
Final Environmental Assessment

Implementation of BRAC Actions at Milan Army Ammunition Plant, Tennessee

Prepared for
U.S. Army Corps of Engineers

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Atlanta, Georgia

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Executive Summary

ES-1 Introduction

As a result of actions mandated by the 2005 Base Closure and Realignment law (commonly referred to as BRAC), the Kansas Army Ammunition Plant (AAP) will be closed and the 155MM Improved Conventional Munition (ICM) artillery and 60MM, 81MM, and 120MM mortar functions will be transferred from Kansas AAP to Milan Army Ammunition Plant (MLAAP), Tennessee. In addition, the Lone Star AAP in Texas will be closed and the 105MM and 155MM ICM artillery, Multiple Launch Rocket System (MLRS) artillery, hand grenades, and 60MM and 81MM mortar functions will be relocated to MLAAP.

The purpose of the proposed action is to enhance the ability of MLAAP to fulfill its military mission by providing the capabilities to support modern national defense requirements and to meet the cost-saving requirements of BRAC. The proposed action supports the Army's need to comply with the BRAC law and carries out the 2005 BRAC Commission's (Commission) recommendations.

ES-2 Description of Proposed Action and Alternatives

Proposed Action (Remodel Alternative)

MLAAP proposes to remodel existing active LAP lines to accommodate the munitions functions being relocated from Kansas AAP and Lone Star AAP. Remodeling would be limited to reconfiguration of building interiors and addition of external loading ramps. All remodeling work would be confined to existing disturbed areas. Storage of transferred munitions would be accomplished through use of existing storage igloos at MLAAP and no new construction or remodeling would be required to store the transferred munitions functions. No new personnel would be required to provide the services.

The remodeled LAP lines would contain all of the equipment necessary to produce and assemble the incoming munitions. No additional administrative facilities would be required. The remodel alternative would utilize the supporting infrastructure currently in place at MLAAP for rail service, bridges, storm drainage and detention systems, information systems, and antiterrorism/force protection measures. Because no new impervious areas would be created, there would be no change in stormwater runoff and no need for additional stormwater control infrastructure.

To accommodate the transferred munitions functions, MLAAP would repave existing service roads on the facility, but roadways would not be widened and no new roads would be constructed. Repaving activities would be limited to the access roads within the fenced area that serve the production lines that would receive the transferred munitions functions and would be less than 2 miles of roadway. Existing water and sewer infrastructure is deteriorating and portions of that infrastructure would be replaced with new pipes to serve the production area. Utility line repair and replacement would be confined to the same area as road repaving and no new utility right-of-way would be required.

Alternatives Not Carried Forward

Use Inactive E- and Z-LAP Lines on MLAAP

The E-Line and Z-Line are currently leased to and used by outside clients. Although the Army could terminate the third-party leases and return the lines to production, the process would add additional costs over the remodeling of existing facilities. The remodeling costs would still be incurred to make these lines suitable to accommodate the transferred munitions functions, resulting in ultimately higher costs to the Army to implement this alternative compared to the proposed action, with no reduction in environmental impacts. Because use of the E- and Z- Lines would have greater cost and equal environmental impacts to the proposed action, it is not practicable to terminate the third-party leases and put these lines into production. For these reasons, this alternative was eliminated from further study in this EA.

Use G-LAP Line

The G-Line has been sold and is no longer government property. Costs would be incurred to reacquire this property in addition to the cost of remodeling the G-Line to accommodate the transferred munitions functions. If the current owner were an unwilling seller, the cost of reacquiring the property could involve legal action, resulting in further additional costs. Environmental impacts would be the same as the proposed action. Because use of the G-Line would have greater cost and equal environmental impacts to the proposed action, it is not practicable to reacquire this line and put it into production. For these reasons, this alternative was eliminated from further study in this EA.

Construct New LAP Lines on MLAAP

The Army considered constructing new LAP lines on MLAAP to accommodate the incoming munitions functions. Construction of new LAP facilities would occur on undisturbed land and would have greater environmental impacts than remodeling existing facilities, which would be accomplished within existing facility footprints. Due to safety zone requirements, large tracks of land would be needed around new LAP operations, which would place constraints on other uses of those lands. In addition, construction of new LAP facilities, including transportation and utility infrastructure to serve those facilities, would cost significantly more than remodeling and repairing existing facilities and infrastructure. For these reasons, this alternative was eliminated from further study in this EA.

Construct NEW LAP Lines Outside of MLAAP

Construction of new LAP lines outside of MLAAP would have the same drawbacks associated with new construction on MLAAP as well as the additional costs of acquiring land for the new LAP lines. Due to safety zone requirements, large tracks of land would be needed around any new LAP operations, transfer facilities, and temporary storage facilities, which would require a larger parcel to be purchased and further increase costs. MLAAP sewer service would have to be extended to the new site or provided onsite to treat the wastewater that would potentially contain explosive components. Water service would have to be extended to the site and road improvements also could be required. Because MLAAP would still be used for storage, transportation of munitions components and equipment between the sites would also be required, which would add additional cost and

traffic burden to the local roadways. To build a new Army Ammunition Plant would be contrary to the goals and interpretation of BRAC law. For these reasons, this alternative was eliminated from further study in this EA.

No Action Alternative

NEPA requires consideration of a no action alternative to the proposed action. Under the no action alternative, MLAAP would not remodel any of its facilities to accommodate the relocation of munitions functions as described in the 2005 BRAC Commission's recommendation. The no action alternative is evaluated in detail in this EA to serve as a benchmark for evaluation of the potential effects of the proposed federal action.

ES-3 Environmental Consequences

Proposed Action

Under the proposed action, there would be no significant changes to the human or natural environment (Table ES-1). There would be minor beneficial short-term impacts to the area economy that would end when renovation was completed. Impacts to the natural environment would be temporary and negligible. During renovation, there would be *de minimus* increases in air emissions and construction-related noise. Any changes to topography would be limited to the areas immediately adjacent to existing buildings. Soil disturbance would be limited to the area around existing buildings and along existing roadways and utility corridors, where soils have been previously disturbed. Use of appropriate best management practices (BMPs) and stormwater controls (to include but not limited to silt fencing, detention and flow dispersion structures, and reseeded/mulching) would minimize the potential for erosion and surface water impacts from renovation and repaving activities. Impacts to wildlife would be limited to temporary displacement from construction activities. MLAAP would conform to the Advisory Council on Historic Preservation's (ACHP's), *Program Comment for World War II and Cold War Era (1939 - 1974) Army Ammunition Production Facilities and Plants*. There is very little potential for the proposed action to interact with other past, present, and reasonably foreseeable actions.

No Action Alternative

The no action alternative would not result in any significant impacts to the resources evaluated in this EA. However, without remodeling its facilities, MLAAP would not be able to sufficiently comply with the 2005 BRAC Commission's recommendations. The inability of MLAAP to accommodate the incoming munitions functions has the potential to impact the overall mission of the installation and that of the U.S. Army.

ES-4 Conclusions

There would be no significant impacts as a result of the proposed action. Therefore, an Environmental Impact Statement will not be prepared and a Finding of No Significant Impact (FNSI) is warranted for the proposed action.

TABLE ES-1

Summary of Potential Environmental and Socioeconomic Consequences

MLAAP BRAC Environmental Assessment

Resource	Environmental and Socioeconomic Consequences	
	No Action	Proposed Action
Land Use	No Effect	No Effect
Air Space Use	No Effect	No Effect
Air Quality	No Effect	Negligible impact: <i>De minimus</i> construction related fugitive dust associated with remodeling and water/sewer repair/replacement that will be controlled through appropriate best management practices (BMPs). <i>De minimus</i> emissions of volatile organic compounds (VOCs), polynuclear aromatic hydrocarbons (PAHs), and particulate matter from repaving activities.
Noise	No effect	Negligible impact: Temporary construction-related noise: appropriate worker safety measures would be implemented; only intermittent nuisance exposure to potentially sensitive receptors; no long-term effects from operation. Use of facilities would generate noise levels similar to those currently generated.
Geology and Soils		
Geology/Topography	No Effect	Negligible impact: Minor topographic alteration of previously cleared and graded sites through grading for site preparation for remodeling and paving.
Soils	No Effect	Negligible impact: Grading would be limited to already disturbed soils; appropriate BMPs and construction stormwater controls (to include but not limited to silt fencing, detention and flow dispersion structures, and reseeded/mulching) would be implemented to minimize erosion and impact from stormwater runoff.
Prime Farmland	No Effect	No Effect
Water Resources		
Surface Water	No Effect	Negligible impact: Use of appropriate BMPs and construction stormwater controls (to include but not limited to silt fencing, detention and flow dispersion structures, and reseeded/mulching) would prevent impacts to surface waters from construction activities; no increase in impervious surface area so no increase in post-construction stormwater runoff.
Hydrogeology/Groundwater	No Effect	No Effect
Floodplains	No Effect	No Effect
Wetlands	No Effect	No Effect

TABLE ES-1

Summary of Potential Environmental and Socioeconomic Consequences

MLAAP BRAC Environmental Assessment

Resource	Environmental and Socioeconomic Consequences	
	No Action	Proposed Action
Stormwater	No Effect	Negligible impact: Use of appropriate BMPs and construction stormwater controls (to include but not limited to silt fencing, detention and flow dispersion structures, and reseed/mulching) would prevent impacts to surface waters from construction activities; no increase in impervious surface area so no increase in post-construction stormwater runoff.
Biological Resources		
Vegetation	No Effect	Negligible impact: Grading would be limited to already disturbed areas.
Wildlife	No Effect	Negligible impact: Potential temporary displacement of some species during repaving and utility repair activities.
Migratory Bird Species of Conservation Concern	No Effect	No Effect
Sensitive Species	No Effect	No Effect
Cultural Resources		
Historic Resources	No Effect	Negligible impact: Alterations limited to interior remodeling on non-contributing structures and construction of new loading ramps.
Archeological Resources	No Effect	No Effect
Native American Resources	No Effect	No Effect
Socioeconomics		
Economic Development	No Effect	Short-term, benefit from construction-related jobs and materials purchases; no long-term impact.
Demographics	No Effect	No Effect
Housing/Quality of Life	No Effect	No Effect
Environmental Justice	No Effect	No Effect
Protection of Children	No Effect	No Effect
Recreation	No Effect	No Effect

TABLE ES-1
 Summary of Potential Environmental and Socioeconomic Consequences
 MLAAP BRAC Environmental Assessment

Resource	Environmental and Socioeconomic Consequences	
	No Action	Proposed Action
Transportation	No Effect	Negligible impact: Temporary and localized disruption from repaving activities; activity would be timed to avoid shipments of supplies and assembled weapons and to avoid peak traffic at the start and end of work shifts.
Utilities		
Potable Water	No Effect	No Effect
Wastewater	No Effect	Negligible Impact: The demand for domestic wastewater treatment would not change. Treatment of process water from the LAP lines is expected to increase; however, the installation has sufficient capacity to accommodate the expected increase in process water flows.
Energy	No Effect	No Effect
Solid Waste	No Effect	Negligible impact: Generation of typical construction wastes that would be within the capacity of local and regional waste disposal facilities.
Hazardous and Toxic Substances	No Effect	Negligible impact: All hazardous waste generated by the incoming munitions functions would be handled, stored, and disposed in accordance with all applicable environmental regulations and with all hazardous materials management plans implemented at MLAAP.
Indirect and Cumulative Impacts	MLAAP would not be able to sufficiently comply with the 2005 BRAC Commission's recommendations. The inability of MLAAP to accommodate the incoming munitions functions has the potential to negatively affect other functions at MLAAP and result in adverse cumulative impacts on the overall mission of the installation and that of the U.S. Army	Negligible impact: Construction and operation limited to secured portion of MLAAP; no change in workforce or population; little potential to interact with actions occurring on our outside of installation.

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1.0 Purpose, Need, and Scope

1.1 Introduction

As a result of actions mandated by the 2005 Base Closure and Realignment law (commonly referred to as BRAC), the Kansas Army Ammunition Plant (AAP) will be closed and the 155MM Improved Conventional Munition (ICM) artillery and 60MM, 81MM and 120MM mortar functions will be transferred from Kansas AAP to Milan Army Ammunition Plant (MLAAP), Tennessee. In addition, the Lone Star AAP in Texas will be closed and the 105MM and 155MM ICM artillery, Multiple Launch Rocket System (MLRS) artillery, hand grenades, and 60MM and 81MM mortar functions will be relocated to MLAAP.

1.2 Purpose and Need for Proposed Action

The purpose and need for the proposed action is to enhance the ability of MLAAP to fulfill its military mission by providing the capabilities to support modern national defense requirements and to meet the cost-saving requirements of BRAC. The proposed action supports the Army's need to comply with the BRAC law and carries out the 2005 BRAC Commission's (Commission) recommendations. Details of the proposed action are provided in Sections 2.1 and 3.1.

1.3 Scope of Analysis

This Environmental Assessment (EA) has been developed in accordance with the National Environmental Policy Act (NEPA), NEPA implementing regulations found in *Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act*, 40 CFR Part 1500 through Part 1508 (President's Council on Environmental Quality [CEQ], 2002), and *Environmental Analysis of Army Actions*, 32 CFR 651.14 (Office of the Deputy Assistant Secretary of the Army, 2002). This EA was developed to identify the environmental and socioeconomic impacts of relocating munitions functions to MLAAP to support realignment. Its purpose is to inform decision makers and the public of the likely environmental consequences of the proposed action and alternatives. MLAAP is an ammunition Load, Assemble, and Pack (LAP) facility located near Milan, Tennessee (Figure 1-1). MLAAP is situated in gently rolling hills in a predominately rural area. Jackson, Tennessee, approximately 20 miles away, is the nearest city.

BRAC 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 1) the need for closing or realigning the military installations which have been recommended for closure or realignment by the Commission, 2) the need for transferring functions to any military installation which has been selected as the receiving installation, or

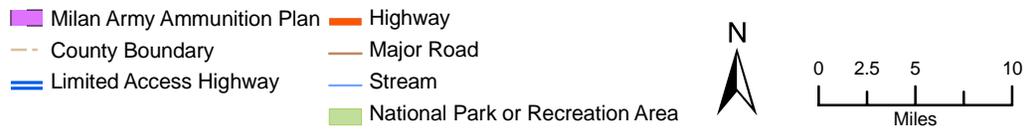
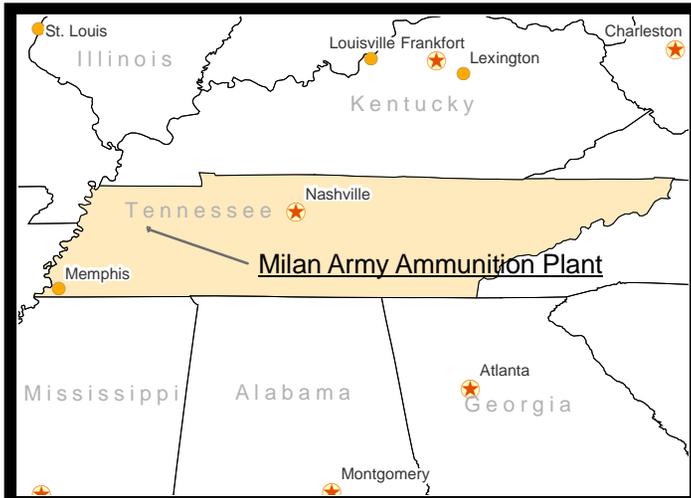
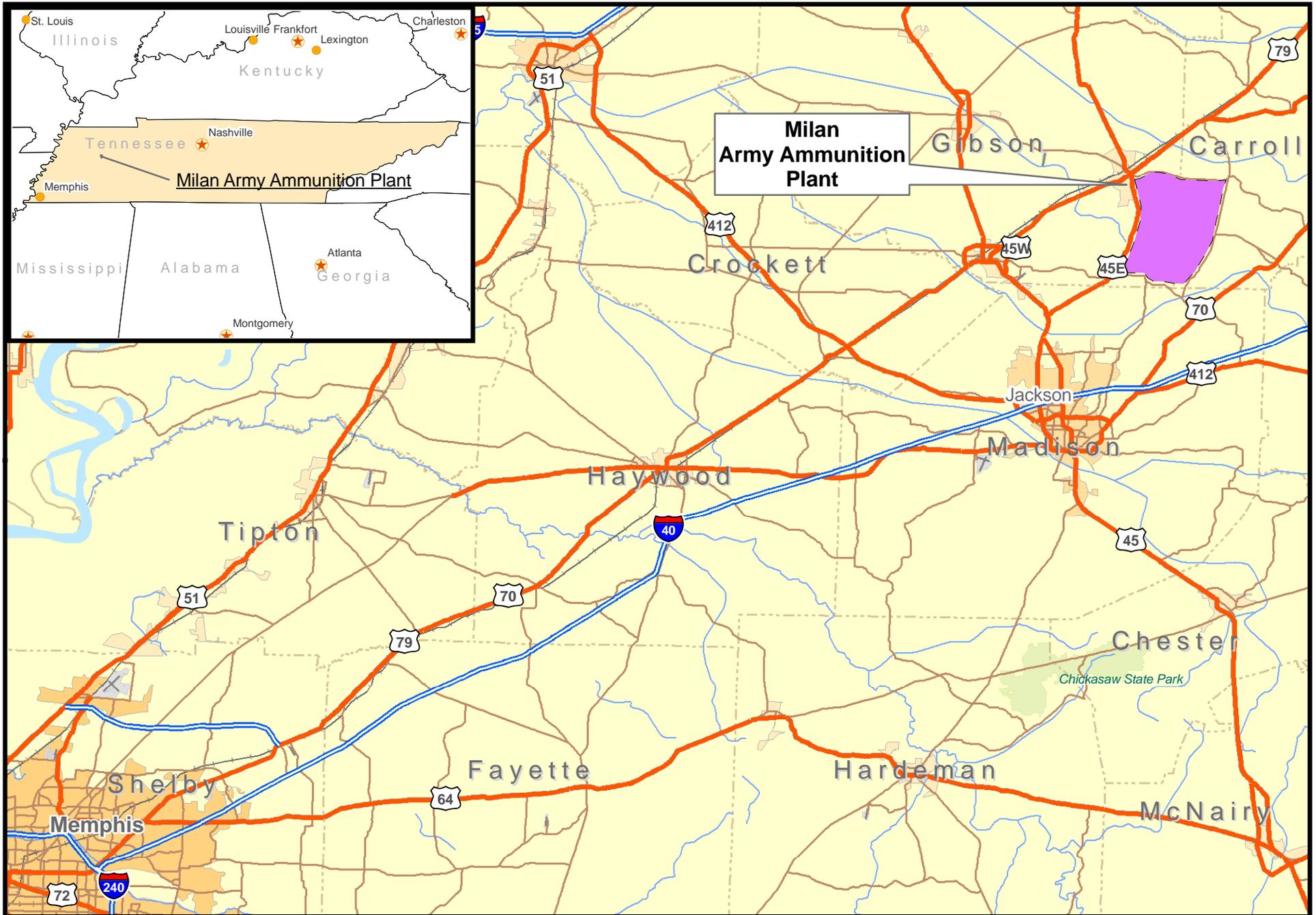


Figure 1-1
 Location of Milan Army Ammunition Plant
 MLAAP BRAC Environmental Assessment

3) military installations alternative to those recommended or selected. The 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 closure or realignment.

