
ENVIRONMENTAL ASSESSMENT

CONSTRUCTION OF AN ARMED FORCES RESERVE CENTER AND IMPLEMENTATION OF BRAC 05 REALIGNMENT ACTIONS AT FORT HAMILTON, NEW YORK



April 2008

prepared for

U.S. Army Garrison Fort Hamilton, NY

prepared by

U.S. Army Corps of Engineers

Mobile District

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FINDING OF NO SIGNIFICANT IMPACT

CONSTRUCTION OF AN ARMED FORCES RESERVE CENTER AND IMPLEMENTATION OF BRAC 05 REALIGNMENT ACTIONS AT FORT HAMILTON, NEW YORK

On September 8, 2005, the Defense Base Closure and Realignment Commission (“BRAC Commission”) recommended that certain realignment actions occur at U.S. Army Garrison Fort Hamilton, New York (Fort Hamilton). These recommendations were approved by the President on September 23, 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 U.S. Army Corps of Engineers, Mobile District, has prepared an Environmental Assessment (EA) which identifies, documents, and evaluates the environmental effects of the BRAC Commission’s recommended realignment of functions at Fort Hamilton. The EA has been developed in accordance with the National Environmental Policy Act of 1969 (42 U.S.C. 4321 et seq.) and implementing regulations issued by the President’s Council on Environmental Quality (CEQ)¹ and Environmental Analysis of Army Actions, 32 CFR Part 651. The 2006 Base Realignment Closure Manual for Compliance with the National Environmental Policy Act was used for guidance in preparing the EA. The purpose of the EA is to inform decision makers and the public of the likely environmental consequences of the proposed action and alternatives.

1.0 PROPOSED ACTION

The proposed action is to implement the BRAC Commission’s recommendation, as mandated by BRAC law, Public Law 101-510, by constructing new facilities to accommodate the personnel and functions of organizations realigning and relocating to Fort Hamilton.

The BRAC Commission’s recommendations are:

- Close the United States Army Reserve Center on Fort Hamilton, NY and relocate the New York Recruiting Battalion Headquarters and Army Reserve units into a new Armed Forces Reserve Center [AFRC] on Fort Hamilton, NY. The AFRC shall have the capacity to accommodate units from the NYARNG [NY Army National Guard] 47th Regiment Marcy Armory, Brooklyn and the Brooklyn Bedford Armory/OMS [Organizational Maintenance Shop], Brooklyn, NY, if the state decides to relocate those National Guard units

To implement these recommendations, the following new facilities are proposed for construction at Fort Hamilton:

Armed Forces Reserve Center and supporting facilities. The proposed AFRC would provide a 1,000-member, approximately 123,315 square feet (SF) training facility with administrative, educational, assembly, library, learning center, vault, weapons simulator, and physical fitness areas for one active U.S. Army, five U.S. Army Reserve, and seven NYARNG units. Associated support facilities include an approximately 3,543 SF OMS, and an approximately 9,328 SF unheated storage building. In addition, there would be approximately 6 acres of paved areas including military equipment parking (MEP) areas, privately-owned vehicle (POV) parking areas, and access roads. To facilitate construction, five buildings totaling 289,064 SF will be demolished.

Supporting improvements proposed to complement the AFRC and associated facilities include fencing, the extension of utilities to service the project, and general site improvements. Anti Terrorism/Force Protection (AT/FP) safety and security measures, including minimum stand-off distance from roads, parking areas and vehicle unloading areas, would be incorporated into the facility designs and siting, and accessibility for disabled persons would also be provided.

¹ Council on Environmental Quality Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act, 40 CFR Parts 1500–1508.

2.0 ALTERNATIVES CONSIDERED

CEQ regulations require inclusion of the No Action Alternative. The No Action Alternative serves as a baseline against which the impacts of the Proposed Action and alternatives can be evaluated. Under the No Action Alternative, the U.S. Army would not implement the Proposed Action. No NYARNG units would relocate from the local area and the NY Recruiting Battalion and the U.S. Army USARC would continue to use their current inventory of facilities on Fort Hamilton, though routine replacement or renovation actions could occur through normal military maintenance and construction procedures as circumstances independently warrant. The No Action Alternative is evaluated in detail in this EA to provide the baseline prescribed by CEQ regulations; nevertheless, since Public Law 101-510, as amended, mandates implementation of the BRAC Commission's recommendations, the No Action Alternative analyzed in the EA cannot be selected and subsequently implemented.

The U.S. Army considered and analyzed one other alternative, the "Preferred" Alternative. Under the Preferred Alternative, the facilities would be constructed at Fort Hamilton as described in the Proposed Action on two parcels of land that are in close proximity to each other and have structures that are slated for demolition. The AFRC would be constructed on the site of the current U.S. Army Reserve Center, while the OMS, unheated storage building and MEP area would be constructed on a parcel of land just north of this location that currently contains an open lot, the existing NY Recruiting Battalion Headquarters and two vacant housing complexes that were slated for demolition or conversion to administrative spaces prior to this BRAC 05 action.

Other alternatives were considered, but not analyzed in the EA. These included (1) use of existing facilities at Fort Hamilton, (2) acquisition of new property; (3) leasing existing space off-base; and (4) new construction in locations other than those identified in the Preferred Alternative. These other alternatives were considered not feasible to implement the Proposed Action and were therefore dismissed from further analysis.

3.0 FACTORS CONSIDERED IN DETERMINING THAT AN ENVIRONMENTAL IMPACT STATEMENT IS NOT REQUIRED

The EA, which is incorporated by reference into this Finding of No Significant Impact (FNSI), identified and examined potential effects of the alternatives. The EA evaluated 12 resource areas and areas of environmental and socioeconomic concern: land use, aesthetic and visual resources, air quality, noise, geology and soils, water resources, biological resources, cultural resources, socioeconomics, transportation, utilities, and hazardous and toxic substances.

The EA determined that implementation of the proposed realignment actions would not have any significant adverse effects or impacts on any of the environmental or related resource areas at Fort Hamilton or on areas surrounding the installation. Potential effects associated with implementation of the preferred alternative are expected to be negligible or minor. These impacts would be experienced in the following areas: land use, air quality, noise, soils, water resources, biological resources, socioeconomics, transportation, utilities, hazardous materials, and cumulative effects.

None of the predicted effects of the proposed realignment actions would result in significant impacts; therefore, mitigation is not required, and implementation of the Proposed Action will not require the preparation of an Environmental Impact Statement. Therefore, preparation of a FNSI is appropriate.

4.0 PUBLIC COMMENT

Interested parties were invited to review and comment on the EA and Draft FNSI from January 24, 2008 through February 22, 2008. A Notice of Availability was published on January 19, 2008 in *The Brooklyn Spectator* newspaper and on January 24 in the *Bay Ridge Courier* newspaper.

The EA and Draft FNSI were made available during the public comment period on the World Wide Web at:

http://www.hqda.army.mil/acsim/brac/env_review.htm

The EA and Draft FNSI were also available for review during the public comment at the following local libraries:

Brooklyn Public Library–Dyker Branch
8202 13th Avenue
Brooklyn, NY

Brooklyn Public Library–Fort Hamilton Branch
9424 Fourth Avenue
Brooklyn, NY

Fort Hamilton Library
404 Sterling Drive
Brooklyn, NY

Reviewers were invited to submit comments on the EA and Draft FNSI during the public comment period via mail, fax, or electronic mail to the U.S. Army's contractor:

Mr. Spence Smith
The Louis Berger Group, Inc.
295 Promenade Street
Providence, RI 02980
Fax: (401) 331-8956
Email: shsmith@louisberger.com

No comments were received on the EA or the Draft FNSI during the 30-day public comment period.

5.0 CONCLUSION

Based on the EA, it has been determined that implementation of the Proposed Action will have no significant direct, indirect, or cumulative adverse effects on the quality of the natural or human environment. Because no significant environmental impacts will result from implementation of the Proposed Action, an Environmental Impact Statement is not required and will not be prepared.

Date: 10 Apr 08



Tracy E. Nicholson
Colonel, U.S. Army
Garrison Commander

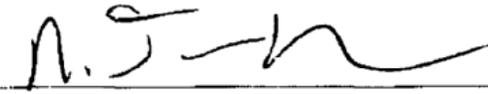
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ENVIRONMENTAL ASSESSMENT

**CONSTRUCTION OF AN ARMED FORCES RESERVE CENTER AND
IMPLEMENTATION OF BRAC 05 REALIGNMENT ACTIONS AT
FORT HAMILTON, NY**

Prepared by:

U.S. ARMY CORPS OF ENGINEERS
MOBILE DISTRICT

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District Commander

Approved by:

77th Regional Readiness Command


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Facility Management Office

and

U.S. Army Garrison Fort Hamilton


Tracy E. Nicholson
Colonel, U.S. Army
Garrison Commander

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ENVIRONMENTAL ASSESSMENT

LEAD AGENCY: Mobile District, U.S. Army Corps of Engineers

TITLE OF PROPOSED ACTION: Environmental Assessment for Construction of an Armed Forces Reserve Center and Implementation of BRAC 05 Realignment Actions at Fort Hamilton, New York

AFFECTED JURISDICTIONS: Kings County, New York

PREPARED BY: Byron G. Jorns, Colonel, U.S. Army Corps of Engineers, Mobile District, District Commander

APPROVED BY: John Wohrle, 77th Regional Readiness Command, Facility Management Office and Tracey E. Nicholson, Colonel, U.S. Army, Fort Hamilton, Garrison Commander

ABSTRACT: On September 8, 2005, the Defense Base Closure and Realignment Commission (“BRAC Commission”) recommended that certain realignment actions occur at Fort Hamilton, New York. These recommendations were approved by the President on September 23, 2005, and forwarded to Congress. The 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.

To implement the BRAC Commission’s recommendations, the U.S. Army proposes to provide the necessary facilities to support the changes in force structure and the consolidation of reserve units. This Environmental Assessment (EA) analyzes and documents environmental effects associated with the U.S. Army’s proposed actions at Fort Hamilton, NY.

None of the predicted effects of the Proposed Action would result in significant impacts to the quality of the human or biological environment at Fort Hamilton, NY. Moreover, mitigation would not be necessary to offset impacts. Therefore, preparation of an Environmental Impact Statement is not required and a Finding of No Significant Impact (FNSI) will be published in accordance with the National Environmental Policy Act (NEPA).

REVIEW PERIOD: Interested parties were invited to review and comment on the EA and Draft FNSI during the 30-day comment period, January 24, 2008 through February 22, 2008. The EA and Draft FNSI were accessible on the World Wide Web at:

http://www.hqda.army.mil/acsim/brac/env_ea_review.htm

Copies of the EA and Draft FNSI were also made available for review at the following local libraries:

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Reviewers were invited to submit comments on the EA and Draft FNSI during the 30-day public comment period via mail, fax, or electronic mail to the U.S. Army's contractor:

Mr. Spence Smith
The Louis Berger Group, Inc.
295 Promenade Street
Providence, RI 02980
fax: (401) 331-8956
email: shsmith@louisberger.com

No comments were received on the EA or Draft FNSI during the 30-day public comment period.

STATE OF NEW YORK (
CITY OF NEW YORK (
COUNTY OF KINGS (

Valarie Hennessy

being duly sworn, says that she is the

chief clerk for the publisher of the

Brooklyn Spectator

a weekly newspaper in the County of Kings;

that the advertisement hereto annexed has been

regularly published in the said newspaper

once on the 19th day of

January, 2008

Valarie Hennessy

Sworn to before me this 29

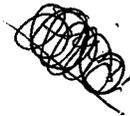
day of Jan 2008

WADE J. JABOUR
Notary Public, State of New York
No. 24-4917324
Qualified in Kings County
Commission Expires

606 2010

LEGAL NOTICE

PUBLIC NOTICE OF AVAILABILITY, ENVIRONMENTAL ASSESSMENT AND DRAFT FINDING OF NO SIGNIFICANT IMPACT FOR THE CONSTRUCTION OF AN ARMED FORCES RESERVE CENTER AND IMPLEMENTATION OF BRAC 2005 REALIGNMENT ACTIONS AT FORT HAMILTON, NY. Pursuant to the Council on Environmental Quality regulations for implementing the procedural provisions of the National Environmental Policy Act (40 CFR 1500) and 32 CFR 651 Environmental Analysis of Army Actions, the U.S. Army conducted an Environmental Assessment (EA) of the potential environmental and socioeconomic effects associated with implementing the Defense Base Closure and Realignment (BRAC) Commission's recommendations for the U.S. Army Reserve center at Fort Hamilton, New York. The new facilities included in the Proposed Action implementing the BRAC Commission's recommendations are proposed to be constructed at Fort Hamilton and include: Armed Forces Reserve Center (AFRC) and supporting facilities. The proposed AFRC would provide a 1,000-member, approximately 123,315 square feet (SF) training facility with administrative, educational, assembly, library, learning center, vault, weapons simulator, and physical fitness areas for one active U.S. Army, five U.S. Army Reserve, and seven NY Army National Guard units. Associated support facilities include an approximately 3,543 SF Organizational Maintenance Shop (OMS), and an approximately 9,328 SF unheated storage building. In addition, there would be approximately 6 acres of paved areas including military equipment parking (MEP) areas, privately-owned vehicle (POV) parking areas, and access roads. To facilitate construction, five buildings totaling 289,064 SF will be demolished. The EA and Draft Finding of No Significant Impact (FNSI) will undergo a 30-day public comment period, from January 24, 2008 through February 22, 2008. This is in accordance with requirements specified in 32 CFR Part 651.14 Environmental Analysis of Army Actions. During this period the public may submit comments on the proposed action, the EA and the Draft FNSI. The EA and Draft FNSI can be accessed on the World Wide Web at: http://www.hqda.army.mil/acsim/brac/env_ea_revie w.htm. Printed copies of the EA and Draft FNSI can also be viewed at the following libraries: Fort Hamilton Library, 404 Sterling Drive, Brooklyn, NY; Brooklyn Public Library-Dyker Branch, 8202 13th Avenue, Brooklyn, NY; Brooklyn Public Library-Fort Hamilton Branch, 9424 Fourth Avenue, Brooklyn, NY. Comments on the EA and Draft FNSI should be



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AFFIDAVIT OF PUBLICATION

State of New York
County of Kings

Dolores Corbett of Brooklyn, New York, being duly sworn, that he/she is principal clerk of the publisher of BAY RIDGE COURIER a newspaper printed, published, and circulated in Brooklyn, Kings County, New York and that the notice, of which the annexed is a true copy, has been published in said newspaper for 1 week.

TO WIT: January 24, 2008

Signed By: Dolores Corbett

Sworn to before me this January 28th day of 2008

Monica De Thomas

MONICA DETHOMAS
Notary Public State of New York
No. 01DE6173504
Qualified in Kings County
Term Expires October 9, 2011

PUBLIC NOTICE OF AVAILABILITY ENVIRONMENTAL ASSESSMENT AND DRAFT FINDING OF NO SIGNIFICANT IMPACT FOR THE CONSTRUCTION OF AN ARMED FORCES RESERVE CENTER AND IMPLEMENTATION OF BRAC 2005 REALIGNMENT ACTIONS AT FORT HAMILTON, NY Pursuant to the Council on Environmental Quality regulations for implementing the procedural provisions of the National Environmental Policy Act (40 CFR 1500) and 32 CFR 651. Environmental Analysis of Army Actions, the U.S. Army conducted an Environmental Assessment (EA) of the potential environmental and socioeconomic effects associated with implementing the Defense Base Closure and Realignment (BRAC) Commission's recommendations for the U.S. Army Reserve Center at Fort Hamilton, New York. The new facilities included in the Proposed Action implementing the BRAC Commission's recommendations are proposed to be constructed at Fort Hamilton and include: Armed Forces Reserve Center (AFRC) and supporting facilities. The proposed AFRC would provide a 1,000-member, approximately 123,315 square feet (SF) training facility with administrative, educational, assembly, library, learning center, vault, weapons simulator, and physical fitness areas for one active U.S. Army, five U.S. Army Reserve, and seven N-Y Army National Guard units. Associated support facilities include an approximately 3,543 SF Organizational Maintenance Shop (OMS),

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EXECUTIVE SUMMARY

ES.1 INTRODUCTION

On September 8, 2005, the Base Closure and Realignment (BRAC) Commission recommended that certain realignment actions occur at U.S. Army Garrison Fort Hamilton, NY (Fort Hamilton). These recommendations were approved by the President on September 23, 2005, and forwarded to Congress. The 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 Closure and Realignment Act of 1990 (Public Law 101-510), as amended.

The following provides the BRAC Commission's recommendations for Fort Hamilton (BRAC Commission, 2005):

- Close the United States Army Reserve Center on Fort Hamilton, NY and relocate the New York Recruiting Battalion Headquarters and Army Reserve units into a new Armed Forces Reserve Center on Fort Hamilton, NY. The AFRC shall have the capacity to accommodate units from the NYARNG 47th Regiment Marcy Armory, Brooklyn and the Brooklyn Bedford Armory/OMS, Brooklyn, NY, if the state decides to relocate those National Guard units

To implement this recommendation, the U.S. Army proposes to construct a new AFRC and related facilities at Fort Hamilton, NY to support the changes in force structure. This EA analyzes the potential environmental impacts associated with the U.S. Army's Proposed Action at Fort Hamilton.

The BRAC law exempts consideration of the need for the action or alternative installations in preparing environmental documentation pursuant to the National Environmental Policy Act (NEPA). However, an appropriate level of NEPA analysis and documentation is required to analyze how the BRAC actions will be implemented. Table ES-1 lists major environmental statutes, regulations, and Executive Orders (EO) applicable to federal projects.

ES.2 BACKGROUND AND SETTING

Fort Hamilton is located in the southwestern corner of the New York City borough of Brooklyn in Kings County, NY.

