ENVIRONMENTAL ASSESSMENT

BASE CLOSURE AND REALIGNMENT ACTIONS AT U.S. ARMY GARRISON-DETROIT ARSENAL

Prepared for:

U.S. Army Corps of Engineers
Mobile District

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ENVIRONMENTAL ASSESSMENT

IMPLEMENTATION OF BASE CLOSURE AND REALIGNMENT RECOMMENDATIONS AT U.S. ARMY GARRISON-DETROIT ARSENAL

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EXECUTIVE SUMMARY

ES.1 INTRODUCTION

On September 8, 2005, the Defense Base Closure and Realignment (BRAC) Commission recommended that certain BRAC actions occur at U.S. Army Garrison-Detroit Arsenal (USAG-DTA). These recommendations were approved by the President and forwarded to Congress. The BRAC Commission recommendations must now be implemented as provided for in the Defense Base Closure and Realignment Act of 1990 (Public Law 101-510), as amended.

ES.2 PROPOSED ACTION

The following text is quoted directly from the BRAC legislative language, Public Law 101-510. The proposed action is implementation of the following BRAC Commission directed actions at USAG-DTA:

- "A Bridging Lab and Water Purification Lab located on Selfridge, which are part of the Tank Automotive Army Research and Development Center at Detroit Arsenal will be retained and enclaved. Six garrison personnel (Garrison Commander and staff) will be relocated to Detroit Arsenal."
- "Realign Detroit Arsenal, MI, by relocating the supply contracting function for tires to the Inventory Control Point at Defense Supply Center Columbus, OH, and disestablishing all other supply functions for tires."
- "Realign Detroit Arsenal, MI, by relocating the Budget/Funding, Contracting, Cataloging, Requisition Processing, Customer Services, Item Management, Stock Control, Weapon System Secondary Item Support, Requirements Determination, Integrated Materiel Management Technical Support Inventory Control Point functions for Consumable Items to Defense Supply Center Columbus, OH, and reestablishing them as Defense Logistics Agency Inventory Control Point functions, and by disestablishing the procurement management and related support functions for Depot Level Reparable and designating them as Defense Supply Center Columbus, OH, Inventory Control Point functions."
- "Realign Rock Island Arsenal, IL, as follows: relocate the Budget/Funding, Contracting, Cataloging, Requisition Processing, Customer Services, Item Management, Stock Control, Weapon System Secondary Item Support, Requirements Determination, Integrated Materiel Management Technical Support Inventory Control Point functions for Consumable Items to Defense Supply Center Columbus, OH, and reestablish them as Defense Logistics Agency

Inventory Control Point functions; relocate the procurement management and related support functions for Depot Level Reparable to Detroit Arsenal, MI, and designate them as Defense Supply Center Columbus, OH, Inventory Control Point functions; and relocate the remaining integrated materiel management, user, and related support functions to Detroit Arsenal, MI."

- "Realign Redstone Arsenal, Huntsville, AL, by relocating the joint robotics program development and acquisition activities to Detroit Arsenal, Warren, MI, and consolidating them with the Program Executive Office Ground Combat Systems, Program Executive Office Combat Support and Combat Service Support and Tank Automotive Research Development Engineering Center. Realign the USMC Direct Reporting Program Manager Advanced Amphibious Assault (DRPM AAA) facilities in Woodbridge, VA, by relocating the Ground Forces initiative D&A activities to Detroit Arsenal, Warren, MI."
- "Realign Detroit Arsenal, MI, by relocating Sea Vehicle Development and Acquisition to Naval Surface Warfare Center Carderock Division, Bethesda, MD, and Program Management and Direction of Sea Vehicle Development and Acquisition to Naval Sea Systems Command, Washington Navy Yard, DC."

BRAC Discretionary Actions:

- "Relocate U.S. Army Audit Agency's (AAA) Rock Island Field Office spaces dedicated to audits involving materiel management and related functions to USAG-DTA."

ES.2.1 Force Structure and Population Changes at USAG-DTA

As a result of the force structure changes described in ES.2, there would be an addition of approximately 1,200 personnel. Table ES-1 shows the change in installation personnel associated with the Proposed Action.

Table ES-1
Population changes to occur at U.S. Army Garrison-Detroit Arsenal as a Result of Base Realignment and Closure and Related Actions

Proposed Action	Authorized Positions		Total
	Losses	Gains	
Realign USAG-DTA by relocating the supply contracting functions for tires to the Inventory Control Point at Defense Supply Center Columbus, Ohio; and disestablishing all other supply functions for tires.	-3		-3
Relocate the Budget/Funding, Contracting, Cataloging, Requisition Processing, Customer Services, Item Management, Stock Control, Weapon System Secondary Item Support, Requirements Determination, Integrated Materiel Management Technical Support Inventory Control Point functions for Consumable Items Management to Defense Supply Center Columbus, OH, and reestablish them as Defense Logistics Agency Inventory Control Point functions.	-29		-29
Disestablish the procurement management functions for Depot Level Reparables and designating them as Defense Supply Center Columbus, OH, Inventory Control Point functions. *(Remaining at USAG-DTA)*		56	56
Relocate Sea Vehicle Development and Acquisition to Naval Surface Warfare Center Carderock Division, Bethesda, MD.	-4		-4
Program Management and Direction of Sea Vehicle Development and Acquisition to Naval Sea Systems Command, Washington Navy Yard, DC.	-8		-8
Relocate the procurement management functions for Depot Level Reparables from Rock Island, IL to USAG-DTA, and designate them as Defense Supply Center Columbus, OH, Inventory Control Point functions.		36	36
Relocate the remaining integrated materiel management, user, and related support functions from Rock Island Arsenal, Illinois, to USAG-DTA.		1,049	1,049
Relocate the joint robotics program development and acquisition activities from Redstone Arsenal, Alabama, and consolidate it with the Program Executive Office Ground Combat Systems, Program Executive Office Combat Support and Combat Service Support and Tank Automotive Research Development Engineering Center.		73	73
Relocate the Ground Forces initiative Development and Acquisition activities from USMC Direct Reporting Program Manager Advanced Amphibious Assault (DRPM AAA) in Woodbridge, Virginia, to USAG-DTA, Warren, Michigan.		30	30
Garrison and Command and selected staff move from United States Army Garrison-Michigan at Selfridge to USAG-DTA.		6	6
Relocate U.S. Army Audit Agency's (AAA) Rock Island Field Office spaces dedicated to audits involving materiel management & related functions to USAG-DTA, MI.		5	5
			1,211 net gain

Source: U.S. Army Garrison – Detroit Arsenal (as of January 15, 2007)

ES.2.2 Construction and Renovation

Implementation of the Proposed Action would require renovation and/or expansion of existing facilities, and/or construction of new facilities to accommodate logistical issues and the increase in personnel assigned to USAG-DTA. The alternatives presented in this EA correspond to the options associated with the relative degree of construction and renovation activities for the respective projects. In support of implementing the Proposed Action at USAG-DTA, construction and renovation activities would include 1) Administrative Office Building and Parking Structure and 2) Administrative Office and Surface Parking. This construction directly supports the Army's BRAC and transformation goals.

Table ES-2 identifies proposed facility projects that have been identified as required to support the Proposed Action. For each construction project, the table shows priority, project number, type of facility, and the proposed year of project.

Table ES-2
Proposed BRAC Military Construction and Renovation Projects for New Facilities

Priority	Project Number	Project Description	Proposed Project Year
1	64232	Administrative Office Building and Infrastructure (Increment 1)	2009
2	64233	Administrative Office Building and Infrastructure (Increment 2)	2010
3	64289	Weapons Maintenance & Operations Center	2009
4	65419	Weapons System Support & Training Facility	2010

Source: U.S. Army Garrison-Detroit Arsenal (as of January 15, 2007)

ES.3 ALTERNATIVES

ES.3.1 Alternative 1-No Action Alternative

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

ES.3.2 Alternative 2-Administrative Office Building and Parking Structure

Under Alternative 2, USAG-DTA would accomplish the Proposed Action by implementing the projects identified in Table ES–2. Alternative 2 would focus on construction of a multi-story administrative office building, multi-story parking structure, and minor renovations to existing buildings.

ES.3.3 Alternative 3-Administrative Office Building and Surface Parking

Under Alternative 3, USAG-DTA would accomplish the Proposed Action by implementing the projects identified in Table ES–2. Alternative 3 would focus on construction of a multi-story administrative office building, surface parking, and minor renovations to existing buildings.

ES.3.4 Alternative 4–Lease Administration Space Off-Post

Under Alternative 4 USAG-DTA would construct a 230,686-square foot (SF) administration building and a 364,320-SF parking lot off-post. The parking lot would provide parking for spaces displaced by construction and in support of the new personnel/missions. Alternative 4 creates security concerns related to government workers located at off-post sites.

Using off-post leases for personnel and parking does not meet the standards for government security. Therefore, Alternative 4 has been eliminated from further detailed analysis.

ES.4 ENVIRONMENTAL CONSEQUENCES SUMMARY TABLE

The table provided below summarizes the environmental consequences of the three implementation alternatives. Table ES.3 includes ratings of the direct, indirect, and cumulative impacts for each resource category examined in this EA. Because the ongoing mission impacts are expected to be within the scope of current activities and minimal preparation will be required of reallocated facilities, this table places a greater emphasis on potential construction activities.

Table ES-3
Summary of Environmental Consequences at U.S. Army Garrison-Detroit Arsenal

Resource Category		Alternative 1	Alternative 2	Alternative 3	Discussion
Aesthetics and Visual Resources	Direct Impacts		●	●	Proper design of the multiple-story administrative office building and parking structure should minimize effects.
	Indirect Impacts				
	Cumulative Impacts		✚	●	Abundance of surface parking lots would result in a long-term impact to the visual character of the installation's landscape.
Air Quality	Direct Impacts		●	●	Increased vehicle traffic associated with the approximately 1,200 additional personnel would result in an increase in vehicle emissions. Under the construction alternatives, construction and renovation activities would result in a temporary increase in criteria pollutants. Newly constructed facilities and buildings would generate additional heating and cooling emissions proportional to their increase in building design and dimensions.
	Indirect Impacts		●	●	
	Cumulative Impacts		●	●	Emissions could accumulate with other pollutants from adjacent and regional activities resulting in a slight increase in the potential for short-term cumulative impacts.
Biological Resources	Direct Impacts		●	●	With the addition of personnel at USAG-DTA and their POVs, there would be a slight increase in pollutants of oil and grit from the increased vehicle numbers, resulting in impacts to riparian wildlife habitat. Soils disturbed by construction activities have a potential to result in erosion and increases in total sediment loads in storm water runoff.
	Indirect Impacts		●	●	
	Cumulative Impacts		●	●	Construction projects occurring on the installation in combination with surrounding community development projects would result in cumulative impacts to biological resources with the removal of flora and the displacement of fauna.
Hazardous and Toxic Substances	Direct Impacts		●	●	Under the action alternatives, there is potential for an increase in the amounts of hazardous wastes generated and used. The possibility for spills from construction equipment is increased. This would result in short-term impacts when combined with the potential spills from other construction projects and ongoing mission activities that may be occurring on the installation and adjacent areas.
	Indirect Impacts		✚	✚	
	Cumulative Impacts		●	●	The installation has a pro-active hazardous property minimization program and Environmental Management System. These programs should help the installation reduce potential effects associated with the handling, use, storage, and disposal of hazardous property.

Table ES-3
Summary of Environmental Consequences at U.S. Army Garrison-Detroit Arsenal

Resource Category		Alternative 1	Alternative 2	Alternative 3	Discussion
Socioeconomics	Direct Impacts		✚●	✚●	Beneficial long-term cumulative impacts would be in the form of increased business volume, income, and employment associated with construction activities and increased on-post operations in combination with other proposed non-BRAC on-post actions and off-post construction projects.
	Indirect Impacts		●✚	●✚	
	Cumulative Impacts		✚	✚	Some supporting infrastructure and public services may be subject to additional demand from the new population. Some impacts to educational facilities could occur regarding staff, services, supplies, and transportation.
Soils	Direct Impacts		●	●	There is the potential for cumulative impacts to soil due to erosion, removal, and compaction through the implementation of construction projects. Most of the construction would be on previously disturbed or developed areas.
	Indirect Impacts		✚	●	Under alternative 2, the administrative office building would have a beneficial impact by decreasing impermeable surface area. Under alternative 3 increased impermeable surfaces following construction would create faster rates of on post runoff that could lead to increased erosion and sediment loads in storm water.
	Cumulative Impacts		●	●	
Transportation	Direct Impacts		●	●	Arsenal transportation infrastructure would be required to absorb the additional 1,200 personnel. Short-term impacts can be expected from traffic congestion due to construction equipment entering and leaving the installation construction sites combined with other construction activities on the installation.
	Indirect Impacts		✚	●	
	Cumulative Impacts		●	●	Parking design would be important. Construction of all surface parking would eliminate development areas for any ongoing military construction projects.
Utilities	Direct Impacts		●✚	●✚	Implementation of proposed construction and renovation projects would have long-term beneficial impacts on utilities at the installation. There would be updates and expansions to the current infrastructure and would especially impacting the electrical system.
	Indirect Impacts		✚	✚	Impacts would be anticipated from cost increases resulting from operations and maintenance of the new infrastructure.

Table ES-3
Summary of Environmental Consequences at U.S. Army Garrison-Detroit Arsenal

Resource Category		Alternative 1	Alternative 2	Alternative 3	Discussion
	Cumulative Impacts		●	●	
Water Resources	Direct Impacts		●	●	There would be a slight increase in pollutant of oil and grit from the increased vehicle numbers. There would be soil disturbance from the construction of buildings resulting in potential for increased soil erosion that would potentially increase sediment loads. Loss of green space under alternative 3 would result in a loss of areas that filter runoff, affecting the pollutant and sediment load of the storm water discharges. Runoff from the Proposed Action projects combined with soil disturbance from current construction projects could have cumulative effects on downstream water resources.
	Indirect Impacts		●	●	
	Cumulative Impacts		●	●	

● = Impact
= No Impact
✚ = Beneficial Impact

Source: Parsons, (as of January 15, 2007)

ES.5 MITIGATION SUMMARY

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

However, in association with the proposed action, a number of Best Management Practices (BMPs) would be implemented with the proposed construction and renovation activities, regardless of the alternative selected. These measures are designed to avoid, rectify, or reduce impacts. For those impacts that cannot be avoided, the BMPs have been developed to include features designed to: protect, maintain, restore, or enhance environmental conditions. These BMPs are summarized in Table ES.4.

Table ES-4 **Best Management Practice Summary for Realignment of U.S Army Garrison-Detroit Arsenal**
• Silt fences.
• Diversion ditches.
• Re-seeding and re-establishment of vegetation.
• Use a variety of landscape plantings to enhance habitat for small animals.
• Use of surface water and sediment retention basins.
• Use of erosion and sediment control structures.
• Preparation of a Sediment and Erosion Plan Approved by USAG-DTA and the State of Michigan.
• Maintaining areas clean of pollutants.
• Preventative maintenance, e.g. drip pans, changing auto fluids in designated areas.
• Retention of vegetation.
• Dust suppression.
• If necessary, acquire construction and operation permit from MDEQ and USEPA for construction of heating and A/C systems.
• Hazardous waste inspections for satellite accumulation areas.
• Contain and control solid wastes generated from hazardous substances used in renovation and construction activities.
• Utilize Spill Prevention Control and Countermeasures Plan in the event of releases to the environment of POLs, hazardous materials, or other pollutants.
• If asbestos containing materials are found in buildings being renovated, they would be abated in accordance with Army, federal, and State of Michigan standards.
• Barriers and “no trespassing” signs would be placed around construction areas to reduce the potential for injuries.
• All required Clean Water Act Section 404(b) (1) permits would be acquired.

ES.6 CONCLUSIONS

As analyzed and discussed in the EA, direct, indirect, and cumulative impacts for each of the Proposed Action alternatives and the No Action Alternative have been considered and no significant impacts have been identified.

Therefore, any of the alternatives considered, including the No Action Alternative, could be implemented. Implementation of the No Action Alternative would result in the continuation of conditions that cannot support the training mission or provide appropriate living conditions at USAG-DTA and would not meet the purpose and need of implementing the BRAC recommendations.

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SECTION 1
PURPOSE, NEED, AND SCOPE

1.1 INTRODUCTION

The United States Army Garrison-Detroit Arsenal (USAG-DTA) is located north of Detroit in Warren, Michigan. Presently, USAG-DTA's primary mission is to provide installation management services for a joint military community at USAG-DTA and Selfridge to promote current and future readiness, well-being and retention. The acronym USAG-DTA refers to both the physical location of and personnel working at the installation. On September 8, 2005, the Defense Base Closure and Realignment (commonly referred to as BRAC) Commission recommended certain realignment actions for USAG-DTA. These recommendations were approved by the President on September 15, 2005, and forwarded to Congress. Congress did not alter any of the BRAC Commission's recommendations, and on November 9, 2005, the recommendations became law. The BRAC Commission's recommendations must now be implemented as provided for in the Defense Base Closure and Realignment Act of 1990 (Public Law 101-510), as amended.

The BRAC Commission made a number of recommendations for realignment and relocation affecting USAG-DTA. The major recommendations involve relocating Integrated Materiel Management, User and Related Support Functions from Rock Island Arsenal, relocating the joint robotics program development and acquisition activities from Redstone Arsenal, Alabama, and relocating the Ground Forces Initiative development; acquisition from United States Marine Corp (USMC) Direct Reporting Program Manager Advanced Amphibious Assault (DRPMAAA) from Woodbridge, Virginia (See Section 2.1 for the complete list). To enable implementation of these recommendations, the Army proposes to provide necessary facilities to support the changes in force structure as the Proposed Action involves the construction of new facilities and renovation of existing facilities.

1.2 PURPOSE AND NEED FOR THE PROPOSED ACTION

The purpose of the Proposed Action is to implement the BRAC Commission's recommendations pertaining to USAG-DTA.

The need for the Proposed Action is to improve the ability of the Nation to respond rapidly to challenges of the 21st Century. The Army's mission is to defend the United States (U.S.) and its territories, support national policies and objectives, and defeat nations responsible for aggression that endangers the peace and security of the U.S. To carry out these tasks, the Army must adapt to changing world conditions and must improve its capabilities to respond to a variety of circumstances across the full spectrum of military operations.

Consistent with guidance contained in the Army Campaign Plan, by 2007 the Army proposes to convert the force structure and equipment of its existing 33 combat brigades (and 10 new combat brigades) to "modular" Brigade Combat Team (BCT) units of action (UA). The Army would reorganize its division and corps headquarters to create modular units of employment (UEs) to provide command and control of organic, assigned, and attached forces. The Army's combat service and combat service support personnel and equipment would be reorganized into various types of support units of action (SUAs).

Restructuring Army organizations is needed to create forces that are more stand-alone and alike ("modular") while retaining their broad-spectrum capability. The following discusses four major initiatives that contribute to the Army's need for the Proposed Action.

- ***Base Realignment and Closure.*** In previous rounds of BRAC, the explicit goal was to save money and downsize the military. In the 2005 BRAC round, the Department of Defense (DoD) sought to reorganize its installation infrastructure to most efficiently support its forces, increase operational readiness and facilitate new ways of doing business. BRAC also supports advancing the goals of transformation, improving military capabilities, and enhancing military value. The Army needs to carry out the BRAC recommendations at USAG-DTA to achieve the objectives for which Congress established the BRAC process.
- ***Army Transformation and the Army Modular Force.*** On October 12, 1999, the Secretary of the Army and the Chief of Staff articulated a vision about people, readiness, and transformation of the Army to meet challenges emerging in the 21st Century and the need to be able to respond more rapidly to different types of operations requiring military action. The strategic significance of land forces continues to lie in their ability to fight and win the Nation's wars and in their providing options to shape the global environment to the benefit of the U.S. and its allies. Transformation responds to the Army's need to become more strategically responsive and dominant at every point on the spectrum of operations. In March 2002, the Army published its *Programmatic Environmental Impact Statement for Army Transformation* for its proposal to conduct a multiyear, phased, and synchronized program of transformation. On April 11, 2002, the Army issued a Record of Decision reflecting its intent to transform the Army. This EA evaluates a Proposed Action that corresponds with the transformation process which is designed to provide the Nation with combat forces which are more responsive, deployable, agile, versatile, lethal, survivable, and sustainable.
- ***Integrated Global Presence and Basing Strategy.*** At the request of the Chairman of the Joint Chiefs of Staff, combatant commanders submitted a series of recommendations for overseas basing plans for their respective areas of responsibility. The recommendations were part of an interagency assessment of the DoD's long-term overseas force projection and basing needs. The assessment resulted in a series of recommendations known as the Integrated Global Presence

and Basing Strategy (IGPBS), the blueprint outlining the size, character, and location of long-term overseas force presence. The Secretary of Defense announced that some forces currently based overseas would return to the U.S. over a period of years. The 2005 BRAC recommendations take into account, and adopt some of, the basing recommendations of the IGPBS.

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

This environmental assessment (EA) analyzes and documents environmental effects associated with the Army's Proposed Action at USAG-DTA. Details on the Proposed Action are set forth in Section 2.

1.3 SCOPE

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

This EA identifies, documents, and evaluates environmental effects of realignments at USAG-DTA. An interdisciplinary team of environmental scientists, biologists, planners, economists, engineers, archaeologists, historians, and military technicians has analyzed the Proposed Action and alternatives in light of existing conditions and has identified relevant effects associated with the action. The Proposed Action is described in Section 2, including the geographic area affected by the Proposed Action. Section 2.1 provides the geographical description for these actions. Alternatives, including the No Action Alternative, are described in Section 3. Conditions existing as of November 2005, considered the "environmental baseline" conditions, are described in Section 4, Affected Environment and Environmental Consequences. The expected effects of the Proposed Action, also described in Section 4, are presented immediately following the description of baseline conditions for each environmental resource addressed in the EA. Section 4 also addresses the potential for cumulative effects, and mitigation and Best Management Practices (BMPs) are identified where appropriate.

The Defense Base Closure and Realignment Act of 1990 specifies that NEPA does not apply to actions of the President, the Commission, or the DoD, except "(i) during the

1 CEQ Regulations for Implementing the Procedural Provisions of NEPA, 40 Code of Federal Regulations (CFR) Parts 1500–1508, and Environmental Analysis of Army Actions, 32 CFR Part 651.

process of property disposal, and (ii) during the process of relocating functions from a military installation being closed or realigned to another military installation after the receiving installation has been selected but before the functions are relocated (Sec. 2905(c)(2)(A), Public Law 101-510, as amended). The law further specifies that in applying the provisions of NEPA to the process, the Secretary of Defense and the secretaries of the military departments concerned do not have to consider "(i) the need for closing or realigning the military installation which has been recommended for closure or realignment by the Commission, (ii) the need for transferring functions to any military installation which has been selected as the receiving installation, or (iii) military installations alternative to those recommended or selected (Sec. 2905(c)(2)(B)). The 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 realignment. The environmental impacts of concern analyzed in this EA are specifically related to construction activities to accommodate functions of implementing the BRAC recommendations for realignment of operations and personnel.

1.4 PUBLIC INVOLVEMENT

The Army invites public participation in the NEPA process. Consideration of the views and information of all interested persons promotes open communication and enables better decision-making. Minority, low-income, and disadvantaged persons and groups, are encouraged to participate in the decision making process.

Public participation opportunities with respect to this EA and decision making on the Proposed Action are guided by 32 Code of Federal Regulations (CFR) Part 651. On completion, the EA will be made available to the public for 30 days, along with a draft Finding of No Significant Impact (FNSI) if a FNSI is determined to be warranted. An announcement concerning the availability of the EA and draft FNSI will be placed in *The Macomb Daily* published by Independent Newspapers, Inc. of Mt. Clemens, Michigan. At the end of the 30-day public review period, the Army will consider any comments submitted by individuals, agencies, or organizations on the Proposed Action, the EA, or draft FNSI. As appropriate, the Army may then execute the FNSI and proceed with implementation of the Proposed Action. If it is determined prior to issuance of a final FNSI that implementation of the Proposed Action would result in significant impacts, the Army will publish in the *Federal Register* a notice of intent to prepare an environmental impact statement, commit to mitigation actions sufficient to reduce impacts below significance levels, or not take the action.

As part of a proactive agency and organization scoping effort, numerous public agencies and organizations were contacted concerning potential issues that should be addressed in this EA. Agencies and organizations that were contacted and the contact letters are provided in Appendix A of this document.

Throughout this process, the public may obtain information concerning the Proposed Action and the EA through the Project Manager, Mr. Terry Tighe, by phone at

586-574-5824. All comments on the Proposed Action, the EA, or draft FNSI should be mailed to the following:

Mr. Terry Tighe
USAG-DTA Michigan-Detroit Arsenal
IMNW-MIG-PWF Building # 205, MAIL STOP # 117
6501 E. 11 Mile Road
Warren, MI 48397-5000

The EA and the Draft FNSI are available for review at the Department of the Army BRAC Environmental Web-Site;
http://www.hqda.army.mil/acsim/brac/env_ea_review.htm

1.5 STATUTORY AND REGULATORY FRAMEWORK

A decision on how to proceed with the Proposed Action depends on numerous factors such as mission requirements, schedule, availability of funding, and environmental considerations. In addressing environmental considerations, USAG-DTA is guided by relevant statutes (and their implementing regulations) and Executive Orders (EOs) that establish standards and provide guidance on environmental and natural resources management and planning. These include the Clean Air Act, Clean Water Act, Noise Control Act, Endangered Species Act, National Historic Preservation Act, Archaeological Resources Protection Act, Resource Conservation and Recovery Act, and Toxic Substances Control Act. EOs bearing on the Proposed Action include:

- EO 11988 (Floodplain Management), EO 11990 (Protection of Wetlands),
- EO 12088 (Federal Compliance with Pollution Control Standards),
- EO 12580 (Superfund Implementation),
- EO 12873 (Federal Acquisition, Recycling and Waste Prevention),
- EO 12898 (Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations),
- EO 13045 (Protection of Children from Environmental Health Risks and Safety Risks),
- EO 13101 (Greening the Government Through Waste Prevention, Recycling, and Federal Acquisition),
- EO 13123 (Greening the Government Through Efficient Energy Management),
- EO 13148 (Greening the Government Through Leadership in Environmental Management),
- EO 13175 (Consultation and Coordination with Indian Tribal Governments), and

- EO 13186 (Responsibilities of Federal Agencies to Protect Migratory Birds).

