixed sites operationally inadequate. These fixed sites would be relocated to less environmentally sensitive areas. Environmental impacts associated with the no action alternative would be similar to those of the proposed action but would not be as concentrated in one region.

## V. REFERENCES.

### A. PERSONS AND AGENCIES CONTACTED.

#### 1. Proponents of the Action:

HQ 1 CEVG:

Darrell Fisher, Lt Col, USAF, Site Development Office  
Ronald H. Combs, Maj, USAF, Route Development Office  
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HQ SAC:

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#### 2. Contributors to the Analysis:

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ECONOMICS IMPACT FORECAST FOR STR SITE  
(Gain or loss is not shown)

Table 1

County population: 16,541 and 17,752  
County area: 414 and 6,959 sq. mi.  
Employment multiplier: 1.8321 and 2.1973  
Income multiplier: 1.8483 and 2.1828  
Change in expenditures for local services and supplies: \$43,370  
Change in civilian employment: 1  
Average income of affected civilians: 18,696  
Change in military employment: 71  
Average income of affected military personnel: \$12,210  
Military personnel living off-base: 100%

Table 2

Direct volume: \$509,000  
Export employment multiplier: 2.0147  
Change in total business volume: \$1,025,000 (2.0%)  
Induced business volume: \$516,000  
Change in local personal income: \$974,000 (2.3%)  
\*Change in expenditures of housing: \$170,000  
Change in non-housing expenditures: \$614,000  
Change in local employment: 103 (1.3%)  
Assessed to market value ratio: 29.05  
\*Change in local property values: \$171,008 (1.1%)  
\*Change in housing investment: \$82,000  
Change in non-housing investment: \$74,000  
\*Change in tax revenues: \$292,000  
Change in number of school children: 77 (1.5%)  
Change in state and federal aid to schools: \$43,000  
Change in cost to schools: \$59,000  
Change in other local government costs: \$43,000  
Net change in costs to local government: \$101,000

\*Comparison cannot be used for sites with military family housing provided.

ECONOMIC IMPACT FORECAST FOR THE STC

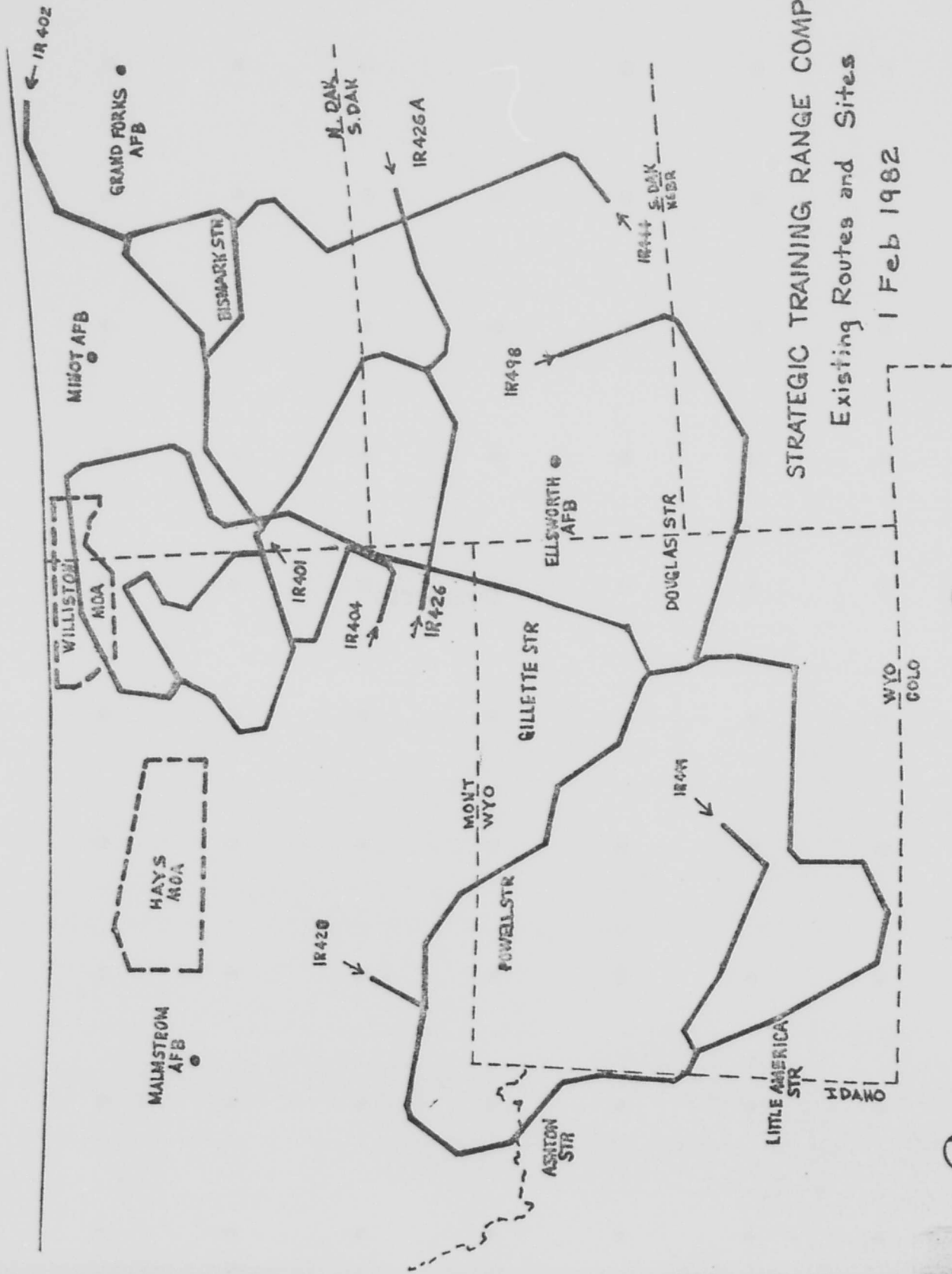
Table 1

County population: 61,102, 44,736, and 389,455  
Area: 1,438, 639, and 335 sq. mi.  
Employment multiplier: 2.1183, 1.6654, and 2.8205  
Income multiplier: 2.0911, 1.5828, and 2.6308  
Change in expenditures for local services and supplies: \$645,000  
Change in civilian employment: 39  
Average income of affected civilians: \$18,696  
Change in military employment: 969  
Average income of affected military personnel: \$12,664  
Percent military personnel living on-base: 50%

Table 2

Direct volume: \$6,589,000  
Export employment multiplier: 2.2014  
Change in total business volume: \$14,506,000 (4.2%)  
Induced business volume: \$7,917,000  
Change in local personal income: \$12,865,000 (4.4%)  
Change in expenditures for housing: \$2,316,000  
Change in non-housing expenditures: \$8,105,000  
Change in local employment: 1,443 (3.8%)  
Assessed to market value ratio: 21.70  
Change in local property values: \$14,252,000 (4.2%)  
Change in housing investment: \$1,076,000  
Change in non-housing investment: 973,000  
Change in tax revenues: \$2,690,000  
Change in number of school children: 548 (2.6%)  
Change in state and federal aid to schools: \$222,000  
Change in cost to schools: \$355,000  
Change in other local government costs: \$868,000  
Net change in cost to local government: \$1,223,000

APPENDICES



**STRATEGIC TRAINING RANGE COMPLEX**  
Existing Routes and Sites

1 Feb 1982



STRATEGIC AIR COMMAND  
Existing IR Training Routes  
1 February 1982

## COLORADO

Population: 2,772,000\*

Area: 104,247 sq mi

Climate: Dry, hot summers and cold winters. Av. temps: Denver, July max, 87.2°F; Jan. min., 15.6°F. Av. ann. precipitation: Denver, 14.2 in. (snow and sleet, 55.6 in. mean total).

Topography: Eastern section, plains 4,000 to 6,000 ft. above sea level; central section, peaks of the Rocky Mountains; western section, lower mountains, plateaus, and mesas. Altitudes: high, 14,431 ft.; low 3,350 ft.: approx. mean 6,800 ft.

Main Rivers: Arkansas, Colorado, North Platte, Republican, Rio Grande, South Platte.

Largest Lakes: Adobe, Bonnie, Granby, John Martin.

Principal Mountains: Rocky Mountain Chain: Elk Mts., Front Range, Medicine Mts., Park Range, San Juan Mts., Sangre de Cristo Mts., Sawatch Mts., Wet Mts.: 54 peaks are over 14,000 ft. high, the highest of which are Mt. Elbert (14,431 ft), Mt. Harvard (14,420 ft), Mt. Massive (14,404 ft.)

Major Cities: (1960 census): Denver (493,887); Pueblo (91,181); Colorado Springs (70,194); Aurora (48,548); Boulder (37,718)

National Forests: Arapaho, Grand Mesa, Gunnison, Manti-La Sal, Pike, Rio Grande, Roosevelt, Routt, San Isabel, San Juan, Uncompahgre, White River

National Parks: Mesa Verde, Rocky Mountain; Shadow Mountain National Recreation Area

National Monuments: Black Canyon of the Gunnison, Colorado; Dinosaur, Great Sand Dunes, Hovenweep, Yucca House, Bent's Old Fort National Historic Site.

Flora and Fauna:

- Birds:
- 1) Western Meadow Lark
  - 2) Lark Bunting
  - 3) Red-breasted Nuthatch
  - 4) Magpie
  - 5) Gray Jay
  - 6) Western Mockingbird
  - 7) Turkey Buzzard

- Animals:
- 1) Prairie Dog
  - 2) Antelope
  - 3) Bobcat
  - 4) Brown Bear
  - 5) Cony
  - 6) Western Red Fox
  - 7) Black-tailed Deer

- Flowers:
- 1) Prickly Poppy
  - 2) Indian Paintbrush
  - 3) Mariposa Lily
  - 4) Rocky Mountain Columbine
  - 5) Avalanche Buttercup
  - 6) Fringed Gentian
  - 7) Shooting Star
  - 8) Globeflower

- Trees:
- 1) Quaking Aspen
  - 2) Colorado Blue Spruce
  - 3) Balsam Fir
  - 4) Lodgepole Pine
  - 5) Piñon Pine
  - 6) Juniper

Source: American Heritage New Pictorial Encyclopedic Guide to the United States, Vol I and II, American Heritage Publishing Company, 1965

\*1979 resident population data obtained from Statistical Abstract of the U.S. 1980.

## IDAHO

Population: 153,000\*

Area: 83,557 sq mi

Climate: Moderated by Pacific maritime air; higher areas have lower temperatures and more precipitation than the lowlands, which are quite arid; humidity is very high and precipitation is greatest during the winter; but humidity is very low and precipitation light during the summer. Av. temps.: Boise, July max., 90.5°F; Jan. min., 19.9°F. Av. ann. precipitation: Boise, 11.48 in. (snow and sleet, 22.3 in mean total).

Topography: Mostly very mountainous: the northern Rocky Mountains extend from the panhandle on the Canadian border in a southeasterly direction about two-thirds down the state, becoming highest and most rugged toward the southern end, which is uninhabited; south of these mountains, the Snake River plateau, a relatively flat region, broken by canyons, buttes, mesas, and terraces in the southwest; southeast, on the Utah border, desert; east, on the Wyoming border, a 10-to-35-mile-wide belt of the Rocky Mountains, Altitudes; high, 12,662 ft.; low, 710 ft.; approx. mean 5,000 ft.

Main Rivers: Bear, Clark Fork, Clearwater, Coeur d'Alene, Kootenai, Pend Oreille, St. Joe, St. Maries, Salmon, Snake

Largest Lakes: (in order of size) Pend Oreille, Bear, American Falls, Palisades, Coeur d'Alene, Priest, Grays, Henrys

Principal Mountains: (with highest peaks): Clearwater Mts.; Salmon River Mts (Twin Peaks, 10,328 ft); Lost River Range (Mt. Borah, 12,662 ft); Bitterroot Range; Sawtooth Mts (Hyndman Peak, 12,078 ft); Owyhee Mts.

Major Cities: (1960 census): Boise (34,481); Idaho Falls (33,161); Pocatello (28,534); Twin Falls (20,126); Nampa (18,897)

National Forests: Bitterroot, Boise, Cache, Caribou, Challis, Clearwater, Coeur d'Alene, Kaniksu, Nezperce, Payette, St. Joe, Salmon, Sawtooth, Targhee

National Parks: Yellowstone (mostly in Wyoming)

National Monuments: Craters of the Moon

Flora and Fauna:

- Birds:
- 1) Mountain Bluebird
  - 2) Wilson's Phalarope
  - 3) Red-shafted Flicker
  - 4) Saw-whet Owl
  - 5) Prairie Falcon
  - 6) Rock Wren

- Animals:
- 1) Snowshoe Rabbit
  - 2) Elk
  - 3) Red Squirrel
  - 4) Yellow-bellied Marmot
  - 5) Grizzly Bear
  - 6) Marten

- Flowers:
- 1) Blue Camas
  - 2) Lewis Mock Orange
  - 3) Red Lily
  - 4) Shooting Star

- Trees:
- 1) White Pine
  - 2) Tamarack
  - 3) Douglas Spruce
  - 4) Balsam Fir

Source: American Heritage New Pictorial Encyclopedic Guide to the United States, Vol I and II, American Heritage Publishing Company, 1965

\*1979 resident population data obtained from Statistical Abstract of the U.S. 1980.

## MONTANA

Population: 786,000\*

Area: 147,138 sq mi

Climate: Winters mostly quite cold, with occasional severe cold waves, and mild spells; summers, warm; great differences in temperature due to elevation. Av. temps.: Great Falls, July max., 83.8°F; Jan. min., 13.6°F. Av. ann. precipitation: Great Falls, 14.03 in. (snow and sleet, 53.5 in. mean total).

Topography: West, mountains (Northern Rockies), with broad valleys between the ranges; east and central sections, the Great Plains, gently rolling plateau, broken by river valleys and isolated mountains. Altitudes: high, 12,799 ft.; low, 1,800 ft.: approx. mean 3,400 ft.

Main Rivers: Bighorn, Clark Fork, Flathead, Marias, Milk, Missouri, Musselshell, Powder, Tongue, Yellowstone.

Largest Lakes: (in order of size): Fort Peck, Flathead, Canyon Ferry, Hungry Horse, Tiber, Hebgen.

Principal Mountains: (with highest peaks): Cabinet Mts; Bitterroot Range (Garfield Mtn, 10,961 ft); Anaconda Range; Pioneer Mts (Torrey Mtn, 11,179 ft); Lewis Range; Big Belt Mts; Gallatin Range (Electric Peak, 11,155 ft); Crazy Mts (Crazy Peak, 11,214 ft); Madison Range (Koch Peak, 11,293 ft); Lone Mtn, 11,194 ft); Range (Cold Mtn, 12,610 ft); Beartooth Range (Granite Peak, 12,799 ft; Mt. Wood, 12,661 ft); Bighorn Mts.

Major Cities: (1960 census): Great Falls (55,244); Billings (52,851); Butte (27,877); Missoula (27,090); Helena (20,227)

National Forests: Beaverhead, Bitterroot, Custer, Deerlodge, Flathead, Gallatin, Helena, Kaniksu, Kootenai, Lewis and Clark, Lobo.

National Parks: Glacier (part of Waterton-Glacier International Peace Park), Yellowstone.

National Monuments: Big Hole Battlefield, Custer Battlefield

Flora and Fauna:

- Birds:
- 1) Western Meadow Lark
  - 2) Spruce Grouse
  - 3) Mountain Plover
  - 4) American Avocet
  - 5) Cooper's Hawk (Immature)
  - 6) Cooper's Hawk (Mature)

- Animals:**
- 1) Porcupine
  - 2) Bushy-tailed Wood Rat
  - 3) Nuttall's Cottontail
  - 4) Least Chipmunk
  - 5) Kit Fox
  - 6) Fisher

- Flowers:**
- 1) Bitterroot
  - 2) Bear Grass
  - 3) Four o'clock
  - 4) Shrubby Cinquefoil
  - 5) Red Heather

- Trees:**
- 1) Ponderosa Pine
  - 2) Red Cedar
  - 3) Douglas Fir
  - 4) Lodgepole Pine
  - 5) Tamarack

**Source:** American Heritage New Pictorial Encyclopedic Guide to the United States, Vol I and II, American Heritage Publishing Company, 1965

**\*1979 resident population data obtained from Statistical Abstract of the U.S. 1980.**

## NEBRASKA

Population: 1,574,000\*

Area: 77,227 sq mi

Climate: Very cold winters and very warm summers; humidity is low and rainfall is relatively light, but average temperatures and rainfall vary from year-to-year and the weather often changes from day-to-day. Av. temps.: Omaha, July., 89.3°F; Jan. min., 13.5°F. Av. ann. precipitation: Omaha, 25.9 in. (snow and sleet, 31.3 in. mean total).

Topography: Mostly level or gently rolling plains, rising from east to west; prairie in the east, with bluffs along the Missouri River, sand dunes, some shifting, in the north central part; high plains with bluffs and buttes in the west. Altitudes: high, 5,424 ft.; low, 840 ft.: approx. mean 2,609 ft.

Main Rivers: Big Blue, Elkhorn, Little Blue, Loup, Missouri, Niobrara, North Platte, Platte, Republican, South Platte

Largest Lakes: Enders, Harlan County, Harry Strunk, Hugh Butler, Jeffery, Johnson, Lewis and Clark, McConaughy, Sherman, Swanson.

Principal Mountains: Hog Back, 5,082 ft.

Major Cities: (1960 census): Omaha (301,598); Lincoln (128,521); Grand Island (25,742); Hastings (21,412)

National Forests: Nebraska

National Parks: None

National Monuments: Homestead, Scotts Bluff, Chimney Rock (not owned by U.S. Government)

Flora and Fauna:

- Birds:
- 1) Western Meadow Lark
  - 2) Bobolink
  - 3) Lark Sparrow
  - 4) Sora
  - 5) Common Snipe
  - 6) Short-eared Owl

- Animals:
- 1) Milk Snake
  - 2) Tiger Salamander
  - 3) Least Weasel
  - 4) Thirteen-lined Ground Squirrel
  - 5) Black-tailed Prairie Dog

- Flowers:
- 1) Goldenrod
  - 2) Fireweed
  - 3) Closed Gentian
  - 4) Dutchman's-breeches
  - 5) Knapweed

- Trees:
- 1) American Elm
  - 2) Box Elder
  - 3) Bur Oak
  - 4) Smooth Sumac
  - 5) Red Cedar
  - 6) Aspen

Source: American Heritage New Pictorial Encyclopedic Guide to the United States, Vol I and II, American Heritage Publishing Company, 1965

\*1979 resident population data obtained from Statistical Abstract of the U.S. 1980.

## NORTH DAKOTA

Population: 650,000\*

Area: 70,665 sq mi

Climate: Usually severe, cold winters; mild summers, with occasional hot spells; about half the rainfall occurs in May, June, and July, precipitation averaging only about .5 inch a month from Nov. to Feb. Av. Temps.: Bismarck, July max., 85.5°F; Jan. min., -1.8°F. Av. ann. precipitation: Bismarck, 15.40 in. (snow and sleet, 36.9 in. mean total)

Topography: Mostly plains, gradually rising westward, with some hills and buttes; east, the Central Lowlands, flat, with hills in the north and many small lakes; central, the Missouri Coteau, an escarpment several hundred feet above the plains and running northwest to southeast; west, the Great Plains, rolling country, with buttes and lakes; southwest, the Badlands, a deeply eroded, rugged area of buttes and mesas. Altitudes: high 3,506 ft.; low, 750 ft.: approx. mean 1,900 ft.

Main Rivers: Cannonball, Cedar Creek, Heart, James, Knife, Little Missouri, Missouri, Red River of the North, Sheyenne, Souris

Largest Lakes: Ashtabula, Darling, Devils, Garrison, Jamestown, Long, Oahe, Tschida.

Principal Mountains: Pembina Mts; Turtle Mts, 2,321 ft; Killdeer Mts; White Butte, 3,506 ft; Black Butte, 3,468 ft; Sentinel Butte, 3,430 ft.

Major Cities: (1960 census): Fargo (46,662); Grand Forks (34,451); Minot (30,604); Bismarck (27,670); Jamestown (15,163); Williston (11,866)

National Forests: None

National Parks: Theodore Roosevelt

National Monuments: None

Flora and Fauna:

- Birds:
- 1) Western Meadow Lark
  - 2) Sharp-tailed Grouse
  - 3) Marbled Godwit
  - 4) Green-winged Teal
  - 5) Blue-winged Teal
  - 6) Sharp-tailed Sparrow

- Animals:
- 1) Plains Garter Snake
  - 2) Northern Pocket Gopher
  - 3) Bobcat
  - 4) Franklin's Ground Squirrel
  - 5) White-tailed Prairie Dog
  - 6) Prairie Skink

- Flowers:
- 1) Wild Prairie Rose
  - 2) Prairie Sunflower
  - 3) Wood Betony
  - 4) Oxeye Daisy

- Trees:
- 1) Ironwood
  - 2) American Elm
  - 3) Box Elder
  - 4) Chokecherry

Source: American Heritage New Pictorial Encyclopedic Guide to the United States, Vol I and II, American Heritage Publishing Company, 1965

\*1979 resident population data obtained from Statistical Abstract of the U.S. 1980.

## SOUTH DAKOTA

Population: 689,000\*

Area: 77,047 sq mi

Climate: Hot summers and cold winters, with extreme fluctuations in temperature; cooler summers and milder winters in the Black Hills; light precipitation with frequent droughts, particularly in central and western areas; frequent hailstorms in summer and occasional tornadoes. Av. temps.: Huron, July max., 89.5°F; Jan. min., 2.1°F. Av. ann. precipitation: Huron, 17.54 in. (snow and sleet, 37.0 in. mean total)

Topography: East prairies with many lakes, becoming hilly toward the Missouri River; west, rolling upland flats with canyons, buttes, and--toward the southwest--badlands; southwest, the Black Hills, mountains rising 4,000 ft above plains. Altitudes: high 7,242 ft, low 962 ft; approx mean 2,200 ft.

Main Rivers: Bad, Belle Fourche, Big Sioux, Cheyenne, Grand, James, Missouri, Moreau, Vermillion, White

Largest Lakes: Angostura, Belle Fourche, Big Stone, Fort Randall, Lewis and Clark, Oahe, Poinsett, Shadehill, Traverse, Waubay

Principal Mountains: (with highest peaks): Black Hills (Harney Peak, 7,242 ft; Terry Peak, 7,071 ft; Crows Nest Peak, 7,050 ft; Custer Peak, 6,801 ft)

Major Cities: (1960 census): Sioux Falls (65,466); Rapid City (42,399); Aberdeen (23,073); Huron (14,180); Watertown (14,077); Mitchell (12,555); Brookings (10,558); Pierre (10,088)

National Forests: Black Hills

National Parks: Wind Cave

National Monuments: Badlands, Jewel Cave; Mount Rushmore National Memorial

Flora and Fauna:

- Birds:
- 1) Ferruginous Roughleg
  - 2) Ring-necked Pheasant
  - 3) Baldpate
  - 4) Canvasback
  - 5) Lesser Scaup Duck
  - 6) Long-billed Curlew

- Animals:
- 1) Coyote
  - 2) Plains Pocket Gopher
  - 3) Badger
  - 4) Richardson's Ground Squirrel
  - 5) White-tailed Jack Rabbit
  - 6) Short-tailed Shrew

- Flowers:
- 1) Thistle Poppy
  - 2) Groundnut
  - 3) Common Mullein
  - 4) Pasqueflower
  - 5) Wild Poppy Mallow
  - 6) Blue Vervain

- Trees:
- 1) Smooth Sumac
  - 2) Wild Plum
  - 3) Hop Hornbeam
  - 4) Black Hills Spruce
  - 5) Hackberry
  - 6) Narrow-leaved Cottonwood

Source: American Heritage New Pictorial Encyclopedic Guide to the United States, Vol I and II, American Heritage Publishing Company, 1965

\*1979 resident population data obtained from Statistical Abstract of the U.S. 1980.

