ENVIRONMENTAL ASSESSMENT

IMPLEMENTATION OF BRAC ACTIONS AT IOWA ARMY AMMUNITION PLANT, IA

Prepared for:

U.S. ARMY CORPS OF ENGINEERS
MOBILE DISTRICT

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Final Environmental Assessment

Implementation of BRAC Actions at Iowa Army Ammunition Plant, Iowa

Prepared for

U.S. Army Corps of Engineers

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CH2MHILL
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Executive Summary

ES-1 Introduction

As a result of actions mandated by the 2002 Base Closure and Realignment law (commonly referred to as BRAC), the Kansas Army Ammunition Plant (AAP) will be closed and the 155 Millimeter (MM) High Explosive (HE) ammunition and missile warhead functions will be relocated from Kansas AAP to the Iowa Army Ammunition Plant (IAAAP). In addition, the Lone Star AAP in Texas will be closed and the Family of Scatterable Mines (FASCAM) and detonators/relays/delays functions will be relocated from Lone Star AAP to IAAAP.

The purpose of and need for the proposed action is to enhance the ability of IAAAP 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's) recommendations.

ES-2 Description of Proposed Action and Alternatives

Proposed Action (Remodel Alternative)

IAAAP proposes to use existing load, assembly, and pack (LAP) lines and storage facilities to accommodate the munitions functions being relocated from Kansas AAP and Lone Star AAP. The following active LAP lines at IAAAP would be used to accommodate the incoming munitions functions: Line 1 (FASCAM), Line 3A (155 MM HE), Line 4A (detonators/relays/delays), and Line 4B (missile warheads). Lines 3A and 4A would be remodeled as necessary to accommodate the respective incoming munitions functions. Lines 1 and 4B would not require remodeling. Existing storage areas throughout IAAAP would be used to store munitions parts and equipment. The storage areas that would be used would not require remodeling.

The remodeling of Lines 3A and 4A would primarily involve modifications to portions of the facility interiors and upgrades to the existing utility systems. All remodeling work would be confined to existing disturbed areas. Facility interior modifications would include remodeling of floor plans to support LAP capabilities; construction of shop and storage rooms; and modifications to loading dock facilities. Utility upgrades would include electrical, water, sewer, gas, compressed air, steam, and cooling water distribution systems. The remodeling of Line 4A would also include the construction of an industrial waste treatment system to treat the new waste streams that would be generated.

The remodeled lines would be able to accommodate the incoming munitions functions fully, with no additional administrative facilities required. The supporting infrastructure currently in place at IAAAP would be used for rail service, access roads/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 storm water runoff or

need for additional storm water control infrastructure. The proposed action would accommodate the current and incoming munitions functions at IAAAP. No new personnel would be required to support the projected LAP demand.

Alternatives Not Carried Forward

The Army considered the construction of new LAP lines as a potential alternative to the remodeling of existing LAP lines to accommodate the incoming munitions functions. This potential alternative was evaluated in terms of its ability to meet the project needs and its potential impacts. Because existing storage warehouses at IAAAP have excess capacity and would not require remodeling to accommodate the incoming storage services, storage-related alternatives were not considered.

The existing LAP lines at IAAAP that have been identified to accommodate the incoming munitions functions are suitable for remodeling. When remodeled, the infrastructure of the identified lines would be sufficient to support projected LAP demand. Construction of new LAP lines would occur on undisturbed land and would have greater environmental impacts than the remodeling of existing lines, which would be accomplished within the existing facility footprints. Because of 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 lines, including transportation and utility infrastructure to serve those facilities, would cost significantly more than the remodeling of existing facilities. The availability of suitable LAP lines at IAAAP to accommodate the incoming munitions functions was considered a significant advantage over the alternative of constructing new LAP lines. For these reasons, this alternative was eliminated from further study in the EA.

No Action Alternative

The National Environmental Policy Act (NEPA) requires consideration of a no action alternative to the proposed action. Under the no action alternative, IAAAP would not remodel any of its facilities to accommodate the relocation of munitions functions as described in the Commission's recommendation presented in Section 2.1. Although taking no action to accommodate the incoming munitions functions would be contrary to BRAC law, the no action alternative is evaluated in detail in this EA to serve as a benchmark for the 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). Any impacts that the proposed action may have on the natural environment would be negligible. During the proposed remodeling of Lines 3A and 4A, there would be *de minimus* increases in air emissions from fugitive dust and construction vehicle exhaust emissions. The air emissions that would be generated by the production and test firing of the incoming munitions would cause *de minimus* impacts to air quality and are not expected to collectively exceed federal air quality thresholds. Construction-related noise would be temporary and the levels are expected to be negligible or not audible off post. Based on the low

number of detonator and additional warhead test fires that would be conducted, noise levels would not increase significantly at the installation. Remodeling of Lines 3A and 4A would have minor impacts on soils during construction. The soils around the buildings are already disturbed. Sediment and erosion controls would be implemented during construction to prevent any indirect impacts to surrounding soils or surface waters. Construction activity that occurs on the facility exteriors may have a minor, temporary impact on vegetation, which consists mostly of mowed grass and sparse landscaping vegetation. After construction is completed, any affected areas would be restored to original vegetative conditions. The establishment and operation of staging areas for the remodeling, as well as general construction noise, may temporarily disturb wildlife. The immediate areas around the facilities provide poor to moderate quality wildlife habitat. Any disturbance experienced by wildlife would be limited to the construction period and is expected to be minimal.

The remodeling of Lines 3A and 4A would not have a significant impact on the structural integrities of the facilities. Remodeling of the facilities would temporarily increase traffic at IAAAP during the construction period; however, the projected increase in traffic is not expected to burden the road system in or around the installation significantly. All hazardous waste generated by the production process would be handled, stored, and disposed in accordance with all applicable environmental regulations and with all hazardous materials management plans implemented at IAAAP. As part of the proposed action, IAAAP would upgrade the existing waste treatment system in Line 3A and install a new waste treatment system in Line 4A to treat the waste streams generated by the incoming munitions functions. USACE would obtain all necessary permits for the management of hazardous wastes generated by the incoming munitions.

The remodeling and operation of the facilities would have little potential to interact with any past, present, or reasonably foreseeable future actions at or outside IAAAP. The proposed action would have minor positive effects on the local economy resulting from short-term, temporary increases in employment and expenditures during construction.

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, IAAAP would not be able to comply sufficiently with the 2005 BRAC Commission's recommendations. The inability of IAAAP to accommodate the incoming munitions functions has the potential to negatively affect other functions at IAAAP and result in adverse cumulative impacts on the overall mission of the installation and that of the U.S. Army.

ES-4 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 necessary. 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
EA for Implementation of BRAC Actions at Iowa Army Ammunition Plant

Resource	Environmental and Socioeconomic Consequences	
	No Action	**Proposed Action**
Land Use	No Effect	No Effect
Air Quality	No Effect	Negligible Impact *De minimus* construction-related fugitive dust and construction vehicle exhaust emissions would be controlled through appropriate BMPs. Air emissions from test firing of missile warheads and detonators and by the production of detonators would cause *de minimus* impacts to air quality and are not expected to collectively exceed federal air quality thresholds.
Noise	No effect	Negligible Impact Construction-related noise would be temporary and the levels are expected to be negligible or not audible off post. Operation of the renovated facilities would generate noise levels similar to those currently generated. Based on the low number of detonator and additional warhead test fires that would be conducted, noise levels would not increase significantly at the installation.
Geology and Soils		
Geology	No Effect	No Effect
Topography	No Effect	No Effect
Soils	No Effect	Negligible Impact Minor construction-related disturbance. Soils around the facilities are already disturbed. Sediment and erosion controls would be implemented during construction to prevent any indirect impacts to surrounding soils.
Prime Farmland	No Effect	No Effect

TABLE ES-1
Summary of Potential Environmental and Socioeconomic Consequences
EA for Implementation of BRAC Actions at Iowa Army Ammunition Plant

Resource	Environmental and Socioeconomic Consequences	
	No Action	**Proposed Action**
Water Resources		
Surface Water	No Effect	Negligible Impact Sediment and erosion controls would be implemented during construction to prevent any indirect impacts to surrounding surface waters. Such controls may include silt fences, hay bales, and seeding of cleared areas that are to remain exposed for long periods.
Groundwater	No Effect	Negligible Impact Little or no groundwater dewatering is expected to be required during construction activities.
Floodplains	No Effect	No Effect
Wetlands	No Effect	No Effect
Biological Resources		
Vegetation	No Effect	Negligible Impact Minor, temporary impact from construction activity on facility exteriors. Vegetation consists mostly of mowed grass and sparse landscaping vegetation. After construction is completed, any affected areas would be restored to original vegetative conditions.
Wildlife	No Effect	Negligible Impact Minor, temporary disturbance from staging areas and construction noise. The immediate areas around the facilities provide poor to moderate quality wildlife habitat. Any disturbance would be limited to the construction period and is expected to be minimal.

TABLE ES-1
Summary of Potential Environmental and Socioeconomic Consequences
EA for Implementation of BRAC Actions at Iowa Army Ammunition Plant

Resource	Environmental and Socioeconomic Consequences	
	No Action	**Proposed Action**
Sensitive Species	No Effect	No Effect
Migratory Birds	No Effect	No Effect
Cultural Resources	No Effect	Negligible Impact Remodeling would not have a significant impact on the structural integrities of the facilities. All work would be confined to existing facility footprints so archaeological or Native American resources would not be impacted.
Socioeconomics		
Economic Development	No Effect	Negligible Impact Short-term, positive impact on local economy from temporary increases in employment and expenditures during construction.
Demographics and Public Services	No Effect	No Effect
Environmental Justice and Protection of Children	No Effect	No Effect
Transportation	No Effect	Negligible Impact Short-term, minor impact on installation traffic during construction.
Utilities	No Effect	Negligible Impact Minor modifications to the utility infrastructure of the installation. Small increase in energy demand would not overburden the utility system.

TABLE ES-1
Summary of Potential Environmental and Socioeconomic Consequences
EA for Implementation of BRAC Actions at Iowa Army Ammunition Plant

Resource	Environmental and Socioeconomic Consequences	
	No Action	**Proposed Action**
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 IAAAP. The existing waste treatment system in Line 3A would be upgraded and a new waste treatment system would be installed in Line 4A. USACE would obtain all necessary permits for the management of hazardous wastes generated by the incoming munitions.
Cumulative Effects	Negative Impact Without remodeling its facilities, IAAAP would not be able to comply with the 2005 BRAC Commission's recommendations sufficiently. The inability of IAAAP to accommodate the incoming munitions functions has the potential to negatively affect other functions at IAAAP and result in adverse cumulative impacts on the overall mission of the installation and that of the U.S. Army.	Positive Impact Proposed action would have little potential to interact with any past, present, or reasonably foreseeable future actions at or outside IAAAP. Short-term, positive cumulative impact on local economy from temporary increases in employment and expenditures during construction. Because the proposed action would allow IAAAP to better accommodate the incoming munitions functions, it would have a positive cumulative effect on the mission of the installation and that of the U.S. Army.

Notes:
BMP = best management practice
IAAAP = Iowa Army Ammunition Plant
BRAC = Base Realignment and Closure

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1. Purpose, Need, and Scope

1.1 Introduction

As a result of actions mandated by the 2002 Base Closure and Realignment law (commonly referred to as BRAC), the Kansas Army Ammunition Plant (AAP) will be closed and the 155 MM High Explosive (HE) ammunition and missile warhead functions will be relocated from Kansas AAP to the Iowa Army Ammunition Plant (IAAAP). In addition, the Lone Star AAP in Texas will be closed and the FASCAM and detonators/relays/delays functions will be relocated from Lone Star AAP to IAAAP.

1.2 Purpose of and Need for Proposed Action

The purpose of and need for the proposed action is to enhance the ability of IAAAP 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's) 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 *Code of Federal Regulations* (CFR) Part 1500 through Part 1508 (President's Council on Environmental Quality [CEQ], 2002), and *Environmental Analysis of Army Actions*, 32 CFR 651 (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 from Kansas AAP and Lone Star AAP to IAAAP to support realignment. Its purpose is to inform decision makers and the public of the likely consequences of the proposed action and alternatives. IAAAP is an active U.S. Army installation that has the primary mission of supporting national defense requirements through munitions and high explosives development, processing, production, testing, and demilitarization. IAAAP encompasses 19,011 acres just outside the City of Middletown, Iowa (Figure 1-1).

Source: Microsoft Corporation

North

0 2.5 5

Scale in Miles

FIGURE 1-1
Vicinity Map
EA for Implementation of BRAC Actions at Iowa Army Ammuntion Plant

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 (i) the need for closing or realigning the military installations which have been recommended for closure or realignment by the Commission, (ii) the need for transferring functions to any military installation which has been selected as the receiving installation, or (iii) military installations alternative to those recommended or selected. 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 munitions functions from Kansas AAP and Lone Star AAP to IAAAP. Potential impacts to the natural and human environment that would result from remodeling existing production lines, upgrading existing utility systems, and conducting the necessary operations to accommodate the 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. Interactions of the proposed action with other present and reasonable foreseeable actions are evaluated as cumulative effects.

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 have been submitted to regulatory agencies including the U. S. Fish and Wildlife Service (USFWS) and the Iowa State Historic Preservation Office (SHPO).