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.

SECTION 2
PROPOSED ACTION

2.1 INTRODUCTION

This section describes the Army's Proposed Action for implementing the BRAC Commission's recommendations. The Proposed Action includes: implementation of the Commission's recommendations as mandated by the BRAC legislation, Public Laws 101-510 and 107-107; implementation of BRAC discretionary moves; and implementation of other Army transformation actions proposed to occur at USAG-DTA during Fiscal Years (FY) 05-11 that were sufficiently well defined for analysis at this time. The following text is quoted directly from the BRAC legislative language, Public Law 101-510.

BRAC Directed Actions:

- "A Bridging Lab and Water Purification Lab located on Selfridge, which are part of the Tank Automotive Army Research and Development Center at Detroit Arsenal will be retained and enclaved. Six garrison personnel (Garrison Commander and staff) will be relocated to Detroit Arsenal."[2]
- "Realign Detroit Arsenal, MI, by relocating the supply contracting function for tires to the Inventory Control Point at Defense Supply Center Columbus, OH, and disestablishing all other supply functions for tires."[2]
- "Realign Detroit Arsenal, MI, by relocating the Budget/Funding, Contracting, Cataloging, Requisition Processing, Customer Services, Item Management, Stock Control, Weapon System Secondary Item Support, Requirements Determination, Integrated Materiel Management Technical Support Inventory Control Point functions for Consumable Items to Defense Supply Center Columbus, OH, and reestablishing them as Defense Logistics Agency Inventory Control Point functions, and by disestablishing the procurement management and related support functions for Depot Level Reparables and designating them as Defense Supply Center Columbus, OH, Inventory Control Point functions."[2]
- "Realign Rock Island Arsenal, IL, as follows: relocate the Budget/Funding, Contracting, Cataloging, Requisition Processing, Customer Services, Item Management, Stock Control, Weapon System Secondary Item Support, Requirements Determination, Integrated Materiel Management Technical Support Inventory Control Point functions for Consumable Items to Defense

[2] BRAC Legislative Language from Public Law 101-510 – Text of 2005 Defense Base Closure and Realignment Commission Final And Approved Recommendations, A Bill To Make Recommendations To The President Under The Defense Base Closure and Realignment Act of 1990.

Supply Center Columbus, OH, and reestablish them as Defense Logistics Agency Inventory Control Point functions; relocate the procurement management and related support functions for Depot Level Reparables to Detroit Arsenal, MI, and designate them as Defense Supply Center Columbus, OH, Inventory Control Point functions; and relocate the remaining integrated materiel management, user, and related support functions to Detroit Arsenal, MI."[2]

- "Realign Redstone Arsenal, Huntsville, AL, by relocating the joint robotics program development and acquisition activities to Detroit Arsenal, Warren, MI, and consolidating them with the Program Executive Office Ground Combat Systems, Program Executive Office Combat Support and Combat Service Support and Tank Automotive Research Development Engineering Center. Realign the USMC Direct Reporting Program Manager Advanced Amphibious Assault (DRPM AAA) facilities in Woodbridge, VA, by relocating the Ground Forces initiative D&A activities to Detroit Arsenal, Warren, MI."[2]
- "Realign Detroit Arsenal, MI, by relocating Sea Vehicle Development and Acquisition to Naval Surface Warfare Center Carderock Division, Bethesda, MD, and Program Management and Direction of Sea Vehicle Development and Acquisition to Naval Sea Systems Command, Washington Navy Yard, DC."[2]

BRAC Discretionary Actions:

- "Relocate U.S. Army Audit Agency's (AAA) Rock Island Field Office spaces dedicated to audits involving materiel management and related functions to USAG M."[2]

2.2 FORCE STRUCTURE AND USAG-DTA POPULATION CHANGES

Force structure refers to the numbers, size, and composition of units comprising Army forces. BRAC recommendations eliminate force structure through inactivation of units assigned to the post and the addition of force structure through realignment of existing units, creation of new units and reassignment of units from overseas. Realignment of USAG-DTA would involve adding approximately 1,200 government personnel and contractors to the post's present workforce.

2.2.1 EXISTING USAG-DTA STRUCTURE AND POPULATION

Located north of Detroit in Warren, Michigan, USAG-DTA encompasses approximately 170 acres in Macomb County, Michigan with approximately 25 major buildings supporting its operations. USAG-DTA has a population of over 4,600 soldiers, civilians and contractor personnel. USAG-DTA is the center for the research and development of military vehicle technology. The installation is comprised of several organizations including USAG-DTA, US Army Tank Automotive & Armaments Command (TACOM), Tank Automotive Research Development & Engineering Center (TARDEC), Program

Executive Office Ground Combat Systems (PEO GCS), Program Executive Office Command Services & Command Services Support (PEO CS&CSS), and Defense Logistics Agency (DLA).

The US Army management for USAG-DTA began in 1940 when the U.S. Army signed a contract with the Chrysler Corporation and has produced over 44,000 armored and combat vehicles for both the U.S. and its allies. The installation is complemented by the surrounding plants; General Motors Corporation, Ford Motor Company, and DaimlerChrysler.

2.2.2 BRAC RELATED FORCE STRUCTURE AND POPULATION CHANGES AT USAG-DTA

Implementation of the BRAC actions would result in changes to the TACOM mission at USAG-DTA. These mission related changes would include gaining new missions (e.g. joint robotics program, Ground Forces Initiative Development and Acquisition), modification of existing missions, and the loss of some existing missions (e.g. Sea vehicle development and acquisition, supply contracting functions for tires) at USAG-DTA.

As a result of these force structure changes, there would be an addition of approximately 1,200 government and contractor personnel at USAG-DTA.

Table 2.1 shows the installation personnel changes associated with the BRAC actions.

Table 2.1
Population changes to occur at U.S. Army Garrison-Detroit Arsenal as a Result of Base Realignment and Closure and Related Actions (as of January 15, 2007)

Proposed Action	Authorized, Organized Positions		Total
	Losses	Gains	
Realign USAG-DTA by relocating the supply contracting functions for tires to the Inventory Control Point at Defense Supply Center Columbus, Ohio; and disestablishing all other supply functions for tires.	-3		-3
Relocate the Budget/Funding, Contracting, Cataloging, Requisition Processing, Customer Services, Item Management, Stock Control, Weapon System Secondary Item Support, Requirements Determination, Integrated Materiel Management Technical Support Inventory Control Point functions for Consumable Items Management to Defense Supply Center Columbus, OH, and reestablish them as Defense Logistics Agency Inventory Control Point functions.	-29		-29
Disestablish the procurement management functions for Depot Level Reparables and designating them as Defense Supply Center Columbus, OH, Inventory Control Point functions. *(Remaining at USAG-DTA)*		56	56
Relocate Sea Vehicle Development and Acquisition to Naval Surface Warfare Center Carderock Division, Bethesda, MD.	-4		-4
Program Management and Direction of Sea Vehicle Development and Acquisition to Naval Sea Systems Command, Washington Navy Yard, DC.	-8		-8
Relocate the procurement management functions for Depot Level Reparables from Rock Island, IL to USAG-DTA, and designate them as Defense Supply Center Columbus, OH, Inventory Control Point functions.		36	36
Relocate the remaining integrated materiel management, user, and related support functions from Rock Island Arsenal, Illinois, to USAG-DTA.		1,049	1,049
Relocate the joint robotics program development and acquisition activities from Redstone Arsenal, Alabama, and consolidates it with the Program Executive Office Ground Combat Systems, Program Executive Office Combat Support and Combat Service Support and Tank Automotive Research Development Engineering Center.		73	73
Relocate the Ground Forces initiative Development and Acquisition activities from USMC Direct Reporting Program Manager Advanced Amphibious Assault (DRPM AAA) in Woodbridge, Virginia, to USAG-DTA, Warren, Michigan.		30	30
Garrison and Command and selected staff move from United States Army Garrison-Michigan at Selfridge to USAG-DTA.		6	6
Relocate U.S. Army Audit Agency's (AAA) Rock Island Field Office spaces dedicated to audits involving materiel management & related functions to USAG-DTA, MI.		5	5
			1,211 net gain

Source: U.S. Army Garrison-Detroit Arsenal (as of January 15, 2007)

2.3 PROPOSED BRAC AND BRAC RELATED CONSTRUCTION AT USAG-DTA TO ACHIEVE THE PROPOSED ACTION

Implementation of the Proposed Action would require renovation of existing facilities and construction of new facilities to accommodate mission changes and the increase of personnel at USAG-DTA.

Table 2.2 identifies proposed USAG-DTA facility projects required to support the Proposed Action. For each construction project, the table shows the relative project priority, project number, project description, and proposed project year.

Table 2.2
Proposed BRAC Military Construction and Renovation Projects for New Facilities

Priority	Project Number	Project Description	Proposed Project Year
1	64232	Administrative Office Building and Infrastructure (Increment 1)	2009
2	64233	Administrative Office Building and Infrastructure (Increment 2)	2010
3	64289	Weapons Maintenance & Operations Center	2009
4	65419	Weapons System Support & Training Facility	2010

Source: U.S. Army Garrison–Detroit Arsenal (as of January 15, 2007)

2.4 SCHEDULE

Under the BRAC law, the Army must initiate all realignments not later than September 15, 2007, and complete all realignments not later than September 15, 2011.[3]

Implementation of the Proposed Action would occur over a 5-year period. Implementation of the non-BRAC portions of the Proposed Action are also currently scheduled to occur within FY05-11.

The schedule for implementation of the Proposed Action must balance facilities construction timeframes and planned arrival dates of inbound units and stand-up dates for newly established units, all within the 6-year limitation of the BRAC law.

[3] Section 2904(a), Public Law 101-510, as amended, provides that the Army must "… initiate all closures and realignments no later than 2 years after the date on which the President transmits a report [by the BRAC Commission] to the Congress … containing the recommendations for such closures or realignments; and … complete all such closures and realignments no later than the end of the 6-year period beginning on the date on which the President transmits the report … " The President took the specified action on September 15, 2005.

SECTION 3
ALTERNATIVES

3.1 INTRODUCTION

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

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

3.2 DEVELOPMENT OF ALTERNATIVES

3.2.1 Means to Accommodate Realigned or Relocated Units.

Realignment or relocation of units and the establishment of new units ensures the installation has adequate support facilities for personnel and on-going operational requirements. The Army considered four means of meeting increased space requirements, as follows:

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

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

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

3.2.2 Siting of New Construction

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

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

Specific siting criteria include consideration of location of the workforce and efficient, streamlined management of functions. Collocation of similar types of functions, as opposed to dispersion, permits more efficient use of equipment, vehicles, and other assets.

3.2.3 Schedule

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

3.3 ALTERNATIVES TO THE PROPOSED ACTION

Implementations of the BRAC recommendations are mandated by law. The following alternatives are included in the NEPA document.

3.3.1 No Action Alternative

The No Action Alternative is included as required by the CEQ NEPA regulations to identify the existing baseline conditions against which potential impacts would be evaluated. The No Action Alternative is described and evaluated in detail because it is the baseline condition or the current status of the environment if the Proposed Action was not implemented. For realignment actions directed by the BRAC Commission, it is

noted that for the No Action Alternative, maintenance of current conditions is not feasible, since the BRAC actions are Congressionally mandated actions at USAG-DTA.

3.3.2 Relocation and Realignment Alternatives

Although Public Law 101-510 eliminates the need to decide whether to realign a unit or activity to another location, it does not eliminate the requirement for an environmental analysis of how the realignment is implemented at the designated installation. Alternatives of how the units or activities could be realigned might include: phasing the move, relocating to interim facilities at the gaining installation, using renovated facilities versus new construction, or alternative siting of construction at the gaining installation. The following text is quoted directly from the BRAC legislative language, Public Law 101-510.

<u>The BRAC-Directed Action:</u>

- "A Bridging Lab and Water Purification Lab located on Selfridge, which are part of the Tank Automotive Army Research and Development Center at Detroit Arsenal will be retained and enclaved. Six garrison personnel (Garrison Commander and staff) will be relocated to Detroit Arsenal."
- "Realign Detroit Arsenal, MI, by relocating the supply contracting function for tires to the Inventory Control Point at Defense Supply Center Columbus, OH, and disestablishing all other supply functions for tires."
- "Realign Detroit Arsenal, MI, by relocating the Budget/Funding, Contracting, Cataloging, Requisition Processing, Customer Services, Item Management, Stock Control, Weapon System Secondary Item Support, Requirements Determination, Integrated Materiel Management Technical Support Inventory Control Point functions for Consumable Items to Defense Supply Center Columbus, OH, and reestablishing them as Defense Logistics Agency Inventory Control Point functions, and by disestablishing the procurement management and related support functions for Depot Level Reparable and designating them as Defense Supply Center Columbus, OH, Inventory Control Point functions."
- "Realign Rock Island Arsenal, IL, as follows: relocate the Budget/Funding, Contracting, Cataloging, Requisition Processing, Customer Services, Item Management, Stock Control, Weapon System Secondary Item Support, Requirements Determination, Integrated Materiel Management Technical Support Inventory Control Point functions for Consumable Items to Defense Supply Center Columbus, OH, and reestablish them as Defense Logistics Agency Inventory Control Point functions; relocate the procurement management and related support functions for Depot Level Reparable to Detroit Arsenal, MI, and designate them as Defense Supply Center Columbus, OH, Inventory Control Point functions; and relocate the

remaining integrated materiel management, user, and related support functions to Detroit Arsenal, MI."

- "Realign Redstone Arsenal, Huntsville, AL, by relocating the joint robotics program development and acquisition activities to Detroit Arsenal, Warren, MI, and consolidating them with the Program Executive Office Ground Combat Systems, Program Executive Office Combat Support and Combat Service Support and Tank Automotive Research Development Engineering Center. Realign the USMC Direct Reporting Program Manager Advanced Amphibious Assault (DRPM AAA) facilities in Woodbridge, VA, by relocating the Ground Forces initiative D&A activities to Detroit Arsenal, Warren, MI."
- "Realign Detroit Arsenal, MI, by relocating Sea Vehicle Development and Acquisition to Naval Surface Warfare Center Carderock Division, Bethesda, MD, and Program Management and Direction of Sea Vehicle Development and Acquisition to Naval Sea Systems Command, Washington Navy Yard, DC."

BRAC Discretionary Actions:

- "Relocate U.S. Army Audit Agency's (AAA) Rock Island Field Office spaces dedicated to audits involving materiel management and related functions to USAG M."

3.4 IMPLEMENTATION ALTERNATIVES CONSIDERED

3.4.1 Alternative 1-No Action Alternative

The No Action Alternative must be included as required by the CEQ NEPA regulations to identify the existing baseline conditions against which potential impacts would be evaluated. The No Action Alternative must be described because it is the baseline condition or the current status of the environment if the Proposed Action was not implemented. For realignment actions directed by the BRAC Commission, it is noted that for the No Action Alternative, maintenance of current conditions is not reasonable, since the BRAC actions are Congressionally mandated actions at USAG-DTA

The installation would continue to implement the established program of Military Construction Projects required to support continuing ongoing mission requirements. These projects are summarized on Table 3.1 below. However, the installation would not perform any BRAC related construction or renovation.

Table 3.1
Proposed Ongoing Mission Military Construction and Renovation Projects

Priority	Project Number	Project Description	Proposed Program Year
1	61470	Commercial Vehicle ACP Mound Road	To Be Determined
2	66576	11 Mile Road Access Control Point	To Be Determined
3	33447	Child Development Center (CDC)	2006
4	29642	Emergency Services Facility	To Be Determined
5	59336	Ground System Power and Energy Labs	2007
6	61444	Relocation of Missions	To Be Determined
7	62856	Substation Relocation	To Be Determined
8	65526	Ground Systems Reliability Center	2013
9	61439	Antiterrorism/Force Protection (AT/FP) Protective Barriers	To Be Determined
10	65325	New Test Measurement & Diagnostic Equipment (TMDE) Calibration Lab	To Be Determined
11	65631	Modernize Building 1st and 2nd Floors	To Be Determined
12	63101	Building Expansion	To Be Determined
13	60056	General Instruction Building	To Be Determined
14	60047	Physical Fitness Facility	To Be Determined
15	65537	Platform Integration Lab	To Be Determined

Source: U.S. Army Garrison–Detroit Arsenal (as of January 15, 2007)
Each of the above projects will have some form of environmental review conducted.

3.4.2 Alternative 2–Administration Office Building and Parking Structure

To accommodate the additional personnel identified on Table 2.1, this alternative would require the construction, operation, and maintenance of both BRAC and ongoing mission military construction projects. These projects are summarized on Table 3.2 and include an administration office building with a parking garage and site infrastructure (PN 64232-Increment 1 and PN 64233-Increment 2). The parking structure would provide 583,200 SF of additional multi-story parking. This facility would provide parking spaces for those displaced by construction and in support of new personnel. The new parking design would require the widening of Pershing Road to accommodate an increase in privately owned vehicles (POVs). The administration office building would provide approximately 230,686 SF of additional space. Renovation of one building as a weapons center (PN 64289) would accommodate missions from Rock Island Arsenal related to training, maintenance, and operation of weapons. In addition, the construction, operation, and maintenance of a Weapons Facility (PN 65419) would house facilities related to weapons support and training. Temporary parking would be provided during the construction phases of PN 64232, 64233, 64289, and 65419 by creating gravel parking on existing on-post areas. Upon completion of the permanent parking structure, the temporary parking areas would be restored through the removal of the gravel and replanting of cool season grasses and ornamental trees and shrubs.

Table 3.2
Proposed Alternative 2-Construction and Renovation Projects

Priority	Project Number	Project Description	Proposed Program Year
1	64232	Administrative Office Building and Infrastructure (Increment 1)	2009
2	61470	Commercial Vehicle ACP Mound Road	To Be Determined
3	64233	Administrative Office Building and Infrastructure (Increment 2)	To Be Determined
4	66576	11 Mile Road Access Control Point	To Be Determined
5	64289	Weapons Maintenance & Operations Center	To Be Determined
6	65419	Weapons System Support & Training Facility	To Be Determined
7	33447	Child Development Center (CDC)	2006
8	29642	Emergency Services Facility	To Be Determined
9	59336	Ground System Power and Energy Labs	2007
10	61444	Relocation of Building Missions	To Be Determined
11	62856	Substation Relocation	To Be Determined
12	65526	Ground Systems Reliability Center	2013
13	61439	AT/FP Protective Barriers	To Be Determined
14	65325	New TMDE Calibration Lab	To Be Determined
15	65631	Modernize Building, 1st and 2nd Floors	To Be Determined
16	63101	Building Expansion	To Be Determined
17	60056	General Instruction Building	To Be Determined
18	60047	Physical Fitness Facility	To Be Determined
19	65537	Platform Integration Lab	To Be Determined

Source: U.S. Army Garrison–Detroit Arsenal (as of January 15, 2007)
Each of the above projects will have some form of environmental review conducted.

The approximate site locations for the identified projects that would be implemented under this alternative are illustrated on Figure 3-1 located at the end of this section.

3.4.3 Alternative 3–Administration Office Building and Surface Parking

The Proposed Action would relocate approximately 1,200 government and contractor personnel from other military installations to the USAG-DTA. The Proposed Action would require the construction of three new facilities and renovation of an existing facility as shown in Table 2.2.

The installation would need to construct, operate, and maintain approximately 230,686 SF of administration office building to accommodate this action. Construction of new facilities would require that adequate work and parking space are available. Under this alternative the parking space requirement would be provided by an estimated 1,620 parking spaces or 583,200 SF of on-post surface parking. However, the increased site area to support parking would eliminate availability for eight planned military construction and renovation projects:

- PN 33447, Child Development Center (Project is already funded – FY06 OMA (Operations & Maintenance), through NAF (Non-Appropriated Fund) program; Construction scheduled Spring 07),
- PN 29642, Emergency Services Facility,
- PN 61444, Relocation of Building Missions,
- PN 65526, Ground Systems Reliability Center (currently in FY13 Future Year Defense Plan),
- PN 63101, Building Expansion,
- PN 60056, General Instruction Building,
- PN 60047, Physical Fitness Center, and
- PN 65537, Ground Systems Platform Integration Lab.

The movement of weapons training, operation, and systems would require the construction, operation, and maintenance of a weapons facility (PN 65419), and the renovation of another building as a weapons center.

Consequently, to accommodate the additional personnel identified on Table 2.1, this alternative would require the construction, operation, and maintenance of both BRAC and ongoing mission military construction projects. These projects are summarized on Table 3.3.

Table 3.3
Proposed Alternative 3-Construction and Renovation Projects (as of January 15, 2007)

Priority	Project Number	Project Description	Proposed Program Year
1	64232	Administrative Office Building and Infrastructure (Increment 1)	2009
2	61470	Commercial Vehicle ACP Mound Road	To Be Determined
3	66576	11 Mile Road Access Control Point	To Be Determined
4	64289	Weapons Maintenance & Operations Center	To Be Determined
5	65419	Weapons System Support & Training Facility	To Be Determined
6	59336	Ground System Power and Energy Labs	2007
7	62856	Substation Relocation	To Be Determined
8	61439	AT/FP Protective Barriers	To Be Determined
9	65325	New TMDE Calibration Lab	To Be Determined
10	65631	Modernize Building, 1st and 2nd Floors	To Be Determined
11	65537	Platform Integration Lab	To Be Determined

Source: U.S. Army Garrison–Detroit Arsenal (as of January 15, 2007) Each project will have an environmental review.

The approximate site locations for the identified projects that would be implemented under this alternative are illustrated on Figure 3-2 located at the end of this section.

3.4.4 Alternative 4–Lease Administration Space Off-Post

The current USAG-DTA existing administrative area has an estimated deficit of approximately 110 spaces or approximately 17,800 SF. The Proposed Action would increase this deficit to approximately 1,310 spaces or approximately 314,000 SF from the addition of approximately 1,200 personnel. The result would be overcrowding issues and problems associated with parking. This alternative would lease a 230,686 SF administration building and a 408,000 SF parking lot off-post in the surrounding community. The parking lot would provide parking for spaces displaced by construction and in support of the new personnel/missions. Alternative 4 creates security concerns related to government workers located at off-post sites.

Using off-post leases for personnel and parking does not meet the standards for government security, and is therefore not reasonable. Consequently, Alternative 4 has been eliminated from further detailed analysis.