Table ES-1. Major Environmental Statutes, Regulations, and Executive Orders Applicable to Federal Projects

Environmental Resources	Statute, Regulation, or Executive Order
Air	Clean Air Act (CAA) of 1970 (PL 95-95), as amended in 1977 and 1990 (PL 91-604); U.S. Environmental Protection Agency (U.S. EPA), Subchapter C-Air Programs (40 CFR 52-99)
Noise	Noise Control Act of 1972 (PL 92-574) and Amendments of 1978 (PL 95-609); U.S. EPA, Subchapter G-Noise Abatement Programs (40 CFR 201-211)
Water	Federal Water Pollution Control Act (FWPCA) of 1972 (PL 92-500) and Amendments; Clean Water Act (CWA) of 1977 (PL 95-217); U.S. EPA, Subchapter D-Water Programs (40 CFR 100-145); Water Quality Act of 1987 (PL 100-4); U.S. EPA, Subchapter N-Effluent Guidelines and Standards (40 CFR 401-471); Safe Drinking Water Act (SDWA) of 1972 (PL 95-923) and Amendments of 1986 (PL 99-339); U.S. EPA, National Drinking Water Regulations and Underground Injection Control Program (40 CFR 141-149)
Biological Resources	Migratory Bird Treaty Act of 1918; Fish and Wildlife Coordination Act of 1958 (PL 85-654); Sikes Act of 1960 (PL 86-97) and Amendments of 1986 (PL 99-561) and 1997 (PL 105-85 Title XXIX); Endangered Species Act of 1973 (PL 93-205) and Amendments of 1988 (PL 100-478); Fish and Wildlife Conservation Act of 1980 (PL 96-366); Lacey Act Amendments of 1981 (PL 97-79); Responsibilities of Federal Agencies to Protect Migratory Birds (EO 13186)
Wetlands and Floodplains	Section 401 and 404 of the Federal Water Pollution Control Act of 1972 (PL 92-500); U.S. EPA, Subchapter D-Water Programs 40 CFR 100-149 (105 ref); Floodplain Management-1977 (EO 11988); Protection of Wetlands-1977 (EO 11990); Emergency Wetlands Resources Act of 1986 (PL 99-645); North American Wetlands Conservation Act of 1989 (PL 101-233)
Cultural Resources	NHPA (16 USC 470 et seq.) (PL 89-865) and Amendments of 1980 (PL 96-515) and 1992 (PL 102-575); Protection and Enhancement of the Cultural Environment-1971 (EO 11593); Indian Sacred Sites-1966 (EO 13007); American Indian Religious Freedom Act (AIRFA) of 1978 (PL 94-341); Antiquities Act of 1906; Archaeological Resources Protection Act (ARPA) of 1979 (PL 96-95); Native American Graves Protection and Repatriation Act (NAGPRA) of 1990 (PL 101-601); Protection of Historic and Cultural Properties (36 CFR 800)
Solid/Hazardous Materials and Waste	Resource Conservation and Recovery Act (RCRA) of 1976 (PL 94-5800), as Amended by PL 100-582; U.S. EPA, subchapter I-Solid Wastes (40 CFR 240-280); Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980 (42 USC 9601) (PL 96-510); Toxic Substances Control Act (TSCA) (PL 94-496); U.S. EPA, Subchapter R-Toxic Substances Control Act (40 CFR 702-799); Federal Insecticide, Fungicide, and Rodenticide Control Act (40 CFR 162-180); Emergency Planning and Community Right-to-Know Act (40 CFR 355, 370, and 372); Federal Compliance with Pollution Control Standards-1978 (EO 12088), Superfund Implementation (EO 12580); Strengthening Federal Environmental, Energy, and Transportation Management (EO 13423)
Health and Safety	Occupational Health and Safety Act of 1970 (29 CFR 1910 and 29 CFR 1926)
Environmental Justice	Federal Action to Address Environmental Justice in Minority Populations and Low-Income Populations (EO 12898); Protection of Children from Environmental Health Risks and Safety Risks (EO 13045)

ES.3 PROPOSED ACTION

The Proposed Action is to construct a new AFRC and associated facilities to support U.S. Army active and reserve units as well as NY Army National Guard (NYARNG) units relocating from the local Brooklyn, NY area. The purpose of the Proposed Action is to implement the BRAC Commission's recommendations pertaining to Fort Hamilton.

Facilities - The proposed AFRC would provide a 1,000-member training facility with administrative, educational, assembly, library, learning center, vault, weapons simulator, and physical fitness areas for one active U.S. Army, five U.S. Army Reserve, and seven NYARNG units. Associated support facilities include an Organizational Maintenance Shop (OMS), and an unheated storage building. In addition, there would be approximately 6 acres of paved areas, including military equipment parking (MEP) areas, privately-owned vehicle (POV) parking areas, and access roads.

Personnel - Implementing the BRAC Commission's recommendations for Fort Hamilton would result in the total assignment of approximately 884 personnel to the new AFRC, 783 of whom are reservists and 101 of whom are full-time personnel. Of these personnel, only the 384 associated with the NYARNG units would be coming from outside of Fort Hamilton. Currently, the Fort Hamilton work force consists of approximately 3,500 military and civilian personnel.

Equipment - The relocation and realignment of reserve units to the proposed AFRC would also bring associated unit vehicles, equipment, and materials. The total number of vehicles that would relocate to the AFRC is projected to be approximately 361, including 297 wheeled vehicles, 64 trailers, and 0 tracked vehicles. Of these vehicles, only the 322 associated with the NYARNG units would be coming from outside of Fort Hamilton.

ES.4 REALIGNMENT PROCESS

The timeline for implementing the action at Fort Hamilton began in late 2005 with Congressional and Presidential approval of the BRAC law followed by the initiation of this NEPA process and related planning activities at Fort Hamilton. New BRAC facilities at Hamilton are programmed through fiscal year 2010 with realignment moves scheduled to occur by 2011. Under the BRAC law, the U.S. Army must initiate all realignments not later than September 15, 2007, and complete all realignments not later

than September 15, 2011.¹ This BRAC EA examines the environmental impact from efforts that will take place within the 6-year BRAC implementation window.

ES.5 ALTERNATIVES

No Action Alternative

Under the No Action Alternative, Fort Hamilton would not implement the Proposed Action. No NYARNG units would relocate from the local area and the NY Recruiting Battalion and the U.S. Army USARC would continue to use their current inventory of facilities on Fort Hamilton, though routine replacement or renovation actions could occur through normal military maintenance and construction procedures as circumstances independently warrant.

Due to the BRAC Commission's recommendations having the force of law, implementation of the No Action Alternative is not possible. Although implementing the No Action Alternative is not possible, Council on Environmental Quality (CEQ) regulations require its inclusion in an EA, for it serves as the baseline against which the impacts of the Proposed Action and alternatives can be evaluated. Accordingly, the No Action Alternative is evaluated in this EA.

Preferred Alternative

The preferred location for the AFRC and its supporting facilities consists of two sites that are located in close proximity to each other and have structures that are slated for demolition (Figure 3-1). The southern parcel consists of Building 213, which is the existing USARC; Building 216, which is the Reserve Maintenance Shop; and Building 216A, which is a storage shed. All of these facilities are slated to be replaced by this BRAC Action. The northern parcel consists of Building 111, which is the existing NY Recruiting Battalion Headquarters and is slated to be replaced by this BRAC Action; a vacant lot which used to be Building 135 before it was demolished under a separate action; and Buildings 136 and 138, which are vacant 8-story housing units which were already slated for demolition or conversion to administrative space prior to this BRAC Action. The AFRC would be located on the southern parcel of land where the existing USARC currently resides, while the OMS, MEP and unheated storage building would be located on the northern parcel of land. These sites can meet AT/FP standoff distance

¹ Section 2904(a), Public Law 101-510, as amended, provides that the Army must "... initiate all closures and realignments no later than two 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 six year period beginning on the date on which the President transmits the report ..." The President took the specified action on September 15, 2005.

requirements and are consistent with the existing training land use designation for these areas. This site is identified as the Preferred Alternative, and is fully evaluated in the EA.

As a result of implementing the Proposed Action the U.S. Army Reserve units currently occupying the USARC on Fort Hamilton will need to temporarily relocate their operations during the demolition of the USARC and construction of the new AFRC. The units are expected to temporarily relocate locally to either Fort Tilden or Floyd Bennett Field. However, it is not currently known to which location they would relocate or where on the installations they would relocate to; therefore, the resulting potential impacts of temporarily relocating the reserve units will not be addressed in this EA; rather it will be analyzed under separate NEPA documentation for the receiving installation.

ES.6 ENVIRONMENTAL CONSEQUENCES

Under the No Action Alternative, the proposed new BRAC facilities would not be constructed, and no environmental impacts would occur.

Under the Preferred Alternative, the Proposed Action would not have any significant adverse effects or impacts on any of the environmental or related resource areas at Fort Hamilton or to areas surrounding the installation. For all resource areas, the effects are evaluated to be at No Effect or No Significant Effect levels.

A summary of impacts by resource area for the No Action Alternative and the Preferred Alternative is provided in Table ES-2.

Table ES-2. Summary of the Impacts of the Proposed Action Alternatives

Resource	No Action Alternative	Preferred Alternative	
		Construction	Operation
Land Use			
<i>Regional Geographic Setting and Location</i>	No Effect.	No Effect.	No Effect.
<i>Installation Land</i>	No Effect.	No Significant Effect; all proposed facilities occur within Fort Hamilton boundary are consistent with planned future land use designations.	No Significant Effect; all proposed facilities occur within Fort Hamilton boundary are consistent with planned future land use designations.

Resource	No Action Alternative	Preferred Alternative	
		Construction	Operation
<i>Current and Future Development in the Region of Influence</i>	No Effect.	No Significant Effect; all projects occur within Fort Hamilton boundary; short-term construction requirements add financial capital to local and regional economy.	No Significant Effect; all projects occur within Fort Hamilton boundary; increase in personnel living off-post adds financial capital to the local and regional economy.
Aesthetic and Visual Resources	No Effect.	No Significant Effect.	No Significant Effect.
Air Quality			
<i>Ambient Air Quality Conditions</i>	No Effect.	No Significant Effect - temporary emissions during construction do not exceed <i>de minimis</i> levels.	No Significant Effect - operational emissions do not exceed <i>de minimis</i> levels.
<i>Meteorology/Climate</i>	No Effect.	No Effect.	No Effect.
<i>Air Pollutant Emissions at Installation</i>	None. No Significant Impact.	No Significant Effect – emissions during construction are temporary.	No Significant Effect – Emissions do not exceed <i>de minimis</i> levels.
<i>Regional Air Pollutant Emissions Summary</i>	No Effect.	No Significant Effect – Temporary emissions do not exceed 10% of allowable limits laid out by the SIP.	No Significant Effect – Emissions do not exceed 10% of allowable limits laid out by the SIP.
Noise	No Effect.	No Significant Effect. Increased temporary noise from construction would not exceed applicable noise standards.	No Significant Effect. Long-term noise from increased vehicle use/traffic would not exceed applicable noise standards.
Geology and Soils			
<i>Geologic and Topographic Conditions</i>	No Effect.	No Significant Effect; minor leveling and grading required.	No Effect.
<i>Soils</i>	No Effect.	No Significant Effect; majority of soils are already disturbed or modified.	No Effect.
<i>Prime Farmland</i>	No Effect.	No Effect; no lands suitable for classification as prime farmland.	No Effect; no lands suitable for classification as prime farmland.
Water Resources			

Resource	No Action Alternative	Preferred Alternative	
		Construction	Operation
<i>Surface Water</i>	No Effect.	No Significant Effect; no wetlands to impact and storm water flows to NYC combined sewer and stormwater system with no increase in pollutant loads.	No Significant Effect; no wetlands to impact and storm water flows to NYC combined sewer and stormwater system with no increase in pollutant loads.
<i>Hydrogeology/Groundwater</i>	No Effect.	No Significant Effect; Possible impacts due to potential for minor oil and antifreeze spills, leaks from vehicles, and pollutant leaching as a result of demolition activities.	No significant Effect; Possible impacts due to potential for minor oil and antifreeze spills, leaks from vehicles, etc.
<i>Floodplains</i>	No Effect.	No Effect.	No Effect.
<i>Coastal Zone</i>	No Effect.	No Effect.	No Effect.
Biological Resources			
<i>Vegetation</i>	No Effect.	No Significant Effect; minor removal of vegetation.	No Effect.
<i>Wildlife</i>	No Effect.	No Significant Effect; minor removal of vegetation.	No Effect.
<i>Threatened, Endangered, and Sensitive Species</i>	No Effect.	No Effect.	No Effect.
Cultural Resources			
<i>Archaeology</i>	No Effect.	No Effect.	No Effect.
<i>Built Environment</i>	No Effect.	No Effect.	No Effect.
<i>Native American Resources</i>	No Effect.	No Effect.	No Effect.
Socioeconomics			
<i>Economic Development</i>	No Effect.	No Significant Effect; .07% of jobs created will be directly caused by construction, most of which will be temporary.	No Significant Effect; minor increases in jobs, sales volume, and personal income.
<i>Demographics</i>	No Effect.	No Effect; no change in ROI population.	No Effect; no change in the ROI population.
<i>Environmental Justice</i>	No Effect.	No Effect.	No Effect.
Transportation			

Resource	No Action Alternative	Preferred Alternative	
		Construction	Operation
<i>Roadways and Traffic</i>	No Effect.	No Significant Effect; transitory increase in traffic due to construction vehicles.	No Significant Effect; minimal increased traffic from additional workforce.
<i>Installation Transportation</i>	No Effect.	No Effect.	No Effect.
<i>Public Transportation</i>	No Effect.	No Significant Effect; no increase in transit ridership is expected during construction.	No Significant Effect: no significant increase in transit ridership is expected as a result of implementing the action.
Utilities			
<i>Potable Water Supply</i>	No Effect.	No Significant Effect; Requires normal short-term disruptions from utility extensions.	No Significant Effect; comparatively small increase in demand would not be cause for system or regulatory limits to be exceeded.
<i>Sanitary Sewer System</i>	No Effect.	No Significant Effect; Requires normal short-term disruptions from utility extensions.	No Significant Effect; comparatively small increase in demand would not be cause for system or regulatory limits to be exceeded.
<i>Electrical Service and Distribution</i>	No Effect.	No Significant Effect; Requires normal short-term disruptions from utility extensions.	No Significant Effect; comparatively small increase in demand would not be cause for system or regulatory limits to be exceeded.
<i>Storm water System</i>	No Effect.	No Significant Effect; BMPs under an approved SWPPP protect NYC combined sewer/storm water system.	No Significant Effect; compliance with all State and Federal guidelines.
<i>Natural gas</i>	No Effect.	No Significant Effect; Requires normal short-term disruptions from utility extensions.	No Significant Effect; only a negligible increase in use.
<i>Communications</i>	No Effect.	No Significant Effect. Requires normal short-term disruptions from utility extensions.	No Significant Effect; communication requirements can be provided.

Resource	No Action Alternative	Preferred Alternative	
		Construction	Operation
<i>Municipal Solid Waste</i>	No Effect.	No Significant Effect: adequate landfill space to accommodate waste; adherence to approved solid waste handling procedures prevents adverse effects during construction.	No Significant Effect: adequate landfill space to accommodate minimal waste; adherence to approved solid waste handling procedures prevents adverse effects during operations.
Hazardous and Toxic Substances			
<i>Uses of Hazardous Materials</i>	No Effect.	No Significant Effect.	No Significant Effect with proper handling; minimal use.
<i>Storage and Handling Areas</i>	No Effect.	No Significant Effect; little hazardous waste from construction.	No Significant Effect with continued regulatory compliance and use of BMPs.
<i>Site Contamination and Cleanup</i>	No Effect.	No Significant Effect; site contamination issues unlikely, but can be handled if encountered.	No Significant Effect.
Cumulative Effects	No Effect.	No Significant Effect.	No Significant Effect.

ES.7 MITIGATION RESPONSIBILITY AND PERMIT REQUIREMENTS

None of the predicted effects of the Proposed Action would result in significant impacts; therefore, mitigation is not needed, although the U.S. Army may consider the use of Best Management Practices (BMPs) in addition to those required by law, regulation, or the U.S Army. The following permits and or plans would be required in implementing the projects identified in this analysis:

- A Storm Water Pollution Prevention Plan (SWPPP) for the construction phase of the project would be required under Fort Hamilton’s State Pollutant Discharge Elimination System (SPDES) Municipal Separate Storm Sewer System (MS4) permit.
- Spill Prevention Control and Countermeasures (SPCC) plan would be required to be updated for fuel storage tanks associated with any new emergency generators.
- A Construction Noise Mitigation Plan for the construction phase of the project would be required in accordance with §24-219 of the New York City Noise Code.

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1.0 PURPOSE, NEED, AND SCOPE

1.1 INTRODUCTION

On September 8, 2005, the Base Realignment and Closure (BRAC) Commission recommended that certain realignment actions occur at U.S. Army Garrison Fort Hamilton, NY (Fort Hamilton). These recommendations were approved by the President on September 23, 2005, and forwarded to Congress. The 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 Closure and Realignment Act of 1990 (Public Law 101-510), as amended.

The BRAC law exempts consideration of the need for closing or realigning a military installation or the consideration of alternative installations in preparing environmental documentation pursuant to the National Environmental Policy Act (NEPA). However, NEPA analysis and documentation is required to analyze how the BRAC actions will be implemented.

The following are the BRAC Commission's recommendations for Fort Hamilton, NY (BRAC Commission, 2005):

- Close the United States Army Reserve Center on Fort Hamilton, NY and relocate the New York Recruiting Battalion Headquarters and Army Reserve units into a new Armed Forces Reserve Center on Fort Hamilton, NY. The AFRC shall have the capacity to accommodate units from the NYARNG 47th Regiment Marcy Armory, Brooklyn and the Brooklyn Bedford Armory/OMS, Brooklyn, NY, if the state decides to relocate those National Guard units.