This EA identifies, documents, and evaluates the effects of relocating the LAP functions for 105MM and 155MM ICM Artillery; 60MM, 81MM, and 120MM mortar; MLRS artillery; and hand grenades from Kansas AAP and Lone Star AAP to MLAAP. Potential impacts to the natural and human environment resulting from minor construction to remodel existing production lines, replacing or repairing deteriorating utility and repaving transportation infrastructure, and LAP operations proposed to accommodate incoming functions are considered in this EA. This EA also considers how the proposed action may interact with present and reasonably foreseeable actions that are not directly related to the proposed action.

1.4 Agency and Public Participation

The Army invites public participation in the evaluation of the proposed federal action through the NEPA process. Consideration of the views and information of all interested persons promotes open communication and enables better decision making. All agencies, organizations, and members of the public having a potential interest in the proposed action, including minority, low-income, disadvantaged, and Native American groups, are urged to participate in the decision making process. Initial agency scoping letters were submitted to the U. S. Fish and Wildlife Service (USFWS) and Tennessee State Historic Preservation Officer (SHPO) (Appendix A).

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. The EA and draft Finding of No Significant Impact (FNSI) underwent a 30-day public review during 21 February – 22 March 2004. The public review period was announced in public notices that were published in the *Milan Mirror* newspaper out of Milan, Tennessee and in the *Jackson Sun* newspaper out of Jackson, Tennessee (Appendix B). Copies of the EA and draft FNSI were made available for public review during the review period on the BRAC website http://www.hqda.army.mil/acsim/brac/env_ea_review.htm, and at Mildred G. Fields Library in Milan, Tennessee. All questions or comments were directed to Mr. Paul Higgs, Environmental Coordinator, 2280 Highway 104, Suite 1, MLAAP, Milan, Tennessee. (731) 686-6614. paul.a.higgs@us.army.mil. No comments were received during the public review period.

1.5 Relevant Statutes and Executive Orders

The decision on whether 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, MLAAP 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, Clean Water Act, Noise Control Act, Endangered Species Act, National Historic Preservation Act, Archaeological Resources Protection Act,

Resource Conservation and Recovery Act, and Toxic Substances Control Act. 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 13175 (*Consultation and Coordination with Indian Tribal Governments*), EO 13186 (*Responsibilities of Federal Agencies to Protect Migratory Birds*) and EO 13423 (*Strengthening Federal Environmental, Energy, and Transportation Management*). 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 is available on the Defense Environmental Network & Information Exchange Web site at <http://www.denix.osd.mil>.

The National Defense Authorization Act for Fiscal Year 2002 Public Law 107-107 and the Defense Closure and Realignment Act of 1990, Public Law 101-510 include streamlining provisions that modify the scope of NEPA analysis by placing certain limits on what is analyzed.

1.6 Impact Analysis Performed

This EA identifies, documents, and evaluates the effect of Implementing BRAC actions at MLAAP. An interdisciplinary team of environmental scientists, biologists, planners, economists, engineers, archaeologists, historians, and military technicians has analyzed the proposed action and alternatives in consideration of existing conditions and has identified relevant beneficial and adverse effects associated with the action. The proposed action is described in Section 2.0. Alternatives, including the no action alternative, are described in Section 3.0. Existing conditions, considered to be the baseline conditions, are described in Section 4.0, Environmental Conditions and Consequences. The expected effects of the proposed action are also presented in Section 4.0 immediately following the description of baseline conditions for each resource covered by the EA. Section 4.0 also addresses the potential for cumulative effects and mitigation measures are identified where appropriate. Section 5.0 presents the conclusions of the analyses.

2.0 Description of the Proposed Action

2.1 Introduction

The proposed action is to implement the BRAC Commission's recommendations as mandated by the BRAC legislation, Public Laws 101-510 and 107-107. The Commission's combined recommendations are to:

Close Kansas Army Ammunition Plant (AAP), KS. Relocate Sensor Fuzed Weapon/Cluster Bomb function and Missile warhead production to McAlester AAP, OK; 155MM ICM Artillery and 60MM, 81MM, and 120MM Mortar functions to Milan, TN; Close Lone Star Army Ammunition Plant (AAP), TX. Relocate the Storage and Demilitarization functions to McAlester AAP, OK. Relocate the 105MM and 155MM ICM Artillery, MLRS Artillery, Hand Grenades, 60MM and 81MM Mortars function to Milan AAP, TN.

To accomplish the Commission's recommendations, MLAAP proposes to use existing storage areas and remodel existing LAP lines to accommodate the new functions.

2.2 Proposal Implementation

Components of the proposed action for this EA include remodeling existing active LAP lines to accommodate the munitions production services being transferred to MLAAP and using existing storage igloos to accommodate the storage services being transferred to MLAAP. The proposed action does not involve any personnel relocations. Additional hires are not expected to be required to accommodate the incoming munitions functions.

3.0 Alternatives

This section presents the Army's development of alternatives and addresses alternatives available for the proposed action. This section also defines the no action alternative of maintaining existing conditions. NEPA requires consideration of alternatives to the proposed action. To warrant detailed evaluation, an alternative must be reasonable. Reasonable alternatives must be reasonably foreseeable and adequately defined for decision making (any necessary preceding events having taken place), affordable, capable of implementation, and capable of meeting the purpose of and need for the action. The following discussion identifies alternatives considered by the Army and determines whether they are reasonable and subject to detailed evaluation in this EA.

3.1 Remodel Alternative (Proposed Action)

MLAAP proposes to remodel existing active LAP lines to accommodate the munitions functions being relocated from Kansas AAP and Lone Star AAP. Remodeling would be limited to reconfiguration of building interiors and addition of external loading ramps. All remodeling work would be confined to existing disturbed areas. Storage of transferred munitions would be accomplished through use of existing storage igloos at MLAAP and no new construction or remodeling would be required to store the transferred munitions functions.

To accommodate the transferred munitions functions, MLAAP would repave existing service roads on the facility, but roadways would not be widened and no new roads would be constructed. Repaving activities would be limited to the access roads within the fenced area that serve the production lines that would receive the transferred munitions functions and would be less than 2 miles of roadway.

Existing water and sewer infrastructure is deteriorating and portions of that infrastructure would be replaced with new pipes to serve the production area. Utility line repair and replacement would be confined to the same area as road repaving and no new utility right-of-way would be required.

The remodeled LAP lines would contain all of the equipment necessary to produce and assemble the incoming munitions. No additional administrative facilities would be required. The remodel alternative would utilize the supporting infrastructure currently in place at MLAAP for rail service, bridges, storm drainage and detention systems, information systems, and antiterrorism/force protection measures. Because no new impervious areas would be created, there would be no change in stormwater runoff and no need for additional stormwater control infrastructure.

This alternative would accommodate current and transferred munitions functions at MLAAP. No new personnel would be required to provide the services.

Once technical data packages for the munitions functions are received, MLAAP will decide which LAP lines would be modified. LAP lines that would require the least modification to accommodate the new munitions functions would be selected.

3.2 Alternatives Considered but Eliminated from Further Study

Potential alternatives that were considered but eliminated from further study are discussed in the following sections. Each potential alternative was evaluated in terms of its ability to meet the project needs and its potential impacts. Because existing storage igloos at MLAAP have excess capacity sufficient to accommodate the incoming storage services, storage-related alternatives were not considered.

3.2.1 Use Inactive E- and Z-LAP Lines on MLAAP

The E-Line and Z-Line are currently leased to and used by outside clients. Although the Army could terminate the third-party leases and return the lines to production, the process would add additional costs over the remodeling of existing facilities. The remodeling costs would still be incurred to make these lines suitable to accommodate the transferred munitions functions, resulting in ultimately higher costs to the Army to implement this alternative compared to the proposed action, with no reduction in environmental impacts. Because use of the E- and Z-Lines would have greater cost and equal environmental impacts to the proposed action, it is not practicable to terminate the third-party leases and put these lines into production. For these reasons, this alternative was eliminated from further study in this EA.

3.2.2 Use G-LAP Line

The G-Line has been sold and is no longer government property. Costs would be incurred to reacquire this property in addition to the cost of remodeling the G-Line to accommodate the transferred munitions functions. If the current owner were an unwilling seller, the cost of reacquiring the property could involve legal action, resulting in further additional costs. Environmental impacts would be the same as the proposed action. Because use of the G-Line would have greater cost and equal environmental impacts to the proposed action, it is not practicable to reacquire this line and put it into production. For these reasons, this alternative was eliminated from further study in this EA.

3.2.3 Construct New LAP Lines on MLAAP

The Army considered constructing new LAP lines on MLAAP to accommodate the incoming munitions functions. Construction of new LAP facilities would occur on undisturbed land and would have greater environmental impacts than remodeling existing facilities, which would be accomplished within existing facility footprints. Due to safety zone requirements, large tracks of land would be needed around any new LAP operations, which would place constraints on other uses of those lands. In addition, construction of new LAP facilities, including transportation and utility infrastructure to serve those facilities, would cost significantly more than remodeling and repairing existing facilities and infrastructure. For these reasons, this alternative was eliminated from further study in this EA.

3.2.4 Construct NEW LAP Lines Outside of MLAAP

Construction of new LAP lines outside of MLAAP would have the same drawbacks associated with new construction on MLAAP as well as the additional costs of acquiring

land for new LAP lines. Due to safety zone requirements, large tracks of land would be needed around any new LAP operations, transfer facilities, and temporary storage facilities, which would require a larger parcel be purchased and further increase costs. MLAAP sewer service would have to be extended to the new site or provided onsite to treat the wastewater that would potentially contain explosive components. Water service would have to be extended to the site and road improvements also could be required. Because MLAAP would still be used for storage, transportation of munitions components and equipment between the sites would also be required, which would add additional cost and traffic burden to the local roadways. To build a new Army Ammunition Plant would be contrary to the goals and interpretation of BRAC law. For these reasons, this alternative was eliminated from further study in this EA.

3.3 No Action Alternative

NEPA requires consideration of a no action alternative to the proposed action. Under the no action alternative, MLAAP would not remodel any of its facilities to accommodate the relocation of munitions functions as described in the 2005 BRAC Commission's recommendation presented in Section 2.1. Inclusion of the no action alternative serves as a benchmark for evaluation of the potential effects of the proposed federal action. The no action alternative is evaluated in detail in this EA.

4.0 Environmental Conditions and Consequences

4.1 Introduction

This section describes the existing environmental and socioeconomic conditions potentially affected by the proposed action, as well as the potential environmental and socioeconomic impacts of implementing the proposed action or alternatives. This section provides information to serve as a baseline from which to identify and evaluate environmental and socioeconomic changes likely to result from implementation of the proposed action. Baseline conditions represent current conditions. In compliance with NEPA, President's Council on Environmental Quality (CEQ) guidelines, and 32 CFR Part 651, et seq., the description of the affected environment focuses on those resources and conditions potentially subject to impacts.

Subsequent to the description of the components of the affected environment, this section presents the analysis of the direct, indirect, and cumulative environmental and socioeconomic effects that would likely occur with the proposed action or no action alternative and identifies any adverse environmental effects that cannot be avoided through project design.

4.1.1 Direct versus Indirect Effects

The terms "effect" and "impact" are synonymous as used in this EA. Effects may be beneficial or adverse and may apply to the full range of natural, aesthetic, historic, cultural, and economic resources within the project area and also within the surrounding area. Definitions and examples of direct and indirect impacts as used in this document are as follows:

Direct Impact. A direct impact is one that would be caused directly by implementing an alternative and that would occur at the same time and place.

Indirect Impact. An indirect impact is one that would be caused by implementing an alternative that would occur later in time or farther removed in distance but would still be a reasonably foreseeable outcome of the action. Indirect impacts may include induced changes in the pattern of land use, population density, or growth rate, and indirect effects to air, water, and other natural resources and social systems.

Relationship between Direct versus Indirect Impacts. For direct impacts to occur, a resource must be present. For example, if highly erodible soils were disturbed as a direct result of the use of heavy equipment during construction of a home, there could be a direct effect on soils resulting from erosion. This could indirectly affect water quality if stormwater runoff containing sediment from the construction site were to enter a stream.

4.1.2 Short-Term versus Long-Term Effects

Effects are also expressed in terms of duration. The duration of short-term impacts is considered to be 1 year or less. For example, the construction of a building would likely expose soil in the immediate area of construction. However, this effect would be considered short-term because it would be expected that vegetation would re-establish on the disturbed area within a year of the disturbance. Long-term impacts are described as lasting beyond 1 year. Long-term impacts can potentially continue in perpetuity, in which case they would also be described as permanent.

4.1.3 Intensity of Effects

The magnitude of effects of an action must be considered regardless of whether the effects are adverse or beneficial. The following terms are used to describe the magnitude of impacts:

- No Impact: The action does not cause a detectable change.
- Negligible: The impact is at the lowest level of detection.
- Minor: The impact is slight but detectable.
- Moderate: The impact is readily apparent.
- Major: The impact is severely adverse or exceptionally beneficial.

4.1.4 Significance

In accordance with CEQ regulations and implementing guidance, impacts are also evaluated in terms of whether they are significant. Both short-term and long-term effects are relevant to the consideration of significance. Significant, as defined in the CEQ regulations for implementing NEPA at 40 CFR 1508.27 requires consideration of context and intensity.

Context requires that significance may be considered with regard to society, the affected region, affected interests, and the locality. The scale of consideration for context varies with the setting and magnitude of the action. A small, site-specific action is best evaluated relative to the location than the entire world.

4.1.5 Cumulative Effects

The most severe environmental degradation may not result from the direct effects of any particular action, but from the combination of effects of multiple, independent actions over time. As defined in 40 *Code of Federal Regulations* (CFR) 1508.7 (CEQ Regulations), a cumulative effect is the:

“impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions.”

Some authorities contend that most environmental effects can be seen as cumulative because almost all systems have already been modified. Principles of cumulative effects analysis are described in the CEQ guide *Considering Cumulative Effects under the National Environmental Policy Act*. CEQ guidance on cumulative impacts analysis states:

“For cumulative effects analysis to help the decision maker and inform interested parties, it must be limited through scoping to effects that can be evaluated meaningfully. The boundaries for evaluating cumulative effects should be expanded to the point at which the resource is no longer affected significantly or the effects are no longer of interest to affected parties.” (CEQ, 2006)

4.1.6 Mitigation

The alternatives considered in this EA could have environmental and socioeconomic impacts resulting from implementation that would require mitigation. Should potentially significant adverse impacts be identified, measures that could be used to mitigate would be discussed. Potential mitigation actions could include:

- Rectifying an impact by repairing, rehabilitating, or restoring the affected environment.
- Reducing or eliminating an impact over time by preservation and maintenance operations during the life of the action.
- Compensating for an impact by replacing or providing substitute resources or environments.

Where no significant adverse impacts are identified, mitigation measures would not be required or proposed.

4.2 Land Use

4.2.1 Affected Environment

4.2.1.1 Regional Geographic Setting and Location

MLAAP is located in western Tennessee in portions of Gibson and Carroll Counties. The city of Milan and the University of Tennessee (UT) Agricultural Experiment Station are adjacent to the installation’s northwestern boundary. The Tennessee National Guard shares portions of the eastern, southern, and western boundaries. The Rutherford Fork of the Obion River flows along a portion of the installation’s northern boundary. Jackson, Tennessee is located approximately 20 miles to the south. The major metropolitan population centers nearest MLAAP are Memphis, 87 miles to the southwest, and Nashville, 110 miles to the east.

4.2.1.2 Installation Land/Air Space Use

MLAAP has a total area of 22,436 acres and contains the following land uses:

- Munitions production
- Munitions storage
- Ammunition destruction
- Testing including x-ray
- Cantonment
- Agricultural and grazing outleases
- Managed forest

The munitions production areas (429 acres) currently have 5 of 10 production lines active. Inactive lines were leased for grazing in the past; however, no inactive lines are currently leased for this purpose.