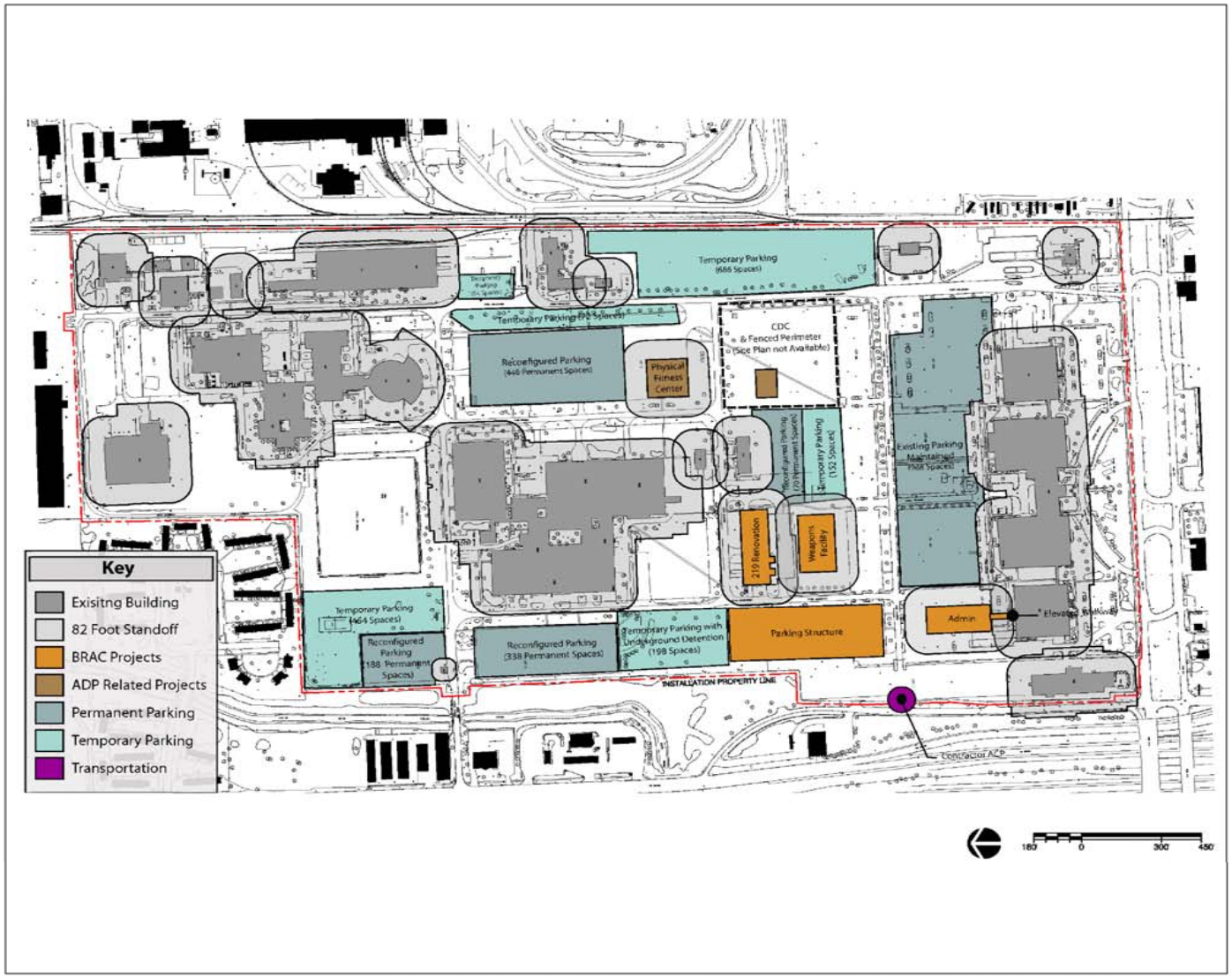

Figure 3.1
Alternative 2
High Rise Parking
Structure Construction Site
USAG DTA BRAC EA

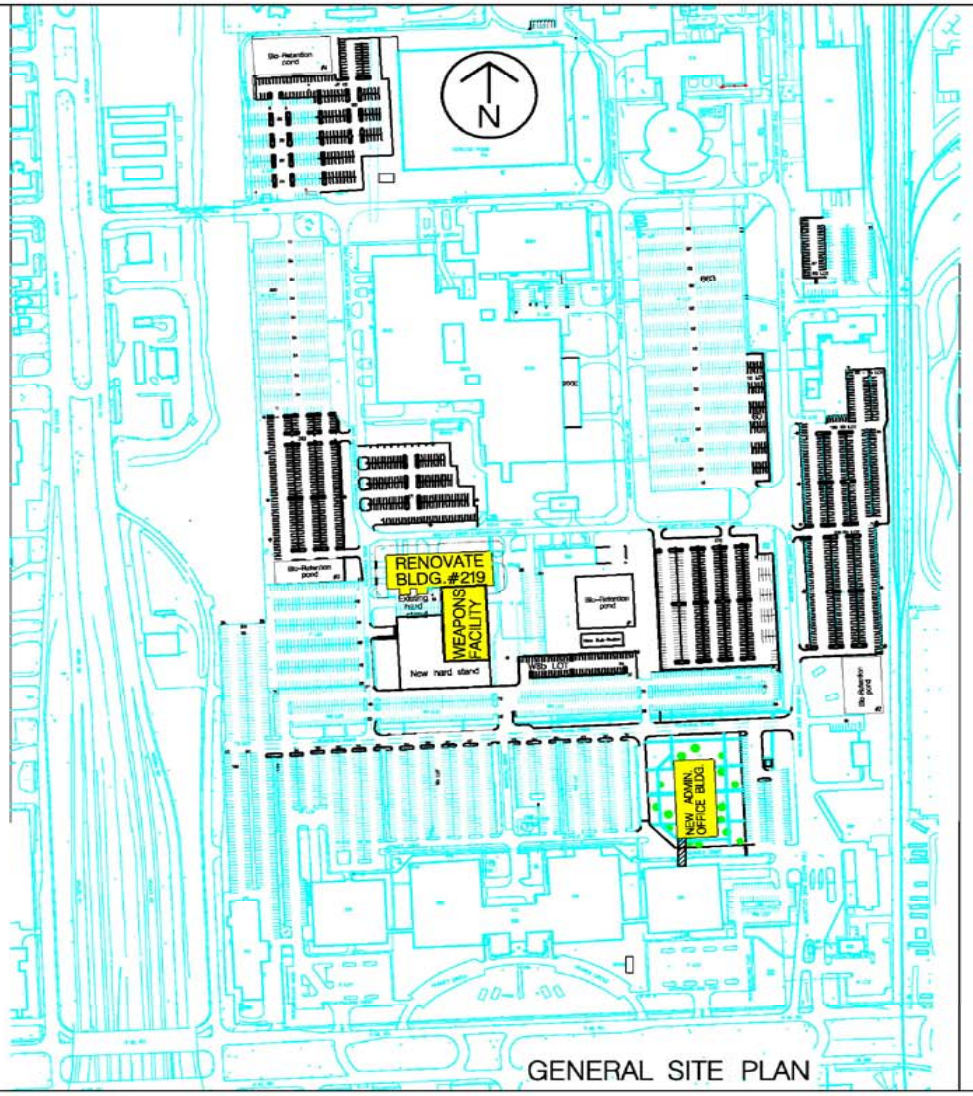

Figure 3.2
Alternative 3
Surface Parking
Construction Site
USAG DTA BRAC EA

SECTION 4
AFFECTED ENVIRONMENT AND CONSEQUENCES

4.1 INTRODUCTION

The following discussion describes the affected environment within all of the USAG-DTA locales that are being considered in this analysis. Following a description of the affected environment, the discussion addresses the potential environmental consequences or impacts of each of the implementation alternatives evaluated. The discussion focuses on aspects of the environment that could be impacted by the proposed construction projects, maintenance and operation of the proposed facilities and support elements, and implementation of new activities associated with the presence of the new organizations solely at the USAG-DTA.

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

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

As discussed in Section 3, the alternatives being evaluated for environmental consequences in this EA include the following:

- Alternative 1-No Action Alternative;
- Alternative 2-Administrative Office Building and Parking Structure; and
- Alternative 3-Administrative Office Building and Surface Parking.

4.1.1 Initial Resource Category Screening

Based upon an initial screening of potential effects of implementing each of the viable implementation alternatives, the following resource categories have been eliminated from detailed consideration in the analysis. Elimination of these resources was based on the extremely limited potential for impacts associated with the identified alternatives, and similar resultant effects associated with these resource category alternatives.

- **Biological Resources.** The initial screening with respect to Biological Resources considered the following:
    - No naturally occurring wetlands, including potential wetlands as identified in the NWI, are known to exist on USAG-DTA. Because of the way that the NWI maps are developed, a man-made air conditioning cooling water retention pond on USAG-DTA is identified as a potential wetland. But this man-made area fails to meet the soil, hydrology, and vegetation criteria to be considered a wetland. Consequently, detailed analysis of potential impacts to wetlands on USAG-DTA will not be conducted for this document.
- **Cultural Resources.** The initial screening with respect to Cultural Resources considered the following:
    - Proposed development sites are located within areas that have been disturbed extensively by prior development and operations.
    - Proposed development and ongoing mission activity sites are not located within any areas known to contain historic properties or Native American sites (see Appendix A).
    - The potential development and ongoing mission activity sites are not located within or proximate to any areas potentially eligible for listing on the National Register of Historic Places (NRHP) or that require additional analysis (see Appendix A).
    - Cultural Resource BMPs adequately address actions to be conducted should unknown potential cultural resources be identified.
    - The proposed development sites are not located within the viewshed for established or potentially eligible historic districts.
    - The proposed functions and ongoing mission activities would be consistent with the types of development and activities conducted within proximate areas.

  Consequently, detailed analysis of potential cultural resource impacts will not be conducted for this document.
- **Geology.** The analysis of geology and soils considered the following:
    - Topographic features;

- Geologic features;
- Caves;
- Seismicity; and
- Prime Farmland.

Implementation of the Proposed Action would not result in any change to these geological elements; consequently, detailed consideration of potential geological resource impacts is not included in this analysis. The detailed analysis of potential effects on soils and the potential for surface erosion as a result of construction and ongoing mission activities is included in the analysis.

- **Land Use.** The initial screening with respect to Land Use considered the following:
  - The identified alternative development sites are located within compatible land use areas. USAG-DTA is divided into three land use and visual zones. The Installation Design Guide (IDG) labels these areas as Administration, Industrial, and Research and Development.
  - The proposed sites are located within the Administration visual zone.
  - The proposed uses under all viable alternatives would not change this land use and visual zone category.
  - The proposed functions and ongoing mission activities would be consistent with the types of development and activities conducted within proximate areas.
  - Consequently, detailed consideration of potential land use impacts has been eliminated from detailed analysis.
- **Noise.** The initial screening with respect to Noise considered the following:
  - Installation Compatible Use Zone (ICUZ) studies in 1992 addressed noise sources from the USAG-DTA. The sources remain within an acceptable range.
  - None of the proposed elements would introduce new noise considerations to the installation.
  - The identified alternative development sites are compatible with current noise operations and ranges.
  - The proposed functions and ongoing mission activities would be consistent with the types of development and activities conducted within proximate areas.

Consequently, potential noise impacts have been eliminated from detailed analysis.

- **Water Resources.** The analysis of water resources considered the following:
    - The proposed development sites are not located within or near a 100-year floodplain.
    - The proposed development sites are not located within or near a coastal zone.

Consequently, detailed considerations of potential floodplain and coastal zone impacts have not been included in this analysis. The water resources section of this EA includes an analysis of potential impacts to surface water and ground water.

4.1.2 Definition of Key Terms

4.1.2.1 Environmental Baseline

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

4.1.2.2 Impact

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

4.1.2.3 Direct Versus Indirect Impacts

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

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

4.1.2.4 Significance

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

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

- Because an impact may be both beneficial and adverse, a significant impact may exist even if, on balance, the impact is considered beneficial.
- The degree to which the action affects public health or safety.
- Unique characteristics of the geographic area where the action is proposed such as proximity to parklands, historic or cultural resources, wetlands, prime farmlands, wild and scenic rivers or ecologically critical areas, and rare flora and fauna species.
- The degree to which the effects on the quality of the human environment are likely to be controversial.
- The degree to which the effects of the action on the quality of the human environment are likely to be highly uncertain or involve unique or unknown risks.
- The degree to which the action may establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration.
- Whether the action is related to other actions with individually insignificant but cumulatively significant impacts. Significance exists if it is reasonable to anticipate a cumulatively significant impact on the environment. Significance cannot be avoided by terming an action temporary or by breaking it down into small component parts.
- The degree to which the action may adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the NRHP or may cause loss or destruction of significant scientific, cultural, or historical resources.

- The degree to which the action may adversely affect any endangered or threatened species or its habitat that has been determined to be critical under the (Endangered Species Act (ESA) of 1973).
- Whether the action threatens a violation of federal, state, or local law or requirements imposed for the protection of the environment (i.e., Clean Water Act (CWA) and ESA, etc.).

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

4.2 AESTHETICS AND VISUAL RESOURCES

4.2.1 Affected Environment

The USAG-DTA encompasses approximately 170 acres of land. Located 3 miles north of Detroit, the installation lies in an area dominated by the automotive industry. The area surrounding USAG-DTA is urbanized and industrialized. The installation is divided into visual themes to help provide consistency and "sense of place." The three zones are administration, industrial, and research and development.

Architecturally, the installation has transitioned mainly from the temporary WW II-era buildings of the original USAG-DTA and accompanying Tank Production, to a more modern corporate campus. According to the IDG, the USAG-DTA visual theme, "Corporate Campus", was established to complement its neighbors and have the look and feel of private industry standards."

Many of the recently constructed buildings at the installation are aesthetically pleasing and complement the surrounding natural and man-made environment. The IDG indicates the administration zone's expansive parking lots are the dominant feature in the zone. It requires long walks for personnel and the walkways are inadequate.

4.2.2 Consequences

4.2.2.1 Alternative 1-No Action Alternative

Under the No Action Alternative, the Proposed Action would not be implemented, and USAG-DTA would continue to use its current inventory of facilities. The No Action Alternative would not result in any substantive impacts on aesthetics in the project areas.

4.2.2.2 Alternative 2-Administrative Office Building and Parking Structure

- **Direct Impacts.** Under Alternative 2, beneficial long-term impacts to the aesthetics of the surrounding areas would be anticipated. The proposed Administrative Office Building and Parking Structure site is on a series of parking lots. Siting the structures here would allow opportunities to improve the landscaping and reduce the adverse appearance and expansive look of the existing surface parking. Precautions would be taken during development and maintenance of the proposed structure to ensure a visually attractive landscape around

the new administrative office building and parking structure. The choice of trees and planting would follow the IDG suggestions and guidelines reflecting appropriate choices for the area, with a concentration of compatible native vegetation.

The majority of the buildings proximate to the proposed development area are three to four stories tall. The proposed facilities are higher than this. Consequently, the relative height of the proposed facilities would have an impact on the visual environment. The exteriors of the proposed facilities would follow the guidelines established in IDG. The IDG promotes sustainability protocols for building design. The IDG suggests and supports the concept that new buildings should include multiple floors; thereby resulting in more vertical structures representing a smaller footprint on the installation and more efficiently using limited installation land area. Proper design of the multiple-story administrative and parking structures should minimize effects and ensure that the exterior of the buildings are compatible with the visual landscape.

A short-term impact would also result from this alternative. These impacts would be a result of the temporarily constructed parking areas, and the increased visual nature of the taller construction sites, along with the associated construction equipment and activities. BMPs for this alternative would include re-seeding and reestablishment of vegetation.

- **Indirect Impacts.** No indirect impacts are anticipated for this Alternative.

4.2.2.3 Alternative 3-Administrative Office Building and Surface Parking

- **Direct Impacts.** Under Alternative 3, impacts would be similar to Alternative 2, with two exceptions. Siting construction and use of the numerous surface parking areas required to support the anticipated parking demand would dominate the landscape more than it already does. The abundance of surface parking lots would result in a long-term impact to the visual character of the installation's landscape. the shorter anticipated construction period for this alternative, relative to Alternative 2, would minimize the visual impact associated with the presence of construction activities and personnel.
- **Indirect Impacts.** No indirect impacts are anticipated for this Alternative.

4.3 AIR QUALITY

4.3.1 Affected Environment

4.3.1.1 Ambient Air Quality Conditions

The status of the air quality in a given area is determined by the concentrations of various pollutants in the atmosphere. The Federal Clean Air Act (CAA) (42 United States Code (USC) 7401-7671q) required the United States Environmental Protection Agency (USEPA) to establish a series of National Ambient Air Quality Standards (NAAQS) for air quality throughout the United States, along with several regulatory programs and provisions applicable to various classes of emissions sources, to ensure that the standards are met. Ambient air is defined as the outside air to which the general public is exposed. NAAQS represent maximum levels of pollution in the ambient air that are considered safe, with an adequate margin of safety, for protecting public health and welfare.

Currently, NAAQS exist for the following air pollutants, collectively referred to as “criteria pollutants” that have been identified by USEPA as being of concern to protect human health and welfare from any adverse effects of air pollution:

- Ozone (0_3);
- Carbon monoxide (CO);
- Nitrogen dioxide ($N0_2$);
- Sulfur dioxide ($S0_2$);
- Particulate matter, includes particles sized 10 microns or less (PM_{10}), also called respirable particulates or suspended particulates; and fine particulate matter equal to or less than 2.5 microns in size ($PM_{2.5}$); and
- Lead (Pb).

Volatile Organic Compounds (VOCs) are also regulated as criteria pollutants. There are no ambient standards for VOCs, but, along with oxides of nitrogen (sometimes referred to as nitrogen oxides) (NOx), they are considered as precursors largely responsible for the formation of ground level ozone.

Individual states can adopt the NAAQS or establish state ambient air quality standards, which may not be less stringent than the NAAQS. The Michigan Department of Environmental Quality (MDEQ) has adopted the NAAQS.

Table 4.1 lists the primary and secondary NAAQS for the above listed criteria pollutants, along with the averaging periods to which each standard applies. The primary NAAQS are intended to protect public health, while the secondary NAAQS are intended to protect the environment (e.g., crops,

wildlife, buildings). Areas where ambient concentrations of a given pollutant are below the applicable ambient standards are designated as being in "attainment" for that pollutant. An area that does not meet the NAAQS for a given pollutant is classified as a "non-attainment" area for that pollutant. Non-attainment areas are under strict regulatory restriction in an effort to lower pollutant concentrations to regulatory standards. Three of the criteria pollutants (ozone, CO, and PM_{10}), are classified according to severity.

Table 4.1
National Ambient Air Quality Standards (NAAQS)

Criteria Air Pollutant	Averaging Time	Primary Standard	Secondary Standard
Carbon Monoxide (CO)	1-hour [a]	35 ppm [b] (40 mg/m^3 [c])	None
	8-hour [a]	9 ppm (10 mg/m^3)	None
Lead (Pb)	Quarterly Average	1.5 ug/m^3 [d]	Same as Primary Standard
Nitrogen Dioxide (NO_2)	Annual Arithmetic Mean	0.053 ppm (100 ug/m^3)	Same as Primary Standard
Ozone (O_3)	1-hour average [h]	0.12 ppm (235 ug/m^3)	Same as Primary Standard
	8-hour average [e]	0.08 ppm (157 ug/m^3)	Same as Primary Standard
Particulate Matter (PM_{10})	Annual Arithmetic Mean 24-hour average [a]	50 ug/m^3 150 ug/m^3	Same as Primary Standard Same as Primary Standard
Particulate Matter ($PM_{2.5}$)	Annual Arithmetic Mean [f] 24-hour average [g]	15 ug/m^3 65 ug/m^3	Same as Primary Standard Same as Primary Standard
Sulfur Dioxide (SO_2)	24-hour [a]	0.14 ppm (365 ug/m^3)	None
	Annual Arithmetic Mean	0.03 ppm (80 ug/m^3)	None
	3-hour Maximum [a]	None	0.5 ppm (1300 ug/m^3)

Notes:

a Not to be exceeded more than once a year

b ppm = parts per million

c mg/m^3 = milligrams per cubic meter

d ug/m^3 = micrograms per cubic meter

e Established for a 3-year average of the fourth highest daily maximum concentration

f Established for a 3-year average

g Established for a 3-year average of the 98th percentile of data

h (a) The standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above 0.12 ppm is < = 1.

(b) The 1-hour NAAQS will no longer apply to an area 1 year after the effective date of the designation of that area for the 8-hour ozone NAAQS. The effective designation date for most areas is June 15, 2004 (40 CFR 50.9; 69 FR 23996).

Source: Michigan Department of Environmental Quality, 2006

The USEPA requires each state to prepare a State Implementation Plan (SIP) to ensure these goals are met. A SIP is a compilation of goals, strategies, source emission limitations and control requirements, schedules, and enforcement actions that would lead the state to compliance with all NAAQS. Areas not in compliance with a standard can be declared “non-attainment areas” by the USEPA or the appropriate agency. To meet attainment, NAAQS for certain pollutants and short-term averaging periods (i.e., for 1-, 3-, 8-, and/or 24-hour periods) generally may not be exceeded more than once per year; standards for annual averaging periods are generally not to be exceeded. Areas that the USEPA has re-designated to attainment status for specific pollutants are known as "maintenance areas”. The SIP includes measures to maintain air quality standards in maintenance areas.

The EPA also tracks Hazardous Air Pollutants (HAP) emissions for each state. The total HAP emissions for the State of Michigan, Macomb County, and USAG-DTA are compared in Table 4.2 below. As illustrated in the table, USAG-DTA’s contribution to total HAP emissions for the area is minimal.

Table 4.2
Comparative Regional Hazardous Air Pollutant (HAP) Emissions for USAG-DTA

Area	Total HAP Emission (Pounds/Yr)	% of Total Emissions in Michigan
State of Michigan	401,311,880	100
Macomb County	20,347,520	5
USAG-DTA	279	0.00006

Source: EPA Air Data – County Emissions 1999 Reporting Year

4.3.1.2 Air Pollutant Emissions at the Installation

USAG-DTA is currently designated as non-attainment for $PM2._5$ and marginal non-attainment for the 8-hour ozone standard for ambient air quality. USAG-DTA emission sources include stationary, mobile, and fugitive categorizations. Stationary sources include such operations as boilers, fuel storage tanks, vehicle maintenance shops, laboratories, degreasing units, and simulator testing units. Mobile sources include both private and government owned vehicles and generators. Fugitive sources would include dust generated from construction activities and roadway traffic. Air emissions for the installation are presented in Table 4.3.

Table 4.3
Annual Air Emissions Survey - National Ambient Air Quality Standards (NAAQS) Criteria Pollutant and Hazardous Air Pollutant (HAP) Emissions at USAG-DTA

Pollutant	Total (Pounds/Year)	Total (Tons/Year)	Permit Limit (Tons/Year)
Nitrogen Dioxide (NO_2)	28,284	14.0	89
Sulfur Dioxide (SO_2)	470	0.2	14
Carbon Monoxide (CO)	18,137	9.1	54
Volatile Organic Compounds (VOC)	4,075	2.0	22
Particulate Matter	2,420	1.2	9
HAP	279	0.1	8.9

Source: USAG-DTA (September 2006)

4.3.1.3 Regional Air Pollutant Emissions Summary

Air quality is determined within regional boundaries and by pollutant concentration guidelines as defined and enforced by the USEPA and state agencies as authorized under the CAA. Air quality at the installation is regulated by MDEQ. The USAG-DTA and Detroit, Michigan area are currently classified as non-attainment for $PM_{2.5}$ and ozone. While the installation falls under the regional non-attainment status for $PM_{2.5}$, the $PM_{2.5}$ monitoring station located in Macomb County is below the allowable USEPA standard (SEMCOG, 2006).

The 1990 amendments to the federal CAA, Section 176 required the USEPA to promulgate rules to ensure that federal actions that produce emissions of any criteria air pollutants for which an area is not in attainment conform to the appropriate SIP. These resulting rules, known together as the General Conformity Rule (40 CFR 51.850-860 and CFR 93.150-160), require any federal agency responsible for an action in a non-attainment area to determine that the action is either exempt from the General Conformity Rule's requirements or positively determine that the action conforms to the provisions and objectives of the applicable SIP. Any mitigation that is deemed necessary as a result of the conclusions reached in the conformity analysis would be implemented and would be integrated into the MDEQ SIP.

The General Conformity Rule requires an assessment of the potential magnitude of potential total direct and indirect emissions of non-attainment criteria pollutants, including their precursors, associated with a proposed federal action when determining conformity of that action. The rule does not apply to certain "exempt" actions or to actions where the total direct and indirect emissions of criteria pollutants are at or below specified *de minimis* levels. In addition, ongoing activities currently being conducted are exempt from the rule as long as there is no net increase in emissions above the

specified *de minimis* levels. If the predicted emissions exceed the *de minimis* levels, a formal air conformity analysis is necessary. If the *de minimis* levels are not exceeded, and if the predicted emissions do not exceed 10 percent of a non-attainment area's total emission budget for a given pollutant, a record of non-applicability must be prepared.

If an action is not exempt, the federal agency must demonstrate that the total of direct and indirect emissions from the action could be presumed to conform to the SIP provisions as long as the action would not:

- Cause or contribute to any new violation of any standard in any area;
- Interfere with provisions in the applicable SIP for maintenance of any standard;
- Increase the frequency or severity of any existing violation of any standard in any area; or
- Delay timely attainment of any standard or any required interim emission reductions or other milestones in any area including, where applicable, emission levels specified in applicable SIP for purposes of demonstration of further progress, demonstration of attainment, or a maintenance plan.

For purposes of determining a project's emissions, "direct emissions" are those directly associated with project activities at the time and location of the project. For the Proposed Action, direct emissions include those from routine operational activities and operation of permitted emission sources, as well as actual construction activities, construction vehicles and equipment, and any ancillary emissions sources. "Indirect emissions" are those that may be related to the project, but occur in a different place or at a different time; e.g., continue after project completion.

A General Conformity Analysis, in accordance with 40 CFR Part 93 Subpart B, is required prior to this project being initiated. Any mitigation that is deemed necessary as a result of the conclusions reached in the conformity analysis would be implemented and integrated into the MDEQ SIP. Such an analysis is not required to be part of the EA.

4.3.2 Consequences

4.3.2.1 Alternative 1-No Action Alternative

- **Direct Impacts.** Under the No Action Alternative only ongoing construction and renovation projects as listed in Table 3.1 would be accomplished, and existing on-going mission activities would continue at their current level. Current trends in local air quality would remain relatively unchanged.
- **Indirect Impacts.** No indirect impacts are anticipated for this area under this alternative.

4.3.2.2 Alternative 2-Administrative Office Building and Parking Structure

- **Direct Impacts. Construction** of building facilities would generate a temporary impact associated with criteria pollutants. Based on EPA AP-42 emission factor guidelines, emissions from construction projects can be estimated. Construction activities could require air construction permits. Newly constructed facilities and buildings would generate additional heating and cooling emissions proportional to the increase in building design and dimensions resulting in long-term impacts. Incorporating energy efficient heating and cooling systems with construction projects would help to minimize this impact.

  Table 4.4 highlights the calculated criteria pollutant emissions for the respective building projects based on square footage estimates, construction activity, and associated equipment operating hours for construction projects of such scale. BMPs for this alternative include the retention of vegetation, dust suppression measures, and if necessary, acquisition of a construction and operation permit from MDEQ/USEPA for the construction of heating and air conditioning systems.