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 16 March – 14 April 2007. The public review period was announced in a public notice that was published in the *Hawk Eye* newspaper out of Burlington, Iowa (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 Burlington Public Library in Burlington, Iowa and at Danville Library in Danville, Iowa. All questions or comments were directed to Mr. Leon Baxter, Public Affairs Officer, IAAAP, 17571 Highway 79, Middletown, Iowa 52638-5000. (319) 753-7101. LBAXTER@aollc.biz. 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. These factors influence the scope of the proposed action and serve as criteria for evaluating alternatives such as renovation versus new construction. In addressing environmental considerations, IAAAP 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, but are not limited to, the Clean Air Act, Clean Water Act (CWA), Noise Control Act, Endangered Species Act, National Historic Preservation Act, Archaeological Resources Protection Act, Resource Conservation and Recovery Act (RCRA), 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 IAAAP. 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, while other alternatives including the no action alternative, are described in Section 3. Existing conditions, considered the "baseline" conditions, are described in Section 4. The expected effects of the proposed action are presented in Section 4 immediately following the description of baseline conditions for each resource covered by the EA. Section 4 also addresses the potential for cumulative effects, and identifies mitigation measures where appropriate. Section 5 presents the conclusions of the analyses.

2. Description of the Proposed Action

2.1 Introduction

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

> *Close Kansas AAP and relocate 155MM HE and missile warhead functions to IAAAP; Close Lone Star AAP and relocate FASCAM and detonators/relays/delays functions to IAAAP.*

To accomplish the Commission's recommendations, IAAAP proposes to use existing load, assembly, and pack (LAP) lines and storage facilities to accommodate the incoming munitions functions.

2.2 Proposal Implementation

Components of the proposed action for this EA include the use of existing LAP lines and storage facilities to accommodate the munitions functions being relocated from Kansas AAP and Lone Star AAP. Some of the LAP lines would require remodeling while others would not. The storage facilities would not require remodeling. The incoming munitions functions would not involve any personnel relocations. Additional hires are not expected to be required to accommodate the incoming munitions functions.

3. Alternatives

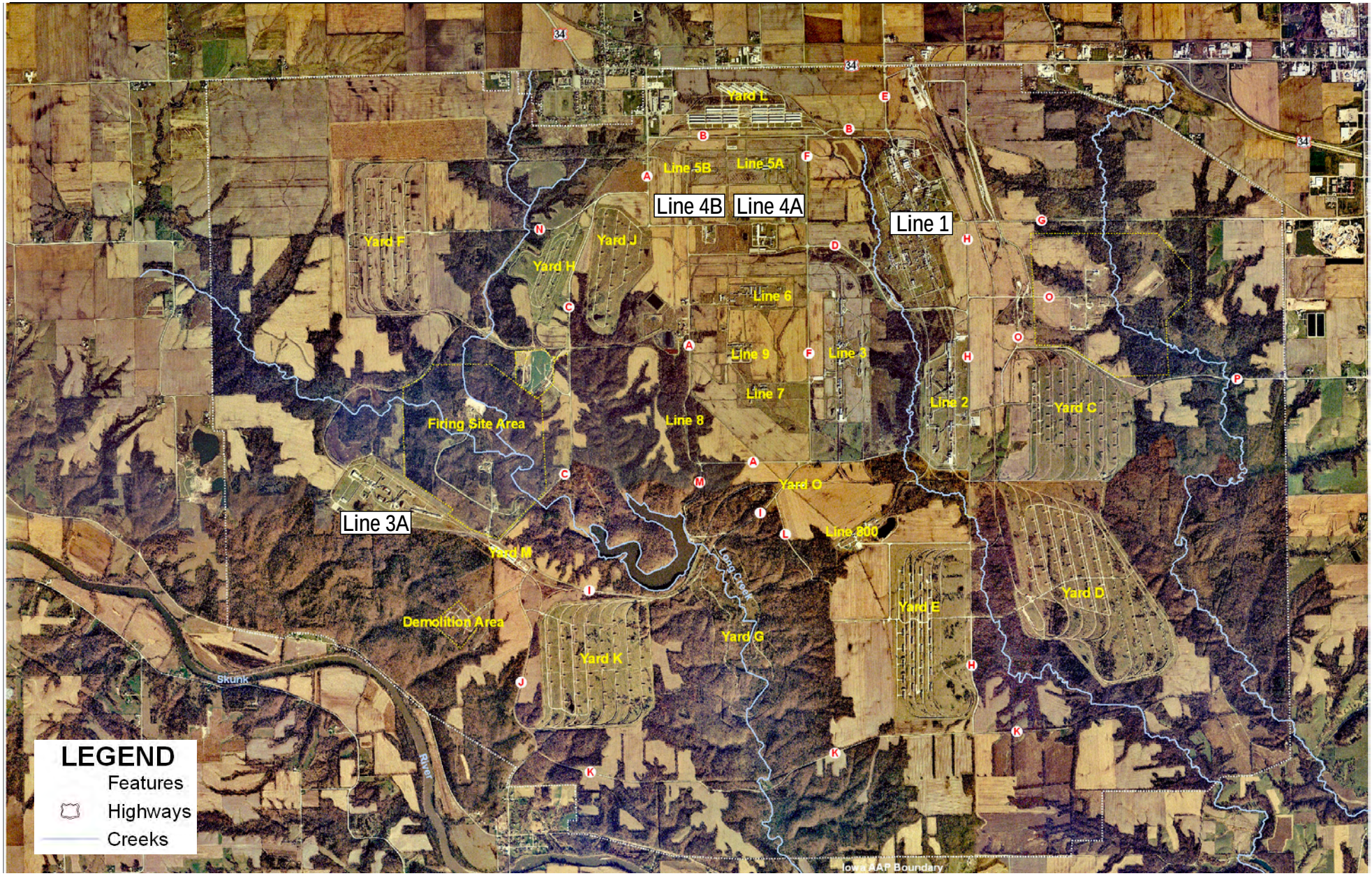
This section presents the Army's development of alternatives and addresses alternatives available for the proposed action. This section also defines the no action alternative of maintaining existing conditions. NEPA requires consideration of alternatives to the proposed action. To warrant detailed evaluation, 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 (Preferred Alternative)

The following active LAP lines at IAAAP would be used to accommodate the munitions functions being relocated from Kansas AAP and Lone Star AAP: Line 1 (FASCAM), Line 3A (155 MM HE), Line 4A (detonators/relays/delays), and Line 4B (missile warheads). Lines 3A and 4A would be remodeled as necessary to accommodate the respective incoming munitions functions. Lines 1 and 4B would not require remodeling. Existing storage areas throughout IAAAP would be used to store munitions parts and equipment. The storage areas that would be used would not require remodeling. The locations of the LAP lines that are proposed to be used to accommodate the incoming munitions are shown on Figure 3-1.

The remodeling of Lines 3A and 4A under this alternative would primarily involve modifications to portions of the facility interiors and upgrades to the existing utility systems. All remodeling work would be confined to existing disturbed areas. Facility interior modifications would include remodeling of floor plans to support LAP capabilities; construction of shop and storage rooms; and modifications to loading dock facilities. Utility upgrades would include electrical, water, sewer, gas, compressed air, steam, and cooling water distribution systems. The remodeling of Line 4A would also include the construction of an industrial waste treatment system to treat the new waste streams that would be generated.

The remodeled lines would be able to accommodate the incoming munitions functions fully with no additional administrative facilities required. The remodel alternative would use the supporting infrastructure currently in place at IAAAP for rail service, access roads/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 storm water runoff and no need for additional storm water control infrastructure. This alternative would accommodate the current and incoming munitions functions at IAAAP. No new personnel would be required to support the projected LAP demand.



Source: Iowa Army Ammunition Plant

FIGURE 3-1
Project Location Map
EA for Implementation of BRAC Actions at Iowa Army Ammuntion Plant

3.2 Alternatives Considered but Eliminated from Further Study

The Army considered the construction of new LAP lines as a potential alternative to the remodeling of existing LAP lines to accommodate the incoming munitions functions. This potential alternative was evaluated in terms of its ability to meet the project needs and its potential impacts. Because existing storage warehouses at IAAAP have excess capacity and would not require remodeling to accommodate the incoming storage services, storage-related alternatives were not considered.

The existing LAP lines at IAAAP that have been identified to accommodate the incoming munitions functions are suitable for remodeling. When remodeled, the infrastructure of the identified lines would be sufficient to support projected LAP demand. Construction of new LAP lines would occur on undisturbed land and would have greater environmental impacts than the remodeling of existing lines, which would be accomplished within the existing facility footprints. Because of 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 lines, including transportation and utility infrastructure to serve those facilities, would cost significantly more than the remodeling of existing facilities. The availability of suitable LAP lines at IAAAP to accommodate the incoming munitions functions was considered a significant advantage over the alternative of constructing new LAP lines. 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, IAAAP would not remodel any of its facilities to accommodate the relocation of munitions functions as described in the 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. 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 the implementation of the proposed action. Baseline conditions represent current conditions. In compliance with NEPA, 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 used synonymously 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 that 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 one 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 reestablish on the disturbed area within a year of the disturbance. Long-term impacts are described as lasting beyond one 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 to 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 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* (2006). 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 them would be discussed. Potential mitigation actions could include the following:

- 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

IAAAP is located in Des Moines County approximately 5 miles west of the City of Burlington in southeastern Iowa (see Figure 1-1). The installation encompasses 19,011 acres between the City of Middletown to the north and the City of Augusta to the south. The Mississippi River flows through Burlington and serves as the border of Iowa and Illinois in the area. U.S. Highway 34 serves as a portion of the northern boundary of IAAAP. Southeastern Iowa is wetter and warmer than most of the rest of the State. The climate allows for a long growing season and is well suited for growing crops such as corn and soybeans.

4.2.1.2 Installation Land/Air Space Use

The existing land uses at IAAAP are described in the 2006-2010 Integrated Natural Resources Management Plan (INRMP). Most of the installation property is classified as unimproved grounds (17,461 acres) that are not available for development. These areas include agricultural outleases; roads and railroads; buildings and structures; idle areas; forested areas; and ponds, lakes, and streams. Semi-improved grounds (1,453 acres) include the production facilities (buildings, load lines, and small arms ranges); demolition areas, test

areas, and associated clear zones; security clear areas; and roadside utilities. The LAP lines and storage areas that would be used to accommodate the incoming munitions functions under the proposed action are included within this land use classification. Lastly, improved grounds (97 acres) at the installation include administrative lawns and cemeteries. IAAAP transferred ownership of the installation housing area, including 42 structures and 112 acres, to the City of Middletown in 1997. IAAAP does not have any aviation-based land use.

4.2.1.3 Surrounding Land Use

The land use surrounding IAAAP is predominantly agricultural cropland and pastureland. Small businesses (general stores and gas stations) and low density residential communities are also located around the periphery of the installation. The Cities of Middletown to the north and Augusta to the south are the nearest cities to IAAAP.

4.2.2 Consequences

4.2.2.1 Proposed Action

The land use classifications of the LAP lines and storage areas (semi-improved grounds) that would be used to accommodate the incoming munitions functions would not be changed by the proposed action. Under the proposed action, remodeling of Lines 3A and 4A would be contained within the existing footprints of the buildings. Adjacent land uses and land uses in the surrounding region would not be affected in any manner by the proposed action.

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, IAAAP would not remodel any of its facilities to accommodate the incoming 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, 2005). EPA has established NAAQS for six principal pollutants, which are called criteria pollutants (Table 4-1).

TABLE 4-1
National Ambient Air Quality Standards
EA for Implementation of BRAC Actions at Iowa Army Ammunition Plant

Pollutant	Primary Standards	Averaging Times	Secondary Standards
Carbon Monoxide	9 ppm (10 mg/m^3)	8-hour[1]	None
	35 ppm (40 mg/m^3)	1-hour[1]	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 ug/m^3	24-hour[4]	
Ozone	0.08 ppm	8-hour[5]	Same as Primary
Sulfur Oxides	0.03 ppm	Annual (Arithmetic Mean)	
	0.14 ppm	24-hour[1]	
		3-hour[1]	0.5 ppm (1,300 µg/m^3)

Notes:
[1] Not to be exceeded more than once per year.
[2] 3-year average of the weighted annual mean PM_{10} concentration at each monitor within an area must not exceed 50 µg/m^3.
[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/m^3.
[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/m^3.
[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/m^3 = micrograms per cubic meter

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

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 be designated as being in nonattainment for that standard.

IAAAP is located in an attainment area for all criteria pollutants. The installation operates under an Iowa Department of Natural Resources Title V Air Quality Operating Permit. As part of the Title V Clean Air Act Permit regulations, IAAAP conducts an annual air emission inventory.

4.3.2 Consequences

4.3.2.1 Proposed Action

The proposed remodeling of Lines 3A and 4A 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. Fugitive dust would be controlled at the sites using best management practices (BMPs). Vehicle exhaust emissions would be temporary, and at their expected generation levels, would not significantly affect air quality. 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 IAAAP operates.

No air emissions would be generated by the production of 155MM HE or missile warheads being relocated from Kansas AAP. Under the proposed action, the incoming missile warhead functions would require limited test firing. Missile warhead test firing is currently conducted at IAAAP. The types of warheads that are being relocated from Kansas AAP are identical to those that are currently being test fired at IAAAP. Minor amounts of air emissions are generated during missile warhead test firing and are removed by cyclone air scrubbers.