The majority of leased lands on MLAAP (8,938 acres), including four fenced munitions storage areas (7,198 acres), are used for agricultural purposes (grazing and crop production). All of these areas are leased for cattle grazing to reduce maintenance costs. The two largest storage areas are available for hunting and fishing and are actively managed for timber production.

The munitions destruction area and test area are adjacent to each other and occupy 699 acres and 78 acres, respectively. These areas are not available for other uses. The munitions destruction area is used for open detonation of defective, rejected, or unsafe explosives and explosives components. The test area is for ammunition function-testing and ammunition sub-assemblies.

MLAAP does not have any aviation-based land use.

4.2.1.3 Surrounding Land Use

The area surrounding MLAAP is predominately rural except for the City of Milan. Most of the surrounding area consists of woodlands and agriculture. The Tennessee National Guard also has facilities and undeveloped training grounds adjacent to MLAAP.

4.2.1.4 Current and Future Development in the Region of Influence

The population of Milan and its associated metropolitan area is approximately 12,000. Between 2000 and 2005, the population of Milan grew by approximately 2.1 percent (city-data.com, 2006). There are no major industries in Milan other than MLAAP and future growth is expected to be minor.

4.2.2 Consequences

4.2.2.1 Proposed Action

Under the proposed action, all work will be confined to existing disturbed areas: structures and associated building grounds within the MLAAP production area, roadways serving the production area, and existing water/wastewater lines serving the production area. The land use classifications of these areas would not be changed by the proposed action. No additional storage areas would be required. No land would be removed from agricultural or woodland uses and there would be no impacts to adjacent land uses. No impacts or alterations to existing MLAAP leases or land use agreements would result. For these reasons, the proposed action would have no effect on land use.

4.2.2.2 No Action Alternative

Under the no action alternative, MLAAP would not remodel any of its facilities to accommodate the relocation of munitions functions. Therefore, the no action alternative would have no effect on land use.

4.3 Air Quality

4.3.1 Affected Environment

The Clean Air Act requires the U.S. Environmental Protection Agency (EPA) to set National Ambient Air Quality Standards (NAAQS) for pollutants considered harmful to public health and the environment. NAAQS include two types of air quality standards. Primary standards protect public health, including the health of sensitive populations such as asthmatics, children, and the elderly. Secondary standards protect public welfare, including protection against decreased visibility, damage to animals, crops, vegetation, and buildings (EPA, 2005a). EPA has established NAAQS for six principal pollutants, which are called criteria pollutants (Table 4-1).

TABLE 4-1
National Ambient Air Quality Standards
MLAAP BRAC Environmental Assessment

Pollutant	Primary Standards	Averaging Times	Secondary Standards
Carbon Monoxide	9 ppm (10 mg/m ³) 35 ppm (40 mg/m ³)	8-hour ¹ 1-hour ¹	None None
Lead	1.5 µg/m ³	Quarterly Average	Same as Primary
Nitrogen Dioxide	0.053 ppm (100 µg/m ³)	Annual (Arithmetic Mean)	Same as Primary
Particulate Matter	50 µg/m ³	Annual ² (Arithmetic Mean)	Same as Primary
PM ₁₀	150 µg/m ³	24-hour ¹	
PM _{2.5}	15.0 µg/m ³	Annual ³ (Arithmetic Mean)	Same as Primary
	65 µg/m ³	24-hour ⁴	
Ozone	0.08 ppm	8-hour ⁵	Same as Primary
Sulfur Oxides	0.03 ppm 0.14 ppm	Annual (Arithmetic Mean) 24-hour ¹ 3-hour ¹	0.5 ppm (1300 µg/m ³)

¹ Not to be exceeded more than once per year.

² 3-year average of the weighted annual mean PM₁₀ concentration at each monitor within an area must not exceed 50 µg/m³.

³ 3-year average of the weighted annual mean PM_{2.5} concentrations from single or multiple community-oriented monitors must not exceed 15.0 µg/m³.

⁴ 3-year average of the 98th percentile of 24-hour concentrations at each population-oriented monitor within an area must not exceed 65 µg/m³.

⁵ 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.

ppm – parts per million

PM – particulate matter

µg/m³ – micrograms per cubic meter

Source: <http://www.epa.gov/air/criteria.html> (EPA, 2005a)

Areas that do not meet the air quality standard for one of the criteria pollutants may be subject to the formal rule-making process and designated as being in nonattainment for that standard.

MLAAP is located in an air quality attainment area that typically experiences good atmospheric dispersion. Stagnant conditions develop occasionally during late summer and fall. Typically, 10 to 20 days within any given 5-year period are conducive to development of noticeable air pollution (MLAAP, 2004).

Air pollutant emissions are generated at MLAAP through combustion of fossil fuels (building heating and motorized vehicles), and by destruction of waste ammunition and ammunition components. Lesser contributions result from maintenance activities, road dust emissions, stationary internal combustion engines, and pesticide/herbicide applications. Emission rates for lesser contributing sources are well below major source trigger thresholds.

MLAAP is considered a major source under the Title V program of the Clean Air Act and holds a Title V permit (renewed annually) that covers existing operations. Included under this Title V permit are open burning and open detonation (OB/OD) activities to eliminate explosive wastes, explosive-contaminated wastes, waste ammunition, and ammunition components. The limits of the MLAAP Title V permit are listed in Table 4-2.

TABLE 4-2
MLAAP Title V Regulated Emissions
MLAAP BRAC Environmental Assessment

Pollutant	Title V Permit Limit – Tons per Year	Amount Produced at MLAAP – Tons per Year
Beryllium	1.52e-4	1.20e-5
Carbon Monoxide	2036.20	510.80
Lead	8.27e-3	6.523-4
Mercury	6.19e-4	4.88e-5
Nitrogen Oxides	278.29	51.31
Particulates (TSP)	66.40	5.69
Sulfur Dioxide	390.35	30.78
Volatile Organic Compounds	652.69	80.09

The Tennessee Department of Environment and Conservation (TDEC), Division of Air Pollution Control (DAPC) has primacy to regulate air quality. Title 68, Chapter 201 of the Tennessee Code (Air Quality Act) established air quality regulation for the state. Chapters 1200-3-1 through 1200-3-36 of the Official Compilation of the Rules and Regulations of the State of the Tennessee implement air quality requirements. MLAAP holds an Open Burning Permit issued and reviewed annually by DAPC that allows OB/OD activities to be conducted.

4.3.2 Consequences

4.3.2.1 Proposed Action

Because MLAAP is located in an air quality attainment area, a conformity analysis in accordance with 40 C.F.R. §93.153 is not required for the proposed action.

Production and storage of the transferred munitions functions would not produce any air emissions that would require modification of the IAAAP Title V permit. OB/OD activities associated with the incoming munitions are not expected to generate air emissions that would exceed the thresholds of the permit. No new personnel would be hired and there would be no increase in vehicle operation.

Under the proposed action, remodeling LAP lines, repaving roads, and replacing water/sewer infrastructure at MLAAP would result in short-term, minor impacts to air quality. Fugitive dust (particulate matter) and construction vehicle exhaust emissions would

be generated during construction and would vary daily, depending on the level and type of work conducted. Paving also produces emissions of volatile organic carbons (VOCs), polycyclic aromatic hydrocarbons (PAHs), and particulate matter (Lutes et al. 1994). Fugitive dust would be controlled at the sites using best management practices (BMPs). Construction vehicle exhaust emissions would be temporary, and at their expected generation levels, would not significantly impact air quality. The relatively small scale and short duration of the proposed work is not expected to generate sufficient quantities of particulate matter, carbon monoxide, lead, nitrogen dioxide, and sulfur oxides to cause other than *de minimus* temporary impacts to air quality. No substantial changes in air quality from the baseline conditions for the criteria pollutants are expected and thresholds set under 40 C.F.R. §93.153 are not expected to be exceeded. Fugitive dust and exhaust emissions from the proposed construction activities would not collectively represent a new major source of air emission, and, therefore, would not require a modification to the Title V permit under which MLAAP operates.

For these reasons, any impacts to air quality from the proposed action would be negligible.

4.3.2.2 No Action Alternative

No short-term changes in air quality conditions would occur under the no action alternative. MLAAP would continue production of currently produced munitions under its existing Title V permit. Therefore, the no action alternative would have no effect on air quality.

4.4 Noise

4.4.1 Affected Environment

For determination of impacts to human receptors, noise measurements are weighted to increase the contribution of noises within the normal range of human hearing and decrease the contribution of noises outside the normal range of human hearing. For humans, this is considered an A-weighted scale (dBA). When sound pressure doubles, the dBA level increases by 3. Psychologically, most humans perceive a doubling of sound with an increase of 10 dBA (EPA, 1974; Danish Wind Industry Association, 2003). Sound pressure decreases with distance from the source. Typically, the amount of noise is halved as the distance from the source doubles (EPA, 1974; Danish Wind Industry Association, 2003).

Ammunition destruction and production are the primary sources of noise at MLAAP. Other sources of noise include vehicular traffic and the small arms impact area in the eastern part of the installation. Most activities are restricted to Monday through Friday between 7 A.M. and 8 P.M. MLAAP works with the community to formulate and implement noise management policies. Installation Compatible Use Zones (ICUZs) have been established and are used for land use planning within and around MLAAP (MLAAP, 2000; 2004).

Most noises perceptible to the adjoining community results from firing of ammunition at the Test Area and detonation/destruction of explosives and ammunition at the Ammunition Destruction Area (ADA). Ammunition disposed of at the ADA includes excess or obsolete munitions from storage and defective rounds from production (MLAAP, 2000, 2004). In 1986, MLAAP ceased most above-ground detonations at the ADA to minimize blast noise. This change was compliant with the Army's Environmental Noise Abatement Program and the MLAAP Noise Abatement and Hearing Conservation Program. Explosives and

ammunition are detonated below ground unless there is an emergency or if a dropped or potentially armed item must be detonated. Above ground detonations are otherwise limited to 2 shots per day, 15 pounds of explosive per shot.

MLAAP began using meteorological data to refine demolition activities and reduce off-installation noise in the 1980s. If predicted sound pressure level exceeded 95 decibels (on the C-Weighted scale) under expected meteorological conditions, then the size of the charges are reduced, the depth of the soil cover increased, or demolition activities discontinued until meteorological conditions change to be less conducive to transporting the noise. MLAAP personnel obtain current information on ceiling height, cloud cover, and predicted precipitation from the Jackson, Tennessee Federal Aviation Agency (FAA) facility.

4.4.2 Consequences

4.4.2.1 Proposed Action

Because construction would be limited to remodeling the interiors of existing buildings, construction noise levels are not expected to be above background noise levels to receptors outside buildings being remodeled. Production would not occur while remodeling is conducted, so no receptors other than construction workers would be exposed to this noise. Construction workers would use hearing protection and would follow Occupational Safety and Health Administration (OSHA) standards and procedures.

Construction equipment associated with repaving and with replacement of water/sewer infrastructure would produce noise for the duration of the work. The noise associated with these activities would be confined to normal business hours and is expected to be negligible or not audible off post. Once remodeling is completed, noise generated from the production of the transferred munitions functions would be similar to that generated from current production activities.

For these reasons, any noise impacts from the proposed action would be temporary and minor.

4.4.2.2 No Action Alternative

Under the no action alternative, MLAAP would not remodel any of its facilities to accommodate the relocation of munitions functions. Therefore, the no action alternative would have no noise-related effects.

4.5 Geology and Soils

4.5.1 Affected Environment

4.5.1.1 Geologic and Topographic Conditions

MLAAP is centrally located on the West Tennessee Plain. MLAAP is within the Coastal Plain physiographic province. Area soils were formed in Pleistocene loess, Tertiary coastal plain sediments, and more recent alluvium. Loess is windblown sediment primarily consisting of fine silts dating to the Pleistocene Period. The loess overlays coastal plain sediments dating to the Tertiary and Cretaceous Periods. In the western portion of Carroll

County and the eastern portion of Gibson County, the loess layers typically are between 3 and 5 feet in thickness.

The area around MLAAP is characterized by a series of long, irregular ridges with steep side slopes. Soils are well drained to moderately well drained. Uplands are highly dissected by narrow drainages with generally level and narrow floodplains. Soils associated with flood plains are considered poorly drained and subject to frequent flooding. Steeper slopes in many parts of the county are truncated by erosional gullies.

MLAAP is situated on the divide between the Mississippi River and Tennessee River drainages. The western portion of the installation is within the Mississippi River drainage. Portions of MLAAP are drained by the Rutherford Fork of the Obion River. The Obion Basin has a drainage area of 2,996.62 square kilometers (1,157 square miles). Dendritic streams generally flow westward toward the Mississippi River, draining tertiary and marine deposited sands and clays of the Coastal Plain. In the middle and northern portions of Gibson County, drainage is primarily by the South Fork and the Rutherford Fork of the Obion River, whereas the North Fork and the Middle Fork are the major drainage systems in the southern part of the county. Floodplains are broad, flat, and generally narrow, although in some areas, floodplains are up to 3.22 kilometers (2 miles) in width. Flow in rivers and tributaries is sluggish, with some periodic flooding.

No known mineral or petroleum resources are located on or under MLAAP.

4.5.1.2 Soils

Upland soils on MLAAP consist mainly of the Providence-Lexington-Smithdale association, which is characterized by undulating to steep terrain and moderately well-drained or well-drained soils. These soils formed in moderately thick deposits of loess and in loamy coastal plain sediments on dissected uplands and terraces. Providence soils are moderately well-drained and have a fragipan in the lower part of the subsoil. Lexington and Smithdale soils are well drained and lack a fragipan. Minor soil types that occur on the installation include Grenada, Loring, Calloway, Routon, and Center (MLAAP, 2004).

Soils of the Falaya-Collins association occupy bottomlands on MLAAP except for the northern portion of the installation, which has bottomlands with the Rosebloom-Arkabutla association. The Falaya-Collins soil association occurs on nearly level, somewhat poorly drained, and moderately well-drained soils on floodplains. Falaya soils are somewhat poorly drained and are in the lowest positions. Collins soils are moderately well-drained and located in higher positions on broad floodplains, adjacent to steep side slopes, and on narrow, secondary stream bottoms. The Rosebloom-Arkabutla soil association consists of nearly level, poorly drained, and somewhat poorly drained soils on floodplains and occurs on floodplains along the Obion River and its major tributaries. Rosebloom soils are poorly drained and are in the lowest areas, while Arkabutla soils are somewhat poorly drained and are in slightly higher positions (MLAAP, 2004).

4.5.1.3 Prime Farmland

The work will be confined to existing structures and associated building grounds. No prime farmland would be affected and this topic is not further discussed.

4.5.2 Consequences

4.5.2.1 Proposed Action

The proposed action would not involve any intrusive construction activity that would impact subsurface geological formations. Disturbance to soils could occur from staging areas for remodeling work done on existing facilities. The work will be confined to existing structures and associated building grounds in areas of current use. Soils on the site have already been disturbed and the potential for impacts from the proposed construction has been lessened by this previously completed work.

Repaving and utility infrastructure replacement would be confined to existing roads and utility corridors, where soils and topography have been previously altered. No additional impacts to soils and topography would result from this action. Contractors would implement BMPs and construction stormwater management controls (possibly to include but not limited to silt fencing, detention and flow dispersion structures, and reseeding/mulching) to minimize the potential for erosion to result from runoff during repaving and utility work.

For these reasons, the proposed action would have no effect on geology and a negligible impact on topography and soils.

4.5.2.2 No Action Alternative

Under the no action alternative, MLAAP would not remodel any of its facilities to accommodate the relocation of munitions functions. Therefore, the no action alternative would have no effect on geology, topography, soils or prime farmland.

4.6 Water Resources

4.6.1 Affected Environment

4.6.1.1 Wetlands and Floodplains

The nearest floodplains to the production lines are along the Obion River. Wetlands occur throughout MLAAP, with the largest wetland adjacent to the Rutherford Fork of the Obion River. Wetland coverage has been incorporated into MLAAP's geographic information system (GIS), and is used in land management planning (MLAAP, 2004). No wetlands occur in the production line areas, where renovation would occur.

4.6.1.2 Surface Water

MLAAP receives an annual average of 50 inches of rain. No permanent streams exist on the installation; however, the Rutherford Fork of the Obion River forms a portion of MLAAP's northern boundary. Sources of surface water on MLAAP include natural ponds, swamps, intermittent streams, constructed livestock ponds, and watering stations. MLAAP wildlife depends on these sources of surface water. Streams on MLAAP are ephemeral or intermittent wet-weather conveyances that flow only following heavy rainfall events or when they receive discharge of treated groundwater. MLAAP's OU-4 Groundwater Treatment Plant (GWTP) maintains flow in Wolf Creek while it is in operation (MLAAP, 2004).

4.6.1.3 Hydrogeology/Groundwater

The principal groundwater sources utilized on MLAAP come from the Clairborne and Wilcox sands with groundwater recharge occurring through precipitation. The general direction of groundwater flow is to the northwest due to topographic influence and the direction of the regional dip of these sands (MLAAP, 2000, 2000). "Industrial activities associated with the mission of MLAAP have resulted in the contamination of soils and groundwater by various explosive constituents" (EPA, 2006).

4.6.1.4 Stormwater

The stormwater management system in developed areas of the installation consists mostly of roadside ditches, culverts, and swales coupled with natural surface features that channel and direct stormwater flow away from use areas to detention or infiltration areas.