Table 4.4
Estimated Air Emission Impacts From Construction Activities at USAG-DTA (Alternative 2)

Project	Approximate Square Footage	CO	VOC	NOX	SOX	PM10
Administration Facility Footprint	27,000	0.38	0.09	0.99	0.11	0.07
Multi-Story Parking Facility Footprint	116,640	2.2	0.11	0.31	0.04	0.09
Total – All Renovation Projects (Tons)	143640	**2.58**	**0.2**	**1.31**	**0.15**	**0.16**

Square Footages provided by USAG-DTA; Assumes project to be completed within one year (as of January 15, 2007)
(TPY) = Tons per Year
Source: AP-42

- **Indirect Impacts.** The Proposed Action would require a temporary influx of contractor personnel to perform the construction activities. This would result in a temporary impact due to the influx of contractors' POVs traveling on the installation to perform the work.

  This alternative would also likely result in increased indirect air quality impacts. These impacts would be associated with increased business

stimulus off-post and an associated increase in construction and operational emissions.

4.3.2.3 Alternative 3-Administrative Office Building and Surface Parking

- **Direct Impacts.** Construction of building facilities would be similar to Alternative 2 except that a larger footprint would be needed for accommodating parking spaces with this alternative. Calculations and criteria for evaluation would be similar to Alternative 2. Impacts for this alternative demonstrate air emissions as relatively comparable to Alternative 2 for all criteria pollutants combined.

Table 4.5
Estimated Air Emission Impacts From Construction Activities at USAG-DTA (Alternative 3)

Project	Approximate Square Footage	CO	VOC	NOX	SOX	PM10
Administration Facility Footprint	27,000	0.38	0.09	0.99	0.11	0.07
Surface Parking Lot Footprint	583,200	11.01	0.55	1.57	0.2	0.45
Total – All Renovation Projects	*610,200*	**11.39**	**0.64**	**2.56**	**0.30**	**0.52**

Square Footages provided by USAG-DTA; Assumes project to be completed within one year (as of January 15, 2007)
(TPY) = Tons per Year
Source: AP-42

- **Indirect Impacts.** Impacts from this alternative would be similar to those in Alternative 2.

4.4 BIOLOGICAL RESOURCES

4.4.1 Affected Environment

4.4.1.1 Vegetation

Vegetation on USAG-DTA consists of maintained landscape and turf areas. Plant species include Kentucky bluegrass and various ornamental trees and shrubs. Vegetative communities adjacent to USAG-DTA consist of a wooded riparian corridor that lies approximately 150 feet to the west of the installation along Bear Creek drainage.

4.4.1.2 Wildlife

Wildlife species present on USAG-DTA consist of those typically found in urban environments such as rabbits, squirrels, ducks, geese, seagulls, and a variety of other bird species. The riparian corridor west of USAG-DTA

attracts a more diverse group of wildlife than would normally be expected in an urban setting.

There are approximately 50 resident Canada geese and approximately 300 migratory Canada geese on USAG-DTA. Canada geese fall under the Migratory Bird Treaty Act, which is overseen by the Michigan Department of Natural Resources (MDNR). In recent years, numbers of resident Canada geese in the US have undergone dramatic growth to levels increasingly coming into conflict with people and causing personal and public property damage. The United States Fish and Wildlife Service (USFWS) issued a Federal Notice Rule in August 2006 (50 CFR Parts 20 and 21 Migratory Bird Hunting and Permits; Regulations for Managing Resident Canada Goose Populations) "authorizing State wildlife agencies, private landowners, and airports to conduct (or allow) indirect and/or direct population control management activities, including the taking of birds, on resident Canada goose populations."

The USAG-DTA has several resident geese control programs permitted through MDNR Goose Program, including roundup and relocation to National Wildlife Refuges in the Upper Peninsula and Iowa, egg replacement, and occasional nest destruction.

4.4.1.3 Sensitive Species

Federal Species

The USFWS administers the ESA of 1973. The ESA provides federal protection for plants and animals listed as endangered or threatened. The American burying beetle (*Nicrophorus americanus*) and the Indiana bat (*Myotis sodalis*) are known to occur in Macomb County. Both species are listed as Federally-threatened species by the USFWS. However, the USFWS was consulted regarding sensitive species and habitat issues, and has indicated no presence of threatened or endangered species, or sensitive habitat at USAG-DTA (see Appendix A).

State Species

The ESA of the State of Michigan (Part 365 of PA 451, 1994 Michigan Natural Resources and Environmental Protection Act), places responsibility for conservation, protection, restoration, and propagation of endangered and threatened species of fish, wildlife, and plants with MDNR in cooperation with the federal government, pursuant to the federal ESA. The 25 species with a designated state status that occur within Macomb County are listed in Appendix B. According to the MDNR none of these species occur within potential project development areas for this EA and would not be affected by various aspects of this Proposed Action.

Species of Concern

Species of Special Concern (SC) are any non-game species deemed to require conservation measures in an attempt to keep the species from becoming a threatened or endangered species in the State of Michigan. Species of Concern do not have the level of statutory protection as those species listed as threatened or endangered. There are 23 SC species in Macomb County as listed in Appendix B; however, none of them are known to occur at USAG-DTA.

4.4.2 Consequences

4.4.2.1 Alternative 1-No Action Alternative

- **Direct Impacts.** Under the No Action Alternative only those on-going construction and renovation projects (see Table 3.1) would be accomplished, and existing on-going mission activities would continue at their current level. Consequently, environmental effects would continue at approximately their current level. Based on current estimates provided by USAG-DTA, there is approximately 80 acres of discernable green space or approximately 47 percent of the total acreage at the installation.
- **Indirect Impacts.** There would be no indirect impacts to biological resources with implementation of the No Action Alternative.

4.4.2.2 Alternative 2-Administrative Office Building and Parking Structure

- **Direct Impacts.** Under Alternative 2, there could be short-term impacts to biological resources. Construction vehicle and equipment use would increase, increasing the potential that oil and hydraulic fluid spills could occur.

  The plan for the proposed administrative, maintenance, testing, and parking facilities include landscaped areas around the buildings. These areas would be landscaped with a combination of native and ornamental vegetation, resulting in a long-term net increase in green space for wildlife, since the total size of the footprint for the final development would be slightly less than the current development footprint for the existing parking areas. Based on this, for the administration building, there would be an approximate increase of half an acre of green space and the parking garage would gain approximately one quarter of an acre in green space, resulting in an approximate net gain of 0.75 acres of green space for the entire project. This would increase the installation's total green space to approximately 81 acres, or 48 percent of the total acreage of the installation.

  Construction of temporary parking areas would result in the removal of additional vegetation during the construction period. On completion of the parking structure, these temporary parking areas would be removed and the areas restored with a combination of native and ornamental plantings.

BMPs for this alternative would include USAG-DTA would follow all State of Michigan storm water discharge permit requirements for construction sites.

- **Indirect Impacts.** There would be short- and long-term indirect impacts to biological resources with implementation of Alternative 2. With the addition of 1,200 personnel and the associated increase in POVs, there could be a slight increase in oil and grit that could enter runoff draining off-site into Bear Creek. This would have a potential long-term impact to aquatic organisms and the wildlife using the riparian corridor around Bear Creek.

  Renovation and construction activities for the administrative office building, parking structure, weapons facilities, and temporary parking areas would disturb approximately 900,000 SF of ground. Soil disturbance by renovation and construction activities such as grading, vegetative clearing, and excavating has a high potential to result in erosion and increases in total sediment loads in storm water runoff to Bear Creek. This would have a potential short-term impact to aquatic organisms and the other wildlife using the riparian corridor around Bear Creek.

  Indirect impacts to biological resources, such as the degradation of aquatic habitat off-site from non-point source pollution (e.g., uncontrolled storm water runoff and soil erosion), would be reduced as a result of erosion controls required by State of Michigan storm water discharge permits for construction sites, as well as other BMPs. Examples of BMPs include: the use of silt fences to minimize erosion and siltation in aquatic habitats; the control and collection of storm water runoff from bare soil and impervious surfaces; the creation of detention ponds; the construction of storm water retention ponds and berms on the site; and the creation of natural resource management plans and other management efforts to protect water quality and aquatic habitat.

  Even with implementation of BMP controls, there may be short-term impacts to biological resources associated with sediment runoff.

  New landscaping around the administrative, maintenance, testing, and parking facilities would be included in the project. Since the final development footprint would be slightly less than the current development footprint for the existing parking areas there would be a beneficial impact to aquatic habitat off-site by providing a buffer and filter of storm water.

  Currently, USAG-DTA uses a detention pond to detain surface water runoff and control the speed at which surface water runoff leaves the installation. As part of the planned construction activities, USAG-DTA would replace the existing storm water detention pond near the Child Development Center (CDC). The proposed detention system would have

increased capability to detain water. This feature, coupled with the reduced amount of impervious surface (i.e. roof areas and parking areas), should reduce the existing outflow speed at this installation. This should result in a slight improvement in nearby steams; thereby reducing the potential impact on the downstream riparian habitat.

Relocation and expansion of the existing storm water detention pond would have a short-term impact on the Canada geese that currently use the pond. These geese would be displaced to the new detention pond.

4.4.2.3 Alternative 3-Administrative Office Building and Surface Parking

- **Direct Impacts.** Direct impacts associated with Alternative 3 would be similar to those associated with Alternative 2, and could have effects on biological resources. The construction under Alternative 3 would result in the disturbance of more than twice the square footage when compared to Alternative 2. The greater area would be required to provide parking for personnel working at the installation. Based on these estimates, for the administration building, there would be an approximate increase of half an acre of green space. The surface parking area however, would decrease green space by approximately 13.5 acres, resulting in an approximate net loss of 13 acres of green space for the entire project. This would decrease the installation's total green space to approximately 67 acres, or 39 percent of the total acreage of the installation. This increase in development areas would increase the potential for sediment erosion during construction, and increase the impervious area at the installation; thereby increasing storm water runoff issues relative to either Alternative 1 or 2.
- **Indirect Impacts.** Indirect impacts associated with Alternative 3 would be similar to, but on a larger scale, based on additional ground disturbance, than those associated with Alternative 2. Three of the additional surface parking areas would be located within 500 feet upslope of Bear Creek. More soil disturbance and an increase in impermeable surface area would increase runoff and the amount of sediment potentially entering Bear Creek under Alternative 3. This would have a potential short-term and long-term impact to aquatic organisms and the wildlife using the riparian corridor around Bear Creek. The use of erosion controls detailed in the *Guidebook of Best Management Practices for Michigan Watersheds* would decrease the indirect impacts to aquatic habitat within Bear Creek.

4.5 HAZARDOUS AND TOXIC SUBSTANCES

4.5.1 Affected Environment

Specific environmental statutes and regulations govern hazardous material and hazardous waste management activities at USAG-DTA. For the purpose of this analysis, the terms *hazardous waste*, *hazardous materials*, and *toxic substances*

include those substances defined as hazardous by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), the Resource Conservation and Recovery Act (RCRA), Army Regulation 200-1 (AR 200-1), and Toxic Substances Control Act (TSCA). In general, they include substances that, because of their quantity, concentration, or physical, chemical, or toxic characteristics, may present moderate danger to public health or welfare or the environment upon being released.

4.5.1.1 Uses of Hazardous Materials

The transfer of operations as part of this Proposed Action primarily includes items such as chemical detection and water test kits. Special wastes such as asbestos and lead have site-specific plans that address the proper removal and disposal of these wastes at the installation. Pesticides are used in small quantities throughout the installation and are applied by DoD-certified applicators.

Radioactive materials are used in pre-manufactured tank components, laboratory calibration sources, process flow sensors, and exit light fixtures. The USAG-DTA manages radioactive sources such as Cesium-137 meters and Strontium-90 instrument calibrators that are covered under Nuclear Regulatory Commission (NRC) license 21-21068-01. These sources are inspected regularly and samples of radiological residues are collected and analyzed on a periodic schedule. Radioactive sources transferred from the Rock Island installation would be covered under the existing NRC license 12-00722-06.

4.5.1.2 Storage and Handling Areas

There are 19 buildings and five other areas located at USAG-DTA used for the storage of oil compounds and hazardous substances. Since USAG-DTA is a small quantity generator and is not a treatment, storage, or disposal facility, no CERCLA hazardous material is stored in a quantity that exceeds its threshold planning quantity.

4.5.1.3 Hazardous Waste Disposal

Typical hazardous wastes at the installation include oily rags, contaminated fuels, greases, aerosol cans, and any solvents that cannot be recycled. Hazardous waste storage areas are inspected weekly and the primary waste accumulation center a 90-day storage area, is also inspected weekly. An additional satellite collection area (that would include handling radioisotopes and radiation detection kits) would be located at the new Weapons Maintenance facility.

4.5.1.4 Petroleum, Oil and Lubricants (POLs)

Oil and petroleum products at the installation include diesel fuel, unleaded gasoline, JP8F fuel, Jet A fuel, lubricating oil, compressor fluid, and hydraulic fluid. These materials are utilized in applications such as emergency power generators, vacuum pumps, hydraulic elevators and lifts, and compressors.

POLs are stored in aboveground and underground storage tanks (ASTs/USTs) and smaller containers, where feasible. ASTs and USTs are inspected monthly as part of routine operation and preventative maintenance programs.

4.5.2 Consequences

4.5.2.1 Alternative 1–No Action Alternative

- **Direct Impacts.** Under the No Action Alternative only those on-going construction and renovation projects would be accomplished (see Table 3.1), and existing on-going mission activities would continue at their current level. Existing installation procedures associated with the procurement, handling and storage of hazardous materials, and the management, collection and disposal of hazardous waste would continue. Therefore, there would be no anticipated changes in the existing baseline conditions at USAG-DTA.
- **Indirect Impacts.** The USAG-DTA currently tracks reports of hazardous materials and wastes in accordance with existing federal and state laws. The installation also has a pro-active hazardous property minimization program intended to reduce the use and presence of these materials at the installation. Additionally, the installation's ongoing Environmental Management System has an established goal and objective to reduce the use and presence of hazardous property at the installation. Together these programs should help the installation reduce potential effects associated with the handling, storage, use, and disposal of hazardous property.

4.5.2.2 Alternative 2-Administrative Office Building and Parking Structure

- **Direct Impacts.** An increase in personnel would result in a minor increase in the amounts of hazardous wastes generated and used (e.g., oil, solvents, paints, POL products, and pesticides). A long-term impact is anticipated from such an increase. While the quantity of hazardous materials would increase slightly with the transfer of operations to USAG-DTA, since these materials are contained within specific products and are inherently used as a consumer product, they would not typically be considered to have an impact.

  Long-term direct impacts to hazardous waste disposal are anticipated from the influx of additional personnel and missions. Table 4.6 provides a summary of the new hazardous materials that are anticipated to be present at USAG-DTA following implementation of the Proposed Action.

  Since this alternative is expected to have the longest period of construction, impacts would be slightly higher than Alternative 3.

  Construction of new facilities under this alternative would entail the use of various paints, lacquers, adhesives, sealants, fuels, and other hazardous

substances. Generation of small quantities of toxic and hazardous wastes during construction is likely. The potential would exist for small spills or leaks of hazardous substances, which would potentially generate small quantities of contaminated media requiring disposal. A temporary impact is anticipated from construction activities.

USAG-DTA has a documented Spill Prevention, Control and Countermeasures Plan (SPCCP) designed to minimize the impact of accidental spills of POL products, hazardous media, pollutants, or contaminants. This plan would be modified to address the new materials anticipated at the installation.

Table 4.6
New Hazardous Materials Expected at USAG-DTA Following Implementation of the Proposed Action

Material	Estimated Quantity Used	Estimated Quantity Hazardous Waste Generated	Process Description
AM-241 (used in the M43A1)	0 mCL	250 mCL	Chemical Detection
M18A3 Detector Kit (MSN 6665-01-643-4278) Mercury cyanide	28.5 ml	0	Impregnated into silica gel
M18A3 Detector Kit (MSN 6665-01-643-4278) Sodium hydroxide	6.8 g	0	solid
M18A3 Detector Kit (MSN 6665-01-643-4278) Copper sulfate	45 ml	0	Impregnated into silica gel
M18A3 Detector Kit (MSN 6665-01-643-4278) Zinc sulfate	330 ml	0	Impregnated into silica gel
M256A1 Detector Kit (MSN 6665-01-133-4964) Mercury cyanide	270 mg	0	In liquid solution
M256A1 Detector Kit (MSN 6665-01-133-4964) Methanol	19.2 g	0	In liquid solution
M256A1 Detector Kit (MSN 6665-01-133-4964) Ligroine	2.4 g	0	In liquid solution
M256A1 Detector Kit (MSN 6665-01-133-4964) Copper chloride	96 g	0	In liquid solution
M256A1 Detector Kit (MSN 6665-01-133-4964) Zinc oxide	10.56 g	0	In liquid solution
M272 Water Test Kit (MSN 6665-01-134-0885) Mercury cyanide	28.5 ml	0	Impregnated into silica gel

Table 4.6
New Hazardous Materials Expected at USAG-DTA Following Implementation of the Proposed Action

Material	Estimated Quantity Used	Estimated Quantity Hazardous Waste Generated	Process Description
M272 Water Test Kit (MSN 6665-01-134-0885) Epichlorohydrin	270 mg	0	In powder form in tube
M272 Water Test Kit (MSN 6665-01-134-0885) Potassium cyanide	270 mg	0	In powder form in tube
M272 Water Test Kit (MSN 6665-01-134-0885) Potassium cyanide	500 ml	0	In powder form in tube
M272 Water Test Kit (MSN 6665-01-134-0885) Sodium arsenite	450 ml	0	In powder form in tube
M272 Water Test Kit (MSN 6665-01-134-0885) Sodium hydroxide	6.8 g	0	solid
M272 Water Test Kit (MSN 6665-01-134-0885) Carbaryl	625 ml	0	In powder form in tube
M272 Water Test Kit (MSN 6665-01-134-0885) Cupric sulfate	495 g	0	In powder form in package
M272 Water Test Kit (MSN 6665-01-134-0885) Cupric sulfate	45 ml	0	Impregnated into silica gel
M291 Skin Decon Kit (MSN 4230-01-251-3702) Ambergard XE555 Resin	20.0 g	20.0 g	Decontamination powder contained in small one use glove
M291 Skin Decon Kit (MSN 4230-01-251-3702) DP33-2 Sorbent	120.0 g	120.0 g	Decontamination powder contained in small one use glove
M100 Sorbent Decon System (MSN 4230-01-466-9095) Sorbent (A-200-SIC-1005)	1,800 g	1,800 g	Decontamination powder contained in small one use glove
M291 Skin Decon Kit (MSN 4230-01-251-3702) Ambergard XE555 Resin	20.0 g	20.0 g	Decontamination powder contained in small one use glove. The sorbent is a Silica-Alumina-Carbon
M48A1 Gas Filter	0	0	Ref: Material Safety Data Sheet, Product ID # 12002370
Hermetically Sealed Filter Canister	0	0	Ref: Material Safety Data Sheet, Product ID # 12002370
Ni-63 (Used in M22 ACADA) (MSN 6665-01-438-6963)	0	30 mCl	Ni-63 in an integral part of device used for Chem/Bio Detection. Disposal must be via licensed and approved hazardous waste facility.

Table 4.6
New Hazardous Materials Expected at USAG-DTA Following Implementation of the Proposed Action

Material	Estimated Quantity Used	Estimated Quantity Hazardous Waste Generated	Process Description
AM-241 (Used in M43A1) (MSN 6665-01-081-8140)	0	250 µCl	AM-241 in an integral part of device used for Chem/Bio Detection. Disposal must be via licensed and approved hazardous waste facility.
Joint Chemical Agent Detector (JCAD)	0	unknown	JCAD is under development and radiation source that may be used for chem/bio detection has not been determined.
Thorium (RSCAAL) (MSN 6665-01-324-6637)	0	unknown	Thorium is below monitor level for DOT/NRC.
Thorium, Joint Services Light-Weight Stand-Off Chemical Agent Detector (JSLSCAD)	0	unknown	Thorium is below monitor level for DOT/NRC.
Unknown, Joint Warning and Reporting Network (JWARN)	0	unknown	JWARN is under development and radiation source that may be used for chem/bio detection has not been designated and/or finalized.

Source: TACOM-RI 10 Oct 06

BMPs for this alternative would include the following: Maintenance of clean areas, incorporation of preventative maintenance measures (i.e. drip pans), incorporation of a spill prevention, control, and countermeasures plan, hazardous waste inspections for satellite accumulation areas, containment of solid waste from construction activities, and incorporation of asbestos removal standards for any asbestos-containing materials identified.

- **Indirect Impacts.** Indirect impacts would be similar to Alternative 1.

4.5.2.3 Alternative 3–Administrative Office Building and Surface Parking

- **Direct Impacts.** Impacts from this alternative would be similar to those identified in Alternative 2.
- **Indirect Impacts.** Impacts from this alternative would be similar to those identified in Alternative 1 and 2.

4.6 SOCIOECONOMICS

The USAG-DTA is located in Macomb County which is one of six counties within the Detroit-Warren-Livonia, Michigan Metropolitan Statistical Area (MSA). The other counties within the MSA are Lapeer, Livingston, Oakland, St. Clair and Wayne. Macomb County is located in the east-central portion of this MSA. The MSA is USAG-DTA's Region of Influence (ROI) for this socioeconomic analysis.

The Detroit-Warren-Livonia MSA, and Macomb County in particular, realizes the greatest social and economic impacts from operations at USAG-DTA. These impacts include, but are not limited to, population, employment, personal income, business sales, housing and education.

4.6.1 Affected Environment

The following sections discuss the existing economic and social conditions of the ROI in respect to labor force, employment, population, housing, and quality of life.

4.6.1.1 Economic Development

Regional Economic Activity

Civilian labor force statistics are given in Table 4.7. Total employment of the labor force was estimated at 2, 195,347; with approximately 20 percent of the labor force located in Macomb County (BLS, 2005).

Table 4.7
Annual Civilian Labor Force and Unemployment Rate, USAG-DTA Region

Jurisdiction	% Increase, (Decrease) 2000-2005	2005 Labor Force	Unemployment Rate (%)
Detroit-Warren-Livonia MSA	(3.9)	2,195,347	7.2
Macomb County	(2.4)	423,248	6.8
Michigan	(1.0)	5,097,457	6.7

Source: U.S. Department of Labor, Bureau of Labor Statistics, 2006.

Employment in the major industry sectors by “place of work” for 2004 is shown in Table 4.8. Employment by “place of work” reflects workers commuting to work outside their county of residence and, thus, results in the recipient county’s employment exceeding the local county labor force. Local and regional employment trends reflect the services and retail trade sectors accounting for almost 60 percent of the employment in the ROI. Health care and social assistance comprise the major employment groups within the services sector. The manufacturing and government sectors account for 23 percent of the ROI employment. Services and retail trade are the primary industry sector employers in Macomb County.

Table 4.8
Total Full Time and Part-Time Employment by Industry by Place of Work, USAG-DTA Region of Influence, 2004 (North American Industrial Classification System)

Industry	Total	Percent
Farm Employment	6,196	<1
Forestry, Fisheries	(D)	-
Mining	3,021	<1
Construction	122,353	5
Manufacturing	305,034	12
Transportation, Warehousing, Utilities	66,295	3
Wholesale Trade	(D)	-
Retail Trade	268,393	11
Finance, Insurance, Real Estate	206,405	9
Services	1,130,462	48
Government	252,432	11
TOTAL EMPLOYMENT1	2,477,127	100

Source: U.S. Department of Commerce, Bureau of Economic Analysis, Regional Economic Information System,2004
(D) Not shown to avoid disclosure of confidential information.
1 Total of column does not equal 2,477,127 because of non-disclosure of employment information industry sectors.

Table 4.9 portrays the ten largest employers within the ROI. The USAG-DTA is among the top 50 employers within the ROI with over 3,400 employees.

Table 4.9
Largest Employers, USAG-DTA Region of Influence

Employer	**Number of Employees***1*
Detroit Public Schools	20,000
City of Detroit	19,000
Detroit Medical Center	12,400
U.S. Government	11,800
Daimler Chrysler Corporation	11,200
Henry Ford Health Systems	7,700
General Motors Corporation	7,400
State of Michigan	6,800
Wayne State University	5,800
St. John Hospital and Medical Center	5,800

Source: Crain's Detroit Business, December 31, 2002; Detroit Regional Chamber of Commerce, 2005.
1 Number of employees actually or estimated to be employed in the Detroit area in December, 2002.

4.6.1.2 Demographics

Regional Population

Table 4.10 portrays the population trends and projections for the ROI, Macomb County, and the City of Warren since 1990.

Table 4.10
Regional and Local Population Trends, USAG-DTA Region, 1990-2015

Jurisdiction	2015 Projected Population1	2005 Population Estimates2	Percent Change 1990-2000	2000 Population	1990 Population
Detroit-Warren-Livonia MSA	4,670,000	4,488,335	4.8	4,452,557	4,248.699
Macomb County	858,335	829,453	9.9	788,149	717,400
City of Warren	129,924	135,311	(4.6)	138,247	144,864
Michigan	10,599,122	10,120,860	6.9	9,938,444	9,295,297

Source: U.S. Department of Commerce, U.S. Census Bureau, 1990 and 2000 U.S. Census.
1 Southeast Michigan Council of Governments (SEMCOG), Population Estimates and Forecasts for Southeast Michigan Metropolitan Areas, 2005; SEMCOG, Regional Development Forecasts, 2003.
2 U. S. Census Bureau, Population Estimates Program.
Note: Parentheses denote decrease.

The current population estimate of 4,488,335 for the ROI represents less than a 1 percent increase since 2000. Population projections for the year 2015 reflect a continuation of this relative overall slow growth within the ROI, with internal population changes reflecting current trends.

