

ENVIRONMENTAL ASSESSMENT IMPLEMENTATION OF BASE REALIGNMENT AND CLOSURE (BRAC) RECOMMENDATIONS AND OTHER ARMY TRANSFORMATION ACTIONS AT FORT LEONARD WOOD, MISSOURI



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PUBLIC NOTICE OF AVAILABILITY
Implementation of Base Closure and Realignment Recommendations
At
Fort Leonard Wood, Missouri
Environmental Assessment and Draft Finding of No Significant Impact

Pursuant to the Council on Environmental Quality regulations for implementing the procedural provisions of the National Environmental Policy Act (40 CFR 1500), and 32 CFR 651 Environmental Analysis of Army Actions, Fort Leonard Wood, Missouri, conducted an Environmental Assessment (EA) of the potential environmental and socioeconomic effects associated with implementing the Defense Base Closure and Realignment (BRAC) Commission recommendations for actions occur at Fort Jackson.

The BRAC Commission directed actions at Fort Leonard Wood are:

- Relocate the Drill Sergeant School (DSS) from FLW to Fort Jackson, South Carolina; and
- Relocate the Prime Power School (PPS) to FLW from Fort Belvoir, Virginia.

The EA and Draft Finding of No Significant Impact (FNSI) will undergo a 30-day public comment period, August 4-September 3, 2006. This is in accordance with requirements specified in 32 CFR Part 651.14 Environmental Analysis of Army Actions. Throughout this process, the public may obtain information and/or submit written comments on the proposed action and the EA through the FLW Public Affairs Office by calling: Mr. Michael Alley, at telephone number (573) 563-4015, or by writing to:

Mr. Michael Alley
U.S. Army Maneuver Support Center and Fort Leonard Wood
Public Affairs Office
203 Illinois Avenue, Suite 8
Fort Leonard Wood, MO 65473-8936

The EA and the Draft FNSI are available for review at the following libraries:

- 1) Clarke Library, 3202 Nebraska Avenue, Fort Leonard Wood, MO 65473
- 2) Kinderhook Regional Library, Historic 66 West, Waynesville, MO 65581
- 3) Lebanon-Laclede County Library, 915 South Jefferson, Lebanon, MO 65536
- 4) Rolla Public Library, 900 Pine Street, Rolla, MO 65401
- 5) Texas County Library, 117 West Walnut Street, Houston, MO 65483

Comments on the EA and Draft FNSI should be submitted no later than 30 days from the date of this publication.

FINDING OF NO SIGNIFICANT IMPACT

Implementation of BRAC Recommendations at Fort Leonard Wood, Missouri

This Finding of No Significant Impact (FNSI) addresses actions that are fully documented in the *Implementation of BRAC Recommendations at Fort Leonard Wood, Missouri Environmental Assessment*. The Environmental Assessment (EA) is hereby incorporated by reference in this FNSI. Therefore, information in this FNSI will be limited to an overview of key elements of the EA, and conclusions regarding the type and degree of environmental impacts that may occur as a result of the proposed action.

Proposed Action: The purpose of the proposed action is to implement the 2005 Defense Base Closure and Realignment (commonly referred to as BRAC) Commission's recommendation pertaining to Fort Leonard Wood (FLW). The BRAC Commission recommended:

- that the Drill Sergeant School (DSS) at FLW be relocated to Fort Jackson, South Carolina and
- that the Prime Power School (PPS) be relocated to FLW from Fort Belvoir, Virginia.

To enable implementation of these recommendations, the Army proposes to provide necessary facilities to support the changes in force structure. The EA analyzes and documents environmental effects associated with the Army's proposed actions at FLW.

Alternatives Analyzed: Implementation of the proposed action would require construction of new facilities to accommodate the new training mission assigned to FLW. Alternatives to implement the proposed action were developed and are analyzed in the EA. The alternatives are as follows:

- **Alternative 1, No Action Alternative, no location for the PPS.** With respect to a location selection alternative, under the No Action Alternative facilities would not be provided nor renovated to support the unique training missions of the PPS. Although not viable from an operational standpoint, the No Action Alternative will be included as required by Council on Environmental Quality (CEQ) regulations to identify the existing baseline conditions against which potential impacts will be evaluated.

For actions directed by the BRAC Commission, it will be noted that for the No Action Alternative, continuation of current conditions is not feasible since the BRAC actions are Congressionally-mandated actions.

- **Alternative 2, Construct PPS Facilities at Training Area (TA) 244, Area A.** Area A is not currently being used for any mission on FLW. However, only approximately 5-acres of the site is level, and therefore, grading would need to be completed and a retaining wall would need to be installed on the site. The site is upslope from a losing stream where a storm water outfall (001) is stationed. A retention pond would need to be constructed to prevent runoff of sediment-laden storm water. Most of the site is also covered by relatively mature, approximately 30- to 50-year old second

growth oak forest, much of which would need to be cleared to provide the required construction, operations, maintenance and training area.

- **Alternative 3, Construct PPS Facilities at TA 244, Area B.** As recently as June 2006, a portion of Area B was used for heavy equipment operator training on FLW. A majority of the site is level and cleared of trees. Therefore, minimal, or no, grading would need to be completed. The site is upslope from a man-made retention pond and contains a berm to reduce runoff from the site.

As noted in Section 3 of this EA, the analysis process also reviewed alternative fuel delivery methods and alternative training methods. This process identified that alternative methods of delivering fuels and that potential alternative methods of training with simulators was not viable at this time.

Should a suitable simulator technology be developed in the future, the Army and Prime Power School would investigate its feasibility for use as a training aid. Until an adequate generator simulation system is identified, tested and deemed capable of supporting mission requirements, training would remain unchanged.

Environmental Impacts of the Proposed Action: The EA analyzed eight resource areas for each alternative: air quality, noise, geology and soils, water resources, biological resources (flora, fauna, threatened and endangered species, and unique and critical habitats), socioeconomics, utilities, and hazardous and toxic substances. Four resource categories, land use, aesthetics and visual resources, cultural resources, and transportation were eliminated from detailed consideration in the EA analysis. Elimination of these resource categories was based upon the exceptionally limited potential for either beneficial or adverse impacts associated with the identified alternatives. The analyses in the EA concluded that there would be no significant adverse or significant beneficial environmental impacts resulting from the proposed action or alternatives. Under the No Action Alternative, no new construction or renovation would occur at Fort Leonard Wood. Therefore, there would be no anticipated changes in the existing baseline conditions, and impacts to all resources for this Alternative are negligible. The remaining resource impacts for the alternatives are described below:

- **Air Quality:** Construction and operation of PPS Facilities at TA 244, Area A would have direct minor adverse impacts from construction dust/exhaust, and fuel burning during operation of the generators. Indirect negligible adverse impacts from would result from dust/exhaust migrating offsite. Construction and operation of PPS Facilities at TA 244, Area B would have similar impacts to those identified for Area A, although there would be less fugitive dust emissions associated with land grading since the site area is much more level than Area A. Fuel truck deliveries to the PPS would have minor adverse direct and indirect impacts to air quality as a result of dust and vehicle emissions.
- **Noise:** Construction and operation of PPS Facilities at TA 244, Area A would have direct minor adverse impacts from construction noise and minor adverse direct noise impacts from operation of the generators. Construction and operation of PPS Facilities at TA 244, Area B would have indirect negligible adverse noise impacts

from construction and operations noise migrating offsite. Fuel truck deliveries to the PPS would have direct and indirect negligible noise impacts.

- **Geology and Soils:** Construction and operation of PPS Facilities at TA 244, Area A would have direct minor adverse impacts from soil erosion due to excavation/clearing and increased impervious surfaces. Indirect minor adverse impacts would be expected from soil erosion to locations away from Area A. Construction and operation of PPS Facilities at TA 244, Area B would have similar impacts to those identified for Area A, although there would be less erosion due to Area B requiring less tree clearing and less excavation than Area A.
- **Water Resources:** Construction and operation of PPS Facilities at TA 244, Area A would have both direct and indirect minor adverse impacts from particulate suspension in streams and ponds due to construction grading and excavation, combined with storm water runoff. This alternative also would have indirect minor adverse impacts to streams and ponds offsite when disturbed soil from construction, grading, and excavation is carried away from the proposed project site by storm water runoff. Other minor adverse impacts to water resources would result from accidental uncontained spills of POLs from vehicles and fuel storage equipment. Construction and operation of PPS Facilities at TA 244, Area B would have similar impacts to those identified for Area A. The potential fuel spill during delivery and transfer at the proposed site would have a minor short-term and long-term direct adverse impact on surface and ground water within TA 244, if uncontained, and would have an indirect adverse impact if the spill caused water contamination outside of TA 244.
- **Biological Resources:** Construction and operation of PPS Facilities at TA 244, Area A would have direct minor adverse impacts on biological resources due to vegetation removal, wildlife displacement, and habitat removal during construction. This alternative would have no indirect adverse impacts to biological resources. Construction and operation of PPS Facilities at TA 244, Area B would have similar impacts to those identified for Area A, despite there being less vegetation removal and wildlife displacement during construction/renovation. The truck transport of fuel is not expected to have any direct or indirect adverse impacts on biological resources.
- **Socioeconomics:** Construction and operation of PPS Facilities at TA 244, Area A would have short-term direct and indirect minor beneficial impacts on regional employment; income; business volume; housing; educational and community facilities; public services; and government revenues and expenditures. Construction and operation of PPS Facilities at TA 244, Area B would have similar impacts to those identified for Area A. There would be no socioeconomic impacts resulting from the truck transport of fuel to either Areas A or B.
- **Utilities:** Construction and operation of PPS Facilities at TA 244, Area A would have direct and indirect moderate beneficial impacts because it would increase existing water supply lines, thus increasing firefighting capabilities in TA 244. Construction and operation of PPS Facilities at TA 244, Area B would have similar

impacts to those identified for Area A. There would be no utilities impacts resulting from the truck transport of fuel to either Areas A or B.

- **Hazardous and Toxic Substances:** Construction and operation of PPS Facilities at TA 244, Area A would have direct minor adverse impacts due to the possibility of encountering and mishandling of hazardous materials during construction. Short-term and long-term minor adverse direct impacts to soil, groundwater, and/or surface water could occur in the event of accidental spills of hazardous and toxic materials such as antifreeze, hydraulic fluid, and fuels during the operation and maintenance of construction equipment and generators. Construction and operation of PPS Facilities at TA 244, Area B would have similar impacts to those identified for Area A. Truck transport of fuel to Areas A and B would have direct and indirect impacts to soils, water resources, and biological resources if accidentally spilled and not contained during transport within TA 244.

Mitigation Measures: Because the analysis identified no significant adverse or significant beneficial environmental impacts, no mitigation measures are required to reduce significant impacts to non-significant levels as part of this EA.

However, as part of the proposed action, FLW has identified a number of Best Management Practices that will be implemented in association with the proposed construction activities, regardless of the alternative selected as part of FLW's ongoing, pro-active environmental program. Additionally, FLW will work with governmental agencies to comply with the respective regulations and avoid adverse impacts wherever possible. Wherever reasonable and possible to do so, unavoidable impacts will be diminished under consultation with the appropriate agencies. In accordance with 40 CFR 1508.20 (a–e) and 32 CFR Part 651.15 these BMPs are designed to mitigate potential impacts in the following ways:

- **Air Quality:** Techniques will be employed to minimize fugitive dust emissions, such as the retention/reestablishment of vegetative cover in disturbed areas. In addition, all necessary construction and operating permits will be obtained from the Missouri Department of Natural Resources and the U.S. Environmental Protection Agency.
- **Geology and Soils:** Erosion controls detailed in Natural Resources Conservation Service Critical Area standards and those required by State of Missouri storm water discharge permits for construction sites will be used to reduce erosion and protect the water quality of receiving streams. The proponent will ensure that the construction contractor complies with established permits and BMP requirements. Actions occurring on the installation are required to meet existing management plans, standard operating procedures, permit requirements, as well as local, State, and Federal standards.
- **Water Resources:** BMPs will be implemented in accordance with applicable National Pollutant Discharge Elimination System permits and State and local requirements. All construction activities will be conducted in accordance with State, local, and Federal guidelines, regulations, and permits, and all identified and available BMPs will be used to minimize potentially substantial effects.

- **Biological Resources:** All soil disturbing activities are reviewed to ensure that potential impacts to downslope wetlands are avoided or minimized. Trees and vegetation will be maintained and structural erosion control measures would be employed according to standards and specifications of the State of Missouri and/or the U.S. Environmental Protection Agency document *Stormwater Management for Construction Activities*. To ensure compliance with the Section 6 and 7 provisions of the Endangered Species Act and to avoid potential impacts on endangered Indiana bats, gray bats, or bald eagles, all FLW guidelines concerning Bat Management Zone 1, Bat Management Zone 2, and the Bald Eagle Buffer Zone will be followed.
- **Hazardous and Toxic Substances:** Any spills or releases of POL products, hazardous materials, pollutants, or contaminants will be handled in accordance with measures outlined in the Spill Prevention and Response Plan.

Conclusion: On the basis of the findings of the EA, conducted in accordance with the requirements of NEPA, CEQ regulations, and Army Regulations, and after careful review of the potential impacts, I conclude that implementation of either of the Proposed Action alternatives or the No Action Alternative, conducted in a manner consistent with applicable regulatory requirements, will not result in a significant impact on the quality of the human or natural environment. I also affirm that FLW is committed to implementing the Best Management Practices described herein for the proposed action. Therefore, issuance of a Finding of No Significant Impact is warranted, and preparation of an Environmental Impact Statement is not required.

Additionally, as outlined in the EA, I have determined that the Army should implement the following alternative based upon the relative impacts identified during this analysis.

The Army will implement the **Construct PPS Facilities at TA 244, Area B** alternative. This site provides similar training benefits to the Army to those offered at TA 244, Area A, but with much less potential environmental impacts.

Public Availability: The EA has undergone an appropriate 30-day public comment period, in accordance with requirements specified in 32 CFR Part 651.14.



John J. Megnia
Colonel, U.S. Army
Garrison Commander
U.S. Army Maneuver Support Center and Fort Leonard Wood

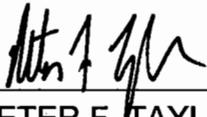
Date 21 Sep 2004

ENVIRONMENTAL ASSESSMENT

IMPLEMENTATION OF BASE REALIGNMENT AND CLOSURE (BRAC) RECOMMENDATIONS AND OTHER ARMY ACTIONS AT FORT LEONARD WOOD, MISSOURI

Prepared by:

U.S. ARMY CORPS OF ENGINEERS
MOBILE DISTRICT



PETER F. TAYLOR, JR.
Colonel, Engineer
Commanding

Approved by:

FORT LEONARD WOOD, MISSOURI



JOHN J. MEGNIA
Colonel, U.S. Army
Garrison Commander
U.S. Army Maneuver Support Center and Fort Leonard Wood

SECTION **TABLE OF CONTENTS** **PAGE**

FNSI **FNSI-1**

TABLE OF CONTENTS **TOC-1**

EXECUTIVE SUMMARY

ES.1 Introduction..... ES-1

ES.2 Proposed Action ES-1

 ES.2.1 Force Structure and Population Changes at Fort Leonard Wood..... ES-1

 ES.2.2 Construction ES-2

ES.3 Alternatives..... ES-2

ES.4 Environmental Consequences..... ES-3

 ES.4.1 Alternative 1, No Action Alternative, no location for PPS ES-3

 ES.4.2 Alternative 2, Construct PPS Facilities at TA 244, Area A ES-3

 ES.4.3 Alternative 3, Construct PPS Facilities at TA 244, Area B ES-4

 ES.4.4 Cumulative Impacts..... ES-5

ES.5 Mitigation ES-7

ES.6 Conclusions ES-7

Section 1 PURPOSE, NEED, AND SCOPE

1.1 Introduction..... 1-1

1.2 Purpose and Need for the Proposed Action 1-1

1.3 Scope 1-2

1.4 Public Involvement 1-3

1.5 Regulatory Framework 1-3

Section 2 PROPOSED ACTION

2.1 Introduction..... 2-1

2.2 Force Structure..... 2-1

2.3 Garrison Facilities..... 2-2

2.4 Training Facilities..... 2-2

2.5 Weapons Systems and Vehicles 2-3

2.6 Schedule 2-3

Section 3 ALTERNATIVES

3.1	Introduction.....	3-1
3.2	Development of Alternatives.....	3-1
	3.2.1 Means to Accommodate Realigned Units or Relocated Units.....	3-1
	3.2.2 Siting of New Construction.....	3-2
	3.2.3 Schedule.....	3-2
3.3	Proposed Action Implementation Alternatives	3-2
	3.3.1 No Action Alternative	3-2
	3.3.2 BRAC-Directed Relocation Alternatives.....	3-3
3.4	Formulation of Alternatives.....	3-4
	3.4.1 Location Component.....	3-4
	3.4.1.1 Screening of Location Component Alternatives Criteria	3-4
	3.4.1.2 Formulation of Location Component Alternatives.....	3-5
	3.4.2 Generator Fuel Delivery Component	3-10
	3.4.2.1 Screening of Generator Fuel Delivery Component Alternatives	3-10
	3.4.2.2 Formulation of Generator Fuel Delivery Component Alternatives	3-10
	3.4.3 Training Component	3-11
	3.4.3.1 Screening of Training Component Alternatives	3-11
	3.4.3.2 Formulation of Training Component Alternatives	3-12
3.5	Component Alternatives Carried Forward for Detailed Analysis and Decisions to be Made	3-13
	3.5.1 Alternative 1 – No Action Alternative (no location for PPS).....	3-13
	3.5.2 Alternative 2 – Construct PPS at TA 244 Area A	3-13
	3.5.3 Alternative 3 – Construct PPS at TA 244 Area B.....	3-14

Section 4 AFFECTED ENVIRONMENT AND CONSEQUENCES

4.1	Introduction.....	4-1
	4.1.1 Initial Resource Category Screening.....	4-3
	4.1.2 Definition of Key Terms.....	4-5
	4.1.2.1 Environmental Baseline.....	4-5
	4.1.2.2 Impact.....	4-5
	4.1.2.3 Direct Versus Indirect Impacts.....	4-5
	4.1.2.4 Impact Characterization.....	4-5
4.2	Air Quality.....	4-7
	4.2.1 Affected Environment.....	4-7
	4.2.1.1 Ambient Air Quality Conditions.....	4-7
	4.2.1.2 Air Pollutant Emissions at Installation.....	4-8
	4.2.1.3 Permit Information	4-10

4.2.1.4	Conformity Determination.....	4-10
4.2.1.5	Regional Air Pollutant Emissions Summary	4-10
4.2.2	Consequences.....	4-11
4.2.2.1	Alternative 1 - No Action Alternative (no location for PPS)	4-11
4.2.2.2	Alternative 2 – Construct PPS at TA 244 Area A.....	4-11
4.2.2.3	Alternative 3 – Construct PPS at TA 244 Area B.....	4-13
4.3	Noise	4-13
4.3.1	Affected Environment.....	4-13
4.3.2	Consequences.....	4-14
4.3.2.1	Alternative 1 - No Action Alternative (no location for PPS)	4-14
4.3.2.2	Alternative 2 – Construct PPS at TA 244 Area A.....	4-14
4.3.2.3	Alternative 3 – Construct PPS at TA 244 Area B	4-16
4.4	Geology and Soils	4-16
4.4.1	Affected Environment.....	4-16
4.4.1.1	Geologic and Topographic Conditions	4-16
4.4.1.2	Soils.....	4-17
4.4.2	Consequences.....	4-17
4.4.2.1	Alternative 1 - No Action Alternative (no location for PPS)	4-17
4.4.2.2	Alternative 2 – Construct PPS at TA 244 Area A.....	4-18
4.4.2.3	Alternative 3 – Construct PPS at TA 244 Area B.....	4-18
4.5	Water Resources	4-19
4.5.1	Affected Environment.....	4-19
4.5.1.1	Surface Water	4-19
4.5.1.2	Hydrogeology Groundwater.....	4-19
4.5.1.3	Floodplains	4-20
4.5.2	Consequences.....	4-20
4.5.2.1	Alternative 1 - No Action Alternative (no location for PPS)	4-20
4.5.2.2	Alternative 2 – Construct PPS at TA 244 Area A.....	4-20
4.5.2.3	Alternative 3 – Construct PPS at TA 244 Area B	4-21
4.6	Biological Resources	4-22
4.6.1	Affected Environment.....	4-22
4.6.1.1	Vegetation	4-22
4.6.1.2	Wildlife.....	4-23
4.6.1.3	Sensitive Species	4-24
4.6.1.4	Wetlands	4-25
4.6.2	Consequences.....	4-25
4.6.2.1	Alternative 1 - No Action Alternative (no location for PPS)	4-25
4.6.2.2	Alternative 2 – Construct PPS at TA 244 Area A.....	4-26
4.6.2.3	Alternative 3 – Construct PPS at TA 244 Area B	4-26
4.7	Socioeconomics	4-28
4.7.1	Affected Environment.....	4-28
4.7.1.1	Economic Development.....	4-28

4.7.1.2	Demographics	4-29
4.7.1.3	Housing	4-30
4.7.1.4	Quality of Life	4-31
4.7.1.5	Environmental Justice	4-34
4.7.1.6	Protection of Children	4-35
4.7.2	Consequences	4-36
4.7.2.1	Alternative 1 - No Action Alternative (no location for PPS)	4-36
4.7.2.2	Alternative 2 – Construct PPS at TA 244 Area A	4-37
4.7.2.3	Alternative 3 – Construct PPS at TA 244 Area B	4-39
4.8	Utilities	4-39
4.8.1	Affected Environment	4-39
4.8.1.1	Potable Water Supply	4-39
4.8.1.2	Wastewater System	4-39
4.8.1.3	Storm Water System	4-39
4.8.1.4	Energy Sources	4-40
4.8.1.5	Communications	4-40
4.8.1.6	Solid Waste	4-40
4.8.2	Consequences	4-41
4.8.2.1	Alternative 1 - No Action Alternative (no location for PPS)	4-41
4.8.2.2	Alternative 2 – Construct PPS at TA 244 Area A	4-41
4.8.2.3	Alternative 3 – Construct PPS at TA 244 Area B	4-43
4.9	Hazardous and Toxic Substances	4-42
4.9.1	Affected Environment	4-42
4.9.1.1	Uses of Hazardous Materials	4-43
4.9.1.2	Storage and Handling Areas	4-43
4.9.1.3	Hazardous Waste Disposal	4-43
4.9.1.4	Site Contamination and Cleanup	4-43
4.9.1.5	Special Hazards	4-43
4.9.2	Consequences	4-44
4.9.2.1	Alternative 1 - No Action Alternative (no location for PPS)	4-44
4.9.2.2	Alternative 2 – Construct PPS at TA 244 Area A	4-44
4.9.2.3	Alternative 3 – Construct PPS at TA 244 Area B	4-45
4.10	Cumulative Effects Summary	4-45
4.10.1	Introduction	4-45
4.10.2	Potential Cumulative Impacts	4-47
4.10.2.1	Alternative 1 – No Action Alternative	4-47
4.10.2.2	Implementation Alternatives	4-47
4.11	Mitigation Summary	4-50
4.12	Conclusions, Findings, and Recommendations	4-54
Section 5	Acronyms	5-1

Section 6 References 6-1

Section 7 List of Preparers 7-1

Section 8 Distribution List 8-1

Section 9 Persons Consulted 9-1

Appendices

Appendix A Public Involvement.....A-1

Appendix B Economic Impact Forecasting System (EIFS) Model OutputB-1

Tables

ES-1 Population Changes to occur at Fort Leonard Wood as a Result of
Base Realignment and Closure Actions ES-1

2.1 Population Changes to occur at Fort Leonard Wood as a Result of
Base Realignment and Closure Actions 2-2

3.1 Location Component Alternatives Analysis for BRAC Actions at
Fort Leonard Wood..... 3-6

3.2 Generator Fuel Delivery Component Alternatives Analysis for BRAC
Actions at Fort Leonard Wood..... 3-10

3.3 Training Component Alternatives Analysis for BRAC Actions at
Fort Leonard Wood..... 3-12

4.1 National Ambient Air Quality Standard (NAAQS) 4-9

4.2 Summary of Emission Inventory Questionnaire Information for
Fort Leonard Wood..... 4-10

4.3 Summary of Area A Emissions for Fort Leonard Wood 4-12

4.4 Fort Leonard Wood On-Post Population, 2005..... 4-30

4.5 Minority and Low-Income Population, Fort Leonard Wood
Region of Influence..... 4-35

Figures

3.1 Location Alternatives at Fort Leonard Wood 3-7

4.1 Proposed BRAC-Related Construction Locations at Fort Leonard Wood..... 4-2

4.2 Installation Compatible Use Zones on Fort Leonard Wood 4-15
4.3 Indiana Bat Management Zones on Fort Leonard Wood..... 4-27

EXECUTIVE SUMMARY

ES.1 INTRODUCTION

On September 8, 2005, the Defense Base Closure and Realignment (BRAC) Commission recommended that certain BRAC actions occur at Fort Leonard Wood (FLW), Missouri. These recommendations were approved by the President and forwarded to Congress. The BRAC Commission recommendations must now be implemented as provided for in the Defense Base Closure and Realignment Act of 1990 (Public Law 101-510), as amended.

ES.2 PROPOSED ACTION

The purpose of the proposed action is to implement the BRAC Commission's recommendation pertaining to FLW. The BRAC Commission recommended:

- relocating the Drill Sergeant School (DSS) from FLW to Fort Jackson, South Carolina and
- relocating the Prime Power School (PPS) to FLW from Fort Belvoir, Virginia.

To enable implementation of these recommendations, the Army proposes to provide necessary facilities to support the changes in force structure. This environmental assessment (EA) analyzes and documents environmental effects associated with the Army's proposed actions at FLW.

ES.2.1 Force Structure and Population Changes at Fort Leonard Wood

As a result of the force structure changes described in ES.2, there would be a loss of approximately 22 active duty personnel, 75 full time equivalent students, and an addition of 29 civilians at Fort Leonard Wood.

Table ES-1 shows the change in installation personnel associated with the proposed actions.

Proposed Action	Date	Permanent Party Personnel Military	Permanent Party Personnel Civilian Mission	Permanent Party Personnel Civilian IMA	Student Annual Input	Average Student Load
Prime Power School	Jun 08	11	29	0	72	65
Drill Sergeant School	Jun 08	-33	0	0	-780	-140
Transfer of Veterinary Position	Jul 08	0	0	0	0	0
Increase to FLW for support	Jul 08	0	0	1	0	0
Total		-22	29	1	-708	-75

Source: FLW, 2006

ES.2.2 Construction

To support the movement of the PPS from Fort Belvoir to FLW, the Army proposes to construct, operate and maintain a new training facility within Training Area (TA) 244 at FLW to support the mission. The new training facility would consist of approximately 83,536 square feet (SF), and include classrooms, practical training application areas, administrative, maintenance and support areas. Collocation of these facilities would enhance the training regimen at the school, and minimize travel time between dispersed facilities needed by the students and cadre during the training day. Collocation of the PPS at TA 244 would place the new facility proximate to other heavy equipment training and maintenance functions. This construction directly supports the Army's BRAC and transformation goals.