## WYOMING

Population: 450,000\*

Area: 97,914 sq mi

Climate: Generally dry; warm summers, with cool nights; very cold winters, with heavy snowfall, particularly in the mountains, and occasional blizzards. Av. temps.: Cheyenne, July max., 82.6°F; Jan. min., 13.8°F. Av. ann. precipitation: Cheyenne, 16.25 in. (snow and sleet, 58.1 in. mean total)

Topography: Mountains in the west and northwest (Middle Rockies) and in the southeast (Southern Rockies) with basins and rolling plains between ranges; central and southwest (Wyoming Basin), basins, low hills, and buttes; east (Great Plains), broad grasslands, with a few buttes and, in the northeast, the Black Hills. Altitudes: high, 13,785 ft; low, 3,100 ft; approx. mean, 6,700 ft.

Main Rivers: Belle Fourche, Bighorn, Cheyenne, Green, Laramie, Medicine Bow, North Platte, Powder, Shoshone, Snake, Sweetwater, Wind, Yellowstone.

Largest Lakes: Boysen, Buffalo Bill, Flaming Gorge, Glendo, Jackson, Keyhole, Pathfinder, Seminoe, Yellowstone

Principal Mountains: (with highest peaks): Middle Rockies--Teton Range (Grand Teton, 13,766 ft); Salt River Range; Wyoming Range (Wyoming Peak, 11,418 ft); Gros Ventre Mts (Doubletop Peak, 11,715 ft); Wind River Range (Gannett Peak, 13,785 ft; Fremont Peak, 13,730 ft); Absaroka Range (Franks Peak, 13,140 ft); Owl Creek Mts; Bridger Range; Big Horn Mts (Cloud Peak, 13,175 ft); Southern Rockies--Medicine Bow Range (Medicine Bow Peak, 12,013 ft); Laramie Mts; Sierra Madre (Bridger Peak, 11,007 ft)

Major Cities: (1960 census): Cheyenne (43,505); Casper (38,930); Laramie (17,520); Sheridan (11,651)

National Forests: Bighorn, Black Hills, Bridger, Caribou, Medicine Bow, Shoshone, Teton

National Parks: Grand Teton, Yellowstone

National Monuments: Devils Tower; Fort Laramie National Historic Site

Flora and Fauna:

- Birds:
- 1) Prairie Chicken
  - 2) Meadow Lark
  - 3) Pheasant
  - 4) Pinon Jay
  - 5) Golden Eagle
  - 6) Water Ouzel

- Animals:
- 1) Pronghorn
  - 2) Coyote
  - 3) Mountain Lion
  - 4) Lynx
  - 5) Moose
  - 6) Beaver
  - 7) Elk
  - 8) Mule Deer
  - 9) Black Bear
  - 10) Rocky Mountain Sheep

- Flowers:
- 1) Sagebrush
  - 2) Prickly-pear Cactus
  - 3) Indian Paintbrush
  - 4) Globeflower
  - 5) Dwarf Gentian
  - 6) Jacob's Ladder

- Fish:
- 1) Channel Cat
  - 2) Sand Pike
  - 3) Rainbow Trout
  - 4) Cutthroat Trout
  - 5) Montana Grayling
  - 6) Darter

Source: American Heritage New Pictorial Encyclopedic Guide to the United States, Vol I and II, American Heritage Publishing Company, 1965

\*1979 resident population data obtained from Statistical Abstract of the U.S. 1980.

## CALIFORNIA

Population: 22,694,000\*

Area: 158,693 sq. mi

Climate: Wide variation; mild and dry in southwest; moderate temperatures and damp in northwest; very dry and hot summers in desert areas; very cold winters with snow in some mountain areas. Av. temps.: Los Angeles, July max., 83.2°F; Jan. min., 45.4°F; San Francisco, July max., 64.4°F; Jan. min., 44.8°F. Av. ann. precipitation: Los Angeles, 14.68 in.; San Francisco, 20.78 in. (snow and sleet trifling in both cities)

Topography: Extremely varied; high and often rugged mountains running along coast (Coast Ranges), in the east (Sierra Nevada), and in the north (Cascade Range); luxuriant valleys, especially in the central part and along the coast; the Mojave-Colorado Desert, which includes Death Valley, in the southeast. Altitudes: high, 14,495 ft.; low, 282 ft. below sea level; approx. mean, 2,900 ft.

Main Rivers: Colorado, Mojave, Owens, Sacramento, San Joaquin

Largest Lakes: Clear, Eagle, Goose, Honey, Mono, Salton Sea, Tahoe

Principal Mountains (with highest peaks): Cascade Range (Mt. Shasta, 14,162 ft.); Klamath Mts.; Diablo Range; Santa Lucia Range; San Rafael Mts.; San Gabriel Mts. (San Antonio, 10,059 ft.); San Bernardino Mts. (San Geronimo, 11,485 ft.); San Jacinto Mts. (San Jacinto, 10,805 ft.); Tehachapi Mts.; Sierra Nevada Range (Mt. Whitney, 14,495 ft.; Mt. Williamson, 14,375 ft.; White Mtn., 14,246 ft.; North Palisade, 14,242 ft.)

Major Cities (1960 census): Los Angeles (2,479,015); San Francisco (740,316); San Diego (573,224); Oakland (367,548); Long Beach (344,168); San Jose (204,196); Sacramento (191,667)

National Forests: 18, totaling about 20,000,000 acres

National Parks: Kings Canyon, Lassen Volcanic, Sequoia, Yosemite

National Historical Sites: Cabrillo, Channel Islands, Death Valley, Devils Postpile, Joshua Tree, Lava Beds, Muir Woods, Pinnacles.

**Flora and Fauna:**

**Birds:**

- 1) Anna's Hummingbird
- 2) California Quail
- 3) White-crowned Sparrow
- 4) California Thrasher
- 5) Western Bluebird
- 6) Purple Finch
- 7) California Condor

**Animals:** Not available

**Flowers:**

- 1) Trillium
- 2) Godetia
- 3) Monkey Flower
- 4) Penstemon
- 5) California Poppy
- 6) Lupine

**Trees:**

- 1) Redwood
- 2) Giant Sequoia
- 3) Pacific Madrona
- 4) Bristlecone Pine
- 5) Monterey Cypress
- 6) Joshua Tree
- 7) Washington Palm

**Source:** American Heritage New Pictorial Encyclopedic Guide to the United States, Vol I and II, American Heritage Publishing Company, 1965

\* 1979 resident population data obtained from Statistical Abstract of the U.S. 1980

## NEVADA

Population: 702,000\*

Area: 110,540 sq. mi.

Climate: Mostly very dry; hot summers; winters cold in the northeast and west, mild in the south; snow in the mountains, very heavy in the north. Av. temps.: Las Vegas, Jul max., 105.4°F; Jan. min., 33.0°F; Reno, July max., 91.8°F; Jan. min., 16.6°F. Av. ann. precipitation: Las Vegas, 4.35 in. (snow and sleet, 1.2 in. mean total); Reno, 6.96 in. (snow and sleet, 22.8 in. mean total)

Topography: Mainly a plateau area within the arid Great Basin; many broken mountain ranges, most running north-south, with narrow valleys; dry lakes and marshy salt regions in various areas; in the south, the Sonoran Desert; in the northwest, the Black Rock Desert. Altitudes: high, 13,140 ft.; low, 470 ft.; approx. mean, 5,500 ft.

Main Rivers: Carson, Colorado, Humboldt, Meadow Valley Wash, Reese, Truckee, Virgin, Walker

Largest Lakes (in order of size): Mead, Tahoe, Pyramid, Walker, Rye Patch, Lahontan

Principal Mountains (with highest peaks): Carson Range; Wassuk Range (Mt. Grant, 11,298 ft.); White Mts. (Boundary Peak, 13140 ft.); Shoshone Mts.; Toiyabe Range (Arch Dome, 11,775 ft.); Toiyabe Range (Mt. Jefferson, 11,807 ft.); Monitor Range; Spring Mts. (Charleston Peak, 11,910 ft.); White Pine Mts. (Duckwater Peak, 11,493 ft.); Grant Range (Troy Peak, 11,268 ft.); Egan Range; Pequop Mts. (Spruce Mtn., 11,041 ft.); Snake Range (Wheeler Peak, 13,061 ft.; Mt. Moriah, 12,050 ft.)

Major Cities (1960 census): Las Vegas (64,405); Reno (51,470); North Las Vegas (18,422); Sparks (16,618); Henderson (12,525); Elko 6,298); Carson City (5,163)

National Forests: Humboldt, Toiyabe

National Parks: Death Valley, Lehman Caves

National Historical Sites: Lake Mead

Flora and Fauna:

Birds:

- 1) Mountain Blubird
- 2) Violet-green Swallow
- 3) Sage Thrasher
- 4) Canyon Wren
- 5) Sage Hen
- 6) Western Tanager

Animals:

- 1) Kit Fox
- 2) Kangaroo Mouse
- 3) Badger
- 4) Least Chipmunk
- 5) Rock Squirrel
- 6) Short-horned Lizard

Flowers and Plants:

- 1) Cowtongue Cactus
- 2) Strawberry Cactus
- 3) Scarlet Fritillary
- 4) Scarlet Gilia

Trees and Shrubs:

- 1) Sagebrush
- 2) Single-leaf Pinon Pine
- 3) Bristlecone Pine
- 4) Spanish Bayonet
- 5) Rocky Mountain Maple
- 6) Peach Willow

Source: American Heritage New Pictorial Encyclopedic Guide to the United States, Vol I and II, American Heritage Publishing Company, 1965

\* 1979 resident population data obtained from Statistical Abstract of the U.S., 1980

## OREGON

Population: 2,527,000\*

Area: 96,981 sq. mi.

Climate: Cool winters, mild summers; more precipitation and less seasonal temperature variation along the coast than to the east of the Cascades. Av. temps.: Portland, July max., 79.2°F; Jan. min., 35.5°F. Av. ann. precipitation; Portland, 42.37 in. (snow and sleet, 8.9 in. mean total)

Topography: West, the Coast and Cascade mountain ranges running north-south, separated southward from the Columbia River for about 170 miles by the fertile Willamette Valley and joined in the south by the Klamath Mountains; east, mostly tablelands, with mountains in the northeast and desert in the south. Altitudes: high, 11,245 ft.; low, sea level; approx. mean, 3,300 ft.

Main Rivers: Columbia, Deschutes, John Day, Malheur, Owyhee, Rogue, Snake, Umpqua, Willamette

Largest Lakes: Abert, Crater, Goose, Harnes, McNary, Malheur, Owyhee, Summer, Upper Klamath

Principal Mountains (with highest peaks): Coast Ranges; Klamath Mts.; Cascade Range (Mt. Hood, 11,245 ft.; Mt. Jefferson, 10,499 ft.); Blue Mts. (Strawberry Mtn., 9,600 ft.); Wallowa Mts. (Sacajaewea Peak, 10,033 ft)

Major Cities (1960 census): Portland (372,676); Eugene (50,977); Salem (49,142); Medford (24,425); Corvallis (20,669)

National Forests: Deschutes, Fremont, Malheur, Mount Hood, Ochoco, Rogue River, Siskiyou, Siuslaw, Umatilla, Umpqua, Wallowa-Whitman, Willamette, Winema

National Parks: Crater Lake

National Historical Sites: Oregon Caves; Fort Clatsop National Memorial; McLoughlin House National Historic Site.

Flora and Fauna:

Birds:

- 1) Rufous Hummingbird
- 2) Harlequin Duck
- 3) Hooded Merganser
- 4) Northern Three-toed Woodpecker
- 5) Western Meadowlark

Animals:

- 1) Porcupine
- 2) Red Fox
- 3) Yellow-bellied Marmot
- 4) Golden-mantled Ground Squirrel
- 5) Big-eared Bat

Flowers:

- 1) Oregon Indian Pink
- 2) Oregon Grape
- 3) Sand Strawberry
- 4) Clarkia

Trees:

- 1) Douglas Fir
- 2) Sugar Pine
- 3) California Laurel
- 4) Broad Leafed Maple

Source: American Heritage New Pictorial Encyclopedic Guide to the United States, Vol I and II, American Heritage Publishing Company, 1965

\* 1979 resident population data obtained from Statistical Abstract of the U.S. 1980

## UTAH

Population: 1,367,000\*

Area: 84,916 sq. mi.

Climate: Dry; hot summers, milder in mountainous areas; cold winters; moderately ehavy snowfall in mountains. Av. temps.: Salt Lake City, July max., 92.3°F; Jan. min., 17.0°F. Av. ann. precipitation: Salt Lake City, 14.74 in. (snow and sleet, 51.6 in.)

Topography: Generally mountainous with the highest ranges in the northeast (Uinta Mountains) and north central section (Wasatch Mountains); west (Great Basin), dry basins with salt and mud flats, desert, canyons, and the Great Salt Lake; south-east (Colorado Plateau), broad plateaus, deep canyons, cliffs, gorges, mesas, and buttes. Altitudes: high, 13,498 ft.; low, 2,000 ft.; approx. mean, 6,100 ft.

Main Rivers: Bear, Colorado, Green, Price, San Juan, San Rafael, Sevier, Virgin, Weber

Largest Lakes (in order of size): Great Salt Lake, Powell, Flaming Gorge, Utah, Bear, Sevier Bridge, Strawberry

Principal Mountains (with highest peaks): La Sal Mts. (Mt. Peale, 13,089 ft.); Uinta Mts. (Kings Peak, 13,498 ft.; Emmons Peak, 13,428 ft.); Henry Mts.; South Tent Mtn., 12,300 ft.; Fish Lake Mts.; Wasatch Range (Mt. Timpanogos, 11,957 ft.); Tushar Mts. (Delano Peak, 12,240 ft.); Stansbury Mts.; Mineral Mts.; Deep Creek Mts. (Haystack Peak, 12,093 ft.)

Major Cities (1960 census): Salt Lake City (189,454); Ogden (70,197); Provo (36,047); Logan (18,731); Orem (18,394)

National Forests: Ashley, Cache, Caribou, Dixie, Fishlake, Manti-La Sal, Uinta, Wasatch

National Parks: Bryce Canyon, Canyonlands, Zion; Glen Canyon National Recreation Area

National Monuments: Arches, Capitol Reef, Cedar Breaks, Dinosaur, Hovenweep, Natural Bridges, Rainbow Bridge, Timpanogos Cave; Golden Spike National Historic Site

**Flora and Fauna:**

**Birds:**

- 1) Lewis's Woodpecker
- 2) Poorwill
- 3) California Gull
- 4) Broad-tailed Hummingbird
- 5) Lazuli Bunting
- 6) Veery

**Trees:**

- 1) Gambel Oak
- 2) Blue Spruce
- 3) Juniper
- 4) White Alder

**Flowers:**

- 1) Sego Lily
- 2) Fringed Pink
- 3) Easter Bell
- 4) Stickleaf

**Animals:**

- 1) Mule Deer
- 2) Western Rattlesnake
- 3) Pronghorn Antelope
- 4) Black-tailed Jack Rabbit
- 5) Antelope Ground Squirrel
- 6) Western Jumping Mouse
- 7) Bighorn Sheep

**Source:** American Heritage New Pictorial Encyclopedic Guide to the United States, Vol I and II, American Heritage Publishing Company, 1965

\* 1979 resident population data obtained from Statistical Abstract of the U.S. 1980

## WASHINGTON

Population: 3,926,000\*

Area: 68,192 sq. mi

Climate: West, temperate and humid, with cool summers and mild winters; east, dry, hot summers and cold winters; heavy snow in mountains. Av. temps.: Seattle, July max., 75.1°F; Jan. min., 36.8°F; Spokane, July max., 85.6°F. Av. ann. precipitation: Seattle, 34.10 in. (snow and sleet, 8.4 in. mean total); Spokane, 17.19 in. (snow and sleet, 58.0 in mean total)

Topography: West, Coast and Cascade mountain ranges, separated by the fertile lowlands of the Puget Trough, into which Puget Sound extends southward for about 100 miles; northeast, mountains (Northern Rockies); east, the Columbia Plateau, dry plains with low ridges, hills, and dried-up river channels; extreme southeast, mountains. Altitudes: high, 14,410 ft.: low, sea level: approx. mean, 1,700 ft.

Main Rivers: Chehalis, Columbia, Cowlitz, Lewis, Okanogan, Pend Oreille, Skagit, Snake, Spokane, Yakima

Largest Lakes: Banks, Chelan, Entiat, Franklin D. Roosevelt, Ozette, Potholes, Ross, Swift, Wahsington

Principal Mountains (with highest peaks): Olympic Mts. (Mt. Olympus, 7,954 ft.); Cascade Range (Mt. Rainier, 14,410 ft.: Mt. Adams, 12,307 ft.); Northern Rocky Mts.; Blue Mts.

Major Cities (1960 census): Seattle (557,087); Spokane (181,608); Tacoma (147,979); Olympia (18,273)

National Forests: Colville, Gifford Pinchot, Mount Baker, Okanogan, Olympic, Snoqualmie, Wenatchee

National Parks: Mount Rainier, Olympic; Coulee Dam National Recreation Area

National Historical Sites: Fort Vancouver, Whitman Mission

Flora and Fauna:

Birds:

- 1) Common Merganser
- 2) Western Grebe
- 3) Green-winged Teal
- 4) Cinnamon Teal
- 5) Bufflehead
- 6) Dipper
- 7) Willow Goldfinch

**Animals:**

- 1) Black Bear
- 2) Fisher
- 3) Snowshoe Rabbit
- 4) Mountain Lion
- 5) Gapper's Red-backed Mouse
- 6) Mountain Beaver

**Flowers:**

- 1) Leopard Lily
- 2) Phacelia
- 3) Grass-of-Parnassus
- 4) Rhododendron

**Trees:**

- 1) Serviceberry
- 2) Red Fir
- 3) Pacific Modrona
- 4) Larch
- 5) Western Hemlock
- 6) White Fir

**Source:** American Heritage New Pictorial Encyclopedic Guide to the United States, Vol I and II, American Heritage Publishing Company, 1965

\* 1979 resident population data obtained from Statistical Abstract of the U.S. 1980

STRC Federal Air Quality Control Regions

Colorado: Yampa Intrastate  
Metropolitan Denver  
Pawnee

Idaho: Eastern Idaho Intrastate

Montana: Billings Intrastate  
Miles City Intrastate  
Great Falls Intrastate  
Helena Intrastate

Nebraska: Nebraska Intrastate

North Dakota: North Dakota Intrastate

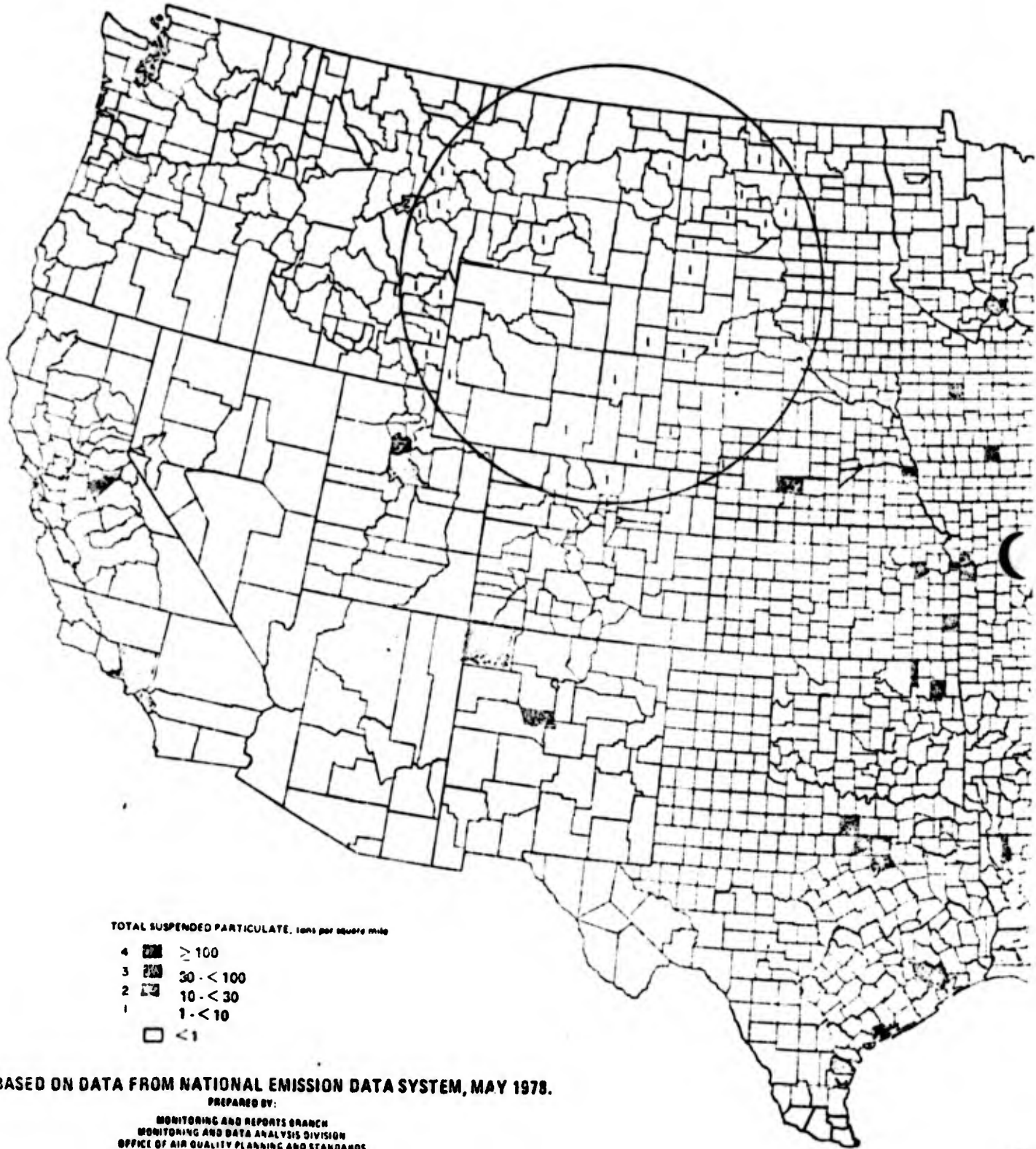
South Dakota: Black Hills - Rapid City Intrastate  
South Dakota Intrastate

Wyoming: Wyoming Intrastate  
Casper Intrastate  
Metropolitan Cheyenne Intrastate

SOURCE: Federal Air Quality Control Regions, EPA, 1972

TOTAL SUSPENDED PARTICULATE EMISSION DENSITY

(by county)