Minor amounts of air emissions would be generated by the detonator functions being relocated from Lone Star AAP. The various air emissions would be contained by hoods and removed by pollutant-specific air scrubbers. Specifically, vacuum drying of detonator components would generate dust that would be removed by a hydrating air filter. The liquid from this process would be managed with the other associated waste streams that would be generated. The detonator functions would also include a painting process during which a drop of lacquer is added as a sealant. Air emissions from this process would be removed by appropriate air scrubbing systems. The vacuum drying and painting components of the incoming detonator functions may require modification to the Title V permit under which IAAAP operates, air compliance testing, and air construction permits. As with the missile warheads, test firing of detonators would generate minor amounts of air emissions that would be removed by cyclone air scrubbers.

In summary, the air emissions that would be generated by the test firing of missile warheads and detonators and by the production of detonators would cause *de minimus* impacts to air quality and are not expected to collectively exceed the thresholds set under 40 CFR §93.153.

For these reasons, the proposed action would result in minor impacts to air quality.

4.3.2.2 No Action Alternative

Under the no action alternative, IAAAP would not remodel any of its facilities to accommodate the incoming munitions functions. Therefore, the no action alternative would have no effect on air quality.

4.4 Noise

4.4.1 Affected Environment

For the determination of impacts to human receptors, noise measurements are weighted to increase the contribution of noises within the normal range of human hearing and to 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, 2004).

IAAAP implements an Environmental Noise Management Program (ENMP) Plan to identify and minimize noise impacts from mission activities on areas outside the installation. The 2006 IAAAP ENMP Plan addresses noise generated by test fire activities, pistol range training, and equipment training. Test firing activities are capable of generating noise levels that are audible off post, and have caused noise complaints in the past. The U.S. Army Center for Health Promotion and Preventative Medicine (CHPPM) has evaluated noise from test firing and other activities at IAAAP since the 1980s. The most recent noise contours for IAAAP activities were developed by CHPPM in 1999.

4.4.2 Consequences

4.4.2.1 Proposed Action

Most of the construction activity for the remodeling of Lines 3A and 4A would occur within the interiors of the facilities. As such, most of the construction-related noise generated from the remodeling would not be audible to outside receptors. Construction activity that occurs on the building exteriors would be conducted during normal business hours. Construction-related noise would be temporary and the levels are expected to be negligible or not audible off post. After construction activities are completed, noise levels at IAAAP would be similar to those that currently occur.

Based on past and current production of munitions at IAAAP, the noise that would be generated by the production of the incoming munitions within the LAP lines is not expected to be audible to receptors outside the facilities. Per the installation noise protection policy, workers use hearing protection and follow Occupational Safety and Health Administration (OSHA) standards and procedures.

Under the proposed action, the incoming missile warhead and detonator functions would require limited test firing. Missile warhead test firing is currently conducted at IAAAP. The types of warheads that are being relocated from Kansas AAP are identical to those that are currently being test fired at IAAAP. Based on preliminary estimates, the incoming warhead functions are expected to add approximately 10 warhead test fires per year to the current warhead test fire program. Based on the 2006 IAAAP ENMP Plan, which included an analysis of the incoming BRAC-related missile warhead functions, the additional test fire activity associated with the incoming missile warhead functions would not require modifications to the installation noise contours developed by CHPPM in 1999. Test firing of detonators generate lower noise levels than test firing of missile warheads. Detonator test

firing is expected to be conducted infrequently and is not expected to generate noise levels that cause noise complaints. Based on the low number of detonator and additional warhead test fires that would be conducted, noise levels would not increase significantly at the installation.

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, IAAAP would not remodel any of its facilities to accommodate the incoming munitions functions. Without remodeling, munitions test firing would also not be conducted. 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

During interglacial periods, loess was deposited through out the area where IAAAP is located. Loess is windblown material composed primarily of silt with small amounts of sand and clay. The region has undergone prolonged periods of erosion, which has resulted in deepened river channels and significant elevation differences between floodplains and adjacent uplands. The area is not prone to seismic activity.

IAAAP is located in the Southern Iowa Drift Plain. Elevations in Des Moines County range from 520 feet (ft) above mean sea level (msl) to 862 ft msl. Vertical intervals between lowlands and adjoining uplands in the region typically range from 50 to 120 feet. Elevations at IAAAP range from 732 ft msl in the northern part of the installation to 544 ft msl in the southern part of the installation.

4.5.1.2 Soils

Detailed information regarding the soils of IAAAP is presented in the *IAAAP 2006-2010 Integrated Natural Resources Management Plan and Environmental Assessment* (INRMP) based on the Soil Conservation Service, Soil Survey of Des Moines County, Iowa (U.S. Department of Agriculture [USDA], 1983). Soils at IAAAP are primarily associated with the Mollisols and Alfisols soil orders. Mollisols are relatively fertile soils characterized by a soft surface character, a high base saturation, and a dark color due to abundant humus. Alfisols are also relatively fertile soils with moderate to high base saturation. Both soil orders are very well suited for crop production.

4.5.1.3 Prime Farmland

Several areas within IAAAP are designated as prime farmland. Prime farmland is defined by USDA as land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and is also available for these uses. Approximately 75 percent of the soil series that occur on the installation meet the soil criteria for prime farmland (IAAAP, 2006).

4.5.2 Consequences

4.5.2.1 Proposed Action

The proposed remodeling of Lines 3A and 4A would not involve any intrusive construction activity that would affect subsurface geological formations. Construction activities associated with the remodeling would not require land contouring and, therefore, would have no effect on site topography. Construction staging areas established on the facility exteriors may have a minor, temporary impact on site soils. The sites where staging areas would be established already have disturbed soils and are not designated as prime farmland. Sediment and erosion controls would be implemented during construction to prevent any indirect impacts to surrounding soils or surface waters. Such controls may include silt fences, hay bales, and seeding of cleared areas that are to remain exposed for long periods.

For these reasons, the proposed action would have no effect on geology, topography, or prime farmland. The proposed action would have a negligible impact on soils.

4.5.2.2 No Action Alternative

Under the no action alternative, IAAAP would not remodel any of its facilities to accommodate the incoming 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 Surface Water

IAAAP has three major drainage basins and several minor basins. The predominant flow direction is from northwest to southeast. The installation contains approximately 20 miles of streams and approximately 500 miles of drainage ditches (Mason & Hanger Corporation, 1991). The primary streams within the installation are Long Creek, Brush Creek, and Spring Creek. Skunk River, which is a major tributary to the Mississippi River, runs adjacent to the southwestern border of IAAAP. Most of the watershed of Long Creek is located outside the installation property while most of the watersheds of Brush Creek and Spring Creek are within the installation. The watershed of Long Creek is impounded in two places by Stump Lake and George H. Mathes Lake (Mathes Lake).

IAAAP operates under a National Pollutant Discharge Elimination System (NPDES) permit issued by the Iowa Department of Natural Resources (IDNR). The NPDES permit regulates point source discharges and establishes monitoring requirements and effluent pollutant limitations on the discharges. The permit regulates industrial discharges at 14 locations, sanitary discharges from 2 sewage treatment plants, and monitoring of non-point source storm water runoff at 2 locations. Discharges from these sources are directed into Brush Creek, Long Creek, and an unnamed tributary of the Skunk River.

4.6.1.2 Groundwater

Groundwater is defined as a subsurface water that has accumulated in the voids between

soil particles and within porous bedrock. A water-bearing rock or rock formation is an aquifer. The water within an aquifer can migrate vertically and horizontally, discharging to surface waters or recharging deeper aquifers.

Four major aquifers exist in the area where IAAAP is located: the Mississippian, Devonian, Jordan sandstone, and Cambrian-Ordovician (U.S. Army Corps of Engineers [USACE], 1985). The Mississippian aquifer is located 250 to 500 ft below land surface (bls) and has a typical yield of less than 20 gallons per minute (gpm). The water quality of this aquifer is fair to good with a high mineral content. The Devonian aquifer is located 750 to 1,000 ft bls and has a typical yield of 20 to 50 gpm. Its water quality is fair to poor with a very high mineral content. The Jordan sandstone, which is part of the Cambrian-Ordovician aquifer, is located 1,850 to 2,000 ft bls and has a typical yield of 1,000 gpm. Its water is relatively hard, but the quality is fair.

4.6.1.3 Floodplains

EO 11988, "Floodplain Management" (signed May 24, 1977), directs federal agencies to avoid, to the extent possible, the long- and short-term adverse impacts associated with the occupancy and modification of floodplains. Portions of IAAAP have been mapped as 100-year floodplain areas on Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRMs). Floodplain areas within IAAAP are primarily associated with the onsite stream systems. Based on the FIRMs prepared for Des Moines County, Iowa, none of the LAP lines and storage areas that would be used to accommodate the incoming munitions functions is located in the 100-year floodplain.

4.6.1.4 Wetlands

Wetlands at IAAAP have been mapped by USFWS as part of its National Wetlands Inventory (NWI). According to the NWI mapping, there are 113.2 acres of wetland at IAAAP. Forested wetlands account for approximately half (60.2 acres) of the total wetland acreage. The remaining wetland types at the installation are emergent wetlands (14.7 acres), scrub/shrub wetlands (10.8 acres), and unconsolidated bottom systems (27.5 acres). There are no wetlands within the immediate vicinities of the LAP lines and storage areas proposed to be used to accommodate the incoming munitions functions.

4.6.2 Consequences

4.6.2.1 Proposed Action

The proposed remodeling of Lines 3A and 4A would not have any direct impacts on surface waters or wetlands because none are located near the facilities. None of the facilities are located within the 100-year floodplain. Construction activities would not result in significant soil disturbance or loss of vegetative cover. The remodeling work would be confined to the footprints of the facilities. There would be no increase in impervious area and no change in stormwater runoff characteristics or volume. Sediment and erosion controls would be implemented during construction to prevent any indirect impacts to surrounding soils or surface waters. Such controls may include silt fences, hay bales, and seeding of cleared areas that are to remain exposed for long periods. 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.

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

4.6.2.2 No Action Alternative

Under the no action alternative, IAAAP would not remodel any of its facilities to accommodate the incoming munitions functions. Therefore, the no action alternative would have no effect on water resources.

4.7 Biological Resources

4.7.1 Affected Environment

4.7.1.1 Vegetation

IAAAP is located within the Prairie Parkland Province ecoregion, which is characterized by gently rolling plains with steep bluffs bordering some valleys. Historically, grass prairie was the dominant vegetative community at the installation. Through land cultivation, much of the native grasslands have been replaced by other community types. At present, the dominant vegetative communities at IAAAP are floodplain forest, upland oak-hickory forest, hill prairie, native prairie, wetland, and leased areas (hay and grazing areas and agricultural areas). Detailed information regarding these vegetative communities is presented in the IAAAP INRMP. A total of 503 species of vascular plants have been documented at IAAAP (IAAAP, 2006). The immediate areas around the LAP lines and storage areas proposed to be used to accommodate the incoming munitions functions consist mostly of mowed grass and sparse landscaping vegetation.

4.7.1.2 Wildlife

Wildlife is relatively abundant at IAAAP. Detailed information on wildlife species that utilize the installation is presented in the IAAAP INRMP. A total of 24 species of mammals, 103 species of breeding birds, 9 species of reptiles, 9 species of amphibians, 31 species of fish, and 29 species of insects have been documented at IAAAP (Horton et al., 1996). Areas open to hunting are located throughout the installation. Fishing is permitted only on Mathes Lake #18, Stump Lake #19, and four other ponds (#04, #23, #32, and #40). The immediate areas around the LAP lines and storage areas proposed to be used to accommodate the incoming munitions functions provide poor to moderate-quality wildlife habitat.

4.7.1.3 Sensitive Species

Two federally-listed animal species have been documented to occur at IAAAP: the bald eagle (*Haliaeetus leucocephalus*) and Indiana bat (*Myotis sodalist*). The bald eagle is federally listed as Threatened and the Indiana bat is federally listed as Endangered. The bald eagle is a transient species at IAAAP and is occasionally sighted at Lake Mathes. Two Indiana bats were captured at the installation during a survey conducted in 1998 (Tetra Tech EM Inc., 1998). Radio tracking data indicate that the Indiana bat forages at IAAAP. An Endangered Species Management Plan for the Indiana bat, which is included in the IAAAP INRMP, is currently implemented at the installation for the protection of the species. No portion of

IAAAP is designated as Critical Habitat for the bald eagle or Indiana bat. No federally-listed plant species have been documented at IAAAP.

A total of six state-listed plant species and two state-listed animal species have been documented at IAAAP. The state-listed plant species are the Blue ash (*Fraxinus quadrangulata*), Virginia-snakeroot (*Aristolochia serpentaria*), pagoda plant (*Blephilia ciliata*), false hellebore (*Veratrum woodii*), slender ladies-tresses (*Spiranthes lacera*), and winged monkeyflower (*Mimulus alatus*). The state-listed animal species are the orange-throated darter (*Etheostoma spectabile*) and western worm snake (*Carphophis amoenus vermis*). Native prairie and wetland habitats are designated as Areas of Special Interest at IAAAP. Native prairie areas at the installation are typically less than 1 acre in total size.

The immediate areas around the LAP lines and storage areas proposed to be used to accommodate the incoming munitions functions are not expected to be utilized by any state or federally listed species. These areas are also not designated as Areas of Special Interest.