ES.3 ALTERNATIVES

Alternative methods of supporting the BRAC action were identified by a diverse team of military planners and environmental specialists. This team of personnel identified a range of implementation components and then reviewed, screened, and grouped them into alternatives. The implementation components were grouped into three categories, location, operations, and training. The following description of the alternatives is organized according to these categories.

- 1) **Alternative 1, No Action Alternative, no location for PPS.** Under the No Action Alternative, facilities would not be provided nor renovated to support the unique training missions of the PPS. Although not viable from an operational standpoint, the No Action Alternative is included as required by Council on Environmental Quality (CEQ) regulations to identify the existing baseline conditions against which potential impacts will be evaluated.
- 2) **Alternative 2, Construct PPS Facilities at TA 244, Area A.** Area A is not currently being used for any mission on FLW. However, only about 5 acres of the site is level, and therefore, grading would need to be completed and a retaining wall would need to be installed on the site. The site is upslope from a losing stream where a storm water outfall is located. A retention pond would need to be constructed to prevent runoff of sediment-laden stormwater. Most of the site is also covered by relatively mature, 30- to 50-year old second growth oak forest.
- 3) **Alternative 3, Construct PPS Facilities at TA 244, Area B.** As recently as June 2006, a portion of Area B was used for heavy equipment operator training on FLW. A majority of the site is level and cleared of trees, and therefore, minimal, or no grading would need to be completed. The site is upslope from a man-made retention pond and contains a berm to reduce runoff from the site.

As noted in Section 3 of this EA, the analysis process also reviewed alternative fuel delivery methods and alternative training methods. This process identified that alternative methods of delivering fuels and potential alternative methods of training with simulators were not viable at this time.

ES.4 ENVIRONMENTAL CONSEQUENCES

ES4.1 Alternative 1, No Action Alternative, no location for PPS

Under this alternative only those construction and renovation projects previously reviewed by the installation would be accomplished, and existing on-going mission activities would continue at their current level of intensity and frequency. Therefore, there would be negligible impacts to environmental resources beyond present levels, which generally define the environmental baseline for FLW.

ES 4.2 Alternative 2, Construct PPS Facilities at TA 244, Area A

This alternative would have minor adverse direct impacts to air quality. Both dust emissions and exhaust emissions associated with construction are negligible, temporary, and confined primarily to the immediate project area. Long-term negligible direct impacts to air quality as a result of the operation of the proposed facilities would result from heating and operating the facilities. Additionally, the use of POLs and the emissions of generator exhaust are anticipated to result in minor adverse impacts.

This alternative would have minor direct adverse noise impacts. During construction there would be short-term, localized, minor adverse noise impacts from construction equipment. These noise impacts would be temporary, and confined primarily to the immediate project areas. The operation of the PPS generators during training would also result in minor adverse direct noise impacts.

This alternative would have minor adverse direct impacts to soils. Soils would be disturbed by construction activities such as grading, vegetative clearing, and excavating during construction of the PPS.

Under this alternative, there would be minor, short-term direct adverse impacts to water quality when construction and excavation, combined with storm water runoff cause erosion and subsequent turbidity in lakes, streams, and rivers.

This alternative would have a minor adverse impact on biological resources. Training Area A would require clearing, resulting in a minor long-term adverse affect of habitat loss for insects, birds and mammals.

Additional direct and indirect short-term beneficial economic impacts would be realized by the regional and local economy during construction of the proposed PPS training facilities under this alternative. Employment generated by construction activities would result in wages paid, an increase in business sales volume, and expenditures for local and regional services, materials and supplies.

Under this alternative there would be minor adverse direct impacts to utilities as a result of increased demands on the existing utilities.

Short- and long-term minor adverse direct impacts to soil, groundwater, and/or surface water could occur in the event of accidental, uncontained spills of hazardous and toxic materials such as antifreeze, hydraulic fluid, and fuels during the operation and maintenance of construction equipment and maintenance of PPS vehicles and equipment. Long-term direct adverse impacts to on-site surface water quality may

result from maintenance of the PPS grounds through runoff from POL products, fertilizer, and weed and pest control applications. Minor adverse indirect impacts to soil, groundwater, and/or surface water could occur if accidental POL spills were unsuccessfully contained and allowed to migrate outside the boundaries of Area A. Unlike the site proposed in Alternative 3, the site in Alternative 2 does not currently have a stormwater retention basin where spills could be collected.

ES 4.3 Alternative 3, Construct PPS Facilities at TA 244, Area B

This alternative would result in direct and indirect air quality impacts similar to those identified for Area A with one exception. There would be less fugitive dust emissions associated with land grading since the site area is relatively level.

The noise impacts of this alternative are similar to those described for Area A.

This alternative would result in minor adverse direct impacts on soil similar to those identified for Area A. However, the potential for soil erosion would be distinctly less for Area B due to the lesser amount of earthwork required for this alternative.

Short-term and long-term direct adverse impacts to surface water quality would be similar to those described for construction of classroom, administrative, and generator buildings in Area A.

Although some trees may need to be cleared, the amount of tree clearing and habitat loss is substantially less than in Area A.

Additional direct and indirect short-term beneficial economic impacts would be realized by the regional and local economy during construction of the proposed PPS training facilities under this alternative. Employment generated by construction activities would result in wages paid, an increase in business sales volume, and expenditures for local and regional services, materials and supplies. These impacts would be in the form of increased business volume, income, and employment associated with increased on-post and off-post operations.

Under this alternative there would be moderate beneficial direct impacts to utilities as a result of extending existing water supply lines, which increases firefighting capability.

Short- and long-term minor adverse direct impacts to soil groundwater, and/or surface water could occur in the event of accidental spills of hazardous and toxic materials such as antifreeze, hydraulic fluid, and fuels during the operation and maintenance of construction equipment and maintenance of PPS vehicles and equipment. Minor adverse indirect impacts to soil, groundwater, and/or surface water could occur if accidental POL spills were unsuccessfully contained. The site is upslope from a man-made retention pond and contains a berm to control runoff from the site. Minor adverse indirect impacts could also occur if the stormwater collection basin downslope from TA 244 Area B were allowed to overtop.

ES.4.4 Cumulative Impacts

No Action Alternative

It is anticipated that past and present development trends on the installation and the surrounding civilian community would continue. However, for realignment actions directed by the BRAC Commission, it will be noted that for the No Action Alternative, maintenance of current conditions is not feasible, since the BRAC actions are Congressionally-mandated actions.

Implementation Alternatives

Cumulative impacts under either of the potential development site alternatives are so similar that they have been combined in to a single discussion concerning implementation of the Proposed Action.

- Air Quality. Implementation of the Proposed Action is anticipated to have minor short-term adverse cumulative impacts to air quality. Increases in fugitive dust from construction projects on- and off-post could combine with particulate matter generated through training activities and other previously approved construction projects at the installation and within the surrounding community. These emissions could accumulate with other pollutants from adjacent and regional activities.
- Noise. Under implementation of the Proposed Action, it is anticipated that there would be minor short-term adverse cumulative noise impacts. Construction of the new classroom and maintenance facilities in combination with training activities and other previously approved construction projects at the installation would result in increased noise levels within the area at TA 244, currently a heavy engineer training area. Additionally, generator training would be expected to contribute to long-term adverse cumulative noise impacts. It is not anticipated that these noise levels would adversely impact proximate non-TA 244 activities.
- Geology and Soils. Under implementation of the Proposed Action it is anticipated that there would be short-term minor adverse cumulative impacts to geology and soils. Construction of the new classroom and maintenance facilities in combination with training activities and other previously approved construction projects at the installation would result in increased soil erosion, removal, and compaction. The cumulative impact to soil resources is anticipated to be minor.
- Water Resources. Under implementation of the Proposed Action it is anticipated that there would be short-term and long-term minor adverse cumulative impacts to water resources. Construction of the new classroom and maintenance facilities in combination with training activities and other previously approved construction projects at the installation would involve dirt work and the removal of vegetation that would result in increased water runoff and soil erosion both on the installation and down slope off of the FLW property. This increased runoff may contain

sediment, contaminants, and other construction-related debris. Sediment loading in streams may affect water quality parameters, which in turn could affect fish and wildlife. Short-term cumulative impacts would occur due to direct soil disturbance from training and construction activities. Long-term cumulative impacts would occur due to the increase in impermeable surfaces that would increase the quantity and speeds of run-off. In Alternative 3, the site is upslope from a man-made retention pond and contains a berm to control runoff from the site. Minor adverse indirect impacts could also occur if the stormwater collection basin downslope from TA 244 Area B were allowed to overtop. The site in Alternative 2 does not currently have a stormwater retention basin where spills could be collected. Potential cumulative impacts from run-off would be less under Alternative 3.

- **Biological Resources.** It is anticipated that implementation of the Proposed Action would have long-term minor adverse cumulative impacts to biological resources. The proposed construction sites are undeveloped; however the sites have been previously disturbed. BRAC and non-BRAC construction projects occurring on the installation in combination with surrounding community development projects would result in adverse cumulative impacts to biological resources with the removal of flora and the displacement of fauna.
- **Socioeconomics.** Direct and indirect short-term beneficial cumulative economic impacts would be realized by the regional and local economy during the construction phase. Beneficial long-term cumulative impacts would be realized by the increased operations of the BRAC proposed action in combination with non-BRAC proposed on-post actions and construction projects. These impacts would be realized on an annual basis during the length of the construction period, but would have negligible impacts on the regional economy.
- In addition, the increased operations associated with the Proposed Action results in a negligible increase in the civilian payroll and a negligible increase in on-post expenditures for services and supplies. The increase in on-post, civilian employment associated with the Proposed Action would result in negligible additional off-post business volume, income, and employment. Off-post demand for additional housing and supportive services in the surrounding communities when combined with on-installation development would result in long-term cumulative economic impacts.
- **Utilities.** It is anticipated that implementation of Proposed Action would have moderate beneficial cumulative impacts to utilities. Implementation of BRAC related construction projects, which include updates and continued expansion of the utilities, would have long-term cumulative beneficial impacts on the installation when combined with updates to

utilities on non-BRAC related projects and off-installation utility improvements.

- Hazardous and Toxic Substances. Under the Proposed Action it is anticipated that there would be potential minor short-term adverse cumulative impacts from hazardous and toxic substances. Construction of the new classrooms and maintenance facilities in combination with training activities and other previously approved construction projects at the installation would result in increased potential for adverse impacts from hazardous and toxic substances. Additionally, fuel transport and storage associated with the generator training facility, combined with other fuel transport and use in training activities, would result in a minor, long-term cumulative increase in potential spills on the installation.

ES.5 MITIGATION

No significant adverse or significant beneficial impacts are anticipated as a result of implementing any of the proposed action alternatives or the No Action Alternative. Consequently, no mitigation measures are required to reduce significant impacts to non-significant levels are part of this EA.

However, as part of the proposed action, FLW has identified a number of BMPs that would be implemented in association with the proposed construction activities, regardless of the alternative selected as part of FLW's ongoing, pro-active environmental program. These measures are designed to avoid, reduce, or eliminate the intensity of adverse impacts. For those adverse impacts that cannot be avoided, reduced, or eliminated, the BMPs include features designed to protect, maintain, restore, or enhance environmental conditions.

ES.6 CONCLUSIONS

As noted in this EA, direct, indirect, and cumulative impacts of each of the proposed action alternatives and the No Action Alternative have been considered and no significant impacts (either beneficial or adverse) have been identified. However, for realignment actions directed by the BRAC Commission, it will be noted that for the No Action Alternative, maintenance of current conditions is not feasible, since the BRAC actions are Congressionally-mandated actions. Either of the remaining potential implementation alternatives could be implemented.

SECTION 1

PURPOSE, SCOPE AND NEED

1.1 INTRODUCTION

On September 8, 2005, the Defense Base Closure and Realignment (commonly referred to as BRAC) Commission recommended that certain actions occur at Fort Leonard Wood (FLW), Missouri. These recommendations were approved by the President on September 15, 2005, and forwarded to Congress. Congress did not alter any of the BRAC Commission's recommendations, and on November 9, 2005, the recommendations became law. The BRAC Commission recommendations must now be implemented as provided for in the Defense Base Closure and Realignment Act of 1990 (Public Law 101-510), as amended.

1.2 PURPOSE AND NEED FOR THE PROPOSED ACTION

The purpose of the proposed action is to implement the BRAC Commission's recommendation pertaining to FLW. The BRAC Commission recommended:

- that the Drill Sergeant School (DSS) at FLW be relocated to Fort Jackson, South Carolina and
- that the Prime Power School (PPS) be relocated to FLW from Fort Belvoir, Virginia.

To enable implementation of these recommendations, the Army proposes to provide necessary facilities to support the changes in force structure. This Environmental Assessment (EA) analyzes and documents environmental effects associated with the Army's proposed actions at FLW. Details on the proposed actions are set forth at Section 2.

The need for the proposed action is to improve the ability of the Nation to respond rapidly to challenges of the 21st century. The Army's mission is to defend the United States and its territories, support national policies and objectives, and defeat nations responsible for aggression that endangers the peace and security of the United States. To carry out these tasks, the Army must adapt to changing world conditions and must improve its capabilities to respond to a variety of circumstances across the full spectrum of military operations. The following discusses several major initiatives that contribute to the Army's need for the proposed action.

- **Base Realignment and Closure.** In previous rounds of BRAC, the explicit goal was to save money and downsize the military in order to reap a "peace dividend." In the 2005 BRAC round, the Department of Defense (DoD) sought to reorganize its installation infrastructure to most efficiently support its forces, increase operational readiness, and facilitate new ways of doing business. Thus, BRAC represents more than cost savings. It supports advancing the goals of transformation, improving military capabilities, and enhancing military value. The

Army needs to carry out the BRAC recommendations at FLW in order to achieve the objectives for which Congress established the BRAC process.

- **Installation Sustainability.** On October 1, 2004, the Secretary of the Army and the Chief of Staff issued The Army Strategy for the Environment. The strategy focuses on the interrelationships of mission, environment, and community. A sustainable installation simultaneously meets current and future mission requirements, safeguards human health, improves quality of life, and enhances the natural environment. A sustained natural environment is necessary to allow the Army to train and maintain military readiness.

1.3 SCOPE

This EA has been developed in accordance with the National Environmental Policy Act (NEPA) of 1969 and implementing regulations issued by the President's Council on Environmental Quality (CEQ) and the Army.¹ Its purpose is to inform decision makers and the public of the likely environmental consequences of the proposed action and alternatives.

An interdisciplinary team of environmental scientists, biologists, planners, economists, engineers, archaeologists, historians, and military technicians has analyzed the proposed action and alternatives in light of existing conditions and has identified relevant beneficial and adverse effects associated with the action. The proposed action is described in Section 2, and alternatives, including the No Action Alternative, are described in Section 3. Conditions existing as of November 2005, considered to be the "baseline" conditions, are described in Section 4, Affected Environment and Environmental Consequences. The expected effects of the proposed action, also described in Section 4, are presented immediately following the description of baseline conditions for each environmental resource addressed in the EA. Section 4 also addresses the potential for cumulative effects, and mitigation measures are identified where appropriate.

The Defense Base Closure and Realignment Act of 1990 specifies that NEPA does not apply to actions of the President, the Commission, or the DoD, except "(i) during the process of property disposal, and (ii) during the process of relocating functions from a military installation being closed or realigned to another military installation after the receiving installation has been selected but before the functions are relocated (Sec. 2905(c)(2)(A), Public Law 101-510, as amended)." The law further specifies that in applying the provisions of NEPA to the process, the Secretary of Defense and the secretaries of the military departments concerned do not have to consider "(i) the need for closing or realigning the military installation which has been recommended for closure or realignment by the Commission, (ii) the need for transferring functions to any military installation which has been selected as the receiving installation, or (iii) military installations alternative to those recommended or selected (Sec. 2905(c)(2)(B))." The

¹ Council on Environmental Quality *Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act*, 40 *Code of Federal Regulations* (CFR) Parts 1500–1508, and *Environmental Analysis of Army Actions*, 32 CFR Part 651.

Commission's deliberation and decision, as well as the need for closing or realigning a military installation, are exempt from NEPA. Accordingly, this EA does not address the need for realigning units to or from FLW. Rather, this EA identifies how to most effectively and efficiently support the PPS during its relocation to FLW, and once it has arrived at FLW.

This EA identifies, documents, and evaluates environmental effects of realignments at FLW. The potential effects of the proposed realignment at Fort Belvoir and Fort Jackson will be considered during separate, stand-alone environmental reviews for those locations.

1.4 PUBLIC INVOLVEMENT

The Army invites public participation in the NEPA process. Consideration of the views and information of all interested persons promotes open communication and enables better decision-making. All Native American groups, agencies, organizations, and members of the public having a potential interest in the proposed action, including minority, low-income, and disadvantaged persons, are urged to participate in the decision making process.

Public participation opportunities with respect to this EA and decision making on the proposed action are guided by 32 Code of Federal Regulations (CFR) Part 651.14. Upon completion, the EA will be made available to the public for 30 days, along with a draft Finding of No Significant Impact (FNSI), if a FNSI has been determined to be appropriate. At the end of the 30-day public review period, the Army will consider any comments submitted by individuals, agencies, or organizations on the proposed action, the EA, or draft FNSI. As appropriate, the Army may then execute the FNSI and proceed with implementation of the proposed action. If it is determined prior to issuance of a final FNSI that implementation of the proposed action would result in significant impacts, the Army will publish in the Federal Register a Notice of Intent to prepare an Environmental Impact Statement (EIS), or commit to mitigation actions sufficient to reduce impacts below significance levels.

Throughout this process, the public may obtain information on the status and progress of the proposed action and the EA, or provide comments on the EA through the FLW Public Affairs Office by calling Mr. Michael Alley, at telephone number (573) 563-4015, or by writing to Mr. Alley at the U.S. Army Maneuver Support Center and Fort Leonard Wood, Public Affairs Office, 203 Illinois Avenue, Suite 8, Fort Leonard Wood, MO 65473-8936.

1.5 REGULATORY FRAMEWORK

A decision on how to proceed with the proposed action rests on numerous factors such as mission requirements, schedule, availability of funding, and environmental considerations. In addressing environmental considerations, FLW is guided by relevant statutes (and their implementing regulations) and Executive Orders (EOs) that establish standards and provide guidance on environmental and natural resources management and planning. These include the Clean Air Act (CAA), Clean Water Act (CWA), Noise Control Act (NCA), Endangered Species Act (ESA), National Historic Preservation Act

(NHPA), Archaeological Resources Protection Act (ARPA), Resource Conservation and Recovery Act (RCRA), and Toxic Substances Control Act (TSCA). The EOs bearing on the proposed action include EO 11988 (Floodplain Management), EO 11990 (Protection of Wetlands), EO 12088 (Federal Compliance with Pollution Control Standards), EO 12580 (Superfund Implementation), EO 12898 (Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations), EO 13045 (Protection of Children from Environmental Health Risks and Safety Risks), EO 13101 (Greening the Government Through Waste Prevention, Recycling, and Federal Acquisition), EO 13123 (Greening the Government Through Efficient Energy Management), EO 13148 (Greening the Government Through Leadership in Environmental Management), EO 13175 (Consultation and Coordination with Indian Tribal Governments), EO 13186 (Responsibilities of Federal Agencies to Protect Migratory Birds), and EO 12898 (*Federal Actions to Address Environmental Justice in Minority and Low-Income Populations*). These authorities are addressed in various sections throughout this EA when relevant to particular environmental resources and conditions. The full text of the laws, regulations, and EOs are available on the Defense Environmental Network & Information Exchange (DENIX) Web site at <http://www.denix.osd.mil>.

SECTION 2 PROPOSED ACTION

2.1 INTRODUCTION

The proposed action includes: implementation of the Commission's recommendations as mandated by the BRAC legislation, Public Law 101-510 and 107-107, proposed to occur at FLW during the FY 05-11 timeframe that are sufficiently well defined for analysis at this time.

The BRAC Commission made the following recommendation concerning FLW:

- The FLW DSS would be relocated from FLW and consolidated at the Fort Jackson DSS prior to July 1, 2008.
- The PPS would relocate from Fort Belvoir to FLW prior to July 1, 2008. The PPS would remain assigned to the U.S. Army Corps of Engineers (USACE) with operational control by the U.S. Army Engineer School (USAES) until October 1, 2008. On October 1, 2008, the PPS would be assigned to USAES.

To support the movement of the PPS from Fort Belvoir to FLW, the Army proposes to construct, operate and maintain a new training facility within Training Area (TA) 244 at FLW to support the mission. The new training facility would consist of approximately 83,536 square feet (SF), and include classrooms, practical training application areas, administrative, maintenance and support areas. Collocation of these facilities would enhance the training regimen at the school, and minimize travel time between dispersed facilities needed by the students and cadre during the training day. Collocation of the PPS at TA 244 would place the new facility proximate to other Engineers heavy equipment training and maintenance functions.

These proposed facilities would be used in support of the primary mission of the PPS, which is completion of the Prime Power Production specialist courses for Army, Air Force, Navy and Marine Active Duty and Reserve personnel. The classes offered by the school include academic instruction associated with installing, operating, and maintaining large medium-voltage electrical power plants, along with practical application of the materials covered during day-to-day operations and maintenance of the generators. Additional information on the PPS is located on their web site at <http://pps.belvoir.army.mil/>.

Existing family housing, unaccompanied personnel housing, and transit housing would be used to accommodate the permanent party and students associated with the PPS.

2.2 FORCE STRUCTURE

Force structure refers to the numbers, size, and composition of units comprising Army forces. BRAC recommendations eliminate force structure through inactivation of units assigned to the post and add force structure through creation of new units and reassignment of units from overseas.

Estimated personnel changes at FLW as a result of anticipated BRAC Commission realignments would include:

- a decrease of approximately 22 permanent party military positions;
- an increase of approximately 29 permanent party civilian positions;
- an increase of approximately 1 permanent party Installation Management Agency civilian position;
- a decrease of approximately 708 students on an annual basis; and
- a 75 student decrease in the average daily trainee load (ADTL) reflecting a loss of 140 ADTL for the DSS and increase of 65 ADTL for the PPS.

Table 2.1 provides a summary of the anticipated population changes at FLW.

Proposed Action	Date	Permanent Party Personnel Military	Permanent Party Personnel Civilian Mission	Permanent Party Personnel Civilian IMA	Student Annual Input	Average Student Load
Prime Power School	Jun 08	11	29	0	72	65
Drill Sergeant School	Jun 08	-33	0	0	-780	-140
Transfer of Veterinary Position	Jul 08	0	0	0	0	0
Increase to FLW for support	Jul 08	0	0	1	0	0
Total		-22	29	1	-708	-75

Source: FLW, 2006

2.3 GARRISON FACILITIES

Implementation of the proposed action would not require construction of new Garrison facilities to accommodate the relocation of the PPS to FLW. The existing family and unaccompanied housing currently used by the DSS would be transferred to the PPS once the DSS is relocated to Fort Jackson. Based upon the relatively minor changes in population anticipated, existing installation recreational and support facilities should be adequate to support the anticipated population changes; consequently, no additional facilities would be needed.

2.4 TRAINING FACILITIES

Implementation of the proposed action would require construction of new training facilities to accommodate the PPS to be relocated at FLW. Since under the proposed action the FLW DSS would be relocated to Fort Jackson, this area was initially

considered. However, it was determined that the PPS could not be accommodated in the DSS area. This location was found to not be reasonable due to insufficient space and incompatible land use. Noise level estimates from PPS training using large portable generators are at a minimum approximately 85 decibels (dB) at 100 feet. This would not comply with noise level standards within the cantonment area (65 dB or lower).

The necessary training facilities required for implementation of the proposed action include: training building (approximately 83,536 SF); exterior power generation training area (approximately 120,000 SF); concrete pads; 40 CFR 112 compliant diesel fuel storage tanks (not anticipated to exceed 20,000 gallons), piping, and secondary containment capable of holding a minimum of 110 percent of the quantity of liquid that might be stored in the largest tank; overhead electrical training poles; private and open administrative offices; conference rooms with video teleconferencing; key card readers; reference library; break areas; restrooms with male/female showers; eyewash stations; classrooms; auditorium; indoor training area; welding area; instrumentation lab; maintenance shop; storage and supply rooms; communication closets; lighting; heating, ventilating, and air conditioning (HVAC); and anti-terrorism/force protection (ATFP) measures.

In addition, supporting facilities would include connections and extensions to the existing utilities; paved parking; curbs and gutters; covered pavilion; security and perimeter lighting; safety and security fencing, electrical grounding connections, communications; landscaping; an acetylene tank storage area, and a petroleum, oils, and lubricants (POL) storage area that includes secondary containment. The facilities would be constructed to be accessible to the physically handicapped.

2.5 WEAPONS SYSTEMS AND VEHICLES

Implementation of the proposed action would result in additional vehicles at FLW; but would not require additional weapons systems. Under the proposed action, the PPS to be relocated at FLW would provide training in the operation of large power sources. The PPS training would not involve any weapons, as the primary mission of the PPS is to train students on the proper operation and use of power generation systems in support of contingency operations. Vehicle requirements for the PPS training would include High-Mobility Multipurpose Wheeled Vehicles (HMMWV) and other administrative and maintenance vehicles necessary to support the training mission and administrative needs of the school.

2.6 SCHEDULE

Under the BRAC law, the Army must initiate all realignments not later than September 15, 2007, and complete all realignments not later than September 15, 2011².

² Section 2904(a), Public Law 101-510, as amended, provides that the Army must "... initiate all closures and realignments no later than 2 years after the date on which the President transmits a report [by the BRAC Commission] to the Congress ... containing the recommendations for such closures or

Implementation of the proposed action would occur over a span of approximately 3 years at FLW. Facilities construction would be synchronized to meet the needs, on a priority basis, of the school functions being relocated. Once facilities are completed, then segments of the training curriculum would be relocated to FLW. As currently envisioned, training elements (e.g. cadre, equipment, and associated items) would be relocated from Fort Belvoir to FLW between classes, thereby reducing the impact on students. Student schedules would be coordinated to allow students that start training at Fort Belvoir to complete it there, while students starting at FLW would be able to complete all required elements at FLW.

The schedule for implementation of the proposed action must balance facilities construction timeframes and planned arrival dates of inbound personnel, all within the 6-year limitation of the BRAC law. Realignment earlier is not reasonable in light of the time required to build facilities. Shifting of schedules to accomplish realignment at a later date would unnecessarily delay realization of benefits to be gained. Since earlier implementation is not possible, and since delay is avoidable and unnecessary, alternative schedules are not further evaluated in this EA.

realignments; and ... complete all such closures and realignments no later than the end of the 6-year period beginning on the date on which the President transmits the report ... ” The President took the specified action on September 15, 2005.

SECTION 3 ALTERNATIVES

3.1 INTRODUCTION

A basic principle of NEPA is that an agency should consider reasonable alternatives to a proposed action. Considering alternatives helps to avoid unnecessary impacts and allows analysis of reasonable ways to achieve the stated purpose. To warrant detailed evaluation, an alternative must be reasonable. To be considered reasonable, an alternative must be ready for decision-making (any necessary preceding events having taken place), affordable, capable of implementation, and satisfactory with respect to meeting the purpose of and need for the action. The following discussion, and that in Section 3.3, identifies alternatives considered by the Army and identifies whether they are reasonable and, hence, subject to detailed evaluation in this EA.