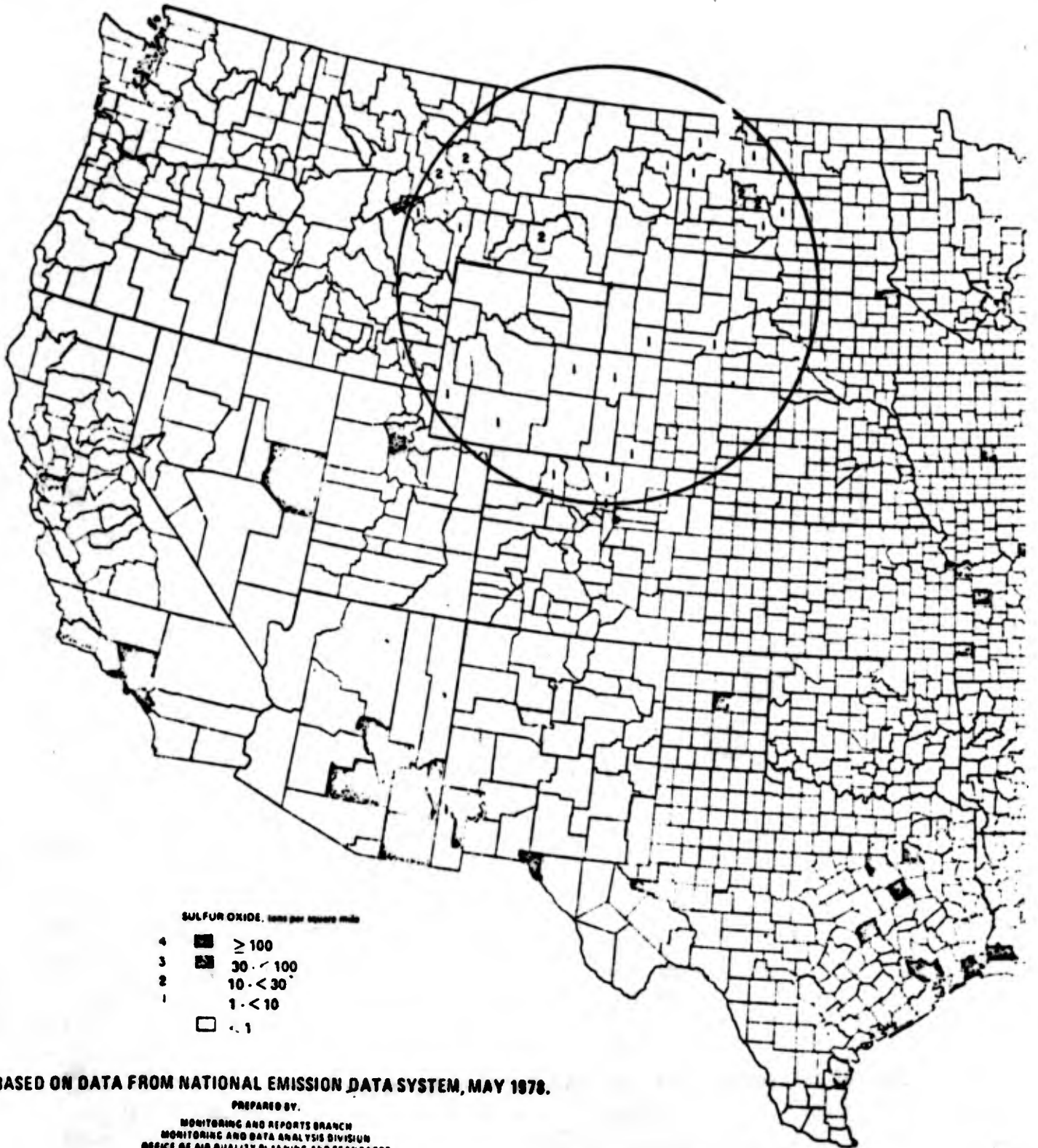
BASED ON DATA FROM NATIONAL EMISSION DATA SYSTEM, MAY 1978.

PREPARED BY:

MONITORING AND REPORTS BRANCH  
MONITORING AND DATA ANALYSIS DIVISION  
OFFICE OF AIR QUALITY PLANNING AND STANDARDS  
U.S. ENVIRONMENTAL PROTECTION AGENCY  
RESEARCH TRIANGLE PARK, NC 27711

SULFUR OXIDE EMISSION DENSITY

(by county)



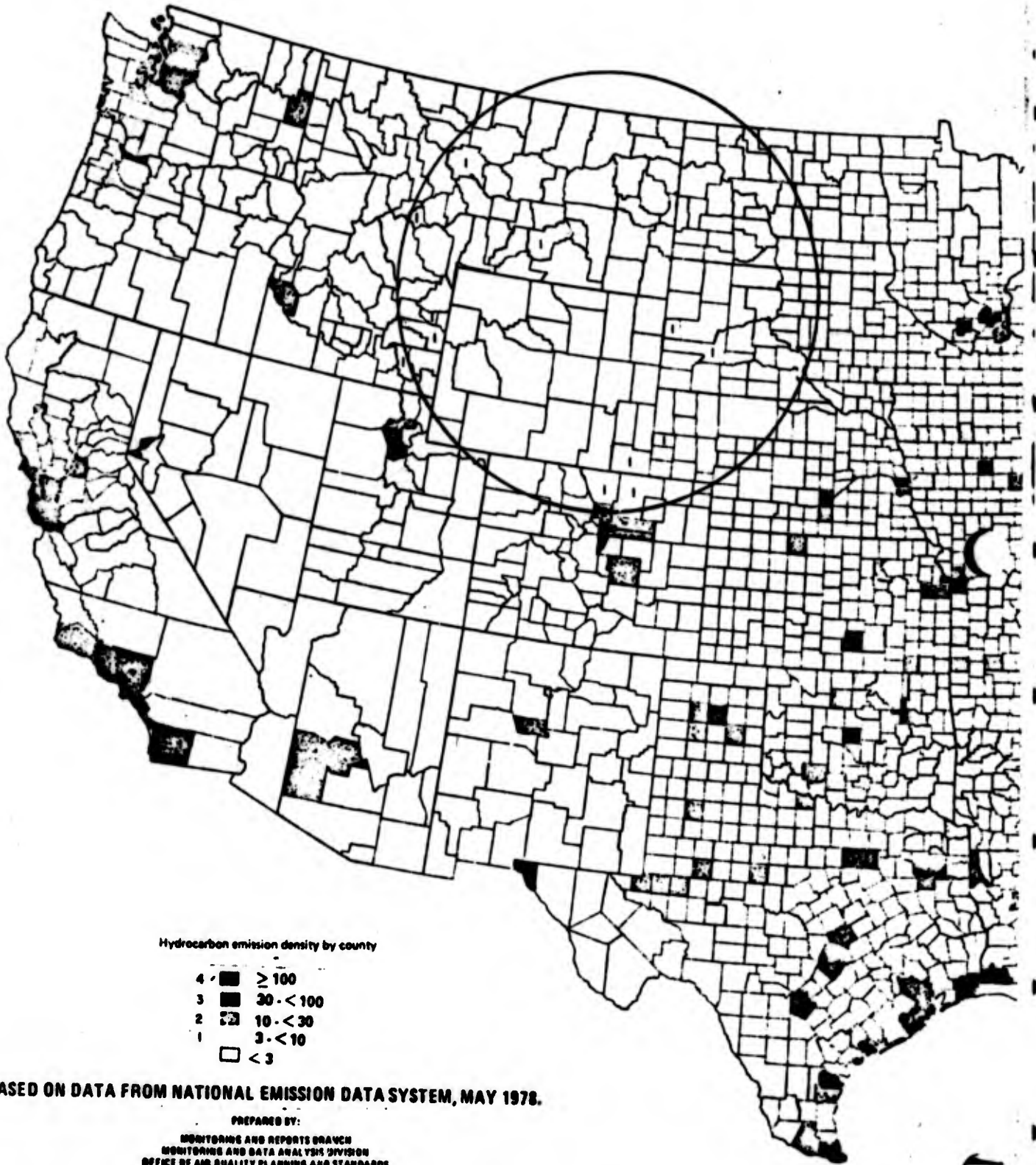
BASED ON DATA FROM NATIONAL EMISSION DATA SYSTEM, MAY 1978.

PREPARED BY:  
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U.S. ENVIRONMENTAL PROTECTION AGENCY  
RESEARCH TRIANGLE PARK, N.C. 27711

APPENDIX 16

# HYDROCARBON EMISSION DENSITY

(by county)



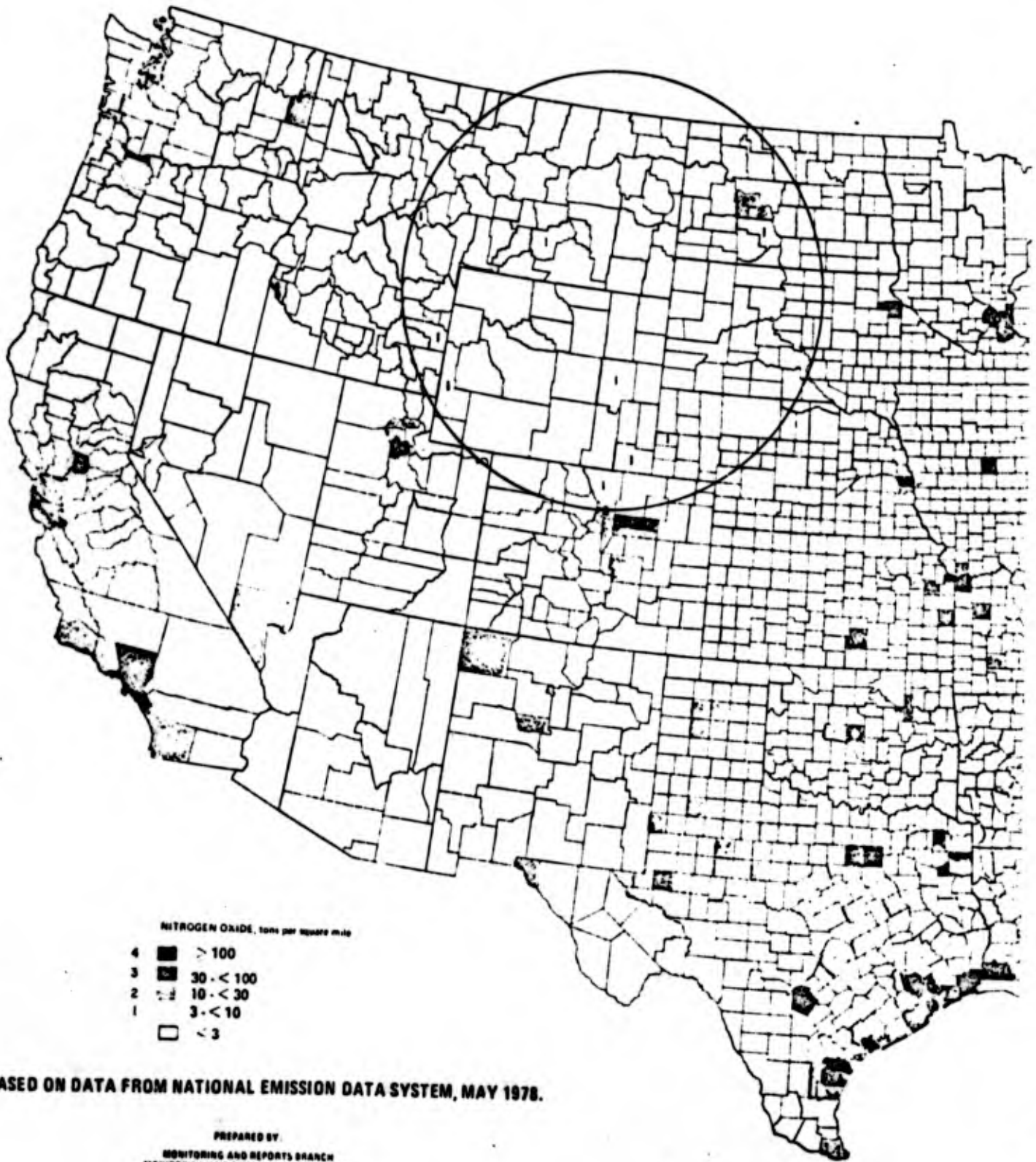
BASED ON DATA FROM NATIONAL EMISSION DATA SYSTEM, MAY 1978.

PREPARED BY:  
MONITORING AND REPORTS BRANCH  
MONITORING AND DATA ANALYSIS DIVISION  
OFFICE OF AIR QUALITY PLANNING AND STANDARDS  
U.S. ENVIRONMENTAL PROTECTION AGENCY  
RESEARCH TRIANGLE PARK, N.C. 27711

APPENDIX 17

# NITROGEN OXIDE EMISSION DENSITY

(by county)



NITROGEN OXIDE, tons per square mile

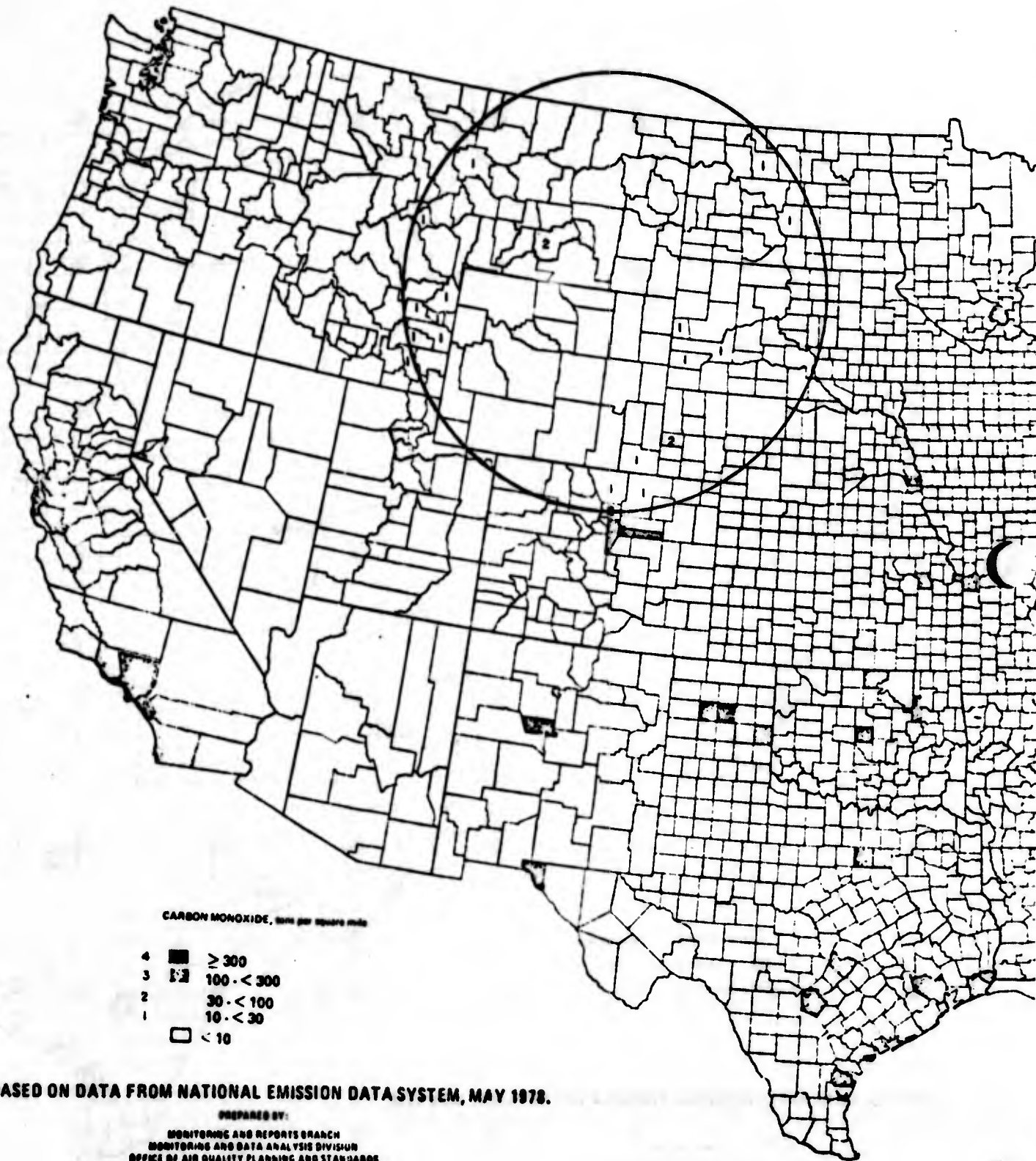
- 4 ■ > 100
- 3 ■ 30 - < 100
- 2 ■ 10 - < 30
- 1 ■ 3 - < 10
- 0 □ < 3

BASED ON DATA FROM NATIONAL EMISSION DATA SYSTEM, MAY 1978.

PREPARED BY:  
MONITORING AND REPORTS BRANCH  
MONITORING AND DATA ANALYSIS DIVISION  
OFFICE OF AIR QUALITY PLANNING AND STANDARDS  
U.S. ENVIRONMENTAL PROTECTION AGENCY  
RESEARCH TRIANGLE PARK, N.C. 27711

# CARBON MONOXIDE EMISSION DENSITY

(by county)



BASED ON DATA FROM NATIONAL EMISSION DATA SYSTEM, MAY 1978.

PREPARED BY:  
MONITORING AND REPORTS BRANCH  
MONITORING AND DATA ANALYSIS DIVISION  
OFFICE OF AIR QUALITY PLANNING AND STANDARDS  
U.S. ENVIRONMENTAL PROTECTION AGENCY  
RESEARCH TRIANGLE PARK, N.C. 27711

APPENDIX 19

1900

WILDLIFE AND VEGETATION OF THE  
STRC REGION OF INFLUENCE

Wildlife of the Plains States

Mammals:

- Big brown bat - *Eptesicus fuscus*  
Raccoon - *Procyon lotor*  
Long-tailed weasel - *Mustela frenata longicauda*  
River otter - *lutra canadensis*  
Badger - *Taxidea taxus*  
Coyote - *Canis latrans*  
Gray wolf - *Canis lupus*  
Lynx - *Lynx canadensis*  
Black-tailed prairie dog - *Cynomys ludovicianus*  
Plains pocket gopher - *Geomys bursarius*  
Beaver - *Castor canadensis*  
Western harvest mouse - *Reithrodontomys megalotis*  
Muskrat - *Ondatra zibethicus*  
Porcupine - *Erethizon dorsatum*  
Black-tailed jack rabbit - *Lepus californicus*  
Wapiti - *Cervus canadensis*

Birds:

- Western turkey vulture - *Cathartes aura teter*  
Greater prairie chicken - *Tympanuchus cupido americanus*  
Eastern bobwhite - *Colinus virginianus*  
Ring-necked pheasant - *Phasianus colchicus torquatus*  
Western burrowing owl - *Speotyto cunicularia hypugoea*  
Western meadowlark - *Sutrnella neglecta*  
Yellow-headed blackbird - *Xanthocephalus xanthocephalus*  
Indigo bunting - *Passerina cyanea*

Flowers and trees:

- Soapweed - *Yucca glauca*  
Yellow lady's-slipper - *Cypripedium pubescens*  
Pasqueflower - *anemone patens*  
Wild sunflower - *Helianthus petiolaris*  
Blazing star - *Liatris pycnostachya*  
Eastern red cedar - *Juniperus virginiana*  
Eastern cottonwood - *Populus deltoides*  
Peach-leaved willow - *Salix amygdaloides*  
Black walnut - *Juglans nigra*  
Shagbark hickory - *Carya ovata*  
Ironwood - *Ostrya virginiana*  
Burr oak - *Quercus macrocarpa*  
Hackberry - *Celtis occidentalis*  
Prairie thorn - *Crataegus pertomentosa*  
Silver maple - *Acer saccharinum*  
Box elder - *Acer negundo*

SOURCE: The Plains States, Evan Jones, Time-Life Books,  
New York

## Wildlife of the Mountain States

### Mammals:

- Desert shrew - *Notiosorex crawfordi*
- Yellow-bellied mamot - *Marmota flaviventris*
- White-tailed prairie dog - *Cynomys gunnisoni*
- Kaibab squirrel - *Sciurus aberti*
- Western jumping mouse - *Zapus princeps*
- Red fox - *Vulpes fulva*
- Gray wolf - *Canus lupis*
- Grizzly bear - *Ursus horribilis*
- Ringtail - *Bassariscus astutus*
- Coati - *Nasua narica*
- Black-footed ferret - *Mustela negripes*
- Mountain lion - *Felis concolor*
- Moose - *Alces alces*
- Pronghorn - *Antilocarpa americana*
- Bison - *Bison bison*
- Bighorn sheep - *Ovis canadensis*

### Birds:

- Trumpeter swan - *Cygnus buccinator*
- Canada goose - *Branta canadensis*
- Baldpate - *Mareca americana*
- Swainson's hawk - *Buteo swainsoni*
- Bald eagle - *Haliaeetus leucocephalus*
- Gambel's quail - *Lophortyx gambeli*
- California gull - *Larus californicus*
- Catus wren - *Heleodytes*

Flowers and trees:

- Spanish bayonet yucca - *Yucca aloifolia*
- Blue camas - *Camassia quamash*
- Sego lily - *Calochortus nuttallii*
- Blue columbine - *Aquilegia coerulea*
- Prickly poppy - *Argemone mexicana*
- Prickly pear - *Opuntia phaeacantha*
- Red heather - *Phyllodoce empetrifomis*
- Shootingstar - *Dodecatheon pauciflorum*
- Jacob's ladder - *Polemonium pulcherrimum*
- Indian paintbrush - *Castilleja minata*
- Rocky Mountain juniper - *Juniperus scopulorum*
- Tamarack - *Larix lyallii*
- Blue spruce - *Picea pungens*
- Pinon pine - *Pinus edulis*
- Ponderosa pine - *Pinus ponderosa*
- Quaking aspen - *Populus tremuloides*

SOURCE: The Mountain States, Marshall Sprague, Time-Life Books,  
New York

NATIONAL PARKS, FORESTS AND MONUMENTS  
WITHIN THE STRC REGION OF INFLUENCE

Colorado

Rocky Mountain National Park

Dinosaur National Monument

Idaho

Caribou National Forest

Targhee National Forest

Montana

Yellowstone National Park

Bighorn Canyon National Recreation Area

Beaverhead National Forest

Bitterroot National Forest/Wilderness

Custer National Forest

Deerlodge National Forest

Gallatin National Forest

Helena National Forest

Lewis and Clark National Forest

Gates of the Mountains Wilderness

Big Hole Battlefield National Monument

Bannack Mounment

Custer National Monument

Nebraska

Nebraska National Forest

Agate Fossil Beds National Monument

Chimney Rock National Historical Site

Scottsbluff National Monument

North Dakota

Theodore Roosevelt National Park

Ft. Mandan Historic Site

Ft. Union National Historic Site

South Dakota

Wind Cave National Park

Black Hills National Forest

Custer National Forest

Badlands National Monument

Jewel Cave National Monument

Mount Rushmore National Memorial

Wyoming

Grand Teton National Park

Yellowstone National Park

Black Hills National Forest

Big Horn National Forest

Bridger National Forest

Medicine Bow National Forest

Shoshone National Forest

Teton National Forest

Fossil Butte National Monument

Ft. Laramie National Historical Site

ECONOMICS IMPACT FORECAST FOR STR SITE  
(Gain or loss is not shown)

Table 1

County population: 16,541 and 17,752  
County area: 414 and 6,959 sq. mi.  
Employment multiplier: 1.8321 and 2.1973  
Income multiplier: 1.8483 and 2.1828  
Change in expenditures for local services and supplies: \$43,370  
Change in civilian employment: 1  
Average income of affected civilians: 18,696  
Change in military employment: 71  
Average income of affected military personnel: \$12,210  
military personnel living off-base: 100%

Table 2

Direct volume: \$509,000  
Export employment multiplier: 2.0147  
Change in total business volume: \$1,025,000 (2.0%)  
Induced business volume: \$516,000  
Change in local personal income: \$974,000 (2.3%)  
\*Change in expenditures of housing: \$170,000  
Change in non-housing expenditures: \$614,000  
Change in local employment: 103 (1.3%)  
Assessed to market value ratio: 29.05  
\*Change in local property values: \$171,008 (1.1%)  
\*Change in housing investment: \$82,000  
Change in non-housing investment: \$74,000  
\*Change in tax revenues: \$292,000  
Change in number of school children: 77 (1.5%)  
Change in state and federal aid to schools: \$43,000  
Change in cost to schools: \$59,000  
Change in other local government costs: \$43,000  
Net change in costs to local government: \$101,000

\*Comparison cannot be used for sites with military family housing provided.