The BRAC Commission's recommendations considered the Secretary of Defense's justifications for recommended realignment actions at Fort Hamilton. The Secretary's justifications, as quoted, are contained in Appendix A.

To implement this recommendation, the U.S. Army proposes to construct a new Armed Forces Reserve Center (AFRC) and related facilities at Fort Hamilton to support the BRAC-directed changes in force structure. This Environmental Assessment (EA) analyzes the potential environmental impacts associated with the construction and operation of the new AFRC.

Details on the Proposed Action are provided in Section 2.0.

1.2 PURPOSE AND NEED

The purpose of the Proposed Action is to implement those elements of the BRAC law that contain the BRAC Commission's recommendation pertaining to Fort Hamilton, NY.

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

Base Realignment and Closure. In previous BRAC rounds, the explicit goal was to save money and downsize the military to reap a "peace dividend." In the 2005 BRAC round the Department of Defense's (DoD's) recommendations sought to reorganize its installation infrastructure to more efficiently support its forces, increase operational readiness, and facilitate new ways of doing business. Thus, BRAC represents more than cost savings; it supports advancing the goals of transformation, improving military capabilities, and enhancing military value. The U.S. Army needs to carry out the BRAC Commission's recommendations at Fort Hamilton to achieve the objectives for which Congress established the BRAC process.

U.S. Army Transformation and the U.S. 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 U.S. 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 United States and its allies. Transformation responds to the U.S. Army's need to become more strategically responsive and dominant at every point on the spectrum of operations. In March 2002, the U.S. Army published its *Programmatic Environmental Impact Statement for Army Transformation* for its proposal to conduct a multiyear, phased, and synchronized program of transformation. Over a 30-year period, the U.S. Army will conduct a series of transformation activities affecting virtually all aspects of U.S. Army doctrine, training, leader development, organizations, installations, materiel, and Soldiers. On April 11, 2002, the U.S. Army issued a Record of Decision (ROD) reflecting its intent to transform the U.S. Army. This EA evaluates this Proposed Action

at Fort Hamilton under the transformation process, designed to provide the nation with combat forces that are more responsive, deployable, agile, versatile, lethal, survivable, and sustainable.

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

At Fort Hamilton, this BRAC action is expected to significantly enhance the readiness of the affected units by providing sufficient classroom, storage, and administrative space required to train to U.S. Army standards and to meet anti-terrorism/force protection (AT/FP) standards. At the same time, these actions are expected to reduce manpower and associated operating costs for maintaining existing facilities and properties.

1.3 SCOPE

This EA identifies, documents, and evaluates the potential environmental effects of the proposed BRAC realignment actions at Fort Hamilton. This EA has been developed in accordance with NEPA and implementing regulations issued by the President's Council on Environmental Quality (CEQ) and the U.S. Army.² The purpose of the EA is to inform decision makers and the public of the likely environmental consequences of the Proposed Action and the alternatives for implementing it.

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

² Council on Environmental Quality Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act, 40 Code of Federal Regulations (CFR) Parts 1500–1508, and Environmental Analysis of Army Actions, 32 CFR Part 651

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 deliberations and decisions, 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.

1.4 PUBLIC PARTICIPATION AND INVOLVEMENT

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

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. Upon completion, the EA will be made available to the public for 30 days, along with a draft Finding of No Significant Impact (FNSI). During this time the U.S. Army will consider any comments submitted by individuals, agencies, or organizations on the Proposed Action, the EA, or draft FNSI. At the conclusion of the comment period, the U.S. Army may, if appropriate, execute the FNSI and proceed with implementing the Proposed Action. If it is determined that implementing the Proposed Action would result in significant impacts, the U.S. Army will commit to mitigation actions sufficient to reduce impacts below significance levels or publish in the *Federal Register* a Notice of Intent (NOI) to prepare an Environmental Impact Statement (EIS).

Interested parties are invited to review and comment on the EA and Draft FNSI during the 30-day comment period, January 24, 2008 through February 22, 2008. The EA and Draft FNSI can be accessed on the World Wide Web at: http://www.hqda.army.mil/acsim/brac/env_ea_review.htm

Copies of the EA can also be viewed at the following libraries:

Brooklyn Public Library–Dyker Branch
8202 13th Avenue
Brooklyn, NY

Brooklyn Public Library–Fort Hamilton Branch
9424 Fourth Avenue
Brooklyn, NY

Fort Hamilton Library
404 Sterling Drive
Brooklyn, NY

Comments on the EA and Draft FNSI should be submitted during the 30-day public comment period via mail, fax, or electronic mail to the U.S. Army's contractor:

Mr. Spence Smith

The Louis Berger Group, Inc.

295 Promenade Street

Providence, RI 02980

fax: (401) 331-8956

email: shsmith@louisberger.com

1.5 IMPACT ANALYSIS PERFORMED

An interdisciplinary team of environmental scientists, biologists, planners, economists, engineers, archaeologists, historians, lawyers, and military technicians has analyzed the Proposed Action and alternatives in light of existing conditions and has identified relevant beneficial and adverse impacts associated with the action. Section 1.0 of the EA provides the purpose, need, and scope. The Proposed Action is described in Section 2.0 and the alternatives, including the No Action Alternative, are described in Section 3.0. Conditions existing as of 2005, considered to be the "baseline" conditions, are described in Section 4.0 - Affected Environment and Environmental Consequences. The expected impacts of the Proposed Action, also described in Section 4.0, are presented immediately following the description of baseline conditions for each environmental resource addressed in the EA. Section 4.0 also addresses the potential for cumulative effects and mitigation measures are identified where appropriate. Section 5.0 presents the findings and conclusions.

1.6 FRAMEWORK FOR ANALYSIS

The selection of the Preferred Alternative rests on numerous factors such as mission requirements, schedule, availability of funding, and environmental considerations. In addressing environmental considerations, the U.S. Army is guided by relevant statutes (and their implementing regulations) and Executive Orders that establish standards and provide guidance for environmental and natural resources management and planning.

1.6.1 Relevant Statutes and Executive Orders

Relevant statutes include, but are not limited to, the Clean Air Act (CAA), Clean Water Act (CWA), Noise Control Act, Endangered Species Act (ESA), National Historic Preservation Act (NHPA), Archaeological Resources Protection Act (ARPA), Resource Conservation and Recovery Act (RCRA),

Toxic Substances Control Act (TSCA), and the Farmland Protection Policy Act (FPPA). Executive Orders bearing on the Proposed Action include Executive Order (EO) 11988 (*Floodplain Management*), EO 11990 (*Protection of Wetlands*), EO 12088 (*Federal Compliance with Pollution Control Standards*), EO 12580 (*Superfund Implementation*), EO 12898 (*Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*), EO 13045 (*Protection of Children from Environmental Health Risks and Safety Risks*), EO 13175 (*Consultation and Coordination with Indian Tribal Governments*), EO 13186 (*Responsibilities of Federal Agencies to Protect Migratory Birds*), and EO 13423 (*Strengthening Federal Environmental, Energy, and Transportation Management*). These authorities are addressed in various sections throughout this EA when relevant to 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>.

2.0 DESCRIPTION OF THE PROPOSED ACTION

2.1 INTRODUCTION

This section describes the U.S Army's Preferred Alternative for implementing the BRAC Commission's recommendations for Fort Hamilton. The following are the BRAC Commission's recommendations for Fort Hamilton (BRAC Commission, 2005):

- Close the United States Army Reserve Center on Fort Hamilton, NY and relocate the New York Recruiting Battalion Headquarters and Army Reserve units into a new Armed Forces Reserve Center on Fort Hamilton, NY. The AFRC shall have the capacity to accommodate units from the NYARNG 47th Regiment Marcy Armory, Brooklyn and the Brooklyn Bedford Armory/OMS, Brooklyn, NY, if the state decides to relocate those National Guard units.

2.2 CRITERIA FOR IDENTIFICATION OF PROPOSED BRAC ACTIONS

The DoD applied the following 8 major criteria when evaluating individual facility BRAC actions.

Military Value (higher priority):

1. The current and future mission capabilities and the impact on operational readiness of the total force of the DoD, including the impact on joint war-fighting, training, and readiness.
2. The availability and condition of land, facilities, and associated airspace (including training areas suitable for maneuver by ground, naval, or air forces throughout a diversity of climate and terrain areas and staging areas for the use of the Armed Forces in homeland defense missions) at both existing and potential receiving locations.
3. The ability to accommodate contingency, mobilization, surge, and future total force requirements at both existing and potential receiving locations to support operations and training.
4. The cost of operations and the manpower implications.

Other Considerations:

5. The extent and timing of potential costs and savings, including the number of years, beginning with the date of completion of the closure or realignment, for the savings to exceed the cost (pay-back period).
6. The economic impact on existing communities in the vicinity of military installations.
7. The ability of the infrastructure of both the existing and potential receiving communities to support forces, missions, and personnel.

8. The environmental impact, including the impact of costs related to potential environmental restoration, waste management, and environmental compliance (BRAC Commission, 2005).

The application of these criteria to the need to realign and restructure reserve forces and facilities in the State of New York yielded a number of proposed facility changes, among them the proposed actions at Fort Hamilton.

This BRAC EA examines the environmental impacts from efforts that would take place within the 6-year BRAC implementation window. The site-specific BRAC related projects are defined by existing Defense Department (DD) Form 1391s. The DD Form 1391 is used by the DoD to submit requirements and justifications in support of funding requests for military construction to Congress.

2.3 PROPOSED ACTION/IMPLEMENTATION PROPOSED

The Proposed Action is to construct a new AFRC and associated support facilities to support both active and reserve U.S. Army units, as well as New York Army National Guard (NYARNG) units relocating from the local area (Brooklyn, NY). Figure 2-1 provides a general area map indicating the location of Fort Hamilton in the larger community.

The Proposed Action is further detailed below, in the *Facilities* (Section 2.3.1), *Equipment* (Section 2.3.2), and *Personnel* (Section 2.3.3) sub-sections.

2.3.1 Facilities

The proposed AFRC would provide a 1,000-member training facility with administrative, educational, assembly, library, learning center, vault, weapons simulator, and physical fitness areas for one active U.S. Army, five U.S. Army Reserve, and seven NYARNG units. Associated support facilities include an Organizational Maintenance Shop (OMS), and an unheated storage building. The approximate size of the AFRC and the additional support facilities are provided in Table 2-1. In addition, there would be approximately 6 acres of paved areas including military equipment parking (MEP) areas, privately-owned vehicle (POV) parking areas, and access roads.

Figure 2-1. Fort Hamilton, NY Area Map



Table 2-1. AFRC Complex Building Sizes

Building	Approximate Size (square feet (ft²))
Armed Forces Reserve Center	123,315
OMS	3,543
Unheated-unit storage building	9,328

Source: U.S. Army, 2007

Supporting improvements proposed to complement the AFRC and associated facilities include paving, fencing, the extension of utilities to service the project, and general site improvements. AT/FP safety and security measures, including minimum stand-off distance from roads, parking areas and vehicle unloading areas, would be incorporated into the facility designs and siting, and accessibility for disabled persons would also be provided (U.S. Army, 2007). The preferred location for the facilities is described further under the Preferred Alternative in Section 3.3.4 – *New Construction Alternative Sites*.

2.3.2 Personnel

Implementing the BRAC Commission’s recommendations for Fort Hamilton would result in the total assignment of approximately 884 personnel to the new AFRC, 783 of whom are reservists and 101 of whom are full-time personnel (see Table 2-2 for a breakdown of the number of personnel by unit relocating to the AFRC complex.) Of these personnel, only the 384 associated with the NYARNG units would be coming from outside of Fort Hamilton. Currently, the Fort Hamilton work force consists of approximately 3,500 military and civilian personnel (Fort Hamilton, 2007a). The potential direct and/or cumulative impacts on the environment from the increase in personnel associated with the new AFRC are considered in this EA.

Table 2-2. 2005 BRAC Action – Fort Hamilton: Personnel Changes

Action	Organization	From	Total Number of Reservists	Total Number of Full-time Personnel	Total Estimated Increase in Personnel at Fort Hamilton
On-base	98 th 5 BDE 11/98 DET 1	Fort Hamilton	39	1	0
On-base	1179 USA DPLYMT CONTR UNT	Fort Hamilton	93	14	0
On-base	7238 USA MED SUPPORT	Fort Hamilton	111	3	0

Action	Organization	From	Total Number of Reservists	Total Number of Full-time Personnel	Total Estimated Increase in Personnel at Fort Hamilton
On-base	344 CBT SPT HOSP (HUS)	Fort Hamilton	142	5	0
On-base	0372 MD DET (MIN C)	Fort Hamilton	38	2	0
On-base	NY Recruiting Battalion Headquarters	Fort Hamilton	0	52	0
Incoming	NYARNG	Brooklyn, NY	360	24	384
		TOTAL	783	101	384

Source: Murphy, 2007a; Pipe, 2007a; U.S. Army, 2005

2.3.3 Equipment

The relocation and realignment of reserve units to the proposed AFRC would also bring associated unit vehicles, equipment, and materials. The total number of vehicles that would relocate to the AFRC is projected to be approximately 361, including 297 wheeled vehicles, 64 trailers, and 0 tracked vehicles. Of these vehicles, only the 322 associated with the NYARNG units would be coming from outside of Fort Hamilton. Table 2-3 provides a breakdown of the number of vehicles by unit relocating to the AFRC complex.

Table 2-3. 2005 BRAC Action – Fort Hamilton AFRC: Equipment Changes

Action	Organization	From	Total Number: Wheeled Vehicles	Total Number: Trailers	Total Number: Tracked Vehicles	Total Estimated Increase in Equipment at Fort Hamilton
On-base	98 th 5 BDE 11/98 DET 1	Fort Hamilton	0	0	0	0
On-base	1179 USA DPLYMT CO	Fort Hamilton	0	0	0	0
On-base	7238 USA MED SUPPO	Fort Hamilton	0	0	0	0
On-base	344 CBT SPT HOSP (HUS)	Fort Hamilton	2	29	0	0

Action	Organization	From	Total Number: Wheeled Vehicles	Total Number: Trailers	Total Number: Tracked Vehicles	Total Estimated Increase in Equipment at Fort Hamilton
On-base	0372 MD DET (MIN C)	Fort Hamilton	1	7	0	0
On-base	NY Recruiting Battalion Headquarters	Fort Hamilton	0	0	0	0
Incoming	NYARNG	Brooklyn, NY	294	28	0	322
		TOTAL	297	64	0	322

Source: Murphy, 2007a; U.S. Army, 2005

2.4 SCHEDULE

As required by the BRAC statute, the U.S. 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 is proposed to occur over a span of approximately two years, as shown in the schedule contained in Table 2-4. Facilities construction will be synchronized to meet the needs, on a priority basis, of units being relocated. As a result of implementing the Proposed Action the U.S. Army Reserve units currently occupying the USARC on Fort Hamilton will need to temporarily relocate their operations during the demolition of the USARC and construction of the new AFRC. The units are expected to temporarily relocate locally to either Fort Tilden or Floyd Bennett Field. The resulting potential impacts of temporarily relocating the reserve units will not be addressed in this EA; rather it will be analyzed under separate NEPA documentation for the receiving installation.

³ Section 2904(a), Public Law 101-510, as amended, provides that the Army must "... initiate all closures and realignments no later than two 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 six year period beginning on the date on which the President transmits the report ... " The President took the specified action on September 15, 2005.

Table 2-4. Schedule of Fort Hamilton 2005 BRAC Projects

Project Number	Project Title	Project Cost	Estimated Construction Start	Estimated Construction Completion
CAR 08-64588	Armed Forces Reserve Center	\$64,063,000	February 2008	February 2010

Source: U.S. Army, 2006

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3.0 ALTERNATIVES TO THE PROPOSED ACTION

3.1 INTRODUCTION

A key principle of NEPA is that agencies are to give full consideration to all reasonable alternatives to a proposed action. Considering alternatives helps to avoid unnecessary impacts and allows analysis of reasonable ways to achieve the stated purpose. To warrant detailed evaluation, an alternative must be reasonable. To be considered reasonable, an alternative must be affordable, capable of implementation, and satisfactory with respect to meeting the purpose of and need for the action. The following discussion identifies alternatives considered by the U.S. Army and identifies whether they are feasible and, hence, subject to detailed evaluation in this EA.

Alternatives to the Proposed Action have been examined according to three variables: the means to accommodate realigned units, siting of new construction, and schedule. This section presents the U.S. Army's development of alternatives and addresses alternatives available for the Proposed Action. This section also describes the No Action Alternative, under which the Proposed Action would not be implemented.

3.2 DEVELOPMENT OF ALTERNATIVES

Means to Accommodate Realigned Units. Relocation of units and establishment of new units involves ensuring that the installation has adequate physical accommodations and infrastructure for personnel and their operational requirements. The U.S. Army considers four means of meeting increased space requirements:

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

U.S. Army Regulation 210-20, *Master Planning for Army Installations*, establishes U.S. Army policy to maximize the use of existing facilities. The regulation directs that new construction will not be authorized to meet a mission that can be supported by the use of existing underutilized but 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 four 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 U.S. 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.

Siting of New Construction. The U.S. Army considers new construction of facilities when use of existing facilities, renovation, or leasing would fail to provide for adequate accommodations of realigned functions. The U.S. 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, vehicle, and other assets.

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

3.3 ALTERNATIVES TO THE PROPOSED ACTION

3.3.1 Use of Off-Base Leased Space

This alternative is not permitted under the BRAC Commission's recommendations as authorized by the U.S. Congress and the President. As described in Section 1.0, the BRAC Commission's recommendations direct the new AFRC and related facilities be constructed on Fort Hamilton. Therefore, the use of off-base leased space is not feasible and is not further evaluated in this EA.