Alternatives for implementation of the proposed action have been examined according to three variables: means to physically accommodate realigned units, siting of new construction, and schedule. This section presents the Army's development of alternatives and addresses alternatives available for the proposed action. The section also describes the No Action Alternative.

3.2 DEVELOPMENT OF ALTERNATIVES

3.2.1 Means to Accommodate Realigned or Relocated Units.

Realignment or relocation of units and the establishment of new units involve ensuring that the installation has adequate support facilities for personnel and their on-going operational requirements. In general terms during this BRAC action the Army considered four means of meeting increased space requirements:

- Use of existing facilities;
- Modernization or renovation of existing facilities;
- Leasing of off-post facilities; and
- Construction of new facilities.

Specific information on the alternative means of supporting units relocated to FLW is contained in subsection 3.4.

Army Regulation 210-20, Master Planning for Army Installations, establishes Army policy to maximize use of existing facilities. The regulation directs that new construction will not be authorized to meet a mission that can be supported by existing underutilized adequate facilities, provided that the use of such facilities does not degrade operational efficiency. Under this policy, selection and use of facilities to support mission requirements adheres to the foregoing choices in the order in which they are listed. That is, if there are adequate existing facilities to accommodate requirements, and absent other overriding considerations, further examination of renovation, leasing, or construction alternatives is not required. Similarly, if a combination of use of existing

facilities and renovation satisfies the Army's needs, leasing or new construction need not be addressed. New construction may proceed only when use of existing facilities, renovation, leasing, or a combination of such measures are inadequate to meet mission requirements.

3.2.2 Siting of New Construction

The Army considers both general and specific siting criteria for construction of new facilities. General siting criteria include:

- consideration of compatibility between the functions to be performed and the installation land use designation for the site;
- adequacy of the site for the function required, proximity to related activities;
- distance from incompatible activities, availability and capacity of roads;
- efficient use of property;
- development density;
- potential future mission requirements; and
- special site characteristics, including environmental attributes.

Specific siting criteria include consideration of location of the workforce and efficient, streamlined management of functions. Collocation of similar types of functions, as opposed to dispersion, permits more efficient use of equipment, vehicle, and other assets. Additional information on the specific alternatives being considered at FLW is located in subsection 3.4.

3.2.3 Schedule

Alternatives for scheduling of proposed realignment actions are principally affected by three factors: the availability of facilities to house realigned personnel and functions, efforts to minimize potential disruption of mission activities based on the number of personnel involved in the relocation or the amount of work to be performed, and early realization of benefits to be gained by completion of the realignments. In most cases, minor shifts in schedule would not produce different environmental results.

3.3 PROPOSED ACTION IMPLEMENTATION ALTERNATIVES

The proposed actions are mandated by the BRAC law. The following alternatives will be evaluated in this NEPA document.

3.3.1 No Action Alternative

The No Action Alternative will be included as required by the CEQ regulations to identify the existing baseline conditions against which potential impacts will be evaluated. The No Action Alternative must be described because it is the baseline condition or the current status of the environment if the proposed actions were not implemented. For realignment actions directed by the BRAC Commission, it will be noted that for the No Action Alternative, maintenance of current conditions is not feasible, since the BRAC actions are congressionally mandated actions.

Under the No Action Alternative, FLW would not construct new facilities to support implementation of the proposed action. Organizations presently assigned to FLW would continue to train at and operate from the post. FLW would use its current inventory of facilities, though routine replacement or renovation actions could occur through normal military maintenance and construction procedures, as circumstances independently warrant.

The No Action Alternative is evaluated in detail in this EA. The No Action Alternative also serves as the baseline condition against which to measure impacts associated with the proposed action.

3.3.2 BRAC-Directed Relocation Alternatives

Although Public Law 101-510 eliminates the need to decide whether to relocate a unit or activity to another location, it does not eliminate the requirement for an environmental analysis of how the realignment is conducted at the designated installation. Alternatives of how the units or activities could be relocated might include: phasing the move, relocating to interim facilities at the gaining installation, use of renovated facilities versus new construction, or alternative siting of construction at the gaining installation.

The BRAC-Directed Action

Fort Leonard Wood Drill Sergeant School

Realign FLW by relocating the FLW DSS from FLW to Fort Jackson.

The FLW DSS will be relocated from FLW and consolidated at Fort Jackson DSS by July 1, 2008. All DSS classes will be scheduled to end at FLW not later than June 2008. Starting October 1, 2007, personnel newly assigned to DSS will be stationed at Fort Jackson. As DSS classes end at FLW, personnel assigned to the DSS will be transferred to Fort Jackson or other locations required to be relocated to Fort Jackson. All equipment and facilities currently used by the DSS will be redistributed in accordance with installation priorities.

As summarized on Table 2.1, the following personnel changes would be a result of relocating the DSS:

- Overall loss of 33 Active Duty Soldiers; and
- Loss of 140 ADTL for the DSS.

Fort Leonard Wood Prime Power School

Realign FLW, Missouri by relocating the PPS from Fort Belvoir to FLW.

The PPS will relocate from Fort Belvoir to FLW July 1, 2008. The PPS will remain assigned to the USACE with operational control by the USAES until October 1, 2008. On October 1, 2008, the PPS will be assigned to USAES.

The PPS organic equipment will be relocated to FLW as soon as training schedules allow in accordance with Logistic Action Plans.

Facilities will be provided (renovation or new construction) to accommodate the PPS training. Existing family housing, unaccompanied personnel housing, and transit

housing will be used to accommodate the permanent party and student associated with the PPS. Facilities required to support PPS at FLW include: training building (approximately 83,536 SF); exterior power generation training area; concrete pads; diesel fuel storage area; and overhead electrical training poles.

As summarized on Table 2.1, the following personnel changes would be required to support the PPS at FLW:

- Increase of 11 military personnel;
- Increase of 29 civilian personnel plus 1 U.S. Navy position;
- Increase of 65 ADTL for the PPS; and
- Increase of 1 civilian personnel authorization for FLW Garrison.

Total personnel changes will include the following:

- An increase of approximately 7 permanent party positions; and
- A decrease of 75 average daily load positions.

3.4 FORMULATION OF ALTERNATIVES

Alternative methods of supporting the BRAC action were identified by a diverse team of military planners and environmental specialists. This team of personnel identified a range of implementation components and then reviewed, screened, and grouped them into alternatives. The implementation components were grouped into three categories:

- location,
- operations, and
- training.

3.4.1 Location Component

3.4.1.1 Screening of Location Component Alternatives Criteria

As part of the alternatives analysis process, the project team developed a series of criteria that could be used when evaluating potential alternatives. Alternatives that were compliant with each of the criteria were judged to fully support the ongoing mission at FLW as well as the PPS and would be carried forward for detailed analysis in the EA. Alternatives that failed one or more of the criteria were determined to not support the mission requirements of either FLW or the PPS, and were therefore eliminated from detailed consideration in the EA.

- **A Minimum of 15 Acres in Size.** Based upon initial analysis, FLW determined that approximately 15 acres would be required for relocation of the PPS.
- **Compliance with Installation Noise Level Standards.** Noise levels generated from daily activities of the PPS must comply with the noise level standards established for a site.

- **Compliance with Planning or Mission Requirements.** The PPS facility support and training requirements must not prevent or hinder the ability of FLW to accomplish its other currently assigned planning or mission requirements.
- **Compliance with Mission Safety Requirements.** This criterion precludes any potential stationing implementation alternative that would require a modification or violation in existing mission-related safety criteria (e.g., airfield approach safety zones, explosive quantity safety distance arcs, etc.).
- **Collocation of Similar Types of Functions.** Location should incorporate efficient, streamlined management of functions. Collocation of similar types of functions, as opposed to dispersion, permits more efficient use of equipment, vehicle, and other assets.
- **No Unacceptable Environmental, Socioeconomic or Operational Impacts.** Given the potential of these issues to result in “show stopper” impacts, it was determined that if alternatives failed any of the screening criteria, they would be considered as not supporting FLW’s mission, and the alternative would, therefore, be eliminated from further consideration.

Table 3.1, located in subsection 3.4.1.2, Formulation of Location Component Alternatives, captures a summary of the identified alternatives and the results of the screening process.

3.4.1.2 Formulation of Location Component Alternatives

Several alternative locations were developed by the FLW cross-functional team based on the installation Master Plan, and current and future training needs and requirements. Figure 3.1 shows the relative locations for these potential development sites on FLW, while Table 3.1 captures the results of the location alternatives screening process.

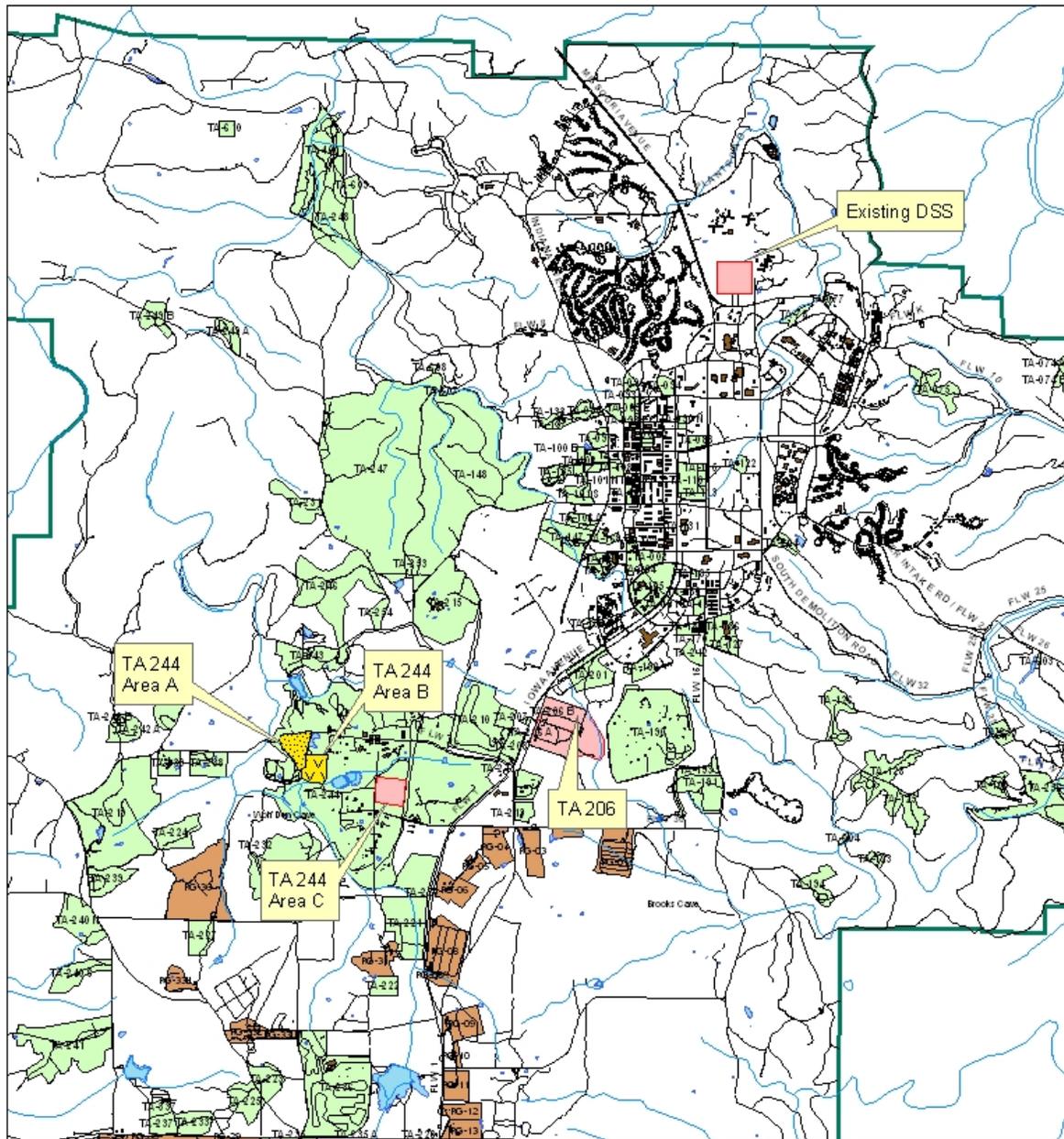
Table 3.1
Location Component Alternatives Analysis for BRAC Actions at Fort Leonard Wood.

Location Screening Criteria	Backfill Drill Sergeant School	Backfill Drill Sergeant School with Remote Training	TA 206	TA 244 Site A	TA 244 Site B	TA 244 Site C
15-Acre Minimum Size	Yes	Yes	Yes	Yes	Yes	Yes
Compliance with Installation Noise Level Standards	No	Yes	No	Yes	Yes	Yes
Compliance with Planning/Mission Requirements	Yes	Yes	Yes	Yes	Yes	No
Compliance with Mission Safety Requirements	Yes	Yes	No	Yes	Yes	Yes
Collocation of Similar Types of Functions	Yes	No	Yes	Yes	Yes	Yes
No Unacceptable Environmental, Socioeconomic or Operational Impacts	Yes	Yes	Yes	Yes	Yes	Yes
Results of Analysis	Eliminate	Eliminate	Eliminate	Carried Forward	Carried Forward	Eliminate

Source: Parsons, 2006

- Backfill area vacated by DSS with PPS facilities.** This Alternative would consist of renovating and using the existing DDS classrooms and administrative facilities to accommodate the PPS. A training site would also be constructed to locate generators and fuel tanks proximate to the existing DDS facilities.

Although this alternative is cost effective and incorporates space reuse, the site is located within the cantonment area. Noise level estimates from PPS training using large portable generators are at a minimum of approximately 85 dB at 100 feet. This would not comply with noise level standards within the cantonment area (65 dB or lower). Therefore, this alternative is considered infeasible and has been eliminated from detailed analysis within the EA.



Legend

- Streams and Rivers
- Primary Roads
- Roads
- Buildings
- Lakes and Ponds
- Military Training Areas
- Military Range Areas
- Installation Boundary
- Alternative Locations Eliminated from Detailed Analysis
- Alternative Locations Carried Forward for Detailed Analysis

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ENVIRONMENTAL ASSESSMENT OF THE 2005 BRAC RECOMMENDATIONS

LOCATION ALTERNATIVES
FORT LEONARD WOOD

DATE: JULY 2006 FIGURE 3.1

- **Backfill area vacated by DSS, using it for classrooms for the PPS. Locate the generator training in a remote location outside the cantonment area (TA 244).** This Alternative would consist of renovating and using existing DDS classrooms and administrative facilities to accommodate the PPS. This Alternative would also include construction of a training site at TA 244 for the training with generators and incorporate less than 20,000 gallons of POL storage with secondary containment.

Although this Alternative is cost effective and incorporates some space reuse, having the generator training in a location remote from the classrooms would reduce training efficiency, as the soldiers and cadres would lose hours of training time due to traveling to and from the remote generator training site. Therefore, this alternative is considered inefficient and unreasonable and has been eliminated from detailed analysis within the EA.

- **Construct classroom, administrative, and training facilities for the PPS within TA 206.** This Alternative would consist of constructing classrooms and administrative facilities to accommodate the PPS at TA 206. This Alternative would also consist of constructing a training site at TA 206 for the training with generators and incorporate less than 20,000 gallons of POL storage with secondary containment.

Although this site is outside the cantonment area and not within a noise restricted area, FLW has other missions scheduled for TA 206 and there may be conflicts with the adjacent airfield operational safety concerns. Therefore, this alternative is considered unreasonable and has been eliminated from further analysis.

- **Construct classroom, administrative, and generator training facilities in TA 244 at Area A.** This Alternative would consist of constructing classrooms and administrative facilities to accommodate the PPS in TA 244 at Area A. This Alternative would also consist of constructing a proximate training site at TA 244 for the training with generators and incorporate less than 20,000 gallons of POL storage with secondary containment.

Area A is not currently being used for any mission on FLW. However, only approximately 5 acres of the site is level, and therefore, grading would need to be completed and a retaining wall would need to be installed on the site. The site is upslope from a losing stream where a storm water outfall (001) is stationed. A new retention pond would need to be constructed to prevent erosion.

Most of the site is also covered by relatively mature, approximately 30- to 50-year old secondary oak forest, most of which would need to be cleared to provide the required construction, operations, maintenance and training area.

This alternative will be carried forward for further analysis in this EA due to no conflicts with the above screening criteria. Section 4 of this EA provides more information on the environmental and socioeconomic considerations associated with the potential implementation alternatives within each component.

- **Construct classroom, administrative, and generator training facilities in TA 244 at Area B.** This Alternative would consist of constructing classrooms and administrative facilities to accommodate the PPS in TA 244 at Area B. This Alternative would also consist of constructing a training site at TA 244 for the training with generators and incorporate less than 20,000 gallons of POL storage with secondary containment.

A portion of Area B was previously used for heavy equipment operator training on FLW; however, this training stopped using the site in June 2006. A majority of the site is level and cleared of trees. It is believed that the existing tree line along the western side of the site may be retained during development of the site. Given the relatively level and cleared nature of the site, minimal grading would need to be completed prior to construction on the site. The site is upslope from a man-made retention pond and contains a man-made berm designed to control runoff from the site. Enhancement of this man-made berm would be included as part of the construction effort.

This alternative will be carried forward for further analysis in this EA due to no conflicts with the above screening criteria. Section 4 of this EA provides more information on the environmental and socioeconomic considerations associated with the potential implementation alternatives within each component.

- **Construct classroom, administrative, and generator training facilities in TA 244 at Area C.** This Alternative would consist of constructing classrooms and administrative facilities to accommodate the PPS in TA 244 at Area C. This Alternative would also consist of constructing a training site at TA 244 for the training with generators and incorporate less than 20,000 gallons of POL storage with secondary containment.

Site C is now being used for horizontal equipment training; however, it is scheduled under the FLW Master Plan to be used by two other projects, a dining facility, and consolidated training

facility. These two projects fit into the Master Plan for TA 244 and therefore, moving the PPS to that location would not be feasible and has been eliminated from further analysis.

3.4.2 Generator Fuel Delivery Component

3.4.2.1 Screening of Generator Fuel Delivery Component Alternatives

The operational screening criteria considered whether an alternative was reasonable based on the ability of each alternative to meet the purpose and need of the Proposed Action without resulting in adverse operational impacts. FLW determined that alternatives that failed the operational screening criteria would not support FLW's or PPS's missions and were eliminated from additional detailed consideration in this EA. The following operational screening criteria were considered in evaluating these alternatives:

- **Efficient Fuel Delivery Method for Generator Training.** The method of fuel delivery to the site must support the training activities in an efficient non-labor intensive manner that would appear seamless to the PPS.
- **Cost Effective Fuel Delivery Method for Generator Training.** The method of fuel delivery to the site must support the training activities in a cost effective manner.
- **Safe Fuel Delivery Method for Generator Training.** The method of fuel delivery to the site must be as safe as possible to avoid spills or the potential for spills.

Table 3.2, located in subsection 3.4.2.2, Generator Fuel Delivery Component Alternatives Analysis for BRAC Actions at FLW captures a summary of the identified alternatives and the results of this screening process.

3.4.2.2 Formulation of Generator Fuel Delivery Component Alternatives

Several alternative fuel delivery alternatives were developed by the FLW cross-functional team based on the fuel delivery methods available at FLW, and the fuel needs of the PPS.

Table 3.2 Generator Fuel Delivery Component Alternatives Analysis for BRAC Actions at Fort Leonard Wood.		
Generator Fuel Delivery Screening Criteria	Truck transport of Fuel	Pipeline transport of Fuel
Efficient Delivery Method	Yes	Yes
Cost Effective Delivery Method	Yes	Yes
Safe Fuel Delivery Method	Yes	No
Result of Analysis	Carry Forward	Eliminate
<i>Source: Parsons 2006</i>		
* For safety reasons, it appears that truck transportation of fuel to the training site is the only reasonable alternative available at this time.		

- **Truck transport of fuel.** Trucks would be used to transport fuel to the PPS from the Cantonment POL Centralized Storage Area, the TA 244 POL Pick-Up Station, the Bio-Diesel POL Storage Tanks at the DOL Transportation Maintenance complex, or from other locations off-post. Delivery frequency, truck size, and how far the trucks would need to travel for each delivery would vary based upon the location that the fuel would be coming from and based upon training requirements. Selection of the individual location for fuel would be made in a method to make this process seamless to the PPS training schedule.

This alternative will be carried forward for further analysis in this EA due to no conflicts with the above screening criteria. Section 4 of this EA provides more information on the environmental and socioeconomic considerations associated with the potential implementation alternatives within each component.

- **Pipeline transport of fuel.** A 40 CFR 112-compliant pipeline would be constructed to transport fuel from the TA 244 POL Pickup station to the PPS.

Constructing a pipeline to transport fuel would create a hazardous situation, as the pipeline would have to run from the POL pickup facility in TA 244 underneath existing large equipment training sites, such as grader training sites, increasing the potential for damage to the pipe and ruptures resulting in fuel spills. Therefore, this operational alternative would not be reasonable and has been eliminated from further analysis based upon these human and environmental safety concerns.

3.4.3 Training Component

3.4.3.1 Screening of Training Component Alternatives

The training efficiency criteria considered whether an alternative was reasonably based on the ability of each alternative to meet the purpose and need of the Proposed Action without resulting in adverse training impacts. FLW determined that training alternatives that failed the screening criteria would not support FLW's mission and were eliminated from additional detailed consideration in this EA. The following operational screening criterion was considered in evaluating these alternatives.

- **Efficient Training Methods.** The location of the PPS support and training facilities should ensure efficient, streamlined management of classroom training, field training, and administrative functions. Training methods employed must provide for the efficient use of

administrative staff, cadre, students, equipment, vehicles, and other assets.

- **Effective Training Methods.** The location of the PPS support and training facilities should ensure effective training methods that are reasonably priced and consider the efficient use of the students and cadres training time available. To be effective, training methods must also ensure that students are able to achieve the competency standards anticipated through successful completion of the Program of Instruction (POI).
- **Safe Training Methods.** Training methods employed must provide for a safe training environment that does not place students, cadre, administrative personnel or personnel in the surrounding area at undue levels of personal injury risk.

Table 3.3, located in subsection 3.4.3.2, Training Component Alternatives Analysis for BRAC Actions at FLW captures a summary of the identified alternatives and the results of this screening process.

Table 3.3 Training Component Alternatives Analysis for BRAC Actions at Fort Leonard Wood.		
Training Screening Criteria	Incorporate Simulator Training into the PPS	Do not Incorporate Simulator Training into the PPS
Efficient Operations and Training	No	Yes
Effective Operations and Training	Yes	Yes
Safe Operations and Training	Yes	Yes
Results of Analysis	Eliminate *	Carry Forward
<i>Source: Parsons, 2006</i>		
* A software-based simulation training system for the operation and maintenance of power generators is unavailable at this time. Therefore, this training component had to be eliminated and will not be carried forward for detailed analysis in this EA. Should a suitable technology be developed at some point in the future, the Army and Prime Power School would investigate its feasibility for use as a training aid in their training mission. Until an adequate generator simulation system is identified, tested and deemed capable of supporting mission requirements, training would remain unchanged		

3.4.3.2 Formulation of Training Component Alternatives

Alternative training method alternatives were developed by the team based on the training requirements of the PPS.

- **Incorporate simulator training into the PPS.** Under this alternative, the PPS would continue to train students on the operation of the various generator systems through a combination of classroom and hands-on training with the generators. However under this alternative, up to 1/3 of the training time currently

performed using generators could be replaced through the use of computer simulation, as estimated by PPS staff at Fort Belvoir, VA.

- **Do not incorporate simulator training into the PPS.** Under this alternative, the PPS would continue to train students on the operation of the various generator systems through a combination of classroom and hands-on training with the generators. Simulated generator training would not be incorporated into the PPS.

3.5 COMPONENT ALTERNATIVES CARRIED FORWARD FOR DETAILED ANALYSIS AND DECISIONS TO BE MADE

As noted in subsection 3.4, although alternative methods of delivering fuel to the potential training sites, and alternative methods of accomplishing the training were reviewed as part of the screening process, no reasonable alternative solutions were identified. Consequently, the delivery of fuel by truck and continuation of current training methods were incorporated into the various location alternatives that survived the location screening process.

- Trucks would be used to transport fuel to the PPS from the Cantonment POL Centralized Storage Area, the TA 244 POL Pick-Up Station, the Bio-Diesel POL Storage Tanks at the DOL Transportation Maintenance complex, or from other locations off-post. Delivery frequency, truck size, and how far the trucks would need to travel for each delivery would vary based upon the location that the fuel would be coming from and based upon training requirements. Selection of the individual location for fuel would be made in a method to make this process seamless to the PPS training schedule.
- The PPS would continue the training methods currently used at Fort Belvoir following relocation to FLW. This training includes a combination of classroom academics, as well as applied instruction on maintenance and operation of the generators.

Consequently, the following combined alternatives were carried forward for further analysis in this EA.

3.5.1 Alternative 1, No Action Alternative (no location for PPS).

Under the No Action Alternative facilities would not be constructed nor renovated to support the unique training missions of the PPS. Although not viable from an operational standpoint, as noted in subsection 3.3.1 above, the No Action Alternative will be included as required by CEQ regulations to identify the existing baseline conditions against which potential impacts will be evaluated.

3.5.2 Alternative 2, Construct PPS at TA 244, Area A.

Area A is not currently being used for any mission on FLW. However, only approximately 5 acres of the site is level, and therefore, grading would need to be completed and a retaining wall would need to be installed on the site. The site is upslope from a losing stream where a storm water outfall (001) is

stationed; consequently, a retention pond would need to be constructed to prevent erosion. Most of the site is also covered by relatively mature, approximately 30- to 50-year old secondary oak forest, much of which would need to be cleared to provide the required construction, operations, maintenance and training area.

3.5.3 Alternative 3, Construct PPS at TA 244, Area B.

A portion of Area B was previously used for heavy equipment operator training on FLW. However, training at the site concluded in June 2006. A majority of the site is level and cleared of trees. Therefore, minimal, or no grading would need to be completed. The site is upslope from a man-made retention pond and contains a berm to reduce runoff from the site.

Figure 3.1 shows the general locations of the potential sites being considered.

Section 4 of this EA provides more information on the environmental and socioeconomic considerations associated with the potential implementation alternatives within each component.

SECTION 4

AFFECTED ENVIRONMENT AND CONSEQUENCES

4.1 INTRODUCTION

The following discussion describes the affected environment within all of the FLW locales that are being considered in this analysis. Figure 4.1 provides a photographic representation of the localized affected environment of proposed Areas A and B. Following a description of the affected environment, the discussion addresses the potential environmental consequences or impacts of each of the potential implementation alternatives evaluated. The discussion focuses on aspects of the environment that could be impacted by the proposed construction projects, maintenance and operation of the proposed facilities and support elements, and implementation of new activities associated with the presence of the new activities at FLW.

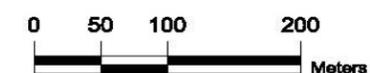
The discussion is structured using the following general environmental resource categories:

- Land Use;
- Aesthetics and Visual Resources;
- Air Quality;
- Noise;
- Geology and Soils;
- Water Resources;
- Biological Resources;
- Cultural Resources;
- Socioeconomics;
- Transportation;
- Utilities; and
- Hazardous and Toxic Substances.