# ECONOMIC IMPACT FORECAST FOR THE STC

## Table 1

County population: 61,102, 44,736, and 389,455  
Area: 1,438, 639, and 335 sq. mi.  
Employment multiplier: 2.1183, 1.6654, and 2.8205  
Income multiplier: 2.0911, 1.5828, and 2.6308  
Change in expenditures for local services and supplies: \$645,000  
Change in civilian employment: 39  
Average income of affected civilians: \$18,696  
Change in military employment: 969  
Average income of affected military personnel: \$12,664  
Percent military personnel living on-base: 50%

## Table 2

Direct volume: \$6,589,000  
Export employment multiplier: 2.2014  
Change in total business volume: \$14,506,000 (4.2%)  
Induced business volume: \$7,917,000  
Change in local personal income: \$12,865,000 (4.4%)  
Change in expenditures for housing: \$2,316,000  
Change in non-housing expenditures: \$8,105,000  
Change in local employment: 1,443 (3.8%)  
Assessed to market value ratio: 21.70  
Change in local property values: \$14,252,000 (4.2%)  
Change in housing investment: \$1,076,000  
Change in non-housing investment: 973,000  
Change in tax revenues: \$2,690,000  
Change in number of school children: 548 (2.6%)  
Change in state and federal aid to schools: \$222,000  
Change in cost to schools: \$355,000  
Change in other local government costs: \$868,000  
Net change in cost to local government: \$1,223,000

## LOW-LEVEL ROUTE DATA

Low-level training routes are designed to fly over varied terrain in sparsely populated areas. The length of the route is generally 300 to 600 nautical miles. Typically, three to five B-52 and FB-111 aircraft per day are flown each route, five to seven days per week, at altitudes between 400 feet to 1,000 feet above ground level (AGL). The following criteria are used in the development of low-level training routes:

(1) Routes are planned using history, aerial photographs, maps, and charts. An aerial survey is conducted in a conventional aircraft to determine environmentally sensitive areas.

(2) Airports are avoided by at least four nautical miles unless approved otherwise by the airport operator/manager and the FAA region.

(3) Nuclear power plants are avoided by at least five nautical miles.

(4) Flight over congested areas such as cities, towns, settlements, or an open air assembly of persons will not be within 1,000 feet above the highest obstacle or within a horizontal radius of 2,000 feet from the aircraft.

(5) Flight is prohibited closer than a half nautical mile lateral separation or 500 feet vertical separation between aircraft flight path and occupied structures in sparsely populated areas.

(6) A minimum altitude of 2,000 feet AGL is maintained above the terrain of a wildlife refuge area.

**SECTION VI. COMMENTS AND RESPONSES**

Comments on the description of the proposed action were requested from the following agencies:

Heritage Conservation and Recreation Service Director, Game and Parks Commission 2200 N. 33rd P.O. Box 30370 Lincoln, NE 68503	Department of Fish, Wildlife, and Parks Administrator, Wildlife 1420 E. 6th Helena, MT 59601
Heritage Conservation and Recreation Service Director of the State Park Service Parks and Recreation Department Box 139, RR 2 Mandan, ND 58554	Montana Cooperative Wildlife Research Unit University of Montana Missoula, MT 59812
Heritage Conservation and Recreation Service Director, Division of Parks and Outdoor Recreation Department of Natural Resources 1313 Sherman Street, Room 604 Denver, CO 80203	Wildlife Research Laboratories Denver Wildlife Research Center Director, Bldg 16, Denver Federal Center Denver, CO 80225
Heritage Conservation and Recreation Service Director, Department of Parks and Recreation Statehouse Boise, ID 83720	Colorado Cooperative Wildlife Research Unit 1003 Coops Unit Bldg Colorado State University Ft. Collins, CO 80523
Heritage Conservation Recreation Service Secretary, Department of Game, Fish and Parks State Office Bldg #1 Pierre, SD 57501	Game and Fish Department Chief, Research and Development Cheyenne, WY 82002
Heritage Conservation and Recreation Service Administrator, Recreation and Parks Div. Department of Fish and Game Mitchell Bldg Helena, MT 59601	Parks and Recreation Department Assistant Director, Parks Div. RD 2, Box 139 Mandan, ND 58554
Heritage Conservation and Recreation Service Director, Wyoming Recreation Commission 604 E. 25th Street Cheyenne, WY 82002	Browns Park National Wildlife Refuge Graystone Route Maybell, CO 81640
Game, Fish and Parks Department Wildlife Director Sigurd Anderson Bldg Pierre, SD 57501	Arapahoe National Wildlife Refuge P.O. Box 457 Walden, CO 80484

National Elks Refuge  
Box C  
Jackson, WY 83001

Seedskaadee National Wildlife Refuge  
P.O. Box 67  
Green River, WY 82935

Audubon National Wildlife Refuge  
Coal Harbor, ND 58531

Deslacs National Wildlife Refuge  
Box 578  
Kenmare, ND 58746

LaCreek National Wildlife Refuge  
South Route  
Martin, SD 57551

Upper Souris National Wildlife Refuge  
RRI  
Foxholm, ND 58738

Crescent Lake National Wildlife Refuge  
Star Route  
Ellsworth, NE 69340

Camas National Wildlife Refuge  
Hamer, ID 83425

Grays Lake National Wildlife Refuge  
Box 837  
Soda Springs, ID 83276

Charles M. Russell Refuge  
P.O. Box 110  
Lewistown, MT 59457

Red Rock Lakes National Wildlife Refuge  
Monida Star Routes, Box 15  
Lyman, MT 59739

Medicine Lake National Wildlife Refuge  
Medicine Lake, MT 59247

Benton Lake National Wildlife Refuge  
P.O. BOX 450  
Black Eagle, MT 59414

Bowdoin National Wildlife Refuge  
P.O. Box J  
Bowdoin, MT 59538

State Historic Preservation Officer  
Colorado Heritage Center  
1300 Broadway  
Denver, CO 80230

Director, Wyoming Recreation Commission  
604 E. 25th Street, Box 309  
Cheyenne, WY 82001

Department of Fish, Wildlife and Parks  
Administrator, Parks  
1420 E. 6th  
Helena, MT 59601

Game, Fish and Parks Department  
Parks and Recreation Director  
Sigurd Anderson Bldg  
Pierre, SD 57501

State Historical Preservation Officer  
Historical Preservation Center  
University of South Dakota, Alumni House  
Vermillion, SD 57069

Superintendent, State Historical Society  
Liberty Memorial Bldg  
Bismarck, ND 58501

Director, Nebraska State Historical  
Society  
1500 "R" Street  
Lincoln, NE 68508

Director, Montana Historical Society  
225 N. Roberts St.  
Veterans Memorial Bldg  
Helena, MT 59601

Historic Preservation Coordinator  
Idaho Historic Society  
610 No. Julia Davis Dr.  
Boise, ID 83606

Department of the Interior  
National Park Service  
601 4 & Pike Bldg  
Seattle, Wash 98101

Ms. H. Agnes Zipperian, Clearinghouse Mgr.  
State Office of Budget and Program Planning  
Capitol Bldg.  
Helena, Montana

Mr. Dick Hartman, Coordinator  
State Planning Coordinator's Office  
Office of the Governor  
State Capitol Bldg.  
Cheyenne, WY 82002

Mr. Steve Ellis  
Division of Planning  
Dept. of Local Affairs  
State of Colorado  
1313 Sherman St.  
Denver, CO 80203

Ms. Fran Beckman, A-95 Coordinator  
Mountain Plains Federal Regional Council  
1961 Stout Street  
Denver, CO 80202

Mrs. Leonard E. Banks  
State and Local Planning  
Federal Aid Coordinator  
First Floor State Capitol  
Bismarck, ND 58505

Mr. Dan R. Bucks, Commissioner  
State Planning Bureau  
State Capitol Bldg.  
Pierre, SD 57501

Mr. Don Nelson, Director  
State Office of Planning and Programming  
P.O. Box 94601  
Lincoln, NE 68509

Mr. George Lineberry, A-95 Coordinator  
Mid-Continent Federal Regional Council  
911 Walnut, Room 1600  
Kansas City, Missouri 64106

EXHIBIT 10  
MAY 19 1968  
EXECUTIVE MANAGEMENT

The following section includes copies of letters we received commenting on the proposed action and our responses to these comments. Comment letters are numbered consecutively 1-58. Responses follow and correspond to the comment letter number.



March 30, 1981

Major Combs  
1st CEVG/RBDR  
Barksdale AFB, LA 71110

RE: EIS - 090181  
Environmental Impact Analysis Process on a Proposed Strategic Training  
Range Complex (STRC)

Dear Major Combs:

The State Clearinghouse has distributed for review the above stated environmental impact analysis. No comments were received in regard to this document, but thank you for the opportunity to review and comment.

Sincerely,

  
James R. Richardson  
Commissioner  
STATE PLANNING BUREAU

JRR:kah

cc: AFESC (Maj LaFoy)  
SAC/DEV (Mrs. Hei) ✓

①



WYOMING  
EXECUTIVE DEPARTMENT  
CHEYENNE

ED HERSCHLER  
GOVERNOR

April 7, 1981

Major Combs  
1st CEVG/RBDR  
Barksdale AFB, LA 71110

Dear Major Combs:

The scoping letter and flight chart route on the proposed Strategic Training Range Complex (STRC) utilizing air space in Wyoming has been circulated for review by our state agencies. Copies of their comments are enclosed for your consideration and use. While our Department of Environmental Quality and Game and Fish Commission offered no comments at this stage, they do wish the opportunity to review the more detailed environmental assessments of the specific flight routes.

Comments provided by our Recreation Commission, Aeronautics Commission, and Air National Guard, did raise several substantial concerns which warrant full recognition and reconciliation during the completion of your environmental impact analysis process. One of the major concerns of the commentors was that information provided to date was not specific enough to adequately assess potential multiple resource impacts. I trust that the necessary route specific information will be developed and provided for our review within the required detailed environmental assessment and/or environmental impact statement.

Thank you for the opportunity to review this preliminary information. Please keep me informed of any further progress in this effort.

Yours sincerely,

EH/pct

cc: Major Joe C. LaFoy, Jr.  
Mrs Hei

Attachments

2

MAR 12 1981

March 11, 1981

MEMO TO: State Planning Coordinator's Office

FROM: Carl E. Johnson, State Forester 

RE: Proposed Strategic Training Range Complex (STRC) 81-112

This office has no problems with the routing as displayed on the map.

CEJ:pm

3

WYOMING AIR NATIONAL GUARD  
HEADQUARTERS 153d TACTICAL AIRLIFT GROUP  
BOX 2268 MUNICIPAL AIRPORT, CHEYENNE, WYOMING 82002



REPLY TO  
ATTN OF: 153 TAG/CC

10 March 1981

SUBJECT Proposed Strategic Training Range Complex (STRC)

TO TAG WY

1. LTC Ray Williams and I have reviewed the subject route and find no conflict with the Wyoming Army National Guard or Wyoming Air National Guard training areas at the present time.

  
JOSEPH C. DALY, COL, WY-ANG  
Commander, 153d TAG

AG WY (ARNG) (10 Mar 81) 1st Ind

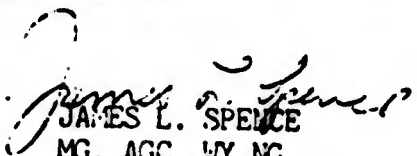
Col Konopisos/la

THE ADJUTANT GENERAL, STATE OF WYOMING, P.O. Box 1709, Cheyenne, WY 82001  
11 Mar 81

TO: Richard Hartman, State Planning Coordinator, Office of the Governor,  
State Capitol Bldg, Cheyenne, WY 82002

1. Concur
2. I am enclosing also a letter from Col. Joseph Daly, the Air Commander, and whole heartedly agree with his personal comments.

3-Atchs

  
JAMES L. SPENCE  
MG, AGC, WY NG  
The Adjutant General

4

JOE DALY

10 March 1981

Gen Spence

As a citizen of the Great State of Wyoming, I personally object to the Proposed Strategic Training Range Complex (STRC). The official correspondence to the Governor's State Planning Coordinator does not give the specifics of the proposed operation and I feel all residents should be informed and offered the opportunity to voice their opinion.

The proposal does not identify the average number of daily flights over the route. I understand that the routes will be flown no lower than 300 feet above the ground. The B-52 aircraft will fly the route at 325 knots Indicated Airspeed (375 MPH) and the FB-111 aircraft will fly the route at 460 knots Indicated Airspeed (530 MPH).

I do not feel the proposed route will enhance the State of Wyoming. Perhaps this type of operation should be confined to those states which have SAC Flying Bases.

*Joe*  
JOE DALY

5163 CAMORE ROAD

CHEYENNE, WYOMING 82001

5

THE STATE OF WYOMING



ED HERSCHLER  
GOVERNOR

## Wyoming Recreation Commission

604 EAST 25TH STREET

CHEYENNE, WYOMING 82002

**COMMISSION  
OFFICERS**

**E. LAWSON SCHWOPE  
PRESIDENT**

900 Fayer Avenue  
Cheyenne 82001

**CHARLES H. JOHNSON  
VICE PRESIDENT**

1121 Alder  
Rawlins 82301

**RICK KILMER  
TREASURER**

P.O. Box 51  
Lusk 82226

**MEMBERS**

**MRS. ROBERT FRISBY**

3269 Forest Drive  
Cheyenne 82001

**FLOYD BARTLING**

P.O. Box 172  
Douglas 82633

**WILLIAM MOFFAT**

107 W. Jackson Avenue  
Riverton 82501

**JACK D. OSMOND**

P.O. Box 216  
Thayne 83127

**ALBERT PILCH**

1800 Morse Lee  
Evanston 82930

**DAN MADIA**

1017 Victoria  
Sheridan 82801

Major Combs  
1st CEVG/RBDR  
Barksdale AFB, LA 71110

**JAN L. WILSON**

Director  
777-7695

March 12, 1981

Dear Major Combs:

The SAC Training Range Complex (STRC) proposal was received in this office on March 3, 1981. Thank you for giving us the opportunity to review the proposal.

Enclosed are memoranda from our staff historian, archeologist and recreation planner who reviewed the proposal. They indicate that provision must be made for cultural resources. Therefore, the Wyoming State Historic Preservation Officer (SHPO) recommends cultural clearance for the purposes of applicable state and federal laws only if the recreation planner's recommendations are followed. In the event that his recommendation is not followed, clearance will be void.

If you have any questions concerning this recommendation please contact the appropriate member of our staff. Thank you.

Sincerely,

Mark G. Junge, Chief  
Resources Division and  
Deputy SHPO

FOR:

Jan L. Wilson, Director  
and State Historic Preservation Officer

MGJ:glb  
Enclosures



WYOMING RECREATION COMMISSION  
STATE HISTORIC PRESERVATION OFFICE

REVIEW AND COMPLIANCE

*Interdisciplinary Staff Comments*

*Archeology • History • Historical Architecture • Recreation Planning*

TO: Mark G. Junge, Chief  
FROM: Michael A. Massie, Review and Compliance Officer ~~MAM~~  
DATE: March 12, 1981  
RE: State Planning Coordinator, USAF Proposed Strategic Training Range Complex

This project will not affect any known historic sites, either enrolled in or eligible for the National Register. Therefore, I recommend historical clearance.

However, if a plane should crash, if any historical sites are discovered, the SHPO should be notified immediately.

MAM:glb

7



WYOMING RECREATION COMMISSION  
STATE HISTORIC PRESERVATION OFFICE  
REVIEW AND COMPLIANCE

STP

*Interdisciplinary Staff Comments*

Archeology • History • Historical Architecture • Recreation Planning

TO: Mark G. Junge, Chief  
FROM: Richard L. Bryant, Archeological Compliance Officer *RB*  
DATE: March 12, 1981  
RE: U.S. Air Force Proposed Strategic Training Range Complex

I have reviewed the proposed flight chart route. The training flights will have no known effect on archeological sites.

RLB:glb





WYOMING RECREATION COMMISSION  
STATE HISTORIC PRESERVATION OFFICE

REVIEW AND COMPLIANCE

*Interdisciplinary Staff Comments*

*Archeology • History • Historical Architecture • Recreation Planning*

TO: Mark G. Junge, Chief  
FROM: Gary A. Thorson, Recreation Planner *GT*  
DATE: March 12, 1981  
RE: Strategic Training Range Complex

Additional information will be needed to make an adequate review of the potential environmental impacts on recreation. The altitude of the aircraft and the daily use frequency are important factors that must be specified.

The proposed air space that will be utilized over Wyoming lands may pose serious problems for recreation. Low flying aircraft will have a negative effect on the quality of the backcountry users experience in the wilderness and primitive areas. Shoshone, Targhee and Bridger-Teton National Forests all play an extremely important role of recreation for the entire state of Wyoming.

It would be the WRC's desire to see the route utilized by the SAC B-52 and FB-111 aircraft avoid traversing any wilderness or primitive recreation area.

GAT:glb

9

UNITED STATES DEPARTMENT OF AGRICULTURE  
FOREST SERVICE  
Rocky Mountain Region  
11177 West Eighth Avenue, Box 25127  
Lakewood, Colorado 80225

MAY 12 1981  
1950



Major Combs  
1 CEVG/RBDR  
Barksdale AFB, LA 71110

Dear Major Combs:

Thank you for the opportunity to identify potential environmental impacts which may result from the proposed Strategic Training Range Complex airspace utilization as requested in your letter dated March 9.

We do not believe there are any impacts on National Forest System lands within the Rocky Mountain Region (Region 2). If the flights are at low levels (less than 3,000 feet above the ground) there may be impacts on nesting bald eagles, an endangered species, in the vicinity of Jackson Hole. The Wyoming Game and Fish or the Bridger-Teton National Forest should be contacted about the exact location of the nesting bald eagles.

The only classified area in Region 2 that is under the proposed flight path is the Cloud Peak Primitive Area on the Bighorn National Forest. The Forest Service has an agreement (FSM 2326) with the Federal Aviation Administration that aircraft will not fly lower than 3,000 feet above wilderness areas. This 3,000 foot rule also applies to military aircraft.

There may also be some concern from a fire suppression (slurry bomber) standpoint.

We would appreciate being placed on your mailing list to receive five copies of any further information regarding the proposed Strategic Training Range Complex.

Sincerely,

*Craig W. Rupp*

for CRAIG W. RUPP  
Regional Forester

cc: AFRCE/AFESC  
Attn: Major Joe C. LaFoy, Jr.  
Chief, Environmental Planning Division  
1114 Commerce Street  
Dallas, TX 75242  
Headquarters SAC/DEV (Mrs. Hel)  
Offutt AFB, NE 68113

10



1950

JUN 19 1981

Major Combs  
1 CEVG/RBDR  
Barksdale AFB, LA 71110

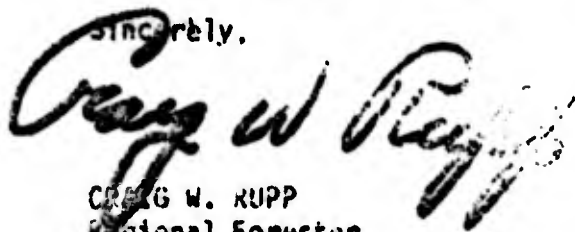
Dear Major Combs:

It has come to my attention that the third paragraph in my May 12 letter to you was incorrect.

The Federal Aviation Administration (FAA) has agreed to post an advisory on all section charts establishing a 3,000 foot limit above terrain over wilderness. This is now being done. Flights within the 3,000-foot zone are discouraged rather than prohibited. Although the 3,000-foot limit applies to wilderness areas, the Cloud Peak Primitive Area is managed in accordance with the policies and procedures established for wilderness while Congress is deciding its final classification.

The need for the advisory, posted by the FAA, was necessitated because of the increasing frequency of low-flying aircraft over wilderness areas. Much of this low flight was by military jet aircraft on routine training missions.

Sincerely,



CRAG W. RUPP  
Regional Forester

cc: AFRLE/AFESC, Major Joe La Foy, Jr.  
Headquarters, SAC/DEV (Mrs. Hel)  
Forest Supervisors, Bighorn & Medicine Mow NF's  
R&L & AZFH

JMPKING:mrw 6/3/81 Disk B



WYOMING  
EXECUTIVE DEPARTMENT  
CHEYENNE

ED HERSCHLER  
GOVERNOR

July 9, 1981

Major Combs  
1st CEVG/RBDR  
Barksdale AFB, LA 71110

Dear Major Combs:

The Air Force's proposed modification to the Strategic Training Range Complex (STRC) route has been circulated for review by the requested state agencies. Comments provided by our Aeronautics Commission, Recreation Commission and Department of Environmental Quality are attached for your consideration and use.

The Wyoming Air National Guard asked that your attention be drawn to their previous comments concerning proposed STRC routes over Wyoming. These comments were submitted on April 7, 1981. In the cover letter accompanying these comments, Governor Herschler raised concern over the need for more detailed information on the route proposals. I would like to know when the draft environmental assessment on these route proposals will be completed and made available for our review? The information submitted to date is just not specific enough for us to fully assess potential impacts related to the route complex.

Thank you for the opportunity to review this proposed modification. Please keep me informed as to the status of your analysis and the availability of the draft environmental assessment document.

Sincerely,

Dick Hartman,  
State Planning Coordinator

DH:pcd  
enclosures

cc: Major Joe C. LaFoy, Jr.  
Mrs. Hie





## Aeronautics Commission

TELEPHONE: 307-777-7481

200 EAST 8TH. AVE.

CHEYENNE, WYOMING 82002

MAILING ADDRESS: STATE OF WYOMING  
CHEYENNE, WYOMING 82002

July 2, 1981

Mr. Dick Hartman, Coordinator  
State Planning Coordinator's Office  
Office of the Governor  
Cheyenne, Wyoming 82002

Dear Mr. Hartman:

Reference your request for a review of the proposed modification to the Strategic Training Range Complex route, State Identifier No. 81-112B.