3.3.2 Acquisition of New Property

This alternative is not permitted under the BRAC Commission's recommendations as authorized by the U.S. Congress and the President. Therefore, the acquisition of new property is not a feasible alternative and is not further evaluated in this EA.

3.3.3 Use of Existing Facilities

The BRAC Commission's recommendations direct that the existing Fort Hamilton USARC facility be closed and that a new AFRC complex be constructed. Therefore, continued use of the existing USARC facilities is not an alternative. Additionally, there are no existing facilities on Fort Hamilton that could reasonably accommodate the specialized requirements of the realigning units or that could support the increase in readiness training and instruction capabilities. Accordingly, the use of existing facilities is not further evaluated in this EA.

3.3.4 New Construction Alternative Sites

Construction of new facilities is driven by the need to ensure adequate space is available for the mission requirements of the realigning units. Since BRAC Law directs that the existing USARC facilities be closed and there are no existing facilities available on Fort Hamilton that could reasonably accommodate the requirements of the realigning units, new construction is required and is evaluated as the Preferred Alternative in this EA.

Preferred Alternative

The preferred location for the AFRC and its supporting facilities consists of two sites that are located in close proximity to each other and have structures that are slated for demolition (Figure 3-1). The southern parcel consists of Building 213, which is the existing USARC; Building 216, which is the Reserve Maintenance Shop; and Building 216A, which is a storage shed (building numbers indicated in Figure 3-1). All of these facilities are slated to be replaced by this BRAC Action. The northern parcel consists of Building 111, which is the existing NY Recruiting Battalion Headquarters and is slated to be replaced by this BRAC Action; a vacant lot which used to be Building 135 before it was demolished under a separate action; and Buildings 136 and 138, which are vacant 8-story housing units which were already slated for demolition or conversion to administrative space prior to this BRAC Action. The AFRC would be located on the southern parcel of land where the existing USARC currently resides, while the OMS, MEP and unheated storage building would be located on the northern parcel of land. These sites can meet AT/FP standoff distance requirements and are consistent with the existing training land use designation for these areas. This site is identified as the Preferred Alternative, and is fully evaluated in the EA.

Figure 3-1. Preferred Sites for the Proposed AFRC at Fort Hamilton, NY



Other Alternatives

Fort Hamilton has very little developable land and none of the open parcels are large enough to accommodate the proposed AFRC facilities either by themselves or in combination with other parcels in close proximity and still meet mission and AT/FP requirements. There are also, no other buildings slated for demolition on parcels of land that could accommodate the proposed facilities. As a result, there are no other reasonable alternatives available on Fort Hamilton for the Proposed Action; therefore, none are further evaluated in this EA.

3.3.5 Scheduling Alternatives

The schedule for implementing the Proposed Action must balance the timeframes for constructing the new facilities and the planned arrival dates of incoming units, all within the 6-year limitation of the BRAC law (see Section 2.4). Realignment earlier than September 15, 2007 as discussed in Section 2.4 is not feasible due to the time required to design and construct the new facilities. Shifting of schedules to accomplish realignment at a date later than September 15, 2011 would unnecessarily delay the realization of benefits to be gained. In addition, Congress requires all BRAC actions to be completed by September 15, 2011. Since earlier implementation is not possible, and since delay is avoidable and unnecessary, alternative schedules are not further evaluated in this EA.

3.4 NO ACTION ALTERNATIVE

Under the No Action Alternative Fort Hamilton would not implement the Proposed Action. No NYARNG units would relocate from the local area and the NY Recruiting Battalion and the U.S. Army USARC would continue to use their current inventory of facilities on Fort Hamilton, though routine replacement or renovation actions could occur through normal military maintenance and construction procedures as circumstances independently warrant.

Due to the BRAC Commission's recommendations having the force of law, implementation of the No Action Alternative is not possible. Although implementing the No Action Alternative is not possible, CEQ regulations require its inclusion in an EA, for it serves as the baseline against which the impacts of the Proposed Action and alternatives can be evaluated. Accordingly, the No Action Alternative is evaluated in this EA.

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4.0 AFFECTED ENVIRONMENT AND CONSEQUENCES

4.1 INTRODUCTION

This section describes the current environmental conditions of the areas that would be affected should the Proposed Action be implemented. It also analyzes the potential effects arising from implementing the Proposed Action. The description of environmental conditions represents the baseline conditions, or the “as is” or “before the action” conditions at the installation. The baseline is further defined as the level of operations and environmental conditions at the time of the BRAC Commission’s Fall 2005 decision. The baseline facilitates subsequent identification of changes in conditions that would result from the realignment. The environmental consequences portion represents the culmination of scientific and analytic analysis of potential effects arising from implementing the Proposed Action. Direct, indirect, and cumulative effects of the Proposed Action are also addressed.

For each environmental resource area the baseline conditions are presented first followed immediately thereafter by evaluation of the potential impacts of the No Action and the Preferred Alternatives. Where appropriate and definable, a specific Region of Influence (ROI) is indicated for a given resource area.

4.2 LAND USE

4.2.1 Affected Environment

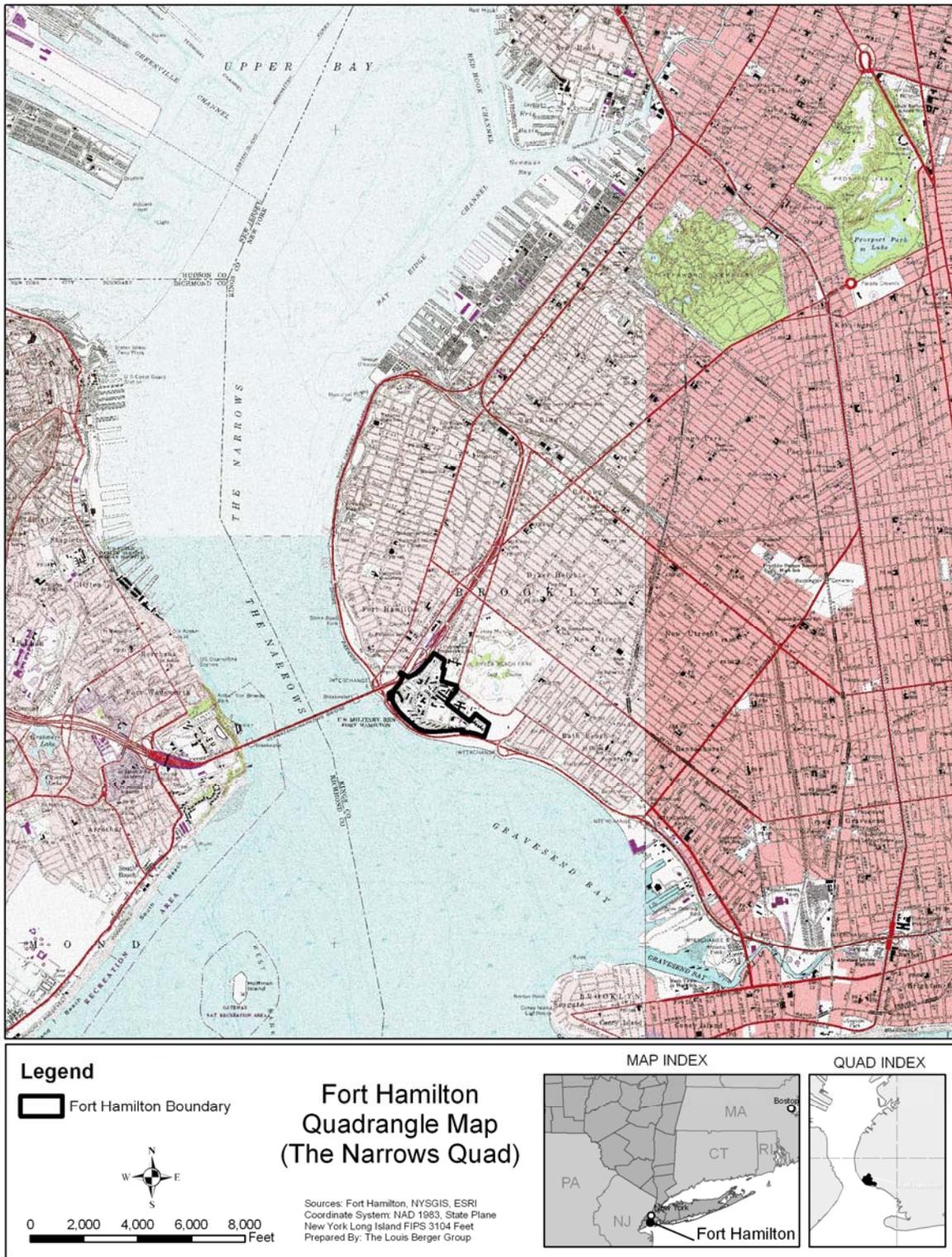
The ROI for land use is defined as the Borough of Brooklyn, Kings County, New York.

4.2.1.1 Regional Geographic Setting and Location

Fort Hamilton is located in the Borough of Brooklyn, Kings County, City of New York (Figure 4-1). The installation is bounded by the Verrazano Narrows Bridge (a primary connector of Brooklyn and Staten Island) approach to the west, the Belt Parkway to the south, Dyker Beach Park to the east, and Poly Place and Polytechnic Preparatory School to the north. Geographically, it is at the western end of Long Island and is situated on the northern shore of Gravesend Bay, approximately 6.5 miles south of the Battery, the southerly tip of Manhattan, New York.

The surrounding land is a heavily developed urban area, commonly referred to as Bay Ridge, which is composed of residential areas, retail operations, and some commercial activity. The Borough of Brooklyn is a densely populated (2,465,326 residents, according to the 2000 Census) urban area with residential, commercial, industrial, and institutional facilities.

Figure 4-1. Area map



4.2.1.2 Installation Land Use

The official Fort Hamilton boundary encompasses approximately 176.9 acres; consisting of areas both inside the fence line, on Gravesend Bay, and in outgrants and easements. Approximately 37 acres of the installation are outgranted to New York City (NYC) for use by the Tri-borough Bridge and Tunnel Authority (TBTA). An additional 4.77 acres are in easement to NYC for the Belt Parkway (Pipe, 2007b).

Fort Hamilton provides administrative, intelligence, operational, financial, managerial, legal, security, and logistical support for all assigned and attached U.S. Army units. The installation also provides administrative, logistical, and medical support to retirees and their dependents; reserve centers and National Guard units; and active duty personnel (including tenant and satellite units) in NYC and surrounding counties. The installation provides housing for military and key essential civilian personnel working on-post and in the NYC Metropolitan area. The population on Fort Hamilton totals approximately 3,500 military and civilian personnel.

Existing land use on the installation consists of administration, community, industrial, lodging, NYC easement, open space, residential, and training area (Fort Hamilton, 2007b). Current land use on Fort Hamilton is shown in Figure 4-2 while expected future land use on Fort Hamilton is shown in Figure 4-3. The installation's Real Property Master Plan was last updated in 2000 and is now in the process of being revised. Proposed future land use designations will be covered under the Real Property Master Plan and its accompanying NEPA documentation (Koutroubis, 2007a).

4.2.1.3 Current and Future Development in the Region of Influence

When Fort Hamilton was established in 1825, there was little urbanization in the immediate vicinity of the reservation (Parsons HBA, 2000). Today, the Borough of Brooklyn and the City of New York are densely populated and built-up urban areas. The area surrounding the post, known as the Bay Ridge area, consists primarily of residential use. Land use along major thoroughfares is residential, but also includes office and commercial uses. Much of the area is mixed-use, where buildings accommodate commercial or office uses on the first floor and offer residential and some office use on the upper floors.

The development of the Bay Ridge area extends right up to Fort Hamilton's boundaries. There is little room for new development in the surrounding areas north and east of Fort Hamilton. Specific land uses adjacent to the installation include residential land uses on the western and northwestern sides of the

Figure 4-2. Fort Hamilton Current Land Use



Figure 4-3. Fort Hamilton Future Land Use



post, and public uses (including Polytechnic Preparatory School, a Veterans Administration (VA) hospital, and Dyker Beach Park) to the northeastern and eastern sides of the post.

4.2.2 Environmental Consequences

Impacts to land use were determined by the following criteria:

No Effect – No impacts to surrounding land use from the proposed project.

No Significant Effect – The impact to land use would be measurable or perceptible, but would be limited to a relatively small change in land use that is still consistent with the surrounding land uses.

Significant Effect – The impact to land use would be substantial. Surrounding land uses are expected to substantially change in the short- and long-term. The action would not be consistent with the surrounding land use.

4.2.2.1 No Action Alternative

Under the No Action Alternative, there would be no changes in land use at the Proposed Action sites. However a number of other ongoing and planned site improvements would likely continue to impact land use. Such improvements may include changes to improve parking and traffic flow at the gates. Ongoing or planned renovations of older structures and facilities would also continue as planned, with negligible impacts on land use.

4.2.2.2 Preferred Alternative

Regional Geographic Setting and Location - No effects are expected on local and regional land use as a result of the Proposed Action. Impacts on land use within Fort Hamilton are expected to be limited in scope to the installation itself.

Installation Land Use - Under the Preferred Alternative, changes to existing land use would occur at Fort Hamilton; however, the effects would not be significant. Land use at the current site is currently designated as residential and administration (northern parcel) and training and community services (southern parcel). The proposed sites for the new AFRC facilities would be consistent with planned future land use designations, which identify both the northern and southern parcel as areas used for training (Fort Hamilton, 2007b).

The construction of the AFRC and related facilities would remove the site area from availability for potential future development, and would result in a minor overall reduction in open, undeveloped space within the installation. Some beneficial impacts are also anticipated, in terms of improved parking facilities, access for reservists and NYARNG units, and the integration of reserve activities into a single, integrated AFRC.

Current and Future Development in the Region of Influence – Effects from construction and operation of the new AFRC would not be significant since the project would be located within the Fort Hamilton boundary. Development impacts associated with project construction within the ROI are discussed in Section 4.10 *Socioeconomics*. In general, short-term construction requirements and no net increase in personnel living within the ROI would add minimal financial capital to the local and regional economy and would not create an additional demand for housing or businesses that provide goods and services.

4.3 AESTHETICS AND VISUAL RESOURCES

4.3.1 Affected Environment

Fort Hamilton is geographically located at the western edge of Long Island. The property overlooks the Narrows, the passage connecting Lower and Upper New York Bay. On the far side of the Narrows is the easternmost shore of Staten Island; thus, it commands the approach to New York Harbor. Despite its origin in harbor defense, the existing U.S. Army installation has been separated from a direct relationship to the water by the construction of surrounding highways such as the Belt Parkway and Fort Hamilton Parkway, as well as by the structures and approaches for the Verrazano Bridge. Originally 177 acres, of which 20 acres are under water, Fort Hamilton now comprises 120 usable acres. The topography is gently sloping, and the land ranges from an elevation of sea level to 50 feet.

The building styles at Fort Hamilton are quite varied and range from massive early 19th century brick and stone fortification to contemporary garden apartments. The 20th century development around Fort Hamilton has made it an enclave cut off from view by non institutional neighbors. In addition to the Belt Parkway and other roads it is encircled by the VA Hospital, a private school (Polytechnic Preparatory School), and Dyker Beach Park. The main entrance links the post with the Brooklyn neighborhood of Bay Ridge.

Three landscape areas were identified by the U.S. Army's Civil Engineering Research Laboratory (CERL) (see section 4.9.1.2 for the precise reference) in an inventory of designed landscapes present at

Fort Hamilton: Historic Fort, Post Center, and Family Housing. These landscape areas roughly correspond to visual and architectural character zones. Although it lacks the overall integrity to have been designated an historic district, the Historic Fort area in the northwest section of the installation contains all the structures and buildings that have been individually determined to qualify for the National Register of Historic Places (NRHP). No protected viewsheds have been identified in Fort Hamilton's Integrated Cultural Resources Management Plan (ICRMP). In fact, views from the installation's major historic structures, such as Building 207 (casemate fortification) and Building 201 (Colonels' Row Housing), southwest and northwest to the sea and in other directions are already compromised by other buildings, as well as highways and bridge supports.

4.3.2 Environmental Consequences

To evaluate the alternatives, the following criteria have been established to define the level of impacts to visual resources:

No Effect – No impacts to the viewshed of any historic resources and/or the aesthetic character of the installation from the proposed project.

Not Significant Effect – No permanent direct or indirect impacts to the viewsheds of any historic resources and/or the aesthetic character of the installation from the proposed project would be expected. Any temporary visual disturbances that alter the character of the viewshed would be returned to its original state following the action.

Significant Effect – Direct or indirect impacts to the viewsheds of any historic resources of the installation are anticipated, and these effects would be greater in number, extent, and/or duration than non-significant impacts. Significant impacts could include disturbances (such as the long-term alteration of the viewshed that would require mitigation) that could alter the character of the viewshed of a historical resource, and the viewshed might not resume its original state following the action.

4.3.2.1 No Action Alternative

There would be no effect to Aesthetics or Visual Resources.

4.3.2.2 Preferred Alternative

Both the northern and southern parcels comprising the sites for the Proposed Action, located in the Family Housing and Post Center landscape areas respectively, are masked from the vantage points of the significant Historic Fort buildings by other buildings.

The southern parcel is entirely internal to the installation, i.e. it does not abut the post boundary, and is already occupied by one or two story brick buildings of an industrial character. The new AFRC building will likely be similar in scale. To the east the former Doubleday Field has now been redeveloped in low rise military family housing. Landscaping should be sufficient to manage this transition in land use.

The northern parcel is surrounded by the Post Center landscape, administrative and other buildings, and the installation's perimeter which abuts a neighboring private school to the northeast. The demolition of the remaining Capehart Wherry 8-story high rises to clear a site for the AFRC will complete the removal of housing from this area. With adequate landscape buffering the new AFRC buildings may well be a visual improvement upon the existing dense Capehart Wherry housing.

Therefore the Preferred Alternative will have no significant effect upon Aesthetics and Visual Resources.