Legend

- TA 244 Area A
- TA 244 Area B



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OF THE 2005 BRAC RECOMMENDATIONS**

**PROPOSED BRAC-RELATED
CONSTRUCTION LOCATIONS
AT FORT LEONARD WOOD**

DATE: JULY 2006

FIGURE NO. 4.1

As discussed in Section 3, the alternatives being considered in the environmental consequences section of this EA are:

- **No Action Alternative, no location for PPS.**
- **Construct PPS Facilities at TA 244, Area A.** TA 244 is an Engineer Training Site for Army, Air Force, Navy, and Marine personnel. The PPS mission and training activities would be a compatible land use in TA 244 and improve efficiency and cohesiveness of Engineer training missions. Fuel for the PPS generators would be trucked to Area A from any of several sources and transferred to a fuel storage area. Site A is not currently being used for any mission on FLW. However, only approximately 5 acres of the site is level, and therefore, grading would need to be completed and a retaining wall would need to be installed on the site. The site is upslope from a groundwater outfall sampling station. A retention pond would need to be constructed to prevent erosion and POL from entering surface water and groundwater.
- **Construct PPS Facilities at TA 244, Area B.** TA 244 is an Engineer Training Site for Army, Air Force, Navy, and Marine personnel. The PPS mission and training activities would be a compatible land use in TA 244 and improve efficiency and cohesiveness of Engineer training missions. Fuel for the PPS generators would be trucked to Area B from any of several sources and transferred to a fuel storage area. As of June 2006, heavy equipment operator training at Area B ended. A majority of the site is level and cleared of trees. Therefore, minimal, or no grading would need to be completed. The site is upslope from a man-made retention pond and contains a berm to control runoff from the site. The addition of the Prime Power School to Area B may increase the amount of water draining to the pond, without potentially increasing the amount of sediment draining to the pond because the PPS activities will actually decrease land disturbance activities in the area.

4.1.1 Initial Resource Category Screening

Based upon an initial screening of potential effects of implementing each of the viable implementation alternatives, the following resource categories have been eliminated from detailed consideration in the analysis. Elimination of these resources was based upon the exceptionally limited potential for either beneficial or adverse impacts associated with the identified alternatives.

- **Land Use.** The initial screening with respect to Land Use considered the following:
 - The remaining viable development alternative sites are all located within an established civil engineer equipment training area. Location of the PPS training and support facilities within this area would be compatible and not change the existing or proposed land use in the area.
 - The proposed development is consistent with the types of applied, heavy equipment training conducted within proximate training areas.

Consequently, detailed consideration of potential land use impacts has not been included in this analysis.

- **Aesthetics and Visual Resources.** The initial screening with respect to Aesthetics and Visual Resources considered the following:
 - Remaining viable development alternatives would include the construction of facilities in accordance with the FLW Installation Design Guide.
 - Use of FLW Installation Design Guide standards within the potential development sites is consistent between potential development alternatives, thereby resulting in no difference in potential development standards or costs.
 - Potential development would be consistent with other similar development in the area, thereby not detracting from the proximate activities.

Consequently, detailed consideration of potential aesthetic and visual resource impacts has not been included in this analysis.

- **Cultural Resources.** The initial screening with respect to Cultural Resources considered the following:
 - Proposed development sites are not located within or proximate to existing, proposed or potential historic districts.
 - The proposed development sites are not within the viewshed for established or potentially eligible historic districts.
 - Prior archaeological surveys within the potential development sites have not identified any pre-historic or historic resources that are potentially eligible for listing on the National Register of Historic Places (NRHP) or that require additional analysis.

Consequently, detailed consideration of potential cultural resource impacts has not been included in this analysis.

- **Transportation.** The initial screening with respect to Transportation considered the following:
 - Proposed population changes (reductions) at FLW are relatively small compared to the total installation traffic. Consequently, they are not anticipated to have a noticeable impact on other all installation traffic patterns or congestion.
 - Proposed development sites would place potential facilities proximate to each other, thereby providing similar minimal transportation requirements and impacts on training between training and support facilities.

Consequently, detailed consideration of potential transportation impacts has not been included in this analysis.

4.1.2 Definition of Key Terms

4.1.2.1 Environmental Baseline

The existing environmental baseline conditions have been established based on conditions at the installation as of November 2005.

4.1.2.2 Impact

An environmental consequence or impact (hereinafter referred to in this document as an impact) is defined as a noticeable change in a resource from the existing environmental baseline conditions caused by or resulting from by the proposed action. The terms “impact” and “effect” are synonymous as used in this EA. Impacts may be determined to be beneficial or adverse and may apply to the full range of natural, aesthetic, cultural, and economic resources of the installation and its surrounding environment.

4.1.2.3 Direct Versus Indirect Impacts

Where applicable, the analysis of impacts associated with each course of action has been further divided into direct and indirect impacts. Definitions and examples of direct and indirect impacts as used in this document are as follows:

- **Direct Impacts.** A direct impact is caused by the proposed action and occurs at the same time and place. Both short-term and long-term direct impacts can be applicable.
- **Indirect Impacts.** An indirect impact is caused by the proposed action and occurs later in time or is farther removed in distance, but is still reasonably foreseeable.
- **Application of Direct Versus Indirect Impacts.** For direct impacts to occur, a resource must be present in a particular area. For example, if highly erodible soils were disturbed due to construction, there would be a direct impact to soils from erosion at the development site. Sediment-laden runoff might indirectly affect surface water quality in adjacent areas downstream from the development site.

4.1.2.4 Impact Characterization

Impacts are characterized by their relative magnitude. Adverse or beneficial impacts that are significant are the highest level of impacts. Conversely, negligible adverse or beneficial impacts are the lowest level of impacts. In this document, five descriptors are used to characterize the level of impacts. In order of degree of impact, the descriptors are as follows:

- No Impact;
- Negligible Impact;
- Minor Impact;

- Moderate Impact; and
- Significant Impact.

The following figure graphically represents this hierarchy of impacts.



The term “significant,” as defined in Section 1508.27 of the regulations for implementing NEPA (40 CFR 1500), requires consideration of both the context and intensity of the impact evaluated. Significance can vary in relation to the context of the proposed action. Thus, the significance of an action must be evaluated in several contexts that vary with the setting of the proposed action. For example, context may include consideration of effects on a national, regional, and/or local basis depending upon the action proposed. Both short-term and long-term effects may be relevant.

In accordance with the CEQ implementing guidance, impacts are also evaluated in terms of their intensity or severity. Factors contributing to the evaluation of the intensity of an impact include, but are not limited to, the following:

- Because an impact may be both beneficial and adverse, a significant impact may exist even if, on balance, the impact is considered beneficial.
- The degree to which the action affects public health or safety.
- Unique characteristics of the geographic area where the action is proposed such as proximity to parklands, historic or cultural resources, wetlands, prime farmlands, wild and scenic rivers or ecologically critical areas, and rare flora and fauna species.
- The degree to which the effects on the quality of the human environment are likely to be controversial.
- The degree to which the effects of the action on the quality of the human environment are likely to be highly uncertain or involve unique or unknown risks.
- The degree to which the action may establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration.
- Whether the action is related to other actions with individually insignificant but cumulatively significant impacts. Significance exists if

it is reasonable to anticipate a cumulatively significant impact on the environment. Significance cannot be avoided by terming an action temporary or by breaking it down into small component parts.

- The degree to which the action may adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the NRHP or may cause loss or destruction of significant scientific, cultural, or historical resources.
- The degree to which the action may adversely affect an endangered or threatened species or its habitat that has been determined to be critical under the ESA.
- Whether the action threatens a violation of federal, state, or local law or requirements imposed for the protection of the environment (i.e., CWA, ESA, etc.).

As noted in the following analysis, none of the potential impacts identified in this EA are considered significant.

4.2 AIR QUALITY

4.2.1 Affected Environment

Air quality is outlined by regional boundaries and pollutant concentration guidelines as defined and enforced by the United States Environmental Protection Agency (USEPA) and state agencies as authorized under the Clean Air Act (CAA). Pursuant to the CAA, USEPA has established National Ambient Air Quality Standards (NAAQS), ambient air concentrations of the criteria air pollutants (sulfur dioxide, carbon monoxide, ozone, a precursor to volatile organic compounds, nitrogen oxides, lead, and respirable particulate matter) intended to protect the public health and welfare with an acceptable margin of error. Air quality at FLW is regulated by the Missouri Department of Natural Resources (MDNR) through Code of State Regulations (CSR) Title 10, as well as AR 200-1. The MDNR conducts annual compliance audits at FLW. In addition, the Army has established the Environmental Performance Assessment System (EPAS), which requires that periodic audits be conducted to determine compliance of ongoing missions and programs with Federal, State, and local environmental laws and regulations. FLW is within an attainment area for all criteria pollutants.

4.2.1.1 Ambient Air Quality Conditions

Ambient air is defined as the outside air to which the general public is exposed. Measuring pollutant levels in ambient air is generally how outdoor air quality is evaluated. Standards are established for two levels of air quality protection. Primary standards establish air quality levels that protect public health from known or anticipated adverse effects of a pollutant. Secondary standards establish air quality levels that protect agricultural crops and livestock from injury; materials and property from deterioration; and the environment from adverse impacts, such as reduced visibility.

The NAAQS established by the CAA and are provided on Table 4.1.

4.2.1.2 Air Pollutant Emissions at Installation

As part of compliance with current air quality regulations, FLW is required to submit an annual Emission Inventory Questionnaire (EIQ) to the MDNR. FLW currently has more than 100 active air emission point sources identified in its most recent EIQ.

Mobile air pollution sources include Privately Owned Vehicles (POVs), Government Owned Vehicles (GOVs), and fixed-wing aircraft and rotary wing (helicopter) flight operations. GOVs include trucks, tractors, cranes, forklifts and a variety of other vehicles and equipment. Aircraft operations are comprised of primarily helicopter, tactical aircraft and medical aircraft.

FLW has existing management programs designed to control and manage air quality, including programs designed in support of the seven criteria pollutants noted above:

- Primary sources of PM on the installation include construction activities, land clearing and earthmoving activities, and driving on unpaved roads. Since 1996, FLW has done extensive PM10 monitoring that measures the impacts of all FLW activities. Since that time, several analyses have shown that there is no significant measurable impact to PM10 levels at the installation boundaries when compared to measured levels in the off-post ambient air. FLW analysis of elevated PM10 levels indicate that when FLW PM10 levels were elevated, other regional PM10 monitoring sites (e.g., at Springfield, Missouri and Tulsa, Oklahoma) also showed elevated levels of PM10.

Table 4.1 National Ambient Air Quality Standards (NAAQS)			
Criteria Air Pollutant	Averaging Time	Primary Standard	Secondary Standard
Carbon Monoxide (CO)	1-hour ^a	35 ppm ^b (40 mg/m ³) ^c	None
	8-hour ^a	9 ppm (10 mg/m ³)	None
Lead (Pb)	Quarterly Average	1.5 ug/m ³ ^d	Same as Primary Standard
Nitrogen Dioxide (NO ₂)	Annual (Arithmetic Mean)	0.053 ppm (100 ug/m ³)	Same as Primary Standard
Ozone (O ₃)	8-hour average ^e	0.08 ppm (157 ug/m ³)	Same as Primary Standard
Particulate Matter (PM ₁₀)	Annual (Arithmetic Mean) ^f	50 ug/m ³	Same as Primary Standard
	24-hour average ^a	150 ug/m ³	
Particulate Matter (PM _{2.5})	Annual (Arithmetic Mean) ^g	15 ug/m ³	Same as Primary Standard
	24-hour average ^h	65 ug/m ³	
Sulfur Oxides	24-hour ^a	0.14 ppm (365 ug/m ³)	None
	Annual (Arithmetic Mean)	0.03 ppm (80 ug/m ³)	None
	3-hour ^a	None	0.5 ppm (1300 ug/m ³)

Source: EPA Office of Air Quality Planning and Standards 2006

^a Not to be exceeded more than once per year

^b ppm = parts per million

^c mg/m³ = milligrams per cubic meter

^d ug/m³ = micrograms per cubic meter

^e To attain this standard, the 3-year average of the fourth-highest daily maximum 8-hour average ozone concentrations measured at each monitor within an area over each year must not exceed 0.08 ppm.

^f To attain this standard, the 3-year average of the weighted annual mean PM₁₀ concentration at each monitor within an area must not exceed 50 ug/m³.

^g To attain this standard, the 3-year average of the weighted annual mean PM_{2.5} concentrations from single or multiple community-oriented monitors must not exceed 15.0 ug/m³.

^h To attain this standard, the 3-year average of the 98th percentile of 24-hour concentrations at each population-oriented monitor within an area must not exceed 65 ug/m³.

Since both Springfield and Tulsa are located upwind of the installation, it appears that elevated PM10 levels at FLW are associated more with regional activities than with activities on the installation. After examining air quality data from the various monitoring stations around the installation MDNR found that dust suppression was not necessary.

The extensive PM10 monitoring data already gathered by FLW, based on past and current activities, enable the Army to predict the added PM10 levels expected from similar activities. The monitoring network would further serve as a check once new activities have begun.

- Halon and the majority of chlorofluorocarbons (CFCs) are used for air conditioning units, food refrigeration units, and fire suppression units. The installation employs the proper CFC recovery units for air conditioning units and technicians have been properly certified in their programs to manage ozone depleting chemicals. Individual fire suppression systems that currently use halon are scheduled for replacement with systems that use suitable substitutes as they become available.
- Total emissions from EIQ data for 2003-2005 for the four remaining criteria pollutants are summarized on Table 4.2. Hazardous Air Pollutants (HAPs) that are not included in the EIQs indicate emissions fall below the reporting threshold. Emissions from mobile sources, CFCs, or halon sources are not included in the EIQ.

Criteria Pollutant				
	SO _x	CO	NO _x	VOC
2005 EIQ	6.7	9.6	31.6	107.5
2004 EIQ	29.1	1,333.7	62.7	158.7
2003 EIQ	25.9	670.7	116.9	203.8

Source: Fort Leonard Wood Emission Inventory Questionnaire

Note: All figures are in tons per year (tpy). Beginning with 2005 EIQ reporting, many previously reported Emission Units are being omitted due to levels below reporting limits.

4.2.1.3 Permit Information

This Title V permit consolidates all previous air permits into a single permit that includes primary sections on boilers, quarry operation, paint booths, fog oil, smoke pots, etc. Any new activity to be conducted at FLW requires an air permit review that, depending upon the scope of the proposed activity, may indicate that a permit is required. The installation's current Title V Air Operating Permit, Number OP2006-007, was issued on February 1, 2006 and expires on January 31, 2011.

4.2.1.4 Conformity Determination

FLW is in a designated attainment area and therefore does not exceed USEPA or Missouri Air Quality Standards for criteria pollutants. Consequently, based on the requirements outlined in the USEPA's general conformity rule published in 58 Federal Register 63214 (November 30, 1993) and codified at 40 CFR Part 93, subpart B (for Federal agencies), FLW is not required to complete a conformity determination.

4.2.1.5 Regional Air Pollutant Emissions Summary

While FLW is a major source of PM₁₀, NO_x, SO_x, CO, and ozone (VOCs), the installation is within an attainment area for ambient air quality.

4.2.2 Consequences

4.2.2.1 No Action Alternative, no location for PPS

- **Direct Impacts.** Under the No Action Alternative only those construction and renovation projects previously reviewed by the installation would be accomplished, and existing ongoing mission activities would continue at their current level of intensity and frequency.

Short-term air quality impacts would occur as particulate matter is emitted from the limited number of planned construction activities. Both the dust emissions and exhaust emissions associated with construction are minor, temporary, and confined primarily to the immediate project areas.

Existing installation ongoing mission activities would occur at their current level of intensity and frequency; therefore, there would be negligible impacts to air quality beyond present levels.

- **Indirect Impacts.** Implementation of the No Action Alternative would have negligible indirect impacts to air quality. Short-term air quality impacts would occur when dust and engine emissions created by construction activity are blown off the construction sites into adjacent areas; however, these impacts would be limited to those construction projects under existing environmental reviews. Additionally, ongoing maintenance and operation of the facilities and the equipment assigned to the operational units using the facilities would result in approximately the same level of dust and engine emissions as those reflected in the affected environment conditions. There is a potential that these emissions could travel beyond the installation boundaries.

4.2.2.2 Construct PPS Facilities at TA 244, Area A.

- **Direct Impacts.** This alternative would have minor adverse direct impacts to air quality. Short-term air quality impacts would occur as particulate matter is emitted as a result of construction activities for the proposed classroom, administrative, and generator training. Both the dust emissions and exhaust emissions associated with construction are negligible, temporary, and confined primarily to the immediate project area.

Long-term negligible direct impacts to air quality as a result of the operation of the proposed facilities would result from heating and operating the facilities. Additionally, the use of POLs and the emissions of generator exhaust are anticipated to result in minor adverse impacts. Data provided by PPS shows an estimated 34 tons of NO_x emissions would be generated based on 160,000 gallons of fuel use for training

operations. This, however, would not trigger a Prevention of Significant Deterioration (PSD) review. Negligible direct adverse impacts would also result from intermittent welding activities. Based on EPA-AP42 air emission guidelines, it is estimated that no more than 50 pounds of any of the typical heavy metal compounds (chromium, manganese, nickel) associated with welding operations would be emitted on an annual basis.³ Solvent degreasing processes from the training operations would emit less than 1 ton per year of VOCs resulting in a negligible direct impact.⁴ This also would not trigger a PSD review since it is well below the threshold level. Emissions from grading an approximately 10-acre parcel would result in a minor temporary adverse direct impact. PM10 emissions are estimated to be approximately 11 tons and all other criteria pollutants have emissions less than 0.1 tons from this activity.⁵ Air emissions associated with vapor losses from fuel storage tank operations would result in negligible direct adverse impacts based on the estimated 500 pounds of VOCs annually emitted from this operation.⁶ Table 4.3 summarizes emissions from these processes.

Criteria Pollutant						
Activity	SOX	CO	NOx	PM10	VOCs	Heavy Metals
Fuel Use	NA	Not Calculated	34	NA	Not Calculated	NA
Welding Operations	NA	NA	NA	NA	NA	0.025
Solvent Degreasing	NA	NA	NA	NA	< 1	NA
Grading	NA	0.01	0.03	11	NA	NA
Fuel Storage	NA	Not Calculated	NA	NA	0.25	NA

Note: All figures are in tons per year (tpy).
NA = Not applicable
Source: AP-42 Compilation of Air Pollutant Emission Factors

Fuel truck deliveries to the PPS would have minor adverse direct impacts to air quality. Short-term, but repeated (approximately 67 deliveries per year), air quality impacts would occur as a result of dust and vehicle emissions.

³ AP-42, Metallurgical Industry, Section 12.19 – Electric Arc Welding

⁴ AP-42, Evaporation Loss Sources, Section 4.6 – Solvent Degreasing

⁵ AP-42, Volume 2 - Mobile Sources

⁶ AP-42, Liquid Storage Tanks, Section 7.1 – Fixed Roof Tank

- **Indirect Impacts.** This alternative would have negligible indirect impacts to air quality. Short-term air quality impacts would occur when dust and engine emissions created by construction activity are blown off of the construction sites into proximate areas. Additionally, during ongoing maintenance and operation of the facilities would result in negligible amounts of dust and generator emissions. There is a potential that these emissions could be blown offsite into nearby areas. Fuel truck deliveries to the PPS would result in short-term negligible adverse impacts from fugitive dust emissions and fuel vapor emissions that could be blown offsite into nearby areas. These include dust and engine emissions from fuel trucks transporting fuel at various locations throughout the installation.

4.2.2.3 Construct PPS Facilities at TA 244, Area B.

This alternative would result in direct and indirect impacts similar to those identified for Area A with one exception. There would be less fugitive dust emissions from Area B associated with land grading since the site is relatively level.

4.3 NOISE

4.3.1 Affected Environment

Noise generation and noise impacts have been previously studied at FLW (USAEHA, 1983). The primary noise generators include explosion of land mines, demolition of ammunition, firing on the small arms ranges and grenade ranges, and aircraft noise associated with Waynesville Regional Airfield at Forney Field and Cannon Range. Secondary noise generators were identified as blasting at the quarry, heavy equipment operations on TA 244, vehicular traffic, artillery fire by the reserve components and stationary sources such as electric generators and air conditioners.

Noise Zones are classified into three levels for certain types of land use.

1. Zone I (acceptable) is the area where the day-night sound level (DNL) is less than 65 decibels, A-weighted scale (dBA). This area, considered to have moderate to minimal noise exposure from aircraft operations, weapons firing and other noise sources, is acceptable for noise-sensitive land uses including housing, schools and medical facilities.
2. Zone II (normally unacceptable) is the area where the sound level is between 65 and 75 dBA DNL. This area is considered to have a significant noise exposure and is, therefore, normally unacceptable for noise-sensitive land uses. Zone II boundaries generated by aircraft operations and heavy weapons training extend beyond the installation boundary at the following locations: approximately 133 acres in unincorporated Pulaski County on the southeast boundary of the installation; and approximately 5 acres adjacent to Parcel 7 near the southwest quadrant of the installation, north of Cannon Range.
3. Zone III (unacceptable) is the area where the DNL is greater than 75 dBA. This zone is considered an area of severe noise exposure and is unacceptable for

noise-sensitive activities. All Noise Zone III areas generated by range and aircraft operations are within the installation boundaries and are primarily located near the weapons firing ranges and the airfield.

FLW has prepared an Installation Compatible Use Zones (ICUZ) study that determined areas on- and off-post that experience high levels of noise (USACE, KCD, 1994). Figure 4.2 illustrates the noise contours for FLW in relationship to the identified parcels of land being considered in this environmental analysis.

4.3.2 Consequences

4.3.2.1 No Action Alternative, no location for PPS

- **Direct Impacts.** Under the No Action Alternative, no new construction or renovation would occur at FLW. Therefore, there would be no new direct noise impacts from the stationing of the PPS at FLW.

Existing installation ongoing mission activities would occur at their current level of intensity and frequency; therefore, there would be no anticipated change in the existing noise levels at the installation.

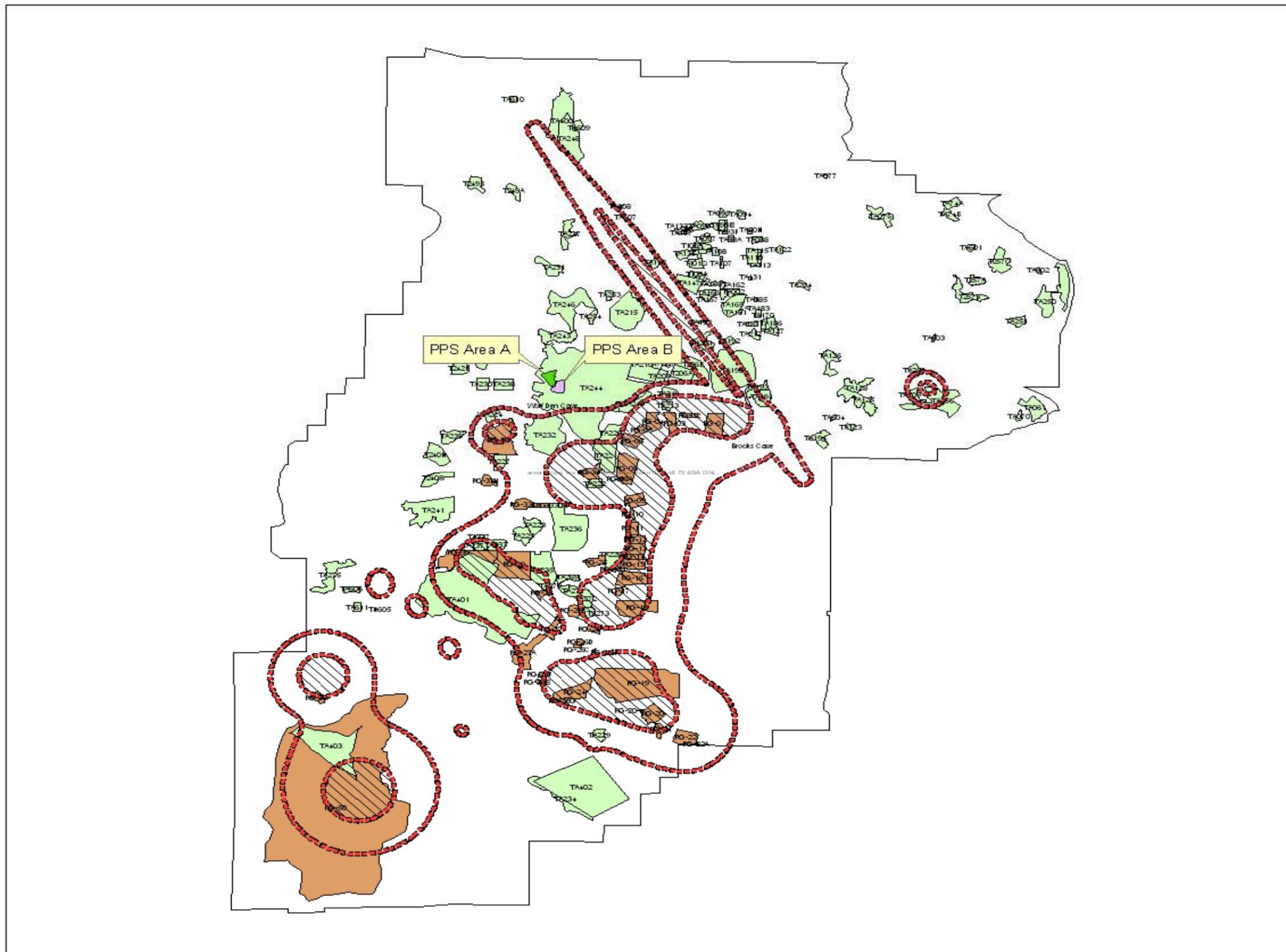
- **Indirect Impacts.** Operations of existing facilities are not anticipated to greatly change existing noise levels; therefore areas located even short distances from these operations would not be affected.

4.3.2.2 Construct PPS Facilities at TA 244, Area A.

- **Direct Impacts.** This alternative would have minor adverse direct noise impacts. Area A is within an Engineer heavy equipment training site that routinely experiences elevated noise levels. During construction there would be short-term, localized, minor adverse noise impacts associated with the operation of construction equipment and machinery, power tools, and the delivery of construction materials. These noise impacts would be temporary, and confined primarily to the immediate project areas.

Generator noise presents a potential for hearing impairment. Near the generators noise levels exceed 104 dBA, and at approximately 100 feet from the generators the noise levels exceed 85 dBA. Separation of the generators from other activities is necessary to reduce the potential for noise impacts.

The operation of the PPS generators during training would result in minor adverse direct noise impacts. Noise levels on the site would be expected to be slightly elevated and repeated, but the site is not in proximity to the cantonment area and should only provide minor adverse impacts to background noise levels. Surrounding land uses include training areas and ranges that would not be noise-affected by the operation of the generators or by any other aspects during operation of these facilities.