The dynamics of population change responsible for population growth or decline are natural increase (births minus deaths) and net migration. Net migration is the difference between people moving in (in-migration) and people moving out (out-migration) of the area. Table 4.11 portrays the relative importance of these two components of population growth for the ROI during the 2000-2003 timeframe.

Out-migration from the ROI has far exceeded in-migration for the last two decades. Almost all of the ROI's net out-migration has occurred in Wayne County, primarily from the City of Detroit. Oakland is the only other county within the ROI that has experienced a net out-migration of population. Conversely, in-migration has been the major factor in population growth in Macomb County. This trend has continued as in-migration comprised 69 percent of Macomb County's population increase during 2000-2003.

Table 4.11
Estimated Components of Population Change, USAG-DTA Region, 2000-2003

Jurisdiction	Population Increase1	Natural Increase	Net Migration2	Percent Increase Due to Migration
Detroit-Warren-Livonia MSA	31,296	69,498	(37,535)	0
Macomb County	25,799	8,435	17,833	69
Michigan	141,505	142,282	3,918	3

Source: U.S. Department of Commerce, U.S. Census Bureau, Population Division

1 The estimated components of population change will not equal the total population increase because of a small residual (remainder of population) after controlling for the differences between sub-national and national population estimates.

2 Includes both domestic and international migration.

Note: Parentheses denote decrease.

4.6.1.3 Housing

Regional Housing and Household Characteristics

Table 4.12 provides housing information for the ROI.

Table 4.12
Housing Characteristics, USAG-DTA Region, 2000

Jurisdiction	Total Housing Units 2000	Percent Vacant 2000	Percent Owner Occupied 2000	Median Value Owner Occupied 2000	Median Rent Renter Occupied 2000	Median Household Income 2000
Detroit-Warren-Livonia MSA	1,797,185	6.0	73.0	$132,900	$490	$49,985
Macomb County	320,276	3.5	79.0	$134,900	$603	$52,102
City of Warren	57,249	3.0	80.0	$115,400	$598	$44,626
Michigan	4,234,279	11.0	74.0	$110,300	$546	$44,667

Source: U.S. Department of Commerce, Bureau of the Census, Population, and Housing Characteristics, 2000

Selected housing characteristics related to occupancy status, median value, vacancy rate, and median household income are shown in Table 4.12.

Median household incomes in the ROI ranged from a high of $67,400 in Livingston County to a low of $40,776 in Wayne County. The median age of the population was 36.9 years in Macomb County.

The November 2006 Greater Detroit Metro Area Multiple Listing Service (MLS), contained 13,920 single-family homes for sale in the Detroit area. The median listed price was in the range of $175,000-$200,000. Approximately

3,300 single-family homes were for sale in Macomb County, of which 575 were located in the City of Warren. Table 4.13 provides the distribution of these current for-sale properties by listed price range.

Table 4.13
Single-Family Homes Listed For Sale, USAG-DTA Region of Influence.

Listed Price Range	Number of Homes Listed
$70,000 - $100,000	1,166
$100,000 - $125,000	1,240
$125,000 - $150,000	1,558
$150,000 - $175,000	1,392
$175,000 - $200,000	1,277
$200,000 - $225,000	895
$225,000 - $250,000	1,061
$250,000 - $300,000	1,540
Over $300,000	3,791
TOTAL	**13,920**

Source: Greater Detroit Metro Area Multiple Listing Service, November, 2006.

4.6.1.4 Quality of Life

Education

Each of the counties within the ROI have county-wide public school districts in addition to private schools. Public education in Macomb County is administered by the Macomb Intermediate School District (MISD) which serves 21 public school districts. The MISD is comprised of 133 elementary schools; 42 middle schools; 33 high schools; and several alternative and special schools. Total current enrollment within MISD is approximately 138,000 students. The Detroit area has a number of universities and colleges for post-secondary education.

Health

The City of Detroit has three major medical systems: the Detroit Medical Center (DMC), Henry Ford Health System, and St. Johns Hospital. Macomb County has numerous medical and health facilities, including six hospitals with almost 1,400 beds in addition to a number of medical/health centers.

Law Enforcement

Law enforcement within the ROI is provided by county and municipal police departments. The Macomb County Sheriff's Office provides law enforcement services for portions of Macomb County, including contractual services to

numerous townships. The Sheriff's Office has over 15 officers assigned to various departments.

Fire Protection

Fire protection and emergency medical services (EMS) are provided by municipal and township fire departments throughout the ROI. The City of Warren has a fire department with six stations and a complete array of fire protection equipment.

Recreation

The ROI has an array of recreational facilities and opportunities for public use. Macomb County is home to more than 130 parks encompassing 12,000 acres. There are four major public parks in the county. In addition, Macomb County has almost 40 golf courses and a variety of recreational centers. Water recreation is afforded by over 30 miles of shoreline and over 100 marinas.

The City of Warren Parks and Recreation Department provides a variety of recreational facilities and programs for its residents. The city has 24 parks in addition to two recreation centers and a community center. Both recreation centers feature an array of indoor facilities, including a gymnasium and fitness center. The Warren Community Center includes three gymnasiums, multi-purpose rooms, aquatic center, performing arts center, and banquet facilities in addition to other facilities and activities.

4.6.1.5 Environmental Justice

The following discussion of environmental justice issues has been developed to address three EOs.

Executive Order 12898, Federal Actions to Address Environmental Justice in Minority and Low–Income Populations.

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

For environmental justice considerations, these populations are defined as individuals or groups of individuals that are subject to an actual or potential health, economic, or environmental threat arising from existing or proposed Federal actions and policies. Low-income, i.e. at or below the poverty threshold, is defined as the aggregate annual mean income for a family of four of $19,806 in 2005.

The highest concentration of minority population within the ROI is in Wayne County, primarily the City of Detroit, where over 50 percent of the population is minority. According to U.S. Census Bureau estimates, approximately

11 percent of population in the ROI was below the poverty level in 2003, which was comparable to the statewide poverty rate. Poverty rates within the MSA range from almost 17 percent in Wayne County to less than 5 percent in Livingston County. The poverty rate in Macomb County was under 8 percent in 2003. Table 4.14 summarizes this information.

Table 4.14
Minority and Low-Income Populations, USAG-DTA Region

Jurisdiction	Total Population (2000)	Percent Minority Population (2000)	Median Household Income in Dollars (2003)	Persons Below Poverty (2003)	Percent Persons Below Poverty (2003)
Detroit-Warren-Livonia MSA	4,452,557	28.7	$51,300	501,867	11.3
Macomb County	788,149	7.3	$51,782	60,575	7.7
City of Warren	138,247	8.8	NA	NA	NA
Michigan	9,938,444	19.9	$46,291	1,088,703	11.0

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

1 Reflects 2000 U.S. Census data.

NA Information not available at this geographic level.

Executive Order 13045, Protection of Children from Environmental Health Risks and Safety Risks.

On April 21, 1997, President Clinton issued EO 13045, Protection of Children from Environmental Health Risks and Safety Risks. This EO recognizes that a growing body of scientific knowledge demonstrates that children may suffer disproportionately from environmental health risks and safety risks.

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

4.6.2 Consequences

4.6.2.1 Alternative 1-No Action Alternative

- **Direct Impacts.** Under the No Action Alternative, the proposed BRAC-Military Construction and Renovation Projects previously identified would not be implemented at the USAG-DTA. Ongoing missions would be similar to those currently being conducted at the installation and, therefore, there would be no change in operations. The installation would continue to implement the established program of Military Construction

Projects required to support continuing ongoing mission requirements. There are 15 proposed construction opportunities that include a child development center, an emergency services building, a physical fitness facility, and various other expansion and renovation projects. (see Table 3.1). Therefore, economic impacts would result from these Military Construction Projects under this alternative.

Direct short-term beneficial economic impacts would be realized by the regional and local economy during the construction phase of the proposed Military Construction Projects. Employment generated by construction activities would result in wages paid; an increase in sales (business) volume; and expenditures for local and regional services, materials, and supplies.

The Economic Impact Forecast System (EIFS) model, developed by the U.S. Army Corps of Engineers (USACE), Construction Engineering Research Laboratory (CERL), was used to assess the impacts of this alternative on the economy. The EIFS model provides a systematic method for evaluating the regional socioeconomic effects of government actions, particularly military actions. Using employment and income multipliers developed with a comprehensive regional/local database combined with economic export base techniques, the EIFS model estimates the regional economic impacts with respect to changes in employment generated, changes in population, and expenditures directly and indirectly resulting from project construction. The EIFS model evaluates economic impacts in terms of regional change in business volume, employment and personal income, and expenditures for local and regional services, materials, and supplies. The EIFS model was used to project both the short-term temporary regional economic impacts of project construction, and long-term economic impacts of the increase in USAG-DTA operations.

The estimated total construction cost of the new Military Construction Projects under the No Action Alternative is approximately $113.8 million (2006 dollars). This amount was used as the EIFS input for change in capital costs. The estimated construction period for the new facilities is 6 years. The EIFS employment and income multiplier for the ROI is 4.04.

Table 4.15 provides the estimated direct, indirect, and total annual economic impacts of construction activities on business volume, income, and employment. These impacts would be realized annually over the length of the construction period. The increase in business volume, income, and employment includes capital expenditures, income, and labor directly associated with the construction activity. Table 4.15 also provides the indirect impacts on business volume, income, and employment because of the initial direct impacts of the construction activities. It should be noted that construction phase workers would not be expected to

relocate. Appendix C contains the EIFS reports on impacts of non-BRAC and BRAC-related construction activities, and BRAC-related operations at USAG-DTA.

Table 4.15
Estimated Annual Economic Impacts, USAG-DTA : Alternative 1, No Action Alternative

Variable	Direct Impacts	Indirect Impacts	Total	RTV[1]
Annual Construction Impacts[2]				
Sales (Business) Volume	$16,031,040	$48,734,360	$64,765,400	0.02%
Income	$7,554,056	$7,669,487	$15,223,543	0.01%
Employment	175	166	341	0.01%

Source: Economic Impact Forecast System, U.S. Army Corps of Engineers, Construction Engineering Research Laboratory (as of January 15, 2007)..

1 Rational Threshold Value.

2 2006 Dollars.

The EIFS model also includes a Rational Threshold Value (RTV) profile that is used in conjunction with the forecast models to assess the degree of the impacts of an activity for a specific geographic area. For each variable (business volume, employment, income, and population), the current time-series data available from the United States Bureau of Economic Analysis are calculated along with the annual change, deviation from the average annual change, and the percent deviation for each of these variables, which then defines a threshold for important annual regional economic impacts for a variable. Within the EIFS model the RTV is calculated for each of these variables when assessing the regional economic impacts of a specific project. If the RTV for a particular variable associated with the impacts of a specific project exceeds the maximum annual historic deviation for that variable, then the economic impacts are considered significant. If the RTV for a variable is less than the maximum annual historic deviation for that variable, then the regional economic impacts are not considered significant.

Table 4.15 provides the RTV associated with each of the economic impacts resulting from the construction activity. The regional positive RTVs for each economic variable are as follows: sales volume (8.04 percent); income (7.91 percent); employment (4.65 percent); and population (0.78 percent). Thus, the RTV for each of the variables was found to be considerably less than the respective regional RTV. For this reason, construction associated with this alternative would be on a regional basis, and not result in substantial annual regional economic impacts.

There would be no BRAC-related short or long-range socioeconomic impacts under the No Action Alternative since the proposed BRAC-related construction activity and increased operations at USAG-DTA would not be implemented.

- **Indirect Impacts.** The anticipated increase in construction activity from the non-BRAC Military Construction Projects would have indirect socioeconomic impacts on the USAG-DTA region. These impacts would be primarily employment, income, and business volume. Employment generated by construction activities would result in additional indirect wages paid; an increase in indirect business volume; and indirect expenditures for local and regional services, materials, and supplies as indicated in Table 4.15.

  The indirect economic impacts of the proposed construction activities on business volume, income, and employment are also provided in Table 4.15. As a result of construction expenditures for materials, supplies, and services, in addition to construction labor wages, the EIFS model estimates there would be approximately a $48.7 million increase in indirect annual business volume; a $7.7 million increase in indirect or induced annual personal income; and an increase of 166 indirect jobs created in the construction, retail trade, service, and industrial sectors. These impacts would be realized on an annual basis during the length of the construction period, but would have impacts on the regional economy.

4.6.2.2 Alternative 2 - Administrative Office Building and Parking Structure

- **Direct Impacts.** Construction activity under this alternative would entail four BRAC Construction and Renovation Projects and 15 non-BRAC Military Construction Projects. Construction impacts would be greatest under this alternative. In addition, approximately 1,200 civilian and contractor personnel would be relocated to USAG-DTA. However, construction phase workers would not be expected to relocate.

  Direct short-term beneficial economic impacts would be realized by the regional and local economy during the construction phase of Military Construction Projects and the proposed BRAC-related Construction and Renovation Projects. Employment generated by construction activities would result in wages paid; an increase in sales (business) volume; and expenditures for local and regional services, materials, and supplies. In addition, direct long-term economic impacts in the form of increased business volume, income, and employment would be realized from the increase in operations associated with this alternative. The total estimated construction cost under Alternative 2 is approximately $214 million (2006 dollars). This amount was used as the EIFS input for change in capital costs. The estimated construction period for the new facilities is 6 years. The EIFS employment and income multiplier for the ROI is 4.04.

Table 4.16 provides the estimated direct, indirect, and total annual economic impacts of construction activities on business volume, income, and employment. These impacts would be realized annually over the length of the construction period. The increase in business volume, income, and employment includes capital expenditures, income, and labor directly associated with the construction activity. Table 4.16 also provides the indirect impacts on business volume, income, and employment because of the initial direct impacts.

Table 4.16
Estimated Annual Economic Impacts, USAG-DTA : Alternative 2

Variable	Direct Impacts	Indirect Impacts	Total	RTV[1]
Annual Construction Impacts[2]				
Sales (Business) Volume	$30,083,200	$91,452,030	$ 121,535,230	0.05%
Income	$14,167,790	$14,392,250	$28,560,040	0.02%
Employment	328	312	640	0.03%
Annual Operations Impacts2				
Sales (Business) Volume	$96,480,000	$293,299,200	$389,779,200	0.15%
Income	$120,000,000	$46,157,460	$166,157,460	0.13%
Employment	1,530	1,002	2,532	0.10%

Source: Economic Impact Forecast System, U.S. Army Corps of Engineers, Construction Engineering Research Laboratory (as of January 15, 2007).

1 Rational Threshold Value.

2 2006 Dollars.

As indicated in Table 4.16, direct annual regional economic impacts would occur because of the increased operations under Alternative 2. Employment and income of the military and civilian personnel are included in the direct employment and direct income. The direct income represents the earnings of employees in the government, retail, wholesale, and service establishments that would be initially or directly affected by the net gain of military and civilian employees. The increase in business volume reflects increases in the sales of goods, services, and supplies to the military and civilian personnel, and other employment directly associated with project operations.

The RTV for each of the economic variables is considerably less than the respective regional RTV. For example, sales volume, personal income, and total employment within the ROI would each increase by less than 1 percent because of the increase in on-post operations. For this reason, operations associated with this alternative would have beneficial economic impacts on the USAG-DTA ROI.

This analysis assumes the “maximum case” scenario in which all of the 1,200 realigned personnel would relocate to the USAG-DTA area. However, only long-term impacts would occur in on-post and off-post population in the USAG-DTA region because of personnel relocations. On-post daytime population would increase by approximately 1,200 personnel, or an approximate 35 percent increase over current day-time population. Off-post population could increase between 3,000-3,450 people. Assuming that 75 percent of the relocating personnel are married with an average of 1.5 children per family, the total population increase would be approximately 3,450. The EIFS model estimates an increase of approximately 3,000 people, which is based on a lower percentage of married personnel and with fewer children per family. This population increase represents less than 1 percent of Macomb County’s and the ROI’s current estimated population. Therefore, there would be impacts on off-post population.

Assuming the “maximum case” scenario, there could be an additional demand for 1,200 housing units because of the relocation of the realigned personnel. There are currently over 1.7 million housing units in the ROI, and over 320,000 housing units in Macomb County. There are currently almost 14,000 single-family housing units listed for sale in Macomb County. In addition, there were over 10,000 vacant housing units in Macomb County in 2000. The existing housing supplies are adequate to accommodate this additional potential housing demand. However, some new housing construction could potentially occur to satisfy the housing choices for some of the relocating personnel. Thus, there would be impacts of the Proposed Action on existing housing within the ROI, and Macomb County in particular.

There would be impacts on the local school systems as a result of the Proposed Action. Anticipated increased school enrollment resulting from the Proposed Action could range between 1,000–1,400 students. This represents 1 percent or less of the current enrollment in both the Macomb Intermediate School District and the Detroit Public Schools. However, depending upon choice of residency of the relocated personnel, some school facilities could require expansion or other improvements to accommodate the increased enrollment. Under federal law 103-282, there would be some federal aid to help with the impact of increased student population. The greatest weight for allocating impacts aid funds is for military children who live on base. They have a weight of 1.0. Since all realigned personnel will live off base, those children are given a weight of 0.20 or 1/5 the weight of on-base children. The school district would receive 20% of the maximum possible allocated per student. The impact from the aid would be negligible.

Local and regional medical/health facilities, law enforcement, fire protection and other public services are more than adequate to accommodate the relocation of personnel under the Proposed Action. Therefore, any anticipated impacts on these services would be expected to be on a county-wide or regional basis. However, as with housing and education facilities, such impacts could be greater if they are more localized.

There are no anticipated socioeconomic impacts of the Proposed Action related to environmental justice. However, some economic benefits could accrue to minority populations through employment during the construction phase of the Proposed Action.

- **Indirect Impacts.** The anticipated increase in construction activity, on-post operations, and permanent population under Alternative 2 would have indirect socioeconomic impacts on the USAG-DTA region. These impacts would be in employment; income; business volume; housing; educational and community facilities; public services; and government revenues and expenditures.

  Indirect short-term beneficial economic impacts would be realized by the regional and local economy during both the construction and operations phases of this alternative. Employment generated by construction activities would result in additional indirect wages paid; an increase in indirect business volume; and indirect expenditures for local and regional services, materials, and supplies as indicated in Table 4.16. Subsequently, annual on-going operations associated with the Proposed Action would also result in economic impacts to the local and regional economy.

  The indirect economic impacts of the proposed construction activities on business volume, income, and employment also are provided in Table 4.16. Because of construction expenditures for materials, supplies, and services, in addition to construction labor wages, the EIFS model estimates there would be increases in indirect annual business volume; indirect or induced annual personal income; and indirect jobs created in the construction, retail trade, service, and industrial sectors. These impacts would be realized on an annual basis during the length of the construction period, but would have impacts on the regional economy.

  Also provided in Table 4.16 are the annual indirect impacts of the proposed operations on business volume, income, and employment. Because of direct expenditures for materials, supplies, and services, in addition to direct labor wages, the EIFS model estimates there would be increases in indirect annual business volume; indirect or induced annual personal income; and indirect jobs created in the construction, retail trade,

service, and industrial sectors. However, these impacts would have impacts on the regional economy.

Some new housing construction and supportive development could be encouraged locally by the new demand. Any new development would be added to the tax rolls, resulting in increased property tax revenues. In addition, there would be increases in sales tax, utility tax, and other revenues resulting from the additional population. Some supporting infrastructure and public services may be subject to additional demand from the new population directly associated with the Proposed Action. Some impacts to educational facilities could occur regarding staff, services, supplies and transportation.

4.6.2.3 Alternative 3-Administrative Office Building and Surface Parking

- **Direct Impacts.** Under this alternative, the Proposed Action, including both construction and operations, would be implemented in addition to the non-BRAC Military Construction Projects. However, construction projects would be more limited compared to Alternative 2. Construction activity under this alternative would entail eight non-BRAC Military Construction Projects, and three BRAC Construction and Renovation Projects. The economic impacts of construction would be similar to those under Alternative 1. Relocation of approximately 1,200 civilian and contractor personnel to the USAG-DTA would occur under this alternative.

  Direct short-term beneficial economic impacts would be realized by the regional and local economy during the construction phase of the projects. Employment generated by construction activities would result in wages paid; an increase in sales (business) volume; and expenditures for local and regional services, materials, and supplies. In addition, direct long-term economic impacts in the form of increased business volume, income, and employment would be realized from the increase in operations.

  The total estimated construction cost under Alternative 3 is approximately $108 million (2006 dollars). This amount was used as the EIFS input for change in capital costs. The estimated construction period for the new facilities is 6 years. The EIFS employment and income multiplier for the ROI is 4.04.

  Table 4.17 provides the estimated direct, indirect, and total annual economic impacts of construction activities on business volume, income, and employment. Because of construction expenditures for materials, supplies, and services, in addition to construction labor wages, the EIFS model estimates there would be an increase in direct annual business volume; direct annual personal income; and direct jobs created in the construction, retail trade, service, and industrial sectors. These impacts would be realized annually over the length of the construction period. The

increase in business volume, income, and employment includes capital expenditures, income, and labor directly associated with the construction activity.

Table 4.17
Estimated Annual Economic Impacts, USAG-DTA: Alternative 3

Variable	Direct Impacts	Indirect Impacts	Total	RTV[1]
Annual Construction Impacts[2]				
Sales (Business) Volume	$15,122,300	$45,971,800	$61,094,100	002%
Income	$7,075,632	$7,234,734	$14,310,366	0.01%
Employment	164	157	321	0.01%
Annual Operations Impacts[2]				
Sales (Business) Volume	$96,480,000	$293,299,200	$389,779,200	0.15%
Income	$120,000,000	$46,157,460	$166,157,460	0.13%
Employment	1,530	1,002	2,532	0.01%

Source: Economic Impact Forecast System, U.S. Army Corps of Engineers, Construction Engineering Research Laboratory (as of January 15, 2007).

[1] Rational Threshold Value.

[2] 2006 Dollars.

As indicated in Table 4.17, direct annual regional economic impacts as a result of the increased operations would be the same as under Alternative 2. Other direct socioeconomic impacts resulting from the proposed BRAC operations would also be similar to those associated with Alternative 2.

- **Indirect Impacts.** Table 4.17 also provides the indirect impacts on business volume, income, and employment because of the initial direct impacts of the construction activities. These impacts would be similar to the construction impacts under Alternative 1. Other indirect socioeconomic impacts resulting from BRAC operations would be the same as those associated with Alternative 2.

4.7 SOILS

4.7.1 Affected Environment

EAs typically include consideration of potential geological and soil impacts. As noted in subsection 4.1, the relative effects of all potential implementation alternatives are not expected to impact geological resources at the USAG-DTA. Consequently, a detailed discussion of geological conditions has not been prepared for this EA.

The primary soil at USAG-DTA is Lenawee Clay Loam with some Toledo Silty Clay, and Selfridge Fine Sand. Lenawee Clay Loam comprises approximately 95 percent of the USAG-DTA and is the only soil type on the proposed construction areas. Toledo Silty Clay covers less than 1 percent of the area along the northeast border, and the Selfridge Fine Sand is approximately 2 percent in the northwest corner (NRCS Web Soil

Survey) Lenawee Clay Loam is characterized as deep, poorly drained, and slowly permeable with a 0 to 2 percent slope gradient. Runoff typically runs slowly or ponds (USDA, 2004). The soil's ponding frequency rating is "frequent", indicating a chance of ponding in any given year is greater than 50 percent. K-range is a measure of susceptibility of soils to sheet and rill erosion and can range from 0.02 to 0.69. A higher value indicates greater risk. The K-factor for Lh is 0.24 or moderately susceptible. The wind erodibility factor ranges from 2 to 8 with 8 being the least susceptible. Lenawee Clay Loam is rated 6 indicating low wind erosion.

4.7.2 Consequences

4.7.2.1 Alternative 1-No Action Alternative

- **Direct Impacts.** Under the No Action Alternative, only ongoing construction and renovation projects (see Table 3.1) would be accomplished, and existing on-going mission activities would continue at current levels. Soil disturbance and erosion from ongoing military construction projects and ongoing mission activities would continue at their current level.
- **Indirect Impacts.** Indirect impacts to soil resources are not anticipated with implementation of the No Action Alternative.

4.7.2.2 Alternative 2-Administrative Office Building and Parking Structure

- **Direct Impacts.** Alternative 2 would have direct impacts to soils. Construction vehicles and equipment would increase the potential on the site for a spill of oil and hydraulic fluids that could affect soil quality.

  Potential construction activities would remove approximately 7 acres of existing vegetation consisting of turf grass and landscaped areas. Soils in the areas would be disturbed by construction activities such as grading, vegetative clearing, and excavating during construction of the administrative office building, parking structure, and weapons facility. These construction activities would expose soils at the construction sites to wind and water erosion.

  Storm water at USAG-DTA discharges into Bear Creek. Under the Michigan Soil Erosion and Sedimentation Control Act (Act 347), any construction site of at least 1 acre or within 500 feet of a lake or stream, must have a sediment control plan. If the area of exposed soil and site related construction trailers/offices totals 5 or more acres of land on the installation, the state also requires a National Pollutant Discharge Elimination System (NPDES) permit. The existing USAG-DTA is a Nested Jurisdiction under the City of Warren MS4 NPDES Permit MI0053881. Soil erosion control plans under the Act 347 permit require weekly site inspections and inspections within 24 hours after any precipitation event.