4.4 AIR QUALITY

The U.S. EPA defines ambient air in 40 CFR Part 50 as "that portion of the atmosphere, external to buildings, to which the general public has access." In compliance with the 1970 Clean Air Act (CAA) and the 1977 and 1990 Clean Air Act Amendments (CAAA), the U.S. EPA has promulgated National Ambient Air Quality Standards (NAAQS). The NAAQS were enacted for the protection of the public health and welfare, allowing for an adequate margin of safety. To date, the U.S. EPA has issued NAAQS for seven criteria pollutants: carbon monoxide (CO), sulfur dioxide (SO₂), particles with a diameter less than or equal to a nominal 10 micrometers (PM₁₀), particles with a diameter less than or equal to a nominal 2.5 micrometers (PM_{2.5}), ozone (O₃), nitrogen dioxide (NO₂), and lead (Pb). Areas that do not meet NAAQS are called non-attainment areas.

4.4.1 Affected Environment

Fort Hamilton is located in Kings County, New York. The U.S. EPA classifies the New York – New Jersey – Long Island, NY-NJ-CT area, which includes Kings County, a moderate non-attainment area

for ozone and in non-attainment for PM_{2.5}⁴. The region is also a maintenance area for CO, after coming into attainment on May 20, 2002. The state and federal ambient standards for these pollutants are presented in Table 4-1.

Table 4-1. Ambient Air Quality Standards

Pollutant	Federal Standard	New York Standard
Ozone (O ₃): 8-Hour Average	0.08 ppm	0.08 ppm
Carbon Monoxide (CO): 1-hour 8-hour	35 ppm 9 ppm	35 ppm 9 ppm
Particulate Matter (PM _{2.5}): 24-Hour Annual Arithmetic Mean	35 ug/m ³ 15 ug/ m ³	
Total Suspended Particulates (TSP): 12 consecutive months 24-Hour		75 ug/ m ³ 250 ug/ m ³

Sources: USEPA, 2007c; NYSDEC, n.d.

ppm – parts per million

ug/m³ – micrograms per cubic meter

To regulate the emission levels resulting from a project, federal actions located in non-attainment areas are required to demonstrate compliance with the general conformity guidelines established in 40 CFR Part 93 Determining Conformity of Federal Actions to State or Federal Implementation Plans (the Rule). Section 93.153 of the Rule sets the applicability requirements for projects subject to the Rule through the establishment of *de minimis* levels for annual criteria pollutant emissions. These *de minimis* levels are set according to criteria pollutant non-attainment area designations. Projects below the *de minimis* levels are not subject to the Rule. Those at or above the levels are required to perform a conformity analysis as established in the Rule. The *de minimis* levels apply to direct and indirect sources of emissions that can occur during the construction and operational phases of the action.

Fort Hamilton has completed a General Conformity Rule applicability analysis to analyze any impact to air quality. Emissions have been estimated for the ozone precursor pollutants NO_x and volatile organic compounds (VOC). Annual emissions for these compounds were estimated for each of the project

⁴ PM_{2.5} non-attainment areas have not yet been divided into severity levels and therefore are all classified as general non-attainment.

actions (construction and operation) to determine if they would be below or above the *de minimis* levels established in the Rule. The *de minimis* for moderate ozone non-attainment areas in the Ozone Transport Region (OTR) is 100 tons per year (TPY) for NO_x and 50 TPY for VOC.

As a result of the U.S. EPA revoking the 1-hour ozone standard in 2005, the New York Department of Environmental Conservation (NYSDEC) did not adopt the relaxed 8-hour ozone *de minimis* standard. Instead, the state has upheld the more stringent severe *de minimis* thresholds in areas that had previously been in severe non-attainment for ozone. Legislation is still pending regarding this decision. As a result, this applicability analysis displays both Federal and state *de minimis* levels. The state *de minimis* levels for ozone are 25 TPY for both NO_x and VOC (Lawyer, 2007). The *de minimis* level for a region in maintenance for CO is 100 TPY.

On July 11, 2006 the U.S. EPA established *de minimis* levels for PM_{2.5}. The final rule established 100 TPY as the *de minimis* emission level under non-attainment for directly emitted PM_{2.5} and each of the precursors that form it (SO₂, NO_x, VOC, and ammonia). This 100 TPY threshold applies separately to each precursor. This means that if an action's direct or indirect emissions of PM_{2.5}, SO₂, NO_x, VOC, or ammonia exceed 100 TPY, a General Conformity determination would be required. However, neither the U.S. EPA nor the state of New York have found PM_{2.5} problems to be caused by VOC or ammonia; therefore, ammonia is not further addressed in this EA (VOC is addressed as an ozone precursor).

Sources of NO_x, VOC, PM_{2.5}, CO, and SO₂ associated with the proposed project would include emissions from construction and demolition equipment, construction crew commuting vehicles, fugitive dust (PM_{2.5}), painting of interior building surfaces, parking spaces (VOC only), emissions from daily commuters, and emissions from stationary units (boilers and generators).

In addition to evaluation of air emissions against *de minimis* levels, emissions are also evaluated for regional significance. A federal action that does not exceed the threshold emission rates of criteria pollutants may still be subject to a general conformity determination if the direct and indirect emissions from the action exceed 10-percent of the total emissions inventory for a particular criteria pollutant in a non-attainment or maintenance area. If the emissions exceed this 10-percent threshold, the federal action is considered to be a "regionally significant" activity, and thus, the general conformity rules apply.

4.4.1.1 Ambient Air Quality Conditions

Ambient air quality is monitored in Kings County by stations meeting the U.S. EPA's design criteria for State and Local Air Monitoring Stations (SLAMS) and National Air Monitoring Stations (NAMS). There is one PM_{2.5} and one CO monitoring station within the county. While there is no ozone monitor in Kings County, there are two in neighboring Queens County. The highest and second highest values recorded at these stations from 2003 through 2007 are presented in Table 4-2.

Table 4-2. Existing Monitoring Data within Kings County, NY

Monitoring Station	Year*				
	2003	2004	2005	2006	2007
#360470122 – 424 Leonard St – PM _{2.5}	52/46	49/38	42/38	40/39	33/25
#360470071 – 302 Gold St - CO	3.0/2.6	3.0/2.5	2.4/2.2	2.5/2.5	ND
#360810098 - 120-07 15 th Ave – O ₃	0.093/0.083	0.069/0.068	0.084/0.078	ND	ND
#360810124 – 14439 Gravett Rd – O ₃	0.104/0.093	0.083/0.082	0.092/0.091	0.089/0.086	0.087/0.081

1st/2nd highest data,

*Ozone and CO values are in ppm; PM values are in ug/m³

NAAQS: O₃: 8-hour average = 0.08 ppm (0.085 is an exceedance), PM_{2.5}: 24-hour average: 35 ug/m³, CO: 8-Hour average = 9 ppm

Source: US EPA, 2007a

4.4.1.2 Meteorology/Climate

Fort Hamilton is located in the borough of Brooklyn in New York City adjacent to Lower New York Bay, which results in wide seasonal swings of hot and cold temperatures. The climate is humid in the summer and precipitation is moderate and distributed evenly throughout the year (World Climate, ND).

The average temperature at Fort Hamilton is 55 degrees Fahrenheit (°F). The area experiences warm summers and cold winters. Summer temperatures average in the mid 80s, with temperatures above 90°F occurring occasionally in July and August. Winter temperatures range from lows in the mid 20s to highs in the upper 30s. The average rainfall is approximately 44 inches per year (World Climate, ND)

4.4.1.3 Air Pollutant Emissions at Installation

Fort Hamilton does not emit above the threshold for a major emissions source and does not hold a Title V permit. As a minor source, Fort Hamilton does not submit an annual Emission Statement to city or

state officials. Fort Hamilton began a periodic emissions inventory following the CAAA in 1990 of which the most recent inventory was performed in 1994. It is assumed that since this inventory was taken, emissions at Fort Hamilton have decreased due to boiler upgrades, equipment replacement, and emissions-reducing technology. Over time, Fort Hamilton has been replacing fuel oil heating systems with cleaner burning natural gas systems (USACE, 2003a). Total emissions at Fort Hamilton in 1994 are shown in Table 4-3.

Table 4-3. Total Criteria Air Pollutant Emissions at Fort Hamilton

Pollutant	Emissions (TPY)
PM₁₀	0.78
TSP*	1.25
SO₂	9.83
CO	2.23
NO_x	8.49
VOC	4.65
Lead	Not Available

Source: USACE, 2003a
TSP: Total Suspended Particulates (includes PM_{2.5})

4.4.1.4 Regional Air Pollutant Emissions Summary

The U.S. EPA calculates the Air Quality Index (AQI) for five major air pollutants regulated by the Clean Air Act: ground-level ozone, particulate matter, carbon monoxide, sulfur dioxide, and nitrogen dioxide. The U.S. EPA collects data daily to determine air quality for the region, and releases it in the form of the AQI, which runs from zero to 300, with zero being no air pollution and 300 representing severely unhealthy air pollution levels. An AQI value between 101 and 150 indicates that air quality is unhealthy for sensitive groups who may be subject to negative health effects. Sensitive groups may include those with lung or heart disease who will be negatively affected by lower levels of ground level ozone and particulate matter than the rest of the general public. An AQI value between 151 and 200 is considered to be unhealthy and may result in negative health effects for the general public, with more severe effects possible for those in sensitive groups. AQI values above 200 are considered to be very unhealthy (Clean Air Partners, ND).

According to the U.S. EPA's AQI Report for Kings County, NY, in 2003 the County experienced 7 days where air quality was considered unhealthy for sensitive groups. In 2004, there were 6 unhealthy days for sensitive groups. In 2005, the area experienced 4 days that were unhealthy for sensitive

groups, and in 2007 there were 2 days considered unhealthy for sensitive groups. In 2006, there were zero days recorded above moderate. In the past five years, there have been no unhealthy days. This data indicates that air quality is improving in the region, but still fluctuates from year to year (USEPA, 2007b).

4.4.2 Environmental Consequences

4.4.2.1 No Action Alternative

Implementation of the No Action Alternative would not change current conditions and therefore there would be no effect on the current air quality conditions in the region.

4.4.2.2 Preferred Alternative

A General Conformity Applicability Analysis was performed for the Proposed Action. The General Conformity Applicability Analysis estimated the level of potential air emissions (NO_x, VOC, SO₂, PM_{2.5}, and CO) for the Proposed Action. Demolition associated with the Proposed Action includes the removal of the current USARC, maintenance shop and storage shed; the New York Recruiting Battalion Headquarters, and Buildings 136 and 138 which are vacant housing units. Appendix D contains a detailed description of the assumptions and methodology used to estimate the potential emissions for all demolition, construction, and future operational phases of the Proposed Action.

Table 4-4 summarizes the total emissions associated with the construction and operation phases of the Proposed Action. Construction related emissions would be temporary and only occur during the 24-month construction period for all buildings; however, a conservative approach was initially employed in the applicability analysis to ensure that construction scheduling would not result in higher levels of emissions than predicted. The analysis first assumed that the construction emissions for all of the buildings would occur concurrently over the same 1-year period. These results were further added to estimated data for one year of operations, bounding the potential emissions that might result for any overlap between construction and operations emissions.

Table 4-4. Summary of Annual Emissions

Activity	NO _x	VOC	PM _{2.5}	SO ₂	CO
Federal <i>de minimis</i> Level	100	50	100	100	100
State <i>de minimis</i> Level	25	25	100	100	100
Heavy Equipment (building/parking/surface disturbance/demolition)	13.059	1.288	2.913	2.061	5.163

Activity	NO _x	VOC	PM _{2.5}	SO ₂	CO
Federal <i>de minimis</i> Level	100	50	100	100	100
State <i>de minimis</i> Level	25	25	100	100	100
Construction Crew Commuting Vehicles	0.375	0.692	0.009	0.005	10.548
Painting	NA	1.079	NA	NA	NA
Stationary Heating Unit (boiler and water heater)	0.191	0.010	0.015	0.001	0.160
Generator	1.430	0.110	0.094	0.175	0.513
Total	15.055	3.179	3.031	2.242	16.384

The results in Table 4-4 show that the emissions associated with constructing and operating the new AFRC and associated facilities, when compared to the *de minimis* values for this basic ozone non-attainment area, fall well below the *de minimis* levels for all five pollutants, even under the initial conservative assumptions that were employed. Additionally, annual emissions fall below the more stringent NYSDEC severe ozone *de minimis* standards of 25 TPY for NO_x and VOC. As a result, the Proposed Action is not subject to the General Conformity Rule requirements. Appendix E contains a draft Record of Non-Applicability.

Air emissions were also evaluated to determine regional significance. The proposed *New York State Implementation Plan for Ozone (8-Hour NAAQS) Attainment Demonstration for New York Metro Area* (NYSDEC, 2007) sets forth daily target levels for the years 2008 and 2011 to meet the mandated attainment date of April 15, 2010. Daily target levels are broken down by source categories, as indicated in Table 4-5. Although the 8-hour ozone standard has been approved for use instead of the 1-hour ozone standard, the 8-hour SIP has not yet been approved.

Table 4-5. Regional Emissions Inventory - SIP

Source of Emissions	2008 Daily Budget (Tons Per Day)			2011 Daily Budget (Tons Per Day)		
	NO _x	VOC	CO	NO _x	VOC	CO
Point	63.63	11.08	18.04	61.5	11.37	18.33
Non-Road	161.51	214.87	3,121	149.85	191.7	3,250
On-Road	224.16	159.83	1,444	173.7	126.7	1,226

Source: NYSDEC, 2007

Additionally, there is no State Implementation Plan (SIP) in place for the newly promulgated PM_{2.5} regulations. The NY-NJ-CT region has 3 years to implement a SIP that will create a regional emission inventory for the pollutant PM_{2.5}.

The increase in annual emissions from the construction activities would not make up 10-percent or more of the available regional emission inventory for VOC or NO_x and would not be regionally significant. Air quality impacts are therefore not considered to be significant.

4.5 NOISE

Noise is generally defined as unwanted sound. Sound is all around us; it becomes noise when it interferes with normal activities such as speech, concentration, or sleep. Noise associated with military installations is a factor in land use planning both on- and off-base. In particular, noise associated with airfield and airspace operations can be of concern to on-base personnel and surrounding communities. Noise also emanates from vehicular traffic associated with new facilities and from project sites during construction. Ambient noise (the existing background noise environment) can be generated by a number of noise sources, including mobile sources, such as airplanes, automobiles, trucks, and trains; and stationary sources such as construction sites, machinery, or industrial operations. In addition, there is an existing and variable level of natural ambient noise from sources such as wind, streams and rivers, wildlife and other sources.

The Noise Control Act of 1972 was enacted to establish noise control standards and to regulate noise emissions from commercial products such as transportation and construction equipment. The Noise Control Act exempts noise from military weapons or equipment designated for combat use.

The standard measurement unit of noise is the decibel (dB), which represents the acoustical energy present. Noise levels are measured in A-weighted decibels (dBA), a logarithmic scale which approaches the sensitivity of the human ear across the frequency spectrum. A 3-dB increase is equivalent to doubling the sound pressure level, but is barely perceptible to the human ear. Table 4-6 presents some familiar sounds and their decibel levels.

Table 4-6. Familiar Sounds and Their Decibel Levels (dB)

Sound	Decibel Level (dB)
Whisper	30
Normal Conversation	50-65
Vacuum cleaner at 10 feet	70

Sound	Decibel Level (dB)
Midtown Manhattan Traffic Noise	70-85
Lawnmower	85-90
Train	100
Nearby Jet Takeoff	130

Source: NYCDEP, 2007

4.5.1 Affected Environment

Typical on-post noise sources found at U.S. Army installations include tank, artillery and small arms fire; helicopter flights; fixed-wing flights; and explosive ordnance detonations; however, none of these noise sources exist at Fort Hamilton (Parsons HBA, 2000). Primary sources of noise at Fort Hamilton are largely limited to minor traffic noise from personnel entering and exiting the area, and routine installation and maintenance activities. On-site sources are negligible in comparison to off-site sources from the heavily urbanized Bay Ridge area of Brooklyn. Off-site noise sources in the immediate area are dominated by major transportation arterials, principally vehicle noise from the Belt Parkway to the south and the Verrazano Narrows Bridge to the west.

An Installation Compatible Use Zone (ICUZ) analysis was performed for Fort Hamilton in 1989 (Parsons HBA, 2000). The ICUZ analysis evaluated noise conditions produced by activities at the installation and identified incompatible land uses on the installation as a result of those noise conditions. The predominant off-post noise source at Fort Hamilton is generated by traffic flow from surrounding highways. This noise dominates over any other source of noise, either civilian or military. The 1989 ICUZ Report reported that there was concern about the acceptability of the noise environment with regard to its effect on the housing located at Fort Hamilton. The report findings showed that a small portion of the housing area nearest to the Belt Parkway is in noise Zone III; the remaining portion of the installation falls within Zone II.

Noise zones are defined as follows:

- Zone I: the area where the sound level is below 65 dBA. This zone is considered to have moderate to minimal noise exposure and is acceptable for noise sensitive land uses.
- Zone II: the area where the sound level is between 65 and 75 dBA. This zone is considered to have significant noise exposure and is normally unacceptable for noise sensitive land uses.

- Zone III: the area where the sound level is greater than 75 dBA. This zone is considered an area of severe noise exposure and is unacceptable for noise sensitive land uses.

4.5.1.1 Noise from Construction and Demolition

Instances of increased noise are expected during the construction and demolition phases associated with the project. Measures that serve to limit noise during construction and demolition include limiting activity at project sites to daytime hours; limiting truck traffic ingress/egress at access gates to daytime hours; promoting awareness that producing prominent discrete tones and periodic noises (e.g., excessive dump truck gate banging) should be avoided as much as possible; requiring that work crews seek pre-approval for any weekend activities, or activities outside of daytime hours; and employing noise-controlled construction equipment to the maximum extent possible. Typical construction equipment and operation noise levels are presented in Table 4-7.