4.7.1.4 Migratory Birds

U.S. 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 to military readiness training caused by migratory birds. DoD has agreed to work to conserve bird species of conservation concern (BCC species) on installations. Several BCC species have been documented to occur at IAAAP.

4.7.2 Consequences

4.7.2.1 Proposed Action

Most of the construction activity for the remodeling of Lines 3A and 4A would occur within the interiors of the facilities. Construction activity that occurs on the facility exteriors may have a minor, temporary impact on vegetation, which consists mostly of mowed grass and sparse landscaping vegetation. After construction is completed, any affected areas would be restored to original vegetative conditions. The establishment and operation of staging areas for the remodeling, as well as general construction noise, may temporarily disturb wildlife that utilize the areas around the facilities. The immediate areas around Lines 3A and 4A provide poor to moderate quality wildlife habitat. These areas are not expected to be utilized by any state or federally listed species. Any disturbance experienced by common wildlife species would be limited to the construction period and is expected to be minimal. None of the work is expected to affect sensitive species, migratory birds, or their habitats. The proposed action has been coordinated with USFWS (Appendix A). USFWS replied on 21 February 2007 that "the proposed project should have no effect on federally listed threatened and endangered species." (see Appendix A).

For these reasons, the proposed action would have a temporary and negligible impact on vegetation and wildlife and no effect on sensitive species or migratory birds.

4.7.2.2 No Action Alternative

Under the no action alternative, IAAAP would not remodel any of its facilities to accommodate the incoming 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 EO 13007
- Collections of artifacts and records pertaining to them as defined in 36 CFR 79

The IAAAP *Integrated Cultural Resources Management Plan* (ICRMP) provides guidance on the proper management of cultural resources at the installation. The IAAAP 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 building footprints, the proposed action would not affect archeological sites or Native American resources at IAAAP. Therefore, archeological and Native American resources are not discussed further.

Many of the 1,190 buildings and structures at IAAAP may be eligible for listing in the National Register of Historic Places (NRHP). Written concurrence for NRHP listing has not been issued by the Iowa SHPO for any building or structure at the installation. In accordance with the IAAAP ICRMP, the installation plans to conduct a comprehensive historic buildings and structures inventory and coordinate with the Iowa SHPO on the eligibility of buildings and structures for NRHP listing.

4.8.2 Consequences

4.8.2.1 Proposed Action

As discussed in Section 4.8.1, many of the buildings and structures at IAAAP may be eligible for NRHP listing, although none of them has received Iowa SHPO concurrence for listing. The proposed remodeling of Lines 3A and 4A would not involve significant structural modifications to the facilities. The remodeling would primarily involve modifications to the interior layouts of the facilities and would not affect their overall structural integrities.

The proposed remodeling of Lines 3A and 4A 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* (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. Photo-documentation of facilities has been conducted under the Program Comment at selected installations, including at IAAAP. The use of the Program Comment for the proposed action has been coordinated with the Iowa SHPO (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, IAAAP would not remodel any of its facilities to accommodate the incoming 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. Effects attributable to implementation of the proposed action on socioeconomic resources are assessed primarily using the Economic Impact Forecast System (EIFS) model. Developed by the U.S. Army Construction Engineering Research Laboratory (CERL), the model provides a consistent method to evaluate specific socioeconomic effects associated with BRAC actions regardless of the location within the nation (USACE, 1994).

4.9.1 Region of Influence

The region of influence (ROI) is the geographic area within which the majority of impacts to socioeconomic resources are concentrated. The ROI for IAAAP is composed of three counties in Iowa: Des Moines, Henry, and Lee. Major communities near IAAAP are Burlington less than 10 miles to the east, Mount Pleasant about 20 miles to the northwest, and Fort Madison about 20 miles to the south. The small community of Middletown (with an estimated population of 525 in 2005) is adjacent to IAAAP.

4.9.1.1 Economic Development

IAAAP Employment. IAAAP is operated by American Ordnance LLC, a joint venture company owned by Day & Zimmermann and General Dynamics Ordnance Systems. American Ordnance LLC employs about 725 employees at the installation. Des Moines County contained about 220 Army personnel (170 military and 50 civilian) in 2005.

On 30 September 1999, American Ordnance announced a strategic planning initiative to investigate commercial opportunities for IAAAP. This initiative focused on how the assets at the plant, including land, buildings and equipment, can be used to develop new business opportunities for the region.

Regional Employment. Total full- and part-time employment in the three-county ROI increased by just over 5,000 jobs between 1980 and 2004 (Table 4-2). The large majority of that growth took place during the 1990s when the annual rate of change in employment

averaged 1.2 percent annually. This compared to a growth rate during the same time period of 1.9 percent for the State of Iowa. The ROI growth rate over this period (1990-2000) was dramatically greater than that over the period 1980-1990 (0.4 percent) and 2000-2004 (when there was a substantial decline in employment). As of 2004, about 44 percent of regional employment is contributed by Des Moines County with Lee County contributing 34 percent and Henry County adding 22 percent. These shares have remained virtually constant over the period 1980 - 2004.

The greatest share of non-farm employment in the ROI in 2004 was concentrated in four sectors of the economy: services; manufacturing; retail trade; and federal, state, and local government. Federal military and civilian employment accounted for just over 1 percent of total regional non-farm jobs.

TABLE 4-2
Total Full- and Part-Time, Non-Farm Employment (1980-2004)
EA for Implementation of BRAC Actions at Iowa Army Ammunition Plant

	Des Moines County	*Henry County*	*Lee County*	*ROI*	State of Iowa
1980	25,098	8,121	22,806	56,025	1,379,345
1985	22,849	9,306	20,236	52,391	1,354,890
1990	25,772	11,722	20,684	58,178	1,515,137
1995	27,573	13,034	22,105	62,712	1,675,298
2000	29,731	13,610	22,368	65,709	1,824,453
2004	27,028	13,314	20,695	61,037	1,831,537
Numeric Change					
1980-1990	674	3,601	-2,122	2,153	135,792
1990-2000	3,959	1,888	1,684	7,531	309,316
2000-2004	-2,703	-296	-1,673	-4,672	7,084
Percent Change					
1980-1990	2.69%	44.34%	-9.30%	3.84%	9.84%
1990-2000	15.36%	16.11%	8.14%	12.94%	20.42%
2000-2004	-9.09%	-2.17%	-7.48%	-7.11%	0.39%
Average Annual Percent Change					
1980-1990	0.27%	3.74%	-0.97%	0.38%	0.94%
1990-2000	1.44%	1.50%	0.79%	1.22%	1.88%
2000-2004	-2.35%	-0.55%	-1.92%	-1.83%	0.10%

Source: BEA, 2006

IAAAP is one of the largest employers in the area. Other major employers in the Burlington area include Great River Medical Center (1,517 employees), Vista Bakery (775 employees), Federal Mogul (497 employees), General Electric (535 employees), and Winegard Company (506 employees).

Over the period 1990 through 2005, unemployment rates for each of the counties comprising the ROI mirrored those of the State of Iowa and the nation. Rates peaked in 1992 with values of over 7 percent in Lee County. Rates declined consistently through 1999 with rates reaching below 3 percent in Henry County. Unemployment rates rose sharply through 2003 and declined after. Since 2000, unemployment rates for all three counties of the ROI have exceeded the rate for the state.

Per capita income for residents of Des Moines County was $29,219 in 2004, which was about 6 percent below that for the State of Iowa and about 12 percent below that for the nation (Table 4-3). Over the period 1980 through 2000, per capita income of residents in each of the three counties of the ROI consistently declined compared to that of the nation.

TABLE 4-3
Per Capita Income by State and County (1970-2004)
EA for Implementation of BRAC Actions at Iowa Army Ammunition Plant

	1970	1975	1980	1985	1990	1995	2000	2004
State of Iowa	$3,865	$6,219	$9,585	$13,490	$17,389	$20,929	$26,554	$31,058
% of US	*95*	*101*	*95*	*91*	*89*	*91*	*89*	*94*
Des Moines County	$4,315	$6,480	$10,117	$13,745	$17,552	$20,554	$26,021	$29,219
% of US	*106*	*105*	*100*	*93*	*90*	*89*	*87*	*88*
Henry County	$3,705	$6,364	$8,959	$12,813	$16,460	$18,621	$23,589	$27,172
% of US	*91*	*103*	*89*	*87*	*85*	*81*	*79*	*82*
Lee County	$3,674	$5,932	$9,348	$13,097	$16,079	$19,254	$23,406	$27,257
% of US	*90*	*96*	*92*	*89*	*83*	*83*	*78*	*82*

Source: BEA, 2006

4.9.1.2 Demographics

During the 1990s, each of the counties of the ROI experienced population losses that, with the exception of Henry County, continued through 2004 (Table 4-4). Between 1990 and 2005, Des Moines County lost about 1,800 residents, Lee County lost almost 2,000 residents, and Henry County gained just over 1,000 residents. The ROI lost about 3 percent of its population over this period.

TABLE 4-4
Population of Counties and Incorporated Places in the ROI (1990 - 2005)
EA for Implementation of BRAC Actions at Iowa Army Ammunition Plant

					1990 to 2000		1990 to 2005	
State/County/Place	**July 1, 2005**	**July 1, 2000**	**April 1, 2000**	**April 1, 1990**	**Numerical change**	**Percent change**	**Numerical change**	**Percent change**
State of Iowa	***2,966,334***	***2,928,460***	***2,926,324***	***2,776,831***	***149,493***	***5.38%***	***189,503***	***6.82%***
Des Moines County	***40,810***	***42,291***	***42,351***	***42,614***	***-263***	***-0.62%***	***-1,804***	***-4.23%***
Burlington	25,436	26,780	26,839	27,208	-369	-1.36%	-1,772	-6.51%
Danville	859	914	914	926	-12	-1.30%	-67	-7.24%
Mediapolis	1,587	1,646	1,644	1,637	7	0.43%	-50	-3.05%
Middletown	525	535	535	386	149	38.60%	139	36.01%
West Burlington	3,231	3,156	3,161	3,083	78	2.53%	148	4.80%
Balance of County	9,172	9,260	9,258	9,374	-116	-1.24%	-202	-2.15%
Henry County	***20,246***	***20,303***	***20,336***	***19,226***	***1,110***	***5.77%***	***1,020***	***5.31%***
Coppock (part)	48	47	40	33	7	21.21%	15	45.45%
Hillsboro	205	205	205	169	36	21.30%	36	21.30%
Mount Pleasant	8,767	8,733	8,751	7,959	792	9.95%	808	10.15%
Mount Union	128	132	132	140	-8	-5.71%	-12	-8.57%
New London	1,871	1,930	1,937	1,922	15	0.78%	-51	-2.65%
Olds	244	248	249	205	44	21.46%	39	19.02%
Rome	117	116	113	124	-11	-8.87%	-7	-5.65%
Salem	460	464	464	453	11	2.43%	7	1.55%
Wayland	944	943	945	838	107	12.77%	106	12.65%
Westwood	126	127	127	104	23	22.12%	22	21.15%
Winfield	1,105	1,131	1,131	1,051	80	7.61%	54	5.14%
Balance County	6,231	6,227	6,242	6,228	14	0.22%	3	0.05%
Lee County	***36,705***	***37,939***	***38,052***	***38,687***	***-635***	***-1.64%***	***-1,982***	***-5.12%***
Donnellson	923	959	963	940	23	2.45%	-17	-1.81%
Fort Madison	11,048	11,433	10,715	11,614	-899	-7.74%	-566	-4.87%
Franklin	128	135	136	152	-16	-10.53%	-24	-15.79%
Houghton	127	130	130	127	3	2.36%	0	0.00%
Keokuk	10,762	11,378	11,427	12,451	-1,024	-8.22%	-1,689	-13.57%
Montrose	942	956	957	957	0	0.00%	-15	-1.57%
St. Paul	121	118	118	120	-2	-1.67%	1	0.83%
West Point	961	978	980	1,079	-99	-9.18%	-118	-10.94%
Balance County	11,693	11,852	12,626	11,247	1,379	12.26%	446	3.97%
ROI TOTAL	***97,761***	***100,533***	***100,739***	***100,527***	***212***	***0.21%***	***-2,766***	***-2.75%***
Total Population For Multi-County Places								
Coppock (Henry, Jefferson, Washington)	66	64	57	50	*7*	*14.00%*	*16*	*32.00%*

Source: U.S. Census Bureau, Population Division, Prepared By: State Library of Iowa, State Data Center Program

The community of Burlington, the county seat of Des Moines County, contains over 60 percent of the county population and when considered with neighboring West Burlington, this share increases to just over 70 percent. Middletown, the closest community to IAAAP had an estimated population of 525 in 2005. Mount Pleasant, the county seat of neighboring Henry County, had a population of just over 8,750 in 2005 (43 percent of the total county population). Fort Madison, the county seat of Lee County, had a 2005 population of almost 11,050 (29 percent of the total county population).

The on-post population of IAAAP consists only of the senior military officer assigned to the installation.

4.9.1.3 Housing and Community Services

On-post Housing.

Housing at IAAAP is limited to that occupied by the senior military officer (Lieutenant Colonel) assigned to the installation.

Off-post Housing.

The total number of housing units in the three-county ROI was reported to be 43,500 by the 2000 Census. Of this total, almost 8 percent were vacant. Of the occupied units, approximately 75 percent were owner-occupied and the remaining were renter-occupied (Table 4-5). Of the vacant housing units, approximately 31 percent were for rent and 15 percent were for sale.