4.6.2 Consequences

4.6.2.1 Proposed Action

The proposed action would not have any direct impacts on surface waters or wetlands because none are located in the immediate vicinity of the areas where construction would occur. Little or no groundwater dewatering is expected to be required during construction activities. The proposed action would not result in withdrawals from, or discharges to, surface waters, groundwater, or wetlands.

Construction activities would result in minor soil disturbance and loss of vegetative cover. The remodeling work would be confined to existing structures and associated building grounds. Construction would occur outside of designated floodplains and would have no impact on flood elevations upstream or downstream of the project area.

Repaving and utility infrastructure replacement would be confined to existing roads and utility corridors. Contractors would implement BMPs and construction stormwater management controls (possibly to include but not limited to silt fencing, detention and flow dispersion structures, and reseeding/ mulching) to minimize the potential for offsite sedimentation and erosion impacts from stormwater runoff. There would be no increase in impervious area and no change in stormwater runoff characteristics or volume once repaving was complete and the remodeled production lines were operational.

For these reasons, the proposed action would have no effect on floodplains. Any impacts to surface waters, groundwater, or wetlands would be temporary and negligible.

4.6.2.2 No Action Alternative

Under the no action alternative, MLAAP would not remodel any of its facilities to accommodate the relocation of munitions functions. Therefore, the no action alternative would have no effect on wetlands, surface water, hydrogeology/groundwater, or floodplains.

4.7 Biological Resources

4.7.1 Affected Environment

4.7.1.1 Vegetation

MLAAP contains bottomland hardwood, upland hardwood, grassland, and aquatic vegetative communities. Vegetation in these communities is typical for the region. The Nature Conservancy has identified seven natural areas on MLAAP that are excellent examples of native habitats that contain a diversity of plant species.

When MLAAP was established, approximately 2,000 acres of the site were forested. At present, approximately 50 years later, those areas contain mature forest stands. Historically, some fields were removed from the agricultural leasing program and planted to pine or hardwoods to establish younger forest stands on MLAAP. In floodplains, bald cypress, green ash, and yellow poplar were planted at wide spacings to allow natural regeneration of bottomland species between seedlings. All areas outside of floodplains were planted to pine when removed from the agricultural leasing program. Now, as leases expire, small fields are considered for removal from the leasing program. Any fields removed from agriculture are managed to provide an old field regime to reclaim a habitat type poorly represented on MLAAP.

4.7.1.2 Wildlife

Wildlife typical for the region utilize the habitats found on MLAAP. Cattle are the only type of livestock found on MLAAP year-round. Horses periodically graze some parts of the installation. The primary exotic animal species that occur on MLAAP are the house mouse, Norway rat, house sparrow, European starling, cattle egret, rock dove, and grass carp. All of these species naturalized on MLAAP except grass carp, which are stocked in fish ponds to control vegetation (MLAAP, 2004).

4.7.1.3 Sensitive Species

There are no federally Threatened or Endangered species that are known to occur on or near MLAAP. The eastern woodrat (*Neotoma floridana*), which is federally listed as a species of management concern, does occur on MLAAP (Table 4-3). As indicated in Table 4-3, 10 state-listed species have been documented on MLAAP. The compass plant (*Silphium laciniatum*) is state listed as Threatened and the other species are deemed in need of management. As a result of management efforts on MLAAP, the compass plant has expanded its range on the installation (MLAAP, 2004)

TABLE 4-3
 State and Federal Listed Species Known to Occur on MLAAP
 MLAAP BRAC Environmental Assessment

Scientific Name	Common Name	Federal Status	State Status	State Rank	Global Rank
<i>Silphium laciniatum</i>	Compass Plant	None	T	S2	G5
<i>Sorex longirostrus</i>	Southeastern Shrew	None	D	S4	G5
<i>Zapus hudsonius</i>	Meadow Jumping Mouse	PS	D	S4	G5
<i>Neotoma floridana</i>	Eastern Woodrat	MC	D	S2	G3/G4
<i>Accipiter striatus</i>	Sharp-shinned Hawk	PS	D	S3B	G5
<i>Ardea alba</i>	Great Egret	None	D	S2B/S3N	G5
<i>Circus cyaneus</i>	Northern Harrier	None	D	S4N	G5
<i>Lanius ludovicianus</i>	Loggerhead Shrike	None	D	S3	G4
<i>Tyto alba</i>	Common Barn Owl	None	D	S3	G5
<i>Hyla gratiosa</i>	Barking Tree Frog	None	D	S3	G5

Data from Tennessee Wildlife Resources Agency (2006) and MLAAP (2004).

Federal Status: PS = partial status (taxon listed in part of its range but Tennessee subspecies is not included in Federal designation); MC = management concern (species has been brought to the attention of the Fish and Wildlife Service for review and consideration for possible future listing)

State Status: T = threatened, D = deemed in need of management

State Rank

S2 = Very rare and imperiled within the state, 6-20 occurrences, or few remaining individuals, or because of some factor(s) making it vulnerable to extinction.

S3 = Rare and uncommon in the state, from 21 to 100 occurrences.

S4 = Widespread, abundant, and apparently secure within the state, but with cause for long-term concern.

B = breeds in Tennessee

N = Occurs in Tennessee but does not breed in Tennessee

Global Rank

G3 = Very rare and local throughout its range or found locally in a restricted range, or, because of other factors, vulnerable to extinction throughout its range.

G4 = Apparently secure globally, though it may be quite rare in parts of its range, especially at the periphery; thus, it is of long-term concern.

G5 = Demonstrably secure globally, though it might be quite rare in parts of its range, especially at the periphery.

4.7.1.4 Migratory Birds

Department of Defense (DoD) installations are required to comply with the Migratory Bird Treaty Act (MBTA). The 2003 Defense Authorization Act required USFWS to reduce restrictions previously placed on military readiness training for the protection of migratory birds. DoD has agreed to implement measures to protect bird species of conservation concern (BCC species) on military installations. A BCC species list has been developed by the North American Bird Conservation Initiative (NABCI). Four of the 20 BCC species listed for the Central Hardwoods Region have been documented to occur on MLAAP (Table 4-4).

TABLE 4-4
 Bird Species of Conservation Concern known to Occur on MLAAP
 MLAAP BRAC Environmental Assessment

Species Name	Common Name	Known to Breed on MLAAP
<i>Caprimulgus vociferus</i>	whip-poor-will	?
<i>Dendroica discolor</i>	prairie warbler	?
<i>Helmitheros vermivorus</i>	worm-eating warbler	?
<i>Hylocichla mustelina</i>	wood thrush	?

Data from MLAAP (2004)

4.7.2 Consequences

4.7.2.1 Proposed Action

Minor impacts to common wildlife species may occur from the establishment and operation of staging areas used for the remodeling of existing facilities. Staging areas would be established in previously cleared areas and no wildlife habitat would be impacted. The remodeling work would be confined to existing structures and associated building grounds in areas of current use. It is expected that most animals would avoid areas adjacent to construction zones during construction and would return after construction is completed. During repaving and utility infrastructure replacement, animals may be temporarily displaced from the work sites and the immediate adjacent areas. When the work is completed, animals would resume use of these areas. Wildlife in the vicinity of construction areas may be temporarily disturbed by construction noise during construction; however, the overall impact is expected to be minimal. None of the work is expected to impact sensitive species, migratory birds, or their habitats.

Vegetation in staging areas and within roadway and utility corridors that would be disturbed would be limited to planted grasses and ruderal vegetation. These areas would quickly recover following completion of work and reseeded/mulching of the disturbed surfaces.

The proposed action has been coordinated with USFWS (Appendix A). USFWS replied on 28 November 2006 that “no significant adverse impacts to wetlands or federally listed endangered or threatened species are anticipated from this proposal.” (see Appendix A).

For these reasons, the proposed action would have a temporary and negligible impact on flora and fauna.

4.7.2.2 No Action Alternative

Under the no action alternative, MLAAP would not remodel any of its facilities to accommodate the relocation of munitions functions. Therefore, the no action alternative would have no effect on biological resources.

4.8 Cultural Resources

4.8.1 Affected Environment

Cultural Resources are defined in Army Regulation 200-4, Cultural Resources Management, Headquarters, Department of the Army, as:

- Historic Properties, protected through the National Historic Preservation Act (NHPA)
- Archaeological Resources, protected through the Archaeological Resources Protection Act (ARPA)
- Cultural Items, as specified in the Native American Graves Protection and Repatriation Act (NAGPRA)
- Sacred Sites, as referenced in the American Indian Religious Freedom Act (AIRFA) and Executive Order 13007
- Collections of artifacts and records pertaining to them as defined in 36 CFR 79

The MLAAP Cultural Resources Management Plan (ICRMP) provides guidance on the proper management of cultural resources at the installation (New South Associates, Inc. and Earth Tech, Inc., 2002). The MLAAP ICRMP is reviewed annually and updated as needed in conjunction with changes to the installation mission and management practices.

Because all work and disturbance would be confined to existing production line facilities and the footprints of existing transportation and utility infrastructure, the proposed action would not impact archeological sites or Native American resources at MLAAP. Therefore, archeological and Native American resources are not discussed further. All production lines at MLAAP have been evaluated for eligibility for listing on the National Register of Historic Places (NRHP) (Grashof, 2004). Results of this evaluation indicated that the F-Line is of high integrity, three lines (B-line, H-Line, and I-Line) are of moderate integrity, eight lines are of poor integrity, and two lines (G-Line and V-line) are non-contributing to eligibility for listing on the NRHP (Table 4-5).

TABLE 4-5
Integrity of Production Lines for Consideration of Eligibility for Listing on the National Register of Historic Places
MLAAP BRAC Environmental Assessment

Production Line	Integrity Contributing to Eligibility for the National Register of Historic Places ¹
A-Line	Poor
B-Line	Moderate
C-Line	Poor
D-Line	Poor
E-Line	Poor
F-Line	High
G-Line	Non-contributing, no longer owned by the government
H-Line	Moderate
I-Line	Moderate
K-Line	Poor

TABLE 4-5
 Integrity of Production Lines for Consideration of Eligibility for Listing on the National Register of Historic Places
 MLAAP BRAC Environmental Assessment

Production Line	Integrity Contributing to Eligibility for the National Register of Historic Places ¹
O-Line	Poor
V-Line	Non-contributing, line constructed in 1981 and not of sufficient age to contribute
X-Line	Poor
Z-Line	Poor

¹ Information from Grashof, 2004.

4.8.2 Consequences

4.8.2.1 Proposed Action

Work on roadways and utility infrastructure would be confined to previously disturbed corridors that have no historic resources. The proposed remodeling of production lines at MLAAP would not involve significant structural modifications. With the exception of the possible addition of a loading ramp to one building, only minor interior remodeling would be conducted. As such, the proposed action would not affect the integrity of the selected production lines with respect to their potential eligibility for listing on the NRHP. No undisturbed areas would be affected and there would be no change to any viewshed.

The proposed remodeling of LAP lines at MLAAP is covered under the Advisory Council on Historic Preservation's (ACHP's), *Program Comment for World War II and Cold War Era (1939 - 1974) Army Ammunition Production Facilities and Plants* (see Appendix A). This Program Comment covers the Army's Section 106 compliance requirements for the following actions on World War II and Cold War Era ammunition production facilities and plants that may be eligible for NRHP listing: ongoing operations; maintenance and repair; rehabilitation; renovation; mothballing; cessation of maintenance; new construction; demolition; deconstruction and salvage; remediation activities; and transfer, sale, lease, and closure of such facilities.

The use of the Program Comment for the proposed action has been coordinated with the Tennessee SHPO (see Appendix A). The Tennessee SHPO issued the following concurrence statement on 5 February 2007 for the use of the Program Comment by the proposed action: "We find that DOD installations have been compliant under these agreement documents for World War II and Cold War Era (1939-1974) Army Ammunition Production Facilities and Plants. The Tennessee SHPO will continue to operate within the stipulations enumerated in these agreement documents and re-negotiate stipulations with the various installations using normal 36 CFR Part 800 consultation whenever the need arises." (see Appendix A).

For these reasons, the proposed action would have a negligible impact on cultural resources.

4.8.2.2 No Action Alternative

Under the no action alternative, MLAAP would not remodel any of its facilities to accommodate the relocation of munitions functions. Therefore, the no action alternative would have no effect on cultural resources.

4.9 Socioeconomics

Socioeconomics comprises a number of resource areas including the following: population, economic activity (employment, unemployment, and income), housing, public schools, and public safety services. Additionally, the topics of environmental justice and protection of children are included.

4.9.1 Affected Environment

The effects of the proposed action on socioeconomics are assessed primarily using the Economic Impact Forecast System (EIFS) developed by the U.S. Army Construction Engineering Research Laboratory (CERL). Use of this model provides a consistent method for evaluating socioeconomic impacts associated with Army BRAC actions nation wide (U.S. Army Corps of Engineers [USACE], 1994). Results are compared to Rational Threshold Values (RTVs) to evaluate the significance of these effects in relation to the regional economy. RTVs are positive and negative percent changes in population, employment, sales volume and income that represent an acceptable range around the maximum historic fluctuations within the ROI over the last 20 years or so.

4.9.1.1 Region of Influence

The region of influence (ROI) is the geographic area within which the majority of impacts to socioeconomic resources are likely to be concentrated. MLAAP is located in parts of Gibson and Carroll Counties, about 20 miles north of the Jackson metro area in Madison County, the market service area for Milan (Tennessee Department of Economic and Community Development, 2006). The town of Milan is located in Gibson County. The largest town in Gibson County is Humboldt, about 12 miles southwest of Milan. The ROI for MLAAP comprises Gibson County, Carroll County, Madison County, and Chester County, Tennessee (or the Jackson-Humboldt, Tennessee Combined Statistical Area plus Carroll County).

4.9.1.2 Economic Development

MLAAP Employment

MLAAP is the largest employer in the Milan area and one of the largest in Gibson County, with approximately 570 contractor employees working for American Ordnance, LLC (AO) and 20 civilian government personnel in 2006 (Tennessee Department of Economic and Community Development, 2006). The Commanding Officer is the only active-duty military personnel assigned to MLAAP.

Although AO employment has declined by about 300 jobs since 2000, MLAAP is still recognized as a major local employer providing wages comparable to those of other local industry (MLAAP Environmental Assessment, 2000). MLAAP contributes indirectly to additional employment in the regional economy through the purchase of goods and services, as well as employee personal spending.

Regional Employment

MLAAP is located in an area that is agricultural with light to medium industry. The largest share of non-farm employment in the ROI in 2004 was concentrated in three sectors of the economy: manufacturing (16.7 percent); federal, state, and local government (16 percent),

primarily consisting of local government jobs; and retail trade (13 percent). Farming provided a greater share of employment in Carroll and Chester Counties (nearly 8 percent) than in Gibson County (5.5 percent) and Madison County (1 percent) (Table 4-6.)

TABLE 4-6
Employment by Industry, 2004
MLAAP BRAC Environmental Assessment

	ROI	Percent of Nonfarm Employment
Total employment	110,151	
Farm employment	3,587	
Nonfarm employment	106,567	
Private employment	89,486	84.0%
Construction	6,258	5.9%
Manufacturing	17,829	16.7%
Retail trade	13,890	13.0%
Health care and social assistance	8,203	7.7%
Accommodation and food services	5,694	5.3%
Other services, except public administration	6,591	6.2%
Government and government enterprises	17,078	16.0%
Federal, civilian	803	0.8%
Military	651	0.6%
State and Local	15,624	14.7%
State	2,499	2.3%
Local	13,125	12.3%

Source: Regional Economic Information System, Bureau of Economic Analysis, U.S. Department of Commerce
<http://www.bea.gov/bea/regional/reis/CA25Nfn.cfm>

Notes: Industries accounting for less than 5 percent of private employment omitted

After AO, the largest employers in Gibson County (Milan and Humboldt) are Ceco Door Products, Dana Corporation, Kongsberg Automotive, and Tower Automotive, with about 400 employees each. From 1996 to 2005, manufacturing growth in Gibson County included 14 new plant projects and nearly 140 plant expansion projects (Tennessee Department of Economic and Community Development, 2006).

Full- and part-time employment in the 4-county ROI increased by 6 percent (6,500 jobs) between 1994 and 2004. The largest share of 2004 employment was contributed by Madison County (61 percent), including the city of Jackson, and Gibson County (21 percent). However, total employment in Gibson County declined by 11 percent from 1994 to 2004 (Table 4-7.)

Unemployment in the ROI in 2005 ranged from a high of 8.6 percent in Gibson County to a low of 5.6 percent in Madison County, compared to 5.6 percent statewide. From 1995 to 2005, unemployment trends in all of the counties except Carroll County mirrored that of the state, with rates in the last 4 years substantially higher than the preceding 3 years. Carroll County has retained steady unemployment rates of 7 to 10 percent since unemployment reached high levels of over 15 percent in the 1995 to 1997 period (Bureau of Labor Statistics, 2006).

TABLE 4-7
Employment and Income Trends
MLAAP BRAC Environmental Assessment

		Per capita personal income ¹	Total employment	Wage and salary employment	Proprietors employment	County share of ROI
ROI	1994	\$18,766	103,645	86,808	16,837	--
	2004	\$26,830	110,151	88,163	21,988	--
	% change	43%	6%	2%	31%	--
Gibson County	1994	\$18,507	25,735	20,789	4,946	25%
	2004	\$25,764	23,001	16,971	6,030	21%
	% change	39%	-11%	-18%	22%	-16%
Carroll County	1994	\$17,071	14,436	11,085	3,351	14%
	2004	\$23,627	13,375	9,314	4,061	12%
	% change	38%	-7%	-16%	21%	-13%
Madison County	1994	\$19,760	58,133	51,033	7,100	56%
	2004	\$28,296	66,992	57,864	9,128	61%
	% change	43%	15%	13%	29%	8%
Chester County	1994	\$13,779	5,341	3,901	1,440	5%
	2004	\$22,285	6,783	4,014	2,769	6%
	% change	62%	27%	3%	92%	19%

Source: Regional Economic Information System, Bureau of Economic Analysis, U.S. Department of Commerce, April 2006

Notes:

1. Per capita personal income is total personal income divided by total midyear population estimates of the Bureau of the Census.