The Wyoming Aeronautics Commission offers the following comments for consideration:

- (a) The entry point for this addition to IR-498 is near the Casper Vortac and within the transition area for Natrona County Int'l. Airport which may conflict with the heavy air traffic in this area.
- (b) The route itself crosses the following airways: V-298, V-247, V-86S, V-254 and V-86, all of which are extensively utilized by commuter and general aviation aircraft.
- (c) In addition, this new route passes fairly close to the Gillette-Campbell County Airport which currently is one of the busiest in Wyoming. Operations over the last two years have been in the neighborhood of 40,000 to 50,000 per year and this year could surpass that amount. Since the route passes to the southeast and east of the airport, there may be some conflict with the present localizer, and proposed ILS, approach which encompasses an area to the southeast of the airport.
- (d) As with other low altitude training routes, there may be some noise disturbance to persons on the surface due to the low flying, high speed jet aircraft.

Sincerely,

*Richard C. J. Spaeth*

Richard C. J. Spaeth  
Administrative Assistant-Pilot  
Wyoming Aeronautics Commission

RCJS/ah

12



THE STATE OF WYOMING

ED HERSCHLER  
GOVERNOR

## Department of Environmental Quality

401 WEST 19TH STREET  
EQUALITY STATE BANK BUILDING

SOLID WASTE MANAGEMENT

CHEYENNE, WYOMING 82002

TELEPHONE 307-777-7752

### MEMORANDUM

TO: Mr. Robert E. Sundin  
FROM: Tim Link *TL*  
DATE: June 18, 1981  
SUBJECT: Strategic Training Range Complex

Where does the Air Force dispose of "chaff"?

13

UNITED STATES DEPARTMENT OF AGRICULTURE  
FOREST SERVICE

MEDICINE BOW NATIONAL FOREST  
805 Skyline Drive  
Laramie, Wyoming 82070

1950  
September 28, 1981



┌  
Mrs. Hei  
Headquarters Strategic Air  
Command/DEVQ  
Offutt AFB, Nebraska 68113  
└

Dear Mrs. Hei:

In response to your request of September 16, 1981, enclosed are maps of the Medicine Bow National Forest and Thunder Basin National Grassland showing you approximate training flight routes. We have marked areas where people may complain about low level flights.

We do not know of other environmental impacts that may occur.

Sincerely,

*Ron Olsen*

RON OLSEN  
Land Management Planner

Enclosure

14

THE STATE



OF WYOMING

ED HERSCHLER  
GOVERNOR

# Wyoming Recreation Commission

604 EAST 25TH STREET

CHEYENNE, WYOMING 82002

COMMISSION  
OFFICERS  
E. LAWSON SCHWOPE  
PRESIDENT

900 Foyer Avenue  
Cheyenne 82001

CHARLES H. JOHNSON  
VICE PRESIDENT

1121 Alder  
Rawlins 82301

RICK KILMER  
TREASURER

P.O. Box 51  
Lusk 82225

MEMBERS  
MRS. ROBERT FRISBY

3268 Forest Drive  
Cheyenne 82001

FLOYD BARTLING

P.O. Box 172  
Douglas 82633

LARRY BIRLEFFI

929 E Apache  
Cheyenne 82001

JACK D. OSMOND

P.O. Box 216  
Thayne 83127

ALBERT PILCH

1800 Morse Lee  
Evanston 82930

JAN MADIA

1017 Victoria  
Sheridan 82801

September 18, 1981

JAN L. WILSON

Director  
777-7696

Douglas S. Jansing  
Chief, Environmental Quality Division  
Deputy Chief of Staff, Engineering and Services  
Department of the Air Force  
Headquarters, Strategic Air Command  
Offutt Air Force Base, Nebraska 68113

Dear Mr. Jansing:

Enclosed is a memorandum from our staff Recreation Planner, Gary Thorson, concerning the United States Air Force's Strategic Training Range Complex (STRC). Mr. Thorson relates our concerns for the possible visual and auditory effect of low-flying aircraft upon the recreation experiences of Wyoming state park visitors. We ask that you follow USAF criteria for "congested open air assemblies of people" when considering Wyoming State Parks and planning your flight routes.

If you have any questions please contact me or Mr. Thorson. Thank you.

Sincerely,

Mark Jung, Chief  
Resources Division and  
Deputy SHPO

FOR:

Jan L. Wilson, Director and  
State Historic Preservation Officer

MGJ:klm  
Encls.

15



WYOMING RECREATION COMMISSION  
STATE HISTORIC PRESERVATION OFFICE

REVIEW AND COMPLIANCE

*Interdisciplinary Staff Comments*

*Archeology • History • Historical Architecture • Recreation Planning*

TO: Mark Junge, Chief  
FROM: Gary Thorson, Recreation Planner GT  
DATE: September 16, 1981  
RE: Strategic Training Range Complex (STRC)  
U.S. Air Force, HQ SAC/DEVO, Offutt AFB NE 68113

The Recreation Commission administers nine state parks and one recreation area in Wyoming. Each recreation area receives heavy overnight and day-use visitation during the summer season (May through September).

A major concern of the Recreation Commission would be the effect of the noise and visual intrusions from the low flying aircraft on the quality of the visitors' recreation experience. The recreation areas should be identified as "congested open air assemblies of people" during the summer season and the criteria followed for the minimum elevation and horizontal radius of aircraft routes.

Enclosed is a listing and a map of all the state parks and recreation areas in Wyoming.



Forest No 2310  
1950

SEP 23 1981

Headquarters Strategic Air Command/  
DEVQ (Mrs. Hei)  
Offutt AFB  
Nebraska 68113

Dear Mrs. Hei:

This letter is in response to the Mountain Plains Federal Regional Council Memorandum of September 16, 1981, regarding the proposed Strategic Training Range Complex (STRC).

We have enclosed maps of Wyoming, South Dakota, and Nebraska that cover your proposed STRC flight corridors. These maps should help you in identifying National Forest and National Grassland areas. The maps also show the areas that are included in the National Wilderness Preservation System, or under study for wilderness. It appears that your proposed corridors and activity, if confined to those corridors, will not have any direct affect on the National Forests and Grasslands in the Rocky Mountain Region. However, a planning map scale of 1:1,000,000 or less would help us better identify site specific impacts.

Our primary concern continues to be low-level flights over wilderness. To the extent feasible, our management goal is to exclude the sight, sound, and other tangible evidence of motorized equipment and mechanical transport in or over wilderness. This is necessary in order to comply with the 1964 Wilderness Act (P.L. 88-577). We appreciate the need to provide for readiness training and have cooperated with the F.A.A. in identifying compatible routes and altitudes. (See F.A.A. A.C. No. 91-36A of 7/9/74).

An additional concern would be for wildlife in critical habitat situations, i.e., big game winter range concentrations, calving areas, and winter concentrations of eagles and waterfowl. State wildlife agencies should be contacted for aide in identifying these areas.

We recommend your plan contain a monitoring and reporting system that allows for future flight path adjustments to resolve impacts that were not anticipated.

Sincerely,

*St. Hanks*  
for CRAIG W. RUPP  
Regional Forester



Enclosures

17



## NORTH DAKOTA PARKS AND RECREATION DEPARTMENT

Pinehurst Office Park  
1424 West Century Avenue  
P.O. Box 700  
Bismarck, ND 58502  
Phone: (701) 224-4887

September 26, 1981

Douglas S. Jansing  
Chief, Environmental Quality Division  
Deputy Chief of Staff  
Engineering & Services  
Department of the Air Force  
Headquarters Strategic Air Command  
Offutt Air Force Base, Nebraska 68113

Dear Mr. Jansing:

This is in response to your September 3 letter concerning the development of a low-level flight training complex through North Dakota.

As proposed, it would appear that one route would pass very near, if not directly over, Little Missouri Bay State Primitive Park. It is the policy of the North Dakota Parks & Recreation Department that this area be developed and administered in such a manner so as to preserve and protect the natural scenery and serenity of the Badlands. The passage of low flying military aircraft over this area would severely restrict the department's goals within this area.

I am listing below for your information a boundary description of Little Missouri Bay State Primitive Park and request that this area be marked as an exclusion and avoidance area upon your flight maps.

Sections 7, 8, 13, 18, 19, 24, 28, 29, 30, 31, 32, 33 of Township 147N,  
Range 94W

Sections 14 & 24 of Township 147N, Range 95W

Thank you for your consideration of this matter.

Sincerely yours,

Neal A. Shipman  
Assistant Director  
Park Operations

NAS/kmm  
cc: John Tunge, Superintendent

18

South Dakota  
**DEPARTMENT OF GAME, FISH AND PARKS**

September 11, 1981

Douglas S. Jansing  
Chief, Environmental Quality Division  
Deputy Chief of Staff Engineering and Services  
Department of the Air Force  
Headquarters Strategic Air Command  
Offutt Air Force Base, NE 68113

Dear Mr. Jansing:

Be advised that the area near Bear Butte State Park in Meade County should not be utilized as a part of the STRC system low level flight training route. Cheyenne and Sioux Indians regard Bear Butte as a sacred mountain and regularly visit the park to pray and fast.

We also discourage low level flights in the proximity to any state or federal park areas. A brochure listing the location of state park areas is attached for your reference.

Sincerely,



Lowen Schuett  
DIRECTOR

LS/mja

Enc.



# State Historical Society

of north dakota (STATE HISTORICAL BOARD)

NORTH DAKOTA HERITAGE CENTER, BISMARCK, N.D. 58505  
TELEPHONE 701-224-2666

September 23, 1981

Mr. Douglas S. Jansing  
Chief, Environmental Quality Division  
Deputy Chief of Staff, Engineering Services  
Headquarters, Strategic Air Command  
Offutt Air Force Base, NB 68113

Re: Strategic Training Range Complex (STRC)

Dear Mr. Jansing:

Thank you for informing this office about your current studies relative to the proposed undertaking referenced above.

Enclosed, please find a copy of our response to a similar request about the same undertaking, generated by Lt. Colonel Joe C. LaFoy, Jr. The concerns and opinions of this office as expressed in the enclosure are applicable to both requests.

If you have questions or desire further consultation, please contact Mr. Walter L. Bailey (701-224-2672) at your convenience.

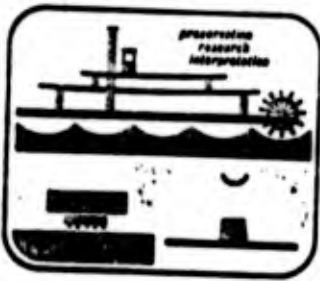
Sincerely,

James E. Sperry  
State Historic Preservation Officer  
(North Dakota)

WLB/je  
Enclosure

WLB

20



# State Historical Society

of north dakota (STATE HISTORICAL BOARD)

NORTH DAKOTA HERITAGE CENTER, BISMARCK, N.D. 58505  
TELEPHONE 701-324-2666

September 23, 1981

Ms. Bonnie A. Banks  
Federal Aid Coordinator Office; A-95  
North Dakota State Capitol Building  
Bismarck, ND 58505

Re: Special Review Request - U.S. Air Force, Aircrew Training Program,  
Strategic Training Range Complex (STRC).

Dear Ms. Banks:

Thank you for providing information for review and comment about the proposal referenced above. After reading the description of the proposal it appears to us that there are several cultural resource protection issues that should be addressed in the planned environmental analysis.

1.) IDENTIFICATION - At the present time literally thousands of cultural resources have been identified within the project's impact area. These range from small to very large, insignificant to highly significant, unstable to indestructable, and comprise the entire assemblage of cultural resource types including sites, districts, buildings, structures and objects that possess values in history, architecture and archeology. The fact that tends to be awesome is that this quantity and variety of resources is presently known even though only a minute percentage of the area has been professionally surveyed for cultural resources. The total number and variety of cultural resources in the area defy meaningful estimation at the present time given the immensity of, and the variety of cultural dynamics stimuli in, the area. The point is that it is difficult, at best, to project the impacts on cultural resources when the cultural resource assemblage is not completely known.

Recommendation: A means to identify the quantity, types and importance of the cultural resources to be potentially affected should be implemented.

2.) POTENTIAL EFFECTS - Effects to cultural resources from an undertaking such as the proposed fall into two categories, physical and aesthetic.

- A.) Physical - Three elements of the proposal appear to have particular relevance in this category. Two of these are either relatively minor or, at least, can be guarded against quite easily. These are the locations of crew and equipment facilities for staff and trainees, (Strategic Training Centers), which we assume would be at an established Air Force Base; and, scoring/evaluation/test stations (fixed and/or mobile STRC Sites) and related or outlying equipment locations, staff quarters, etc. The danger to cultural resources lies in the potential disturbance of known or unknown cultural resources during site selection, construction and/or operation and can be prevented by proper cultural resource surveys of candidate locations during the site selection process. We recommend that such procedures be incorporated into the project's planning routine.

The third element is more problematical in that it involves a number of unknowns. Briefly, it can be defined as the effects of low flying, high speed aircraft on structures of unknown stability. Many of North Dakota's cultural resources will probably not be subject to adverse impacts from the effects of project induced sound or turbulence waves. Others, however, may. While scattered lithic debris or stone alignments, for instance, may remain unaffected by unlimited exposure to shock waves, to what extent will those same shock waves accelerate the deterioration of the already unstable walls of sod, adobe, mud or log buildings? How much shock wave pressure, at what frequency can a century old bridge or a 150 year old conical timber lodge withstand?

Recommendation: Studies to measure the shock wave effects on a variety of cultural resource types should be undertaken.

- B.) Aesthetics - Again not every cultural resource or cultural site in this state will be adversely affected in this regard, but some may be. The point is that interpretation, understanding, and appreciation of culturally valuable properties is often dependent on the integrity of the property's setting and environment. It is difficult, for example, to grasp the sense of isolation on the Great Plains when the sky is criss-crossed by vapor trails or to experience the tranquillity of a lonely butte top with a FB-111 screaming by some 600 feet overhead.

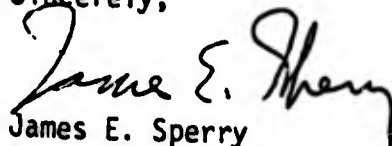
Recommendation: Measure the effects on interpretability, appreciation and understanding of cultural resource values under conditions similar to those expected to exist during operation of the project.

Ms. Banks  
Page 3  
September 23, 1981

- 3.) AVOIDANCE/MITIGATION - The environmental analysis should consider and discuss ways the Air Force can implement and analyze measurement of effects such as those identified above and what the Air Force can and will do to avoid or mitigate those effects that can be considered adverse to the cultural resources, cultural resource values, and their interpretation, appreciation and understanding.

If you have questions about these comments, please contact Mr. Walter L. Bailey (701-224-2672) at your convenience.

Sincerely,

  
James E. Sperry  
State Historic Preservation Officer  
(North Dakota)

WLB/je/wls



# United States Department of the Interior

NATIONAL PARK SERVICE  
ROCKY MOUNTAIN REGIONAL OFFICE  
655 Parfet Street  
P.O. Box 25287  
Denver, Colorado 80225

IN REPLY REFER TO:  
L7619 (RMR)PC

SEP 25 1981

Headquarters, Strategic Air Command/DEVQ  
United States Air Force  
Offutt Air Force Base, Nebraska 68113

Attention: Mrs. Hei

Dear Mrs. Hei:

The Rocky Mountain Regional Office of the National Park Service has reviewed the A-95 announcement of an environmental analysis for a proposed comprehensive aircrew training program affecting Colorado, Idaho, Montana, Nebraska, North Dakota, South Dakota and Wyoming. The Rocky Mountain Region includes all of these states except Idaho and Nebraska.

The map accompanying the announcement indicates that most units of the National Park System in this Region would not be affected by the depicted low-level routes. However, Fossil Butte National Monument, 11 miles west of Kemmerer, Lincoln County, Wyoming, would apparently be affected by one or more of the routes. Additionally, the north unit of Theodore Roosevelt National Park, about 15 miles south of Watford City, McKenzie County, North Dakota, appears close enough to one of the routes to be affected if supersonic speeds were used.

The National Park Service would like to have the environmental analysis identify whether supersonic speeds would be used along the routes. We understand that there may be some flexibility for the planes flying the routes, thus we believe the environmental analysis should state how wide the routes will be.

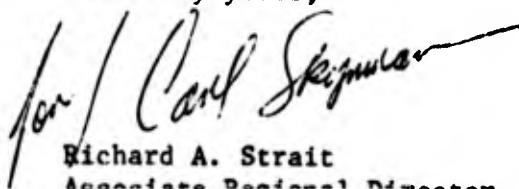
We urge that, if possible, the proposed routes affecting Fossil Butte National Monument be shifted away from the monument. In any case, the National Park Service wishes to avoid having park visitors distracted by a low flying aircraft, and to avoid damage to park resources from sonic booms.



We have contacted the National Park Service's Midwest Regional Office in Omaha, Nebraska, and it appears that units of the National Park System in western Nebraska generally will not be affected by the proposed routes. However, it appears that Agate Fossil Beds National Monument, some 20 miles south of Harrison, Sioux County, Nebraska, could be affected in a manner similar to that listed above for Theodore Roosevelt National Park. We are forwarding a copy of the A-95 announcement to the Midwest Regional Office for any further comments they may wish to offer about the proposal. We understand that the Pacific Northwest Regional Office in Seattle is responding separately concerning the proposal in Idaho.

We would like to receive a copy of the environmental analysis when it becomes available.

Sincerely yours,

A handwritten signature in cursive script, appearing to read "for Carl Skjerve". The signature is written in dark ink and is positioned above the typed name.

Richard A. Strait  
Associate Regional Director  
Planning and Resource Preservation

**HISTORICAL  
PRESERVATION  
CENTER**

University of South Dakota  
Vermillion, S.D. 57069  
Phone (605) 677 5314



September 9, 1981

Mr. Douglas S. Jansing  
Chief, Environmental Quality Division  
Deputy Chief of Staff,  
Engineering and Services  
Department of the Air Force  
Headquarters Strategic Air Command  
Offutt Air Force Base, NE 68113

RE: Strategic Training Range  
Complex; South Dakota portion.

Dear Mr. Jansing:

This office is in receipt of materials submitted regarding the nature of the above project. Thank you very much for your reply. To assist your compliance with Section 106 of the National Historic Preservation Act (PL 89-665); Executive Order 11593, Protection and Enhancement of the Cultural Environment; 36 CFR 800; and other laws and regulations pertinent to the protection of historic, archaeological or culturally significant properties, the State Historic Preservation Officer makes the following comment:

The above project has been reviewed and determined to have no effect on significant cultural resources.

Your cooperation in this matter is most appreciated.

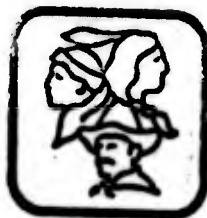
Yours truly,

*Steven C. Rude*  
for Junius R. Fishburne  
State Historic Preservation Officer

jc

cc: Robert Alex, State Archaeologist

23



**COLORADO  
HISTORICAL  
SOCIETY**

The Colorado Heritage Center 1300 Broadway Denver, Colorado 80203

September 9, 1981

Douglas S. Jansing  
Chief, Environmental Quality Div.  
Deputy Chief of Staff,  
Engineering and Services  
Department of the Air Force  
Headquarters Strategic Air Command  
Offutt Air Force Base, Nebraska, 68113

**RE:** Correspondence of September 3, 1981 concerning low-level flight.

Dear Mr. Jansing,

**This is to acknowledge receipt of** the above information.

**DATE RECEIVED:** September 9, 1981 **DATE DUE:** N/A

Since this proposed project apparently does not affect Cultural Resource, this office finds that no comment is necessary.

Thank you for the opportunity to comment on the proposed project.

If this office can be of further assistance, please contact the Compliance Section at 839-3391.

Sincerely,

Arthur C. Townsend  
State Historic Preservation Officer

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# MONTANA HISTORICAL SOCIETY

## HISTORIC PRESERVATION OFFICE

225 NORTH ROBERTS STREET • (406) 449-4584 • HELENA, MONTANA 59601

September 23, 1981

Mr. Douglas S. Jansing  
Chief Environmental Quality Division  
Deputy Chief of Staff  
Department of Air Force  
HQ Strategic Air Command  
Offutt Air Force Base, NE 68113

Dear Mr. Jansing:

Thank you for contacting us regarding the proposed Strategic Training Range Complex planned over Montana. I am enclosing a listing of the properties in Montana which are currently listed in the National Register of Historic Places. Much of the State has not yet been professionally surveyed in order to identify properties of historic, architectural, or archaeological significance. As you may note from the listing, the less sparsely populated areas of the state show fewer properties in the National Register. This circumstance is due in part to the lack of survey in these areas rather than necessarily a dearth of historically important sites.

Indeed it would appear that the Strategic Training Range Complex program would audibly impact these historic properties. We will require more information about the proposed Strategic Training Range Complex program in order to begin to assess its impact.

Sincerely,

Marcella Sherfy  
Deputy SHPO

PB/det

25



# United States Department of the Interior

BUREAU OF INDIAN AFFAIRS  
FORT HALL AGENCY  
FORT HALL, IDAHO 83203

September 22, 1981

Hq., Sac/Dev.  
Offutt Air Force Base  
Offutt, Nebraska 68113

Attention: Doug Jansing

Dear Mr. Jansing:

Thank you for the opportunity to participate in your environmental assessment relative to your Strategic Air Command Low-Level B-52 Training Area.

In reviewing the "Region of Influence" map it appears you have at least one flight path that would cross the Fort Hall Indian Reservation. I say, "appears" because your map lacks the scale and definition to adequately identify the location of the reservation in relation to your flight path. I would appreciate further definition of the flight that passes just north of Bear Lake with two directional changes prior to crossing over Idaho Falls.

If in-fact, the aforementioned flight does cross the reservation, it would present some difficulties. The economic base of this tribe is agricultural oriented in a rural setting with both farming and ranching generating an income. I am sure the use of low-level aircraft in the numbers you indicate would be detrimental to our livestock production and farming operations not to mention their impact on wildlife. Aircraft flying at 300 knots within 400-1000' A.G.L., would have a very startling and harassing impact on all agricultural and wildlife ecosystems.

Again, I would appreciate further definition of the aforementioned flight path and appreciate the opportunity to work with you. If we can assist in any way please feel free to contact us.

Sincerely yours,

*Suzanne Thompson*  
Superintendent



UNITED STATES  
DEPARTMENT OF THE INTERIOR  
FISH AND WILDLIFE SERVICE  
BENTON LAKE NATIONAL WILDLIFE REFUGE

P. O. Box 450  
Black Eagle, Montana 59414

September 10, 1981

IN REPLY REFER TO:

Douglas S. Jansing  
Chief, Environmental Quality Division  
Deputy Chief of Staff, Engineering and Services  
HQ SAC/DEVQ  
Offutt Air Force Base, Nebraska 68113

Dear Sir:

In response to your environmental analysis of planned low level training flights and their related effect on wildlife populations, we have the following comments:

1. Any water habitat would be considered sensitive for bird life in this area from mid March through the end of November.
2. Large numbers of migrating birds are known to concentrate on even very small water areas during migrational periods which in general run from late March through mid May and again from late July through mid November in north central Montana.
3. Large numbers of marsh and water birds including several species of waterfowl and Canada geese nest in the marsh and water habitat in north central Montana and a change in the disturbance factor from practically no aircraft disturbance to that which you propose could have drastic effects on their reproduction.
4. Safety of crews and aircraft would be put in a high state of jeopardy if low level flights were to consistantly fly over such concentrated areas of bird life.

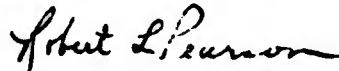
It has come to our attention in recent months that the human disturbance factor may also be a significant element in analyzing your proposed low level training flights. We would therefore recommend routings which would avoid established communities of any size and that flight schedules be such that any one rural residence would not be bombarded by this noise disturbance factor on any but infrequent occasions.