  The Guidebook of Best Management Practices for Michigan Watersheds recommends considering barriers, tree protection, and buffer/filter strips

prior to construction. Recommendations for during and following construction include silt fences, sediment traps, temporary cover crops, and other erosion control BMPs to reduce soil erosion at the site. Although BMPs are not 100 percent effective in preventing sediment runoff, the proponent would ensure that the construction contractor complies with established permits and Risk Management Program (RMP) requirements. Even with implementation of controls, short-term soil erosion is anticipated. BMPs for this alternative would include the following: Silt fences, diversion ditches, re-seeding and reestablishment of vegetation, use of erosion and sediment control measures, preparation of a Sediment and Erosion Control Plan in accordance with MDEQ standards, and spill prevention, control and countermeasures.

- **Indirect Impacts.** Implementation of this alternative would result in a negligible reduction in total impermeable surface at USAG-DTA. The finished administrative office building would have a beneficial impact by adding new landscaping resulting in a buffer and filter of storm water. Using the IDG sustainability standards, there would be no increase in the velocity of flow into the creek, and the velocity of the flow may actually decrease based upon the increased capacity of the proposed surface water detention area. The result would be an impact on nearby streams. The use of erosion controls detailed in *The Guidebook of Best Management Practices for Michigan Watersheds* or requirements issued under the County Soil Erosion Control Permit would decrease the indirect impacts to soils located in the vicinity of the proposed development area.

4.7.2.3 Alternative 3-Administrative Office Building and Surface Parking

- **Direct Impacts.** Direct impacts associated with Alternative 3 would be similar to those associated with Alternative 2 but would have a greater effect. The soil disturbance would be greater under Alternative 3 by approximately 45 percent based on the larger development area required for surface level parking. Additionally, the surface area required for new surface parking would result in construction on all available undeveloped areas on USAG-DTA.

- **Indirect Impacts.** Indirect impacts associated with Alternative 3 would be similar to those associated with Alternative 2. Implementing this alternative would have impacts to local watersheds. The construction results in an additional 280,000 SF of impermeable surface parking. The increase in impermeable surfaces following construction would create faster rates of runoff on post that could lead to increased erosion and sediment loads in storm water runoff. The use of erosion controls detailed in *The Guidebook of Best Management Practices for Michigan Watersheds* would decrease the indirect impacts to soils located in the vicinity of the proposed development.

4.8 TRANSPORTATION

4.8.1 Affected Environment

4.8.1.1 Roadways and Traffic

The USAG-DTA has access to the same transportation network as Detroit, (i.e. Interstates 75 and 96; State Routes 53, 59, and 102; and U.S. Highway 12). USAG-DTA has direct access to Interstate 696. Two adjacent arterial roadways (State Route 53 and 12 Mile Road) and two major collectors (Mound Road and 11 Mile Road) provide access to USAG-DTA.

Average Daily Traffic (ADT) volumes were estimated for the surrounding roadways: VanDyke Avenue (73,000), Mound Road (58,000), 11 Mile Road (18,000), and 12 Mile Road (12,000) (USAG 1997).

4.8.1.2 Installation Transportation

Historically, the installation accommodated the Detroit Army Tank Plant. The installation housed tank production and a tank test track. The 1995 BRAC actions called for the closure of the Detroit Army Tank Plant. Since the closure, the main source of installation traffic is government personnel and associated contractor POVs. Currently, traffic and parking are problematic.

4.8.1.3 Public Transportation

The USAG-DTA area is served primarily by the Detroit Metropolitan Wayne County Airport, located 33 miles from the installation. The area is also served by a civil airport, Coleman A. Young International Airport. Passenger rail service is currently available in Detroit from Amtrak.

Ride share options are available by Michi-Van carpool service. The Southeastern Michigan Transportation Authority provides public transportation service along most major roads. In addition, upon request, Detroit offers Suburban Mobility Authority for Regional Transportation (SMART) service.

Conrail and Grand Truck Western Line provide railroad service to USAG-DTA. The Conrail line runs north-south and connects USAG-DTA to Utica. The Grand Trunk Western Line runs to the east of USAG-DTA and connects the area to Port Huron-Sarnia. Traffic is controlled by several gates, including one internal gate.

4.8.2 Consequences

4.8.2.1 Alternative 1-No Action Alternative

- **Direct Impacts.** Under the No Action Alternative, only ongoing construction and renovation projects would be accomplished (see Table 3.1), and existing on-going mission activities would continue at their current level. The existing ongoing transportation resources would continue to be used and maintained.

- **Indirect Impacts.** Convenient and safe parking is currently an issue at USAG-DTA. Inadequacies in parking would increase to the point where standards are placed on occupancy loads or contractors' parking is relocated off-post. Workers would be required to walk farther in adverse weather conditions thereby increasing the potential for accidents. The Main Gate would face increased traffic that may result in a negligible increase in congestion as traffic enters the installation. The existing gate should be able to accept this increased traffic load, with minimal inconvenience except during peak periods.

4.8.2.2 Alternative 2-Administrative Office Building and Parking Structure

- **Direct Impacts.** Under this alternative, there would be short-term impacts to installation transportation infrastructure. The constructions areas for the administrative office building and parking structure would be on three existing parking lots. During the construction phase, the areas would be unavailable. The USAG-DTA would provide temporary gravel lot parking on existing on-post areas. The increased traffic and temporary parking would cause problems with traffic flow, but the impacts would be short-term. The completion of the project would provide a multi-story parking structure with approximately 116,000 SF on each level and approximately 1,800 parking spaces. The traffic flow would be managed during the construction phase by providing a separate controlled access entrance for emergency response vehicles and construction workers. These impacts would be short-term.
- **Indirect Impacts.** There would be beneficial indirect impacts to traffic infrastructure because of Alternative 2. The completed multi-story parking structure would provide approximately 1,800 spaces to accommodate new personnel and the loss of parking from construction of buildings. The installation's existing shortage of approximately 1,200 parking spaces would remain.

  Pershing Road, which currently runs along the north side of the primary administrative area parking lots and the proposed location for the additional administrative office, would be widened from two to three lanes. The widened road would help accommodate traffic flow and movement around the installation.

4.8.2.3 Alternative 3-Administrative Office Building and Surface Parking

- **Direct Impacts.** Alternative 3 would create direct impacts. These impacts would be similar to those discussed for Alternative 2. Alternative 3 would create more traffic flow from construction equipment, vehicles, and workers since surface parking would be built on all available areas on the installation.

- **Indirect Impacts.** Under Alternative 3, the administrative office building and parking structure would have an indirect impact on traffic infrastructure. The construction of surface parking would eliminate areas currently planned to support other military construction projects. Additionally, long-term parking lot traffic would increase as personnel would be forced to spend more time searching a variety of individual parking lots looking for an available parking space.

4.9 UTILITIES

4.9.1 Affected Environment

4.9.1.1 Potable Water Supply

Potable water at USAG-DTA is provided by the City of Warren. No limits are placed on the amount of water purchased. The City of Warren has an adequate water supply and connections to USAG-DTA. The water supplied by the City of Warren is purchased from the City of Detroit. Detroit Water and Sewer obtain their water from Lake Huron and the Detroit River. The water supplied by the City of Warren is periodically tested for water quality by the City of Detroit (USATHAMA, 1980 cited in BRAC 1998). The installation has also tested the water for heavy metals (arsenic, cadmium, chromium, barium, lead and mercury) and water quality parameters (pH, hardness, and sulfides).

4.9.1.2 Wastewater System

The Warren Wastewater Treatment Plant (WWTP) treats wastewater generated from USAG-DTA. The City would continue the service as long as the installation completes the pretreatment and meets the city standards. The Warren treatment plant has a daily flow capacity of 50 million gallons per day (mgd), and the discharges flow into the Red Run River drainage system.

4.9.1.3 Stormwater System

USAG-DTA has coverage under the city of Warren's NPDES permit (see subsection 4.7.2.2) that covers storm water discharges. All construction activities at the installation less than 500 feet from Bear Creek require the contractor to provide a copy of a NPDES construction permit and a Soil Erosion Control Plan. If construction is 1 to 5 acres it must have soil erosion plan and permit by rule NPDES coverage..

Surface water runoff from the installation is discharged using the City of Warren and county sewer conveyance system. The water is monitored weekly for flow and observable characteristics prior to discharge into the city sewer lines.

4.9.1.4 Energy Sources

Electricity is supplied to USAG-DTA by Detroit Edison. Capacities of these utilities are adequate and are able to meet current demands. However, the

electrical substation serving the installation is operating near capacity (HQDA, 1994, cited in BRAC 1998).

The City of Warren provides natural gas, which is purchased through the Defense Fuel Supply Center, through the Consumers Power Company. The contract limits the supply to 275 million cubic feet per year on a continuous basis (Harland Bartholomew & Associates, 1988).

Building 5 on the west side of the installation generated steam heat for use on site. Part of the 1998 BRAC stated, "The Arsenal will continue to use the central heating plant until RDA Engineering begins to provide steam or until the final deed disposal of Building 5 as part of the BRAC disposal Action." Thus, steam heat is no longer used at USAG-DTA

4.9.1.5 Communications

USAG-DTA obtains communications support from commercially available services. The commercial service companies are responsible for maintaining and updating the equipment.

4.9.1.6 Solid Waste

USAG-DTA disposes of all solid waste off-site through private contractors. Civilian construction contractors at the installation are required to haul any waste generated off the installation and to dispose of that waste in accordance with applicable regulations. Table 4.18 shows the major waste streams and disposal locations at USAG-DTA.

Table 4.18
Solid Waste Disposal Method and Amount at USAG-DTA

Waste Stream Type	**Annual Quantity (Tons)**	**Disposal Method**
General Refuse	437[1]	Compacted and hauled by private contractor (currently Browning-Ferris, Inc.) to Macomb County Landfill
Construction & Demolition Debris	100[1]	Special disposal
Cardboard	172[1]	Sold For Recycling
Paper	186[1]	Taken to pulp recycler

Source: Solid Waste Management Plan 2000
Note: [1] All disposal amounts are approximate values

4.9.2 Consequences

4.9.2.1 Alternative 1-No Action Alternative

- **Direct Impacts.** Under the No Action Alternative, only ongoing construction and renovation projects (see Table 3.1) would be

accomplished, and existing on-going mission activities would continue at current levels.

- **Indirect Impacts.** Indirect impacts to utility resources are not anticipated with implementation of the No Action Alternative.

4.9.2.2 Alternative 2-Administrative Office Building and Parking Structure

- **Direct Impacts.** Direct infrastructure impacts anticipated for renovation projects are outlined below.

  Potable Water Supply. An increase in the average daily water demand from the additional 1,200 personnel is estimated at 0.13 mgd (based on an assumed daily water use of 100 gallons per person and 10 gallons per GOV). Under the current agreement with the City of Warren, the installation has no restrictions on water supply and has sufficient capacity to accommodate the population. During the short-term construction phase, the number would be slightly higher to account for temporary workers. Overall, the increased water usage would have an impact on potable water supply.

  Stormwater System. USAG-DTA currently has an existing surface water detention system to control the outflow of storm water to the City of Warren's system. As part of the Proposed Action, this detention system would be replaced by a system with a larger capacity and a detention pond located in a less visible location on the installation. Additional storm water runoff from an increase in impermeable surface area from BRAC related construction projects would be held on the Garrison and released over an extended period. Consequently, there would be no net rise in runoff intensity, but there would be an increase in the duration of the runoff period.

  Wastewater System. An increase in the average daily domestic sewage production under this alternative is estimated at 0.09 mgd (based on an assumed domestic sewage production of 75 gallons per day per person). The USAG-DTA pretreatment phase can accommodate this increase in domestic sewage production. During the short-term construction phase, the number would be slightly higher to account for workers. Overall, the increased wastewater production would have an impact.

  Energy Sources. The existing electrical substation operates near capacity. Any additional demands on the system would require the construction of a new electrical substation to support the existing and proposed electrical load. This new substation has been included in the planned construction effort. The new electrical feed would consist of underground duct banks approximately 3,700 liner feet long, jacking conduits under the railroad (60 ft long) right-of-way, substation cables, and electric manholes. Together these items would increase the long-term

electrical infrastructure at the installation, thereby resulting in a beneficial impact on infrastructure.

Interior and exterior lighting of the parking structure, administrative office building, and weapons and maintenance operations facilities would also be included. When coupled with the electrical demand for operational support, the total electrical demand at the installation would increase by approximately 25 percent.

The new buildings would be heated with natural gas and built to meet energy conservation standards to minimize impact from new construction on energy demands.

The new administrative building would also include uninterruptible power electrical emergency generators designed to automatically support critical electrical loads when electrical power from the electrical grid is lost. Typical electrical power requirements supported by the generators within the proposed facility would include emergency/exit lighting, emergency fire pumps, emergency communications systems and alarms, elevators per code, and other life-safety systems.

Communications. Communications systems would experience an approximately 25 percent increase in demand because of relocated missions and personnel. The existing infrastructure should be capable of supporting the requirements, although service within specific areas would require modification.

Solid Waste. Long-term direct impacts to solid waste disposal are anticipated from the influx of additional personnel. Although a 25 percent increase in solid waste is anticipated based upon the increase in personnel, USAG-DTA has a goal and objective as part of their Environmental Management System to decrease the quantity of solid waste generated at the installation. This should reduce the total quantity of solid waste generated at the installation.

Short-term impacts would be anticipated from debris and waste generated from construction activities.

- **Indirect Impacts.** There would be indirect impacts on utilities under Alternative 2. The current systems for wastewater and potable water are adequate. The new electrical system would require construction activities. Based upon the increased installation population, the operations and maintenance costs for electrical, communications, water, wastewater, and other utilities would increase. This increase is expected to be less than 25 percent of the current costs. Long-term indirect impacts could occur in the installation's recycling program as activities that collect aluminum, glass, paper, cardboard, plastic, paper, and metal may become more profitable. This expansion in the recycling program would have a

corresponding decrease in the volume of materials being disposed of as solid waste.

4.9.2.3 Alternative 3-Administrative Office Building and Surface Parking

- **Direct Impacts.** Impacts from this alternative would be similar to those identified for Alternative 2, but proportional to the amount of renovation and construction activities that are completed.
- **Indirect Impacts.** Impacts from this alternative would be similar to those identified for Alternative 2.

4.10 WATER RESOURCES

4.10.1 Affected Environment

4.10.1.1 Surface Water

USAG-DTA is located in the Clinton River drainage basin. The major surface water resource near the installation is the 4.5-mile-long Bear Creek. The natural drainage patterns follow the broad, flat, to gently sloping topography of USAG-DTA and drain into Bear Creek. Currently, discharges into Bear Creek include storm water and from air conditioning condensate. The storm water collects at three outfalls. Two of the three discharge directly into Bear Creek from the west side of the installation. USAG-DTA holds an interagency agreement for coverage under the City of Warren's (NPDES number M10053881 dated July 8, 2004). Phase I was published on November 16, 1990 and Phase II was published on December 8, 1999. The NPDES permit requires completion of a soil erosion control plan for any construction projects of 1 or more acres in size or within 500 feet of a lake or stream, to prevent increased sediment loads. The creek runs northward along the western boundary of the installation and drains an area of 17.3 square miles. Bear Creek discharges into Red Run River (2 miles north) and then flows into the Clinton River (7 miles northeast). The Clinton River runs easterly and empties into Lake St. Clair (HQDA 1991, cited in BRAC EA 1998). None of the proposed construction locations are near these water bodies.

4.10.1.2 Hydrogeology/Groundwater

The bedrock of USAG-DTA is composed of shale, limestone, dolomite, and sandstone deposited during the Mississippian and Devonian Periods. The depth of the bedrock ranges from 140 to 180 feet. Unconsolidated sediments from glacial drift overlay the bedrock. The bedrock and the drift allow groundwater to pass through the pore spaces creating an shallow upper aquifer and a deeper water supply aquifer.

The upper Glacio-Lacustrine Aquifer is rated a USEPA Class III aquifer and is not a potential source of drinking water. Since the construction of Interstate 696 caused substantial disturbances in the USAG-DTA area, the depth of the aquifer has changed from typically less than 6 feet to more than 20 feet.

The lower Paleo Beach Sand Aquifer is rated a USEPA Class II aquifer. It is semi-confined by the upper aquifer. The lower aquifer lies below the bedrock at approximately 148 feet.

The installation does not rely on groundwater as a drinking water source. The installation uses water provided from the City of Warren Municipal System.

4.10.2 Consequences

4.10.2.1 Alternative 1-No Action Alternative

- **Direct Impacts.** Under the No Action Alternative, only ongoing construction and renovation projects (see Table 3.1) would be accomplished, and existing on-going mission activities would continue at current levels.
- **Indirect Impacts.** Indirect impacts to water resources are not anticipated with implementation of the No Action Alternative. Stormwater and sediment loads would continue to discharge at current levels.

4.10.2.2 Alternative 2-Administrative Office Building and Parking Structure

- **Direct Impacts.** In Alternative 2, direct impacts to surface water would occur as a result of grading and construction activities at the four proposed sites. Construction activities can affect water resources by contributing suspended particulates from eroded soil to surface waters such as streams and ponds within the project site. Direct impacts to water resources, such as the degradation of water quality from non-point source pollution (e.g., uncontrolled storm water runoff and soil erosion), would be reduced because of BMPs. Examples of BMPs include: the use of silt fences to minimize erosion and siltation in aquatic habitats; the establishment of streamside management zones; the control and collection of storm water runoff from bare soil and impervious surfaces; the creation of detention ponds; and the creation of natural resource management plans and other management efforts to protect water quality and aquatic habitat.

  Construction of storm water detention ponds and berms on the site would minimize impacts to existing drainages. Currently, USAG-DTA uses a detention pond to hold surface water and control the release into surrounding water bodies. As a result of proposed construction, the detention pond would be relocated and enlarged. It would be relocated away from the CDC and existing power lines.

  State of Michigan storm water discharge permits require erosion controls for construction sites. Other BMPs would be used, where applicable, to reduce erosion and protect the water quality of receiving streams. Although BMPs are not 100 percent effective in preventing sediment runoff, the installation would ensure that the construction contractor complies with established permits and BMP requirements. Even with

implementation of controls, short-term impacts to surface water quality associated with sediment runoff are anticipated.

- **Indirect Impacts.** The administrative office building would have beneficial impacts to the site while the parking structure would have impacts. The administrative office building and parking structure would not increase the volume of the runoff. The proposed development areas are on current surface parking lots, and the amount of impermeable surface would be slightly less under this alternative. After completion of the administrative office building, new landscaping would provide a green area buffer/filter and slightly decrease the amount of impervious surfaces on site.

  The parking structure could have a indirect impact on surface water quality such as Bear Creek and the NWI-classified scrub shrub wetland 800 feet north of USAG-DTA. The structure would have four drains, one in each corner of the structure. If not properly designed and constructed, the result would be storm water discharge that arrives at drains with a higher velocity than historical sheet flow from the existing parking lot. The result would be faster rates of runoff potentially leading to increased erosion. However, since the area prior to construction was surface parking, the increased flow would most likely be minimal. The use of temporary and permanent erosion control measures and BMPs incorporated into the building design would decrease the indirect impacts of the soils in the vicinity of the proposed development. The Guidebook for Best Management Practices for Michigan Watersheds suggests implementing rooftop storage to reduce discharge, oil and grit filters to remove pollutants, and porous pavement or infiltration trenches to increase infiltration.

4.10.2.3 Alternative 3-Administrative Office Building and Surface Parking

- **Direct Impacts.** Implementation of Alternative 3 would have similar direct impacts to water resources as Alternative 2, but the effects would be greater, resulting in impacts. There would be a greater amount of soil disturbance from the construction of surface parking on all currently undeveloped areas. Alternative 3 construction activities would have greater risk of degradation and contribute more eroded soil to surface water than Alternative 2.

- **Indirect Impacts.** Indirect impacts under Alternative 3 would be similar to Alternative 2, except that this alternative would substantially increase the amount of impervious surfaces. It is anticipated that Alternative 3 would have impacts to water resources.

  The Guidebook for Best Management Practices for Michigan Watersheds indicates that the amount of storm water runoff increases in direct proportion to the amount of impervious surface in the watershed. Implementation of Alternative 3 would affect runoff by increasing the area

of impervious surface. All available green space would be utilized for surface parking resulting in a loss of those areas to act as a filter or buffer. There would be an impact to the pollutant and sediment load of the storm water discharges. The use of temporary and permanent erosion control measures and BMPs would decrease the indirect impacts of the soils in the vicinity of the proposed development. *The Guidebook for Best Management Practices for Michigan Watersheds* suggests implementing rooftop storage to reduce discharge, oil and grit filters to remove pollutants, and porous pavement or infiltration trenches to increase infiltration.

4.11 CUMULATIVE EFFECTS SUMMARY

4.11.1 Introduction

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

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

Cumulative Impact Analysis Area. The cumulative impact analysis area includes the area that has the potential to be affected by implementation of the Proposed Action at USAG-DTA. This includes the installation and the area adjacent to the installation boundary and varies by resource category being considered:

- **Aesthetic and Visual Resources.** The cumulative impact analysis area for aesthetics and visual resources includes all areas within the boundaries of the installation, as well as the view shed of the installation from off-post.
- **Air Quality.** The cumulative impact analysis area for air quality includes all areas within the boundaries of the installation and within the air quality region.
- **Biological Resources.** The cumulative impact analysis area for biological resources includes the installation and areas immediately surrounding the installation.
- **Geology and Soils.** The cumulative impact analysis area for geology and soils, including topography, is defined by the installation boundary.
- **Hazardous and Toxic Substances.** The cumulative impact analysis area for hazardous and toxic materials includes all areas within the installation boundary.
- **Socioeconomic Environment.** The cumulative impact analysis area for socioeconomic environment is the ROI.

- **Transportation.** The cumulative impact analysis area for transportation is defined by the installation boundary and the area adjacent to the installation boundary.
- **Utilities.** The cumulative impact analysis area for utilities is defined by the installation boundary and the area adjacent to the installation boundary. The analysis includes consideration of the potable water supply, wastewater collection and treatment, energy systems, communications systems, and solid waste disposal.
- **Water Resources.** The cumulative impact analysis area for water resources, including physiography and surface drainage, surface water volume and quality, groundwater, floodplains, and storm water is defined as the installation boundary and within 500 feet of the installation boundary.

Past and Present Actions. Past actions are defined as actions within the cumulative analysis area under consideration that occurred before November 2005 (the environmental baseline for this EA). These include past actions at USAG-DTA and past demographic, land use, and development trends in the areas surrounding the installation. In most cases, the characteristics and results of these past and present actions are described in the Affected Environment sections under each of the resource categories covered in this EA. Past and present actions identified and considered in the analysis of cumulative impacts are listed below. These actions are grouped to indicate those that are anticipated on-post and those that are anticipated off-post.

Reasonably Foreseeable Future Actions. Reasonably foreseeable future actions are mainly limited to those approved, identified, defined and approved with respect to timeframe and location. Reasonably foreseeable future actions identified and considered in the analysis of cumulative impacts, both on-post and off-post are listed below.

4.11.2 Potential Cumulative Impacts

4.11.2.1 Alternative 1- No Action Alternative

Under Alternative 1, it is anticipated that past and present development trends on the installation and the surrounding civilian community would continue since the BRAC actions are congressionally-mandated actions.

4.11.2.2 Alternative 2-Administrative Office Building and Parking Structure

Cumulative impacts under Alternative 2 by resource category are as follows:

- **Aesthetic and Visual Resources.** There would be a slight increase in potential for long-term beneficial cumulative impacts to aesthetics due to the reduction of surface parking. All BRAC and non-BRAC related projects on USAG-DTA would be developed in compliance with Army Master Planning guidelines.

- **Air Quality.** There would be a slight increase in the potential for short-term cumulative impacts to air quality associated with the proposed construction projects and adjacent activities. Increased traffic emissions from the increase in POVs and GOVs would also occur and nominally increase regional emissions.
- **Biological Resources.** There would be a potential for cumulative beneficial impacts to biological resources due to the potential expansion of habitat from green space increases.
- **Soils.** Under this alternative, there is the potential for cumulative impacts to soils due to erosion, removal, and compaction through the implementation of construction projects under the Proposed Action. Future development projects in the surrounding communities when combined with the impacts from installation construction and renovation projects have the potential to result in cumulative impacts to soils. These impacts would be short-term and most of the development would take place on previously disturbed or developed areas.
- **Hazardous and Toxic Substances.** With the Proposed Action projects considered under this alternative, the possibility for spills from construction equipment is increased. This would result in short-term cumulative impacts when combined with the potential spills from other construction projects and ongoing mission activities that may be occurring on the installation or in adjacent areas. The addition of laboratories and training facilities associated with non-BRAC projects could increase the amount of hazardous substances generated, stored, and handled at the installation resulting in long-term cumulative impacts.
- **Socioeconomics.** Beneficial cumulative impacts would be in the form of increased business volume, income, and employment associated with construction activities and increased on-post operations in combination with other proposed non-BRAC on-post actions and off-post construction projects.
- **Transportation.** Short-term cumulative impacts can be expected from traffic congestion due to construction equipment entering and leaving the installation construction sites, combined with other construction traffic and activities on the installation.
- **Utilities.** Implementation of proposed construction and renovation projects, which includes updates and continued expansion of the utilities, would have a long-term cumulative beneficial impact on the installation when combined with updates to utilities for the Proposed Action projects and off-post utility improvements, especially involving energy use.
- **Water Resources.** Runoff from soil disturbance from the Proposed Action combined with soil disturbance from construction projects being

implemented in the surrounding community could have cumulative effects on downstream water resources.