4.9.1.3 Demographics

MLAAP is located in a relatively rural area, with population density less than 100 persons per square mile. At the 2000 Census and 2005 estimates, the towns of Milan and Humboldt had populations of less than 8,000 and 10,000 persons, respectively. As of 2005, the City of Jackson had an estimated population of over 60,000 (U.S. Bureau of the Census, 2006).

From 2000 to 2005, the ROI saw a modest increase in population of 2 percent, less than the 5 percent statewide increase during the same period. Madison and Chester Counties and the city of Jackson accounted for most of this growth, with Milan also growing about 2 percent. Population in Gibson County remained steady, while Carroll County decreased slightly. (Table 4-8.)

4.9.1.4 Housing and Community Services

On-Post Housing

MLAAP no longer offers on-post housing. The 61 family housing units in Area Q were vacated in September 2004 and subsequently demolished (MLAAP, 2004).

Off-Post Housing

As of the 2000 Census, there were nearly 80,000 housing units in the four-county ROI. The overall vacancy rate in 2000 was 8 percent, somewhat higher in Carroll County than in the other counties. Seasonal and recreational housing only accounts for 1-2 percent of the housing stock in the ROI (Table 4-9.)

TABLE 4-8
Population Characteristics
MLAAP BRAC Environmental Assessment

	2000	2005	Change	Percent Change	Density ¹
Tennessee	5,689,283	5,962,959	273,676	5%	138
ROI	185,004	188,126	3,122	2%	78
Carroll County	29,475	29,121	-354	-1%	49
Chester County	15,540	15,941	401	3%	49
Gibson County	48,152	48,148	-4	0%	80
Madison County	91,837	94,916	3,079	3%	165
Milan city	7,664	7,823	159	2%	952
Humboldt city	9,467	9,269	-198	-2%	980
Jackson city	59,643	62,099	2,456	4%	1,205

Source: U.S. Census Bureau, Census 2000 Summary File 3 (SF 3) - Sample Data; 2005 Population Estimates

Note:

¹People per square mile

TABLE 4-9
Regional Housing
MLAAP BRAC Environmental Assessment

	Housing Units	Unoccupied	Vacancy Rate	Seasonal ¹	Percent
ROI	78,499	5,990	8%	722	1%
Carroll County	13,057	1,278	10%	298	2%
Chester County	6,178	518	8%	147	2%
Gibson County	21,059	1,541	7%	99	0%
Madison County	38,205	2,653	7%	178	0%

Source: U.S. Census Bureau, Census 2000 Summary File 3 (SF 3) - Sample Data

Note:

¹For seasonal, recreational, or occasional use

Medical Facilities

The hospitals nearest to MLAAP are Milan General Hospital, an acute care center with emergency care, outpatient services and 73 in-patient beds, and Humboldt General/West Tennessee Healthcare, with 62 beds. There are also 2 clinics in Milan and 11 clinics in Humboldt. (Tennessee Department of Economic and Community Development, 2006; Milan website <http://www.cityofmilantn.com/>, 2006)

Educational Facilities

Milan has a public elementary, middle and high school and one private school. There are two public elementary schools, two middle/junior high schools and one high school in Humboldt, along with five private schools. Both towns have a number of day care centers. (Tennessee Department of Economic and Community Development, 2006; Milan website <http://www.cityofmilantn.com/>, 2006)

Recreational Facilities

The former "Q" Housing Area has a walking track and tennis court. On a limited basis and when security threat levels are normal, employees, military, retirees, and civilians can hunt and fish on the facility, with a valid State of Tennessee and MLAAP hunting and fishing license; a hunter safety certificate and hunter orientation are also required (MLAPP, 2000; MLAAP, 2004). Milan's city park provides playgrounds, picnic shelters, a swimming pool and other recreational amenities.

4.9.1.5 Police and Fire Protection Services

Police

AO provides the MLAAP Security Force that controls access at MLAAP (MLAAP, 2006). Police protection and law enforcement is provided by the town of Milan, with 25 police officers and 10 reserve officers, and Gibson County with 19 officers. The Milan Police Department has an eight-man special reaction team, trained by the Department of Defense in counter-drug operations, building clearing, building entry and hostage rescue, as well as a K-9 unit (Milan website <http://www.cityofmilantn.com/>, 2006).

Fire Protection

The MLAAP Fire Department employs three firefighters and one captain per shift; all are certified as emergency medical technicians and six are paramedics. The fire department has a well-equipped HAZMAT van for responding to hazardous material incidents.

The Milan Fire Department, located at the Milan safety complex, has three fire engines, a rescue unit and a bush truck and is staffed by 22 firefighters and 5 volunteers. Eight firemen are trained as first responders and four are certified as emergency medical technicians. The Milan Fire Department answers approximately 375 calls a year (Milan Web site <http://www.cityofmilantn.com/>, 2006).

4.9.1.6 Environmental Justice

Executive Order (EO) 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations* (1994), requires federal agencies to achieve

environmental justice "to the greatest extent practicable" by identifying and addressing "disproportionately high adverse human health or environmental effects of...activities on minority populations and low income populations."

“Minority” is defined as persons who either identify their race on the Census as being other than white (African-American, Asian, Native American, Hawaiian and Other Pacific Islander, some other race, or two or more races) or those who identify themselves as being of Hispanic or Latino origin. The latter is based on country of origin and can include people in any ethnic or racial group, including white. A minority population is typically defined as a local population with 50 percent or greater minority make-up, or a local population with a significantly larger minority make-up than in the surrounding reference area. An area with a poverty rate (percentage of persons with incomes below the poverty threshold, which is based on family size) of over 20 percent is considered a “poverty area” by the U.S. Census.

Based on information from the 2000 Census, the 4-county ROI minority population is 26.3 percent of the total population and 13.7 percent of the ROI residents had incomes below the poverty level. The Census tracts immediately surrounding MLAAP had a minority population of 15.3 percent, less than in the ROI as a whole (which includes the city of Jackson), with a poverty rate of 13.2 percent, similar to the ROI (Table 4-10.)

TABLE 4-10
Environmental Justice Statistics
MLAAP BRAC Environmental Assessment

	Tracts surrounding MLAAP	Carroll County	Chester County	Gibson County	Madison County	ROI
Total population	21,629	29,475	15,540	48,152	91,837	185,004
White ¹	18,309	25,799	13,595	37,755	59,166	136,315
Black or African American ¹	2,885	2,813	1,635	9,401	29,582	43,431
American Indian and Alaska Native ¹	10	47	5	38	224	314
Asian ¹	50	50	17	107	548	722
Native Hawaiian and Other Pacific Islander ¹	5	3	0	31	19	53
Some other race ¹	6	6	0	0	36	42
Two or more races ¹	124	345	234	309	760	1,648
Hispanic or Latino ²	240	412	54	511	1,502	2,479
Total minority	3,320	3,676	1,945	10,397	32,671	48,689
Percent minority	15.3%	12.5%	12.5%	21.6%	35.6%	26.3%
Poverty rate	13.2%	13.9%	14.4%	12.8%	14.0%	13.7%

Source: U.S. Census Bureau, Census 2000 Summary File 3 (SF 3) - Sample Data

Notes:

¹Not Hispanic or Latino

²Can be of any racial category

4.9.1.7 Protection of Children

EO 13045, Protection of Children from Environmental Health Risks and Safety Risk (Federal Register: April 23, 1997, Volume 62, Number 78), requires that federal agencies shall make it a high priority to identify and assess environmental health risks and safety risks that may disproportionately affect children and ensure that policies, programs, and standards address disproportionate risks to children that result from environmental health or safety risks.

Children are not normally present at MLAAP, because there are no family housing areas, schools or day care centers on the facility. Children are present in the rural residential areas near MLAAP, but are prevented from accessing the installation by the security fence and other measures. Children may be present on MLAAP in the company of adults when the public is allowed access to undeveloped areas of MLAAP during the hunting season.

4.9.2 Consequences

4.9.2.1 Proposed Action

Economic Development Construction Phase

It is estimated that construction costs to implement the proposed action would be approximately \$15 million, including labor and materials. In the short term, the expenditures and employment associated with construction of the new facilities would increase sales volume, employment, and income in the ROI. These economic benefits will be temporary, lasting only for the duration of construction activities.

Approximately 190 full-time-equivalent construction jobs would be created by the construction project, with associated construction wages (Appendix C). Additionally, the multiplier effect would result in direct and induced employment of 341 jobs in sectors supplying the construction industry within the ROI. This employment level corresponds to less than 0.4 percent of regional baseline employment (see Table 4-7). Additional income associated with the direct construction jobs would be about \$6 million, and almost \$3.4 million for induced jobs for a total increase in income of almost \$9.6 million. Suppliers in the ROI would experience a short-term increase in the sale of construction-related materials and provision of services.

Table 4-11 presents estimates of both the direct effects of construction activities as well as induced effects in related industrial sectors that would be affected by construction expenditures and employment. The percentage increase in sales volume, income, employment, and local off-post population are relatively minor and fall well within the range of historical fluctuations in those economic parameters as represented by the RTVs for the region. Short-term minor beneficial effects to the regional economy can be expected from the construction activities required to implement the proposed action.

TABLE 4-11
 EIFS Model Output for Proposed Construction Activities at MLAAP
 MLAAP BRAC Environmental Assessment

Indicator	Projected Change	Percentage Change	Range of RTVs
Sales Volume-Direct	\$9,761,065	--	N/A
Sales Volume-Induced	\$18,155,580	--	N/A
Sales Volume- Total	\$27,916,650	0.49%	- 7.91% to 9.9%
Income-Direct	\$6,180,160	--	N/A
Income-Induced	\$3,389,376	--	N/A
Total Income ¹	\$9,569,536	0.25%	- 5.69% to 9.77%
Employment-Direct	243	--	N/A
Employment-Induced	98	--	N/A
Total Employment	341	0.31%	- 4.05% to 4.28%
Local Population	0	%	N/A
Local Off-Base Population	0	0%	- 0.75% to 1.5%

1. Place of work income

Operations Phase

The proposed action will not result in any change in employment or income. Operational expenditures will likely increase somewhat, with accompanying minor long-term benefits to the regional economy. No data on increased operational expenditures is available at this time.

Demographics

No new jobs would be created and population size or make-up would not change. Construction workers are not expected to relocate to the area, but would commute from the surrounding area. Therefore, the proposed action would have no effect on demographics in the ROI.

Community Services

Because population size would not change, there would be no change in demand for most types of community services. During the construction phase, a slight increase in demand for police and emergency medical services is possible, but would likely be minor.

Environmental Justice

Demographic statistics for the census tracts surrounding MLAAP indicate that no minority or low-income population is likely to be disproportionately affected by environmental or health impacts related to the proposed action.

Protection of Children

Children are not normally present on MLAAP and would not be disproportionately exposed to safety environmental health risks or safety risks from the proposed action. Activities in the operational areas would not be a risk to the few older children that may occasionally enter undeveloped areas of MLAAP when public hunting is allowed. The proposed action would not affect public hunting or alter the safety risks associated with hunting activity.

4.9.2.2 No Action Alternative

There would be no change in current conditions under the no action alternative. There would be no short-term increase in construction-related jobs and wages, and no associated increase in local sales of construction-related materials. Therefore, the no action alternative would have no effect on socioeconomics.

4.10 Transportation

4.10.1 Affected Environment

4.10.1.1 Rail and Road Service

The CSX Railroad and Norfolk Southern Railroad both provide service to MLAAP.

MLAAP is bisected by State Highway 104 in the northern third of the installation and bordered to the west by U.S. Highway 45E. U.S. Highways 70 and 79 intersect in Milan along the northwestern boundary of MLAAP.

4.10.1.2 Installation Transportation

Paved roads provide access to all production lines, storage areas, and other major facilities within MLAAP. Gravel and dirt roads provide access to agricultural leases and remote portions of the installation. MLAAP receives service from two major rail lines, CSX and Norfolk Southern, and has approximately 87 miles of rail and a railroad switch yard. Railroad maintenance is performed by East Camden & Highland Railroad (EACH), which is an Army Retooling and Manufacturing Support (ARMS) tenant at MLAAP. EACH also stores approximately 3,500 railcars onsite.

Gibson County Airport, located approximately 6 miles west of the installation, accommodates most of the aviation needs of MLAAP, including small visiting military aircraft. Commercial air passenger service is provided by the Jackson Municipal Airport and by major airports in Memphis and Nashville.

4.10.1.3 Public Transportation

Public transportation is not available in Milan or at MLAAP.

4.10.2 Consequences

4.10.2.1 Proposed Action

Under the proposed action, there would be a slight increased demand for rail services that could easily be accommodated by the infrastructure in place. Because the proposed action would not change the number of personnel at MLAAP, there would be no permanent change in installation traffic or demand for commercial or military air service.

Traffic associated with remodeling of production lines and replacement of utility infrastructure would have a negligible impact on traffic within and in the vicinity of MLAAP. Remodeling-related traffic would increase during construction hours on roads around the construction areas. On MLAAP, it may be necessary to temporarily close sections of roads for construction-related deliveries or utility work. In any instance where a

road would be closed, traffic control procedures, including flaggers and posted detours, would minimize impacts to traffic flow. Any such impacts would be temporary and minor.

Repaving would cause delays that would temporarily inconvenience MLAAP personnel. Traffic control procedures, including flaggers and posted detours, would minimize impacts to traffic flow. Any such impacts would be temporary and minor. Once completed, the repaved roads would improve travel conditions on MLAAP.

Minor short-term impacts to transportation or transportation infrastructure would occur from renovation, paving, and utility infrastructure upgrades. Long-term benefits to traffic flow and transportation infrastructure would result from the repaving.

For these reasons, the proposed action would have a temporary and negligible impact on transportation.

4.10.2.2 No Action Alternative

Under the no action alternative, MLAAP would not remodel any of its facilities to accommodate the relocation of munitions functions. Therefore, the no action alternative would have no effect on transportation or transportation infrastructure.

4.11 Utilities

4.11.1 Affected Environment

4.11.1.1 Potable Water

TDEC Division of Water Supply (DWS) regulates drinking water in Tennessee. MLAAP provides its own potable water and operates under a Public Water System permit (PWSID #0000798). Raw water is treated using pH adjustment, corrosion control, and chlorine disinfection. PWSID #0000798 covers four water production wells: C-5, S-99, T-99, and F-100. Well F-100 is currently inactive. Combined pumping capacity for Wells S-99 and T-99 is 3,744,000 gallons per day. There are two additional inactive wells that are not covered by PWSID #0000798: X-100 and B-100. Historically, Well K-100 operated, but it was destroyed in 1999 by a tornado. MLAAP raw water usage averages approximately 165,000,000 gallons per year (MLAAP, 2000). Raw water usage on MLAAP is less than 15 percent of the capacity of the operational wells.

MLAAP also provides drinking water to four outside customers: the Tennessee Army National Guard at the Lavinia Training Center (located adjacent to MLAAP), and three industries located at former MLAAP G-Line (Worboy's Furniture Sales, Southern Source Industries, and United Ammunition Container) (MLAAP, 2000).

MLAAP has four non-potable well systems used for fire protection and sanitary uses other than drinking.

4.11.1.2 Wastewater System

Because wastewater streams at MLAAP can contain explosive residues, wastewater treatment must occur at the installation. MLAAP operates its own wastewater treatment system. TDEC Division of Water Pollution Control (DWPC) issued MLAAP a National Pollutant Discharge Elimination System (NPDES), Permit #TN0000060 to discharge treated

wastewater. The wastewater system includes six Industrial Wastewater Treatment Plants (IWTPs), one Laundry Wastewater Treatment Plant (LWTP), and a sanitary wastewater treatment plant (WWTP). The IWTPs treat explosive-contaminated process water from munitions assembly. Four of the six IWTPs are active and two are maintained in standby mode. The WWTP functions for sanitary wastewater, treated and untreated process wastewater, non-process wastewater, and cooling water from installation activities. The WWTP also treats wastewater from the National Guard Training Center, United Ammunitions Containers, and Worboys.

The IWTPs and LWTP discharge into MLAAP's sanitary sewer system and receive additional treatment through the WWTP. Ultimate discharge from the WWTP is land-applied to the MLAAP Slow Rate Land Application (Sprayfield) System in such a manner that the treated wastewater does not create a surface discharge. The Sprayfield System is operated in accordance with the terms and conditions of the State of Tennessee Operating Permit, SOP # 01005. MLAAP works to reduce flows to the Sprayfield System by purchasing and installing low- or no-water-use systems where possible.

Historical data indicate that typical untreated MLAAP wastewater is relatively clean, with 5-day biochemical oxygen demand (BOD5) averaging 40 milligrams per liter (mg/L) and total suspended solids (TSS) concentrations averaging 47 mg/L. At MLAAP, the treated effluent is land applied to an area with restricted public access without disinfection, per TDEC guidance criteria 1. The land treatment system achieves zero-discharge (no direct release to surface waters) by controlling the application of effluent to a sufficient total spray field area. Effluent storage is included to prevent accidental surface discharge during periods when conditions (frozen ground or saturated soils) are unsuitable for land application and infiltration.