Legend

- Installation boundary
- Military training area
- Military range area

Installation Compatible Use Zone

- 2 area where the sound level is between 65 and 75 dBA DNL
- 3 area where the DNL is greater than 75 dBA

Prime Power

- TA 244 Area A
- TA 244 Area B

0 1 2 3 Miles

PARSONS

MANSCEN

ENVIRONMENTAL ASSESSMENT
OF THE 2005 BRAC RECOMMENDATIONS

**INSTALLATION COMPATIBLE USE ZONES
ON FORT LEONARD WOOD**

DATE: JULY 2006 FIGURE NO. 4.2

Figure 4.2 shows that Area A is outside present noise contours for Zones II and III. Implementation of this alternative would require that the installation redraw its ICUZ zones to include Area A.

Figure 4.3 shows that Area A is also within a Zone II Bat Management area. However, it is expected that bats would avoid coming into proximity of generator noise. The Biological Resources section discusses what other effects (besides noise) this proposed alternative would have on bats.

The temporary, but repeated, noises of fuel delivery trucks (engine noise, tire noise, and brake noise) are anticipated to have negligible adverse direct noise impacts.

- **Indirect Impacts.** Transportation of fuel to the PPS would require additional trips by FLW fuel trucks. There would be negligible adverse noise impacts near the origination point and along the route taken by the fuel delivery trucks, due to these additional fuel deliveries.

4.3.2.3 Construct PPS Facilities at TA 244, Area B.

The noise impacts of this alternative are similar to those described for Area A. As with Area A, Area B is within an Engineer heavy equipment training area that routinely experiences elevated noise levels.

4.4 GEOLOGY AND SOILS

4.4.1 Affected Environment

4.4.1.1 Geologic and Topographic Conditions

Topographic Features. FLW is located in the Springfield-Salem Plateau section of the Ozark Plateau division of the Interior Highlands physiographic province. Elevations range from 230 meters above mean sea level along the Big Piney River to 399 meters (755 to 1,310 feet respectively) above mean sea level on the hilltops in the southern portion of the installation. Slopes within most of the installation range from 0 to 15 percent. However, slopes within the hilly terrain may reach 45 percent or greater.

Geologic Formations. Unconsolidated alluvial deposits consisting of gravel, sand, and silt that occur on the floodplains of the Big Piney River and Roubidoux Creek are the youngest sediments on FLW. Stony, sandy, clay colluvial deposits that are closely associated with floodplain sediments are found in the channels of the major tributaries of the Roubidoux Creek and Big Piney River, and on the edge of the floodplains. These deposits exhibit generally poor foundation stability and are subject to occasional flooding.

The Jefferson City Dolomite, the youngest of the three formations of Ordovician rocks exposed at FLW, occupies the higher elevations of the plateau and is common in the southern portions of the reservation. The lower portion consists of a massive, gray, finely crystalline bed of dolomite locally known as “cotton rock.”

Karst Features. The dolomites exposed in the region are highly susceptible to solution by groundwater. Karst features are evident throughout FLW but are most prevalent in the cantonment area and northern portion of the installation. Karst features present at FLW, in addition to sinkholes, include large discharge springs, creeks that lose their flow, and caves.

Caves. Sixty-three caves have been documented in a Cave Survey Project (FY2002-03) funded by the Legacy Resource Management Program. The closest cave to TA 244 Areas A and B is the Wolf Den Cave which is approximately 0.75 miles to the southwest.

4.4.1.2 Soils

The soils of FLW consist primarily of residual material formed on interbedded dolomite and sandstone, and a limited area of young alluvial deposits of sand, silt, gravel and clay located along the floodplains of the Big Piney River and Roubidoux Creek. The Soil Conservation Service (SCS) identified four general soil associations containing a total of 41 distinct mapping units at FLW (SCS 1989). General soil associations are the Nolin-Huntington-Kickapoo, Clarksville-Gepp, Viration-Clarksville-Doniphan, and the Lebanon-Plato. Most soils on FLW are highly erodible. Disturbance from construction and use has altered most soils in many parts of TA 244. A common condition has been the repetitive grading, compaction, and filling of soils used for training of heavy equipment operators.

4.4.2 Consequences

4.4.2.1 No Action Alternative, no location for PPS.

- **Direct Impacts.** Under the No Action Alternative only those construction and renovation projects previously reviewed by the installation would be accomplished, and existing ongoing mission activities would continue at their current level of intensity and frequency. There would be no new direct adverse impacts associated with this alternative.

Disturbance from existing ongoing mission activities associated with wheeled and tracked vehicle maneuver operations would continue to result in damage to soil structure and subsequently lead to soil erosion. The traffic locally loosens the soil, raising the susceptibility of the soil to erosion. Rutting of the soil concentrates water into concentrated channels, rather than running off as sheet flow, leading to the formation of rills and gullies. The damage to vegetation would occur due to physical impact with the vehicles, reduced soil fertility, and reduced oxygen exchange with the roots due to soil compaction. Without the vegetation in place to stabilize the soil, erosion rates would continue.

- **Indirect Impacts.** There are no indirect impacts associated with this alternative.

4.4.2.2 Construct PPS Facilities at TA 244, Area A.

- **Direct Impacts.** This alternative would have minor adverse direct impacts to soils. Soils would be disturbed by construction activities such as grading, vegetative clearing, and excavating during construction of the PPS. Since only 5 acres of Area A are level, grading would need to be completed and a retaining wall would need to be installed on the site. The site is upslope from a losing stream where a storm water outfall (001) is stationed. A retention basin would need to be constructed to capture sediment runoff from the site during construction and operation of the facility. Much of the site is also covered by relatively mature, approximately 30- to 50-year old secondary growth oak forest, most of which would need to be cleared to provide the required construction, operations, maintenance and training area. Even with implementation of controls, short-term soil erosion is anticipated.

This alternative could potentially have a minor adverse impact to soil as a result of inadvertent, uncontained spills from the transportation, delivery, and storage of fuel.

- **Indirect Impacts.** Short-term indirect impacts to soils may occur as soil from the construction site is carried down slope and is deposited into low areas and storm water retention basins. Additionally, development at this site would require relatively extensive measures to control potential surface water runoff, and the associated soil erosion, given the relatively steep slopes in the area and the lack of an existing, adequate retention basin at the site. This additional development would result in increased potential for surface water runoff containing soils.

A potential uncontained fuel spill would have minor adverse impacts to soils outside of this project area if the spill occurred during transport or if an onsite spill were allowed to migrate to nearby soils not considered part of the proposed site. To manage soils contaminated from existing mission POL spills, FLW has established a soil reclamation facility, located in building 2267, where POL contaminated soil and biodegradable containment materials are naturally treated, thereby allowing the soil to be retained for future use versus being disposed of as hazardous waste (HW) and/or incinerated.

4.4.2.3 Construct PPS Facilities at TA 244, Area B.

- **Direct Impacts.** This alternative would result in minor adverse direct impacts similar to those identified for Area A. However, the potential for soil erosion would be noticeably less for Area B due to fewer trees being removed, less excavation, the presence of an existing man-made earthen sediment control berm located on the southern, downslope side of the site, and the reduced level of construction required at this site. Unlike potential development at Area A, development at this site would not require

construction of a large retaining wall, sediment basin or extensive earthwork to provide a relatively level training area.

- **Indirect Impacts.** This alternative would result in minor adverse indirect impacts similar to those identified for Area A.

4.5 WATER RESOURCES

4.5.1 Affected Environment

There is a long history of scientific surveys, studies, and monitoring conducted at FLW to monitor water resources and the effects of military actions on them. Due to FLW's proactive management policy and implementation of Best Management Practices (BMPs), no evidence has arisen to indicate that ongoing mission activities have adversely impacted or degraded the water resources on FLW (OBS, 1990; USACE, KCD, 1996; USACE, KCD, 1997; USFWS, 2006). Additionally, fish tissue sampling and testing has not indicated any evidence of bioaccumulation of harmful substances (USACE, KCD 2002).

4.5.1.1 Surface Water

Major surface water features at FLW include the Big Piney River located on the east side of the installation, Roubidoux Creek on the west, and Dry Creek on the north. The Big Piney River and Roubidoux Creek originate to the south of the installation and flow north to their confluence with the Gasconade River. Beyond the river bluffs, the landscape is dissected by ravines and small valleys that contain tributaries to the major rivers. There are numerous small springs and seeps on the installation and most tributary streams have a spring that either originates or substantially supplements the stream flow. Some horizontal movement to intermittent seeps and springs along the steeper slopes leading into the major valleys may occur.

FLW's Training Areas often utilize sediment control ponds as a storm water runoff control feature. Several of these ponds are located within the heavy equipment TA 244. The ponds are functioning as designed, that is, to collect sediment from disturbed areas and to protect the downstream drainages.

Approximately forty other impoundments, ranging in size from 0.1 to 40 acres, are scattered throughout the installation. These impoundments have "multi-purpose" functions. Watershed management, sediment control and wildlife habitat enhancement are the primary functions, however, some are managed as recreational fisheries.

4.5.1.2 Hydrogeology/Groundwater

The hydrology of the groundwater system is influenced by the karst terrain of the installation. Sinkholes, springs, losing streams and caves provide a connection between surface waters and the groundwater system that has been documented in previous studies (MDNR, 1982). The USGS conducted an extensive investigation (FLW, 1996), including dye tracing, of the occurrence of groundwater conditions at FLW. The investigation concluded

that there were numerous indications of horizontal groundwater movement in the area. Specifically, results showed at least one connection between a point where surface water enters the ground through a sinkhole, and leaves the ground through a spring some distance away from that point of introduction. Consequently, Fort Leonard Wood has taken precautions south of Area B to prevent sediment-laden storm from entering one such sinkhole and exiting through a spring on Roubidoux Creek.

4.5.1.3 Floodplains

High discharge periods on the waterways within the FLW area generally occur in April and May. However, flash floods can occur throughout the year as a result of intense thunderstorm activity. Areas within the 100-year regulatory floodplain have been designated on all of the major waterways flowing through FLW. These include land along the Big Piney River, Roubidoux Creek, Smith Branch, Dry Creek, Ballard Hollow, Hurd Hollow, Musgrave Hollow, and Turnbull Hollow. Development activities in regulatory floodplain areas are limited in accordance with EOs 11988 and 11990 that address floodplains and wetlands.

4.5.2 Consequences

4.5.2.1 No Action Alternative, no location for PPS

- **Direct Impacts.** Under the No Action Alternative, no new construction or renovation would occur at FLW. Therefore, there would be no new adverse direct water resource impacts from the stationing of the PPS at FLW.

Existing installation ongoing mission activities would occur at their current level of intensity and frequency; therefore, there would be negligible impacts to water quality beyond present levels.

- **Indirect Impacts.** There are no new adverse indirect water resource impacts with this alternative.

4.5.2.2 Construct PPS Facilities at TA 244, Area A.

- **Direct Impacts.** Under this alternative, there would be minor, short-term direct adverse impacts to water quality due to construction of the proposed facilities. Training Area A is almost entirely forested and this existing vegetation would be removed from the site. Vegetation removal would greatly increase the potential for soil erosion and runoff. The water quality within and near the project site would be temporarily degraded through increased turbidity associated with soil erosion into the Smith Branch of Roubidoux Creek and areas downstream. Currently, there are no storm water runoff controls on the site. Due in large part to the steep grade of this site, extensive storm water runoff controls would be needed during construction and operation of the site. As part of BMPs for the project, FLW proposes to construct a storm water retention basin at the site.

During construction this additional cleared area would increase the potential for runoff, but during long-term operation of the site, the retention basin should help reduce potential issues.

In addition to the erosion threat to water resources, there is a POL products spill potential from equipment and hazardous materials used during construction and operations/training which may also have a minor direct adverse affect on surface and ground water quality. Minor short-term and long-term direct adverse impacts to on-site surface and ground water quality may result from POL products potentially spilled from vehicles and from storm water runoff containing applied fertilizers, herbicides, and pesticides.

The potential spill of stored fuels at the proposed site would have a minor short-term and long-term direct adverse impact on surface and ground water, if uncontained. Extensive use of spill prevention and control countermeasures would be utilized and are discussed in further detail in Section 4.11.

A potential fuel spill during delivery and transfer at the proposed site would have a minor short-term direct adverse impact on surface and ground water within TA 244, if uncontained. Extensive use of spill prevention and control countermeasures would be utilized and are discussed in further detail in subsection 4.11.

- **Indirect Impacts.** Under implementation of this alternative, there would be minor, short-term indirect impacts to surface and ground water quality due to construction and operation of the proposed PPS facilities. The surface water quality down slope of the project site would be temporarily degraded through increased turbidity associated with soil erosion into the Smith Branch of Roubidoux Creek and downstream. Potential spills of POL products from equipment and hazardous materials used during construction and operations/training may also affect surface and ground water quality off-site.

Minor short-term and long-term indirect adverse impacts to off-site surface and ground water quality may result from potentially spilled POL products and from storm water runoff containing applied fertilizers, herbicides, and pesticides. Long-term indirect impacts would be minor and similar to those discussed for short-term impacts.

If uncontrolled, potential spills of POL products could migrate off-site impacting downstream resources. Extensive use of spill prevention and control countermeasures would be utilized and are discussed in further detail in subsection 4.11.

Long-term indirect adverse impacts to off-site surface water quality may result from maintenance of the PPS grounds through runoff from fertilizer,

weed and pest control applications. Long-term indirect impacts would be minor and similar to those discussed for short-term impacts.

4.5.2.3 Construct PPS Facilities at TA 244, Area B.

- **Direct Impacts.** Short-term and long-term direct adverse impacts to surface water quality would be similar to those described for construction of classroom, administrative, and generator buildings in Area A. However, because Area B is only about 1/3 forested near its southern and western fringes, and is much more level, impacts related to soil erosion and runoff would be noticeably less than those of facilities constructed on Area A. There is an existing sediment retention pond down slope from Area B that collects the runoff and minimizes the off-site migration of pollutants, this alternative would have less potential for impacts compared to Area A. The presence of these items, coupled with the relatively level nature of the site, would result in reduced facilities construction requirements for Area B, relative to Area A. The extensive retaining wall and additional retention basin would not be required. This reduced level of construction would reduce the potential for impacts associated with construction activities.
- **Indirect Impacts.** Under implementation of this alternative, there would be minor, short-term indirect impacts to water quality due to construction and operation of the proposed PPS facilities. The water quality down slope of the project site would be temporarily degraded through increased turbidity associated with soil erosion. Potential contaminant runoff from equipment and materials may also affect water quality off-site.

Long-term indirect adverse impacts to off-site surface water quality may result from maintenance of the PPS grounds through runoff from fertilizer, weed and pest control applications. Long-term indirect impacts would be minor and similar to those discussed for short-term impacts.

4.6 BIOLOGICAL RESOURCES

4.6.1 Affected Environment

More than 1,300 species of plants, animals and invertebrates have been noted at FLW.

4.6.1.1 Vegetation

Dominant plant community types include upland forest, bottomland forest, savanna, prairie, marsh, and swamp. Forest cover is the principal vegetative type, covering approximately 75 percent of the installation (FLW, 2000 and FLW, 2006). Although the oak-hickory association is dominant, the sycamore-elm-soft maple association is frequently found along creeks and river bottom lands. The vegetative cover on north facing slopes consists of black, red, and white oaks with an understory of dogwood, shadbush and redbud. As the landform orientation becomes southerly, the plant composition changes to post oak, blackjack oak, and black hickory. Other common species present include black cherry, sugar maple, hawthorn,

slippery elm, hackberry, buckeye, and hornbeam. Herbaceous understory is mostly absent on the dry uplands with closed canopies but may include bush clover, panic grass, Virginia creeper, poverty oat grass, and wood sorrel when the canopy is more open. Moist bottomland forests have a denser understory that contains pale violet, greenbriar, bellflower, jewelweed, mayapple, and golden ragwort. There are several shortleaf pine stands located throughout the installation.

- Training Area A is mostly forested with relatively mature, approximately 30- to 50-year-old secondary growth oak forest.
- The northern 2/3 of Training Area B consists of compacted soils that are routinely disturbed and re-compacted. The southern 1/3 and western fringe of the site are also forested with relatively mature secondary growth oak forest.

4.6.1.2 Wildlife

Surveys for fish, mussels, small mammals, birds, reptiles and amphibians have been conducted at FLW (USACERL, 1998). Common wildlife includes many species of mammals, birds, amphibians, reptiles, fish, mussels, and invertebrates (FLW, 2000, 2006). Resident wildlife species are also inventoried through the Range and Training Land Assessments (RTLTA) program, which is one of the components of the ITAM program.

53 species of mammals exist at FLW. The most common mammals encountered at FLW include the eastern cottontail rabbit, eastern gray squirrel, beaver, coyote, raccoon, striped skunk, and white-tailed deer. Two federally-listed endangered bats are located on the installation (see subsection 4.6.1.3). Surveys for the endangered bats also noted red bat, eastern pipistrel, Keen's bat, small footed bat, little brown bat, big brown bat, hoary bat, and silver haired bat (FLW, 2000, 2006).

A total of 211 species of birds are known to use FLW, either for nesting or migration, and many are year-round residents (FLW, 1994; USACERL, 1998). The large numbers of birds observed at FLW are due to the large size of the installation, geographic location, and the diversity of habitats present.

Neotropical migrants (NTM) are landbirds that breed in temperate America and winter in the New World tropics (NFWF, 1992). A total of 144 species of NTMs are known to occur on FLW. This includes several species of warblers, vireos, and thrushes. Approximately 51 percent of these are also reproducing on the installation (USACERL, 1998). Raptors at FLW include red-tailed hawk, great horned owl, barred owl, and eastern screech owl. Bald eagles have been observed as transients along Roubidoux Creek and Big Piney River during annual winter surveys (see subsection 4.6.1.3). Shorebirds identified at FLW that are considered to be transients include spotted sandpiper, least sandpiper, lesser yellowlegs, greater yellowlegs, and Wilson's phalarope. Waterfowl that are considered to be common transients

include Canada goose, northern pintail, mallard, American widgeon, northern shoveler, blue-winged teal, gadwall, and hooded merganser. The wood duck is considered to be a common resident.

According to a U.S. Army Construction Engineering Research Laboratory study (USACERL, 1998), species composition is similar to the surrounding Mark Twain National Forest except FLW has a greater number of bird species that prefer forest edge and brushy areas. Species adapted to the forest interior are more prevalent in the Mark Twain National Forest.

A total of 22 amphibian species and 37 reptile species have been found at FLW (USACERL, 1998). Some of the amphibians include the bull frog, southern leopard frog, cave salamander, and dark-sided salamander. Reptiles include species such as the common snapping turtle, three-toed box turtle, northern water snake, five-lined skink, black rat snake, eastern garter snake, western cottonmouth, and the Osage copperhead (USACERL, 1998).

Fish species commonly found in the streams and ponds in the FLW area include the golden redhorse, smallmouth bass, largemouth bass, green sunfish, longear sunfish, bluegill, rock bass, channel catfish, shiners, and minnows.

4.6.1.3 Sensitive Species

Two federally-listed endangered bats are located on the installation (see subsection 4.6.1.2). Surveys for the endangered bats also noted red bat, eastern pipistrel, Keen's bat, small footed bat, little brown bat, big brown bat, hoary bat, and silver haired bat (FLW, 2000, and FLW 2006).

Indiana Bat. The Indiana bat was listed as endangered in 1967. No designated critical habitat for this species occurs on FLW. The range-wide population of the species is declining. Population decreases have been most dramatic in Missouri. Four caves (Brooks, Davis No. 2, Wolf Den and Joy) on FLW support declining numbers of hibernating Indiana bats during winter months (September-April). Most Indiana bats hibernating on FLW are thought to migrate to northern Missouri or Iowa during summer months to establish dispersed maternity colonies.

Indiana bats also are found during summer months on FLW. Female Indiana bats bear young in maternity roosts beneath the loose bark of dead trees. Summer habitat of marginal or better quality is common on FLW. Any of the forested acres on FLW or proximate to FLW may provide potentially suitable summer foraging and roosting habitat for Indiana bats.

Gray Bat. Gray bats use habitat along Roubidoux Creek and its tributaries, as well as other areas on FLW. The gray bat was listed as endangered in 1976. Gray bats occur throughout most of southern Missouri, and the population of gray bats in this area is "stable or increasing." No designated critical habitat for this species occurs on FLW. The gray bats that summer on FLW are thought to hibernate during the winter in Coffin Cave in Laclede

County, outside FLW. Two caves (Saltpeter No. 3 and Freeman) support gray bats during the maternity season (April-October). Freeman Cave may provide high quality gray bat maternity habitat. Great Spirit Cave, 3.5 km west of FLW, is known to support more than 10,000 gray bats, making it one of the more important maternity caves in Missouri. Surveys in 1994 estimated the presence of approximately 7,500 gray bats in maternity caves on FLW.

Bald Eagle. The bald eagle was listed as endangered in 1978. Population increases prompted downlisting in 1995 to threatened. Further increases in bald eagle populations between 1995 and 1999, resulted in the President proposing the bald eagle for delisting on July 4, 1999. Further action on this delisting is in progress. No designated critical habitat for the bald eagle occurs on FLW.

Bald eagles are known to occur on FLW only during winter (November through March). Eagles have been sighted perching along Roubidoux Creek and Big Piney River. An active nest has been identified along the Big Piney River. A 406-meter buffer zone has been established to prevent potential disturbances.

The following guidelines are in place for the buffer zone:

- All military training activities that have the potential to disturb nesting eagles are restricted during the period January 1 to June 30. This includes all foot and vehicle traffic, CS gas, demolition simulators, pyrotechnics, and smoke.
- Access trails would be closed to restrict vehicle access from January 1 to June 30.
- Recreational activities (hunting, hiking, or fishing from the bank) that require access to Big Piney River by walking or driving through the established zone are prohibited. This does not restrict people from floating on or fishing in the river from a boat.

Human entry into this zone is prohibited unless performed in connection with necessary eagle research and management by qualified personnel.

4.6.1.4 Wetlands

Approximately 1,552 acres of potential jurisdictional wetlands have been identified at FLW. The total wetland acreage represents about 2.5 percent of the installation's land base. However, Areas A and B within TA 244 contain no wetlands.

4.6.2 Consequences

4.6.2.1 No Action Alternative, no location for PPS.

- **Direct Impacts.** Under the No Action Alternative, no new construction or renovation would occur at FLW. Therefore, there would be no new

adverse direct biological resource impacts from the stationing of the PPS at FLW.

Existing installation ongoing mission activities and management activities would occur at their current level of intensity and frequency; therefore, there would be negligible impacts to biological resources beyond present levels.

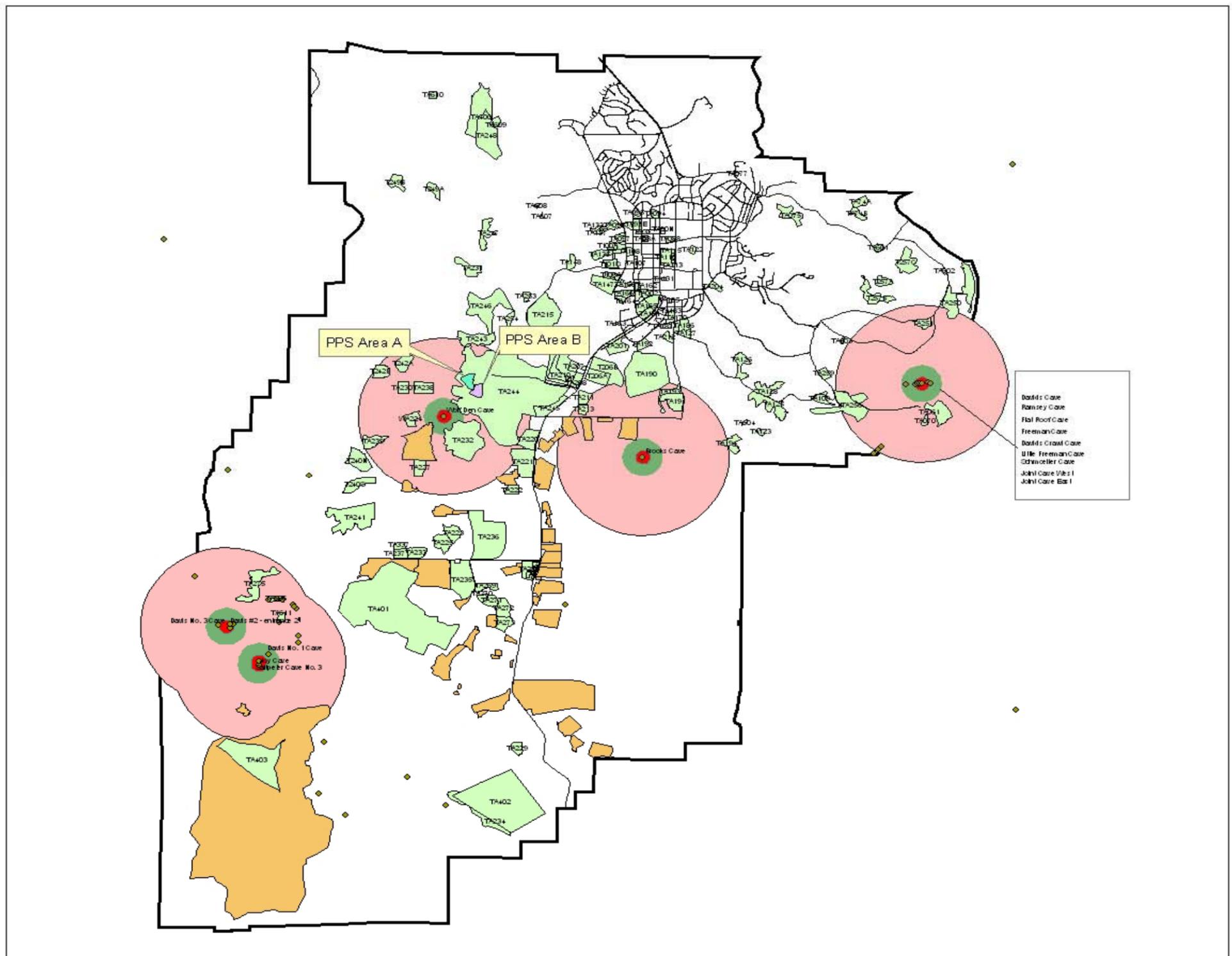
- **Indirect Impacts.** Operations of existing facilities are not anticipated to greatly change existing impacts to biological resources; therefore areas located even short distances from these operations would not be affected.

4.6.2.2 Construct PPS Facilities at TA 244, Area A.

- **Direct Impacts.** This alternative would have a minor adverse impact on biological resources. Training Area A is almost entirely forested and would require clearing, resulting in a minor long-term adverse affect of habitat loss for many of the birds and mammals mentioned in the preceding subsection. Figure 4.3 shows that Area A is located within a Bat Management Zone 2 (an Area Between a 457- and 1,932-meter radius of Wolf Den Cave.) Implementing this alternative would result in the loss of tree canopy and would have to be approved by Department of Public Works, Natural Resources, and tree clearing would be restricted to time when the Indiana bat would not be anticipated to be within the area. Based upon initial review of the area, no specific trees were identified as being currently occupied by the Indiana bat; however, tree clearing should be limited to timeframes when Indiana bats are not anticipated to be present.
- **Indirect Impacts.** No indirect adverse impacts have been identified for this Alternative.