Table 4-7. Typical Noise Levels (dBA) of Typical Construction Equipment

Equipment	Typical Noise Level (dBA) 50 ft from Source
Air Compressor	81
Backhoe	80
Compactor	82
Concrete Mixer	85
Concrete Pump	82
Concrete Vibrator	76
Crane, Derrick	88
Crane, Mobile	83
Dozer	85
Generator	81
Grader	85
Jack Hammer	88
Loader	85
Paver	89
Pneumatic Tool	85
Pump	76
Roller	74
Saw	76
Scraper	89
Shovel	82
Truck	88

Source: FTA, 2006

As a general rule for estimating noise emission, sound from a stationary source will diminish approximately 5 dBA with each doubling of distance (FTA, 2006). For example, if a noise from a source reaches 75 dBA at 50 feet, it will be 70 dBA at 100 feet and 65 dBA at 200 feet, and so on.

The City of New York noise level criteria for construction activities are given in New York City Noise Code (Local Law 113 of 2005), Construction Noise Rules. In accordance with §24-219 of the New York City Noise Code, every construction site where construction activities take place shall have posted, conspicuously, a complete and accurate Construction Noise Mitigation Plan.

High levels of noise can also affect the health of construction/demolition workers. Application of federal Occupational Safety and Health Administration (OSHA) standards for occupational noise exposure associated with construction (29 CFR 1926.52) is required.

4.5.1.2 Noise from Facility and Vehicle Operations

Once facilities are constructed, noise can be generated from facility operations and the vehicles associated with these facilities. Aside from negligible heating, ventilation, and air conditioning (HVAC) related noise, the majority of facilities on military installations do not generate high levels of noise themselves. Some industrial-related facilities may produce noise, and during power outages, operation of emergency generators could cause minor, short-term noise impacts. Most noise is usually created by vehicles associated with these facilities, including organizational vehicles used for training and operations, government and private delivery vehicles, commuter shuttles or buses, and personal vehicles used for commuting purposes. The noise impact created by facility and vehicle operations; however, is rarely considered significant.

4.5.2 Environmental Consequences

The following criteria have been developed to assess noise impacts:

No Effect – Natural sounds would prevail; noise generated by construction and operation of the facility would be infrequent or absent, mostly immeasurable.

Not Significant Effect – Noise levels would exceed natural sounds, as described under no effect, but would not exceed applicable noise standards.

Significant Effect – Noise levels would exceed applicable noise standards on a temporary, short-term, or permanent basis or for a prolonged period of time.

4.5.2.1 No Action Alternative

No effects would be expected. Implementation of the No Action Alternative would not alter the existing noise at Fort Hamilton.

4.5.2.2 Preferred Alternative

The proposed AFRC facilities would be constructed on the current site of Building 213 (existing USARC), Building 216 (the Reserve Maintenance Shop), and Building 216A (a storage shed) on the southern parcel; and on the current site of Building 111 (existing NY Recruiting Battalion Headquarters), a vacant lot, and Buildings 136 and 138 (currently vacant housing units) on the northern parcel. The future land use in the area is designated as training and the proposed site is in noise Zone II.

Noise From Construction and Demolition – Construction activities would result in temporary and short-duration noise impacts. Construction and demolition contractors would be expected to adhere to New York City noise requirements and the required Construction Noise Mitigation Plan would be posted at the construction site.

Construction activities would involve the use of heavy equipment such as backhoes and trucks. These activities typically generate a noise level of 85 dBA at 50 feet from the source. These impacts would not be significant and could be limited by confining construction activities to normal working hours, between 7:00 a.m. and 6:00 p.m. on weekdays, and employing noise-controlled construction equipment to the extent possible. The arrival and staging of heavy equipment and materials would be scheduled to occur during normal work hours to the greatest extent possible to avoid disturbing personnel on post and the surrounding communities. Additionally, Fort Hamilton is surrounded by a golf course, athletic fields and the Belt Parkway, which will help to reduce noise impacts on the surrounding residential community. There is a sensitive receptor, a school, located approximately 750 feet north of the proposed northern project site. At this distance, noise levels from construction activities at the school would not be expected to be greater than negligible levels over the current ambient noise levels of the surrounding community.

Compliance with the OSHA standards for occupational noise exposure associated with construction (29 CFR 1926.52) would address the construction workers hearing protection.

Noise from Facility Operations - Day-to-day operations after construction of the new AFRC and associated facilities are not expected to increase by more than negligible levels over current operations

and vehicle traffic; therefore, the impacts would not be significant. Upon completion of construction, noise levels would be expected to return to normal, ambient levels for the area.

4.6 GEOLOGY AND SOILS

4.6.1 Affected Environment

Geological resources consist of all bedrock and soil materials within an area. Geologic factors such as soil stability and seismic properties influence the stability of structures. Soil, in general, refers to unconsolidated earthen materials overlying bedrock and other parent material. Soil structure, elasticity, strength, shrink-swell potential, and erodability all determine the ability for the ground to support structures and facilities. Soils typically are described in terms of their type, slope, physical characteristics, and relative compatibility or limitations with regard to particular construction activities and types of land use. Topography consists of the physiographic, or surface, features of an area and is usually described with respect to elevation, slope, aspect, and landforms. Long-term geological, erosional, and depositional processes typically influence topographic relief of an area.

4.6.1.1 Geologic and Topographic Conditions

Fort Hamilton is located in the Atlantic Coastal Plain Physiographic Province. The installation is situated on a northeast-to-southwest trending ridge, and the adjacent land slopes gently away to the northwest and southeast. The Narrows is directly west of the installation, and Gravesend Bay is directly to the south. Elevation ranges from approximately 20 feet above sea level inside the Shore Parkway to approximately 40 feet near the border with the Polytechnic Preparatory School. The installation includes approximately 120 acres of land that is entirely developed with buildings, paving, and landscaped areas.

Precambrian crystalline bedrock lies below Atlantic Coastal Plain glacial deposits. Bedrock slopes down toward the southeast and up toward the northwest at a slope of approximately 80 feet per mile. This bedrock is the same formation that outcrops in Manhattan and northwestern Queens County near the East River. Depth to crystalline bedrock at the location of Fort Hamilton is estimated to be between 250 and 300 feet below sea level (USACE, 2003a). The Jameco Gravel and the Gardners Clay (Pleistocene Age Atlantic Coastal Plain deposits, pre-Wisconsin glaciation) underlie the area of Fort Hamilton, and these deposits are overlain by Wisconsin Age glacial deposits. Near Fort Hamilton the glacial deposits are mostly terminal moraine, which consists of an unsorted and unstratified mixture of clay, sand, gravel, and boulders. Just south and southeast of Fort Hamilton and on most of the rest of

Long Island, there are Upper Cretaceous Age deposits between the crystalline bedrock and the glacial deposits, the Raritan Formation and the Magothy Formation.

4.6.1.2 Soils

The natural soils and underlying sediments at the installation are composed of unstratified, reddish, sandy till that varies in depth from 25 to 125 feet. A few feet of yellow loam often covers this till in areas mixed with boulders of varying shapes and sizes (USACE, 2003a). In general, surface deposits on Fort Hamilton are largely fill, which covers former mud flats, sand beaches, and glacial debris. Estuarine deposits of clay, peat, and clay marl (calcium-rich clay) are present near the shoreline or are buried under fill that ranges in thickness from 3 to 30 feet.

4.6.1.3 Prime Farmland

The Farmland Protection Policy Act was passed in order to minimize the amount of land irreversibly converted from farmland due to Federal actions. Prime farmland, as defined by the U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS), is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and is available for these uses. It could be cultivated land, pastureland, forestland, or other land, but it is not urban or built-up land or water areas (USDA, 2007). No areas on Fort Hamilton qualify as prime farmland.

4.6.2 Environmental Consequences

To assess the magnitude of impacts to geology, topography, and soils in the area of the project sites, the following impact thresholds were used.

No Effect - Geology, topography, or soils would not be impacted or the impact to these resources would be below or at the lower levels of detection. Any impacts would be slight.

No Significant Effect - Impacts to geology, topography, or soils would be detectable. Impacts to undisturbed areas would be proportionally small to the site.

Significant - Impacts on geology, topography, or soils would be readily apparent and result in a change to the character of the resource over a relatively wide area. Mitigation measures would be necessary to offset adverse impacts and may or may not be successful.

4.6.2.1 No Action Alternative

No impacts would be expected. Implementation of the no action alternative would not alter the existing soils or geologic conditions at the sites being considered under the Proposed Action.

4.6.2.2 Preferred Alternative

Geologic and Topographic Conditions – No significant adverse impacts to geologic or topographic conditions would be expected. The sites for the proposed AFRC are sloped and would require moderate amounts of site earthworks, including leveling, grading, excavation, and compaction of soils. Considerable alterations of the general topographic character of the sites would not occur.

Soils – No significant adverse impacts to soils would be expected. Soils found within the footprints of the proposed new construction would likely be affected by activities associated with leveling and grading of the site. What little vegetative cover exists (primarily grass) would be removed and soil layer structure would be disturbed and modified. These impacts would be considered not significant, given that the majority of soils at Fort Hamilton have been previously disturbed or modified. Disturbed areas outside of the building and parking area footprints would be reseeded following construction activities, to minimize potential erosion. Soil erosion and sediment production would be minimized for all construction operations as a result of following an approved sediment and erosion control plan. The proposed sites would be regraded and revegetated (as necessary) following construction activities, and soil erosion and sediment control measures would be included in site plans to minimize long term erosion and sediment production.

Prime Farmland – No impacts to prime farmlands would be expected. Fort Hamilton is built-up and contains soils that have been heavily modified. None of the lands on Fort Hamilton is classified as prime farmlands.

4.7 WATER RESOURCES

4.7.1 Affected Environment

The ROI is defined as the Fort Hamilton area and nearby coastal waters and wetlands.

4.7.1.1 Surface Water

No natural surface water bodies (ponds or streams) exist on Fort Hamilton. The Narrows (mouth of the Hudson River) is located directly west of the installation, and Gravesend Bay is located directly to the south. Most surface drainage on Fort Hamilton is artificially controlled through storm drains, which

discharge either to the adjacent Narrows and Lower New York Harbor (from the eastern half of the installation), or the City of New York combined wastewater treatment system (from the western half of the installation).

Wetlands - Historically, an extensive wetlands area was situated in the eastern portion of Fort Hamilton. This wetlands area was filled with hydraulic and dry fill during the twentieth century. In addition, the marshy areas along the shore received similar fill to an elevation of approximately 10 feet to support the Belt Parkway (Fort Hamilton, 2007c). Today, there are no wetlands on Fort Hamilton.

4.7.1.2 Hydrogeology/Groundwater

In the past, groundwater was used to supply water for the residents and industry of western Long Island. However, heavy pumping resulted in severe water-level declines and intrusion of saline water from the surrounding bays. Pumping for public supply stopped in Kings County in 1947 and in neighboring Queens County in 1974. Since that time, ground water levels have recovered steadily and the saltwater has partly dispersed and become diluted. The current public water supply source is mainland surface water reservoirs (USACE, 2003a).

There are no supply wells at Fort Hamilton. However, available information indicates that groundwater levels likely range from 30 feet below ground surface (bgs) at the higher elevations on the installation to near the surface at the lower elevations. Soil borings conducted for underground storage tank (UST) closures have reportedly encountered saturated soils in the 20-foot bgs range, consistent with the anticipated depth to groundwater (Fort Hamilton, 2007c).

4.7.1.3 Floodplains

Fort Hamilton is located outside of the 100-year floodplain of the Lower New York Bay and Gravesend Bay and as of June 2007 has not historically experienced any damaging floods (Fort Hamilton, 2007c)

4.7.1.4 Coastal Zone

Fort Hamilton is located within New York State's designated coastal zone. As a Federal undertaking, the project is subject to the Federal Coastal Zone Management Act (CZMA) of 1972, which states that Federal agency activities must be consistent with a state's federally approved Coastal Management Program (CMP).

The Federal regulations that implement the consistency provisions of the CZMA are found at 15 CFR Part 930. These regulations establish the procedures to be followed to ensure that a federal agency's

activities are consistent with the enforceable policies of the New York State CMP. The types of activities that are covered by these regulations are:

- Activities directly undertaken by, or on behalf of, federal agencies;
- Activities requiring authorizations or other forms of approval from federal agencies;
- Activities involving financial assistance from federal agencies; and
- Outer continental shelf activities.

Federal consistency provisions apply to activities both in the State's coastal area and outside of the coastal area when the activities would affect coastal resources or coastal land and water uses (see 15 CFR 930.11(b) and 15 CFR 930.11(g)).

Fort Hamilton is also located within the area covered by New York City's state approved Local Waterfront Revitalization Program (LWRP). The *New York City Waterfront Revitalization Program* (WRP) was adopted as a 197-a Plan by the Council of the City of New York on October 13, 1999, and subsequently approved by the New York State Department of State (NYSDOS) with the concurrence of the U. S. Department of Commerce pursuant to applicable state and federal law, including the Waterfront Revitalization of Coastal Areas and Inland Waterways Act. As a result of these approvals, federal discretionary actions within the city's coastal zone must be consistent to the maximum extent practicable with the WRP policies, and the city must be given the opportunity to comment on all federal projects within its coastal zone.

4.7.2 Environmental Consequences

An assessment of impacts to water resources at Fort Hamilton was conducted and the following thresholds are used to describe the level of magnitude of these effects:

No Effect – Current water quality and hydrologic conditions would not be altered or conditions do not exist for impacts to occur.

No Significant Effect – Impacts (chemical, physical, or biological effects) would be either not detectable, or detectable, but at or below water quality standards or criteria. Alterations in water quality and hydrologic conditions relative to historical baseline may occur, however, only on a localized and short-term basis.

Significant Effect – Impacts (chemical, physical, or biological effects) would be detectable and would be frequently altered from the historical baseline or desired water quality conditions;

and/or chemical, physical, or biological water quality standards or criteria would be locally, slightly and singularly, exceeded on either a short-term or prolonged basis.

4.7.2.1 No Action Alternative

Under the No Action Alternative, there would be no effect on area water resources.

4.7.2.2 Preferred Alternative

Surface Water – No effects would be expected as there are no surface waters on Fort Hamilton and the project site locations are serviced by storm drains that discharge to the City of New York combined wastewater treatment system, preventing surface runoff from flowing into and potentially impacting the Narrows and Gravesend Bay.

Hydrogeology/Groundwater - No significant effects would be expected. Increased waterborne pollutants (e.g. dissolved solids, sediment, petroleum hydrocarbons) resulting from demolition and construction activities could be transported into the groundwater system causing short-term, negligible adverse effects. Following protocols outlined in the Installation's Stormwater Pollution Prevention Plan (SWPPP), state sediment and erosion control guidelines, and the Installation's Spill Prevention, Control and Countermeasures (SPCC) Plan would minimize any potential effects. Leaks from vehicles and vehicle maintenance operations could also pose an adverse threat to ground water sources. However, the potential for spills and leaks would be minimized by existing on-site clean-up procedures and equipment, the installation of oil-water separators, and adherence to safety procedures for vehicle maintenance and the operation of equipment.

Floodplains – Fort Hamilton is located outside of the 100-year floodplain; therefore no effects would be expected.

Coastal Zone - The proposed AFRC and related facilities are subject to the CZMA, which states that Federal agency activities must be consistent with a state's federally approved CMP. They are also in an area subject to the New York City WRP. The proposed AFRC and related facilities have been sited and designed and would be constructed and operated in a manner consistent to the maximum extent practicable with the applicable NYSDOS CMP and the New York City WRP policies.

The Department of the Army submitted a Federal Consistency Assessment Form to the NYSDOS and a Consistency Assessment Form to the New York City Department of City Planning (NYCDCP) on November 14, 2007 (see Appendix B) requesting concurrence with the U.S. Army's determination that

the construction and operation of the proposed AFRC are consistent with the applicable NYSDOS CMP and the New York City WRP policies, and would not have any reasonably foreseeable effects on coastal resources. Neither the NYSDOS nor the NYCDCP responded to the Department of the Army's November 14, 2007 correspondence.

4.8 BIOLOGICAL RESOURCES

4.8.1 Affected Environment

Fort Hamilton is located in a densely developed urban environment and its ecosystem has been highly altered due to extensive human activities. Much of the native vegetation has been destroyed or displaced by species that are more tolerant to disturbances. Limited wildlife habitat is present on the installation.

4.8.1.1 Vegetation

Fort Hamilton's vegetation is composed of common native and exotic species which are adapted to and are characteristic of urban areas. In most areas of the installation, lawns and well-established trees exist. There are no undisturbed tracts of native vegetation communities remaining at Fort Hamilton (Parsons HBA, 2000). The 1996 tree inventory of the installation reports that tree cover at Fort Hamilton is composed of 37 percent London plane trees (*Platanus hybrida*), 9 percent pin oaks (*Quercus palustris*), 8 percent Japanese black pines (*Pinus nigra*), 8 percent flowering crabapples (*Malus* sp.), 7 percent honey locust (*Gleditsia triacanthos*), 4 percent hawthorns (*Crataegus* sp.), 4 percent eastern white pine (*Pinus strobus*), and 3 percent cherry trees (*Prunus* sp.) (USACE, 2003a).

4.8.1.2 Wildlife

The existing fauna of Fort Hamilton consists of common animal species adapted to and characteristic of urban areas. The variety of urban wildlife includes rats (*Rattus* sp.), pigeons (*Columba livia*), sea gulls (*Larus* sp.), cats (*Felis catus*), dogs (*Canis familiaris*), squirrels (*Sciurus* sp.), and a variety of birds (Parsons HBA, 2000).