4.11.1.3 Stormwater System

Stormwater at MLAAP is directed to detention areas or is treated by the MLAAP WWTP. NPDES permit #TN0000060 includes seven storm water outfalls which are monitored on a semi-annual basis.

4.11.1.4 Energy Sources

The Tennessee Valley Authority (TVA) supplies electrical energy to the Milan Department of Public Utilities (DPU). MLAAP purchases electricity from the Milan DPU.

4.11.1.5 Solid Waste

All sanitary waste generated at MLAAP is collected by a refuse contractor and transported to an offsite landfill for disposal. The MLAAP Pollution Prevention Plan provides guidance on waste minimization and recycling as well as on processing and sale of recyclable materials (MLAAP, 2000). Non-hazardous used oil is burned at the onsite steam plate for waste to energy recovery (MLAAP, 2000).

4.11.2 Consequences

4.11.2.1 Proposed Action

Because there would be no change in workforce size or area population, the demand for water supply or domestic wastewater treatment would not change under the proposed

action. There would be no change to stormwater volume or characteristics. Treatment of process water from the LAP lines is expected to increase; however, because two of the six IWTPs are currently in standby mode, the installation has sufficient capacity to accommodate the expected increase in process water flows.

Production of the incoming munitions may increase energy consumption at MLAAP if production lines are operated for longer periods of time. Production line operation may not increase and, if it does, any increase in energy demand would be minor and within the capacity of the existing transmission and delivery system. Building remodeling, utility infrastructure replacement, and repaving would generate minor quantities of construction-related solid waste. Local landfills have capacity to accommodate this waste. Once operational, there would be no increased solid waste production on MLAAP or in the surrounding area. The proposed utility upgrades would be limited to replacing existing deteriorating water and sewer lines and would not result in an increase in demand for utility services.

For these reasons, the proposed action would have a negligible impact on utilities.

4.11.2.2 No Action Alternative

Under the no action alternative, MLAAP would not remodel any of its facilities to accommodate the relocation of munitions functions. Therefore, the no action alternative would have no effect on utilities.

4.12 Hazardous and Toxic Substances

4.12.1 Affected Environment

MLAAP was placed on the National Priorities List (NPL) in July 1987 as a result of waste explosives. Preliminary assessment and site inspection activities conducted at MLAAP identified 25 sites requiring further investigation and subsequent studies expanded the number of sites to 39 (U.S. Army Environmental Command [USAEC], 2006). The Army discovered the explosive compound Royal Demolition Explosive (RDX) in the city of Milan's municipal water supply wells. The installation formed a Restoration Advisory Board (RAB) consisting of representatives of the Army, the City of Milan, EPA, and the State of Tennessee, which completed a contingency plan to ensure that safe drinking water would be available to residents. The city completed a new drinking water well field in 1998 using funds provided by the Army (USAEC, 2006). MLAAP has grouped the sites into five operable units (OUs) and all remedial actions will be in place by 2007 with final cleanup completed by 2015 (MLAAP, 2006).

Most hazardous wastes generated on MLAAP are limited to waste explosives, outdated or damaged ammunition, and munitions components. MLAAP has applied for a Resource Conservation and Recovery Act (RCRA) Part B, Subpart X Permit for Miscellaneous Thermal Treatment and currently operates under interim status. MLAAP has a Hazardous Waste Container Storage Permit (Permit #TNHW052) for 16 hazardous waste storage units.

Explosive, potentially explosive, and explosive-contaminated wastes are thermal treated or OB/OD at the Area W Burning Grounds (BG) and the ADA. The amount of material disposed of in this manner is contingent on weather conditions and permit limits. The

MLAAP permit from DAPC restricts open burning to the hours between 6:00 A.M. and 7:30 P.M., 7 days per week (MLAAP, 2000).

The facility maintains quantities of cleaning fluids and solvents sufficient for routine cleaning and maintenance. The Motor Pool maintains petroleum products and solvents for routine maintenance of vehicles and equipment.

Many of the existing structures contain asbestos because of their age. MLAAP implements an Asbestos Management Plan for the proper management of asbestos-containing materials at the installation.

4.12.2 Consequences

4.12.2.1 Proposed Action

Many of the new munitions transferred to MLAAP would be produced using insensitive explosives and components. An insensitive munition (IM) performs as intended but is less prone to violent reaction (detonation) when subjected to impact from bullets and fragments, extreme heat, and proximate explosions (U.S. Army, 2002). IMs are designed not to detonate under any condition other than their intended use to destroy a target. This results in increased safety at all levels including preparation, packaging, storing, handling, and military use. In addition to safety, the military is moving away from trinitrotoluene (TNT) explosives because there are no producers of TNT in the continental United States (Global Security, 2006). The shift from sensitive to insensitive munitions production and storage at MLAAP will result in a direct increase in safety to facility workers and an indirect increase in safety to the community through increased safety in the transport of weapons and weapons components.

Hazardous waste streams and materials would be generated from the incoming munitions functions. MLAAP has produced the 155 MM ICM Artillery as well as the 81 MM and 120 MM Mortar functions in the past. MLAAP currently produces the 60 MM Mortars. The production levels at MLAAP for the incoming munitions would be determined on a contractual basis.

At present, typical production of 60MM mortar rounds at Kansas AAP is 10,000 per month (Bret Raines Kansas AAP, personal communication on 17 October 2006). The explosive component is PAX-21, an insensitive explosive that will be used as a replacement for Compound B. Two rounds would be produced, the M768 mortar and the M720A1 mortar. The M768 uses an M783 Fuze and the M720A1 uses an M734A1 Fuze (Bret Raines Kansas AAP, personal communication on 17 October 2006). The waste materials generated by anticipated production of 60MM mortars at MLAAP are provided in Table 4-12.

TABLE 4-12
Annual Waste Material Production for 60MM Mortar Rounds
MLAAP BRAC Environmental Assessment

Waste Component	Annual Waste Production
Pax-21 Wet Sumpage	2,155 pounds solid waste
Outdoor Burn Residue – PAX-21 Wet Sumpage	75 pounds solid waste
PAX-21 Dry Sumpage	107 pounds solid waste
P2, Degreaser, and Water	125 pounds liquid waste
Scrap Propellant Charge M235 Explosive Residue	4.5 pounds solid waste
Support Assemblies, Fuel Propellant Charges	58 Items
Propellant Charge – 60MM, M235	97 Items
Spent Carbon	Approximately 5,500 pounds ^a
Pink Water Spill Residue	Approximately 1,300 pounds ^b
Spent Aerosol Cans	Approximately 100 pounds ^c
Paint Chips	Approximately 100 pounds ^d

^a 15, 640 pounds solid waste total facility production, exact contribution of 60 MM mortar is unknown

^b 3, 900 pounds solid waste total facility production, exact contribution of 60 MM mortar is unknown

^c 300 pounds solid waste total facility production, exact contribution of 60 MM mortar is unknown

^d 280 pounds solid waste total facility production, exact contribution of 60 MM mortar is unknown

Data provided by Bret Raines Kansas AAP, personal communication, 17 October 2006

PAX-21 has been found to be comparable in toxicity and health risk to Compound B, which it is replacing, and a comparable exposure level has been recommended (Dodd and McDougal, 2002). Therefore, no increased risk of direct or indirect health effects to workers is anticipated from the use of PAX 21 explosives at MLAAP.

Wastes associated with the other incoming functions primarily include RDX, primer mixes, and various propellant charges. All hazardous waste generated by the incoming munitions functions would be handled, stored, and disposed in accordance with all applicable environmental regulations and with all hazardous materials management plans implemented at MLAAP. All pertinent hazardous materials management plans implemented at the installation would be updated as needed to include the new wastes associated with the incoming munitions functions. The MLAAP RCRA Hazardous Waste Management Permit would be modified to include all the hazardous wastes that would be generated by the incoming munitions.

Under the proposed action, renovation work would be confined to existing structures and associated building grounds. Remodeling waste would be collected, recycled to extent practicable, and disposed of at appropriate off-post facilities. Remodeling would include passive ventilation to prevent capture of hazardous gases.

For these reasons, any impacts associated with hazardous and toxic substances that the proposed action may have would be minor. There would be a moderate positive benefit to worker safety resulting from the switch to insensitive explosives.

4.12.2.2 No Action Alternative

Under the no action alternative, MLAAP would not remodel any of its facilities to accommodate the relocation of munitions functions. There would be no change in current use and handling of hazardous materials on MLAAP. Therefore, the no action alternative would have no effect on or from hazardous or toxic substances.

4.13 Cumulative Effects

A “cumulative impact” is defined in 40 CFR 1508.7 as “the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions.” Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

4.13.1 Proposed Action

Under the proposed action, remodeling LAP lines, repaving roads, and replacing water/sewer infrastructure at MLAAP would have very little potential to interact with past, present, or reasonably foreseeable outside actions or with future actions that may occur at MLAAP. Operation of the remodeled facilities would also have very little potential to interact with projects occurring outside MLAAP and with other projects on MLAAP. There would be no change in workforce or regional population. MLAAP staff would continue to interface with the community in the same manner. Any cumulative impacts with projects in the region would be negligible.

The proposed action would have some minor positive cumulative effects on the local economy resulting from short-term, temporary increases in employment and expenditures during construction. Because the proposed action would allow MLAAP to better accommodate the incoming munitions functions, it would have a positive cumulative effect on the mission of MLAAP and that of the U.S. Army.

4.13.2 No Action Alternative

Under the no action alternative, MLAAP would not remodel any of its facilities to accommodate the relocation of munitions functions. There would be no potential for interaction with other past, present, or reasonably foreseeable non-military projects in the region. Without remodeling its facilities, MLAAP would not be able to sufficiently comply with the 2005 BRAC Commission’s recommendations. The inability of MLAAP to accommodate the incoming munitions functions has the potential to negatively affect other functions at MLAAP and result in adverse cumulative impacts on the overall mission of the installation and that of the U.S. Army.

5.0 Conclusions

Table 5-1 summarizes the consequences of the proposed action and the no action alternative.

5.1 Consequences of the Proposed Action

The proposed action would have minor beneficial short-term impacts to the area economy. These benefits would end when renovation of MLAAP was completed.

Impacts to the natural environment would be temporary and negligible. During renovation, there would be *de minimus* increases in air emissions and construction-related noise. Any changes to topography would be limited to areas immediately adjacent to existing buildings. Soil disturbance would be limited to areas around existing buildings and along existing roadways and utility corridors, where soils have been previously disturbed. Use of appropriate BMPs, as discussed above, would minimize the potential for erosion and surface water impacts from renovation and repaving activities. Impacts to wildlife would be limited to temporary displacement from construction activities. There is very little potential for the proposed action to interact with other past, present, and reasonably foreseeable actions.

5.2 Consequences of the No Action Alternative

The no action alternative would not result in any significant impacts to the resources evaluated in this EA. However, without remodeling its facilities, MLAAP would not be able to sufficiently comply with the 2005 BRAC Commission's recommendations. The inability of MLAAP to accommodate the incoming munitions functions has the potential to impact the overall mission of the installation and that of the U.S. Army.

5.3 Conclusions

Based on the findings of this EA, the proposed action would not result in significant adverse direct, indirect, or cumulative impacts to any environmental, cultural, physical, or socioeconomic resource. No mitigation measures have been determined to be necessary. Therefore, an Environmental Impact Statement will not be prepared and a FNSI is warranted for the proposed action.

TABLE 5-1
 Summary of Potential Environmental and Socioeconomic Consequences
 MLAAP BRAC Environmental Assessment

Resource	Environmental and Socioeconomic Consequences	
	No Action	Proposed Action
Land Use	No Effect	No Effect
Air Space Use	No Effect	No Effect
Air Quality	No Effect	Negligible impact: <i>De minimus</i> construction related fugitive dust associated with remodeling and water/sewer repair/replacement that will be controlled through appropriate BMPs. <i>De minimus</i> emissions of VOCs, PAHs, and particulate matter from repaving activities.
Noise	No effect	Negligible impact: Temporary construction-related noise: appropriate worker safety measures would be implemented; only intermittent nuisance exposure to potentially sensitive receptors; no long-term effects from operation. Use of facilities would generate noise levels similar to those currently generated.
Geology and Soils		
Geology/Topography	No Effect	Negligible impact: Minor topographic alteration of previously cleared and graded sites through grading for site preparation for remodeling and paving.
Soils	No Effect	Negligible impact: Grading would be limited to already disturbed soils; appropriate BMPs and construction stormwater controls (to include but not limited to silt fencing, detention and flow dispersion structures, and reseed/mulching) would be implemented to minimize erosion and impact from stormwater runoff.
Prime Farmland	No Effect	No Effect
Water Resources		
Surface Water	No Effect	Negligible impact: Use of appropriate BMPs and construction stormwater controls (to include but not limited to silt fencing, detention and flow dispersion structures, and reseed/mulching) would prevent impacts to surface waters from construction activities; no increase in impervious surface area so no increase in post-construction stormwater runoff.
Hydrogeology/Groundwater	No Effect	No Effect

TABLE 5-1
 Summary of Potential Environmental and Socioeconomic Consequences
 MLAAP BRAC Environmental Assessment

Resource	Environmental and Socioeconomic Consequences	
	No Action	Proposed Action
Floodplains	No Effect	No Effect
Wetlands	No Effect	No Effect
Stormwater	No Effect	Negligible impact: Use of appropriate BMPs and construction stormwater controls (to include but not limited to silt fencing, detention and flow dispersion structures, and reseeded/mulching) would prevent impacts to surface waters from construction activities; no increase in impervious surface area so no increase in post-construction stormwater runoff.
Biological Resources		
Vegetation	No Effect	Negligible impact: Grading would be limited to already disturbed areas.
Wildlife	No Effect	Negligible impact: Potential temporary displacement of some species during repaving and utility repair activities.
Migratory Bird Species of Conservation Concern	No Effect	No Effect
Sensitive Species	No Effect	No Effect
Cultural Resources		
Historic Resources	No Effect	Negligible impact: Alterations limited to interior remodeling on non-contributing structures and construction of new loading ramps.
Archeological Resources	No Effect	No Effect
Native American Resources	No Effect	No Effect
Socioeconomics		
Economic Development	No Effect	Short-term, benefit from construction-related jobs and materials purchases; no long term impact.

TABLE 5-1
 Summary of Potential Environmental and Socioeconomic Consequences
 MLAAP BRAC Environmental Assessment

Resource	Environmental and Socioeconomic Consequences	
	No Action	Proposed Action
Demographics	No Effect	No Effect
Housing/Quality of Life	No Effect	No Effect
Environmental Justice	No Effect	No Effect
Protection of Children	No Effect	No Effect
Recreation	No Effect	No Effect
Transportation	No Effect	Negligible impact: Temporary and localized disruption from repaving activities; activity would be timed to avoid shipments of supplies and assembled weapons and to avoid peak traffic at the start and end of work shifts.
Utilities		
Potable Water	No Effect	No Effect
Wastewater	No Effect	Negligible Impact: The demand for domestic wastewater treatment would not change. Treatment of process water from the LAP lines is expected to increase; however, the installation has sufficient capacity to accommodate the expected increase in process water flows.
Energy	No Effect	No Effect
Solid Waste	No Effect	Negligible impact: Generation of typical construction wastes that would be within the capacity of local and regional waste disposal facilities.
Hazardous and Toxic Substances	No Effect	Negligible impact: All hazardous waste generated by the incoming munitions functions would be handled, stored, and disposed in accordance with all applicable environmental regulations and with all hazardous materials management plans implemented at MLAAP.

TABLE 5-1
 Summary of Potential Environmental and Socioeconomic Consequences
MLAAP BRAC Environmental Assessment

Resource	Environmental and Socioeconomic Consequences	
	No Action	Proposed Action
Indirect and Cumulative Impacts	MLAAP would not be able to sufficiently comply with the 2005 BRAC Commission's recommendations. The inability of MLAAP to accommodate the incoming munitions functions has the potential to negatively affect other functions at MLAAP and result in adverse cumulative impacts on the overall mission of the installation and that of the U.S. Army	Negligible impact: construction and operation limited to secured portion of MLAAP; no change in workforce or population; little potential to interact with actions occurring on or outside of installation.

6.0 List of Preparers

Beverly Sanders/Technical Editor/ 20 years of experience/Bachelor of Science

Collin Horace/GIS Analyst/5 years of experience/Bachelor of Science

Rich Reaves/Environmental Scientist/13 years of experience/PhD.