4.6.2.3 Construct PPS Facilities at TA 244, Area B.

- **Direct Impacts.** Training Area B is about 1/3 forested near its southern and western fringes. Although some of these trees may need to be cleared, the amount of tree clearing and habitat loss is substantially less than in Area A. Area B is also within a Bat Management Zone II; consequently, precautions to avoid potential impacts would be to those identified for Area A.
- **Indirect Impacts.** Indirect impacts are similar to those identified for Area A.



Legend

- ◆ Caves
- Bat Management Zones**
- RESTRICTED AREA
- ZONE 1
- ZONE 2
- Military Training Area
- Primary Roads
- Range Areas
- ▭ Installation Boundary
- Prime Power**
- TA 244 Area A
- TA 244 Area B







MANSCEN

ENVIRONMENTAL ASSESSMENT
OF THE 2005 BRAC RECOMMENDATIONS

**INDIANA BAT MANAGEMENT ZONES
ON FORT LEONARD WOOD**

DATE: JULY 2006	FIGURE NO. 4.3
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4.7 SOCIOECONOMICS

4.7.1 Affected Environment

Fort Leonard Wood's Region of Influence (ROI) for socioeconomic analysis is comprised of nine counties: Camden, Dent, Laclede, Maries, Miller, Phelps, Pulaski, Texas, and Wright. FLW is located in Pulaski County, which realizes the greatest social and economic impacts from the installation. These impacts include off-post purchase and rental of housing, purchase of goods and services, and employment generation related to DoD civilian and military employment associated with FLW.

4.7.1.1 Economic Development

Regional Economic Activity

The annual civilian labor force within the ROI was approximately 119,000 workers in 2004 (BLS, 2004). The average annual unemployment rate in the ROI in 2004 was 5.9 percent, similar to the state-wide average for Missouri. The current labor force represents an approximate 6 percent increase since 2000, substantially greater than the statewide increase of 1 percent during the same period. The majority of the labor force increase has occurred in Phelps County and Pulaski County which represent the primary sources of labor and employment within the region

Total employment within the ROI was approximately 136,000 in 2004, an increase of 10,500 from 1999. This represented a 7 percent increase during the 5-year period. The majority of the employment increase occurred in Phelps County and Pulaski County, with Dent, Texas and Wright counties experiencing a decline in employment. During this period state-wide employment increased by only 2 percent.

The services and government sectors comprise 50 percent of total employment within the ROI, with retail trade being the third most important employment sector. Government employment, primarily military, constitutes almost 60 percent of the total employment in Pulaski County.

Fort Leonard Wood Contribution to Regional Economic Activity

FLW is a major contributor to the local and regional economy. In FY05 the combined military and civilian payrolls exceeded \$740 million, with additional indirect impacts of \$1.65 billion in employment income and \$123 million in retiree impacts. Together these elements resulted in a total economic impact from the installation of over \$2.5 billion. Other direct and indirect annual economic impacts include installation expenditures for services, supplies and utilities; federal Impact Aid funds to the Waynesville School District; local sales, real property, utility and other tax revenues.

4.7.1.2 Demographics

Regional Population

The population of the ROI increased from 211,820 in 1990 to 238,906 in 2000. This represented an approximate 13 percent increase compared to a 9 percent statewide increase. Population projections for 2015 reflect the 1990 U.S. Census and migration trends during 1990-2000. It is anticipated that the recent trends in regional population growth would continue in the foreseeable future.

The cities of St. Robert and Waynesville experience the greatest direct impacts from FLW since these two communities supply a large proportion of the off-post housing, commercial goods, and services. Waynesville, the larger of the two incorporated communities, has shown a steady increase in population since 1980, while the population of St. Robert showed growth of 59 percent in population from 1990 to 2000. The majority of the more recent growth has been the result of the last (1995) BRAC round of base closings and realignments that resulted in FLW having a significant gain in personnel.

The dynamics of population change responsible for population growth or decline are natural increase (births minus deaths) and net migration. Net migration is the difference between people moving in (in-migration) and people moving out (out-migration). Net migration was responsible for over 80 percent of the population growth within the ROI from 2000 through 2003. This reflects the continuation of migration trends during the previous decade. The relative importance of net migration in the ROI far exceeded that for the State of Missouri. Internal migration accounted for 100 percent of the population growth during this period in Camden County, Maries County, and Texas County, and 90 percent of Phelps County's growth. The migration of over 3,000 people into Pulaski County is primarily the result of expanded operations at FLW. During the same period Camden, Dent and Texas counties experienced a net loss in the natural change in population.

Fort Leonard Wood Population

Table 4.4 provides an inventory of the most current (2006) military and civilian population directly associated with FLW. As shown on the table there is a total average on-post population of approximately 31,811. There are also approximately 5,287 military family members residing off-post in addition to over 21,000 military retirees residing within the ROI.

Table 4.4 Fort Leonard Wood On-Post Population, 2005	
Personnel	Number
Military	
Permanent Party	4,792
Trainees/Students	17,230
Total Military Personnel	22,022
Civilian Personnel	3,329
Total Military/Civilian Personnel	25,351
Other	
On-Post Military Family Members	6,460
TOTAL	31,811
<i>Source: U.S. Army, Army Stationing Installation Plan, June, 2006; Directorate of Resource Management, Fort Leonard Wood, Fact Sheet, 2005.</i>	

4.7.1.3 Housing

Regional Housing and Household Characteristics

Approximately 30 percent of the permanent party military personnel at FLW, comprising over 5,000 family members, live off-post. Approximately 50 percent own their own home while the remainder rent either a single family home, apartment, or mobile home. Past surveys by the FLW Housing Referral Office indicate that 75 percent of the permanent party military personnel residing off-post live in the Waynesville/St. Robert area, with Rolla in Phelps County and Lebanon in Laclede County being secondary areas of military residency.

According to the 2000 U.S. Census there were 121,826 housing units within the ROI. Over 40 percent of all occupied housing units in Pulaski County are renter occupied—a much higher rental occupancy rate than for the region. St. Robert, a primary bedroom community of FLW, has considerably higher rental and mobile home occupancy rates than the ROI, Pulaski County and the City of Waynesville. According to the Pulaski County Board of Realtors' Multiple Listing Service, there were 162 single-family housing units listed for sale in the Waynesville/St. Robert area in May, 2006. The median listing price ranged between \$170,000 and \$175,000.

Fort Leonard Wood Housing

Unaccompanied Officer (UOPH) and Enlisted Personnel Housing (UEPH)

There are currently 124 UOPH room/suites for permanent party personnel and 568 UOPH rooms/suites for students or transient personnel. Additionally, housing in the local community is available for unaccompanied officers.

There are currently 1,998 UEPH and 10,946 trainee barracks spaces classified as permanent on the installation. In addition, there are currently 2,894 trainee barracks spaces classified as temporary (USACE, 2003).

Family Housing

There are 2,864 family housing units for officers and enlisted personnel in four main family housing areas on the installation. 2,249 family units for non-commissioned officers and 615 family units for officers and enlisted personnel. With the exception of a few single family units for higher ranking officers, all of the family housing consists of two- to four-bedroom duplexes.

Currently, 198 family housing units are included under the Whole House Renovation and Improvement Program, with 29 units having been completed and 169 units under contract for renovation and/or improvement activities.

On-post housing is managed through the Residential Community Initiative (RCI) and coordinated by a private contractor, American Eagle.

4.7.1.4 Quality of Life

Education

On-Post

Four elementary schools, with a capacity of 2,000 students, and the Wood Middle School, with a capacity of 800 students, comprise the on-post public school system. Pence Elementary School is operated as an Early Childhood Center (special education) for 3- and 4-year-old children.

The Truman Education Center, in cooperation with colleges and universities, offers off-campus extension courses in a variety of subjects and at all educational levels.

Off-Post

There are six school districts in Pulaski County, with the Waynesville R-VI School District accounting for over 60 percent of the total K-12 school enrollment in the county. There are four off-post Waynesville R-VI District schools, including two elementary schools, one middle school, and one high school. In addition to these, there is also an early childhood center. Total K-12 enrollment for the Waynesville R-VI School District was 5,253 students during the 2005/2006 school year. This was an increase of 642 students from the 1998/1999 school year, or an approximate 14 percent increase in students during this 7-year period. Enrollment trends generally indicate annual variations of 6 percent or less, and reflect the varying strength of military operations at FLW.

With recent enrollment increases and anticipation of further increases resulting from FLW military activities, the school district is planning to construct a new elementary school in St. Robert. This new school is planned to have a capacity of 1,000 students for grades three-five. East Elementary School, currently the largest elementary school in the district, will be renovated and converted to a kindergarten through second grade school upon completion of the new elementary school.

The nearest college is the University of Missouri at Rolla, located approximately 28 miles east of the installation. The school has an enrollment of approximately 4,500 students and offers undergraduate and graduate programs in numerous engineering and engineering-related areas of study, as well as various liberal arts degrees. In addition, the area is well served by special education, vocational-technical schools, and higher education satellite classes at the Truman Education facility.

Health and Medical Facilities

On-Post

The General Leonard Wood Army Community Hospital, in the north central cantonment, is the largest health care facility within the ROI, and is ranked among the largest Army community hospitals. The 500-bed facility, with a 577-bed mobilization capacity, has a 63-bed daily occupancy and offers a full range of medical and dental services to active military personnel, military retirees, and dependents. The hospital also operates a family member outpatient clinic that averages over 1,300 daily patient visits. Troop medical and dental clinics to support initial screening and medical care for active duty military personnel are located near troop housing areas. The hospital offers medical care to civilians from the surrounding communities if, in case of emergency, they cannot be safely transported to other area facilities.

Off-Post

Off-post medical facilities provide a comprehensive range of primary and secondary health care within the area. There are six hospitals within the ROI, with a total capacity of over 800 beds. The largest of these include the 259-bed Phelps County Regional Medical Center in Rolla, the 99-bed Lake of the Ozarks General Hospital in Osage Beach, and the 62-bed Breech Medical Center in Lebanon. Tertiary medical care is available less than 2 hours from FLW in Columbia and Springfield, with Truman Veterans Hospital also located in Columbia. Professional health care services are becoming more concentrated in Phelps County and Camden County, with the number of physicians and dentists within the area increasing substantially during the last 10 years.

Law Enforcement

On-Post

General law enforcement responsibility at FLW is divided between the Provost Marshal's Office, U.S. Army Criminal Investigation Command, and the Federal Bureau of Investigation (FBI). Under the Uniform Code of Military Justice, military authorities have off-post jurisdiction over offenses committed by military personnel. The military law enforcement authorities coordinate their off-post activities with local law enforcement authorities on a case-by-case basis.

Off-Post

The Pulaski County sheriff provides law enforcement for the entire county except for FLW. The municipalities of Waynesville, St. Robert, Dixon, Richland and Crocker have their own police forces. There are no support agreements between the installation Military Police and the local police forces.

Fire Protection

On-Post

FLW's Fire Department provides all fire protection services on-post with three fire stations currently in use.

Off-Post

Off-post fire protection and EMS services are provided by the City of St. Robert Fire and Rescue Department, and the Waynesville Fire Protection District.

Recreation

On-Post

A wide variety of on-post recreational facilities are available to military personnel and their dependents, and to civilian employees on a space-available basis. The primary on-post outdoor recreational area consists of the centrally located multi-field sports complex in the cantonment. Included in this complex are: tennis courts; two outdoor swimming pools; volleyball courts; running tracks; and baseball, softball and soccer fields with bleachers, concessions, lighting and other amenities.

There are numerous playgrounds and multiple-use courts associated with the schools and family housing areas within the cantonment. Other outdoor recreational facilities include: a trap, skeet, and archery range; a riding academy and horse stables; an 18-hole golf course; the Sportsman's Club Campground; Indiana and Colyer parks; Bloodland Lake and Penn's Pond, which are major fishing areas; and numerous picnic areas and hiking trails.

Hunting and fishing are major recreational activities on the installation, and are allowed in a variety of areas with appropriate permits from the State and installation under the guidance of FLW Regulation 210-21, Hunting and Fishing Regulations.

Indoor recreational facilities include: a Physical Fitness Center (comparable to a civilian health club); two movie theaters; a bowling center; an arts and crafts center; an auto crafts shop; a Youth Activities Center; and four large and six small gymnasiums.

Off-Post

FLW is situated in a region that is nationally recognized for its outdoor recreational opportunities. The 506,862-acre Mark Twain National Forest bordering the installation features rugged terrain, forested countryside, clear streams, and rivers and lakes. Its approximately 135 developed recreation areas provide for camping, canoeing, off-road recreational vehicles, fishing, hunting and other recreational opportunities. The Lake of the Ozarks recreational area is within a 30-minute drive of the installation and features numerous resort facilities, golf courses and 3,200 acres of recreational land. FLW maintains an Army Recreation Travel camp on the Lake of the Ozarks that provides camping, boating, fishing, lodging, and swimming facilities for military and authorized civilian personnel. Also located in the region is the Ozark National Scenic Riverways, consisting of a number of Ozark streams that are federally protected for floating and other recreational uses. In addition, there are numerous smaller recreational facilities such as the Stone Mill Spring trout management area, developed along the Big Piney and Gasconade Rivers near FLW, as well as local facilities in Waynesville and St. Robert that provide a variety of recreational opportunities.

4.7.1.5 Environmental Justice

On February 11, 1994, President Clinton issued EO 12898, *Federal Actions to Address Environmental Justice in Minority and Low-Income Populations*. The purpose of this EO is to avoid the disproportionate placement of adverse environmental, economic, social, or health impacts from Federal actions and policies on minority and low-income populations or communities.

It is the Army's policy to fully comply with EO 12898 by incorporating environmental justice concerns in decision-making processes. In this regard, the Army ensures that it would identify, disclose, and respond to potential adverse social and environmental impacts on minority and/or low-income populations within the area affected by a proposed Army action.

The initial step in this process is the identification of minority and low-income populations that might be affected by implementation of the proposed action or alternatives. For environmental justice considerations, these populations are defined as individuals or groups of individuals, which are subject to an actual or potential health, economic, or environmental threat arising from existing or proposed *Federal actions and policies*. *Low-income*, or the poverty threshold, is defined as the aggregate annual mean income for a family of four in 2003 correlating to \$18,600.

As shown on Table 4.5, the average minority population of the ROI (5.3 percent) is considerably lower than the State of Missouri's minority population (15.2 percent). Pulaski County, the county that contains the majority of FLW, has a minority population of 21.7 percent, which is substantially higher than the remaining eight counties of the ROI. Based on the most recent U.S. Census estimates, the proportion of persons below poverty (or low-income persons) in the ROI (14.5 percent) is higher than that of the State of Missouri (11.6 percent).

Table 4.5
Minority and Low-Income Populations, Fort Leonard Wood Region of Influence

County	Total Population (2000)	Percent Minority Population (2000)	Median Household Income in Dollars (2003)	Persons Below Poverty (2003)	Percent Persons Below Poverty (2003)
Camden	37,051	2.5	\$36,802	4,489	11.7
Dent	14,927	3.0	\$27,745	2,378	16.0
Laclede	32,513	3.0	\$31,488	4,760	14.3
Maries	8,903	2.6	\$32,766	1,072	12.2
Miller	23,564	2.1	\$31,293	3,258	13.4
Phelps	39,825	6.8	\$32,358	5,569	14.1
Pulaski	41,165	21.7	\$37,681	4,517	12.3
Texas	23,003	3.6	\$26,064	4,233	18.4
Wright	17,955	2.4	\$25,545	3,370	18.7
ROI, Total/Avg.	238,906	5.3	\$ 31,305	33,646	14.5
City of St. Robert	2,717	35	NA	NA	NA
City of Waynesville	3,400	20	NA	NA	NA
State of Missouri	5,595,211	15.2	\$40,870	653,011	11.6

Source: U.S. Department of Commerce, U.S. Census Bureau, 2000 U.S. Census; Small Area Income and Poverty Estimates, Missouri Counties, U.S. Census Bureau, 2003

NA = Information not available at this geographic level.

4.7.1.6 Protection of Children

On April 21, 1997, President Clinton issued EO 13045, *Protection of Children from Environmental Health Risks and Safety Risks*. This EO recognizes that a growing body of scientific knowledge demonstrates that children may suffer disproportionately from environmental health risks and safety risks. These risks arise because children's bodily systems are not fully developed; because they eat, drink, and breathe more in proportion to their body weight; because their size and weight can diminish protection from standard safety features; and because their behavior patterns can make them more susceptible to accidents. Based on these factors, President Clinton directed each Federal agency to make it a high priority to identify and assess environmental health risks and safety risks that might disproportionately affect children. President Clinton also directed each Federal agency to ensure that

its policies, programs, activities, and standards address disproportionate risks to children that result from environmental health risks or safety risks.

It is the Army's policy to fully comply with EO 13045 by incorporating these concerns in decision-making processes. In this regard, the Army ensures that it would identify, disclose, and respond to potential adverse social and environmental impacts on children within the area affected by a proposed Army action.

4.7.2 Consequences

4.7.2.1 No Action Alternative, no location for PPS.

- **Direct Impacts.** Under the No Action Alternative no new construction or renovation would occur at FLW to accommodate the proposed relocation of the PPS. However, the proposed realignment and movement of the PPS personnel to FLW and DSS personnel to Fort Jackson would still occur under this alternative. Under the proposed action population changes would occur at FLW. These changes include the net loss of 22 permanent party military personnel; the net loss of 75 full-time equivalent (FTE) students; and a net gain of 30 civilian personnel.

The EIFS model was used to assess the regional economic impacts of this proposed action on the annual operations at FLW. The EIFS model provides a systematic method for evaluating the regional socioeconomic effects of government actions, particularly military actions.

As a result of the personnel changes under the proposed BRAC actions, the EIFS model estimates there would be a \$45,000 increase in direct annual business volume (sales); an annual decrease of approximately \$1.8 million in direct annual personal income; and a direct decrease of 66 jobs. The model also portrays the indirect impacts on business volume, income and employment as a result of the initial direct impacts of change in operations. Appendix B contains the EIFS Report on the proposed change in operations at FLW.

The EIFS model also includes a Rational Threshold Value (RTV) profile that is used in conjunction with the forecast models to assess the significance of impacts of an activity for a specific geographic area. The regional maximum positive/negative RTVs for each economic variable are as follows: sales volume (+8.81/-8.08 percent); income (+7.57/-7.67 percent); employment (=4.94/-4.60 percent); and population (=2.17/-1.07 percent). The RTVs for income and employment are negative because of a net decrease in personnel at Fort Leonard Wood under the proposed action. The RTV for sales volume is slightly positive. For these reasons, there would be negligible adverse impacts of the personnel movements on the regional income and employment, with negligible beneficial impacts on business sales volume.

Negligible direct long-term impacts would occur in respect to both on-post and off-post population in the ROI. On-post day-time military population would decrease by 97 FTE personnel. This represents less than a 1 percent decrease in the on-post military population.

Off-post population increase would be negligible with the gain of 29 civilian personnel and the loss of 22 military personnel who are assumed to reside off-post. This net gain of seven off-post personnel would result in a population gain of approximately 20 people.

This relatively small change in population relative to the total existing population at the installation would not result in any short-term or long-term impacts to on-post or off-post housing. Existing family housing, unaccompanied personnel housing, and transient housing would be used to accommodate the permanent party and students associated with the PPS. There is an adequate supply of off-post housing in the vicinity of St. Robert and Waynesville for the military and civilian personnel relocating to FLW. There are over 160 single-family housing listed for sale in the vicinity of FLW in addition to ongoing new residential construction.

There would be negligible impacts on off-post school enrollment, and no impacts on on-post schools as a result of the proposed action. The net gain of seven civilian/military personnel could result in a net enrollment increase of 10-12 students in the Waynesville School District. District enrollment during the 2005-2006 school year exceeded 5,000 students.

Impacts on existing health and medical facilities, law enforcement and fire protection, and recreational facilities would also be negligible as the change in population is so minor compared to the existing installation population.

Implementation of the proposed action is not anticipated to result in disproportionate beneficial or adverse impact on minority or low-income population, or children.

- **Indirect Impacts.** Indirect negligible adverse economic impacts would be realized by the regional and local economy as a result of the proposed change in operations. There would be no increase in employment; a \$61,000 annual increase in business volume; and an annual decrease of \$1.8 million in personal income. Any other indirect impacts on population, housing and schools would be negligible or non-existent.

4.7.2.2 Construct classroom, administrative, and generator training facilities in TA 244 at Area A.

- **Direct Impacts.** Annual economic impacts resulting from the proposed change in operations would be the same as those under the No Action Alternative. Other socioeconomic impacts would also be the same as

under the No Action Alternative. However, additional direct short-term beneficial economic impacts would be realized by the regional and local economy during the construction of the proposed PPS training facilities under this alternative.

Employment generated by construction activities would result in wages paid, an increase in business sales volume, and expenditures for local and regional services, materials and supplies. These impacts would be in the form of increased business volume, income, and employment associated with the increased on-post operations.

The EIFS model was used to assess the annual economic impacts of facility construction under this alternative. The estimated total construction cost of approximately \$22 million (2005 dollars) for the construction of the new facilities was used as the EIFS input for change in capital costs. The estimated construction period for the new facilities is 2 years.

As a result of construction expenditures for materials, supplies and services, in addition to construction labor wages, the EIFS model estimates there would be an \$8.1 million increase in direct annual business volume (sales), a \$3.0 million increase in direct annual personal income; and an increase of 98 direct jobs created in the construction, retail trade, service and industrial sectors. These impacts would be realized annually over the length of the construction period. The increase in sales volume, income and employment includes capital expenditures, income and labor directly associated with the construction activity. Appendix B contains the EIFS Report on proposed construction activities associated with the proposed action under this alternative.

Implementation of the proposed action is not anticipated to result in disproportionate beneficial or adverse impact on minority or low-income population, or children.

- **Indirect Impacts.** Annual indirect economic impacts resulting from the proposed change in operations would be the same as those under the No Action Alternative. Other indirect socioeconomic impacts would also be the same as under the No Action Alternative.

However, additional short-term indirect beneficial economic impacts would be realized by the regional and local economy during the construction of the proposed PPS training facilities. The indirect impacts on business volume, income and employment as a result of the initial direct impacts of the construction activities include \$19 million increase in sales volume; \$1.8 million decrease in personal income; and 58 jobs. Total direct and indirect annual impacts on the regional economy resulting from construction activities during the 2-year construction period would be negligible as indicated by the RTVs. For example, the

RTVs for each of the economic variables resulting from project construction are considerably below the respective maximum positive RTVs for the ROI.

4.7.2.3 Construct classroom, administrative, and generator training facilities in TA 244 at Area B.

- **Direct Impacts.** Direct economic impacts of the proposed change in operations would be the same as those associated with the location of training facilities in TA 244 at Area A. Other direct socioeconomic impacts under this alternative would also be the same as with training facilities at TA 244 in Area A.
- **Indirect Impacts.** The same indirect socioeconomic impacts would occur under this alternative as with location of training facilities in TA 244 at Area A.

4.8 UTILITIES

4.8.1 Affected Environment

4.8.1.1 Potable Water Supply

The primary source of water at FLW is the Big Piney River. Raw water is pumped to the treatment plant. Following collection and treatment, water is stored in a combination of elevated storage tanks, a ground storage reservoir, or in a clear well.

The existing distribution system is capable of maintaining adequate water pressures throughout the installation under expected demand conditions. It is anticipated that existing water lines would only need to be extended to supply drinking water to the PPS. However, if main water lines are needed a permit from the MDNR would be necessary.

4.8.1.2 Wastewater System

Sanitary sewage is collected in mains that generally follow the drainage patterns of the cantonment area. The wastewater is delivered to the treatment plant, which discharges to Dry Creek, a tributary of the Big Piney River under National Pollutant Discharge Elimination System (NPDES) permit number MO-0029742. Excess flow is bypassed to the storm water holding facilities.

TA 244 was recently connected with the installation's wastewater collection and treatment systems. The other TAs outside the cantonment are dependent on portable latrines or septic systems.

4.8.1.3 Storm Water System

Enclosed storm drainage systems exist in the family housing and community center areas and the training brigade area. Storm water and surface drainage is carried in short collecting lines and systems that discharge at

various points. The water then flows from these discharge points, and from the remainder of the installation, by open ditches and culverts that make their way to the Big Piney River on the east boundary and the Roubidoux Creek on the west boundary. Storm water discharges are permitted in accordance with MDNR regulations.

The main storm water features of TA 244 are the several sediment control ponds located throughout the Training Area, with several concentrated near the heavy equipment operation areas. The sediment ponds are functioning as designed, by efficiently collecting sediment from disturbed areas and protecting downstream drainages.

4.8.1.4 Energy Sources

Electrical System. Power is provided to FLW from the Sho-Me Power/Associated Electric Cooperative, Inc. Secondary power electrical generators can provide electrical power to individual areas of the installation in the event emergency power is needed.

Heating Systems. Buildings on FLW are heated by one of seven central plants or by individual single-building systems. In general, individual oil-fired, forced-air furnaces heat most of the temporary facilities. Natural gas is provided to the installation via contract with the Omega Gas Company by way of a Missouri Pipeline Company pipeline. Liquefied petroleum gas and Fuel Oil Grades 1 and 2, are also used to heat facilities that are not connected to the natural gas system.

4.8.1.5 Communications

Telephone. The installation is served by both governmental telephones and United Telephone of Missouri systems.

Radio Communications. A high-frequency radio station provides on-post service and connection with other Army installations through the Military Affiliate Radio System. The installation has a frequency control management program to ensure that radio frequencies used by various activities on the installation do not interfere with each other.

Cable Television. Cable television service is provided to subscribers by Cable America Corporation. Cable America Corporation has an office in St. Robert and uses established utility easements to provide cable service to FLW.

4.8.1.6 Solid Waste

Solid Waste Disposal. Solid waste generated at FLW is primarily municipal waste, special waste, and demolition debris. A private contractor collects and transports municipal waste from FLW to a transfer facility in St. Robert for disposal in a landfill in Hartville, Missouri.

Materials generated from demolition and construction are classified as regulated construction and demolition waste or hazardous materials that must be handled and disposed of differently than recoverable or clean fill materials generated from such activities. MDNR guidance is provided primarily for construction and demolition contractors, construction and demolition waste haulers, roofing contractors, remodeling businesses, homebuilders, and homeowners.

4.8.2 Consequences

4.8.2.1 No Action Alternative, no location for PPS

- **Direct Impacts.** Under the No Action Alternative, no new construction or renovation of utilities would occur at FLW. Therefore, there would be no new adverse direct utilities impacts from the stationing of the PPS at FLW.

The PPS currently uses radio controlled headsets so that personnel may communicate while operating the generators. As part of the relocation of systems to FLW, the radio frequency of these headsets would need to be coordinated with the existing radio frequency program for the installation.

Existing installation ongoing mission activities would occur at their current level of intensity and frequency; therefore, there would be negligible impacts to utilities infrastructure beyond present levels.

- **Indirect Impacts.** Operations of existing facilities are not anticipated to greatly change existing impacts to utilities; therefore areas located even short distances from these operations would not be affected.