(27)

I am enclosing a locational map for refuge units located in north central Montana that are under my jurisdiction. If at all possible, we would request that these areas be avoided.

In addition, we will forward your letter and a copy of our response to our Area and Regional Offices for their review and comment. We appreciate the chance to provide input to this generalized proposal and would appreciate the opportunity to comment on specific routing plans over or near our administrative units.

Sincerely yours,



Robert L. Pearson  
Refuge Manager

Enclosure

cc: Area Office, Billings, Montana  
Regional Office, Denver, Colorado



UNITED STATES  
DEPARTMENT OF THE INTERIOR  
FISH AND WILDLIFE SERVICE

Sept. 16, 1981

Browns Park National Wildlife Refuge  
Greystone Rt.  
Maybell, Co. 81640

Douglas S. Jansing  
HQ SAC/DEVQ  
Offutt AFB  
Nebraska 68113

Re: STRC Flights

Mr. Jansing:

The Brown's Park area of NW Colorado, NE Utah and nearby SW Wyoming are important wildlife areas. Major mule deer and elk herds occupy the tri-state area. Rocky Mountain bighorn sheep are found around Brown's Park. Large numbers of Pronghorn antelope are also found.

Brown's Park is a major wintering area for mule deer and elk, Bald eagles, numerous raptors and a year-round resident population of Canada geese. Open waters of the Green River in Brown's Park and below Flaming Gorge Dam lure numbers of waterfowl through the winter. Browns Park National Wildlife Refuge (Colorado) and Brown's Park Wildlife Management Area (Utah - Utah Department of Wildlife Resources) are a nesting and stopover area for waterfowl, bringing high concentrations of birds in spring and fall migration periods, with large numbers staying through the summer.

These large numbers of birds could be a hazard to the safety of low flying aircraft. However, I believe the 2000 ft. AGL would make this risk negligible. Flights below 2000 ft. would very likely flush birds from ground and water, possibly into flight levels of aircraft.

Flights below the 2000 ft. level would likely flush birds from nesting and resting areas. Continued harassment could result in undue stress on migrating birds and abandonment of nests by others.

It has been our experience with resident nesting Canada geese here that nests may be abandoned by adults at any stage of laying or incubation in response to harassment after a single flush. Nests are regularly abandoned after 3 to 4 successive harassments over a period of days.



(28)

Other wildlife wintering in Brown's Park are under stress due to weather conditions from the start. I do not know how much effect airborne harassment may have on them.

Low level flights during winter could threaten Bald eagles here via harassment or collision.

I view the Air Force's proposed STRC program in this area with great reservation in spite of guarantees to conduct 2000 ft. AGL minimum flights over refuge areas.

I am sure military flights now coming over Brown's Park National Wildlife Refuge are subject to these same restrictions. However, we are already bothered by military helicopter and airplane flights at levels often under 300 ft. above the Refuge. These flights already have disrupting effects on local waterfowl and wildlife populations. I do not know what effects these flights may have on State operated refuge areas near here or on other adjacent wildlife.

I seriously question the possible effects of increased frequency of flights proposed, the guarantees of 2000 ft levels and possible effects of flights on off-refuge wildlife populations, especially during winter, not protected by the 2000 ft. limit.

Thank you very much for considering us for input into your analysis. Please feel free to contact us if we can be of further assistance.

Sincerely,

  
James L. Sellers - Assistant  
Refuge Manager



UNITED STATES  
DEPARTMENT OF THE INTERIOR  
FISH AND WILDLIFE SERVICE

ARAPAHO NATIONAL WILDLIFE REFUGE  
P.O. Box 457  
Walden, Colorado 80480

September 25, 1981

Mr. Douglas S. Jansing  
HQ SAC/DEVQ  
Offutt Air Force Base  
Nebraska 68113

Dear Mr. Jansing:

We foresee no adverse impacts to the various wildlife species present on Arapaho National Wildlife Refuge from the low-level flight training complex, provided an altitude of 2,000 feet AGL is maintained. Flights at a lower level may, however, prove to be a safety hazard to low flying aircraft due to the large numbers of migratory birds present on the refuge during the spring and fall migration periods. Also, there would be some concern for those species nesting on the refuge during the summer and such big game animals as elk, mule deer and pronghorn antelope which do winter on the refuge in varying numbers.

As long as 2,000 feet AGL is maintained, we do not feel there is any problem with any wildlife species present on the refuge.

Thanks for the opportunity to comment for your environmental analysis on the development of the complex.

Sincerely,

Eugene C. Patten  
Refuge Manager

ECP/jnm



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" VARIETY IN HUNTING AND FISHING "

**NORTH DAKOTA GAME AND FISH DEPARTMENT**

2121 LOVETT AVE.

BISMARCK, N. DAK. 58505

PHONE 701-224-2180

September 25, 1981

Colonel Joe C. LaFoy  
Headquarters, SAC/DEVQ  
Offutt AFB, NE 68113

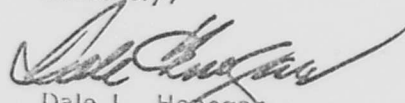
Attn: Mrs. Hei

Re: EA of comprehensive aircrew  
training program

Dear Colonel LaFoy:

We have reviewed the above referenced document and have discussed the matter with Mr. Lester. At this time, we can only recommend that we be contacted when specific routes are under consideration. Such matters as major waterfowl concentration areas and winter big game ranges should be considered in training route selection. We will be willing to provide that information and any other technical assistance you may desire in your planning process.

Sincerely,

  
Dale L. Hanegar  
Commissioner

M:DH:dk

cc: Shipman (Parks & Rec.)  
Banks (FAC)  
Lester (USAF)  
AO (USFWS)

30

Dale L. Hanegar  
COMMISSIONER

Charles H. Schroeder  
DEPUTY COMMISSIONER

100  
50



UNITED STATES  
DEPARTMENT OF THE INTERIOR  
FISH AND WILDLIFE SERVICE  
NATIONAL ELK REFUGE  
P.O. BOX "C"  
JACKSON, WYOMING 83001

IN REPLY REFER TO:

September 10, 1981

Mr. Douglas S. Jansing  
Chief, Environmental Quality Division  
HQ Strategic Air Command  
Offutt Air Force Base, NE 68113

Dear Mr. Jansing:

This is in response to your letter of September 3, 1981, requesting our comments on the Air Force's "development of a low-level flight training complex" in the Jackson Hole area.

Your "Low-Level Route Data," Item (6), indicates "A minimum altitude of 2,000 feet AGL is maintained above the terrain of a wildlife refuge area." We presently winter an average of 8,000 elk which may be on the National Elk Refuge winter range from November through March. In addition, during the spring and summer period we have a fairly large population of nesting waterfowl and other birds, including Trumpeter Swans and Greater Sandhill Cranes.

If aircraft flights maintain a minimum altitude of 2,000 feet AGL, we see no problems developing with wildlife on the National Elk Refuge.

I have enclosed a map of the Refuge for your information.

Sincerely,

JOHN E. WILBRECHT  
Project Leader

Enclosure

cc: Area Manager, Billings

(31)



United States Department of the Interior

FISH AND WILDLIFE SERVICE  
AUDUBON NATIONAL WILDLIFE REFUGE  
COLEHARBOR, NORTH DAKOTA 58531



September 8, 1981

Mr. Douglas S. Jansing  
Chief, Environmental Quality Div.  
HQ SAC/DEVQ  
Offutt AFB, NB 68113

Dear Mr. Jansing:

Thank you for the opportunity to comment on the proposed low-level flight training complex called the Strategic Training Range Complex (STRC). In general an elevation of 2,000 feet AGL should be sufficient to avoid undue disturbance of most wildlife species. Migratory birds, specifically, ducks, geese and swans are very susceptible to aircraft disturbance. Concentrations of such waterfowl should be avoided where ever possible particularly during periods of high concentrations of these birds such as during the spring and fall migrations.

Of some concern is disturbance to waterfowl during the fall hunting season. Birds may be unintentionally harassed either over or away from hunters creating problems either way. Daily flights at elevations less than 2,000 feet AGL during the nesting season could also create enough disturbance to cause nest abandonment by individual birds.

Three areas where high concentrations of birds occur in this locality are the Audubon National Wildlife Refuge, Lake Nettie National Wildlife Refuge and Lake Williams just east of Turtle Lake, North Dakota. I have enclosed a map showing the locations of these three areas.

As a matter of safety to the aircraft and crews I am sure you are aware of the hazards involved of low level flight in and around large numbers of birds. Jet aircraft are particularly susceptible to conflicts of this sort. We would appreciate knowing when and where these flights will occur in our District (McLean, Sheridan and Ward Counties, North Dakota) to enable us to monitor wildlife response.

Yours truly,

Ronald D. Shupe  
Refuge Manager

Enc.  
CC: ES/Bismarck

32



## United States Department of the Interior

FISH AND WILDLIFE SERVICE  
Lacreek National Wildlife Refuge  
South Route  
Martin, South Dakota 57551

IN REPLY REFER TO

September 24, 1981

Chief, Environmental Quality Division  
Deputy Chief of Staff,  
Engineering and Services  
Headquarters Strategic Air Command  
Offutt Air Force Base, NE 68113

Dear Mr. Jansing;

In response to your letter of 3 Sept. 81, concerning the impacts of low-level training flights over sensitive wildlife areas, I am returning your map with the sensitive areas in this vicinity and alternate routes marked in red.

The outlined areas are concentrations of sandhill lakes and marshes that are important nesting and feeding areas for waterfowl and marsh birds.

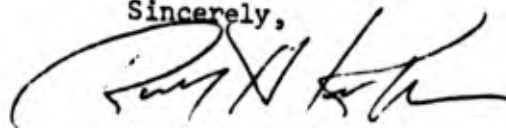
1. Trumpeter Swans: Approximately 100 swans nest in the outlined area. This species has just recovered from threatened status and is sensitive to human disturbance while nesting. The impact of low flying aircraft on the nesting activities of swans is not known, but the possibility of a bird strike poses a serious risk for pilots. Trumpeter swans have a wing-spread of 7-8 feet, and weigh 20-30 lbs.
2. White Pelicans: Approximately 15,000 white pelicans use the outlined area for resting and feeding in the summer (May - September). The only known nesting in the area is on Lacreek National Wildlife Refuge, Bennett County, SD, but this species will range over 100 miles to feed. The area north of the refuge is not used extensively by feeding pelicans, but the sandhill lakes in the outlined areas are heavily used. Pelicans often soar on thermals for, what appears to be, relaxation to altitudes of 600-800 feet AGL. Subsequently, the possibility of a high speed, low-level aircraft encountering a flock of pelicans can not be ignored. White pelicans usually soar in flocks of 10 to 40 birds and each pelican has a wing span of nine feet and weighs 12-15 lbs.

Mr. Jansing  
page 2  
9/24/81

In my own flying I use the landing light to alert the bird of my presence, I have found that birds avoid collision skillfully if they have time to "see and avoid". Whether this technique will work with high-speed aircraft would require further study.

I hope I have provided you with useful information.

Sincerely,

A handwritten signature in cursive script, appearing to read 'Rolf H. Kraft', written in dark ink.

Rolf H. Kraft  
Refuge Manager

Enclosures - map



UNITED STATES  
DEPARTMENT OF THE INTERIOR  
FISH AND WILDLIFE SERVICE

BOWDOIN NATIONAL WILDLIFE REFUGE  
P.O. Box J  
Malta, Montana 59538

September 14, 1981

Mr. Douglas S. Jansing, Chief  
Environmental Quality Division  
Engineering and Services  
Offutt Air Force Base, Nebraska 68113

Dear Sir:

This is in response to your letter of September 3, 1981, regarding environmental analyses on the development of a low-level flight training complex.

Bowdoin National Wildlife Refuge provides nesting and migration habitat for waterfowl and other marsh and water birds. During the spring and fall migration periods waterfowl concentrations number 100,000± and could present a SAFETY hazard to low flying jet aircraft. These two migration periods are generally late March to early June and late August to mid-October. Although these are the times when peak numbers occur, waterfowl and other birds are present from late February through mid-November during most years. Winter is a non-use period because our marshes all freeze over in late November and ice-out is usually in March.

Two other birds, white pelicans and gulls, nest at Bowdoin Refuge and would present a real hazard from May through September. Pelicans might be especially hazardous because of their habit of soaring over marsh areas where they occur. This species commonly soars on mid-day thermals and may be encountered from a few hundred feet to a few thousand feet above ground level.

We appreciate this opportunity to comment on this matter. A copy of your letter has been forwarded to our Regional Office in Denver, Colorado, for review and any additional comments they desire to offer.

Sincerely,

Gene A. Sipe  
Refuge Manager

GAS: fms

34



# Nebraska Game and Parks Commission

2200 North 33rd Street / P.O. Box 30070 / Lincoln, Nebraska 68503

September 10, 1981

Douglas S. Jansing  
Chief, Environmental Quality Div.  
Deputy Chief of Staff,  
Engineering and Services  
Offutt Air Force Base, Nebraska 68113

Dear Mr. Jansing:

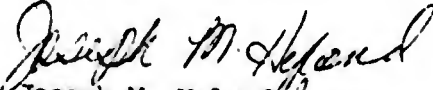
In response to your request for identification of environmentally sensitive areas which might be impacted by low level routes within the identified "Region of Influence".

Enclosed is a Nebraska map with areas of concern shaded in. The primary impact would be disturbance of waterfowl concentrations on refuges and migration staging areas. There would also be a high risk of bird-aircraft collision in these areas.

Year around sensitive areas are colored red, while spring and fall concentration areas are shown in yellow and blue areas denote wintering concentrations of waterfowl.

I hope this information is helpful to you in your analysis. Thank you for the opportunity to comment.

Sincerely,

  
Joseph M. Hyland  
Waterfowl Specialist  
Wildlife Division

JMH:dw

Enclosures



# United States Department of the Interior

## FISH AND WILDLIFE SERVICE

SOUTHEAST IDAHO REFUGE COMPLEX  
510 YELLOWSTONE AVENUE  
P.O. BOX R  
POCATELLO, IDAHO 83201  
FTS: 554-6833 / COMM: 208/236-6833


September 17, 1981

Mr. Douglas S. Jansing  
Chief, Environmental Quality Div.  
Department of the Air Force  
Headquarters Strategic Air Command  
Offutt Air Force Base, Nebraska 68113

Dear Mr. Jansing:

In response to your letter regarding low level flights over Camas National Wildlife Refuge, Hamer, Idaho, the following is provided. Concentrations of waterfowl and shore birds including white-faced ibis and long-billed curlew which are identified as sensitive species, nest on the refuge from March through mid-July. Most are sensitive to disturbance and may react by abandoning their nests. We are concerned that low level flight by highspeed aircraft would cause such a disturbance.

Sincerely,



Charles S. Peck  
Refuge Manager

CSPeck:wh

36



United States Department of the Interior  
FISH AND WILDLIFE SERVICE

IN REPLY REFER TO:

RW

**MAILING ADDRESS:**  
Post Office Box 26406  
Denver Federal Center  
Denver, Colorado 80226

**STREET LOCATION:**  
134 Union Blvd.  
Lakewood, Colorado 80226

September 25, 1981

Douglas S. Jansing  
Chief, Environmental Quality Division  
Deputy Chief of Staff,  
Engineering and Services  
Headquarters Strategic Air Command  
Offutt Air Force Base, Nebraska 68113

Dear Mr. Jansing:

With regard to your letter relating to STRC, environmentally sensitive species would for the most part be migratory birds. On most wildlife refuges in the northern states our main concern would be for nesting waterfowl. Generally speaking, we believe that the program as described in your memo with the observance of a 2,000 ft. minimum altitude would have little effect on wildlife.

We would like to add three qualifications to the above comment. First, we really do not know what effect there might be from "three to five ... aircraft per day ... five to seven days per week", particularly over a long period. We assume the primary disturbance would be noise and that wildlife could adjust.

Second, we assume the purpose of low level flight is avoidance of radar detection. Frankly, when aircraft are "off radar", we are skeptical that they could be relied upon to climb to 2,000 ft. above refuges, especially in remote areas. Failure to maintain that altitude could lead to serious wildlife disturbances including at certain times of the year panicking massed flocks of waterfowl into flight.

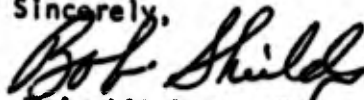
This second point raises the issue of safety in addition to environmental concern. Our preference would be to substitute an avoidance datum in place of minimum altitude, e.g., "Wildlife refuges are avoided by at least four nautical miles".

Third, since little research has been done on the impact of low level flights on birds, we regard these recommendations as tentative. If unexpected problems develop we will want to reopen communications with you to find a mutually agreeable solution.

37

Thank you for the opportunity to comment on this subject. If we can be of further help, please contact us at any time.

Sincerely,

A handwritten signature in cursive script that reads "Bob Shields".

Robert H. Shields FOR  
Don W. Minnich  
Regional Director



# United States Department of the Interior

## FISH AND WILDLIFE SERVICE

SOUTHEAST IDAHO REFUGE COMPLEX  
510 YELLOWSTONE AVENUE  
P.O. BOX R  
POCATELLO, IDAHO 83201  
FTS: 554-6833 / COMM: 208/238-6833

September 23, 1981

Mr. Douglas S. Jansing  
Chief, Environmental Quality Div.  
Deputy Chief of Staff, Engineering and Services  
Department of the Air Force  
Headquarters Strategic Air Command  
Offutt Air Force Base, Nebraska 68113

Dear Mr. Jansing:

Thank you for your letter of September 3, 1981 giving us the opportunity to comment on wildlife impacts associated with the development of the Strategic Training Range Complex.

We feel these low level flights would produce adverse impacts to several species of wildlife at Grays Lake National Wildlife Refuge. The most sensitive species is the endangered whooping crane. Consideration must also be given to 17 species of nesting waterfowl and other marsh, water and shorebirds.

In 1975 an annual whooping crane egg transplant project was initiated in cooperation with the Canadian Wildlife Service. To date 15 whooping cranes have been produced. These cranes migrate from Grays Lake in October and winter in New Mexico. In late March the cranes return to summering areas. This year this population of whooping cranes summered at Grays Lake Refuge and other areas in southeast Idaho, southwest Montana and western Wyoming.

We should inform you of Section 7 of the Endangered Species Act of 1973. This Act requires all Federal Agencies to consult with the Secretary of Interior to insure that any action authorized, funded, or carried out by that agency does not jeopardize the continued existence of any endangered or threatened species, or result in the destruction or adverse modification of habitat of that species. It is important to note too, that Grays Lake Refuge and an area 1 mile outside the Refuge boundary was established as critical habitat effective June 14, 1978.

Grays Lake Refuge is a production area for waterfowl and several marsh related species. However, these species are not present between November 15 and March 15. We feel the area could be considered in the Strategic Training Range Complex during this period of time.

Please let us know if you desire any additional information concerning this matter.

Again, thank you for the opportunity to respond.

Sincerely,

**/S/EDWARD W. LOTH**

Edward W. Loth  
Refuge Mgr., Grays Lake NWR

EWLoth:wh

cc: GYL

South Dakota  
**DEPARTMENT OF GAME, FISH AND PARKS**

September 25, 1981

Mr. Douglas S. Jansing  
Chief, Environmental Quality Division  
Deputy Chief of Staff, Engineering and Services  
HQ SAC/DEVQ  
Offutt Air Force Base, Nebraska 68113

Dear Mr. Jansing:

In response to your request for information on areas of South Dakota which might be environmentally sensitive to low-level training flights as you described them, the following precautions are suggested:

1. Avoid the Missouri River during fall, winter and spring movements of migratory birds. Approximately one million waterfowl use the Missouri River as a migration route and a resting area especially during fall migration. Associated with the waterfowl are also several hundred bald and golden eagles. Large numbers (100,000-300,000) of Canada geese remain in the vicinity of the Missouri all winter. Low level flights would disturb the birds (and hunters during the hunting season) and would cause additional stress in the birds if the weather is cold and food is not readily available to the birds due to snow cover. I assume you would also want to consider this situation from an airplane safety standpoint.
2. Avoid the western two-thirds of South Dakota during fall (primarily October) and spring (primarily April) migration of whooping crane. More information on this precaution should be obtained from the U.S. Fish and Wildlife Service.
3. Avoid the Slim Buttes, Cave Hills and Short Pines areas of Harding County, and the Black Hills because of the large raptor breeding populations, including golden eagles, in those areas. Tolerance to disturbance is minimal during the period April through August when young raptors are being produced and reared.

Sincerely,



Ron Fowler  
Game Staff Specialist

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## NORTH DAKOTA NATURAL HERITAGE PROGRAM

Pinehurst Office Park  
1424 West Century Avenue  
P.O. Box 700  
Bismarck, ND 58502  
Phone: (701) 224-4887

September 29, 1981

Douglas S. Jansing  
HQ SAC/DEVQ  
Offutt AFB, NE 68113

Dear Sir,

This is in response to your request for environmentally sensitive areas and impacts from low level routes of the STRC in North Dakota.

The North Dakota Natural Heritage Program is conducting an inventory of the state's natural diversity, focusing on species of concern and plant communities. The species include rare, endangered, sensitive, or peripheral plants and animals in the state.

There are several areas in North Dakota that have a higher number of these species and these areas are considered sensitive. The largest potential impact of repeated low level flights would be disturbance to pre-nesting and nesting birds. Birds that are sensitive to this type of disturbance may desert their nests or territories causing decreased productivity for that species, resulting in an adverse impact on species that are already rare or declining. This impact will not be as strong if flights over these areas are avoided during the critical periods of territory establishment and nesting occurring from April through July.

The areas and associated rare or declining bird species that may be sensitive are:

1. Badlands in southwest North Dakota - Birds that confine their range to this area in North Dakota are Prairie Falcons, Merlins, Golden Eagles, and Long-billed Curlews. The least rectangle that includes most of the sensitive area is:  
N 48<sup>0</sup> 08'  
S 45<sup>0</sup> 56'  
E 102<sup>0</sup> 14'  
W 104<sup>0</sup> 03'
2. Natural segment of the Missouri River from Garrison Dam to Lake Oahe - the two species associated with this area are Least Terns during the nesting season, and Bald Eagles during winter, from mid-November through March.



an equal opportunity employer

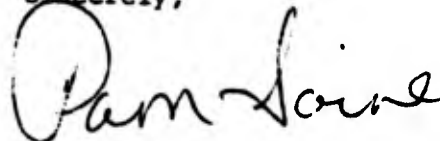
40

3. Alkali wetlands in McLean, Kidder, and western Stutsman counties - these wetlands are nesting sites for the last strong population of Piping Plovers, which have drastically declined throughout the rest of its mid-continent range.

Due to the natural significance of these areas as important habitat for these sensitive species, the North Dakota Natural Heritage Program requests that alternative routes be defined for the low-level flight training which would not harm the natural integrity of the areas.

We appreciate the opportunity to comment on such a project and hope they are of help to you in your planning.