Rob Price/Environmental Scientist/9 years of experience/Master of Science; Master of Public Affairs

Russell Short/Senior Project Manager/28 years of experience/Master of Arts

Tunch Orsoy/Project Manager/16 years of experience/Master of Science

Kira Zender/Senior Planner/10 years of experience/Master of Urban and Regional Planning

7.0 Distribution List

Jonathan Bowman U.S. Army Corps of Engineers – Mobile District

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9.0 Persons Consulted

Paul Higgs, MLAAP

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Bret Raines, KSAAP

Dave Self, Lone Star AAP

10.0 Acronyms

AAP	Army Ammunitions Plant
ACHP	Advisory Council on Historic Preservation
ADA	Ammunitions Destruction Area
AIRFA	American Indian Religious Freedom Act
AO	American Ordnance, LLC
ARMS	Army Retooling and Manufacturing Support
ARPA	Archaeological Resources Protection Act
BCC	Bird Species of Conservation Concern
BG	Burning Grounds
BMP	Best Management Practice
BOD5	5 day biochemical oxygen demand
BRAC	Base Realignment And Closure
CEQ	President's Council on Environmental Quality
CERL	Construction Engineering Research Laboratory
CFR	Code of Federal Regulations
Commission	2005 BRAC Commission
DAPC	Division of Air Pollution Control
dBA	A-weighted decibel level
DoD	Department of Defense
DPU	Department of Public Utilities
DWS	Division of Water Supply
DWPC	Division of Water Pollution Control
EA	Environmental Assessment
EACH	East Camden and Highland Railroad
EIFS	Economic Impact Forecast System
EPA	U.S. Environmental Protection Agency
EO	Executive Order
ERP	Environmental Restoration Program
FAA	Federal Aviation Agency
FNSI	Finding of No Significant Impact
GIS	Geographic Information Systems
GWTP	Groundwater Treatment Plant
ICUZ	Installation Compatible Use Zone
ICM	Improved Conventional Munition
ICRMP	Integrated Cultural Resources Management Plan
IM	Insensitive Munition
IWTP	Industrial Waste Treatment Plant
LAP	Load, Assemble and Pack
LWTP	Laundry Waste Treatment Plant
MBTA	Migratory Bird Treaty Act
$\mu\text{g}/\text{m}^3$	micrograms per cubic meter
mg/L	milligrams per liter
MLAAP	Milan Army Ammunition Plant

MLRS	Multiple Launch Rocket System
MM	millimeter
NAAQS	National Ambient Air Quality Standards
NABCI	North American Bird Conservation Initiative
NAGPRA	Native American Graves Protection and Repatriation Act
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NOI	Notice of Intent
NPS	National Priorities List
NRHP	National Register of Historic Places
OB	Open Burning
OD	Open Detonation
OMS	Organization Maintenance Shop
OSHA	Occupational Safety and Health Agency
OU	Operating Unit
PAH	Polycyclic Aromatic Hydrocarbon
PM	Particulate Matter
ppm	parts per million
PWSID	Public Water System Permit
RAB	Restoration Advisory Board
RCRA	Resource Conservation and Recovery Act
RDX	Royal Demolition Explosive
ROI	Region of Influence
RTV	Rational Threshold Value
SHPO	State Historic Preservation Officer
TDEC	Tennessee Department of Environment and Conservation
TNT	Trinitrotoluene
TSS	Total Suspended Solids
TVA	Tennessee Valley Authority
USACE	U.S. Army Corps of Engineers
USAEC	U.S. Army Environmental Command
USFWS	U.S. Fish and Wildlife Service
UT	University of Tennessee
VOC	Volatile Organic Compound
WWTP	Wastewater Treatment Plant

Appendix A
Agency Scoping

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#0073

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NOV 20 2006

November 14, 2006

Mr. Jim Widlak
Cookeville Ecological Services Field Office
U.S. Fish and Wildlife Service
446 Neal Street
Cookeville, TN 38501

Subject: BRAC Environmental Assessment (EA) at Milan Army Ammunition Plant, Tennessee

Dear Mr. Widlak:

CH2M HILL is currently assisting for Milan Army Ammunition Plant (MLAAP) with preparation of an Environmental Assessment (EA) to address potential environmental and socioeconomic impacts of actions recommended under the 2002 Base Closure and Realignment law (commonly referred to as BRAC). Specifically, the Kansas Army Ammunition Plant (AAP) will be closed and the 155MM Improved Conventional Munition (ICM) Artillery and 60MM, 81MM and 120MM Mortar functions will be transferred from Kansas AAP to MLAAP, TN. In addition, the Lone Star AAP in Texas will be closed and the 105MM and 155MM ICM Artillery, Multiple Launch Rocket System (MLRS) Artillery, Hand Grenades, 60 MM and 81 MM Mortar functions will be relocated to MLAAP. Work that would be done at MLAAP would include:

- Remodeling the interiors of certain buildings on MLAAP
- Adding new loading ramps to certain buildings on MLAAP
- Repaving existing roads serving the production area on MLAAP
- Repairing or replacing water/wastewater lines serving the production area on MLAAP

No previously undisturbed areas would be affected by this work. This letter is being sent as part of the agency scoping for the EA. This letter requests your input with regard to any issues of concern to the U.S. Fish and Wildlife Service (USFWS) relevant for consideration in the NEPA analysis. This letter is not a request for consultation with the USFWS. Any consultation that may be required as a result of the proposed project would be handled directly by MLAAP. If you have any questions please give me a call at 770-604-9182 ext 270.

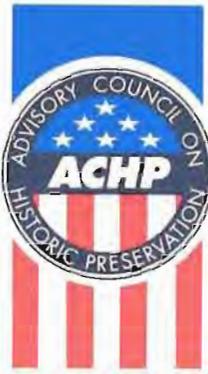
Sincerely,

CH2M HILL

Rich Reaves
Rich Reaves

No significant adverse impacts to wetlands or federally listed endangered or threatened species are anticipated from this proposal.

Lois Barclay 11/28/06
Field Supervisor Date
U.S. Fish & Wildlife Service
Cookeville, TN



Preserving America's Heritage

**PROGRAM COMMENT FOR
WORLD WAR II AND COLD WAR ERA (1939 – 1974)
ARMY AMMUNITION PRODUCTION FACILITIES AND PLANTS**

I. Introduction

This Program Comment provides the Department of the Army (Army) with an alternative way to comply with its responsibilities under Section 106 of the National Historic Preservation Act with regard to the effect of the following management actions on World War II (WWII) and Cold War Era Army Ammunition Production Facilities and Plants that may be eligible for listing on the National Register of Historic Places (Facilities and Plants): ongoing operations, maintenance and repair, rehabilitation, renovation, mothballing, cessation of maintenance, new construction, demolition, deconstruction and salvage, remediation activities, and transfer, sale, lease, and closure of such facilities.

In order to take into account the effects on Facilities and Plants, the Army will conduct documentation in accordance with The Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation.

II. Treatment of Properties

A. Army Mitigation

1. The Army has an existing context study, Historic Context for the World War II Ordnance Department's Government-Owned Contractor-Operated (GOCO) Industrial Facilities 1939-1945 as well as documentation of nine World War II GOCO Plants.

2. The Army will prepare a supplemental volume that revises and expands the existing context to include the Cold War Era (1946-1974). The updated context study will:

focus on the changes that the plants underwent to address changing weapons technology and defense needs; and

identify prominent architect-engineer firms that may have designed architecturally significant buildings for Army Ammunition Plants.

3. The Army will prepare documentation that generally comports with the appropriate HABS/HAER standards for documentation for selected architecturally significant Facilities and Plants at two installations. This documentation will be similar to and follow the format of the existing documentation described in section II.A.1, above.

ADVISORY COUNCIL ON HISTORIC PRESERVATION

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4. Upon completion of the documentation, the Army will then make the existing documentation of the nine WWII GOCO Army Ammunition Plants and the WWII GOCO context and the new documentation, to the extent possible under security concerns, available in electronic format to Federal and State agencies that request it.

5. In addition, as a result of on-going consultations with stakeholders, the Army will provide a list of properties covered by the Program Comment, by state, to the National Conference of State Historic Preservation Officers and the Advisory Council on Historic Preservation.

6. The Army will also develop additional public information on the Army ammunition process, from production through storage, to include:

a display that can be loaned to one of the Army's museums, such as the Ordnance Museum at Aberdeen Proving Ground, or used at conferences; and

a popular publication on the ammunition process to accompany the display.

Copies of this information will be available electronically, to the extent possible under security concerns, and hard copies will be placed in a permanent repository, such as the Center for Military History.

7. The Army will encourage adaptive reuse of the properties as well as the use of historic tax credits by private developers under lease arrangements. The Army should also incorporate adaptive reuse and preservation principles into master planning documents and activities.

The above actions satisfy the Army's requirement to take into account the effects of the following management actions on Facilities and Plants: ongoing operations, maintenance and repair, rehabilitation, renovation, mothballing, cessation of maintenance activities, new construction, demolition, deconstruction and salvage, remedial activities, and transfer, sale, lease and/or closure of such facilities.

III. Applicability

A. This Program Comment applies solely to Facilities and Plants. The Program Comment does not apply to the following properties that are listed, or eligible for listing, on the National Register of Historic Places: (1) archeological properties, (2) properties of traditional religious and cultural significance to federally recognized Indian tribes or Native Hawaiian organizations, and/or (3) Facilities and Plants listed or eligible National Register of Historic Places districts where the ammunition production facility is a contributing element of the district and the proposed undertaking has a potential to adversely affect such historic district. This third exclusion does not apply to ammunition production related historic districts that are entirely within the boundaries of an ammunition production plant. In those cases the Program Comment would be applicable to such districts.

B. An installation with an existing Section 106 agreement document that addresses Facilities and Plants can choose to:

1. continue to follow the stipulations in the existing agreement document for the remaining period of the agreement; or

2. seek to amend the existing agreement document to incorporate, in whole or in part, the terms of this Program Comment; or

3. terminate the existing agreement document and re-initiate consultation informed by this Program Comment, if necessary.

C. All future Section 106 agreement documents developed by Army installations related to undertakings and properties addressed in this Program Comment shall include appropriate provisions detailing whether and how the terms of the Program Comment apply to such undertakings.

IV. Completion Schedule

On or before 60 days following issuance of the Program Comment, the Army and ACHP will establish a schedule for completion of the treatments outlined above.

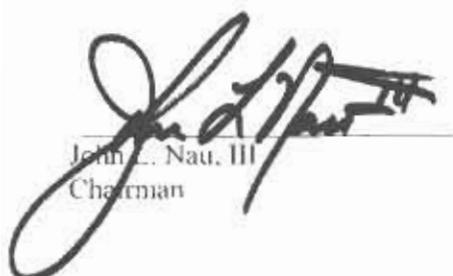
V. Effect of the Program Comment

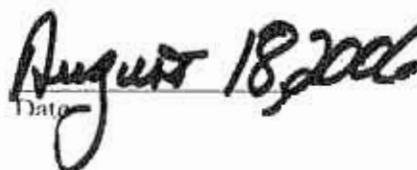
By following this Program Comment, the Army has met its responsibilities for compliance under Section 106 regarding the effect of the following management actions on WWII and Cold War Era Army Ammunition Production Facilities and Plants that may be eligible for listing on the National Register of Historic Places: ongoing operations, maintenance and repair, rehabilitation, renovation, mothballing, cessation of maintenance, new construction, demolition, deconstruction and salvage, remediation activities, and transfer, sale, lease, and closure of such facilities. Accordingly, the Army will no longer be required to follow the case-by-case Section 106 review process for such effects.

VI. Duration and Review of the Program Comment

This Program Comment will remain in effect until such time as Headquarters, Department of the Army determines that such comments are no longer needed and notifies ACHP in writing, or ACHP withdraws the comments in accordance with 36 CFR § 800.14(e)(6). Following such withdrawal, the Army would be required to comply with the requirements of 36 CFR §§ 800.3 through 800.7 regarding the effects under this Program Comments' scope.

Headquarters, Department of the Army and ACHP will review the implementation of the Program Comment seven years after its issuance and determine whether to take action to terminate the Program Comment as detailed in the preceding paragraph.


John L. Nau, III
Chairman


Date

Tennessee SHPO

Final Comment Correspondence

EA for Implementation of BRAC Actions at Milan Army Ammunition Plant, Tennessee

The following correspondence is the final comment from the Tennessee SHPO on the EA. The text of the EA has been revised accordingly and the referenced ACHP Program Comment has been attached.

From: Joseph Garrison [mailto:Joseph.Garrison@state.tn.us]
Sent: Monday, February 05, 2007 1:39 PM
To: Seckinger, Ernest W Jr SAM
Cc: Richard Tune
Subject: Re: Army Ammunition Program Comments relative to Milan AAP (UNCLASSIFIED)

Ernie-

We currently have ratified programmatic agreements that cover the historic properties enumerated in the program comments you sent me for the following DOD installations in Tennessee:

Ft. Campbell	-	1998/2004
Holston AAP	-	1993
Milan AAP	-	1990

We find that DOD installations have been compliant under these agreement documents for World War II And Cold War Era (1939 -1974) Army Ammunition Production Facilities And Plants.

The Tennessee SHPO will continue to operate within the stipulations enumerated in these agreement documents and re-negotiate stipulations with the various installations using normal 36 CFR Part 800 consultation whenever the need arises.

Thanks for the opportunity to comment.

Joseph Y. Garrison, PhD
Review and Compliance Coordinator
Tennessee Historical Commission
2941 Lebanon Road
Nashville, Tennessee
37243-0442

From: Seckinger, Ernest W Jr SAM [mailto:Ernest.W.Seckinger.Jr@sam.usace.army.mil]
Sent: Tuesday, December 12, 2006 12:25 PM

To: Joseph.Garrison@state.tn.us

Cc: Reaves, Richard/ATL; Robison, Neil D SAM

Subject: Army Ammunition Program Comments relative to Milan AAP (UNCLASSIFIED)

Classification: **UNCLASSIFIED**

Caveats: NONE

<<program_comment_Army-Ammo-18Aug06[1].pdf>>

Joe,

See attached. Please do not hesitate to call if you have questions. I hope to include language to this effect in the comment response matrix relative to your letter concerning BRAC 2005 actions at Milan AAP:

"Comment noted. Further discussions with the TN SHPO reached agreement that the ACHP Program Comments for World War II and Cold War Ammunition Storage Facilities and the ACHP Program Comments for World War II and Cold War Army Ammunition Production Facilities and Plants cover related buildings at Milan AAP."

Ernie Seckinger

Archeologist

BRAC NEPA Support Team

US Army Corps of Engineers

Mobile District

CESAM-PD-M

PO Box 2288

Mobile, AL 36628-0001

(251) 694-4107 Voice

(251) 406-0517 Cell

(251) 690-2727 Fax

ernie.seckinger@us.army.mil



November 22, 2006

TENNESSEE HISTORICAL COMMISSION
DEPARTMENT OF ENVIRONMENT AND CONSERVATION
2941 LEBANON ROAD
NASHVILLE, TN 37243-0442
(615) 532-1550

Mr. Rich Reaves
CH2M HILL
115 PerimeterCenter PI/700
Atlanta, Georgia, 30346-1278

RE: DOD, MAAP/BRAC RELATED PROJECTS, MILAN, GIBSON COUNTY

Dear Mr. Reaves:

In response to your request, received on Friday, November 17, 2006, we have reviewed the documents you submitted regarding your proposed undertaking. Our review of and comment on your proposed undertaking are among the requirements of Section 106 of the National Historic Preservation Act. This Act requires federal agencies or applicant for federal assistance to consult with the appropriate State Historic Preservation Office before they carry out their proposed undertakings. The Advisory Council on Historic Preservation has codified procedures for carrying out Section 106 review in 36 CFR 800. You may wish to familiarize yourself with these procedures (Federal Register, December 12, 2000, pages 77698-77739) if you are unsure about the Section 106 process.

Considering available information, we find that the project as currently proposed MAY ADVERSELY AFFECT PROPERTIES THAT ARE ELIGIBLE FOR LISTING IN THE NATIONAL REGISTER OF HISTORIC PLACES. You should now begin immediate consultation with our office. Please direct questions and comments to Joe Garrison (615) 532-1550-103. We appreciate your cooperation.

Sincerely,

Richard G. Tune
Deputy State Historic
Preservation Officer

RGT/jyg

Appendix B
Public Involvement

PUBLISHER'S AFFIDAVIT
The Jackson Sun
JACKSON, TENN.

State of Tennessee, }
 County of Madison } ss:

Before me, a notary public for the state and county aforesaid, personally appeared Jud Putna who, being duly sworn, deposed and says: that he/she is the classified advertiser of The Jackson Sun, a daily newspaper published in the City of Jackson, County and state aforesaid, and that the advertisement of CH2M Hill was published in said paper 1 times, to-wit:

Date	Size	Position	Number of Headline of Copy
2/20/07	3c	Legal	acct # 300946
			ad # CA 12339
			Public Notice

Jud Putna
 (Signature of Newspaper Representative)



Sworn to and subscribed before me this 20 day of Feb A.D. 07

IN TESTIMONY WHEREOF, I have hereunto set my hand and seal the day and year aforesaid.

Diane Davis
 (Notary Public)

My Commission expires 9/23/08

PUBLIC NOTICE

Milan Army Ammunition Plant (MLAAP) has prepared an Environmental Assessment (EA) that evaluates potential environmental and socioeconomic impacts associated with implementation of base realignment and closure requirements. Specifically, these requirements involve the 1) relocation of the 155 millimeter (MM) Improved Conventional Munition (ICM) artillery and 60MM, 81MM and 120MM mortar functions from Kansas Army Ammunition Plant (AAP) to MLAAP and 2) relocation of 105MM and 155MM ICM artillery, Multiple Launch Rocket System (MLRS) artillery, hand grenades, and 60MM and 81MM mortar functions from Lone Star AAP in Texas to MLAAP. The decision to proceed with the proposed activities is documented in a Draft Finding of No Significant Impact (FNSI). All interested persons are invited to submit written comments for consideration by MLAAP by March 22, 2007. Copies of the EA and Draft FNSI are available on the BRACD website at http://www.hqda.army.mil/acsim/brac/env_ea_review.htm, and at Mildred G. Fields Library, 1075A East Van Hook Street, Milan, Tennessee 38358. Please direct any questions or comments to Mr. Paul Higgs, Environmental Coordinator, 2280 Highway 104, Suite 1, MLAAP, Milan, Tennessee. (731)686-6614. paul.a.higgs@us.army.mil.