4.8.1.3 Threatened, Endangered, and Sensitive Species

The U.S. Fish and Wildlife Service (USFWS) have responsibility for the listing of threatened and endangered species, and they make determinations as to whether formal Section 7 consultations under the ESA are necessary in regards to a Proposed Action.

The altered environment of Fort Hamilton provides little high-quality habitat for most species of plants and wildlife and the installation is not known to support any Federal- or New York State-listed rare, threatened, or endangered species of plants or animals.

4.8.2 Environmental Consequences

The following thresholds were used to determine the magnitude of effects on wildlife and wildlife habitat and vegetation, with separate criteria being used to evaluate impacts to threatened and endangered species:

No Effect – No impacts to native species, their habitats, or the natural processes sustaining them would occur, or such conditions do not exist for impacts to occur.

No Significant Effect – Impacts would be detectable, but would not be expected to be outside the natural range of variability and would not have any long-term effects on native species, their habitats, or the natural processes sustaining them. Occasional responses to disturbance by some individuals could be expected, but without interference to feeding, reproduction, or other factors affecting population levels. Sufficient habitat would remain functional to maintain viability of all species.

Significant Effect – Impacts on native species, their habitats, or the natural processes sustaining them would be detectable, and they would be expected to be outside the natural range of variability for long periods of time or be permanent. Population numbers, population structure, genetic variability, and other demographic factors for species might have large, short-term declines, with long-term population numbers significantly depressed. Frequent responses to disturbance by some individuals would be expected, with negative impacts to feeding, reproduction, or other factors resulting in a long-term decrease in population levels. Loss of habitat might affect the viability of at least some native species.

Impacts to threatened and endangered species were classified using the following terminology, as defined under the ESA:

No effect – The proposed action would not affect a listed species or designated critical habitat OR listed species or designated critical habitat are not present.

May affect / not likely to adversely affect – Effects on special status species are discountable (i.e., extremely unlikely to occur and not able to be meaningfully measured, detected, or evaluated) or completely beneficial.

May affect / likely to adversely affect – When an adverse effect to a listed species may occur as a direct or indirect result of proposed actions and the effect is either not discountable or completely beneficial.

Likely to jeopardize proposed species/adversely modify proposed critical habitat – The appropriate conclusion when Fort Hamilton identifies situations in which actions could jeopardize the continued existence of a proposed species or adversely modify critical habitat to a species within and/or outside Fort Hamilton boundaries.

4.8.2.1 No Action Alternative

Under the No Action Alternative, the proposed new AFRC would not be constructed on the proposed sites; therefore, no impacts to biological resources would occur.

4.8.2.2 Preferred Alternative

Vegetation – No significant adverse effects would be expected as a result of implementing the Proposed Action. The proposed sites for the proposed AFRC have already been highly altered by development. Construction and operation of the proposed facilities could disturb plant ecology in the immediate areas. The footprint of the AFRC at the proposed sites would require the removal of a few scattered trees. Efforts will be made to preserve a few of the particularly large trees, if site preparation and construction can occur without causing potential damage to root systems.

Wildlife – No significant adverse effects would be expected as a result of implementing the Proposed Action. Construction of this facility could disturb wildlife in the immediate area, particularly birds. Diversity of wildlife on-site is limited and species that utilize this area have adapted to living in conditions inhabited by humans.

Threatened, Endangered, and Sensitive Species – No federal- or state-listed threatened or endangered species are known to occur at Fort Hamilton and the Proposed Action is expected to have no adverse impacts on any listed Federal or state listed species.

As part of this EA, Fort Hamilton initiated consultation with the USFWS and NYSDEC seeking confirmation that the Proposed Action will not adversely impact any federal- or state-listed species.

Initial consultation letters were sent to the USFWS and NYSDEC on November 14, 2007 and are included in Appendix B. Neither the USFWS nor the NYSDEC responded to the no adverse impact determination.

4.9 CULTURAL RESOURCES

This section presents information on buildings, sites, structures, districts, and objects eligible for or included in the NRHP; cultural items as defined in the Native American Graves Protection and Repatriation Act (NAGPRA) of 1990; Native American sacred sites for which access is protected under the American Indian Religious Freedom Act (AIRFA) of 1978; archaeological resources as defined by the Archaeological Resources Protection Act of 1979; and archaeological artifact collections and associated records as defined by 36 CFR Part 79.

4.9.1 Affected Environment

The affected environment for cultural resources is potentially the two parcels on which the AFRC is to be constructed plus any adjacent resources on or eligible for the NRHP that may be impacted by a project alternative either on or off Fort Hamilton.

Fort Hamilton is located at the western edge of Long Island. The property overlooks the Narrows, the passage connecting Lower and Upper New York Bay. On the far side of the Narrows is the easternmost shore of Staten Island; thus, it commands the approach to New York Harbor. Despite its origin in harbor defense, the existing Army installation has been separated from a direct relationship to the water by the construction of surrounding highways such as the Belt Parkway and Fort Hamilton Parkway as well as by the structures and approaches for the Verrazano Bridge. Originally 177 acres, of which 20 acres are under water, the installation now comprises 120 usable acres (Panamerican, 2001).

Although Fort Hamilton retains a significant number of historic buildings and structures, its archaeological potential is constrained by the physical legacy of land use at the post. According to the Facility Engineers Office in 1991: “Over 150 years of military construction, reconstruction, and filling have rendered most natural soils and alluvium inaccessible except in the event of large deep excavation. Shoreline filling, construction of sea walls, and shore erosion have further disturbed and destroyed possible remains and sites. The overall potential for undisturbed archaeological remains within the fort is quite low, unless deep excavation projects are undertaken.” Nonetheless, the fact remains that generalized archaeological models of where important prehistoric, contact, and historic

sites applicable to the region are likely to be found appear to indicate a high sensitivity for significant sites - absent the disturbance and accessibility issues (Panamerican, 2001).

4.9.1.1 Prehistoric and Historic Background

The Fort Hamilton ICRMP (Panamerican Consultants, 2001) is available for review to obtain a full, detailed description of the prehistoric and historic background for the project area.

4.9.1.2 Status of Cultural Resource Inventories and Section 106 Consultations

The 2001 ICRMP for Fort Hamilton was updated in 2005 by the Department of Public Works and is the current cultural resources management plan for Fort Hamilton. It incorporates and, in some cases, revises the conclusions of an extensive list of prior monographs, cultural resource surveys, management plans, and other historical sources. It represents the U.S. Army's compliance with Section 110 of NHPA with regard to Fort Hamilton. Section 110 requires federal agencies to inventory their cultural resources and determine which are eligible for the NRHP. A major cultural resource cited in the current ICRMP with relevance to this Environmental Assessment is by Terry H. Klein, Amy Friedlander and Martha Bower entitled "A Cultural Resource Overview and Management Plan for the U.S. Army Property, Fort Hamilton, Brooklyn, New York, Fort Totten, Queens, New York" 1986, prepared by the Cultural Resource Group, Louis Berger & Assocs.

Archaeology - There are to date no archaeological sites at Fort Hamilton which have been determined NRHP eligible, although cultural resource surveys and some archaeological investigations including field work have been undertaken (Panamerican, 2001). The coastal location of Fort Hamilton and other factors would argue for a high probability of significant resources, but the ubiquitous condition of land disturbance and compacted fill at the installation make access to layers deep enough to determine their actual presence problematical.

According to the ICRMP, "Possibly as many as four prehistoric or contact period archaeological sites have been reported at Fort Hamilton....These reports are derived from old sources and have not been field verified." Notably, a site interpreted as the Werpoes village of Nayack was identified as being located at Fort Hamilton by Reginald Bolton in the 1930's. Four potential historic archaeological sites have been identified; two that were given the site numbers A047-01-0423 and A047-01-0424, 19th century deposits around Building 117 and late 19th/early 20th century deposits of former buildings 100 feet south of Building 302 respectively were both given Phase II archaeological evaluation and determined to be ineligible for the NRHP (Panamerican, 2001).

Louis Berger Group archaeologists (Klein et. al.) who carried out cultural resource surveys at Fort Hamilton in 1986 recognized the possibility that significant intact sites may still exist at the post encapsulated under layers of fill. Areas of “Resource Preservation Potential”, essentially an archaeological sensitivity model, were developed and have been incorporated in the current ICRMP. However, as the ICRMP indicates, “These estimates remain hypothetical because in most areas the field survey performed by Louis Berger (Klein et al., 1986) could not penetrate the fill capping most areas of the installation. As a consequence the presence and extent of archaeological resources could not be confirmed in most locations. For the same reason the presence, extent, or effect of disturbance in the same locations could not be identified.” (Panamerican, 2001).

Because of the inherent difficulty in achieving a satisfactory inventory for archaeological resources in the Fort Hamilton setting, despite documentary and environmental indicators that sites are likely to exist, the ICRMP recommends further geoarchaeological studies to determine the depth, particle size and compaction of the fill at various locations on the installation. Soil borings, examination of previously taken soil cores, and selective backhoe trenching are to be used to create maps of stratigraphy and a more refined inventory strategy (Panamerican, 2001).

Built Environment – U.S. Army policy emphasizes the use of the “cultural landscape” model in evaluating cultural resources at Army installations. Fort Hamilton, with the loss of its physical connection to the waterfront and its traditional parade ground, can be described as a severely compromised cultural landscape, but one which still maintains identifiable historic landscapes as well associated historic structures and buildings.

Historic Landscape - Three designed landscape areas have been identified: Historic Fort, Post Center, and Family Housing. None are considered to be currently NRHP eligible according to the ICRMP. The Historic Fort area to the northwest contains all the structures and buildings that have been individually determined NRHP eligible. The Post Center once contained the Parade Ground, but that landscape feature is now the site of new garden sty apartments (Panamerican, 2001).

Historic Buildings and Structures – Previous cultural resource surveys at Fort Hamilton have resulted in the listing of three structures or buildings in the NRHP and the determination of another three as NRHP eligible. The first category includes Building 207 (Casemate Fortification), Building 220 (Sentry Station), and Building 230 (Caponier). The second includes Building 113 (now Garrison Headquarters), Building 201 (Colonels’ Row Housing), and the Denyse Wharf. All buildings and structures constructed prior to 1960 have been evaluated (Panamerican, 2001).

Section 106 Consultations – An initial agency coordination letter was sent to the New York State Historic Preservation Office (NYSHPO) on November 14, 2007 describing the Proposed Action at Fort Hamilton (see Appendix B). By letter dated December 12, 2007, the NYSHPO indicated that the demolition of buildings 136, 138, 213, 216, 216A and 111 will not impact any cultural resources. However, the NYSHPO requested additional information to determine if the proposed construction would have a visual impact on the historic setting of buildings that are listed or eligible for listing on the NRHP. On February 11, 2008 the U.S. Army provided the NYSHPO with the additional information it requested. Upon reviewing the additional information the NYSHPO, by letter dated March 14, 2008, made the final determination that the Proposed Action will have no adverse effect on historic resources. All of the correspondence with the NYSHPO is included in Appendix B.

4.9.1.3 Native American Resources

With regard to NAGPRA compliance the Fort Hamilton ICRMP states “Thus far Fort Hamilton has not initiated consultation with any federally recognized Native American tribes who are recognized as possible aboriginal people culturally affiliated with lands now occupied by Fort Hamilton. No prehistoric materials have been identified and the likelihood of uncovering Native American burials at the fort is low.” Standard Operating Procedure (SOP) # 10 of the ICRMP provides guidance to post personnel in the event that any burial of remains and/or burial goods is discovered (Panamerican, 2001).

4.9.2 Environmental Consequences

Potential impacts to cultural resources have been evaluated based on the extent of resources that are eligible for or listed on the NRHP in the area. This analysis parallels the procedures for determining the effects of a Federal undertaking upon historic properties under 36 CFR 800 implementing Section 106 of the NHPA.

For each valid alternative in the EA, an assessment has been made of what NRHP resources, if any, are within its potential area of impact and the reasonably foreseeable nature and extent of any impact. Usually, Cultural Resource Management Plans and underlying historic architectural and archaeological studies for Federal installations provide sufficient data to make this assessment. Where such information is inadequate, the requirement for additional effort to identify historic properties is noted.

The following provides an explanation of the characterization of impacts to cultural resources as “no effect, not significant, and significant” in comparison with the terminology of “no effect, no adverse effect, and adverse effect” used in NHPA.

Section 106 Scale

Per 36 CFR 800.11 (i) *effect* means alteration to the characteristics of a historic property that qualify it for inclusion or eligibility for the National Register. Per 36 CFR 800.5 (a) (1), the effect becomes *adverse* when “an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the National Register in a manner that would diminish the integrity of the property’s location, design, setting, materials, workmanship, feeling, or association.” Examples of adverse effects include: the physical destruction of all or part of the historic property; an alteration of the property that is not consistent with the Secretary of Interior’s Standards for the Treatment of Historic Properties (36 CFR 68); the removal of the property from its historic setting; changing the character of the property’s use or of the physical features of its setting that contribute to its significance; and the introduction of visual, aural, and atmospheric elements that diminish the integrity of the property’s significant historic features.

Environmental Impacts to Cultural Resources vs. the Section 106 Scale

No effect – This equates to *no effect* for Section 106.

No Significant Effect – An impact that alters or has the potential to alter the historic characteristics or setting of an NRHP property but does not diminish its integrity. This equates to *no adverse effect* for Section 106.

Significant Effect – An impact that diminishes or destroys the integrity of an NRHP property. This equates to *adverse effect* for Section 106.

In the practice of Section 106 consultation, adverse effects can often, but not always, be mitigated, when the loss of integrity of the NRHP resource is justified, balanced against other competing interests. The results of the consultation process are usually memorialized in a Section 106 Memorandum of Agreement containing mitigation stipulations. Neither the initial identification of a significant impact to cultural resources or a determination of adverse effect under Section 106 necessarily precludes a FNSI under NEPA. The loss of NRHP cultural resources would have to be major in scale and importance and without any acceptable feasible mitigation measures to negate a FNSI.

4.9.2.1 No Action Alternative

Under the No Action Alternative, there would be no effect to cultural resources.

4.9.2.2 Preferred Alternative

Archaeology – The area of the southern parcel for the construction of the AFRC appears to correspond to the ICRMP’s Resource Preservation Potential (RPP) Area 2, described as “Area that abuts Lee Ave. and Grimes Road”. RPP Area 2 is indicated to have been surveyed, to have a condition of disturbance due to modern construction, and low sensitivity for archaeology (Panamerican, 2001).

The area of the northern parcel for the construction of the AFRC appears to correspond to the ICRMP’s RPP Area 6, described as “Area of Buildings 136, 137, and 138”. RPP Area 6 is indicated to have been surveyed, to have a condition of disturbance due to construction, and low sensitivity for archaeology (Panamerican, 2001).

Construction of the AFRC is very unlikely to have any effect upon NRHP eligible archaeological resources. Both parcels have already been built on, the northern one with several 8-story housing units. The sensitivity modeling described above characterizes the parcels as “disturbed” and “low sensitivity”. To confirm the assessment that the construction of the AFRC will not penetrate below pre-existing fill into a stratum that may contain intact archaeological sites, the concept designs for the AFRC facilities, when available, should be submitted to the NYSHPO along with any relevant soil core data in accordance with Section 106 of NHPA to confirm a determination of “no effect”. An initial consultation letter was sent to the NYSHPO on November 14, 2007, and by letter dated March 14, 2008 the NYSHPO concluded that the Proposed Action would have no adverse impact on historic resources.

Built Environment– Construction of the AFRC components on the southern parcel will require the demolition of Building 213, which is the existing USARC; Building 216, which is the Reserve Maintenance Shop; and Building 216A, which is a storage shed. All have been evaluated and determined ineligible for the NRHP. Construction of the AFRC components on the northern parcel will require the demolition of Building 111, which is the existing New York Recruiting Battalion Headquarters, and Buildings 136 and 138, which are vacant housing units which were already slated for demolition or conversion to administrative space prior to this BRAC Action. Building 111 has been evaluated and determined ineligible for the NRHP. Buildings 136 and 138 are Capehart Wherry era housing which is covered by an U.S. Army-wide Program Comment by the Advisory Council on Historic Preservation and are thereby exempted from documentation or preservation requirements under NHPA.

The proposed facilities would be visually buffered from the NRHP eligible and listed buildings of the Historic Fort landscape area by other buildings, topography, and distance. Therefore they will not adversely impact their setting.

For the built environment, there will be no effect upon NRHP listed or eligible resources. Consultation was initiated with the NYSHPO on November 14, 2007, and by letter dated March 14, 2008 the NYSHPO concurred that the Proposed Action will have no adverse impact on any NRHP listed or eligible resources.

4.10 SOCIOECONOMICS

The Affected Environment and Environmental Consequences sections of the Socioeconomics resource area of this EA are presented in limited detail. This is due to the fact that none of the personnel relocating to the proposed AFRC will be coming from outside the ROI. Because there would be no change in the baseline population two resources, *Housing* and *Quality of Life*, which are normally addressed in Socioeconomics, are not evaluated in this EA.

4.10.1 Affected Environment

The socioeconomic ROI for Fort Hamilton is Kings County. This county comprises the area in which the predominant socioeconomic effects of the Proposed Action would take place. The geographical extent of the ROI is based on the residential distribution of the installation's military, civilian, and contracting personnel, and the location of businesses that provide goods and services to the installation and its employees.

The baseline year for the socioeconomic analysis is 2006, and though the analysis tries to reflect the most current conditions much of the economic and demographic data for the ROI are only available through the years 2004 and 2005. The description of the affected environment is based on the most recent data available to accurately reflect the current economic and social conditions of the ROI. Due to the fact all of the personnel relocating to the proposed AFRC would be coming from within the ROI only a brief overview of the regional economic activity and demographic data and trends is presented.