Sincerely,



Pam Soine,  
Zoologist

PS/pjc



UNITED STATES  
DEPARTMENT OF THE INTERIOR  
FISH AND WILDLIFE SERVICE  
CHARLES M. RUSSELL NATIONAL WILDLIFE REFUGE  
P.O. Box 110  
Lewistown, Montana 59457-0110

IN REPLY REFER TO:

September 15, 1981

Department of the Air Force  
HQ SAC/DEVQ  
ATTN: Douglas S. Jansing  
Offutt Air Force Base, Nebraska 68113

Dear Mr. Jansing:

In my opinion, the detrimental effects on wildlife populations of a low-level flight training complex, as described in your letter of September 3, 1981, will be minimal; that is, if you maintain the 2000-foot AGL over wildlife refuges as stated in item 6 of the attachment to your letter.

However, please be advised that during migration periods large high-flying birds may be concentrated in the vicinity of the refuge. These include white pelicans (8-9 feet wingspread flying in flocks and may reach altitudes of 2000 feet AGL or higher), Canada geese (weight 8-12 pounds flying in flocks at 2000 feet AGL or higher), Sandhill cranes (6-7 feet wingspread flying in flocks to 6000 feet AGL and upwards), Great Blue Herons (6-foot wingspread flying singly usually below 1000 feet), golden and bald eagles (6-7 feet wingspread flying singly to 2000 feet and higher) and other large birds of prey (hawks and falcons with wingspreads to 2 to 5 feet flying singly to 5000-6000 feet).

In the event the complex is established and includes the Charles M. Russell National Wildlife Refuge, we will monitor the apparent effects, if any, on wildlife populations of the flight activities.

The U.S. Fish and Wildlife Service and local ranchers do considerable low-level flying (below 1000 feet) over the refuge in small single-engine airplanes conducting wildlife and livestock surveys and doing law enforcement patrol.

I hope this information is helpful in your environmental analysis and if I or my staff can be of any further help, please call on me.

Sincerely,

Ralph F. Fries  
Refuge Manager

41



Dale E. Meigs  
FEDERAL AID COORDINATOR  
September 24, 1981

The State of North Dakota  
FEDERAL AID COORDINATOR OFFICE  
State Capitol  
Bismarck, North Dakota 58505

Allen I. Olson  
GOVERNOR

"LETTER OF COMMENT" IN CONFORMANCE WITH OMB CIRCULAR NO. A-95

To: Department of the Air Force

STATE APPLICATION IDENTIFIER: 8109140597

Mrs. Hei  
Headquarters Strategic Air Command/DEVQ  
Offutt AFB, NE 68113

Dear Mrs. Hei:

Subject: Environmental Analysis by Department of the Air Force for  
Proposed Comprehensive Aircrew Training Program.

This analysis was received in this office on September 14, 1981.

The above referenced notice of direct Federal development has been reviewed through the North Dakota State Intergovernmental Clearinghouse, in compliance with Office of Management and Budget Circular No. A-95. In the process of the review, the attached comments were received from the Aeronautics Commission and ND Parks and Recreation Department.

Based on the results of that review, this letter and its attached constitute the comment of the State Clearinghouse.

If the proposed project changes significantly in duration, scope, description, location or area of impact from that described in the notice submitted for review, then it is necessary to submit information on the revised project for review.

In responding to comments, please correspond directly with the reviewer with a copy of each response to this office using the above SAI number for reference with this office.

Your continued cooperation in the review process is much appreciated.

Sincerely yours,

Mrs. Leonard E. Banks  
Clerk IV  
State Intergovernmental Clearinghouse

BAB/gd  
Attachment  
cc: Dept. of the Air Force, Dallas, TX



# NORTH DAKOTA PARKS AND RECREATION DEPARTMENT

Pinehurst Office Park  
1424 West Century Avenue  
P.O. Box 700  
Bismarck, ND 58502  
Phone: (701) 224-4887

Federal Aid Coordinator Office  
**RECEIVED**  
SEP 22 1981  
STATE  
CAPITOL  
Bismarck, North Dakota

September 22, 1981

Bonnie A. Banks  
State Intergovernmental Clearinghouse  
Federal Aid Coordinator Office  
17th Floor - State Capitol  
Bismarck, ND 58505

Dear Bonnie:

In response to the Comprehensive Aircrew Training Program project, our Department submits the following comments.

Review of the map, designating the Strategic Training Range Complex, indicates several parks and recreation areas may be involved in the region of influence. The area in the far southwestern corner appears to be directly in line with Sully's Creek State Primitive Park. The mid-western route appears near Little Missouri Bay - Little Missouri State Park.

Other recreation areas may be affected by the route, however, the map was not printed in detail to determine specific locations.

Sincerely,

*Karen Baumler*

Karen Baumler  
Coordinator of Grants & Community Services

KB/cm

REVIEW RESPONSE  
NDSIC FORM B (8-79)

CLEARINGHOUSE  
USE ONLY

FROM: STATE INTERGOVERNMENTAL CLEARINGHOUSE  
FEDERAL AID COORDINATOR OFFICE  
17th FLOOR - STATE CAPITOL  
BISMARCK, NORTH DAKOTA 58505 (701-224-2098)

SAI NO. 81-597

PROJECT NOTIFICATION FOR REVIEW UNDER OMB A-95

DATE RECEIVED:  
Federal Aid Coordinator Office

DATE: September 28, 1981

RECEIVED

TO: Mr. Harold Vavra  
Aeronautics Commission  
P.O. Box U - Municipal Airport  
Bismarck, ND 58502

SEP 21 1981

STATE  
CAPITOL

PROJECT TITLE: Comprehensive Aircrew Training Program.

APPLICANT: US Air Force.

The Clearinghouse has received a environmental analysis for review under OMB Circular No. A-95 for the above project. The attached project information is referred to your agency for your review and comment. Please review the proposal as it affects the plans and programs of your agency as well as those plans with which you are familiar, and indicate your comments below or on a separate sheet. Some general suggestions to assist in your review of projects are on the reverse of this form.

A copy of all of the material received by the Clearinghouse is attached.

Your cooperation is requested in completing your review and returning this form, with your comments, to this office. If no response or indication of your desire to comment is received by September 23, 1981, it will be assumed you have no comments on the proposal.

The proposed activities  are  
 are not

consistent with state, areawide,  
or local plans with which you are familiar  
(Increases Air Safety Around or Near Bismarck, ND  
contribute to the implementation  
of those plans (Increase of air safety  
Around the Bismarck Airport Area)

The proposed activities  do  
 do not

More review time is needed and comments will be forwarded by (date) \_\_\_\_\_

No identified conflict

Proposal is supported as written

No comment

Desires to review final application

Requests a meeting with the applicant

Desires to review environmental assessment (if available)

Comments, identified issues, suggestions, recommendations or suggested stipulations are listed below or attached

For the following reasons, (approval) (disapproval) of the project is suggested:

REVIEWER'S  
SIGNATURE:

*Harold G. Vavra*

Harold G. Vavra, AERONAUTICS COMMISSION

TITLE: DIRECTOR

STATE OF NORTH DAKOTA

BOX 5020

BISMARCK, NORTH DAKOTA 58502

DATE:

TELE:

R.D. Aeronautics Commission  
RECEIVED  
SEP 17 1981  
STATE  
CAPITOL  
Bismarck, ND

44  
9/17/81

224-2748

## COMMISSIONERS

John D. Odegard, Grand Forks  
Irman

Darrel Schroeder, Davenport  
Vice Chairman

Lyle Hilden, Bismarck  
Secretary

Alan Butts, Carrington

Jack K. Daniels, Williston



HAROLD G. VAVRA  
DIRECTOR

TELEPHONE 701-224-2748

## AERONAUTICS COMMISSION

BOX 5020 - BISMARCK, N. DAK. 58502

September 17, 1981

Ms. Bonnie A. Banks  
State Intergovernmental Clearing House  
Federal-Aid Coordinator Office  
State Capitol  
Bismarck, North Dakota 58505

Subject: Environmental Review of U.S. Air Force  
proposed comprehensive Aircrew Training Program.

Dear Ms. Banks:

The North Dakota Aeronautics Commission supports the proposal as written. As a matter of fact, as I understand the Department of the Air Force's proposed training program, it will be a very definite improvement over the routes now in operation in North Dakota.

Under this proposal, certain training routes which are presently concentrated and focus on the Bismarck radar scoring unit north of Bismarck, would be eliminated, in accordance with the attached map. Routes which focus on Bismarck to be eliminated are IR 402, I R 444 and IR 401, which have operated for some time.

Bismarck airport is only 10 or 12 miles south of the Air Force Radar Scoring unit. The Bismarck Airport has 85,000 aircraft operations annually. Because of the close proximity between the Bismarck Airport and the arrival and departure of aircraft, there is an exposure to low flying Air Force aircraft flying the inbound routes to the U.S. Air Force Radar Scoring ground unit on the north edge of the City of Bismarck and airport traffic. The Air Force aircraft are 750 ft. above ground level while inbound to the radar scoring unit. Aircraft inbound to the Bismarck airport from the north are descending in altitude and directly cross the path of the U.S. Air Force aircraft inbound to the Bismarck Radar Scoring unit on the ground. By eliminating these training routes in the close vicinity of Bismarck, the exposure to mid-air collision is substantially reduced.

Therefore, I support the change in the aircrew training program as outlined in the Department of the Air Force letter of September 10, 1981 from the Air Force Regional Engineering Central Region (A FESC) in Dallas, Texas, signed by Joe C. LaFoy, Jr., Lt. Colonel, USAF, Chief, Environmental Planning Division.

Sincerely,

Harold G. Vavra  
Director

HGV:ak  
Enc.



# STATE OF IDAHO

## DEPARTMENT OF FISH AND GAME

600 SO. WALNUT ST. — P.O. BOX 25  
BOISE, IDAHO 83707

September 25, 1981

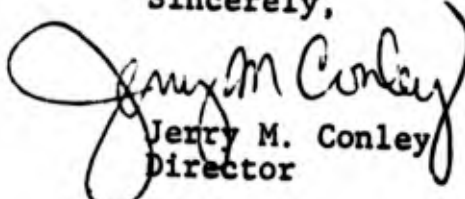
Mr. Doug Jansing  
HQ SAC/DEV  
Offutt Air Force Base, NB 68113

Dear Mr. Jansing:

This letter is in reference to the proposed SAC training area including air space above Idaho.

We have reviewed the proposed low level training route. Our principal concern involved the possibility of supersonic flight by fighter intercept activity. We have been advised that supersonic flight and attendant sonic booms will not occur. We, therefore, do not anticipate any adverse impact on wildlife.

Sincerely,

  
Jerry M. Conley  
Director

cc: Clearinghouse  
00916243

(45)



**DIVISION OF ECONOMIC AND COMMUNITY AFFAIRS**

September 24, 1981

Mr. Doug Jansing  
HQ SAC/DEV  
Offutt Air Force Base  
Nebraska 68113

Dear Mr. Jansing:

The Idaho State Clearinghouse has completed its review on the proposed STRATEGIC AIR COMMAND (SAC) TRAINING AREA, SAI #00916243. The following agencies were contacted for their review and comment:

Panhandle Area Council  
Clearwater Economic Development Association  
Ida-Ore Regional Planning and Development Association  
Ada Planning Association  
Region IV Development Association  
Southeast Idaho Council of Governments  
East Central Idaho Planning and Development Association  
Department of Transportation/Division of Highways  
Department of Transportation/Division of Aeronautics  
Idaho Historical Society  
Department of Fish and Game  
Department of Parks and Recreation

At the time of sign-off, comments have not been received from the reviewing agencies. All late comments will be forwarded to your agency.

Thank you for letting us assist you in this SAC review. If you have any questions, do not hesitate to contact myself or Lois Wade at 208-334-4718.

Sincerely,

*Gloria Mabbutt*  
Gloria Mabbutt, Coordinator  
Idaho State Clearinghouse

GM/lw

# STATE OF COLORADO

Department of Local Affairs

## DIVISION OF LOCAL GOVERNMENT

Karen Reinertson, Director



Richard D. Lamm  
Governor

September 25, 1981

Headquarters Strategic Air Command/DEVQ  
Attn: Mrs. Hei  
Offutt AFB, Nebraska 68113

SUBJECT: Comprehensive Aircrew Training Program  
Your letter of 10 September 1981

Dear Mrs. Hei:

The Colorado Clearinghouse has received the above-referenced proposal and has distributed it to interested state agencies. Comments received from the Colorado Historical Society are enclosed for your information.

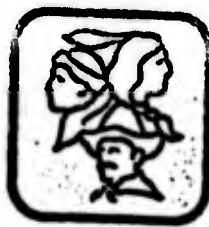
Thank you for the opportunity to review this matter.

Sincerely,

Stephen O. Ellis  
Chief Planner

SE/PN/vt  
Enclosure

cc: Joe C. La Foy, Jr., USAF, Dallas, Texas

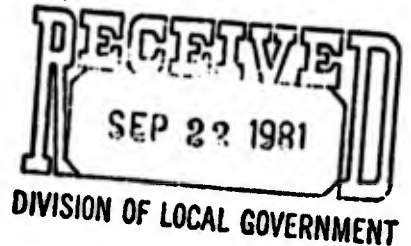


**COLORADO  
HISTORICAL  
SOCIETY**

The Colorado Heritage Center 1300 Broadway Denver, Colorado 80203

September 21, 1981

Mr. Stephen O. Ellis  
Principal Planner  
A-95 Clearinghouse  
523 State Centennial Building  
1313 Sherman Street  
Denver, Colorado 80203



**RE:** Comprehensive Aircrew Training Program, #81-23

Dear Mr. Ellis,

This is to acknowledge receipt of the above environmental analysis.

DATE RECEIVED: September 15, 1981

DATE DUE: September 25, 1981

Since this proposed project apparently does not affect Cultural Resources, this office finds that no comment is necessary.

Thank you for the opportunity to comment on the proposed project.

If this office can be of further assistance, please contact the Compliance Section at 839-3391.

Sincerely,

Arthur C. Townsend  
State Historic Preservation Officer



United States Department of the Interior

FISH AND WILDLIFE SERVICE

P.O. Box 916  
Sheridan, Wyoming 82801-0916

September 30, 1981

Douglas S. Jansing  
Department of the Air Force  
Headquarters Strategic Air Command  
Offutt Air Force Base  
Nebraska 68113

Dear Mr. Jansing:

At the request of the Director of the Denver Wildlife Research Center I am responding to your letter concerning the potential impacts of low-level B-52 flights on wildlife. Research personnel of our field station have been working on problems relating to the effects of energy development on wildlife in Wyoming and Southeastern Montana since 1975. During this time we have witnessed and evaluated a variety of potential disturbances on several wildlife species.

In my opinion, the B-52 flights would not have any major adverse impacts on wildlife. It has been our observation that most wildlife populations will adapt to this type of disturbance. However, in the case of migratory raptors, there is the potential problem of collisions with large birds such as golden eagles. This could be a direct strike or the birds could be inhaled into the jet engines. Winter concentrations of eagles in Wyoming may exceed 10+ per square mile and I have observed that they do not always avoid the flight paths of aircraft. A word of caution to the B-52 pilots may resolve this potential problem.

If you desire further information about specific raptor concentration areas, I would be happy to provide this information. I hope these comments will be useful to you in completing your assessment.

Sincerely,

*Robert L. Phillips*  
Robert L. Phillips  
Wildlife Research Biologist



United States Department of the Interior

FISH AND WILDLIFE SERVICE  
AREA OFFICE COLORADO-UTAH  
1311 FEDERAL BUILDING  
125 SOUTH STATE STREET  
SALT LAKE CITY, UTAH 84138

IN REPLY REFER TO: (ES)

October 2, 1981

Douglas S. Jansing  
Chief, Environmental Quality Division  
Headquarters, Strategic Air Command  
Offutt Air Force Base, Nebraska 68113

RE: Low Level Flight Training Complex

Dear Mr. Jansing:

This responds to your September 8, 1981 letter to Seedskafee National Wildlife Refuge, Green River, Wyoming.

We do not expect any significant, adverse impacts to wildlife on the Seedskafee Refuge if a minimum altitude of 2,000 feet above ground level is maintained over the refuge as indicated by your letter. However, we have had little experience with this type of flight, and therefore wish to retain the option of recommending modifications in the future in event any unforeseen problems should develop.

Sensitive wildlife areas may exist elsewhere than on refuges, at least at certain seasons. An example might be a concentration of antelope in an exceptionally severe winter. Therefore, continuing coordination with state wildlife agencies may be necessary.

We appreciate the opportunity to comment.

Sincerely,

  
Acting Area Manager

50



United States Department of the Interior  
FISH AND WILDLIFE SERVICE

AREA OFFICE - IDAHO AND NEVADA  
4620 OVERLAND ROAD, ROOM 238  
BOISE, IDAHO 83705  
FTS: 554-1960/COMM: 208/334-1960

OCT 5 1981

Mr. Doug Jansing  
HQ SAC/DEV  
Offutt Air Force Base  
Nebraska 68113

Re: ROV  
A-95 Submittal

Dear Mr. Jansing:

We have reviewed the description of the proposed low level training route attached to your memorandum of September 11. A high probability of disturbance and possible mortality to whooping cranes would occur with the proposed low level flights over Grays Lake National Wildlife Refuge (NWR). A location map of the refuge is enclosed. We request that no low level flights be made over Grays Lake NWR from May through September due to the endangered whooping crane in the area.

If this stipulation is not acceptable for the proposed training program, we recommend that the Air Force consult formally with the Fish and Wildlife Service in accordance with Section 7 of the Endangered Species Act. Further questions may be directed to James F. Gore, Endangered Species Team Leader, 4696 Overland Road, Room 566, Boise, ID 83705, phone (com'l) (208) 334-1806, (FTS) 554-1806.

Sincerely yours,

  
L. A. Mehrhoff  
Area Manager

Enclosure

(51)



# STATE of NEBRASKA

CHARLES THONE  
GOVERNOR

DON STENBERG  
DIRECTOR

## POLICY RESEARCH OFFICE

P.O. BOX 94601, LINCOLN, NEBRASKA 68509  
STATE CAPITOL, ROOM 1321, (402) 471-2414

October 2, 1981

Headquarters Strategic Air Command/DEVA  
Offutt, AFB, Nebraska 68113

ATTN: Mrs. Hei

Under the provisions of OMB Circular A-95, this agency has completed the state clearinghouse review of the environmental analysis for the proposed comprehensive aircrew training program.

No comments were received from state agencies during the review of the proposed program. Upon completion of the final environmental analysis, this agency would appreciate receiving one copy for review.

Sincerely

Larry Bare  
Director

LB:NPn

cc: Joseph C. LaFoy

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# United States Department of the Interior

## NATIONAL PARK SERVICE

Pacific Northwest Region  
Westin Building, Room 1920  
2001 Sixth Avenue  
Seattle, Washington 98121

IN REPLY REFER TO:

L7619(PNR)PC

September 22, 1981

Mr. Doug Jansing  
HQ SAC/DEV  
Offutt Air Force Base  
Nebraska 68113

Dear Mr. Jansing:

In response to your September 11 Notice of Intent to prepare an environmental assessment for the proposed Strategic Air Command training area in Montana, Wyoming, Idaho, North Dakota, South Dakota, Colorado, and Nebraska, we offer the following comment:

Please send copies of the assessment when completed to--

1. Regional Director  
Pacific Northwest Region  
National Park Service  
Westin Building, Room 1920  
2001 Sixth Avenue  
Seattle, Washington 98121
2. Regional Director  
Rocky Mountain Region  
National Park Service  
P.O. Box 25287  
Denver, Colorado 80225

Thank you for the opportunity to comment on this notice.

Sincerely yours,

Glenn D. Gallison  
Associate Regional Director,  
Planning and Resource Preservation

IDAHO STATE HISTORICAL SOCIETY

610 NORTH JULIA DAVIS DRIVE BOISE, IDAHO 83706



STATE MUSEUM

October 13, 1981

Mr. Douglas Jansing  
Environmental Quality Division  
HQ SAC/DEVQ  
Offutt Air Force Base, Nebraska 68113

Dear Mr. Jansing:

Thank you for informing us of your environmental analysis of the low level flight training complex (STRC). We do not believe such a complex will have any effect on archaeological or historic sites in Idaho.

Sincerely,

A handwritten signature in cursive script, reading "Thomas J. Green".

Thomas J. Green  
State Archaeologist  
State Historic Preservation Office

TJG/kmh

54

STATE PLANNING BUREAU

State Capitol  
Pierre, South Dakota 57501  
605/773-3661



Office of

Executive Management

October 15, 1981

Headquarters  
Strategic Air Command/DEVQ  
Offutt AFB, NE 68113

ATTN: Mrs. Hei

RE: EIS 090181 - Modification II  
Environmental Impact Analysis Process on a Proposed Strategic  
Training Range Complex (STRC)

Dear Mrs. Hei:

The State Clearinghouse has distributed for review the above stated  
environmental impact analysis.

Attached for your consideration are the comments we received from  
the South Dakota Department of Aeronautics. Thank you for the  
opportunity to review and comment on this document.

Sincerely,

A handwritten signature in cursive script, appearing to read "Harry W. Christianson".

Harry W. Christianson  
Commissioner  
STATE PLANNING BUREAU

cc: AFESC (Major LaFoy)  
1st CEVG/RBDR (Major Combs)

PROJECT NOTIFICATION REVIEW UNDER OMB CIRCULAR A-95

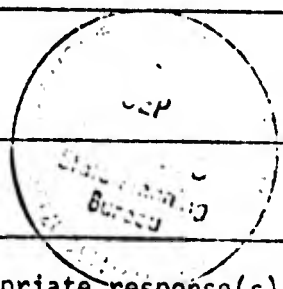
<b>FROM:</b> South Dakota State Clearinghouse Room 206, State Capitol Building Pierre, South Dakota 57501 Phone: (605) 773-3661	<b>RE:</b> State Application Number <u>EIS 090181 MOD II</u>
<b>TO:</b> Reviewing Agency  <u>Division of Aeronautics</u>	Date <u>9-15-81</u>

The attached information is referred to your agency for review and comment under OMB Circular No. A-95. Please review the proposal as it affects the plans and programs of your agency as well as those plans with which you are familiar and indicate your comments below.

YOUR COOPERATION IS REQUESTED IN COMPLETING YOUR REVIEW AND RETURNING THIS FORM WITH YOUR COMMENTS TO THIS OFFICE BY NO LATER THAN:

9-25-81

	Yes	No	Comments
Is this project consistent with the plans, goals and objectives of your agency?			
Does the proposed project conflict with any applicable statute, order, rule or regulation with which you are familiar?			
Does this project overlap, conflict or duplicate other existing programs or agencies?			



Please convey your general conclusion by checking the appropriate response(s):

- Recommend approval
- Recommend approval only with the conditions described below
- Recommend disapproval for the reasons described below
- Additional information is desired as described below
- Request a meeting with the applicant before completing comments
- No comments on this proposal

**REMARKS:** We realize the importance of, and approve of, the training area over South Dakota as described herein. We are concerned by the hazard created by the aircraft speeds and types of missions involved. If the Military pilots are preoccupied with "Heads-Down" mission demands the possibility of collision with general aviation aircraft becomes a threat. Therefore we also request the area of airspace used over the State for this type mission remain as small as possible

REVIEWERS SIGNATURE *Ken Beck* DATE 9-24-81

TITLE State Pilot/Ass't. Aviation Safety PHONE (605) 773-3574  
Monte Schneider, Director of Aeronautics, SD DOT



WYOMING  
EXECUTIVE DEPARTMENT  
CHEYENNE

September 28, 1981

ED HERSCHLER  
GOVERNOR

FOR MAJ ANTHONY  
HQ AF/XOOTS  
TEL 227-2020

Mrs. Hei  
Headquarters Strategic Air Command/DEVQ  
Offutt Air Force Base, Nebraska 68113

Dear Mrs. Hei:

On September 10, 1981, the USAF Environmental Planning Division provided my office with information concerning the proposed SAC Strategic Training Range Complex. This information has been circulated for review to the requested agencies. Our agency review should be completed by mid-October and detailed comments will be developed at that time. My staff has contacted Mr. Bob Lester of the USAF Environmental Planning Division to discuss our need for additional time and information in assessing this proposal.