CA12339

PUBLICATION AFFIDAVIT

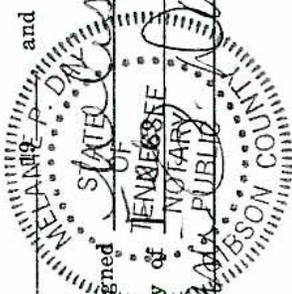
STATE OF TENNESSEE)
COUNTY OF GIBSON) Public Notice
Personally appeared before me, a Notary Public in and for said County and state Melissa West

who deposes and swears that she is bookkeeper of the Milan Mirror, a newspaper published in the Town of Milan, Tenn., and that the notice, a copy of which is attached hereto, was published in the said Milan Mirror for _____ consecutive weeks, the first publication being on the 20 day of

Feb. 16 1907; the second publication the _____ day of _____ 19____;

the third publication the _____ day of _____ and the fourth publication the _____ day of _____ 19____.

Signed _____
day of _____ 1907.
Sworn to and subscribed before me this 20 day of _____, Notary Public



PUBLIC NOTICE

Milan Army Ammunition Plant (MLAAP) has prepared an Environmental Assessment (EA) that evaluates potential environmental and socioeconomic impacts associated with implementation of base realignment and closure requirements. Specifically, these requirements involve the 1) relocation of the 155 millimeter (MM) Improved Conventional Munition (ICM) artillery and 60MM, 81MM and 120MM mortar functions from Kansas Army Ammunition Plant (AAP) to MLAAP and 2) relocation of 105MM and 155MM ICM artillery, Multiple Launch Rocket System (MLRS) artillery, hand grenades, and 60MM and 81MM mortar functions from Lone Star AAP in Texas to MLAAP. The decision to proceed with the proposed activities is documented in a Draft Finding of No Significant Impact (FNSI). All interested persons are invited to submit written comments for consideration by MLAAP by March 22, 2007. Copies of the EA and Draft FNSI are available on the BRACD website at [http://www.bracd.army.mil](#), and at Mildred G. Fields Library, 1075A East Van Hook Street, Milan, Tennessee 38358. Please direct any questions or comments to Mr. Paul Higgs, Environmental Coordinator, 2280 Highway 104, Suite 1, MLAAP, Milan, Tennessee . (731) 686-6614.

Appendix C

Results of EIFS Model

APPENDIX B

ECONOMIC IMPACT FORECAST SYSTEM

THE NEED FOR SOCIOECONOMIC IMPACT ASSESSMENT

Assessing socioeconomic impacts that result from Army actions can be one of the more controversial issues related to the realignment or closure of an installation. The economic and social well-being of a local community can be dependent upon the activities of the installation, and disruptions to the status quo can become politically charged and emotion-laden. The objective of a socioeconomic analysis of Army actions is an open, realistic, and documented assessment of the potential effects.

The requirement to assess socioeconomic impacts in environmental assessments (EAs) or environmental impact statements (EISs) has been a source of legal discussion since the passage of the National Environmental Policy Act (NEPA). Although NEPA is predominately oriented toward the biophysical environment, court decisions have supported the need for analyzing socioeconomic impacts when they are accompanied by biophysical impacts.

THE ECONOMIC IMPACT FORECAST SYSTEM

The U.S. Army developed the Economic Impact Forecast System (EIFS) with the assistance of many academic and professional economists and regional scientists to address the economic impacts pursuant to NEPA and to measure the significance of the impacts. As a result of its designed applicability, and in the interest of uniformity, the Assistant Secretary of the Army (Installations, Logistics, and Environment) (ASA [IL&E]) mandates using EIFS in the NEPA assessment of base realignment and closure recommendations. EIFS is designed for the scrutiny of a populace affected by the actions being studied. The algorithms in EIFS are simple and easy to understand, but still have firm, defensible bases in regional economic theory.

EIFS, in its current form, exists as a World Wide Web-based application. The application resides on a Web server hosted by the US Army Corps of Engineers, Mobile District. The EIFS model is available to U.S. government employees, contractors, and other people who have an approved login and password. Military planners, analysts and their contractors are authorized to access the EIFS application for the purpose of preparing the 2005 Base Realignment and Closure Act (BRAC) National Environmental Policy Act (NEPA) documentation.

As currently configured, EIFS provides:

- Selected statistics about the socioeconomic characteristics of any county or any multi-county area in the United States, including metropolitan statistical areas, and planning commission regions.
- An analytical process for estimating the magnitude and significance of potential socioeconomic effects of proposed military activities in these areas.

THE EIFS IMPACT MODEL

The basis of the EIFS analytical capabilities is the calculation of multipliers that are used for estimating the impacts resulting from Army-related changes in local expenditures and employment. In calculating the multipliers, EIFS uses the economic base model approach that relies on the ratio of total economic activity to “basic” economic activity. Basic, in this context, is defined as the production or employment engaged to supply goods and services outside the ROI or by federal activities (such as military installations and their employees). According to economic base theory, the ratio of total income to basic income is measurable (as the multiplier) and sufficiently stable so that future changes in economic activity can be forecast. This technique is especially appropriate for estimating “aggregate” impacts and makes the economic base model ideal for the EA/EIS process.

The multiplier is interpreted as the total impact on the economy of the region resulting from a unit change in its basic sector; for example, a dollar increase in local expenditures due to an expansion of a military installation. EIFS estimates its multipliers using a “location quotient” approach, which is based on the concentration of industries within the region relative to the industrial concentrations for the nation.

The EIFS model produces output that includes:

- Change in total sales by local businesses
- Change in total income
- Change in total employment
- Change in total population
- The significance of these changes

THE SIGNIFICANCE OF SOCIOECONOMIC IMPACTS

Once model projections are obtained, the rational threshold values (RTV) enable the user to evaluate the significance of the impacts. This analytical tool shows the historical trends for the defined region and develops measures of local historical fluctuations in sales volume, employment, income, and population. The evaluation identifies a range of positive and negative changes, within which a project can affect the local economy without creating a significant impact.

The techniques have two major strengths: (1) they are specific to the region under analysis and (2) they are based on actual historical time series data for the defined region. The use of the EIFS impact model in combination with the RTV has proven very successful in addressing perceived socioeconomic impacts. The EIFS model and the significance-measuring techniques are theoretically sound and have been reviewed on numerous occasions.

RTVs are positive and negative percent changes that establish an acceptable range around the maximum historic percentage fluctuations in the ROI. The average yearly decreases or increases in the ROI are obtained by analyzing regional data for the last 16 to 19 years, depending on data availability. For each variable (sales volume, employment, income, and population), the current time-series data available from the U.S. Bureau of Economic Analysis (BEA) for the ROI is used. The average annual change is calculated as the

difference between the first and last observations in the particular data set, divided by the number of years in the time series (see RTV tables, following). The maximum percent positive and negative deviations from that average are the basis for the RTVs.

Negative RTVs are percentages of the maximum negative deviations. These percentages are weighted to reflect the severity of potential impacts on individuals. Population changes are the most heavily weighted, at 50 percent, followed by employment and personal income changes (67 percent); changes in sales volume receive the least weight (75 percent). Using population as an example, if the greatest historic negative deviation from the annual average population change in the ROI was -0.952 percent, a population decrease of more than half of that (-0.476 percent) would be considered significant.

Positive RTVs represent the maximum positive historical fluctuation in the ROI, because of the generally positive connotations of economic growth. If the maximum historic positive deviation from annual average employment growth was 2.368 percent, an increase of more than 2.368 percent would be considered significant in the ROI.

Definitions

Change in Local Expenditures: Dollar value of expenditures for all services and supplies that are related to the action. This figure is entered by the user when the local purchases are not known. The system then computes an estimated value for the local purchases. Items supplied by General Services Administration (GSA) or Defense Logistics Agency (DLA) are not normally included in expenditures. A negative value is entered for a decrease in activity and a positive value is used if there is an expansion.

Change in Civilian Employment: Number of civilian personnel affected by the action. These are separated or newly added civilian employees. Personnel shifted from one position to another within the same geographic area should not be included. Enter a positive number for an increase or a negative number for a decrease.

Average Income of Affected Civilian Personnel: Average annual gross (before tax) income of civilian personnel affected by the action. Average income figures are entered as positive numbers. Income, in EIFS, is a broader concept than just the wages and salaries of employees. Consideration should also be given, if possible, to income earned from second jobs, working dependents, unearned income (i.e. interest, dividends, and rents), etc.

Percent of Civilians Expected To Relocate: The actual value will vary depending on work force composition and local availability of labor in the required skill categories. If the employees affected generally are clerical, professional, or highly skilled technical personnel, then it is likely that some of these workers will move to or from other geographic areas. If the action involves a large number of personnel, the proportion of those relocating is also likely to increase.

Change in Military Employment: Number of military personnel affected by the military action. These are the transferred (out of the region) or newly added military personnel. Personnel shifted from one position to another on post or within the same geographic area should not be included. Enter a positive number for an expansion or a negative number for a decrease.

Average Income of Affected Military Personnel: Average annual gross (before tax) income of all military personnel affected by the military action.

Percent of Military Living On-post: Percentage of affected military personnel residing on post.

Employment Multiplier: The export-employment multiplier based on the location quotient methodology.

Income Multiplier: The export-income multiplier based on the location quotient methodology.

Sales Volume - Direct: Direct change in business activity attributable to the military action. This represents the change in sales volume at local retail and wholesale service establishments where civilian and military personnel spend their wages and salaries and where local procurements are made. Housing expenditures are also included in this variable.

Sales Volume - Induced: Induced change in local business volume due to the military action. Defined as the difference between total change and direct change of local business volume.

Sales Volume - Total: Total change in local business volume due to the military action. Business volume is defined as local business activity or sales and is the sum of total retail and wholesale trade sales, total selected service receipts, and value added by manufacturing.

Employment - Direct: Direct change in local employment due to the military action. These are establishments that are initially affected by the military action.

Employment - Total: Total change in local employment due to the military action. This not only includes the direct and secondary changes in local employment, but also includes those military and civilian personnel who are initially affected by the military action.

Income - Direct: Direct change in local wages and salaries due to the military action. This is assumed to be earnings of the employees in local retail, wholesale, and service establishments that are initially affected by the military action.

Income - Total (place of work): Total change in local wages and salaries earned in the area due to the military action. This is the sum of the direct and secondary changes in wages and salaries plus the income of the civilian and military personnel affected by the military action.

Income - Total (place of residence): Total change in local personal income of residents due to the military action. This not only includes the direct and secondary changes in local personal income, adjusted for commuting patterns, but also includes the income of the civilian and military personnel initially affected by the military action.

EIFS REPORT

PROJECT NAME

Milan AAP construction

STUDY AREA

47017 Carroll, TN
 47023 Chester, TN
 47053 Gibson, TN
 47113 Madison, TN

FORECAST INPUT

Change In Local Expenditures	\$8,670,000
Change In Civilian Employment	190
Average Income of Affected Civilian	\$26,987
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	2.86	
Income Multiplier	2.86	
Sales Volume - Direct	\$9,761,065	
Sales Volume - Induced	\$18,155,580	
Sales Volume - Total	\$27,916,650	0.49%
Income - Direct	\$6,180,160	
Income - Induced)	\$3,389,376	
Income - Total(place of work)	\$9,569,536	0.25%
Employment - Direct	243	
Employment - Induced	98	
Employment - Total	341	0.31%
Local Population	0	
Local Off-base Population	0	0%

RTV SUMMARY

	Sales Volume	Income	Employment	Population
Positive RTV	9.9 %	9.77 %	4.28 %	1.5 %
Negative RTV	-7.91 %	-5.69 %	-4.05 %	-0.75 %

RTV DETAILED**SALES VOLUME**

Year	Value	Adj_Value	Change	Deviation	%Deviation
1969	334372	1461206	0	0	0
1970	347822	1436505	-24701	-70341	-4.9
1971	374579	1483333	46828	1188	0.08
1972	419904	1608232	124899	79259	4.93
1973	465402	1680101	71869	26229	1.56
1974	518058	1683688	3587	-42053	-2.5
1975	546822	1629530	-54159	-99799	-6.12
1976	609788	1719602	90073	44433	2.58
1977	678556	1791388	71786	26146	1.46
1978	752804	1851898	60510	14870	0.8
1979	822959	1818739	-33158	-78798	-4.33
1980	869306	1686454	-132286	-177926	-10.55
1981	933004	1642087	-44367	-90007	-5.48
1982	954965	1585242	-56845	-102485	-6.46
1983	1062196	1710136	124894	79254	4.63
1984	1207808	1860024	149889	104249	5.6
1985	1244871	1854858	-5166	-50806	-2.74
1986	1317352	1923334	68476	22836	1.19
1987	1409832	2185240	261906	216266	9.9
1988	1538763	2092718	-92522	-138162	-6.6
1989	1635695	2110046	17329	-28311	-1.34
1990	1726294	2123342	13295	-32345	-1.52
1991	1799865	2123841	499	-45141	-2.13
1992	2028835	2312872	189031	143391	6.2
1993	2157901	2395270	82398	36758	1.53
1994	2352051	2540215	144945	99305	3.91
1995	2470422	2593943	53728	8088	0.31
1996	2541722	2592556	-1387	-47027	-1.81
1997	2730569	2730569	138013	92373	3.38
1998	2872019	2814579	84010	38370	1.36
1999	3021042	2900200	85622	39982	1.38
2000	3141592	2921681	21480	-24160	-0.83

INCOME

Year	Value	Adj_Value	Change	Deviation	%Deviation
1969	408009	1782999	0	0	0
1970	439728	1816077	33077	-38737	-2.13
1971	481497	1906728	90651	18837	0.99
1972	529857	2029352	122624	50810	2.5
1973	607843	2194313	164961	93147	4.24
1974	659360	2142920	-51393	-123207	-5.75
1975	724474	2158933	16013	-55801	-2.58
1976	807387	2276831	117899	46085	2.02
1977	889923	2349397	72566	752	0.03
1978	987453	2429134	79738	7924	0.33
1979	1101969	2435352	6217	-65597	-2.69
1980	1191242	2311010	-124342	-196156	-8.49
1981	1323129	2328707	17697	-54117	-2.32
1982	1384562	2298373	-30334	-102148	-4.44
1983	1488256	2396092	97719	25905	1.08
1984	1705725	2626816	230724	158910	6.05
1985	1778203	2649522	22706	-49108	-1.85
1986	1868156	2727508	77985	6171	0.23
1987	2001651	3102559	375051	303237	9.77
1988	2157694	2934464	-168095	-239909	-8.18
1989	2293697	2958869	24405	-47409	-1.6
1990	2483460	3054656	95787	23973	0.78
1991	2578705	3042872	-11784	-83598	-2.75
1992	2857217	3257227	214356	142542	4.38
1993	2994876	3324312	67085	-4729	-0.14
1994	3248449	3508325	184013	112199	3.2
1995	3434607	3606337	98012	26198	0.73
1996	3580115	3651717	45380	-26434	-0.72
1997	3779778	3779778	128061	56247	1.49
1998	4000871	3920854	141076	69262	1.77
1999	4127729	3962620	41766	-30048	-0.76
2000	4388208	4081033	118414	46600	1.14

EMPLOYMENT

Year	Value	Change	Deviation	%Deviation
1969	74933	0	0	0
1970	73648	-1285	-2446	-3.32
1971	73810	162	-999	-1.35
1972	77978	4168	3007	3.86
1973	80028	2050	889	1.11
1974	80725	697	-464	-0.57
1975	77217	-3508	-4669	-6.05
1976	76929	-288	-1449	-1.88
1977	78097	1168	7	0.01
1978	78779	682	-479	-0.61
1979	79222	443	-718	-0.91
1980	77627	-1595	-2756	-3.55
1981	77365	-262	-1423	-1.84
1982	75801	-1564	-2725	-3.59
1983	78266	2465	1304	1.67
1984	82978	4712	3551	4.28
1985	79488	-3490	-4651	-5.85
1986	80724	1236	75	0.09
1987	82955	2231	1070	1.29
1988	86823	3868	2707	3.12
1989	89581	2758	1597	1.78
1990	90562	981	-180	-0.2
1991	90967	405	-756	-0.83
1992	95408	4441	3280	3.44
1993	98380	2972	1811	1.84
1994	103800	5420	4259	4.1
1995	105387	1587	426	0.4
1996	104901	-486	-1647	-1.57
1997	109071	4170	3009	2.76
1998	109891	820	-341	-0.31
1999	111061	1170	9	0.01
2000	112082	1021	-140	-0.12

POPULATION

Year	Value	Change	Deviation	%Deviation
1969	148564	0	0	0
1970	149665	1101	-44	-0.03
1971	152072	2407	1262	0.83
1972	155546	3474	2329	1.5
1973	156474	928	-217	-0.14
1974	157368	894	-251	-0.16
1975	158577	1209	64	0.04
1976	160757	2180	1035	0.64
1977	161824	1067	-78	-0.05
1978	162188	364	-781	-0.48
1979	163713	1525	380	0.23
1980	165286	1573	428	0.26
1981	166003	717	-428	-0.26
1982	165581	-422	-1567	-0.95
1983	164269	-1312	-2457	-1.5
1984	165222	953	-192	-0.12
1985	165808	586	-559	-0.34
1986	165110	-698	-1843	-1.12
1987	164703	-407	-1552	-0.94
1988	164570	-133	-1278	-0.78
1989	164524	-46	-1191	-0.72
1990	165166	642	-503	-0.3
1991	166818	1652	507	0.3
1992	168828	2010	865	0.51
1993	171271	2443	1298	0.76
1994	173415	2144	999	0.58
1995	176119	2704	1559	0.89
1996	178230	2111	966	0.54
1997	179997	1767	622	0.35
1998	182116	2119	974	0.53
1999	184019	1903	758	0.41
2000	185192	1173	28	0.02