TABLE 4-5
Selected Housing Characteristics (2000)
EA for Implementation of BRAC Actions at Iowa Army Ammunition Plant

	State of Iowa	*Des Moines County*	*Henry County*	*Lee County*	*ROI*
Total Housing Units	1,232,511	18,643	8,246	16,612	43,501
Occupied	1,149,276	17,270	7,626	15,161	40,057
Owner-Occupied	831,419	12,813	5,569	11,442	29,824
Renter Occupied	317,857	4,457	2,057	3,719	10,233
Percent Owner-Occupied	72.34%	74.19%	73.03%	75.47%	74.45%
Percent Renter-Occupied	27.66%	25.81%	26.97%	24.53%	25.55%
Vacant	83,235	1,373	620	1,451	3,444
Percent Vacant	6.75%	7.36%	7.52%	8.73%	7.92%
For rent	27.96%	31.68%	34.84%	27.71%	30.57%
For sale only	16.90%	17.92%	15.48%	13.09%	15.45%
Rented or sold, not occupied	8.94%	9.10%	13.39%	8.82%	9.76%
For seasonal, recreational, or occasional use	19.79%	11.87%	12.42%	8.27%	10.45%
For migrant workers	0.09%	0.00%	0.00%	0.00%	0.00%
Other vacant	26.31%	29.42%	23.87%	42.11%	33.77%

Source: U.S. Census 2000

Of the occupied housing units in the counties of the ROI, about 75 percent are single-family structures (detached or attached). Between 7 and 9 percent are mobile homes and the proportions in large structures (50 units or more) are less than 3 percent. The housing stock in Henry County is substantially younger (median year both owner and renter-occupied structures built is 1964) than that in both Des Moines and Lee Counties. The oldest housing stock is in Des Moines County (median year owner-occupied structures built is 1951; median year renter-occupied structures built is 1949). Sub-standard housing units (i.e., lacking complete plumbing and kitchen facilities) comprise only 2 percent or less of the housing stock of each of the counties. As of 2000, the median contract rent varied between $288 (Lee County) and $349 (Des Moines County) and the median sale price asked varied between $39,600 (Henry County) and $63,300 (Lee County).

Housing construction activity is highly cyclical in nature. A complete building cycle occurred between 1980 and 1998 with declining activity from 1980 to 1986 and increases in activity between 1987 and 1998. This period was followed by years (1999 – 2005) exhibiting relatively stable construction activity levels. Over the 25-year period between 1980 and 2005, the number of housing units authorized for construction in the ROI experienced peaks of activity: 291 units in 1994, 266 units in 1998, and 233 units in 1980. Years experiencing low activity included 1986 with 58 units, and 1987 and 1989 when only 71 units were authorized for construction.

Medical Facilities.

A medical clinic is located in Building 4A-137-4 at IAAAP. Employee physicals, first aid, and rehabilitation for work-related injuries are performed at this clinic. Health care services are also provided by community-based facilities and professionals within the ROI. Des Moines County contains over 70 medical doctors and is the home of Great River Medical Center (a 315-bed facility) located in West Burlington. Hospitals in Lee County include the Keokuk Area Hospital (125 beds) in Keokuk, Keokuk County Health Center (25 beds) in Keokuk, and Fort Madison Community Hospital (50 beds) in Fort Madison. The Henry County Health Center (25 beds) is located in Mount Pleasant.

Educational Facilities.

The three-county ROI contains 11 school districts, the largest of which in terms of enrollment include the following: Burlington Community School District (CSD) with an enrollment of 4,294 students; Fort Madison CSD (2,281 students); Keokuk CSD (2,253 students); and Mount Pleasant CSD (2,157 students).

There is variation in the racial/ethnic composition of the student body of the school districts. Burlington CSD and Keokuk CSD have substantially higher proportions of black students than other school districts (12.2 percent and 8.9 percent, respectively). The proportion of the student body of Hispanic background is highest in the West Burlington Independent School District and Fort Madison CSD (7.7 percent and 6.0 percent, respectively). Students of Asian and Pacific Islander background comprise the largest minority group in Mount Pleasant CSD with 4.6 percent of the student body. There is only a single school district (Keokuk CSD) in which a majority of students receive free lunch and/or reduced cost lunch.

Institutions of higher education near IAAAP include Southeast Community College with campuses in West Burlington and Keokuk and centers in Mount Pleasant and Fort Madison. Iowa Wesleyan College is located in Mount Pleasant. Monmouth College is located about 30 miles to the east in Illinois and Western Illinois University is located in Macomb about 50 miles to the southeast. These facilities meet the needs of the community as well as the needs of IAAAP employees and their families.

4.9.1.4 Installation Security and Fire Protection Services

Installation Security.

The security department of IAAAP provides security throughout the installation through the use of roaming patrols and control at the access gates. There are three active access gates: Gate 3 accommodates commercial traffic, mostly trucks but including agricultural machinery used on the leased farmland at the installation; Gate 4 provides access to the production and administrative areas; and Gate 5 on the south side of the installation operates on a part-time basis. IAAAP has mutual aid agreements with the Des Moines County Sheriff and the Iowa State Highway Patrol.

Fire Protection.

The central fire station at IAAAP is located near Gate 4. There are about 12 full-time equivalent firefighter positions with between 4 and 5 staff present during each shift, around the clock. A number of the fire personnel are cross-trained as emergency medical technicians (EMT) and hazmat crewmembers. Among the equipment of the fire department is an ambulance and hazmat trailer. The department maintains mutual aid agreements with fire departments in surrounding communities.

4.9.1.5 Environmental Justice

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 its programs, policies, and activities on minority populations and low income populations."

Based on information from the 2000 Census, the three-county ROI has a minority population comprising almost 7 percent of the total population and almost 10 percent of the residents living below the poverty level. There is little variation within the ROI regarding these two characteristics at the county level and their values are similar to those for the State of Iowa (Table 4-6).

For the communities within Des Moines County, the proportion of the population comprising minority groups is higher in Burlington (9.4 percent), Middletown (7.7 percent), and West Burlington (7.4 percent) than in Des Moines County (7.2 percent). The percent of the population below the poverty level is also higher in Burlington (12.6 percent) and Middletown (19.5 percent) than in the county as a whole (10.7 percent) (Table 4-7).

TABLE 4-6
Minority and Low Income Population, by State, ROI, and County (2000)
EA for Implementation of BRAC Actions at Iowa Army Ammunition Plant

	State of Iowa	Des Moines County	Henry County	Lee County	ROI
Total:	2,926,324	42,351	20,336	38,052	100,739
Not Hispanic or Latino:	2,843,851	41,611	20,080	37,150	98,841
White alone	2,710,344	39,308	19,154	35,401	93,863
Black or African American alone	60,744	1,488	295	1,050	2,833
American Indian and Alaska Native alone	7,955	93	47	95	235
Asian alone	36,345	245	382	150	777
Native Hawaiian and Other Pacific Islander alone	888	11	5	20	36
Some other race alone	2,103	39	7	34	80
Two or more races	25,472	427	190	400	1,017
Hispanic or Latino:	82,473	740	256	902	1,898
White alone	38,296	371	120	461	952
Black or African American alone	1,109	23	7	16	46
American Indian and Alaska Native alone	1,034	11	2	4	17
Asian alone	290	6	1	0	7
Native Hawaiian and Other Pacific Islander alone	121	5	0	2	7
Some other race alone	35,317	250	99	358	707
Two or more races	6,306	74	27	61	162
Environmental Justice Statistics					
Minority Population:	215,980	3,043	1,182	2,651	6,876
Hispanic/Latino	82,473	740	256	902	1,898
Non-Hispanic/Latino Except White	133,507	2,303	926	1,749	4,978
Percent Minority Population	**7.38%**	**7.19%**	**5.81%**	**6.97%**	**6.83%**
Percent Population Below Poverty Level:	**9.13%**	**10.67%**	**8.76%**	**9.70%**	**9.94%**

Source: U.S. Census Bureau Census 2000

TABLE 4-7
Minority and Low Income Population by Community (2000)
EA for Implementation of BRAC Actions at Iowa Army Ammunition Plant

	State of Iowa	Des Moines County	Burlington	Danville	Mediapolis	Middletown	West Burlington
Demographic Data							
Total:	2,926,324	42,351	26,839	914	1,644	535	3,161
Not Hispanic or Latino:	2,843,851	41,611	26,285	910	1,633	522	3,064
White alone	2,710,344	39,308	24,328	902	1,622	494	2,928
Black or African American alone	60,744	1,488	1,332	1	2	14	78
American Indian and Alaska Native alone	7,955	93	81	1	0	0	1
Asian alone	36,345	245	171	2	3	7	33
Native Hawaiian and Other Pacific Islander alone	888	11	6	0	0	0	0
Some other race alone	2,103	39	36	1	0	0	0
Two or more races	25,472	427	331	3	6	7	24
Hispanic or Latino:	82,473	740	554	4	11	13	97
White alone	38,296	371	253	3	7	5	66
Black or African American alone	1,109	23	22	0	0	0	1
American Indian and Alaska Native alone	1,034	11	8	0	0	0	1
Asian alone	290	6	6	0	0	0	0
Native Hawaiian and Other Pacific Islander alone	121	5	5	0	0	0	0
Some other race alone	35,317	250	206	1	1	8	18
Two or more races	6,306	74	54	0	3	0	11
Environmental Justice Statistics							
Minority Population:	215,980	3,043	2,511	12	22	41	233
Hispanic/Latino	82,473	740	554	4	11	13	97
Non-Hispanic/Latino Except White	133,507	2,303	1,957	8	11	28	136
Percent Minority Population	**7.38%**	**7.19%**	**9.36%**	**1.31%**	**1.34%**	**7.66%**	**7.37%**
Percent Population Below Poverty Level:	**9.13%**	**10.67%**	**12.58%**	**3.14%**	**8.31%**	**19.45%**	**8.17%**

Source: U.S. Census Bureau Census 2000

4.9.1.6 Protection of Children

IAAAP adheres to EO 13045, *Protection of Children from Environmental Health Risks and Safety Risk* (Federal Register: April 23, 1997, Volume 62, Number 78). This EO 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. There is a single on-site residence occupied by the military commander of the installation and it is possible that children will be engaged in recreational activities at the site.

Table 4-8 presents the number of individuals between the ages of 5 and 17 in the counties comprising the ROI, major communities within Des Moines County, and the State of Iowa. The percentage of school-age children is slightly below that for the State of Iowa in Des Moines and Lee Counties. The proportion is relatively high in Middleton (22.1 percent) and low in West Burlington (15.7 percent) compared to that for Des Moines County (18.1 percent).

TABLE 4-8
Persons of School Age (5-17 years)
EA for Implementation of BRAC Actions at Iowa Army Ammunition Plant

Geographical Area	Population		
	Total	School Age	Percent School Age
State of Iowa	2,926,324	545,225	18.63%
Des Moines County	42,351	7,666	18.10%
Henry County	20,336	3,802	18.70%
Lee County	38,052	7,004	18.41%
Burlington	26,839	4,804	17.90%
Danville	914	163	17.83%
Mediapolis	1,644	292	17.76%
Middletown	535	118	22.06%
West Burlington	3,161	496	15.69%

4.9.2 Consequences

4.9.2.1 Proposed Action

Under the proposed action, additional production or administrative workers would not be required to accommodate the incoming munitions functions and no personnel would be relocated. Therefore, any potential effects that the proposed action would have on socioeconomic resources would occur during the short-lived period of construction.

Economic Development.

The EIFS model is used to estimate the economic effects of the proposed action and the results are compared to Rational Threshold Values (RTVs) as a means of evaluating the significance of these effects in relation to the regional economy. RTVs are positive and negative percent changes in sales volume, income, employment, and population that represent an acceptable range around the maximum historic fluctuations that have occurred within the ROI over the period 1969 through 2000. Detailed EIFS model reports that contain the model inputs, outputs, and significance measures are included in Appendix C.

Construction Phase.

Construction is expected to last approximately one year and, in the short term, expenditures in the local economy for goods and services and direct employment associated with construction would increase sales volume, employment, and income in the ROI. It is estimated that total construction costs to implement the proposed action would be just over $12 million. Construction for the remodeling of Lines 3A and 4A would primarily involve modifications to portions of the facility interiors and upgrades to the existing utility systems. Economic benefits would be temporary, lasting only for the duration of construction activity. It is assumed that approximately 40 percent of the total project costs of just over $12 million, i.e., approximately 4.9 million, would be wage and salary payments to construction workers. Such expenditures would support approximately 116 full-time construction jobs (see Appendix C). In addition to payroll expenditures for the required labor, construction activities would require the procurement of materials and services. These procurements, many of which would occur within the region, and the personal consumption expenditures of the construction workers at local and regional retail and service establishments would create an economic multiplier effect. This effect would result in indirect and induced employment creating a total regional demand for about 280 full-time jobs. This employment level corresponds to less than 0.5 percent of regional baseline employment. Income associated with the direct jobs would be about $6.3 million and the total increase in personal income would be about $9.5 million. Suppliers in the ROI would experience a short-term increase in the sale of construction-related materials and provision of services. It is anticipated that current members of the three-county ROI labor force would be sufficient to fulfill the additional construction jobs associated with the project.