4.8.2.2 Construct PPS Facilities at TA 244, Area A.

- **Direct Impacts.** Under this alternative there would be moderate beneficial direct impacts to utilities that would occur as a result of the extension of water supply lines to Area A. This would provide improved firefighting capability near Area A, and would feature looped water supply/firefighting systems between buildings. Additionally, electrical, telephone, cable and natural gas service for the site would also be extended from main lines. Other than these extensions of utilities to the proposed facilities, no upgrades to existing utility systems would be necessary, as the existing systems would have adequate capacity to accommodate the new facilities.

The PPS currently uses radio controlled headsets so that personnel may communicate while operating the generators. As part of the relocation of systems to FLW, the radio frequency of these headsets would need to be coordinated with the existing radio frequency program for the installation.

Although the PPS training includes the operation of electrical generation equipment, this electrical power is currently burned off as excess heat at Fort Belvoir. There are numerous operational and safety concerns associated with attempting to capture this power for use in the electrical

grid. These safety concerns are anticipated to continue at FLW. However, it is possible that FLW may in the future review the potential for capturing waste heat from the training activities for other uses, under the assumption that the waste heat collection may be accomplished without impacting PPS training missions and operations.

The PPS may change out an existing assigned 1.5 mega-watt control unit with a 2.6 mega-watt commercial generator purchased after Hurricane Katrina. This larger generator would be used during training, and it is estimated that it would operate less than 10 hours per year.

- **Indirect Impacts.** Under this alternative there would be minor increases in utility use on FLW from the addition of the PPS facilities.

4.8.2.3 Construct PPS Facilities at TA 244, Area B.

- **Direct Impacts.** Under this alternative, direct impacts to utilities would be similar to those identified for the alternative to be constructed at Area A.
- **Indirect Impacts.** Under this alternative, indirect impacts to utilities would be similar to those identified for the alternative to be constructed at Area A.

4.9 HAZARDOUS AND TOXIC SUBSTANCES

FLW maintains programs to minimize and prevent damage to the environment from use of hazardous materials. These programs include: the FLW Spill Prevention and Response Plan (FLW, 2003) that identifies measures for preventing and responding to spills of POLs, hazardous materials, and hazardous wastes; the Hazardous Waste Management Plan (HWMP) with the objective of reducing quantity and toxicity of wastes generated at FLW; and a Pollution Prevention Plan with the goal of reducing the impacts of post operations on the environment. The HWMP provides guidance and assigns responsibility for the safe and proper methods for handling, storing, and disposing hazardous wastes at FLW. The post has developed action plans for removing or reducing hazards associated with polychlorinated biphenyls (PCBs), CFCs, halon, lead paint, asbestos and radon. FLW has SOPs that prevent or minimize the potential threat to human health and the environment from working with hazardous and toxic materials.

4.9.1 Affected Environment

TA 244 is an Engineer Training Site for Army, Air Force, Navy, and Marine personnel. Both Area A and B are located along the western side of TA 244.

- Approximately 5 acres of Area A are level. Most of the remainder is sloped to the east where there is a man-made storm water retention pond.
- As of July 2006, Area B is no longer used for heavy equipment operator training. A majority of the site is level and devoid of trees.

The site is upslope from a man-made retention pond and contains a berm to control runoff from the site.

4.9.1.1 Uses of Hazardous Materials

Hazardous materials usage in Areas A and B involve POLs typically found in vehicle and equipment operations. These include oils, lubricants, solvents, antifreeze, and fuels.

4.9.1.2 Storage and Handling Areas

No storage or handling facilities exists at any of the proposed sites for POLs or other hazardous and toxic materials. As part of the proposed action, it is anticipated that a new storage and handling area would be created at the PPS maintenance facility. It is anticipated that the PPS would also establish and operate a new parts washing facility that may use hazardous materials.

4.9.1.3 Hazardous Waste Disposal

No hazardous waste disposal issues exist at any of the proposed sites.

FLW is currently designated as a large-quantity hazardous waste generator and manages their hazardous waste in accordance with the Resource Conservation and Recovery Act, 1976, Public Law 94-580, Title 40 CFR Parts 260-280, Missouri Hazardous Waste Management Law, 1977, Title 25 CSR Part 260-270, and Army regulations. As part of these management activities, specified locations/organizations on the installation are designated as Satellite Accumulation Points (SAP), and these organizations are allowed to accumulate waste on site in secure locations. Personnel in charge of these accumulation areas are required to complete both an on-line training course and an annual refresher seminar. Waste may be collected at these limited point of origin locations for a specified period of time or until a specified quantity of waste is collected. It is anticipated that the PPS would be authorized to establish an additional, new SAP at their maintenance and training facility. Once either the quantity of waste collected or the timeframe allowed for on-site accumulation is reached, the installation has a specifically trained contractor that collects the waste and transports it to the installation's 90-day hazardous waste handling facility.

4.9.1.4 Site Contamination and Cleanup

There are no Installation Restoration Program (IRP) sites on or immediately surrounding Areas A and B.

4.9.1.5 Special Hazards

No special hazards exist at any of the alternate sites.

4.9.2 Consequences

4.9.2.1 No Action Alternative, no location for PPS.

- **Direct Impacts.** Under the No Action Alternative only those construction and renovation projects previously reviewed by the installation would be accomplished, and existing ongoing mission activities would continue at their current level of intensity and frequency. There would be no new adverse direct impacts from hazardous materials associated with this alternative.

Existing installation ongoing mission activities would occur at their current level of intensity and frequency; therefore, there would be negligible impacts to existing hazardous materials and no anticipated change in the quantities or types of hazardous materials generated at the installation beyond present levels.

- **Indirect Impacts.** There would be no new adverse indirect impacts from hazardous materials associated with this alternative.

4.9.2.2 Construct PPS Facilities at TA 244, Area A.

- **Direct Impacts.** Short-term minor adverse direct impacts to soil, groundwater, and/or surface water could occur in the event of accidental spills of hazardous and toxic materials such as antifreeze, hydraulic fluid, and fuels during the operation and maintenance of construction equipment. Long-term minor adverse direct impacts could occur in the event of accidental spills of hazardous and toxic materials such as antifreeze, hydraulic fluid, and fuels during the operation and maintenance of PPS vehicles and equipment. Effects of fuel storage on soils and water resources are further discussed in subsections 4.4.2.1, and 4.5.2.1, respectively.

There would be a slight increase in the quantity of hazardous waste generated, requiring recycling or disposal. The hazardous wastes generated would be similar to those currently generated on FLW and would be handled in the way described in section 4.9.1.3.

As noted above, it is anticipated that the PPS would need to establish an additional SAP in support of their training and maintenance operations. The SAP would require approval and change of the installation management instructions, and personnel operating the facility would be required to complete training associated with SAP operations. Although potential from spills associated with the use, storage, collection and disposal of hazardous materials is always present, FLW management processes are designed to reduce or eliminate the potential for spills or inadvertent release of materials into the environment.

Installation management processes also specify specific guidelines for the use, operation, and movement of equipment parts washers. These

guidelines reduce the potential for environment releases associated with the operation of these stations and from inadvertent spills from the stations.

- **Indirect Impacts.** Short-term and long-term minor adverse indirect impacts to soil, groundwater, and/or surface water could occur if accidental POL spills were unsuccessfully contained and allowed to migrate outside the boundaries of Area A.

Potential spills from the truck transport of fuel would result in minor adverse indirect impacts similar to those identified in subsection 4.4.2.2 (Geology and Soils) and in subsection 4.5.2.2 (Water Resources).

4.9.2.3 Construct PPS Facilities at TA 244, Area B.

- **Direct Impacts.** The direct impacts of this alternative are similar to those identified for Area A.
- **Indirect Impacts.** The indirect impacts of this alternative are similar to those identified for Area A. However, because there is an existing sediment and storm water retention basin down slope from Area B that collects the runoff minimizing off-site migration of pollutants, this alternative would have less potential for impacts compared to Area A.

4.10 CUMULATIVE EFFECTS SUMMARY

4.10.1 Introduction

The cumulative impact analysis evaluates the incremental effects of implementing any of the alternatives when added to past, present, and reasonably foreseeable future Army actions at FLW and the actions of other parties in the surrounding area, where applicable. The cumulative impact analysis has been prepared at a level of detail that is reasonable and appropriate to support an informed decision by the Army in selecting a preferred alternative. The cumulative impact discussion is presented according to each of the implementation alternatives listed.

The key components of the cumulative impact analysis include the following:

- **Cumulative Impact Analysis Area.** The cumulative impact analysis area includes the area that has the potential to be affected by implementation of the proposed action at FLW. This includes the installation and the area immediately proximate to the installation boundary and varies by resource category being considered:
 - **Air Quality.** The cumulative impact analysis area for air quality includes all areas within the boundaries of the installation, and the AQCR that includes FLW.
 - **Noise.** The cumulative impact analysis area for noise is areas within and proximate to TA 244.

- **Geology and Soils.** The cumulative impact analysis area for geologic and soils, including topography is defined by the installation boundary.
 - **Water Resources.** The cumulative impact analysis area for water resources is defined as the installation boundary.
 - **Biological Resources.** The cumulative impact analysis area for biological resources includes the installation, and an area of comparable size, outside of and immediately surrounding the installation.
 - **Socioeconomic Environment.** The cumulative impact analysis area for socioeconomic environment includes the surrounding ROI.
 - **Utilities.** The cumulative impact analysis area for utilities is defined by the installation boundary and the area immediately proximate to installation boundary.
 - **Hazardous and Toxic Materials.** The cumulative impact analysis area for hazardous and toxic materials includes all areas within the installation boundaries.
- **Past and Present Actions.** Past actions are defined as actions within the cumulative analysis area under consideration that occurred before November 2005 (the environmental baseline for this EA). These include past actions at FLW and past demographic, land use, and development trends in the areas that surround the installation.

In most cases, the characteristics and results of these past and present actions are described in the Affected Environment sections under each of the resource categories covered in this EA.

- **Reasonably Foreseeable Future Actions.** Reasonably foreseeable future actions are mainly limited to those that have been approved and that can be identified and defined with respect to timeframe and location. Reasonably foreseeable future actions that have been identified and considered in the analysis of cumulative impacts, both on-post and off-post are listed below.
 - **Reasonably foreseeable future on-post actions include the following:**
 - Implementation of the 2005 BRAC recommendations including, the realignment of the DSS to Fort Jackson, South Carolina.
 - Update of the Installation Real Property Master Plan to include planning for future actions.
 - Consolidation of industrial and maintenance activities in one central area.
 - Continuation of past and present actions as discussed above. Other military missions and future training activities at FLW can

be characterized as “relatively constant into the foreseeable future.”

- Continuation of present management actions, and the modification of these management actions, as necessary, to ensure compliance with regulations.
- Building or system renewals or replacements, construction of new buildings or systems, expansions and improvements in existing buildings, and street and road improvements would continue as needed to fulfill mission requirements at FLW that are not included in the proposed action or alternatives.
- **Reasonably foreseeable future off–post actions include the following:**
 - Continuation of present management actions within the surrounding civilian community and the continuation of existing civilian development trends.
 - Continued civilian encroachment around the FLW installation.
 - Continued development along the Interstate 44 Spur (Missouri Avenue) between Interstate 44 and the main gate to FLW.
 - Continued development along the civilian portions of the West Gate Access Roadway.
 - Continued development of the State of Missouri Veterans Cemetery near the northwestern corner of FLW.

Based upon the following environmental analysis, none of the cumulative impacts identified were considered significant. A list of BMPs and other measures that would be implemented to avoid or reduce non-significant adverse environmental consequences are included in Section 4.11 of this EA.

4.10.2 Potential Cumulative Impacts

4.10.2.1 No Action Alternative

Under the Alternative 1, No Action Alternative, it is anticipated that past and present development trends on the installation and the surrounding civilian community would continue. However, for realignment actions directed by the BRAC Commission, it should be noted that for the No Action Alternative, maintenance of current conditions is not feasible, since the BRAC actions are congressionally mandated actions.

4.10.2.2 Implementation Alternatives

- **Air Quality.** Under implementation of the Proposed Action it is anticipated that there would be minor short-term adverse cumulative impacts to air quality. Increases in fugitive dust from construction projects on- and off-post could combine with particulate matter generated through training

activities and other previously approved construction projects at the installation and within the surrounding community. These emissions could accumulate with other pollutants from adjacent and regional activities.

- **Noise.** Under implementation of the Proposed Action, it is anticipated that there would be minor short-term adverse cumulative noise impacts. Construction of the new classroom and maintenance facilities in combination with training activities and other previously approved construction projects at the installation would result in increased noise levels within the area at TA 244. Additionally, generator training would be expected to contribute to long-term adverse cumulative noise impacts. It is not anticipated that these noise levels would adversely impact proximate non-TA 244 activities.
- **Geology and Soils.** Under implementation of the Proposed Action it is anticipated that there would be short-term minor adverse cumulative impacts to geology and soils. Construction of the new classroom and maintenance facilities in combination with training activities and other previously approved construction projects at the installation would result in increased soil erosion, removal, and compaction. A portion of the proposed construction sites are on undeveloped land. The cumulative impact to soil resources is anticipated to be minor.
- **Water Resources.** Under implementation of the Proposed Action it is anticipated that there would be short-term and long-term minor adverse cumulative impacts to water resources. Construction of the new classroom and maintenance facilities in combination with training activities and other previously approved construction projects at the installation would involve dirt work and the removal of vegetation that would result in increased water runoff and soil erosion both on the installation and down slope off of the FLW property. This increased runoff may contain sediment, contaminants, and other construction-related debris. Unlike the site proposed in Alternative 3, the site in Alternative 2 does not currently have a storm water detention basin where spills could be collected.

Sediment loading in streams may increase turbidity and affect other water quality parameters such as dissolved oxygen, pH, conductivity, and heavy metal concentrations, which in turn could affect fish and wildlife. Short-term cumulative impacts would occur due to direct soil disturbance from training and construction activities. Long-term cumulative impacts would occur due to the increase in impermeable surfaces that would increase the quantity and speeds of run-off. BMPs during construction and operation of the facilities would reduce these impacts during most occasions.

- **Biological Resources.** Under implementation of the Proposed Action it is anticipated that there would be long-term minor adverse cumulative impacts to biological resources. The proposed construction sites are undeveloped; however the sites are previously disturbed areas. BRAC

and non-BRAC construction projects occurring on the installation in combination with surrounding community development projects would result in adverse cumulative impacts to biological resources with the removal of flora and the displacement of fauna.

- **Socioeconomics.** Under implementation of the Proposed Action it is anticipated that there would be minor direct and indirect short-term beneficial cumulative economic impacts to the regional and local economy during the construction phase. Beneficial long-term cumulative impacts would be realized by the increased operations of the BRAC action in combination with non-BRAC on-post actions and construction projects. As a result of construction expenditures for materials, supplies, and services, in addition to construction labor wages, there would be an annual increase in total business volume, an annual increase in total personal income, and an increase in the number of jobs created in the construction, retail trade, service, and industrial sectors. These impacts would be realized on an annual basis during the length of the construction period, but would have negligible to minor impacts on the regional economy.

In addition, the increased operations associated with the Proposed Action results in increased military and civilian payrolls, and an increase in on-post expenditures for services and supplies. Despite the loss/gain tables showing a loss of military personnel overall, the increase in on-post employment of incoming civilians associated with the Proposed Action results in additional off-post business volume, income, and employment. This is due to an assumption that civilians living off-post purchase more goods and services than military living on post. Off-post demand for additional housing and supportive services in the surrounding communities when combined with on-installation development would result in long-term cumulative economic impacts. Other cumulative socioeconomic impacts include an increase in school enrollment, increased demand on public services, and an enhanced tax base and tax revenues resulting from the increase in population.

- **Utilities.** Under implementation of the Proposed Action it is anticipated that there would be moderate beneficial cumulative impacts to utilities. Implementation of BRAC related construction projects, which include updates and continued expansion of the utilities, would have long-term cumulative beneficial impacts on the installation when combined with updates to utilities on non-BRAC related projects and off-installation utility improvements.
- **Hazardous and Toxic Substances.** Under implementation of the Proposed Action it is anticipated that there would be potential minor short-term adverse cumulative impacts from hazardous and toxic substances. Construction of the new classrooms and maintenance facilities in combination with training activities and other previously approved

construction projects at the installation would result in increased potential for adverse impacts from hazardous and toxic substances. Additionally, fuel transport and storage associated with the generator training facility, combined with other fuel transport and use in training activities, would result in a minor, long-term cumulative increase in potential spills on the installation.

There would be a slight increase in the quantity of hazardous waste generated, requiring recycling or disposal.

4.11 MITIGATION SUMMARY

As discussed in Sections 4.2 through 4.10 above, no significant adverse or significant beneficial impacts are anticipated as a result of implementing any of the proposed action alternatives or the No Action Alternative. Consequently, no mitigation measures that are required to reduce significant impacts to non-significant levels are part of this EA.

However, as part of the proposed action, FLW has identified a number of BMPs that would be implemented in association with the proposed construction activities, regardless of the alternative selected, as part of FLW's ongoing, pro-active environmental program. Additionally, FLW would work with governmental agencies to comply with the respective regulations and avoid adverse impacts wherever possible. Wherever reasonable and possible to do so, unavoidable impacts would be abated under consultation with the appropriate agencies. In accordance with 40 CFR 1508.20 (a–e) and 32 CFR Part 651.15 these BMPs are designed to lessen impacts in the following ways:

- (a) Avoiding the impact altogether by not taking a certain action or parts of an action;
- (b) Minimizing impacts by limiting the degree or magnitude of the action and its implementation;
- (c) Rectifying the impact by repairing, rehabilitating, or restoring the affected environment;
- (d) Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action;
- (e) Compensating for the impact by replacing or providing substitute resources or environments.

For those adverse impacts that cannot be avoided, the BMPs include features designed to: protect, maintain, restore, or enhance environmental conditions. These BMPs are summarized below:

- BMPs that would be employed to reduce erosion and sedimentation would include the establishment of:
 - Silt fences;
 - Diversion ditches;

- Re-seeding and the re-establishment of vegetation on bare soil as soon as possible following construction;
- Mulching, straw berms, and temporary cover crops as appropriate;
- The construction, operation, and maintenance of portable and long-term sediment and surface water retention features;
- Appropriate erosion and sediment control structures identified throughout this document would be in place and functional before earth-moving operations begin and would remain intact throughout the project. Disturbed areas would be planted as quickly as possible to prevent erosion;
- Areas around the buildings and parking lots would be well-vegetated to minimize soil erosion. In addition, catch basins, diversion ditches, and pipe conveyances may be necessary to handle the additional storm water runoff. Design elements such as grass swales and landscaped features designed to help minimize runoff and soil erosion could be used;
- Design and construction measures would include the development of surface water control features to ensure that post-development run-off from construction sites does not exceed pre-development run-off. Areas around the buildings and parking lots would be well-vegetated to minimize soil erosion;
- Storm gutters and other storm drainage system improvements would be installed in conjunction with construction of the new facilities;
- Each alternative would also require a State- and FLW-approved Sedimentation and Erosion Control Plan;
- The contractor for the proposed construction would need to provide a copy of its Soil Erosion Control BMP Plan to the Department of Public Works, Water Quality Program Manager for review and approval.
- Erosion controls detailed in Natural Resources Conservation Service (NRCS) Critical Area standards and those required by the State of Missouri storm water discharge permits for construction sites as well as other BMPs would be used, where applicable, to reduce erosion and protect the water quality of receiving streams.
- FLW continually uses BMPs, such as the following, to minimize contamination of storm water runoff:
 - Good housekeeping - keeping areas clean, conducting inspections regularly;
 - Preventative maintenance - using drip pans, changing automotive fluids only in designated areas;

- Spill prevention, control, and countermeasures - keeping accurate inventory of potential polluting materials, protecting materials from storm water, and making spill kits available.
- To minimize any impact associated with accidental releases of petroleum products or chemicals, FLW has developed an Installation Spill Contingency Plan (FLW, 1990) and a Spill Prevention Control and Response Plan (FLW, 2003). In the event of an inadvertent release into the environment, this plan, which includes the proper notifications and remediation, must be followed.
- FLW uses the following BMPs for Air Emissions:
 - Construction dust control measures would substantially reduce the potential for fugitive dust emissions. These measures would include retention of vegetative cover on the site to the extent practical, reestablishment of new vegetative cover in disturbed areas, and the use of other dust suppression techniques;
 - A construction and operating permit from MDNR and the USEPA (if needed) would be obtained prior to the installation of furnace and air conditioning systems;
 - The possibility of removing trees and shrubbery may result in potential burning to eliminate the wood debris. Timber harvest, firewood cutting, chipping, and composting are the preferred means of disposing of woody debris. Burning is only used as a last option. To minimize emissions from burning, BMPs, such as the use of air curtain destructors and/or wind advisories would be employed.
- FLW uses the following BMPs for Hazardous and Toxic Substances:
 - Increased frequency of hazardous waste inspections for satellite accumulation areas.
 - Reasonable containment and control of solid wastes generated from and hazardous substances used in renovation and construction activities would be employed. All spills or releases of POL products, hazardous materials, pollutants, or contaminants would be handled in accordance with measures outlined in the Spill Prevention and Response Plan.
- Additional BMPs FLW would incorporate include the following:
 - Dying vegetation, shrubbery, and trees should be removed and replaced with more aesthetically pleasing landscaping to enhance aesthetics and visual resources of renovated and new buildings, roads, and parking lots. During construction of buildings, roads, or parking lots, screening should be erected to shield the view of construction activities and screening should be placed around motor pools and gas regulators to improve aesthetics.

- Many spill prevention measures would be utilized with the construction of the PPS, such as secondary containment, overflow alarms, spill kits, and oil water separators.
- At the PPS site, BMPs would be employed to minimize fugitive dust emissions. For example, dust suppression and parking lot cleanliness procedures would be applied at the PPS to reduce emissions.
- The use of BMPs to minimize soil erosion would be the primary mitigation practice employed to protect on-site and off-site surface waters during the PPS planning and construction process.
- To ensure compliance with the Section 7 provisions of the ESA and to avoid potential impacts on endangered Indiana bats, gray bats, or bald eagles, all FLW guidelines concerning Bat Management Zone 1, Bat Management Zone 2, and the Bald Eagle Buffer Zone would be followed. The installation would also implement BMPs designed to further reduce the potential for inadvertent adverse impacts to Indiana bats. Prior to construction activities, the installation would survey the area for potential roost trees. Trees that might provide suitable habitat would be marked and would only be removed between November 1 and March 31 when it is anticipated that Indiana bats would not be using the trees.
- If cultural resource artifacts are discovered as a result of project implementation, procedures for the preservation or recovery would follow the guidelines established by regulation National Historic Preservation Act (NHPA); AR 200-4. The installation Cultural Resource Manager would make the initial determination of the significance of any artifacts discovered. If a find is determined to be significant, the NHPA requires the Installation Commander to notify the Secretary of the Interior regarding the find and the potential impact. If the Secretary of the Interior determines that the artifact is of scientific significance, measures to survey, record, preserve, or recover that data would be implemented.
- Disturbed areas would be planted as quickly as possible with native plant species to prevent erosion. Non-invasive landscape plantings would be used in landscaped areas and vegetated barriers to enhance habitat for small mammals and birds.
- Barriers and “no trespassing” signs would be placed around construction areas to reduce potential injuries.
- The project proponent would apply for all necessary permits for any stream or wetland impacts and use the completed Final EA to serve as supporting documentation to satisfy Section 404(b) (1) of the CWA. Section 401(a) water quality certification would be in conjunction with the Section 404 permit.
- BMPs would be employed to minimize the potential noise impacts. For example, construction activities near sensitive noise areas, such as bald

eagle nests, would be limited to times when the nests are uninhabited. Also, hearing protection would be worn by instructors, students, and other PPS technicians during operation of the generators.

4.12 CONCLUSIONS, FINDINGS, AND RECOMMENDATIONS

As noted in this analysis, direct, indirect, and cumulative impacts of the each of the proposed action alternatives and the No Action Alternative have been considered and no significant impacts (either beneficial or adverse) have been identified. However, for realignment actions directed by the BRAC Commission, it should be noted that for the No Action Alternative, maintenance of current conditions is not feasible, since the BRAC actions are Congressionally-mandated actions. Either of the potential implementation alternatives could be implemented.

Based upon the relative impacts identified during this analysis, it is recommended that the FNSI include the following recommendations for the decision that should be made as a result of this analysis.

The decision maker should choose **Construct PPS Facilities at TA 244, Area B**. This site provides similar training benefits to the Army to those offered at TA 244, Area A, but with much less potential environmental impacts.