4.11.2.3 Alternative 3-Administrative Office Building and Surface Parking

Cumulative impacts under Alternative 3 by resource category as follows:

- **Aesthetic and Visual Resources.** There would be a slight increase in the potential for long-term cumulative impacts to aesthetics due to the construction of surface parking. All BRAC and non-BRAC projects on USAG-DTA would be developed in compliance with Army Master Planning guidelines.
- **Air Quality.** It is anticipated that cumulative impacts to air quality under Alternative 3 would be less than Alternative 2 as fewer activities would be at the installation.
- **Biological Resources.** There would be a potential for cumulative impacts to biological resources due to reduction or degradation of habitat based on green space losses. This loss of habitat could cause displacement of some individuals of certain species using that habitat.
- **Geology and Soils.** It is anticipated that cumulative impacts to geology and soils under Alternative 3 would be similar to those of Alternative 2.
- **Hazardous and Toxic Substances.** It is anticipated that cumulative impacts from hazardous and toxic substances under Alternative 3 would be less than Alternative 2 as fewer activities would be at the installation due to displacement based on the amount of parking space needed for these areas.
- **Socioeconomics.** It is anticipated that cumulative socioeconomic impacts under Alternative 3 would be similar to those associated with Alternative 2.
- **Transportation.** It is anticipated that cumulative impacts to transportation under Alternative 3 would be similar to those of Alternative 2.
- **Utilities.** It is anticipated that cumulative impacts to utilities under Alternative 3 would be similar to those of Alternative 2.
- **Water Resources.** It is anticipated that cumulative impacts to water resources under Alternative 3 would be similar to those of Alternative 2.

4.12 MITIGATION SUMMARY

As discussed in Sections 4.2 through 4.11 above, no significant impacts or significant beneficial impacts have been identified or are anticipated because of implementing any of the Proposed Action alternatives or the No Action Alternative. Consequently, no mitigation measures are required as part of this EA to reduce impacts to non-significant levels.

In accordance with definitions provided in 40 CFR 1508.20 (a–e) and 32 CFR Part 651.15, measures can be taken to diminish impacts in the following ways:

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

In association with the Proposed Action, USAG-DTA has identified a number of BMPs that would be implemented with the proposed construction activities, regardless of the alternative selected. These measures are designed to avoid, rectify, or reduce impacts. USAG-DTA would work with governmental agencies to comply with the respective regulations and avoid impacts wherever possible. Where feasible, unavoidable impacts would be lessened through coordination with the appropriate agencies.

For those impacts that cannot be avoided, BMPs have been developed to include features designed to: protect, maintain, restore, or enhance environmental conditions. These BMPs are summarized in Table 4-19.

Table 4-19
Best Management Practices Summary for Implementation of BRAC Recommendations at USAG-DTA.

	Aesthetics and Visual Resources		Air Quality		Geology and Soils		Water Resources		Biological Resources		Socio-economics		Hazardous and Toxic Substances	
Best Management Practice	D	I	D	I	D	I	D	I	D	I	D	I	D	I
Silt fences.					●			●						
Diversion ditches.					●			●						
Re-seeding and re-establishment of vegetation.	●	●			●			●						
Use a variety of landscape plantings to enhance habitat for small animals.									●	●				
Use of surface water and sediment retention basins.								●						
Use of erosion and sediment control structures.					●			●						
Preparation of a Sediment and Erosion Plan Approved by USAG-DTA and the State of Michigan.					●	●	●	●						
Maintaining areas clean of pollutants.													●	●
Preventative maintenance, e.g. drip pans, changing auto fluids in designated areas.													●	●
Retention of vegetation.			●	●										
Dust suppression.			●	●										
If necessary, acquire construction and operation permit from MDEQ and USEPA for construction of heating and A/C systems.			●	●										
Hazardous waste inspections for satellite accumulation areas.													●	●
Contain and control solid wastes generated from hazardous substances used in renovation and construction activities.													●	●
Utilize Spill Prevention Control and Countermeasures Plan in the event of releases to the environment of POLs, hazardous materials, or other pollutants.					●	●	●	●	●	●			●	●
If asbestos containing materials are found in buildings being renovated, they would be abated in accordance with Army, federal, and State of Michigan standards.													●	●
Barriers and “no trespassing” signs would be placed around construction areas to reduce the potential for injuries.											●	●		

4.13 CONCLUSIONS, FINDINGS, AND RECOMMENDATIONS

As analyzed and discussed in the EA, direct, indirect, and cumulative impacts of each of the Proposed Action alternatives and the No Action Alternative have been considered and no significant impacts have been identified. Alternative 2 offers the greatest flexibility in implementation and the best mix of renovation and construction activities to meet mission requirements; therefore, Alternative 2 Administrative Office Building and Parking Structure is recommended for implementation. Therefore, issuance of a FNSI is warranted, and preparation of an Environmental Impact Statement is not required.

Table 4-20
Summary of Environmental Consequences at U.S. Army Garrison-Detroit Arsenal

Resource Category		Alternative 1	Alternative 2	Alternative 3	Discussion
Aesthetics and Visual Resources	Direct Impacts		●	●	Proper design of the multiple-story administrative office building and parking structure should minimize effects.
	Indirect Impacts				
	Cumulative Impacts		✚	●	Abundance of surface parking lots would result in a long-term impact to the visual character of the installation's landscape.
Air Quality	Direct Impacts		●	●	Increased vehicle traffic associated with the approximately 1,200 additional personnel would result in a increase in vehicle emissions. Under the construction alternatives, construction and renovation activities would result in a temporary increase in criteria pollutants. Newly constructed facilities and buildings would generate additional heating and cooling emissions proportional to their increase in building design and dimensions. Emissions could accumulate with other pollutants from adjacent and regional activities resulting in a slight increase in the potential for short-term cumulative impacts.
	Indirect Impacts		●	●	
	Cumulative Impacts		●	●	
Biological Resources	Direct Impacts		●	●	With the addition of personnel at USAG-DTA and their POVs, there would be a slight increase in pollutants of oil and grit from the increased vehicle numbers, resulting in impacts to riparian wildlife habitat. Soils disturbed by construction activities have a potential to result in erosion and increases in total sediment loads in storm water runoff. Construction projects occurring on the installation in combination with surrounding community development projects would result in cumulative impacts to biological resources with the removal of flora and the displacement of fauna.
	Indirect Impacts		●	●	
	Cumulative Impacts		●	●	
Hazardous and Toxic Substances	Direct Impacts		●	●	Under the action alternatives, the potential for a increase on the amount s of hazardous wastes generated and used. The possibility for spills from construction equipment is increased. This would result in short-term impacts when combined with the potential spills from other construction projects and ongoing mission activities that may be occurring on the installation and adjacent areas.
					The installation has a pro-active hazardous property minimization program and Environmental Management System. These programs should help the installation reduce potential effects associated with the handling, use, storage, and disposal of hazardous property.

Table 4-20
Summary of Environmental Consequences at U.S. Army Garrison-Detroit Arsenal

Resource Category		Alternative 1	Alternative 2	Alternative 3	Discussion
	Indirect Impacts		✚	✚	
	Cumulative Impacts		●	●	
Socioeconomics	Direct Impacts		✚●	✚●	Beneficial long-term cumulative impacts would be in the form of increased business volume, income, and employment associated with construction activities and increased on-post operations in combination with other proposed non-BRAC on-post actions and off-post construction projects. Some supporting infrastructure and public services may be subject to additional demand from the new population. Some impacts to educational facilities could occur regarding staff, services, supplies, and transportation.
	Indirect Impacts		●✚	●✚	
	Cumulative Impacts		✚	✚	
Soils	Direct Impacts		●	●	There is the potential for cumulative impacts to soil due to erosion, removal, and compaction through the implementation of construction projects. Most of the construction would be on previously disturbed or developed areas. Under alternative 2, the administrative office building would have a beneficial impact by decreasing impermeable surface area. Under Alternative 3 increased impermeable surfaces following construction would create faster rates of runoff on site that could lead to increased erosion and sediment loads in storm water runoff.
	Indirect Impacts		✚	●	
	Cumulative Impacts		●	●	
Transportation	Direct Impacts		●	●	Arsenal transportation infrastructure would be required to absorb the additional 1,200 personnel. Short-term impacts can be expected from traffic congestion due to construction equipment entering and leaving the installation construction sites combined with other construction activities on the installation. Parking design would be important. Construction of all surface parking would eliminate development areas for any ongoing military construction projects.
	Indirect Impacts		✚	●	
	Cumulative Impacts		●	●	
Utilities	Direct Impacts		●✚	●✚	Implementation of proposed construction and renovation projects would have long-term beneficial impacts on utilities at the installation. There would be updates and expansions to the current infrastructure and would especially impacting the electrical system.

Table 4-20
Summary of Environmental Consequences at U.S. Army Garrison-Detroit Arsenal

Resource Category		Alternative 1	Alternative 2	Alternative 3	Discussion
	Indirect Impacts		✚	✚	
	Cumulative Impacts		✚	✚	
Water Resources	Direct Impacts		●	●	There would be a slight increase in pollutant of oil and grit from the increased vehicle numbers. There would be soil disturbance from the construction of buildings resulting in potential for increased soil erosion that would potentially increase sediment loads. Loss of green space under alternative 3 would result in a loss of areas that filter runoff, affecting the pollutant and sediment load of the storm water discharges. Runoff from the Proposed Action projects combined with soil disturbance from current construction projects could have cumulative effects on downstream water resources.
	Indirect Impacts		●	●	
	Cumulative Impacts		●	●	

● = Impact

✚ = **Beneficial Impact**

Source: Parsons (as of January 15, 2007)

SECTION 5

ACRONYMS

A

AAA	Army Audit Agency
ADT	Average Daily Traffic
AR	Army Regulation
AT/FP	Anti-Terrorism/Force Protection
AST	Aboveground Storage Tank

B

BCT	Brigade Combat Team
BMP	Best Management Practice
BRAC	Base Closure and Realignment

C

CAA	Clean Air Act
CDC	Child Development Center
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CERL	Construction Engineering Research Laboratory
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CWA	Clean Water Act

D

D&A	Development & Acquisition
DLA	Defense Logistics Agency
DMC	Detroit Medical Center
DoD	Department of Defense
DRPM AAA	Direct Reporting Program Manager Advanced Amphibious Assault

E

EA	Environmental Assessment
EIS	Environmental Impact Statement
EIFS	Economic Impact Forecast System
EMS	Emergency Medical Services
EO	Executive Order
ESA	Endangered Species Act

F

FNSI	Finding of No Significant Impact
FY	Fiscal Year

G

GOV	Government Owned Vehicle

H

HAP	Hazardous Air Pollutants

I

ICUZ	Installation Compatible Use Zone
IDG	Installation Design Guidelines

IGPBS	Integrated Global Presence and Basing Strategy

J

K

L

Lh	Lenawee Clay Loam

M

MDEQ	Michigan Department of Environmental Quality
MDNR	Michigan Department of Natural Resources
MISD	Macomb-Intermediate School District
MLS	Multiple Listing Service
MSA	Metropolitan Statistical Area

N

NAAQS	National Ambient Air Quality Standards
NAF	Non-Appropriated Fund
NEPA	National Environmental Policy Act
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
NRC	Nuclear Regulatory Commission
NRCS	Natural Resource Conservation Service
NWI	National Wetlands Inventory

O

OMA	Operations & Maintenance

P

PEO GCS	Program Executive Office Ground Combat Systems
PEO CS&CSS	Program Executive Office Command Services & Command Services Support
POLs	Petroleum, Oil, and Lubricants
POVs	Privately Owned Vehicles

Q

R

RCRA	Resource Conservation and Recovery Act
RMP	Risk Management Plan
ROI	Region of Influence
RTV	Rational Threshold Value

S

SC	Special Concern
SEMCOG	Southeastern Michigan Council of Governments
SF	square foot or square feet
SIP	State Implementation Plan
SMART	Suburban Mobility Authority for Regional Transportation
SPCCP	Spill Prevention Control and Countermeasures Plan
SUA	Support Units of Action

T

TACOM	United States Army Tank Automotive and Armaments Command
TARDEC	Tank Automotive Research Development and Engineering Command
TMDE	Test, Measurement, Diagnostic Equipment
TSCA	Toxic Substances Control Act

U

UA	Unit of Action
USACE	United States Army Corps of Engineers
USAG-DTA	United States Army Garrison-Detroit Arsenal
USC	United States Code
USDA	United States Department of Agriculture
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
USMC	United States Marine Corp
USTs	Underground Storage Tanks
U.S.	United States

V

VOCs	Volatile Organic Compounds

W

WWTP	Wastewater Treatment Plant

X

Y

Z

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SECTION 6
REFERENCES

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

Reference	Description
Baker and Klavon Design Associates, 2006	Michael Baker, Jr. and Klavon Design Associates, Inc. April 2006. *Installation Design Guide for Detroit Arsenal. USAG-DTA*.
BEA, 2004	United States Department of Commerce, Bureau of Economic Analysis, *Employment by Industry by Place of Work*, 2004.
BLS, 2004	United States Department of Labor, Bureau of Labor Statistics, *Civilian Labor Force and Unemployment Rates*, 2004.
HSUS, 2006	Humane Society of the United States. 2006. Goose Tracks-Status Reports on Humane Canadian Goose Management from the Humane Society of the United States, Volume 5, Issue 1.
MDEQ, 1998	Michigan Department Of Environmental Quality. 1998. Guidebook of Best Management Practices for Michigan Watersheds.
SEMCOG, 2006	Southeast Michigan Council of Governments - SEMCOG's Task Force On Air Quality. September 27, 2006.
USACE	United States Army Corps of Engineers, Construction Engineering Research Laboratory, *Economic Impact Forecast System (EIFS)*.
USAG-DTA, 1996	*Detroit Arsenal Cultural Resource Management Plan.*
USAG-DTA, 1997	*Environmental Baseline Survey for Detroit Arsenal BRAC Property Warren, Michigan. April 1997.*
USAG-DTA, 1997	*Final Environmental Assessment for BRAC '95 Disposal and Refuse of the Detroit Army Tank Plant, Warren Michigan. October 1997.*
USAG-DTA, 1998	*Final Environmental Assessment for BRAC '95 Realignment of Detroit Arsenal, Warren, Michigan. January 1998.*
USAG-DTA, 2000	*Solid Waste Management Plan – Detroit Arsenal, 2000.*
USAG-DTA, 2001	*Environmental Assessment for the Implementation of the Integrated Pest Management Plan at the Detroit Arsenal, Warren, Michigan.* 23 pp.
USAG-DTA, 2002	*Final Environmental Assessment for the Implementation of the Integrated Cultural Resources Management Plan at Detroit Arsenal, Warren, Michigan.* 25 pp.
USAG-DTA, 2004	*Spill Prevention Control and Countermeasures Plan. USAG-DTA Environmental Management Division, September 28, 2004.*
USAG-DTA, 2006a	*Environmental Assessment Checklist Administrative Office Building BRAC 1391 Project #54232.* Directorate of Public Works, Engineering Division, USAG-DTA. 19 pp.
USAG-DTA, 2006b	*Environmental Assessment Checklist Parking Garage and Site Infrastructure BRAC 1391 Project # 64233.* Directorate of Public Works, Engineering Division, USAG-DTA. 19 pp.
USAG-DTA, 2006c	*Environmental Assessment Checklist Weapons Maintenance and Operations Center BRAC 1391 Project # 64289.* Directorate of Public Works, Engineering Division, USAG-DTA. 19 pp.
USAG-DTA, 2006d	*Environmental Assessment Checklist Weapons System Support and Training Facility.* Directorate of Public Works, Engineering Division, USAG-DTA. 20 pp.

Reference	Description
USCB, 1990, 2000, 2005	United States Department of Commerce, U.S. Census Bureau, Population Division, *1990 and 2000 U.S. Census; Population and Housing Characteristics; Population Estimates and Projections; Components of Population Change*.
USCB, 2003	United States Department of Commerce, U.S. Census Bureau, *Small Area Income and Poverty Estimates*, 2003.
USDA, NRCS, 2006	U.S. Department of Agriculture, Natural Resources Conservation Service, 2006. "Web Soil Survey." http://websoilsurvey.nrcs.usda.gov/app/

SECTION 7
LIST OF PREPARERS

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

Name	Education and Experience	Primary Responsibilities
Darrel B. Sisk, Jr.	B.E.D. Environmental Design; M.S. Architectural Engineering; 17 years experience in base civil engineering, military planning and environmental planning and impact assessment.	Project Manager/Senior Project Planner; data collection and key participant in description of proposed action, alternatives formulation, and related environmental analyses.
Donald Beisel	B.S. Geography; M.A. Geography; 28 years of experience in community/urban planning, environmental planning, and socioeconomic studies.	Senior Project Planner; data collection and preparation of socioeconomic analysis and related text sections.
Doug Bice	A.S. Environmental Studies; B.S. Occupational Safety; M.S. Environmental/Occupational Health. 20 years experience in environmental and occupational health.	Senior Planner; data collection, analysis and key participant in preparation of EA text and supporting sections.
Amanda Bowman	B.A. Geography; M.S. Environmental Science and Policy. 5 years experience in conservation design, environmental planning, and socioeconomic analysis.	Environmental Scientist, data collection, analysis, and key participant in preparation of EA text and supporting sections.
Luke Eggering	B.S., Fish and Wildlife Management; M.S., Biology; 15 years experience in wetland management; wildlife, fisheries and endangered species management; 12 years experience with NEPA environmental documents.	Project Scientist, technical review, editing, and quality assurance of EA.

Name	Education and Experience	Primary Responsibilities
Virginia Flynn	B.S. Horticulture; M.S. Plant Ecology; 10 years experience in biological surveys, natural resource management, ecological restoration, and environmental impact assessment.	Senior Environmental Scientist; data collection, analysis and key participant in preparation of the environmental assessment text and supporting sections.
Lee Gorday	B.A., Geology; M.A. Geology; 18 years of experience in hydrogeologic systems and groundwater contamination.	Senior Hydrogeologist; data collection and preparation of groundwater, geology, and soils elements.
Richard Hall	B.S. Environmental Biology, M.S. Zoology, 24 years of experience in environmental assessment and impact studies, biological community investigations and ecosystem restoration.	Principal Environmental Scientist, technical review, editing, and quality assurance of EA.
Randy Norris	B.S. Plant and Soil Science; Master of Urban Planning/Environmental Planning; 16 years experience in environmental impact assessment, environmental management and planning.	Senior Environmental Scientist; data collection, alternatives development, and natural resources impact analysis.
Rebecca Porath	B.S. Fisheries and Wildlife Management; M.S. Zoology; 9 years experience in plant and wildlife surveys and management, ecological restoration, and environmental impact assessment.	Environmental Scientist; data collection, analysis and key participant in preparation of EA text and supporting sections relating to biological resources.
Tom Shillito	B.S. Aerospace Engineering; M.C.E Environmental Engineering. 16 years experience in environmental science, regulatory compliance of DoD facilities.	Environmental Scientist, analysis and key participant in preparation of EA text and supporting sections.

SECTION 8
DISTRIBUTION LIST

Persons and Organizations provided a copy of the draft Environmental Assessment for review include the following:

Mr. Brian D. Conway State Historic Preservation Officer Michigan Historical Center P.O. Box 30740 702 W. Kalamazoo St. Lansing, MI 48909-8240	telephone	(517) 373-1630
Mr. Bharat Mathur Regional Administrator U.S. EPA – Region V 77 West Jackson Boulevard Mail Code: R-19J Chicago, IL 60604-3507	telephone	(312) 886-3000
Mr. Craig Czamecki Field Supervisor U.S. FWS – Region 3 2651 Coolidge Road East Lansing, MI 48823	telephone	(517) 351-2555
Mr. Todd Schaedig Acting City Engineer City of Warren, MI 12821 Stephens Warren, MI 48089	telephone	(586) 759-9300
Mr. Gordon Wenk – Director Michigan Department of Agriculture P.O. Box 30017 Lansing, MI 48909	telephone	(517) 241-0236
Mr. John Bricker- State Conservationist Natural Resources Conservation Service 3001 Coolidge Road, Suite 250 East Lansing, MI 48823	telephone	(517) 324-5277

Mr. Mitch Irwin – Director Department of Agriculture 525 West Allegan St. Lansing, MI 48909	telephone	(517) 373-1052
Department of Environmental Quality SE Michigan District Office 27700 Donald Ct. Warren, MI 48092-2793	telephone	(586) 753-3700
Mr. Dennis Fedewa Chief Deputy Director Michigan Department of Natural resources P.O. Box 30028 Lansing MI 48909	telephone	(517) 373-2425
Office of Geological Survey P.O. Box 30256 Lansing, MI 48909-7756	telephone	(517) 241-1515
Linda Zimmerman Michigan Department of Transportation State Transportation Building 425 W. Ottawa St. P.O. Box 30050 Lansing, MI 48909	telephone	(517) 373-2090
Lara Sucharski Supervisor Soil Erosion Department- Macomb County 115 South Groesbeck Mt. Clemens, MI 48043	telephone	(586) 469-5327
Mr.Curtis Powers Department of Public Works, Macomb County 115 South Groesbeck Hwy Mt. Clemens, MI 48043	telephone	(586) 469-5457

SECTION 9
PERSONS CONSULTED

All information solicited and collected in preparation of this document was done so with Army installation personnel.

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APPENDIX A

PUBLIC INVOLVEMENT

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

Mr. Brian D. Conway State Historic Preservation Officer Michigan Historical Center P.O. Box 30740 702 W. Kalamazoo St. Lansing, MI 48909-8240	telephone	(517) 373-1630
Mr. Jonathon L. Buffalo Historic Preservation Coordinator Sac and Fox of the Mississippi and Iowa 349 Meskwaki Road Tama, IA 52339-9634	telephone	(641) 484-4678
Mr. Bharat Mathur Regional Administrator U.S. EPA – Region V 77 West Jackson Boulevard Mail Code: R-19J Chicago, IL 60604-3507	telephone	(312) 886-3000
Mr. Craig Czamecki Field Supervisor U.S. FWS – Region 3 2651 Coolidge Road East Lansing, MI 48823	telephone	(517) 351-2555
Mr. Todd Schaedig Acting City Engineer City of Warren, MI 12821 Stephens Warren, MI 48089	telephone	(586) 759-9300
Mr. Gordon Wenk – Director Michigan Department of Agriculture P.O. Box 30017 Lansing, MI 48909	telephone	(517) 241-0236

Mr. John Bricker- State Conservationist Natural Resources Conservation Service 3001 Coolidge Road, Suite 250 East Lansing, MI 48823	telephone	(517) 324-5277
Mr. Mitch Irwin – Director Department of Agriculture 525 West Allegan St. Lansing, MI 48909	telephone	(517) 373-1052
Department of Environmental Quality SE Michigan District Office 27700 Donald Ct. Warren, MI 48092-2793	telephone	(586) 753-3700
Mr. Dennis Fedewa Chief Deputy Director Michigan Department of Natural resources P.O. Box 30028 Lansing MI 48909	telephone	(517) 373-2425
Office of Geological Survey P.O. Box 30256 Lansing, MI 48909-7756	telephone	(517) 241-1515
Linda Zimmerman Michigan Department of Transportation State Transportation Building 425 W. Ottawa St. P.O. Box 30050 Lansing, MI 48909	telephone	(517) 373-2090
Lara Sucharski Supervisor Soil Erosion Department- Macomb County 115 South Groesbeck Mt. Clemens, MI 48043	telephone	(586) 469-5327
Mr.Curtis Powers Department of Public Works, Macomb County 115 South Groesbeck Hwy Mt. Clemens, MI 48043	telephone	(586) 469-5457

Mr. Jeffrey D. Parker President Bay Mills Indian Community 12140 W. Lakeshore Drive Brimley, MI 49715	telephone	(906) 248-3241
Mr. Robert Kewaygoshkum Chairman Grand Traverse Band of Ottawa and Chippewa Indians 2605 N.W. Bayshore Drive Suttons Bay, MI 49682	telephone	(866) 534-7750
Mr. Kenneth Mishigaud Chairperson Hannahville Indian Community N14911 Hannahville B1 Road Wilson, MI 49896-9728	telephone	(906) 466-0306
Ms. Laura Spurr Chairperson Huron Potawatomi, Inc. 2221 – 1 ½ Mile Road Fulton, MI 49502	telephone	(269) 729-5151
Ms. Susan LaFernier President Keweenaw Bay Indian Community 107 Beartown Road Baranga, MI 49908	telephone	(906) 353-6623
Mr. William James Lac Vieux Desert Band of Lake Superior Chippewa Indians East 23968 Pow Wow Trail P.O. Box 249 Watersmeet, MI 49969	telephone	(906) 358-4577
Mr. Patrick Wilson Ogema Little River Band of Ottawa Indians 375 River Street Manistee, MI 49660	telephone	(231) 723-8288

Mr. Frank Ettawageshik Chairperson Little Traverse Bay Bands of Odawa Indians 7500 Odawa Circle Harbor Springs, MI 49740	telephone	(231) 242-1400
Mr. David K. Sprague Chairperson Match-e-be-nash-she-wish Band of Pottawatomi Indians of Michigan 1743 142nd Avenue P.O. Box 218 Dorr, MI 49323	telephone	(866) 681-9510
Mr. John Miller Chairperson Pokagon Band of Potawtomi Indians 58620 Sink Road P.O. Box 180 Dowagiac, MI 49047	telephone	(888) 376-9988
Mr. Fred Cantu Chief Saginaw Chippewa Indian Tribe of Michigan 7070 East Broadway Road Mt. Pleasant, MI 48858	telephone	(800) 225-8172
Mr. Aaron Payment Chairperson Sault Ste. Marie Tribe of Chippewa Indians Of Michigan 523 Ashmun Street Sault Ste. Marie, MI 49783	telephone	(906) 635-6050
Mr. Eugene Bigboy Sr. Chairman Bad River Band of the Lake Superior Tribe Of Chippewa Indians of the Bad River Reservation Chief Blackbird Center P.O. Box 39 Odanah, WI 54861	telephone	(715) 682-7111

Mr. Louis Taylor Chairman Lac Courte Oreilles Band of Lake Superior Chippewa Indians of Wisconsin 13394 West Trepania Road Building No. 1 Hayward, WI 54843	telephone	(715) 634-8934
Mr. Norman Deschampe President Minnesota Chippewa Tribe P.O. Box 217 Cass Lake, MN 56633	telephone	(218) 335-8581
Ms. Patricia R. DePerry Chairperson Red Cliff Band of Lake Superior Chippewa Indians Of Wisconsin 88385 Pike Road Highway 13 Bayfield, WI 54814	telephone	(715) 779-3700
Ms. Sandra L. Rachal Chairperson Sokaogon Chippewa Community 3051 Sand Lake Road Crandon, WI 54520	telephone	(715) 478-7600
Mr. David Merrill Tribal President St. Croix Chippewa Indians of Wisconsin 24663 Angeline Avenue Webster, WI 54893	telephone	(715) 588-3324
Mr. Homer Bear, Jr. Chairman Sac & Fox Tribe of the Mississippi in Iowa 349 Meskwaki Road Tama, IA 52339-9629	telephone	(800) 990-2946
Mr. Charles Todd Chief Ottawa Tribe of Oklahoma P.O. Box 110 Miami, OK 74355	telephone	(918) 540-1536

Mr. John Barrett Chairman Citizen Potawatomi Nation 1601 S. Gordon Cooper Drive Shawnee, OK 74801	telephone	(800) 880-9880
Mr. Harold Frank Chairman Forest County Potawatomi Community P.O. Box 340 Crandon, WI 54520	telephone	(715) 478-2903
Mr. Leaford Bearskin Chief Wyandotte Nation 64700 East Highway 60 Wyandotte, OK 74370	telephone	(800) 256-2539

STATE OF MICHIGAN
DEPARTMENT OF AGRICULTURE
LANSING

JENNIFER M. GRANHOLM
GOVERNOR

MITCH IRWIN
DIRECTOR

November 30, 2006

RECEIVED
DEC 8 2006
PARSONS
ST. LOUIS

Mr. Darrel Sisk, Jr.
Project Manager
Parsons Infrastructure & Technology, Inc.
400 Woods Mill Road South
St. Louis, Missouri 63017-3427

Re: EA for Base Realignment and Closure at U.S. Army Garrison-Macomb County

Dear Mr. Sisk:

Gordon Wenk, Director of our Environmental Stewardship Division, and I received your request for comment as part of the Early Coordination process for the Environmental Assessment (EA) for the Base Realignment and Closure Activities at the U.S. Army Garrison-Macomb County, Michigan. We have reviewed the Proposed Action Alternatives with Michigan Department of Agriculture staff.