Table 4-9 presents estimates of both the direct effects of construction activities and the induced effects in related industrial sectors that would be affected by construction expenditures and employment. The percentage increase in sales volume, income, and employment 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 impacts to the regional economy can be expected from the construction activities required to implement the proposed action.

TABLE 4-9
EIFS Model Output for the Proposed Construction ACTIVITIES
EA for Implementation of BRAC Actions at Iowa Army Ammunition Plant

Indicator	Projected Change	Percentage Change	Range of RTVs
Sales Volume-Direct	$11,237,080	--	N/A
Sales Volume-Induced	$17,417,470	--	N/A
Sales Volume- Total	$28,654,540	0.9%	-6.95 % to 10.44 %
Income-Direct	$6,261,837	--	N/A
Income-Induced	$3,264,837	--	N/A
Total Income[1]	$9,526,674	0.43%	-7.55 % to 8.12 %
Employment-Direct	180	--	N/A
Employment-Induced	98	--	N/A
Total Employment	278	0.41%	-3.62 % to 3.23 %
Local Population	0	0%	N/A
Local Off-Base Population	0	0%	-0.69 % to 0.98 %

Notes:
[1]Place of work income
RTV = rational threshold value
N/A = not applicable

Operations Phase.

Operation of the incoming munitions functions would not require an increase in the workforce at IAAAP and any additional local purchases of goods and services would be minor. Therefore, the proposed action would have negligible long-term effects.

Demographics and Public Services.

It is anticipated that the workforce required during the construction phase of the proposed action would be available within the region and no in-migration would occur. Therefore, the proposed action would have no effect on demographics and public services.

Environmental Justice and Protection of Children.

The proposed action would be confined to IAAAP and construction activity involves the remodeling of existing facilities that are not located near onsite housing or offsite residential areas. Therefore, the proposed action would not affect minority or low-income populations or children.

4.9.2.2 No Action Alternative

Under the no action alternative, IAAAP would not remodel any of its facilities to accommodate the incoming munitions functions. 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 closest major highways to IAAAP are U.S. Highways 34 and 61. U.S. 34 runs east-west along a portion of the northern boundary of the installation. U.S. 61 runs north-south between the installation and the City of Burlington. These roads are classified as "commercial and industrial networks," and are rated as Planning Level 2 and Service Level B roads by the Iowa Department of Transportation (IDOT) ranking system. Near IAAAP, both roads are multilane divided systems. The annual average daily traffic load in 2002 on U.S. 34 north of IAAAP near Middletown was 11,500 vehicles (IDOT, 2006). The annual average daily traffic load in 2002 on U.S. 61 southeast of IAAAP was 9,300 vehicles (IDOT, 2006). State Route (SR) 79 runs east-west near Middletown north of IAAAP. SR 16 runs east-west and intersects U.S. 61 just south of the installation.

Rail service to the region is provided by Burlington Northern Santa Fe Railway Company (BNSF) and by Norfolk and Southern Railway Company. The regional hub is in Burlington, with daily switching service. IAAAP accesses this rail network in the northern end of the installation near Middletown where there is a freight stop. The railroads near IAAAP have an annual gross tonnage of 104 million tons per mile (IDOT, 2006).

Passenger rail service is provided by Amtrak, and the nearest passenger train stop is in Burlington. The train line is the California Zephyr, which operates on the BNSF tracks and runs from Chicago, Illinois, to Oakland, California. Daily service is provided.

4.10.1.2 Installation Transportation

IAAAP has approximately 149 miles of roads, most of which are gravel. Paved roads provide access to most installation buildings and the gravel and dirt roads provide access to agricultural leases and remote areas within the installation. IAAAP has more than 100 miles of railroad lines. The IAAAP railway system interconnects with the BNSF railway system at the northern boundary of the installation.

The nearest commercial airport to IAAAP is the Southeast Iowa Regional Airport Authority (SIRAA), located in Burlington. This airport is the only commercial service airport within a 75-mile radius of the installation. It serves southeastern Iowa, west-central Illinois, and northeastern Missouri. The airline servicing SIRAA is RegionsAir, an affiliate of American Airlines. RegionsAir provides three flights daily to a major hub airport in St. Louis, Missouri. Remmers Aviation provides general aviation services at SIRAA.

4.10.1.3 Public Transportation

There is no public transportation service for IAAAP. The City of Burlington has a public bus system that provides service throughout Burlington and West Burlington. The service area

for this service does not extend to Middletown or IAAAP. Burlington Trailways provide intercity bus service across Iowa, with the nearest stops in Burlington and Mount Pleasant.

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 IAAAP, there would be no permanent change in installation traffic or demand for commercial air service.

Construction work associated with the proposed remodeling of Lines 3A and 4A would temporarily increase traffic at IAAAP during the construction period. The projected increase in traffic is not expected to burden the road system in or around the installation significantly. After the remodeling is completed, traffic levels in and around IAAAP would return to current levels. The proposed remodeling of Lines 3A and 4A would not involve modifications to the existing road system of the installation. The proposed action is not expected to affect rail services, air traffic, or public transportation significantly.

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

4.10.2.2 No Action Alternative

Under the no action alternative, IAAAP would not remodel any of its facilities to accommodate the incoming munitions functions. Therefore, the no action alternative would have no effect on transportation.

4.11 Utilities

4.11.1 Affected Environment

4.11.1.1 Potable Water

IAAAP purchases potable water through a long-term purchasing contract with the Burlington Municipal Waterworks (BMWW), a public utility located in and run by the City of Burlington. The sources for this water are the Mississippi River (80 percent) and local wells that draw from the Pleistocene Aquifer (20 percent). The BMWW has an elevated water storage capacity of 8.5 million gallons and a total water capacity of almost 16 million gallons (Burlington Chamber of Commerce, 2005). BMWW provides an average of 5.2 million gallons per day (gpd) of potable water directly to the City of Burlington, City of West Burlington, IAAAP, and Rathbun Regional Water Association public customers. IAAAP distributes water from the BMWW to the City of Middletown, City of Danville, and the U.S. Army Reserve Center (IAAAP, 2006). Two electrical and one diesel pumps at IAAAP provide power to distribute drinking water throughout the installation.

4.11.1.2 Wastewater System

IAAAP has two wastewater treatment plants (WWTPs): the main WWTP and the Line 3A WWTP. The main WWTP is a two-stage, high-rate tricking filter plant and has a capacity of

800,000 gallons per day. The installation sanitary sewer system consists of a network of main and secondary lines constructed of vitrified clay and ductile iron pipes.

4.11.1.3 Stormwater System

The developed areas of IAAAP have a storm drainage system that can accommodate current runoff during storm events. The system consists of a network of drainage ditches and underground pipes. IAAAP has approximately 500 miles of drainage ditches, which direct runoff into the numerous onsite streams. The IAAAP NPDES permit regulates the monitoring of non-point source storm water runoff at two locations.

4.11.1.4 Energy Sources

Alliant Energy provides electricity and natural gas to IAAAP. Peak energy demand occurs during summer, primarily due to the increased use of air conditioning. Electricity is transmitted by Alliant Energy from a plant located in Burlington to a transformer distribution station at the installation. Alliant Energy supplies natural gas to IAAAP via a feeder line that draws gas from a 4-inch main pipeline.

4.11.2 Consequences

4.11.2.1 Proposed Action

The proposed remodeling of Lines 3A and 4A would require new utility connections and/or upgrades to the existing utility systems of the facilities, including electrical, water, sewer, gas, compressed air, steam, and cooling water distribution systems. The incoming munitions functions would increase the overall energy consumption of IAAAP; however, the increase in energy demand would not overburden the utility infrastructure of the installation. Because no new impervious areas would be created, there would be no change in storm water runoff and no need for additional storm water control infrastructure. Because the proposed action would not change the number of personnel at IAAAP, potable water consumption, wastewater, and solid waste generation would remain at current levels.

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

4.12 Hazardous and Toxic Substances

4.12.1 Affected Environment

IAAAP is designated as a large-quantity hazardous waste generator (i.e., more than 2,200 pounds/month). Industrial and hazardous wastes are generally collected at their point of origin. If the wastes cannot be treated, they are packaged and transported to a central facility where they are stored temporarily (90 days or less) until removed by a licensed contractor and disposed offsite.

IAAAP submits annual hazardous waste reports to EPA that provide information on the wastes generated and managed at the installation. The most common wastes that are generated and managed at IAAAP are reject components of munitions; wastewater from munitions production processes; explosive constituents such as trinitrotoluene (TNT), royal demolition explosive (RDX), and high melting explosive (HMX); and various paint, solvent, adhesive, and petroleum, oil, and lubricant (POL) wastes.

Several LAP lines at IAAAP have industrial waste treatment systems that treat the waste streams generated. Treated wastes are recycled or discharged to the installation drainage ditch system. Wastes that cannot be treated are properly managed and disposed offsite.

4.12.2 Consequences

4.12.2.1 Proposed Action

Hazardous waste streams and materials would be generated from the incoming munitions functions. The production levels at IAAAP for the incoming munitions would be determined on a contractual basis. The current level of production of the 155 MM HE at Kansas AAP is 5,000 parts per month. The waste material quantities generated by the 155 MM HE functions at Kansas AAP during the 12-month period of October 2005 to September 2005 are presented in Table 4-10.

TABLE 4-10
Annual Waste Material Production for 150 MM HE Functions at Kansas Army Ammunition Plant (October 20005 to September 2005)
EA for Implementation of BRAC Actions at Iowa Army Ammunition Plant

Waste Component	Annual Waste Production (pounds)
TNT Wet Sumpage	8,441
TNT Dry Sumpage	3,977
Pinkwater Spill Residue	5,350
Spent Carbon	12,435
Spent Aerosol Cans	100

Notes:
TNT - Trinitrotoluene
Source: Mr. Bret Raines/ Kansas Army Ammunition Plant

Line 3A would be used to accommodate the incoming 155 MM HE functions. A pink water treatment system is currently available in Line 3A to treat the wastes that would be generated by the 155 MM HE functions. This existing system would be upgraded under the proposed action to ensure that it functions properly and can accommodate the level of production that is needed.

Wastes associated with the incoming detonators/delays/relays functions primarily include lead azide, RDX, and primer mixes. The types of detonators that are being relocated from Lone Star AAP are the same or similar to those produced in the past at IAAAP. The

remodeling of Line 4A to accommodate the detonators/delays/relays functions would include the construction of a new industrial waste treatment system to treat the wastewater generated from the functions. Management of sludges generated from the treatment of industrial wastewater in Line 4A, such as sludge associated with the loading of lead-based initiating compounds (EPA Hazardous Waste Number: KO46), would require a RCRA Hazardous Waste Management Permit from EPA Region 7. Issuance of this permit would be required prior to construction of the new waste treatment system. The discharge of treated wastewater from Line 4A and Line 3A to the installation drainage ditch system or sanitary sewer system would likely require modification to the IAAAP NPDES Permit issued by the IDNR.

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 IAAAP. All pertinent hazardous materials management plans implemented at IAAAP would be updated as needed to include the new wastes associated with the incoming munitions functions. USACE would obtain all necessary permits for the management of hazardous wastes generated by the incoming munitions.

For these reasons, any impacts associated with hazardous and toxic substances that the proposed action may have would be minor.

4.12.2.2 No Action Alternative

Under the no action alternative, IAAAP would not remodel any of its facilities to accommodate the incoming munitions functions. Therefore, the no action alternative would have no effect on or from hazardous and toxic substances.

4.13 Cumulative Effects Summary

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.

4.13.1 Proposed Action

The proposed remodeling of Lines 3A and 4A at IAAAP would have little potential to interact with any past, present, or reasonably foreseeable future actions at or outside the installation. Operation of onsite LAP lines to accommodate the incoming munitions functions would also have little potential to interact with other actions. The coupling of the proposed action with other actions that may involve IAAAP, such as the proposed construction and operation of an Armed Forces Readiness Center on property IAAAP is transferring to the Iowa Army National Guard, is not expected to significantly impact any resource evaluated in this EA. Based on separate NEPA documentation prepared, the construction and operation of the Readiness Center would not have any significant adverse impacts on any resource evaluated. The coupling of the proposed BRAC action with the proposed construction/operation of the Readiness Center is not expected to result in significant

cumulative impacts to any resource based on the scopes of actions, expected timelines of the actions, and the impact analyses conducted for the actions. Separate NEPA documentation will be prepared for future actions to evaluate the direct, indirect, and cumulative effects of those actions.

The proposed action would have 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 IAAAP to better accommodate the incoming munitions functions, it would have a positive cumulative effect on the mission of the installation and that of the U.S. Army.

4.13.2 No Action Alternative

Under the no action alternative, IAAAP would not remodel any of its facilities to accommodate the incoming munitions functions. Without remodeling its facilities, IAAAP would not be able to comply sufficiently with the Commission's recommendations. The inability of IAAAP to accommodate the incoming munitions functions has the potential to negatively affect other functions at IAAAP and result in adverse cumulative impacts on the overall mission of the installation and that of the U.S. Army.