It is my understanding that your office can arrange a briefing whereby SAC personnel will come to Cheyenne to discuss the entire training range complex and related support activities. In view of the problems we are having in comprehending and assessing the information provided to date, I believe that such a briefing session is necessary, and request that it be arranged as soon as possible.

Based on our preliminary review of the information provided to date, the following concerns have surfaced:

- 0 Noise impacts - Our Air National Guard has received several citizen complaints of shattered windows and night time noise due to low level SAC activity. Adverse impacts on livestock and ranching operations, wildlife and recreation/tourism are of concern. Concerns over highway safety and driver distraction due to low level flights over highways have also been voiced.
- 0 Air traffic conflicts - As indicated in our previously submitted comments, some of the proposed training routes interfere with approaches to existing airports and landing strips. This creates hazardous situations for general aviation and commuter or commercial aircraft. Emergency medical and recovery mission

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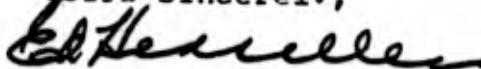
Mrs. Hei  
September 28, 1981  
Page 2

needs must be considered. This conflict potential could worsen because aviation in Wyoming is rapidly developing as a result of energy resource development.

- 0 Uncertainty over the ultimate extent of this proposal and concern over the potential cumulative impacts of vastly increased low level SAC activity in Wyoming air space.

In sum, there are major reservations over the proposed expansion and wide open use of Wyoming air space for the SAC training complex and mission. Perhaps some of these concerns are unfounded and can be resolved through the briefing session, additional exchange of information, routing flexibility, and cooperative planning efforts. However, it is apparent to me that additional work and cooperation is necessary if the training complex proposal is to be made compatible with Wyoming's environmental, safety, and air space objectives. Please contact Mr. Paul Cleary of my staff (307/777-7574) to discuss the scheduling of the briefing meeting.

Yours sincerely,



EH/pct

cc: Joe C. LaFov, Jr. Lt. Colonel, USAF  
Chief, Environmental Planning Division



WYOMING  
EXECUTIVE DEPARTMENT  
CHEYENNE

November 24, 1981

ED HIRSCHLER  
GOVERNOR

Mr. Douglas Jansing  
Headquarters  
Strategic Air Command/DEVQ  
Offutt Air Base, NE 68113

Dear Mr. Jansing:

I understand that your office is in the process of finalizing the environmental assessment for the proposed SAC Strategic Training Range Complex. The overall proposal was explained and discussed by SAC representatives at a November 4, 1981 briefing held in Cheyenne. As a result of that meeting, our agencies have no further comments on the training route complex as described to date. You should refer to and utilize our previous comment packages of April 7, 1981, July 9, 1981, and September 28, 1981, in completing your environmental assessment. Those comments reflect concerns of both a general and route specific nature. They should be highlighted and fully discussed in the environmental assessment. The assessment should also disclose and discuss potential route additions or operational changes in the existing training route complex.

Now that there are three fully operational low-level SAC training routes in Wyoming, I would like to see additional efforts focused on recording, documenting and resolving citizen complaints and environmental problems associated with these routes. To that end, I request that SAC establish a contact person and a consistent procedure whereby complaints and concerns can be channeled for a timely response. The contact person should also be responsible for keeping my office abreast of citizen complaints and problem resolutions. Further, I request that SAC establish a direct communication procedure with my office so that I am immediately informed of any accidents or crashes involving SAC aircraft in Wyoming.

I look forward to your response to the above requests and the completion of the environmental assessment.

Yours sincerely,

EH:pcd

cc: Joe C. LaFoy, Jr., Lt. Colonel, USAF  
Chief, Environmental Planning Division

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14. Your maps and a copy of your letter were forwarded to the Route Development Branch at Headquarters, 1 CEVG, for consideration in development of STRC route.

Complaints regarding any low-flying Air Force aircraft or sonic booms (which will not be generated by STRC aircraft) should be made through any Air Force Public Affairs (PA) offices. A listing of public affairs offices and facts needed for Air Force action to begin are listed in an attachment to the finding.

15. & 16. Your listing and map have been forwarded to the Route Development Branch at HQ, 1 CEVG, for consideration in planning the STRC routes. (Please see Responses 9 and 17.)

17. It is unknown at this time if any STRC routes will overfly wilderness areas or if these areas can be avoided. Your map has been forwarded to the Route Development Branch at HQ, 1 CEVG, for addition of these locations to their planning maps (p 25, Land Use-Noise). Wilderness, as described in the act, is to be "...an area... untrammelled by man...with the imprint of man's work substantially unnoticeable...(and that) has outstanding opportunities for solitude..." The act further provides that "there should be no...permanent road,... no use of motor vehicles, motorized equipment, or motorboats, no landing of aircraft, no other form of mechanical transport, and no structure or installation within any such area."

There would be no scheduled landings of Air Force aircraft in the wilderness area, no dropping of materials such as live or inert ordinance, and no use of ground vehicles in the area; therefore, the Air Force believes that the proposed operations are compatible with wilderness area objectives. The route developers make every effort to insure low-level operations are confined, to the maximum extent, to sparsely populated areas and that they avoid noise sensitive activities.

The Air Force supports the concept of the National Wilderness Preservation System but will seek to insure that wilderness designation is compatible with current or future military operations. Wilderness preservations without provisions for military overflight could have adverse effects on the Air Force's national defense readiness responsibilities. (Also see Response 9)

Your concern for wildlife is addressed in Section E, Wildlife; and Response 26 .

The route developers continually monitor and adjust current routes to resolve unexpected potential impacts. The reporting system is made up of all individual citizens (see Response 14), Air Force, and Intergovernmental Agency.

18. Your letter was forwarded to the Route Development Branch at 1 CEVG for inclusion on their survey maps. Primitive areas are given the same consideration as wilderness areas (p 25, Land Use-Noise; and Responses 9 and 17).

19. Your brochure has been forwarded to the Route Development Branch at HQ, 1 CEVG, for inclusion on their survey maps. Special consideration will be given Bear Butte State Park.

20. & 21. Air Force supports the concept of the National Historic Preservation Act (PL 94-422) of 1969 and associated laws and seeks to "...initiate measures necessary to direct...policy, plans, and programs in such a way that federally-owned sites, structures, and objects of historical, architectural, or archeological significance are preserved, restored, and maintained for the inspiration and benefit of the people and...institute procedures to assure the (Air Force) plans and programs contribute to the preservation and enhancement of non-Federally-owned sites, structures, and objects of historical, architectural, or archeological significance."

The Air Force method of identifying the quantity, type, and importance of the cultural resources to be potentially affected by low-level flights is through contact with the state historical agencies for identification of specific sites. Some monuments within the STRC have been identified (see Appendix 21) and will be considered in the development of the STRC routes.

During site selection for the STR site and the STC, the local historical society will be contacted to determine if any known or unknown cultural resources would be affected by construction or operation of these facilities.

Jet aircraft flying subsonic speeds do not generate shock waves which would be of a magnitude great enough to cause damage to objects on the ground. (p 25, Land Use-Noise)

We agree that noise from low-flying aircraft could adversely affect the aesthetics of those people enjoying isolation. Whether it be on the Great Plains or the mountains (p 25, Land Use-Noise; p 28, Noise-Aesthetics; and Response 9). No vapor trails will be formed by STRC aircraft; however, minor smoke residue emitted from the aircraft will be visible (p 17, Aircraft Emissions). The effects on aesthetics vary to the degree of individuality of people. Measurement of these effects would be costly, and the validity or value of the results questionable.

The Environmental Assessment addresses the potential impact noise can have on cultural resources (p 25) and aesthetics (p 28). Since minimal impact is expected (see Comment Letters No. 23 and 24), we do not believe it is feasible to conduct analyses and measurements for this EA in the scope you recommend. We have,

nonetheless, forwarded your letter to the Air Force Engineering and Services Center (AFESC) at Tyndall AFB FL. AFESC will forward your letter to the appropriate Air Force agency for conducting such studies.

22. The map accompanying the announcement depicted an "example" route complex. The routes shown do not represent actual proposed routes. Fossil Butte National Monument and Theodore Roosevelt National Park have been identified (Appendix 21) for consideration in developing the STRC route (p 25, Land Use-Noise; and p 28, Noise-Aesthetics); however; supersonic speeds will not be flown nor sonic booms generated. Thank you for forwarding the announcement to Nebraska.

23. & 24. Thank you for your prompt input.

25. The listing of historic places has been forwarded to the Route Development Branch at HQ, 1 CEVG, for inclusion on their survey map. Since most of the sites listed are in or near populated areas, potential effects are unlikely (p 25, Land Use-Noise). If it is determined any of the sites listed will be potentially affected by development of STRC routes, you will be contacted for further assistance.

26. The routes depicted on the region of influence map illustrate example routes rather than actual proposed routes. The purpose of this map is to show the concept of the route complex. Operations are presently being conducted on an existing low-level route (IR 428) in the area of the Ft Hall Indian Reservation and Bear Lake. IR 428 enters Idaho northeast of Dubois, passes east of Ashton, west of Palisades Reservoir, and crosses into Wyoming north of Afton WY. The route center line passes approximately 25 miles east of Ft Hall Indian Reservation. Although approximately 20 aircraft per day have been flying IR 428 recently, this number is being reduced and would be reduced further with additional route development in the complex.

We agree low-level flights could have a minimal effect on wildlife or domestic stock (p 20, Wildlife). For this reason, the route developers survey flight corridors in a conventional aircraft before submitting requests to FAA and again before jet aircraft begin operating on the routes (see Appendix 24). The purpose of this survey includes identification of large animal herds (domestic or wildlife), agricultural production, or other environmentally sensitive sites. In addition, survey maps (noting sensitive locations), past history, and aerial photos are used in route planning.

Your letter is being forwarded to the Route Development Branch at HQ, 1 CEVG, for inclusion of the Ft Hall Indian Reservation into their survey material.

27. Large numbers of migrating birds can indeed create a hazardous situation for avian species and aircrews. One bird ingested into an aircraft engine can compromise the safety of that aircrew. Unfortunately, it is impossible to plan training routes which avoid all migratory flyways. The bird/aircraft strike hazard team at Tyndall AFB FL provides specific migration data to the Route Development Branch during the environmental analysis of each route. This information is then used in scheduling aircraft on the route, and aircrews are apprised to be alert to the possibility of migrating birds.

Your refuge map has been forwarded to the Route Development Branch. You will be contacted if routes are planned near your refuge.

Low-level routes are planned to avoid established communities or any congested area (see Appendix 23). Route center lines are also planned to avoid single residences as much as possible. Navigational accuracy, however, does not allow for such exacting flight paths. Aircraft generally operate within 1/2 mile of the center line. Occasionally, an aircraft flying off center line may overfly residences and cause noise disturbance. It is unlikely that this would be a frequent occurrence. If so, the Air Force should be contacted (see Response 14).

28. IR 499, which is included in the proposed STRC complex, presently overflies an area just north of Flaming Gorge Dam. The center line of this route passes 15 miles north of Brown's Park National Wildlife Refuge. An alternate entry spur (a short leg which provides for decreasing altitudes for low-level entry) is located 20 miles to the east of Brown's Park. The Fish and Wildlife Service has requested military flights maintain an altitude of 2,000 feet above a wildlife refuge. Air Force has incorporated this request into their route development criteria. If the aircraft which traverse Brown's Park can be identified as belonging to the Air Force, please contact us through the channels presented in the attachment to the finding on this EA.

Migrating birds and nesting endangered species are concerns of the Air Force with regard to the development of the STRC routes (p 21, Wildlife; and Response 27). Because the aircraft will present visual and auditory stimuli and the Haliaeetus leucocephalus does not migrate as a group, we believe that an aircraft/bald eagle collision is unlikely. Many cases have been documented in which birds and animals (including endangered species) live in harmony with aircraft noise (p 20, Wildlife). Even so, when a nesting area of an endangered species is located and identified to the Air Force, consultation is made with the local Fish and Wildlife Service to determine potential effects, and routes are adjusted accordingly.

Your letter is being forwarded to the Route Development Branch at HQ; 1 CEVG, so they may note the mule deer/elk herds as sensitive areas.

29. Thank you for your comments.

30. We look forward to working with you.

31. & 32. Thank you for your comments. The refuge map has been forwarded to the Route Development Branch at 1 CEVG, Barksdale LA. You will be contacted if routes are planned in your areas.

33. Your letter was forwarded to the Route Development Branch at 1 CEVG (with attachment) and to the Bird Aircraft Strike Hazard Team at Tyndall AFB FL.

These routes will be used primarily by B-52 aircraft, flying at an average speed of 340 knots (p 9, Operations). Birds may be able to "see and avoid" the B-52 with equal skill.

34. & 35. Thank you for your comments. Your letter (and map) was forwarded to the Air Force Bird Aircraft Strike Hazard Team at Tyndall AFB FL so they may incorporate the information you have provided into their data.

36. Altitudes of 2,000 feet AGL will be maintained over Camas National Wildlife Refuge if a route is developed over this refuge. Little or no behavioral response (p 21, Wildlife) is expected as a result of aircraft noise at this altitude.

37. We agree that most wildlife would easily adjust to noise created by STRC aircraft. We are primarily concerned with disturbance to threatened or endangered species. If we use avoidance criteria for refuges such as we do for airports and nuclear power plants, we would be compromising mission requirements and fuel conservation measures. Due to limited air space, the locations of existing facilities, and the large number of wildlife refuges throughout the country, it would be highly detrimental to our mission if refuge avoidance was added to route development criteria.

Altitude data, special operating procedures, and route corridor widths for low-level training routes are published in a flight information publication for military training routes. Reasons for altitude changes are not given with the instructions. Pilots comply with these instructions for their own safety as well as environmental constraints.

38. We are familiar with Section 7 of the Endangered Species Act of 1973 which requires every Federal agency to "ensure that its activities or programs...will not jeopardize the continued

existence of a listed species...and...do not result in the destruction or adverse modification of critical habitats." We are also aware that "critical habitat" for the Grus Americana has been designated at Gray's Lake and that successful crane reproduction experiments have been done.

A low-level training route (IR 428) is presently located parallel to Gray's Lake (see Response 26). The center line is located approximately four miles east of the lake line. This buffer zone is adequate to preclude disturbing effects on the avian species and will not cause degradation of the habitat; however, to insure that low-flying aircraft would not cause potential noise impacts, the Route Development Branch reduced the corridor width to three miles. This corridor reduction insures even single event noise levels do not disturb the cranes.

Your letter was sent to the Bird Aircraft Strike Hazard Team at Tyndall AFB FL for inclusion of your migration information and recommendation into their data. Thank you for your comments.

39. & 40. Low-level training is essential for the Air Force to maintain a defense readiness capability. Availability of air space and sparse population density are prime considerations in determining locations of low-level training routes. The extensive areas you mentioned in your letters meet both of these selection criteria and would likely be considered for STRC route. The potential for disturbance to avian species exists primarily when critical habitat or nesting sites are affected. It is probable routes can be developed in these general areas without affecting the mentioned species. In planning individual routes for the STRC, route planners will contact local agencies to determine specific areas of concern with regard to the route being planned.

Your letters have been forwarded to the Route Development Branch at 1 CEVG and the Air Force Bird Aircraft Strike Hazard Team for incorporation of the information you have provided into their data.

41. A low-level route (IR 404) presently exists in the area of the C.M. Russell Wildlife Refuge. The center line is located six miles from the northeast side of the reservoir. If the STRC project is developed, more routes will undoubtedly be planned for that area since Hayes and Williston MOAs are located to the west and east of the refuge (p 6, Intercept Areas; and Appendix 1). You will be contacted during the planning stages of future routes in this area. Thank you for your offer to monitor any effects.

Your letter was forwarded to the Air Force Bird Aircraft Strike Hazard Team at Tyndall AFB for inclusion of the migration information you have provided into their data.

42. Thank you for responding.

43. Your letter was forwarded to the Route Dvelopment Branch at HQ, 1 CEVG, for inclusion of Sully's Creek State Primitive Park and Little Missouri State Park in their survey data.

44. Thank you for your response.

45. You are correct. Thank you for responding.

46. - 48. Thank you for your responses.

49. Thank you for your comments. A request for your information was sent to you.

50. Thank you for your response.

51. See Response #38. No flights will be planned over Gray's Lake National Wildlife Refuge without first consulting you and the refuge.

52. & 53. Copies of the EA are being sent to you.

54. Thank you for your response.

55. & 56. Thank you for your comments.

57. A briefing was conducted for your staff on 4 November 1981. Lt Col Milt Magaw, who conducted the briefing, is the project manager for the STRC/STC. The Air Force strives to be cooperative with the national public.

58. Comments received from your offices have been included herein. Future route additions or operational changes--upon their proposal--will be analyzed on individual bases with regard to the overall program. A copy of your letter has been forwarded to the Public Affairs Office so we may address your communication concerns in a letter to you.

DISTRIBUTION

WYOMING

State of Wyoming  
Executive Dept  
Cheyenne WY 82002

Gov Ed Herschler  
Mr. Carl E. Johnson, State Forester  
Mr. Dick Hartman, Planning Coordinator  
Mr. W. Don Nelson  
Mr. Paul Cleary, State Planner

Mr. Richard C. J. Spaeth, Admin Asst  
Mr. Casimer Krauser, Director  
Wyoming Aeronautics Commission  
200 E. 8th Avenue  
Cheyenne WY 82002

Wyoming Recreation Commission  
604 E. 25th Street  
Cheyenne WY 82002

Jan L. Wilson, Director  
Mark G. Junge, Deputy  
Mr. Michael Massie  
Mr. Richard L. Bryant  
Mr. Gary A. Thorson

Mr. Tim Link  
Wyoming Department of Environmental Quality  
401 W. 19th Street  
Equality State Bank Building  
Cheyenne WY 82002

Mr. James L. Spence  
HQ 153d Tactical Airlift Group  
Box 2268, Municipal Airport  
Cheyenne WY 82001

Mr. Joe Daly  
5163 Sycamore Road  
Cheyenne WY 82001

Mr. Ron Olsen  
Medicine Bow National Forest  
605 Skyline Drive  
Laramie WY 82070

Mr. John E. Wilbrecht  
National Elk Refuge  
PO Box "C"  
Jackson WY 83001

Mr. Robert L. Phillips  
Fish and Wildlife Service  
PO Box 916  
Sheridan WY 82801-0916

Lieutenant Colonel Ray W. Williams  
Army Air National Guard HQ  
5500 Bishop Blvd  
Cheyenne WY 82002

Colonel Dave McCracken  
4 AD/DO  
F E Warren AFB WY 82001

MONTANA

Ms. Marcella Sherfy, Deputy SHPO  
Montana Historical Society  
Historic Preservation Office  
255 N. Roberts Street  
Helena MT 59601

Mr. Robert L. Pearson, Manager  
Benton Lake National Wildlife Refuge  
PO Box 450  
Black Eagle MT 59414

Mr. Gene A. Sipe, Manager  
Bowdoin National Wildlife Refuge  
PO Box J  
Malta MT 59538

Mr. Ralph F. Fries, Manager  
Charles M. Russell National  
Wildlife Refuge  
PO Box 110  
Lewistown MT 59457-0110

SOUTH DAKOTA

Mr. James R. Richardson  
State Planning Bureau  
State Capitol  
Pierre SD 57501

Mr. Harry W. Christianson, Commissioner  
State Planning Bureau  
State Capitol  
Pierre SD 57501

Mr. Ron Fowler  
Division of Wildlife  
Sigurd Anderson Building  
Pierre SD 57501

Mr. Lowen Schuett  
South Dakota Division of Parks  
and Recreation  
Sigurd Anderson Building  
Pierre SD 57501

Mr. Junius R. Fishburne, SHPO  
Historical Preservation Center  
University of South Dakota  
Vermillion SD 57069

Mr. Rolf H. Kraft, Manager  
Lacreek National Wildlife Refuge  
South Route  
Martin SD 57551

NORTH DAKOTA

Mr. Dale L. Henegar, Commissioner  
North Dakota Game and Fish Department  
2121 Lovett Avenue  
Bismarck ND 58505

Mr. James E. Sperry, SHPO  
North Dakota State Historical Society  
North Dakota Heritage Center  
Bismarck ND 58505

Mrs. Leonard E. Banks  
North Dakota Federal Aid Coordinator Office  
State Capitol  
Bismarck ND 58505

Mr. Harold G. Vavra, Director  
North Dakota Aeronautics Commission  
Box 5020  
Bimarck ND 58505

Pinehurst Office Park  
1424 W. Century Avenue  
PO Box 700  
Bismarck ND 58502

Mr. Neal A. Shipman, Parks and Recreation Department  
Ms. Pam Soine, National Heritage Program  
Ms. Karen Baumler, Coordinator of Grants and Community Services

Mr. Ronald D. Shupe, Manager  
Audubon National Wildlife Refuge  
Coleharbor ND 58531

IDAHO

Mr. Duane F. Thompson, Superintendent  
Bureau of Indian Affairs  
Ft. Hall Agency  
Ft. Hall ID 83203

Mr. Jerry M. Conley, Director  
Department of Fish and Game  
600 So. Walnut Street  
PO Box 25  
Boise ID 83707

Ms. Gloria Mabbutt, Coordinator  
Division of Economic and Community Affairs  
State Capitol Building  
Boise ID 83720

L. A. Mehrhoff  
Fish and Wildlife Service  
4620 Overland Road, Room 238  
Boise ID 83705

Mr. Thomas J. Green, SHPO  
State Historical Society  
610 N. Julia Davis Drive  
Boise ID 83706

Mr. Charles S. Peck, Manager  
Mr. Edward W. Loth, Grays Lake  
National Wildlife Refuge  
SE Idaho Refuge Complex  
510 Yellowstone Avenue  
PO Box "R"  
Pocatello ID 83201

COLORADO

Lieutenant Colonel Grant S. Hackmann  
Major Joseph R. Davis  
Air Force Representative, Rocky Mountain  
Federal Aviation Administration  
10455 East 25th Ave.  
Aurora CO 80010

Mr. Richard A. Strait  
National Park Service  
Rocky Mountain Regional Office  
655 Parfet Street  
PO Box 25287  
Denver CO 80225

Mr. Arthur C. Townsend, SHPO  
Colorado Heritage Center  
1300 Broadway  
Denver CO 80203

Mr. Craig W. Rupp, Regional Forester  
U.S. Forest Service  
Rocky Mountain Region  
11177 W. Eighth Avenue, Box 25127  
Lakewood CO 80225

Mr. Don W. Minnich  
Fish and Wildlife Service  
PO Box 25486  
Denver Federal Center  
Denver CO 80225

Mr. Stephen O. Ellis  
Division of Local Government  
Department of Local Affairs  
1313 Sherman Street, Room 523  
Denver CO 80203

Mr. James L. Sellers, Assistant Manager  
Browns Park National Wildlife Refuge  
Greystone Rt.  
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