Our primary concern, as it relates to this project would be potential impacts the project could have on properties enrolled under Part 361 of NREPA (formerly PA 116, the Farmland and Open Space Preservation Act) and on established county and inter-county drains. Staff does not anticipate impacts on these lands or infrastructure, or other Social, Economic and/or Environmental impacts from the potential project, as they relate to agriculture and the various functions of the Department.

We appreciate being included in this Coordination Process. Feel free to contact Abigail Eaton, Resource Specialist at 517/241-3933 if you have additional questions.

Sincerely,

Mitch Irwin
Director

CONSTITUTION HALL • P.O. BOX 30017 • LANSING, MICHIGAN 48909
www.michigan.gov • (517) 373-1104
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United States Department of Agriculture

NRCS

Helping People Help the Land

Natural Resources Conservation Service
3001 Coolidge Road, Suite 250
East Lansing, MI 48823
T (517) 324-5270/ F (517) 324-5171/ www.mi.nrcs.usda.gov

RECEIVED
DEC 4 2006

November 28, 2006

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

RE: Environmental Assessment for Base Realignment and Closure 2005 Activities at U.S. Army Garrison-Michigan in Macomb County, Warren, Michigan
Parson Project No. 745367

Dear Mr. Sisk:

The Natural Resources Conservation Service has reviewed the proposed Alternatives for the U.S. Army Garrison located in Warren, Michigan in Macomb County. This site is totally located within an urban setting. Therefore, there is no negative impact that will result from actions specified in the alternatives.

Sincerely,

Timothy D Cattron, acting

JOHN A. BRICKER
State Conservationist

cc:
Mr. Quincey Coleman, District Conservationist, NRCS, Kimball, MI
Mr. Albert Jones, Area Conservationist, NRCS, Flint, MI

The Natural Resources Conservation Service provides leadership in a partnership effort to help people conserve, maintain, and improve our natural resources and environment.

An Equal Opportunity Provider and Employer

STATE OF MICHIGAN
DEPARTMENT OF ENVIRONMENTAL QUALITY
SOUTHEAST MICHIGAN DISTRICT OFFICE

JENNIFER M. GRANHOLM
GOVERNOR

STEVEN E. CHESTER
DIRECTOR

December 11, 2006

RECEIVED
DEC 14 2006
PARSONS
ST. LOUIS

Darrel Sisk, Jr., Project Manager
Parsons Infrastructure and Technology, Incorporated
400 Woods Mill Road South, Suite 330
St. Louis, Missouri 63017-3427

Dear Mr. Sisk:

SUBJECT: Base Realignment and Closure (BRAC) 2005 Activities
U.S. Army Garrison-Michigan
Warren, Macomb County, Michigan

The Michigan Department of Environmental Quality (MDEQ) has reviewed the information you provided to this office regarding the BRAC actions at the U.S. Army Garrison-Michigan received by this office on November 17, 2006. The MDEQ, Remediation and Redevelopment Division (RRD), Southeast Michigan District Office maintains a file on the Detroit Arsenal property. However, the lack of detail in the proposed alternatives makes it impossible for the RRD to provide you with any meaningful comments at this time.

Thank you for providing this office with the information and your cooperation in this matter. As always, the MDEQ looks forward to working cooperatively with you to achieve our common goals, protection of the public health and the environment.

If you have any further questions or concerns please feel free to call me.

Sincerely;

Gregory Barrows

Gregory Barrows, Senior Geologist
Southeast Michigan District Office
Remediation and Redevelopment Division
586-753-3807

cc: Mr. Oladipo Oyinsan, MDEQ
Ms. Cheryl Wilson, MDEQ

27700 DONALD COURT • WARREN, MICHIGAN 48092-2793
www.michigan.gov • (586) 753-3700

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United States Department of the Interior

FISH AND WILDLIFE SERVICE
East Lansing Field Office (ES)
2651 Coolidge Road, Suite 101
East Lansing, Michigan 48823-6316

IN REPLY REFER TO:

December 13, 2006

DEC 1 0 2006
ST. LOUIS

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

Re: Endangered Species List Request, Proposed Base Realignment and Closure Activities at U.S. Army Garrison-Michigan, Project No. 745367, Macomb County, Michigan

Dear Mr. Sisk:

Thank you for your November 14, 2006 request for information regarding federally listed and proposed threatened and endangered species, candidate species, or critical habitat near your proposed project. Your request and this response are made pursuant to the Endangered Species Act of 1973, as amended (Act). Under this project, the U.S. Army Garrison-Michigan proposes to construct new facilities and expand and upgrade existing facilities.

Your proposed project occurs within the potential range of some federally listed species. However, our records do not indicate the presence of listed species or critical habitat in or near the project site. Although our records for some listed species are incomplete, your description of the project location and features and the nature of the proposed activities indicate that listed species or potential habitat will not be impacted. This precludes the need for further action on this project as required by the Act. If, however, more than six months pass, project plans change, or new information becomes available that indicates listed species or proposed species may be affected, you should conduct further consultation with this office.

Please contact the Michigan Department of Natural Resources at 517/373-1263 for information regarding the protection of threatened and endangered species under State law. State law may require a permit in advance of any work that could potentially damage, destroy or displace state-listed species.

We appreciate your concern for endangered and threatened species. Any questions can be directed to Tameka Dandridge of this office at Tameka_Dandridge@fws.gov or 517/351-8315.

Sincerely,

Michael E. DeCapita
for Craig A. Czarnecki
Field Supervisor

cc: MDNR-Wildlife Division, Lansing, MI (Attn: Lori Sargent)

s: admin/archives/dec06/se list/Parsons-USArmy-BRAC.tnd.doc

DEPARTMENT OF THE ARMY
INSTALLATION MANAGEMENT AGENCY
HEADQUARTERS, UNITED STATES ARMY GARRISON-MICHIGAN
6501 E. ELEVEN MILE ROAD
WARREN MI 48397-5000

REPLY TO
ATTENTION OF

Commander, U.S. Army Garrison - Michigan

Mr. Leaford Bearskin, Chief
Wyandotte Nation
64700 East Highway 60
Wyandotte, OK 74370

Dear Chief Bearskin:

As Commander of the United States Army Garrison-Michigan, I respectfully invite you to participate in consultation on a government-to-government basis regarding our Detroit Arsenal property located in Macomb County, Warren, Michigan. The consultation process intends to address any matters that may have the potential to significantly affect protected tribal resources, tribal rights, or Native American lands.

The United States Army Garrison-Michigan Detroit Arsenal occupies 186 acres of land in Warren, Michigan, with our southern boundary along 11 Mile Road, our western boundary along Mound Road, our eastern boundary being the Conrail railroad and our northern boundary being the General Motors Technical Center property line (see enclosed map for reference). Under United States Army regulations for cultural resources, I request that you declare whether or not you know of Traditional Cultural Properties or Sacred Sites that are associated with this Detroit Arsenal property.

Your response to this inquiry is important for me to fulfill requirements of Army Regulation 200-4, Cultural Resources Management. If you have questions or a need for further discussion you may contact me directly or please contact my Cultural Resources Program Manager, Mr. Richard Moore, at the above address, or at 586-574-5154, or at richard.moore1@us.army.mil.

I look forward to your response to this letter. Thank you for your cooperation.

Sincerely,

Kevin J. Austin
Lieutenant Colonel, U.S. Army
Commanding

Enclosure

Sac & Fox Tribe of the Mississippi in Iowa

349 Meskwaki Road, Tama, IA 52339-9634 • (641) 484-4678 FAX (641) 484-5424

"MESKWAKI NATION"

April 11, 2007

Department of the Army
Attn: IMNW-MIG-PWE
Installation Management Agency
Headquarters, United States Garrison-Michigan
6501 E. Eleven Mile Road
Warren, MI 48397-5000

To Whom It May Concern:

Thank you for the notice dated March 27, 2007, concerning the project:

BRAC 2005 Realignment Area Development at USAG-Detroit Arsenal

At this time, the Historical Preservation Department of the Sac and Fox of the Mississippi in Iowa has determined the above listed has:

- ☐ No interest in the area geographically
- ☐ No comment on the proposed undertaking
- ☑ No objections. However, if human skeletal remains and/or any objects falling under NAGPRA are uncovered during construction, please stop immediately and notify the NAGPRA Representative, Johnathan L Buffalo.
- ☐ Have an objection or require additional project information. Please send the following: _____.

Sincerely,

Johnathan L. Buffalo
Historical Preservation Coordinator
Sac and Fox of the Mississippi in Iowa

Cc: File

STATE OF MICHIGAN
DEPARTMENT OF HISTORY, ARTS AND LIBRARIES
LANSING

JENNIFER GRANHOLM
GOVERNOR

DR. WILLIAM ANDERSON
DIRECTOR

April 13, 2007

TERRY TIGHE
UNITED STATES ARMY GARRISON MICHIGAN
DETROIT ARSENAL
6501 E ELEVEN MILE ROAD
WARREN MI 48397

RE: ER-5556 BRAC 2005 Realignment Area Development, U.S. Army Operations at Garrison Selfridge, Tank Automotive and Armaments Command (TACOM), Warren, Macomb County (ARMY)

Dear Mr. Tighe:

Under the authority of Section 106 of the National Historic Preservation Act of 1966, as amended, we have reviewed the above-cited undertaking at the location noted above. Based on the information provided for our review, it is the opinion of the State Historic Preservation Officer (SHPO) that the proposed undertaking will have **no adverse effect** [36 CFR § 800.5(b)] on the Detroit Arsenal Tank Plant (Warren Tank Plant), which appears to meet the criteria for listing in the National Register of Historic Places.

The views of the public are essential to informed decision making in the Section 106 process. Federal Agency Officials or their delegated authorities must plan to involve the public in a manner that reflects the nature and complexity of the undertaking, its effects on historic properties and other provisions per 36 CFR § 800.2(d). We remind you that Federal Agency Officials or their delegated authorities are required to consult with the appropriate Indian tribe and/or Tribal Historic Preservation Officer (THPO) when the undertaking may occur on or affect any historic properties on tribal lands. **In all cases**, whether the project occurs on tribal lands or not, Federal Agency Officials or their delegated authorities are also required to make a reasonable and good faith effort to identify any Indian tribes or Native Hawaiian organizations that might attach religious and cultural significance to historic properties in the area of potential effects and invite them to be consulting parties per 36 CFR § 800.2(c).

This letter evidences the United States Army's compliance with 36 CFR § 800.4 "Identification of historic properties" and 36 CFR § 800.5 "Assessment of adverse effects", and the fulfillment of United States Army's responsibility to notify the SHPO, as a consulting party in the Section 106 process, under 36 CFR § 800.5(c) "Consulting party review".

The State Historic Preservation Office is not the office of record for this undertaking. You are therefore asked to maintain a copy of this letter with your environmental review record for this undertaking. If the scope of work changes in any way, or if artifacts or bones are discovered, please notify this office immediately.

If you have any questions, please contact Martha MacFarlane Faes, Environmental Review Coordinator, at (517) 335-2721 or by email at ER@michigan.gov. **Please reference our project number in all communication with this office regarding this undertaking.** Thank you for this opportunity to review and comment, and for your cooperation.

Sincerely,

Brian D. Conway
State Historic Preservation Officer

BDC:REM:bgg

STATE HISTORIC PRESERVATION OFFICE, MICHIGAN HISTORICAL CENTER
702 WEST KALAMAZOO STREET • P.O. BOX 30740 • LANSING, MICHIGAN 48909-8240
(517) 373-1630
www.michigan.gov/hal

APPENDIX B

STATE SPECIES LIST

The US Fish and Wildlife Service (USFWS) administers the Endangered Species Act of 1973. The Act provides Federal protection for plants and animals listed as endangered or threatened. USFWS maintains a list of species that are threatened or endangered within the state of Michigan. The 23 species with a designated state status are listed in Appendix B.

Scientific Name	Common Name	Federal Status	State Status
Accipiter cooperii	Cooper's Hawk		SC
Acipenser fulvescens	Lake Sturgeon		T
Agalinis gattingeri	Gattinger's Gerardia		E
Alasmidonta marginata	Elktoe		SC
Alasmidonta viridis	Slippershell Mussel		SC
Ammocrypta pellucida	Eastern Sand Darter		T
Arabis missouriensis var. deamii	Missouri Rock-cress		SC
Armoracia lacustris	Lake Cress		T
Asio otus	Long-eared Owl		T
Buteo lineatus	Red-shouldered Hawk		T
Carex davisii	Davis's Sedge		SC
Carex lupuliformis	False Hop Sedge		T
Carex richardsonii	Richardson's Sedge		SC
Chlidonias niger	Black Tern		SC
Circus cyaneus	Northern Harrier		SC
Cirsium hillii	Hill's Thistle		SC
Clemmys guttata	Spotted Turtle		T
Dry-mesic southern forest			
Elaphe vulpina gloydi	Eastern Fox Snake		T
Fraxinus profunda	Pumpkin Ash		T
Galearis spectabilis	Showy Orchis		T
Gentiana puberulenta	Downy Gentian		E
Gentianella quinquefolia	Stiff Gentian		T
Great Blue Heron Rookery	Great Blue Heron Rookery		
Great lakes marsh			
Gymnocladus dioicus	Kentucky Coffee-tree		SC
Hardwood-conifer swamp			
Hieracium paniculatum	Panicled Hawkweed		SC
Hiodon tergisus	Mooneye		T
Hydrastis canadensis	Goldenseal		T
Lampsilis fasciola	Wavy-rayed Lampmussel		T
Linum virginianum	Virginia Flax		T
Macrhybopsis storeriana	Silver Chub		SC

Mesic southern forest	Rich Forest, Central Midwest Type		
Mimulus alatus	Wing-stemmed Monkey-flower		X
Monarda didyma	Oswego Tea		X
Nicrophorus americanus	American Burying Beetle	LE	E
Notropis anogenus	Pugnose Shiner		SC
Noturus miurus	Brindled Madtom		SC
Nycticorax nycticorax	Black-crowned Night-heron		SC
Obovaria olivaria	Hickorynut		SC
Obovaria subrotunda	Round Hickorynut		E
Percina copelandi	Channel Darter		E
Percina shumardi	River Darter		E
Plantago cordata	Heart-leaved Plantain		E
Platanthera ciliaris	Orange or Yellow Fringed Orchid		T
Pleurobema coccineum	Round Pigtoe		SC
Protonotaria citrea	Prothonotary Warbler		SC
Quercus shumardii	Shumard's oak		SC
Rallus elegans	King Rail		E
Scirpus clintonii	Clinton's Bulrush		SC
Sistrurus catenatus catenatus	Eastern Massasauga	C	SC
Southern floodplain forest			
Sterna forsteri	Forster's Tern		SC
Sterna hirundo	Common Tern		T
Villosa iris	Rainbow		SC

APPENDIX C

ECONOMIC IMPACT FORECASTING SYSTEM MODEL REPORT

The Economic Impact Forecast System (EIFS) model, developed by the USACE, Construction Engineering Research Laboratory (CERL), was used to assess the impacts of each alternative on the economy. The EIFS model was used to project both the short-term temporary regional economic impacts of project construction, and long-term economic impacts of the increase in DSCC operations. The EIFS model provides a systematic method for evaluating the regional socioeconomic effects of government actions, particularly military actions.

The EIFS model also includes a Rational Threshold Value (RTV) profile that is used in conjunction with the forecast models to assess the degree of the impacts of an activity for a specific geographic area. For each variable (business volume, employment, income, and population), the current time-series data available from the United States Department of Congress Bureau of Economic Analysis are calculated along with the annual change, deviation from the average annual change, and the percent deviation for each of these variables, which then defines a threshold for significant annual regional economic impacts for a variable. Within the EIFS model the RTV is calculated for each of these variables when assessing the regional economic impacts of a specific project. If the RTV for a particular variable associated with the impacts of a specific project exceeds the maximum annual historic deviation for that variable, then the economic impacts are considered to be significant. If the RTV for a variable is less than the maximum annual historic deviation for that variable, then the regional economic impacts are not considered significant.

EIFS REPORT

PROJECT NAME

USAG-DTA Michigan (Detroit): Construction, Alternative 1, No Action Alternative

STUDY AREA

26087	Lapeer, MI
26093	Livingston, MI
26099	Macomb, MI
26125	Oakland, MI
26147	St. Clair, MI
26163	Wayne, MI

FORECAST INPUT

Change In Local Expenditures	$11,400,000
Change In Civilian Employment	120
Average Income of Affected Civilian	$48,000
Percent Expected to Relocate	0
Change In Military Employment	0
Average Income of Affected Military	$0
Percent of Military Living On-post	0

FORECAST OUTPUT

Employment Multiplier	4.04	
Income Multiplier	4.04	
Sales Volume – Direct	$16,031,040	
Sales Volume - Induced	$48,734,360	
Sales Volume – Total	$64,765,400	0.02%
Income – Direct	$7,554,056	
Income – Induced)	$7,669,487	
Income - Total(place of work)	$15,223,540	0.01%
Employment – Direct	175	
Employment – Induced	166	
Employment – Total	341	0.01%
Local Population	0	

Local Off-base Population	**0**	**0%**

RTV SUMMARY

	Sales Volume	Income	Employment	Population
Positive RTV	**8.04 %**	**7.91 %**	**4.65 %**	**0.78 %**
Negative RTV	**-11.33 %**	**-6.17 %**	**-5.25 %**	**-0.76 %**

EIFS REPORT

PROJECT NAME

USAG-DTA Michigan (Detroit): Construction, Alternative 2

STUDY AREA

26087	Lapeer, MI
26093	Livingston, MI
26099	Macomb, MI
26125	Oakland, MI
26147	St. Clair, MI
26163	Wayne, MI

FORECAST INPUT

Change In Local Expenditures	$21,400,000
Change In Civilian Employment	225
Average Income of Affected Civilian	$48,000
Percent Expected to Relocate	0
Change In Military Employment	0
Average Income of Affected Military	$0
Percent of Military Living On-post	0

FORECAST OUTPUT

Employment Multiplier	4.04	
Income Multiplier	4.04	
Sales Volume - Direct	$30,083,200	
Sales Volume - Induced	$91,452,930	
Sales Volume - Total	$121,536,100	0.05%
Income – Direct	$14,167,790	
Income – Induced)	$14,392,250	
Income - Total(place of work)	$28,560,040	0.02%
Employment - Direct	328	
Employment - Induced	312	
Employment - Total	640	0.03%
Local Population	0	
Local Off-base Population	0	0%

RTV SUMMARY

	Sales Volume	Income	Employment	Population
Positive RTV	**8.04 %**	**7.91 %**	**4.65 %**	**0.78 %**
Negative RTV	**-11.33 %**	**-6.17 %**	**-5.25 %**	**-0.76 %**

EIFS REPORT

PROJECT NAME

USAG-DTA Michigan (Detroit); Construction, Alternative 3

STUDY AREA

26087	Lapeer, MI
26093	Livingston, MI
26099	Macomb, MI
26125	Oakland, MI
26147	St. Clair, MI
26163	Wayne, MI

FORECAST INPUT

Change In Local Expenditures	$10,800,000
Change In Civilian Employment	112
Average Income of Affected Civilian	$48,000
Percent Expected to Relocate	0
Change In Military Employment	0
Average Income of Affected Military	$0
Percent of Military Living On-post	0

FORECAST OUTPUT

Employment Multiplier	4.04	
Income Multiplier	4.04	
Sales Volume - Direct	$15,122,300	
Sales Volume - Induced	$45,971,800	
Sales Volume - Total	$61,094,100	0.02%
Income - Direct	$7,075,632	
Income - Induced)	$7,234,734	
Income - Total(place of work)	$14,310,370	0.01%
Employment - Direct	164	
Employment - Induced	157	
Employment - Total	321	0.01%
Local Population	0	
Local Off-base Population	0	0%

RTV SUMMARY

	Sales Volume	Income	Employment	Population
Positive RTV	**8.04 %**	**7.91 %**	**4.65 %**	**0.78 %**
Negative RTV	**-11.33 %**	**-6.17 %**	**-5.25 %**	**-0.76 %**

EIFS REPORT

PROJECT NAME

USAG-DTA Michigan (Detroit): Operations, Alternative 2

STUDY AREA

26087	Lapeer, MI
26093	Livingston, MI
26099	Macomb, MI
26125	Oakland, MI
26147	St. Clair, MI
26163	Wayne, MI

FORECAST INPUT

Change In Local Expenditures	$0
Change In Civilian Employment	1200
Average Income of Affected Civilian	$100,000
Percent Expected to Relocate	100
Change In Military Employment	0
Average Income of Affected Military	$0
Percent of Military Living On-post	0

FORECAST OUTPUT

Employment Multiplier	4.04	
Income Multiplier	4.04	
Sales Volume - Direct	$96,480,000	
Sales Volume - Induced	$293,299,200	
Sales Volume - Total	$389,779,200	0.15%
Income - Direct	$120,000,000	
Income - Induced)	$46,157,460	
Income - Total(place of work)	$166,157,500	0.13%
Employment - Direct	1530	
Employment - Induced	1002	
Employment - Total	2532	0.1%
Local Population	2988	

Local Off-base Population	**2988**	**0.07%**

RTV SUMMARY

	Sales Volume	Income	Employment	Population
Positive RTV	**8.04 %**	**7.91 %**	**4.65 %**	**0.78 %**
Negative RTV	**-11.33 %**	**-6.17 %**	**-5.25 %**	**-0.76 %**

EIFS REPORT

PROJECT NAME

USAG-DTA Michigan (Detroit): Operations, Alternative 3

STUDY AREA

26087	Lapeer, MI
26093	Livingston, MI
26099	Macomb, MI
26125	Oakland, MI
26147	St. Clair, MI
26163	Wayne, MI

FORECAST INPUT

Change In Local Expenditures	$0
Change In Civilian Employment	1200
Average Income of Affected Civilian	$100,000
Percent Expected to Relocate	100
Change In Military Employment	0
Average Income of Affected Military	$0
Percent of Military Living On-post	0

FORECAST OUTPUT

Employment Multiplier	4.04	
Income Multiplier	4.04	
Sales Volume - Direct	$96,480,000	
Sales Volume - Induced	$293,299,200	
Sales Volume - Total	$389,779,200	0.15%
Income – Direct	$120,000,000	
Income - Induced)	$46,157,460	
Income - Total(place of work)	$166,157,500	0.13%
Employment - Direct	1530	
Employment - Induced	1002	
Employment – Total	2532	0.1%
Local Population	2988	
Local Off-base Population	2988	0.07%

RTV SUMMARY

	Sales Volume	Income	Employment	Population
Positive RTV	**8.04 %**	**7.91 %**	**4.65 %**	**0.78 %**
Negative RTV	**-11.33 %**	**-6.17 %**	**-5.25 %**	**-0.76 %**

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