5. Conclusions

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

5.1 Consequences of the Proposed Action

Any impacts that the proposed action may have on the natural environment would be negligible. During the proposed remodeling of Lines 3A and 4A, there would be *de minimus* increases in air emissions from fugitive dust and construction vehicle exhaust emissions. The air emissions that would be generated by the production and test firing of the incoming munitions would cause *de minimus* impacts to air quality and are not expected to collectively exceed federal air quality thresholds. Construction-related noise would be temporary and the levels are expected to be negligible or not audible off post. Based on the low number of detonator and additional warhead test fires that would be conducted, noise levels would not increase significantly at the installation. Remodeling of Lines 3A and 4A would have minor impacts on soils during construction. The soils around the buildings are already disturbed. Sediment and erosion controls would be implemented during construction to prevent any indirect impacts to surrounding soils or surface waters. Construction activity that occurs on the facility exteriors may have a minor, temporary impact on vegetation, which consists mostly of mowed grass and sparse landscaping vegetation. After construction is completed, any affected areas would be restored to original vegetative conditions. The establishment and operation of staging areas for the remodeling, as well as general construction noise, may temporarily disturb wildlife. The immediate areas around the facilities provide poor to moderate quality wildlife habitat. Any disturbance experienced by wildlife would be limited to the construction period and is expected to be minimal.

The remodeling of Lines 3A and 4A would not have a significant impact on the structural integrities of the facilities. Remodeling of the facilities would temporarily increase traffic at IAAAP during the construction period; however, the projected increase in traffic is not expected to burden the road system in or around the installation significantly. All hazardous waste generated by the production process would be handled, stored, and disposed in accordance with all applicable environmental regulations and with all hazardous materials management plans implemented at IAAAP. As part of the proposed action, IAAAP would upgrade the existing waste treatment system in Line 3A and install a new waste treatment system in Line 4A to treat the waste streams generated by the incoming munitions functions. USACE would obtain all necessary permits for the management of hazardous wastes generated by the incoming munitions.

The remodeling and operation of the facilities would have little potential to interact with any past, present, or reasonably foreseeable future actions at or outside IAAAP.

TABLE 5-1
Summary of Potential Environmental and Socioeconomic Consequences
EA for Implementation of BRAC Actions at Iowa Army Ammunition Plant

Resource	Environmental and Socioeconomic Consequences	
	No Action	**Proposed Action**
Land Use	No Effect	No Effect
Air Quality	No Effect	Negligible Impact *De minimus* construction-related fugitive dust and construction vehicle exhaust emissions would be controlled through appropriate BMPs. Air emissions from test firing of missile warheads and detonators and by the production of detonators would cause *de minimus* impacts to air quality and are not expected to collectively exceed federal air quality thresholds.
Noise	No effect	Negligible Impact Construction-related noise would be temporary and the levels are expected to be negligible or not audible off post. Operation of renovated buildings would generate noise levels similar to those currently generated. Based on the low number of detonator and additional warhead test fires that would be conducted, noise levels would not increase significantly at the installation.
Geology and Soils		
Geology	No Effect	No Effect
Topography	No Effect	No Effect
Soils	No Effect	Negligible Impact Minor construction-related disturbance. Soils around the facilities are already disturbed. Sediment and erosion controls would be implemented during construction to prevent any indirect impacts to surrounding soils.
Prime Farmland	No Effect	No Effect

TABLE 5-1
Summary of Potential Environmental and Socioeconomic Consequences
EA for Implementation of BRAC Actions at Iowa Army Ammunition Plant

Resource	Environmental and Socioeconomic Consequences	
	No Action	**Proposed Action**
Water Resources		
Surface Water	No Effect	Negligible Impact Sediment and erosion controls would be implemented during construction to prevent any indirect impacts to surrounding surface waters. Such controls may include silt fences, hay bales, and seeding of cleared areas that are to remain exposed for long periods.
Groundwater	No Effect	Negligible Impact Little or no groundwater dewatering is expected to be required during construction activities.
Floodplains	No Effect	No Effect
Wetlands	No Effect	No Effect
Biological Resources		
Vegetation	No Effect	Negligible Impact Minor, temporary impact from construction activity on facility exteriors. Vegetation consists mostly of mowed grass and sparse landscaping vegetation. After construction is completed, any affected areas would be restored to original vegetative conditions.
Wildlife	No Effect	Negligible Impact Minor, temporary disturbance from staging areas and construction noise. The immediate areas around the facilities provide poor to moderate quality wildlife habitat. Any disturbance would be limited to the construction period and is expected to be minimal.

TABLE 5-1
Summary of Potential Environmental and Socioeconomic Consequences
EA for Implementation of BRAC Actions at Iowa Army Ammunition Plant

Resource	Environmental and Socioeconomic Consequences	
	No Action	**Proposed Action**
Sensitive Species	No Effect	No Effect
Migratory Birds	No Effect	No Effect
Cultural Resources	No Effect	Negligible Impact Remodeling would not have a significant impact on the structural integrities of the facilities. All work would be confined to existing facility footprints so archaeological or Native American resources would not be impacted.
Socioeconomics		
Economic Development	No Effect	Negligible Impact Short-term, positive impact on local economy from temporary increases in employment and expenditures during construction.
Demographics and Public Services	No Effect	No Effect
Environmental Justice and Protection of Children	No Effect	No Effect
Transportation	No Effect	Negligible Impact Short-term, minor impact on installation traffic during construction.
Utilities	No Effect	Negligible Impact Minor modifications to the utility infrastructure of the installation. Small increase in energy demand would not overburden the utility system.

TABLE 5-1
Summary of Potential Environmental and Socioeconomic Consequences
EA for Implementation of BRAC Actions at Iowa Army Ammunition Plant

Resource	Environmental and Socioeconomic Consequences	
	No Action	**Proposed Action**
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 IAAAP. The existing waste treatment system in Line 3A would be upgraded and a new waste treatment system would be installed in Line 4A. USACE would obtain all necessary permits for the management of hazardous wastes generated by the incoming munitions.
Cumulative Effects	Negative Impact Without remodeling its facilities, IAAAP would not be able to sufficiently comply with the 2005 BRAC Commission's recommendations. The inability of IAAAP to accommodate the incoming munitions functions has the potential to negatively affect other functions at IAAAP and result in adverse cumulative impacts on the overall mission of the installation and that of the U.S. Army.	Positive Impact Proposed action would have little potential to interact with any past, present, or reasonably foreseeable future actions at or outside IAAAP. Short-term, positive cumulative impact on local economy from temporary increases in employment and expenditures during construction. Because the proposed action would allow IAAAP to better accommodate the incoming munitions functions, it would have a positive cumulative effect on the mission of the installation and that of the U.S. Army.

Notes:
BMP = best management practice
IAAAP = Iowa Army Ammunition Plant
BRAC = Base Realignment and Closure

The proposed action would have minor positive effects on the local economy resulting from short-term, temporary increases in employment and expenditures during construction.

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, IAAAP would not be able to sufficiently comply with the 2005 BRAC Commission's recommendations. The inability of IAAAP to accommodate the incoming munitions functions has the potential to negatively affect other functions at IAAAP and result in adverse cumulative impacts on 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.

6. List of Preparers

Christopher Clayton/Senior Project Manager/25 years of experience/Ph.D.

Regi Getis/Word Processor/15 years of experience/Literary Arts

Jennifer Karsner/Biologist/8 years of experience/Master of Science

Jean Koch/Technical Editor/26 years of experience/Bachelor of Science

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

Rich Reaves/Environmental Scientist/13 years of experience/Ph.D.

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

Marian Stuart/Graphics Specialist/16 years of experience/Associate of Science

Charles Uhlarik/Project Manager/14 years of experience/Master of Science

7. Distribution List

Cynthia Savoy/U.S. Army Corps of Engineers – Mobile District

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9. Persons Consulted

Leon Baxter/IAAAP

John Cortum/IAAAP

Gary Gidley/USACE

Joe Haffner/IAAAP

Kevin Howe/USACE

Keith Miller/IAAAP

Bret Raines/Kansas AAP

Alan Ruff/USACE

Harvey Ungerman/IAAAP

10. Acronyms

µg/m³	micrograms per cubic meter
AAP	Army Ammunition Plant
ACHP	Army Advisory Council on Historic Preservation
AIRFA	American Indian Religious Freedom Act
ARPA	Archaeological Resources Protection Act
BCC	Bird Species of Conservation Concern
BEA	Bureau of Economic Analysis
bls	below land surface
BLS	Bureau of Labor Statistics
BMP	Best Management Practice
BMWW	Burlington Municipal Waterworks
BNSF	Burlington Northern Santa Fe Railway Company
BRAC	Base Realignment and Closure
CAAPP	Clean Air Act Permit Program
CEQ	Council on Environmental Quality
CERL	Construction Engineering Research Laboratory (U.S. Army)
CFR	Code of Federal Regulations
CHPPM	U.S. Army Center for Health Promotion and Preventative Medicine
Commission	2005 BRAC Commission
CSD	Community School District
CWA	Clean Water Act
dB	Decibel
dBA	A-weighted Decibel Level
DoD	U.S. Department of Defense
EA	Environmental Assessment
EIFS	Economic Impact Forecast System
EIS	Environmental Impact Statement
EMT	Emergency Medical Technician
ENMP	Environmental Noise Management Program
EOs	Executive Orders
EOC/JOC	Emergency Operations/Joint Operations Center
EPA	U.S. Environmental Protection Agency
FASCAM	Family of Scatterable Mines
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
FNSI	Finding of No Significant Impact
ft	feet
gpm	gallons per minute
gpd	gallons per day
HE	High Explosive
HMX	High Melting Explosive
HVAC	Heating, Ventilation, and Air Conditioning
IAAAP	Iowa Army Ammunition Plant

ICM	Improved Conventional Munition
ICRMP	Integrated Cultural Resources Management Plan
IDNR	Iowa Department of Natural Resources
IDOT	Iowa Department of Transportation
INRMP	Integrated Natural Resources Management Plan
LAP	Load, Assembly, And Pack
MBTA	Migratory Bird Treaty Act
MM	millimeter
MSA	Metropolitan Statistical Area
msl	mean sea level
NAAQS	National Ambient Air Quality Standards
NAGPRA	Native American Graves Protection and Repatriation Act
NEPA	National Environmental Policy Act
NESHAP	National Emission Standards for Hazardous Air Pollutants
NHPA	National Historic Preservation Act
NOI	Notice of Intent
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
NWI	National Wetland Inventory
OSHA	Occupational Safety and Health Agency
PM	Particulate Matter
POL	Petroleum, Oil, And Lubricants
RCRA	Resource Conservation and Recovery Act
RDX	Royal Demolition Explosive
ROI	Region of Influence
RTV	Rational Threshold Value
SHPO	State Historic Preservation Office
SIRAA	Southeast Iowa Regional Airport Authority
SR	State Route
TNT	Trinitrotoluene
USACE	U.S. Army Corps of Engineers
USDA	United States Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
WWTP	Wastewater Treatment Plant

APPENDIX A

Agency Scoping

CH2M HILL
115 Perimeter Center Pl, NE
Suite 700
Atlanta, GA 30346

January 18, 2007

Ms. Jody Millar
U.S. Fish & Wildlife Service
4469 48th Ave Court
Rock Island, Illinois 61201

Subject: BRAC Environmental Assessment (EA) for Iowa Army Ammunition Plant, Iowa

Dear Ms. Millar:

CH2M HILL is assisting the Iowa Army Ammunition Plant (IAAAP) prepare an Environmental Assessment (EA) for the implementation of actions recommended under the 2002 Base Closure and Realignment law (commonly referred to as BRAC). Under the BRAC recommendations, the Kansas Army Ammunition Plant (AAP) will be closed and the 155 Millimeter (MM) High Explosive (HE) ammunition and missile warhead functions will be relocated from Kansas AAP to IAAAP. In addition, the Lone Star AAP in Texas will be closed and the Family of Scatterable Mines (FASCAM) and detonators/relays/delays functions will be relocated from Lone Star AAP to IAAAP.

IAAAP proposes to remodel Lines 3A and 4A to accommodate the incoming munitions functions. Most of the construction activity for the remodeling would occur within the interiors of the facilities. The remaining activity would occur in the immediate developed areas just outside the facilities. These areas consist mostly of mowed grass and sparse landscaping vegetation and provide poor to moderate quality wildlife habitat. These areas are not expected to be utilized by any state or federally listed species. Any noise disturbance experienced by common wildlife species during remodeling would be limited to the construction period and is expected to be minimal. Based on the low number of detonator and additional warhead test fires that would be conducted, noise levels would not increase significantly at the installation. For these reasons, the EA has concluded that the proposed action would have no effect on any state or federally listed species, migratory birds, or their habitats.

This letter is being sent as part of the agency scoping for the EA. Please submit any comments you have on the proposed action via letter correspondence or agency stamp to this letter to my attention within 30 days of receipt of this letter. Please contact me at (727) 698-8945 if you require further information.

Sincerely,

CH2M HILL

Tunch Orsoy

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Rock Island Field Office
4469 48th Avenue Court
Rock Island, Illinois 61201
Phone: (309) 793-5800 Fax: (309) 793-5804

IN REPLY REFER TO:
FWS/RIFO

February 21, 2007

Mr. Tunch Orsoy
CH2M HILL
115 Perimeter Center Pl, NE
Suite 700
Atlanta, Georgia 30346

Dear Mr. Orsoy:

We have reviewed your December 2006, Draft Environmental Assessment for Implementation of BRAC Actions at Iowa Army Ammunition Plant, Iowa (IAAP). Under the BRAC recommendations, the Kansas Army Ammunition Plant (AAP) will be closed and the 155 Millimeter (MM) High Explosive (HE) ammunition and missile warhead functions will be relocated from Kansas AAP to IAAAP. In addition, the Lone Star AAP in Texas will be closed and the Family of Scatterable Mines (FASCAM) and detonators/relays/delays functions will be relocated from Lone Star AAP to IAAAP. We have the following comments.