SECTION 5

ACRONYMS

A		D	
ACM	Asbestos Containing Material	DA	Department of the Army
ADTL	Average Daily Trainee Load	dB	decibels
AHPA	Archaeological and Historic Preservation Act	dBA	decibels, A-weighted scale
ARPA	Archaeological Resources Protection Act	DENIX	Defense Environmental Network and Information Exchange
ATFP	Anti-Terrorism/Force Protection	DNL	day-night sound level
		DoD	Department of Defense
		DOL	Directorate of Logistics
		DSS	Drill Sergeant School
B		E	
BMP	Best Management Practice	EA	Environmental Assessment
BRAC	Base Closure and Realignment	EPAS	Environmental Performance Assessment System
C		E	
CAA	Clean Air Act	EIFS	Economic Impact Forecast System
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act	EIQ	Emission Inventory Questionnaire
CEQ	Council on Environmental Quality	EIS	Environmental Impacts Statement
CFC	chlorofluorocarbons	EO	Executive Order
CFR	Code of Federal Regulations	ESA	Endangered Species Act
CMC	Citizens for Missouri's Children	F	
CWA	Clean Water Act	FBI	Federal Bureau of Investigation
		FLW	Fort Leonard Wood
		FNSI	Finding of No Significant Impact

FTE	Full Time Equivalent	N	
G		NAAQS	National Ambient Air Quality Standards
		NCA	Noise Control Act
GOV	Government Owned Vehicle	NEPA	National Environmental Policy Act
H		NHPA	National Historic Preservation Act
HAP	Hazardous Air Pollutant	NPDES	National Pollutant Discharge Elimination System
HMMWV	High-Mobility Multi-purpose Wheeled Vehicles		
HVAC	Heating, Ventilation, and Air Conditioning	NRCS	Natural Resources Conservation Service
HWMP	Hazardous Waste Management Plan	NRHP	National Register of Historic Places
I		O	
ICUZ	Installation Compatible Use Zone	P	
INRMP	Integrated Natural Resources Management Plan	PCB	polychlorinated biphenyl
IRP	Installation Restoration Plan	POI	Program of Instruction
J		POL	Petroleum, Oils, and Lubricants
K		POV	Privately Owned Vehicle
L		PPS	Prime Power School
M		PSD	Prevention of Significant Deterioration
MDNR	Missouri Department of Natural Resources	Q	
MSA	Metropolitan Statistical Area	R	
		RCI	Residential Community Initiative
		RCRA	Resource Conservation and Recovery Act
		ROI	Region of Influence
		RTV	Rational Threshold Value

S		Z
SAP	Satellite Accumulation Points	
SCS	Soil Conservation Service	
SF	square foot or square feet	
T		
TA	Training Area	
TSCA	Toxic Substances Control Act	
TPY	tons per year	
U		
UEPH	Unaccompanied Enlisted Personnel Housing	
UOPH	Unaccompanied Officer Personnel Housing	
USAES	United States Army Engineer School	
USACE	United States Army Corps of Engineers	
USACERL	United States Army Construction Engineering Research Laboratory	
USEPA	United States Environmental Protection Agency	
USGS	U.S. Geological Survey	
V		
VOC	Volatile Organic Compounds	
W		
X		
Y		

SECTION 6 REFERENCES

References that were used during the development of this EA include the following:

Reference	Description
BEA, 2004	United States Department of Commerce, Bureau of Economic Analysis, <i>Employment by Industry by Place of Work</i> , 2004.
BLS, 2004	United States Department of Labor, Bureau of Labor Statistics, <i>Civilian Labor Force and Unemployment Rates</i> , 2004.
FLW, 1990	Fort Leonard Wood-Department of Engineering and Housing. 30 May 1990. <i>Fort Leonard Wood Installation Spill Contingency Plan</i> . Fort Leonard Wood, Missouri.
FLW, 1994	Fort Leonard Wood, Department of Public Works. 1994. <i>Installation Pest Management Plan</i> . Fort Leonard Wood, Missouri.
FLW, 1996	Fort Leonard Wood. 29 January 1996. Contact Memorandum No. 31: <i>Results of Fort Leonard Wood Hydrogeologic Investigation</i> . Prepared by Harland Bartholomew and Associates, Inc.
FLW, 2000	Fort Leonard Wood. <i>Integrated Natural Resources Management Plan, 2001-2005</i> . U.S. Army Maneuver Support Center and Fort Leonard Wood, Missouri.
FLW, 2003	Fort Leonard Wood. <i>Spill Prevention and Response Plan, April 2003</i> . U.S. Army Maneuver Support Center and Fort Leonard Wood, Missouri
FLW, 2006	Fort Leonard Wood. <i>Integrated Natural Resources Management Plan, 2006-2010</i> . U.S. Army Maneuver Support Center and Fort Leonard Wood, Missouri.
MDNR, 1982	Missouri Department of Natural Resources, 1982. <i>Springs of Missouri</i> . Division of Geology and Land Survey Water Resources, Report No. 29, 1982.
NFWF, 1992	National Fish and Wildlife Foundation, 1992. <i>Partners in Flight: 1991 Annual Report</i> . Washington, DC.
OBS, 1990	Johnson, F.L.; Thompson, R.A.; Sladewski, C.M.; Estes, J.R.; and Schnell, G.D. 1990. <i>Floral Inventory of Fort Leonard Wood, Missouri</i> . Oklahoma Biological Survey, Norman, OK.
SCS 1989	Soil Conservation Service, February 1989. <i>Soil Survey of Pulaski County, U.S. Department of Agriculture</i> .
USAEHA, 1983	U.S. Army Environmental Hygiene Agency, December 1983. <i>Fort Leonard Wood Environmental Noise Assessment</i> . Fort Leonard Wood, Missouri.
USACE, KCD, 1994	Kansas City District, U.S. Army Corps of Engineers, September 1994. <i>Installation Compatible Use Zone Study</i> . Fort Leonard Wood, Missouri. Prepared by Parsons Harland Bartholomew & Associates, Inc.
USACE, KCD, 1996	Kansas City District, U.S. Army Corps of Engineers, 21 February 1996. <i>Master Plan and Ongoing Mission Biological Assessment for the U.S. Army Engineer Center and Fort Leonard Wood, Missouri</i> . Prepared by 3D/Environmental and Parsons Harland Bartholomew & Associates, Inc.
USACE, KCD, 1997	Kansas City District, U.S. Army Corps of Engineers, 21 February 1996. <i>Biological Assessment: Relocation of U.S. Army Chemical School and U.S. Army Military Police School to Fort Leonard Wood, Missouri</i> . Prepared by 3D/Environmental and Parsons Harland Bartholomew & Associates, Inc.
USACE, KCD, 1998	Kansas City District, U.S. Army Corps of Engineers, 1998. <i>Spill Prevention and Response Plan, Fort Leonard Wood, Missouri</i> . Kansas City District, U.S. Army Corps of Engineers. Prepared by Parsons Harland Bartholomew & Associates, Inc.
USACE, KCD, 2002	Kansas City District, U.S. Army Corps of Engineers, 2002. <i>Biological Indicators Monitoring Study, Fort Leonard Wood Missouri</i> . Third Annual Report and Study Summary. Prepared by Parsons Engineering Science, St. Louis, Missouri.

Reference	Description
USACERL, 1998	U.S. Army Construction Engineering Research Laboratory, U.S. Army Corps of Engineers, June 1998. <i>Fauna, Flora, and Sensitive Habitat on Fort Leonard Wood, MO</i> . Prepared by Sternburg, Janet E.; Hays, John; Sanborn, Sharon; McFarland, Loraine; Loring, Hilary; and Sietman, Bernard, Missouri Department of Conservation.
USFWS, 1996	U.S. Department of the Interior. U.S. Fish and Wildlife Service, Columbia, Missouri December 31, 1996. <i>Biological Opinion, Master Plan and Ongoing Mission for the U.S. Army Engineer Center and Fort Leonard Wood</i> .

SECTION 7

LIST OF PREPARERS

Personnel involved in the development of this EA include the following:

Name	Education and Experience	Primary Responsibilities
Darrel B. Sisk, Jr.	B.E.D. Environmental Design; M.S. Architectural Engineering; 17 years experience in base civil engineering, military planning and environmental planning and impact assessment.	Project Manager/Senior Project Planner; data collection and key participant in description of proposed action, alternatives formulation, and related environmental analyses.
Donald Beisel	B.S. Geography; M.A. Geography; 28 years of experience in community/urban planning, environmental planning, and socioeconomic studies.	Senior Project Planner; data collection and preparation of socioeconomic analysis and related text sections.
Doug Bice	A.S. Environmental Studies; B.S. Occupational Safety; M.S. Environmental/Occupational Health. 20 years experience in environmental and occupational health.	Senior Planner; data collection, analysis and participant in preparation of EA text and supporting sections.
Luke Eggering	B.S., Fish and Wildlife Management; M.S., Biology; 15 years experience in wetland management; wildlife, fisheries and endangered species management; 12 years experience preparation of NEPA/environmental documents.	Project Scientist, technical review, editing, and quality assurance of EA.
Virginia Flynn	B.S. Horticulture; M.S. Plant Ecology; 10 years experience in biological surveys, natural resource management, ecological restoration, and environmental impact assessment.	Senior Environmental Scientist; data collection, analysis, and key participant in preparation of the environmental assessment text and supporting sections.

Name	Education and Experience	Primary Responsibilities
Lee Gorday	B.A., Geology; M.A. Geology; 18 years of experience in hydrogeologic systems and groundwater contamination.	Senior Hydrogeologist; data collection and preparation of groundwater, geology, and soils elements.
Richard Hall	B.S. Environmental Biology, M.S. Zoology, 24 years of experience in environmental assessment and impact studies, biological community investigations and ecosystem restoration.	Principal Environmental Scientist, technical review, editing, and quality assurance of PEA.
Randy Norris	B.S. Plant and Soil Science; Master of Urban Planning/Environmental Planning; 16 years experience in environmental impact assessment, environmental management and planning.	Senior Environmental Scientist; data collection, alternatives development, and natural resources impact analysis.
Rebecca Porath	B.S. Fisheries and Wildlife Management; M.S. Zoology; 9 years experience in plant and wildlife surveys and management, ecological restoration, and environmental impact assessment.	Environmental Scientist; data collection, analysis, and key participant in preparation of EA text and supporting sections relating to biological resources.
Tom Shillito	B.S. Aerospace Engineering; M.C.E Environmental Engineering. 16 years experience in environmental science, regulatory compliance of DoD facilities.	Environmental Scientist, analysis and key participant in preparation of EA text and supporting sections.
Enid Staten	B.S. Biology; Master of Environmental Management; 4 years of experience in natural resource surveys, environmental impact assessment, environmental management and planning.	Environmental Scientist; data collection, analysis, and key participant in preparation of EA text and supporting sections.

SECTION 8 DISTRIBUTION LIST

Persons and Organizations Contacted as part of the initial coordination effort:

Mr. Charlie Scott
U.S. Fish and Wildlife Service
101 Park DeVille Drive, Suite A
Columbia, MO 65203-0057

Mr. James B. Gulliford, Regional Administrator
U.S. Environmental Protection Agency, Region VII
901 North 5th Street
Kansas City, KS 66101

Mr. U. Gale Hutton, Director
Environmental Services Division
U.S. Environmental Protection Agency, Region VII
901 North 5th Street
Kansas City, KS 66101

Mr. Elrand Denson
District Ranger
U.S. Department of Agriculture
Mark Twain National Forest
108 S. Sam Houston Blvd
Houston, MO 65483

Mr. Ronnie Raum, Forest Supervisor
U.S. Department of Agriculture
Mark Twain National Forest
401 Fairgrounds Road
Rolla, MO 65401

Mr. Duane Viele
Camdenton Soil Survey Office
USDA, Natural Resource Conservation Service
350 W. Hwy 54, Unit 7
Camdenton, MO 65020

Mr. John Hoskins, Director
Missouri Department of Conservation
P.O. Box 180
Jefferson City, MO 65102-0180

Mr. Doyle Childers, Director
Missouri Department of Natural Resources
P.O. Box 176
Jefferson City, MO 65102-0176

Mr. Fred Ferrel, Director
Missouri Department of Agriculture
P.O. Box 630
1616 Missouri Boulevard
Jefferson City, MO 65102

SECTION 9 PERSONS CONSULTED

All information solicited and collected in preparation of this document was done so with Army installation personnel. No information from outside sources was utilized in preparation of this document.

APPENDIX A PUBLIC INVOLVEMENT

A.1 INTRODUCTION

As noted in Section 1.4, Fort Leonard Wood's public participation program included two major elements:

- 6) Public Agency and Private Organization Coordination as part of the scoping process; and
- 7) Public Comment on the Draft Environmental Assessment.

As part of the initial scoping effort, letters were sent to numerous Federal, State and local agencies. A copy of a typical letter and the mailing addresses is provided below.

April 11, 2006

Mr. Jerry Conley, Director
Missouri Department of Conservation
P.O. Box 180
Jefferson City, MO 65102

Re: Request for Information and Notification of the Preparation of an *Environmental Assessment for Stationing of the Prime Power School at Fort Leonard Wood, Missouri*
Parsons Project No. 745060

Dear Mr. Conley:

Parsons Infrastructure and Technology, Inc. (Parsons) is currently under contract with the Mobile District, U.S. Army Corps of Engineers to assist in preparing an Environmental Assessment (EA) associated with Base Realignment and Closure (BRAC) actions. As identified by the BRAC legislation, the U.S. Army, Prime Power School (PPS) will relocate from Fort Belvoir, Virginia, to Fort Leonard Wood, Missouri, and the Drill Sergeant School (DSS) currently located at Fort Leonard Wood will move to Fort Jackson, South Carolina.

We are informing you of this study effort and requesting:

- any information your agency may have on file that might be pertinent to our analysis;
- areas of interest that you feel should be considered in the EA process; and
- additional persons, organizations, or agencies that we should consider contacting.

A list of the other persons and organizations that are being contacted as part of this initial coordination effort is attached to this letter.

The purpose of this EA is to identify and evaluate the environmental impacts (including physical and biological, historical and archaeological, and socioeconomic) associated with BRAC actions to occur at Fort Leonard Wood. As part of the EA, we will identify and describe the proposed action, alternatives to these actions, and related environmental effects as required by the President's Council on Environmental Quality, the National Environmental Policy Act of 1969, and 32 Code of Federal Regulations, Part 651.

The EA will review the potential impacts of a No Action Alternative and several potential implementation alternatives. The alternatives are grouped into three different components, location, fuel delivery, and training. The decision-maker will choose one alternative from each component to incorporate into the final decision to be made for this EA. This provides the decision-maker with maximum flexibility and freedom in the decision-making process.

Location Component

- **No Action Alternative, location.** This alternative would provide for the continuation of the existing conditions at FLW, prior to November 2005. Under the No Action Alternative, existing missions at FLW would continue as previously accomplished.
- **Construct classroom, administrative, and generator training facilities in TA 244 at Area A.** TA 244 is an Engineer Training Site for Army, Air Force, Navy, and Marine personnel. The PPS mission and training activities would be a compatible land use in TA 244 and improve efficiency and cohesiveness of Engineer training missions. Area A is not currently being used for any mission on FLW. However, only approximately five acres of the site is level, and therefore, grading would need to be completed and a retaining wall would need to be installed on the site. The site is upslope from a groundwater outfall sampling station. A detention pond would need to be constructed to prevent erosion and POL from entering the groundwater.
- **Construct classroom, administrative, and generator training facilities in TA 244 at Area B.** TA 244 is an Engineer Training Site for Army, Air Force, Navy, and Marine personnel. The PPS mission and training activities would be a compatible land use in TA 244 and improve efficiency and cohesiveness of Engineer training missions. A portion of Area B is currently used for scraper training on FLW. However, the scraper training is scheduled to end at FLW in the near future. A majority of the site is level and cleared of trees. Therefore, minimal, or no grading would need to be completed. The site is upslope from a man-made retention pond and contains a berm to reduce runoff from the site. The retention pond is adjacent to a sinkhole which controls water levels in the pond.

Generator Fuel Delivery Component

- **No Action Alternative, fuel.** This alternative would provide for the continuation of the existing conditions at FLW, prior to November 2005. Under the No Action Alternative, existing fuel handling and support activities at FLW would continue as previously accomplished.
- **Truck transport of fuel.** Under this alternative, trucks would be used to transport fuel to the PPS from either the Cantonment POL pickup station, the TA 244 POL station, or the Bio-Diesel POL storage tank at the DOL Transportation Maintenance complex located in the cantonment. Fuel deliveries would be accomplished by personnel trained in delivery operations.

Training Component

- **No Action Alternative, Training.** This alternative would provide for the continuation of the existing conditions at FLW, prior to November 2005. Under the No Action Alternative, existing training missions would continue as previously accomplished.

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www.parsons.com

- **Incorporate simulator training into the PPS.** Under this alternative, proposed PPS training would be modified to include the use of a simulator system during generator training, once one is developed and available. Under this alternative it is estimated that the amount of time that students currently operate the generators could be reduced by approximately one-third. This reduction in generator use would reduce fuel use, maintenance, and transportation costs on FLW.

If you, or someone on your staff, have any questions concerning this request, please contact us for clarification or discussion. Your assistance and effort in this matter are greatly appreciated.

Very truly yours,

PARSONS

Darrel Sisk, Jr.
Project Manager

Enclosure

Persons and Organizations Contacted as part of the initial coordination effort:

Mr. Charlie Scott U.S. Fish and Wildlife Service 101 Park DeVille Drive, Suite A Columbia, MO 65203-0057	telephone	573-234-2132
Mr. James B. Gulliford, Regional Administrator U.S. Environmental Protection Agency, Region VII 901 North 5 th Street Kansas City, KS 66101	telephone	913-551-7006
Mr. U. Gale Hutton, Director Environmental Services Division U.S. Environmental Protection Agency, Region VII 901 North 5 th Street Kansas City, KS 66101	telephone	913-551-7307
Mr. Elrand Denson District Ranger U.S. Department of Agriculture Mark Twain National Forest 108 S. Sam Houston Blvd Houston, MO 65483	telephone	417-967-4194
Mr. Ronnie Raum, Forest Supervisor U.S. Department of Agriculture Mark Twain National Forest 401 Fairgrounds Road Rolla, MO 65401	telephone	573-364-4621
Mr. Duane Viele Camdenton Soil Survey Office USDA, Natural Resource Conservation Service 350 W. Hwy 54, Unit 7 Camdenton, MO 65020	telephone	573-346-7127 ext. 100
Mr. John Hoskins, Director Missouri Department of Conservation P.O. Box 180 Jefferson City, MO 65102-0180	telephone	573-751-4115
Mr. Doyle Childers, Director Missouri Department of Natural Resources P.O. Box 176 Jefferson City, MO 65102-0176	telephone	573-751-3443
Mr. Fred Ferrel, Director Missouri Department of Agriculture P.O. Box 630 1616 Missouri Boulevard Jefferson City, MO 65102	telephone	573-751-4211

A.2 RESPONSES TO INITIAL SCOPING LETTER

In response to the initial scoping letter, comments were received from the following Federal, State and local agencies, private organizations, and individuals.

- 8) U.S. Environmental Protection Agency, Region VII;
- 9) Missouri Department of Natural Resources;
- 10) Missouri Department of Agriculture; and
- 11) Mark Twain National Forest.

Copies of the agency response letters that were received are provided in the following pages of this section.

Mr. Darrel Sisk, Jr.
Parsons Infrastructure and Technology, Inc.
400 Woods Mill Road South, Suite 330
St. Louis, MO 63017-3427

RE: Request for Department Input on Preparation of an Environmental Assessment for Stationing of the Prime Power School at Fort Leonard Wood (FLW), Missouri, Parsons Project No. 745060

Dear Mr. Sisk:

I am writing in response to your request for input from the Missouri Department of Natural Resources on the referenced Environmental Assessment. The department has reviewed information provided in your April 25, 2006, letter. The department offers the following comments and suggestions on the Environmental Assessment.

1. The department suggests that the Environmental Assessment should include details and results of research performed to determine the presence of hazardous waste contamination in soil, groundwater, and surface water that may impact the proposed sites. The department suggests coordination with the FLW Installation Restoration Program to identify all relevant sites as well as any sites managed under the Resource Conservation and Recovery Act, and the Military Munitions Response Program, and any other sites known to be contaminated with hazardous waste. The Environmental Assessment should describe the individual sites, discuss known contamination, and base conclusions on evaluations of potential environmental impacts.
2. The department suggests that the contractor provide maps and electronic Geographic Information System files showing the locations of the proposed activities and proximity to areas of known or potential environmental concern to facilitate the review and comment process.
3. The department reviewed our listings of underground storage tank sites at FLW and found no active remediation sites. We will need to review complete project details before we can make a final determination. As a matter of information, the Prime Power School is required to provide a written notice 30 days prior to the installation of new fuel tanks and to complete a registration form within 30 days of bringing a tank into use.

4. The department will need additional details related to air emissions control to determine what air construction permit may be applicable to comply with asbestos regulations during demolition activities and what will be required if air emissions from new facilities are anticipated.
5. The department suggests that the Environmental Assessment address the impacts of construction activities and the need for appropriate land disturbance measures and permits and that if water-treatment facilities are required or discharge points identified, should discuss the need for appropriate permits.
6. The department has information relevant to the geology and hydrology of the area. We can provide specific geohydrologic information including geologic mapping, locations of springs, losing and gaining stream segments, locations and logs of wells, and results of groundwater tracing in the area. The training areas under consideration are underlain by Roubidoux Formation bedrock and residuum derived from the bedrock. These geologic materials are highly permeable and karstic in nature. As a result, local streams are losing, weathering is deep, groundwater movement may be unpredictable in local areas and springs many miles away may be impacted by contaminants released at the surface.
7. Because of these geohydrologic conditions, the department advises consideration be given to the design and construction of secondary containment structures for POL storage tanks to ensure against leakage.
8. The department also recommends fuel transport by truck unless buried pipelines are double lined and provide leak detection, since leakage may not be detected at the surface until contaminants have traveled to local springs.
9. The department suggests that consideration be given to the location of public and private water-supply wells on and around the Fort so that usage of shallow groundwater in the area can be monitored in the event of a release.
10. The department supports the concept of incorporating simulation for a portion of the hands-on generator training to create fewer air emissions.
11. The department also encourages the incorporation of generation systems that use alternative or renewable energy sources including biodiesel and solar into the training curriculum.

In addition to the listed agencies in the request letter, the department advises that the contractor contact the U.S. Geological Survey, Missouri Water Science Center (573-308-3667), 1400 Independence Ave., Rolla, Missouri. We recommend contacting John Schumacher as he has conducted many hydrogeologic investigations at the Fort in recent years. In addition, the department recommends that the contact list include county and city officials. As the Fort Leonard Wood area develops, Pulaski County and the City of Waynesville may be able to offer valuable information and insights into local issues relevant to these decisions.

Thank you for the opportunity to provide input as you begin to prepare this Environmental Assessment. If you have any questions or would like to discuss these comments, please contact Mr. Robert Stout in my office at (573) 751-7402.

Sincerely,

DEPARTMENT OF NATURAL RESOURCES

Doyle Childers
Director

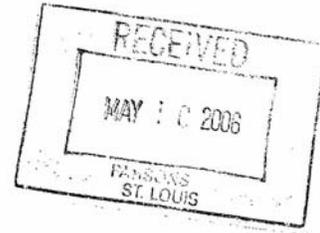
DC:mod



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION VII
901 NORTH 5TH STREET
KANSAS CITY, KANSAS 66101

✓ 5 MAY 2006



Darrel Sisk
Parsons
400 Woods Mill Road South, Suite 330
St. Louis, Missouri 63017-3427

Dear Mr. Sisk:

RE: Environmental Assessment for Prime Power School at Fort Leonard Wood,
Missouri (Parsons Project 745060)

This letter responds to your April 25, 2006, correspondence regarding an upcoming Environmental Assessment for proposed work at Fort Leonard Wood. The Environmental Protection Agency (EPA) appreciates being notified of federally sponsored projects that are being evaluated for possible environmental impact through your National Environmental Policy Act (NEPA) review. Compliance with the review requirements of the NEPA is a responsibility of the federal agency undertaking or sponsoring the activity.

The EPA has a great deal of catalogued information that may be of use in studying the environmental impacts of the project. On the World Wide Web,

<http://www.epa.gov/surf3/locate/index.html>

is a web site of environmental information organized by watershed.

http://www.epa.gov/enviro/index_java.html

is a web site containing extensive information collected by the EPA from most departments within the Agency, including hazardous waste sites, superfund sites, toxic release and water discharge permits, and others. We encourage you to access the above sites during the preparation of the Environmental Assessment.

In communicating with the EPA on this project, we noted that you sent information to several offices within EPA Region 7. In the future, when corresponding about NEPA-related projects (involving Environmental Assessments or Environmental Impact Statements), you may direct all correspondence to Joe Cothorn, either by mail, or via email at cothorn.joe@epa.gov in lieu of sending written correspondence.





DEPARTMENT of AGRICULTURE
STATE OF MISSOURI
JEFFERSON CITY

MATT BLUNT
GOVERNOR

FRED FERRELL
DIRECTOR

*Serving, promoting and protecting the agricultural producers, processors
and consumers of Missouri's food, fuel and fiber products.*

May 5, 2006

Mr. Darrel Sisk, Jr.
Project Manager
Parsons
400 Woods Mill Road South
Suite 330
St. Louis, MO 63017-3427

Dear Mr. Sisk,

Thank you for including the Missouri Department of Agriculture as a part of your assessment. We do not believe there will be any significant impact on our great state's agriculture community as a result of the base realignment and closure actions at Fort Leonard Wood.

Reading your assessment is encouraging to our department. It would appear that once the school is established we may have an opportunity to promote our new and growing bio-diesel industry.

Please contact us if there is anything further you need.

Sincerely,

Fred Ferrell
Director

File Code: 5400

Date: May 24, 2006

Mr. Darrel Sisk, Jr.
Project Manager
Parsons Infrastructure & Technology, Inc.
400 Woods Mills Rd.
Suite 330
St. Louis, MO 63017



Dear Mr. Sisk:

Thank you for the opportunity to respond to your request for information concerning the preparation of an Environmental Assessment for Stationing of the Prime Power School at Fort Leonard Wood, Missouri. The proposed actions as described in the letter will occur within the boundaries of Fort Leonard Wood and, therefore, at this time, I do not believe there will be any environmental impacts to the Mark Twain National Forest. Below are comments for your consideration:

- The Mark Twain National Forest does not have any information that would be pertinent to your analysis of this project;
- We do not have any other areas of interest that should be considered in the EA process;
- Mr. Mark Miles, Director of the State Historic Preservation Office (SHPO) should be added to your list of contacts.
- I would suggest that you work closely with Charlie Scott of the U.S. Fish and Wildlife Service in any mitigation that may be necessary for all federally listed endangered species such as the Indiana bat.

Please continue to keep me informed of any projects that have the potential to impact the Mark Twain National Forest. If you have additional questions, please contact NEPA Coordinator, Becky Bryan at 573 341-7436.

Sincerely,


RONNIE RAUM
Forest Supervisor

cc:
Becky Bryan
Galen Johnson
Rich Hall



APPENDIX B ECONOMIC IMPACT FORECASTING SYSTEM MODEL OUTPUT

EIFS REPORT

PROJECT NAME

Fort Leonard BRAC EA - Construction

STUDY AREA

29029 Camden, MO
 29065 Dent, MO
 29105 Laclede, MO
 29125 Maries, MO
 29131 Miller, MO
 29161 Phelps, MO
 29169 Pulaski, MO
 29215 Texas, MO
 29229 Wright, MO

FORECAST INPUT

Change In Local Expenditures	\$6,600,000
Change In Civilian Employment	55
Average Income of Affected Civilian	\$35,000
Percent Expected to Relocate	0
Change In Military Employment	0
Average Income of Affected Military	\$0
Percent of Military Living On-post	0

FORECAST OUTPUT

Employment Multiplier	2.34
Income Multiplier	2.34
Sales Volume - Direct	\$8,147,700
Sales Volume - Induced	\$10,917,920
Sales Volume - Total	\$19,065,620 0.41%
Income - Direct	\$3,035,000
Income - Induced)	\$1,836,196
Income - Total(place of work)	\$4,871,196 0.12%
Employment - Direct	98
Employment - Induced	58
Employment - Total	157 0.13%
Local Population	0
Local Off-base Population	0 0%

RTV SUMMARY

	Sales Volume	Income	Employment	Population
Positive RTV	8.81 %	7.57 %	4.94 %	2.17 %
Negative RTV	-8.08 %	-7.67 %	-4.6 %	-1.07 %

EIFS REPORT

PROJECT NAME

Ft Leonard Wood BRAC EA, Operations (Net Change)

STUDY AREA

29029 Camden, MO
 29065 Dent, MO
 29105 Laclede, MO
 29125 Maries, MO
 29131 Miller, MO
 29161 Phelps, MO
 29169 Pulaski, MO
 29215 Texas, MO
 29229 Wright, MO

FORECAST INPUT

Change In Local Expenditures	\$0
Change In Civilian Employment	30
Average Income of Affected Civilian	\$45,000
Percent Expected to Relocate	0
Change In Military Employment	(97)
Average Income of Affected Military	\$32,400
Percent of Militart Living On-post	0

FORECAST OUTPUT

Employment Multiplier	2.34	
Income Multiplier	2.34	
Sales Volume - Direct	\$45,655	
Sales Volume - Induced	\$61,175	
Sales Volume - Total	\$106,830	0.01%
Income - Direct	(\$1,789,000)	
Income - Induced)	\$10,300	
Income - Total(place of work)	(\$1,778,700)	-0.04%
Employment - Direct	(66)	
Employment - Induced	0	
Employment - Total	(66)	-0.05%

RTV SUMMARY

	Sales Volume	Income	Employment	Population
Positive RTV	8.81 %	7.57 %	4.94 %	2.17 %
Negative RTV	-8.08 %	-7.67 %	-4.6 %	-1.07 %