We concur with your findings that the proposed project should have no effect on federally listed threatened and endangered species. Should the project be modified or new information indicate endangered species may be affected, consultation should be initiated.

Thank you for the opportunity to comment. If you have any additional questions or concerns, please contact Heidi Woeber of my staff at extension 209.

Sincerely,

for J. C. Miller

Richard C. Nelson
Field Supervisor

cc: IAAAP (Hafner)

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Iowa SHPO Coordination

EA for Implementation of BRAC Actions at Iowa Army Ammunition Plant, Iowa

Christine Shirey
Industrial Property Management Specialist Iowa Army Ammunition Plant,
SJMIA-ISP, DSN 585-7602/COMM (319)753-7602 FAX 7601
----- Original Message -----
From: "Christine Shirey" <Christine.Shirey@us.army.mil>
To: "Ralph Christian" <Ralph.Christian@Iowa.gov>
Sent: Thursday, January 18, 2007 10:58 AM
Subject: Program Comment

> Per our telephone conversation earlier this morning:
>
> I've sent you the ACHP Program Comment that pertains to World War II and
> Cold Ware Era (1939-1974) at Army Ammunition Production Facilties and
> Plants. You indicated we would no longer need to send our SHPO
submissions
> that pertain to production buildings or structures that are covered
under
> this Comment. We also discussed that we are no longer required to
submit
> requests for determination for facilties dated after 1974 until they are
at
> least 50 years old.
>
> We would appreciate Iowa SHPO's concurrence that submissions for
production
> facilites located at this plant are no longer required for facilties as
> described in the Program Comment as well as facilities dated after 1974
> unless the Program Comment is no longer needed or withdrawn by ACHP.
>
> Sincerely,
> Christine Shirey
> Industrial Property Management Specialist
> Iowa Army Ammunition Plant, SJMIA-ISP,
> DSN 585-7602/COMM (319)753-7602
> FAX 7601
>

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.

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.

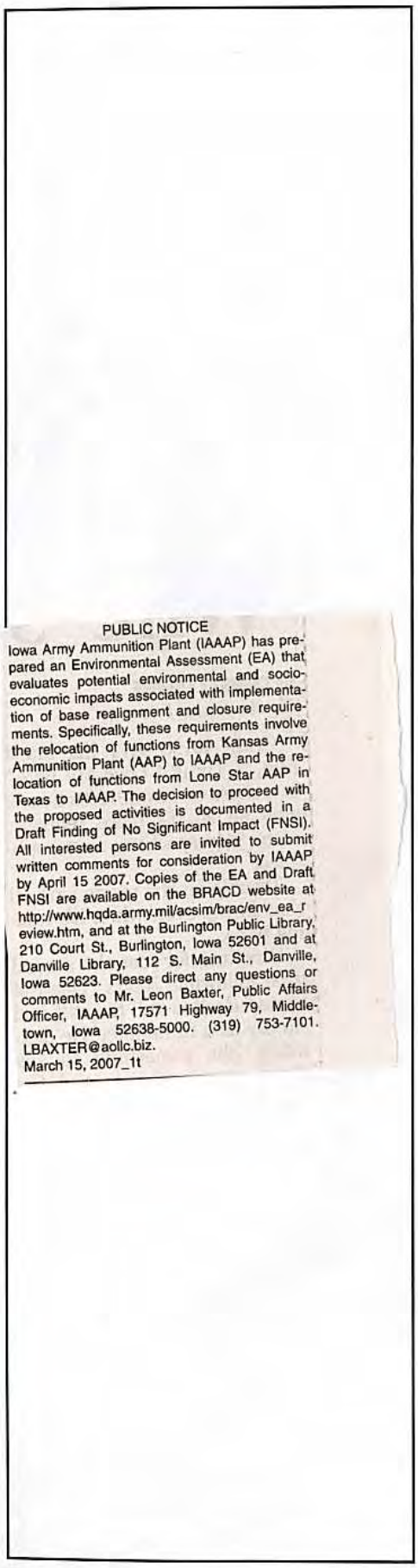
Headquarters, Department of the Army and ACHP will review the implementation of the Program Comment seven years after its issuance and determine whether to take action to terminate the Program Comment as detailed in the preceding paragraph.

John L. Nau, III
Chairman

August 18, 2006
Date

APPENDIX B

Public Involvement



PUBLIC NOTICE

Iowa Army Ammunition Plant (IAAAP) has prepared an Environmental Assessment (EA) that evaluates potential environmental and socio-economic impacts associated with implementation of base realignment and closure requirements. Specifically, these requirements involve the relocation of functions from Kansas Army Ammunition Plant (AAP) to IAAAP and the relocation of functions from Lone Star AAP in Texas to IAAAP. 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 IAAAP by April 15 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 the Burlington Public Library, 210 Court St., Burlington, Iowa 52601 and at Danville Library, 112 S. Main St., Danville, Iowa 52623. Please direct any questions or comments to Mr. Leon Baxter, Public Affairs Officer, IAAAP, 17571 Highway 79, Middletown, Iowa 52638-5000. (319) 753-7101. LBAXTER@aollc.biz.

March 15, 2007_1t

STATE OF IOWA

COUNTY OF DES MOINES } SS.

I, Steve Delaney, being first duly sworn, depose and say that I am the Editor/Publisher of

The Hawk Eye Company, a corporation, printers and publishers of The Hawk Eye, a newspaper of general circulation published in said County, and that the attached notice was published

once

in said newspaper on 03/15/07.

The first publication being on the 15th day of March, 2007.

Sworn and subscribed before me, a Notary Public in and for said County, on the 15th day of March, 2007.

Notary Public in and for

Des Moines County

APPENDIX C

Results of EIFS Model

EIFS REPORT

PROJECT NAME

IOWA AAP (Lines 3A & 4A)

STUDY AREA

19057	Des Moines, IA
19087	Henry, IA
19111	Lee, IA

FORECAST INPUT

Change In Local Expenditures	$7,303,200
Change In Civilian Employment	116
Average Income of Affected Civilian	$42,180
Percent Expected to Relocate	0
Change In Military Employment	0
Average Income of Affected Military	$0
Percent of Militart Living On-post	0

FORECAST OUTPUT

Employment Multiplier	2.55	
Income Multiplier	2.55	
Sales Volume - Direct	$11,237,080	
Sales Volume - Induced	$17,417,470	
Sales Volume - Total	$28,654,540	0.9%
Income - Direct	$6,261,837	
Income - Induced)	$3,264,837	
Income - Total(place of work)	$9,526,674	0.43%
Employment - Direct	180	
Employment - Induced	98	
Employment - Total	278	0.41%
Local Population	0	
Local Off-base Population	0	0%

RTV SUMMARY

	Sales Volume	Income	Employment	Population
Positive RTV	10.44 %	8.12 %	3.23 %	0.98 %
Negative RTV	-6.95 %	-7.55 %	-3.62 %	-0.69 %

RTV DETAILED

SALES VOLUME

Year	Value	Adj_Value	Change	Deviation	%Deviation
1969	347382	1518059	0	0	0
1970	345279	1426002	-92057	-98973	-6.94
1971	358446	1419446	-6556	-13472	-0.95
1972	384417	1472317	52871	45955	3.12
1973	424517	1532506	60189	53273	3.48
1974	465566	1513090	-19417	-26333	-1.74
1975	497137	1481468	-31621	-38537	-2.6
1976	567686	1600874	119406	112490	7.03
1977	646893	1707798	106923	100007	5.86
1978	723082	1778782	70984	64068	3.6
1979	790301	1746565	-32217	-39133	-2.24
1980	830080	1610355	-136210	-143126	-8.89
1981	872537	1535665	-74690	-81606	-5.31
1982	850414	1411687	-123978	-130894	-9.27
1983	876811	1411666	-21	-6937	-0.49
1984	947213	1458708	47042	40126	2.75
1985	976133	1454438	-4270	-11186	-0.77
1986	1014731	1481507	27069	20153	1.36
1987	1072157	1661843	180336	173420	10.44
1988	1126798	1532445	-129398	-136314	-8.9
1989	1196510	1543498	11053	4137	0.27
1990	1270024	1562130	18632	11716	0.75
1991	1308379	1543887	-18242	-25158	-1.63
1992	1379053	1572120	28233	21317	1.36
1993	1414184	1569744	-2376	-9292	-0.59
1994	1508396	1629068	59323	52407	3.22
1995	1561894	1639989	10921	4005	0.24
1996	1612141	1644384	4395	-2521	-0.15
1997	1661230	1661230	16846	9930	0.6
1998	1768320	1732954	71724	64808	3.74
1999	1811616	1739151	6198	-718	-0.04
2000	1870299	1739378	227	-6689	-0.38

INCOME

Year	Value	Adj_Value	Change	Deviation	%Deviation
1969	414586	1811741	0	0	0
1970	424025	1751223	-60517	-76382	-4.36
1971	444551	1760422	9199	-6666	-0.38
1972	481205	1843015	82593	66728	3.62
1973	553559	1998348	155333	139468	6.98
1974	595595	1935684	-62664	-78529	-4.06
1975	661320	1970734	35050	19185	0.97
1976	724413	2042845	72111	56246	2.75
1977	793810	2095658	52814	36949	1.76
1978	904774	2225744	130086	114221	5.13
1979	989775	2187403	-38341	-54206	-2.48

1980	1045727	2028710	-158692	-174557	-8.6
1981	1161951	2045034	16323	458	0.02
1982	1177760	1955082	-89952	-105817	-5.41
1983	1199527	1931238	-23843	-39708	-2.06
1984	1328939	2046566	115328	99463	4.86
1985	1372755	2045405	-1161	-17026	-0.83
1986	1408019	2055708	10303	-5562	-0.27
1987	1454540	2254537	198829	182964	8.12
1988	1500289	2040393	-214144	-230009	-11.27
1989	1591306	2052785	12392	-3473	-0.17
1990	1682052	2068924	16139	274	0.01
1991	1731616	2043307	-25617	-41482	-2.03
1992	1828751	2084776	41469	25604	1.23
1993	1850457	2054007	-30769	-46634	-2.27
1994	1973944	2131860	77852	61987	2.91
1995	2023440	2124612	-7248	-23113	-1.09
1996	2153268	2196333	71721	55856	2.54
1997	2241498	2241498	45165	29300	1.31
1998	2336291	2289565	48067	32202	1.41
1999	2360125	2265720	-23845	-39710	-1.75
2000	2493997	2319417	53697	37832	1.63

EMPLOYMENT

Year	Value	Change	Deviation	% Deviation
1969	57349	0	0	0
1970	54989	-2360	-2731	-4.97
1971	54165	-824	-1195	-2.21
1972	54849	684	313	0.57
1973	56695	1846	1475	2.6
1974	57092	397	26	0.05
1975	55465	-1627	-1998	-3.6
1976	57546	2081	1710	2.97
1977	59853	2307	1936	3.23
1978	61012	1159	788	1.29
1979	61714	702	331	0.54
1980	59901	-1813	-2184	-3.65
1981	58492	-1409	-1780	-3.04
1982	55849	-2643	-3014	-5.4
1983	54735	-1114	-1485	-2.71
1984	56014	1279	908	1.62
1985	55988	-26	-397	-0.71
1986	56281	293	-78	-0.14
1987	57084	803	432	0.76
1988	58324	1240	869	1.49
1989	60340	2016	1645	2.73
1990	61285	945	574	0.94
1991	61840	555	184	0.3
1992	61929	89	-282	-0.46

1993	62080	151	-220	-0.35
1994	64031	1951	1580	2.47
1995	65781	1750	1379	2.1
1996	66451	670	299	0.45
1997	67315	864	493	0.73
1998	69075	1760	1389	2.01
1999	69700	625	254	0.36
2000	69215	-485	-856	-1.24

POPULATION

Year	Value	Change	Deviation	% Deviation
1969	108331	0	0	0
1970	108094	-237	7	0.01
1971	108864	770	1014	0.93
1972	107156	-1708	-1464	-1.37
1973	106557	-599	-355	-0.33
1974	106932	375	619	0.58
1975	106509	-423	-179	-0.17
1976	107303	794	1038	0.97
1977	108118	815	1059	0.98
1978	108787	669	913	0.84
1979	108127	-660	-416	-0.38
1980	108108	-19	225	0.21
1981	107502	-606	-362	-0.34
1982	106374	-1128	-884	-0.83
1983	105156	-1218	-974	-0.93
1984	104484	-672	-428	-0.41
1985	103487	-997	-753	-0.73
1986	102504	-983	-739	-0.72
1987	101669	-835	-591	-0.58
1988	101088	-581	-337	-0.33
1989	100542	-546	-302	-0.3
1990	100596	54	298	0.3
1991	101274	678	922	0.91
1992	101725	451	695	0.68
1993	101639	-86	158	0.16
1994	101918	279	523	0.51
1995	102044	126	370	0.36
1996	101631	-413	-169	-0.17
1997	101373	-258	-14	-0.01
1998	101450	77	321	0.32
1999	101147	-303	-59	-0.06
2000	100517	-630	-386	-0.38

******** End of Report ********