4.10.1.1 Economic Development

4.10.1.1.1 Regional Economic Activity

The ROI's regional economy is composed of non-farm industries such as manufacturing, retail, professional and technical services, health care and social services, finance and insurance, construction,

and accommodation and food services. These sectors account for 100 percent of jobs in the ROI County, with healthcare and social assistance accounting for 171,240 jobs out of the total 690,826. State and local government jobs in the ROI accounted for approximately 3.9 percent of jobs in 2005 (USBEA, 2005). Farm jobs in the ROI are non-existent.

In 2006 the unemployment rate for the ROI was 5.3 percent which was above the national unemployment rate of 4.6 percent during the same period. It was also somewhat higher than the state of New York’s unemployment rate of 4.5 percent. The ROI’s annual unemployment rate has decreased by more than 17 percent since 2000 (BLS, 2006 and Stats Indiana, 2007).

4.10.1.2 Demographics

U.S. Census Bureau confirmed the ROI’s population to be 2,508,820 inhabitants in 2006. On average, the ROI has experienced a slight 4 percent growth rate over the past three decades (Stats Indiana, 2006b). Population data for the ROI, New York, and the U.S. overall are provided in Table 4-8 for comparison purposes.

Table 4-8. Population Trends, 1980 -2006

Location	1980	1990	2000	2006
Kings County (ROI)	2,231,028	2,300,664	2,465,326	2,508,820
New York	17,558,165	17,990,778	18,976,457	19,306,183
United States	226,542,250	248,790,925	281,421,906	299,398,484

Source: U.S. Census Bureau, 2007

4.10.1.3 Environmental Justice

On February 11, 1994, President Clinton issued EO 12898, *Federal Actions to Address Environmental Justice in Minority and Low-Income Populations*. The EO is designed to focus the attention of federal agencies on the human health and environmental conditions in minority communities and low-income communities. Environmental justice analyses are performed to identify potential disproportionately high and adverse impacts from proposed actions and to identify alternatives that might mitigate these impacts. Data from the U.S Department of Commerce 2000 Census of Population and Housing were used for this environmental justice analysis. Minority populations included in the census are identified as Black or African American, American Indian and Alaska Native, Asian, Native Hawaiian and other Pacific Islander, Hispanic, of two or more races, and other. Poverty status, used in this EA to define low-income status, is reported as the number of persons with income below the poverty level. The

2000 Census defines the poverty level as \$8,794 of annual income, or less, for an individual, and \$17,603 of annual income, or less, for a family of four.

In 2004, the median household income was \$32,339 for Kings County residents compared to \$45,343 for the state of New York. The average poverty rate for the ROI in 2004 was 23.8 percent, which is higher than the national poverty rate of 12.7 percent, and the New York state-wide poverty rate of 14.5 percent. In 2006, the ROI's population was comprised of the following ethnic groups: 50.9 percent white, 38 percent black, and 19.8 percent Hispanic. Note that these figures do not add to exactly 100 percent because Hispanics may be counted as white, black, and/or Hispanic by the U.S. Census Bureau, and hence there is a level of "double-classification". The elderly (65 plus) accounted for 12.1 percent of the ROI's population and the median age in the county is 34.8 (Stats Indiana, 2007).

4.10.2 Environmental Consequences

The economic effects of implementing the Proposed Action are estimated using the Economic Impact Forecast System (EIFS) model, a computer-based economic tool that calculates multipliers to estimate the direct and indirect effects resulting from a given action. Changes in spending and employment associated with the renovation of housing represent the direct effects of the action. Based on the input data and calculated multipliers, the model estimates changes in sales volume, income, employment, and population in the ROI, accounting for the direct and indirect effects of the action.

For purposes of this analysis, a change is considered significant if it falls outside the historical range of ROI economic variation. To determine the historical range of economic variation, the EIFS model calculates a rational threshold value (RTV) profile for the ROI. This analytical process uses historical data for the ROI and calculates fluctuations in sales volume, income, employment, and population patterns. The historical extremes for the ROI become the thresholds of significance (i.e., the RTVs) for social and economic change. If the estimated effect of an action falls above the positive RTV or below the negative RTV, the effect is considered to be significant. Appendix C discusses this methodology in more detail.

4.10.2.1 No Action Alternative

No direct or indirect effects would be expected. Under the No Action Alternative, the installation working population and installation expenditures would remain unchanged from baseline levels and no new construction would take place. Therefore, economic activity levels and ROI population growth would be the same as under the baseline conditions. In addition, there would be no disproportionately

high and adverse impacts to minority or low income populations. Hence, the No Action Alternative would not result in any environmental justice impacts.

4.10.2.2 Preferred Alternative

4.10.2.2.1 Economic Development

Minor direct and indirect beneficial effects would be expected under the Proposed Action.

The total number of personnel relocating to the proposed AFRC would be 884, of which 783 are reservists, and 101 of whom are full-time personnel. It is assumed that all of the 884 personnel are currently living within the ROI, including the 384 associated with the NYARNG units who are coming from outside of Fort Hamilton. Therefore, there would be no new incoming personnel to the ROI.

Construction expenditures on goods and services, equipment, and salaries under the Proposed Action are expected to be the major contributor to increased sales and employment, due to the associated increase in expenditures on labor and materials during the construction period, although this would be of a short-term nature. These effects are assessed to be minor direct and indirect beneficial effects of the Proposed Action. The estimated construction start date is February 2008 with an estimated construction completion date of February 2010. It is assumed that the construction period will be a total of 24 months with 2009 as the peak year for construction expenditures at \$32,031,499.

The Proposed Action would generate an estimated 164 direct and 220 induced jobs for a total of 384 jobs created within the ROI. This increase in employment would represent a .07 percent increase in the region's employment levels, and would fall far below the positive RTV of 3.38 percent. It should be noted that employment associated with construction activities would be temporary in nature and would not extend beyond 2010. The Proposed Action would also generate minor positive changes to other economic measures in the area, including a .18 percent increase in sales volume for a total of \$74,953,710 within the ROI, and a .03 percent increase in regional personal income. Again, these changes are very minor and do not exceed the positive RTVs for their respective categories. Tables 4-9, 4-10, and 4-11 provide summaries of the EIFS model inputs, outputs and RTV values respectively.

Table 4-9. Forecast Input for the EIFS Model (Peak Year = 2009)

EIFS REPORT Fort Hamilton – Forecast Input	
Change In Local Expenditures	\$32,031,500
Change In Civilian Employment	0
Average Income of Affected Civilian	\$0
Percent Expected to Relocate	0
Change In Military Employment	0
Average Income of Affected Military	\$0
Percent of Military Living On-base	0
Employment Multiplier	2.34
Income Multiplier	2.34

Table 4-10. EIFS Report for Fort Hamilton AFRC – Forecast Output

Forecast Output		
Employment Multiplier	2.34	
Income Multiplier	2.34	
Sales Volume – Direct	\$32,031,500	
Sales Volume – Induced	\$42,922,210	
Sales Volume – Total	\$74,953,710	0.18%
Income – Direct	\$6,338,083	
Income - Induced	\$8,493,031	
Income – Total (place of work)	\$14,831,110	0.03%
Employment – Direct	164	
Employment – Induced	220	
Employment – Total	384	0.07%
Local Population	0	
Local Off-base Population	0	0%

Table 4-11. EIFS Report for Fort Hamilton AFRC – RTV Summary

RTV Summary				
	Sales Volume	Income	Employment	Population
Positive RTV	10.78 %	10.55%	3.38%	1.28%
Negative RTV	-5.51 %	-4.59%	-3.48%	-1.27%

4.10.2.2.2 Demographics

No significant direct or indirect effects would be expected. Under the Proposed Action, there would be no incoming military or civilian personnel from outside the ROI; therefore there would be no changes in the population of the ROI.

4.10.2.2.3 Environmental Justice

No effects would be expected. The Proposed Action would not result in adverse impacts on any demographic group residing or working within the economic ROI. Therefore, there would be no disproportionately high and/or adverse impacts on minority populations or low income populations.

4.11 TRANSPORTATION

Fort Hamilton serves as an Army Reserve facility that provides administrative and vehicle maintenance support, as well as classroom training for military units.

4.11.1 Affected Environment

4.11.1.1 Roadways and Traffic

Off Post Roadways - Surface roads are the main mode of transportation to and on Fort Hamilton. Fort Hamilton is on the southwest tip of Brooklyn, New York, at the base of the Verrazano Narrows Bridge. The Belt Parkway and Interstate 278 provide highway access to the post, while 4th Avenue, Fort Hamilton Parkway and 86th Street provide major arterial access. The Belt Parkway is a six-lane divided highway that provides limited access to Manhattan from Brooklyn and Queens. Interstate 278, also known as the Brooklyn-Queens Expressway, is a six-lane divided highway that provides access to the five boroughs of New York.

The Belt Parkway and Interstate 278 are both heavily congested and experience average traffic volumes of 140,000 and 105,000 vehicles per day, respectively.

Gates - There are two gates at Fort Hamilton. The main access is by way of Fort Hamilton Parkway and 101st Street. The second gate is located at 7th Avenue and Poly Place.

On Post Roadways - All roadways throughout Fort Hamilton are classified as primary, secondary, or tertiary according to their relative importance and function as part of the roadway network. Primary roadways include all installation roads and streets that serve as the main distribution arteries for all traffic originating outside and within the installation and that provide access to, through, and between various functional areas. Secondary roadways include all installation roadways and streets that

supplement the primary roadways by providing access to, between, and within the various functional areas.

Primary roadways on Fort Hamilton's existing roadway network include Wainwright Drive, General Lee Avenue, Grimes Road, White Avenue, Schum Avenue, and Sterling Drive.

Traffic is controlled by a system of standard traffic signals, road signs, and pavement markings. The installation has few traffic problems. A 1998 Traffic Analysis Study prepared by Parsons HBA indicates that all intersections on Fort Hamilton property operate at Level of Service (LOS) A, indicating free flow conditions.

4.11.1.2 Installation Transportation

Fort Hamilton no longer has an installation bus service. Buses from the Metropolitan Transportation Authority (MTA) of New York City are no longer permitted on the installation because of security concerns raised after September 11, 2001, and there are no current plans to reinstate this operation (USACE, 2003a).

4.11.1.3 Public Transportation

Railways. Amtrak provides passenger service out of Pennsylvania Station, located in Manhattan. From there, all areas serviced by Amtrak can be reached. In addition, the MTA of New York City offers more than 2,000 miles of rail and subway lines throughout the five boroughs of New York.

The Bay Ridge-95 Street station for the R subway line from MTA is located approximately 1/2 mile from the main gate. The R line "Queens Boulevard / Broadway / 4th Avenue Local" runs every 7 minutes from this station during peak hours.

Airways. John F. Kennedy International Airport (JFK) is about 16 miles east of Fort Hamilton in Queens, New York. In 2006, servicing more than 60 airlines, JFK supports an average of 1,087 daily aircraft operations (arrivals and departures) and processes an average of at least 58,000 passengers a day (FAA, 2006; FAA, No date).

Located approximately 17 miles northeast of Fort Hamilton in Queens, New York, La Guardia Airport (LGA) also serves New York City and the surrounding communities. In 2006, servicing more than 20 airlines, LGA supports an average of 1,113 daily aircraft operations (arrivals and departures) and processes on average about 35,000 passengers a day (FAA, 2006; FAA, No date).

Buses. The MTA of New York City uses more than over 4,871 buses on some 2,600 route-miles to service the five boroughs of New York. Brooklyn Bus Routes 8, 63 and 70 serve Fort Hamilton and the VA Hospital next to Fort Hamilton. Routes 8 and 70 stop along 7th Avenue outside the 7th Avenue Gate and Route 63 start its service at 5th Avenue and Shore Road.

Route B8 links the VA Hospital next to Fort Hamilton with the Bay Ridge-95 Street station of the R metro line with a bus frequency of 5 minutes in the AM peak hour and 8 minutes in the PM peak hour. Route B70 starts at the VA Hospital and travels north to the Sunset Park area with a 10 minute frequency in the AM and PM peak hours. Route B63 links Fort Hamilton with Cobble Hill (almost downtown Brooklyn) with a frequency of 8 and 10 minutes, in the AM and PM peak hours respectively.

4.11.2 Environmental Consequences

The following criteria have been developed to assess the transportation impacts for each of the alternatives:

No Effect – No alterations of traffic patterns and trends would result from the action.

No Significant Effect – Short- or long-term alterations of traffic patterns and trends would result from the action. The intersections and gates may reach capacity but this change would be temporary or managed through improvements.

Significant Effect – Traffic patterns would be permanently altered from the action. The intersections and gates would reach capacity and extensive delays would develop.

4.11.2.1 No Action Alternative

Implementation of the no action alternative would not alter the existing transportation infrastructure at the sites being considered under the Proposed Action or in surrounding areas. Therefore, no effects would be expected.

4.11.2.2 Preferred Alternative

In the past 10 years (1994-2004) vehicle crossings over the Verrazano-Narrows Bridge have grown at an average annual growth rate of 2.14 percent (NYSDOT, 2006 Traffic Data Report for New York State). Between 1990 and 2000, population and employment grew at an annual growth rate of 0.69 percent and 0.64 percent, respectively.

Population forecasts prepared by the New York Metropolitan Transportation Council (NYMTC) for Kings County, NY for the years between 2000 and 2015 show that the county population is expected to grow at an annual rate of 0.42 percent until 2015 (NYMTC, 2005). Employment is expected to grow during the same period at an annual rate of 0.96 percent.

Under this alternative, traffic is assumed to grow at a constant annual growth rate of 1.0 percent, which reflects a more conservative approach by assuming slightly higher growth that would be derived from the population and traffic trends. This growth is assumed to happen even if no action is taken (defined as background growth). Considering that the construction of the Preferred Alternative is expected to be completed by 2011, this year was selected for analysis.

Under the Preferred Alternative no significant effects on traffic would be expected during the construction of the proposed facilities. However, some short-term adverse impacts could occur depending on the measures taken to manage disruptions, such as requiring most of the construction vehicles delivering materials to do so outside peak traffic hours and designating sufficient parking and storage space for construction related vehicles and materials. The construction project would be relatively small and construction related traffic is not expected to be significant.

No significant effects would be expected during operations of the proposed AFRC. The impact that the Proposed Action would have on the transportation infrastructure is measured by the number of trips that the project would generate (see Table 4-12) combined with the current volumes and the background traffic growth expected from other non-BRAC new developments.

There would be approximately 384 personnel from outside of Fort Hamilton relocating to the proposed AFRC. Of those, 24 would be full time employees that would be expected to work during weekdays and 360 would be reservists that would train during weekends. It assumed that all of the additional reservists will be training on a single weekend. This assumption will give the worst case scenario in terms of its impact on weekend traffic in the vicinity.

Estimates of the trips generated were prepared using the procedure established by the Institute of Transportation Engineers (ITE) in its Trip Generation Handbook (2nd Edition) and its associated Trip Generation rates (7th Edition). Based on a survey of developments with different Land Uses, the trips generated in each of them were associated to an independent variable (square footage and, number of trainees/residents/employees) and time period of analysis (AM and PM peak hours on Weekdays) through a regression analysis.

Using the trip generation procedure outlined by the ITE, the trips generated by the Proposed Action were estimated (Table 4-12). These trips reflect the net increase in activity as the result of the implementation of each project.

Table 4-12. Additional Trips Generated by the Preferred Alternative

	AM Peak Hour			PM Peak Hour		
	In	Out	Total	In	Out	Total
Weekday						
Armed Forces Reserve Center	20	2	22	20	2	22
Weekend						
Armed Forces Reserve Center	272	34	306	272	34	306

The resulting volumes under the Preferred Alternative are the sum of the background traffic (existing volumes plus historic growth) calculated in the analysis of the No Action Alternative plus the above traffic volumes that result from the implementing the Preferred Alternative.

The greatest impact of this additional traffic will be expected at the gates where this additional traffic will queue until inspected, increasing the delays. Typically, the greatest traffic volume concentration is observed in the AM peak hours entering Fort Hamilton. Using traffic volumes observed at the gates in April and May of 2007 (Koutroubis, 2007b), it was possible to conduct the analysis of potential impacts at the gates during the AM and PM peak hours. The results indicate that the two gates analyzed will operate below their capacity, and even though delays will increase with the additional vehicles, they will remain within acceptable levels (see Tables 4.13 and 4.14).

Table 4.13. Traffic Impacts at Fort Hamilton Gates – AM Peak Hour

Gate	AM Inbound Traffic			Gate Capacity ^{1,2}	V/C - AM Inbound Traffic		
	2007	No-Action	Preferred		2007	No-Action	Preferred
101st St	227	247	257	430	53%	57%	60%
7th Ave	117	127	137	525	22%	24%	26%
Total	344	374	394				

Notes:

¹ Assumptions were made for the number of lanes, guards and percentage of DOD-decaled vehicles at each gate.

² Taking into consideration processing rates estimated by the Military Traffic Management Command (MTMC) for 100% DOD-decaled vehicles and an estimate made for 100% Non-decaled vehicles based on other studies for a specific number of security personnel and three processing scenarios (i.e., low, medium and high).

Table 4.14. Traffic Impacts at Fort Hamilton Gates – PM Peak Hour

Gate	PM Inbound Traffic			Gate Capacity ^{1,2}	V/C - PM Inbound Traffic		
	2007	No-Action	Preferred		2007	No-Action	Preferred
101st St	272	296	432	430	63%	69%	100%
7th Ave	312	340	476	525	59%	65%	91%
Total	584	636	908				

Notes:

¹ Assumptions were made for the number of lanes, guards and percentage of DOD-decaled vehicles at each gate.

² Taking into consideration processing rates estimated by the Military Traffic Management Command (MTMC) for 100% DOD-decaled vehicles and an estimate made for 100% Non-decaled vehicles based on other studies for a specific number of security personnel and three processing scenarios (i.e., low, medium and high).

4.12 UTILITIES

4.12.1 Affected Environment

The ROI is defined as utility services on Fort Hamilton and any potential effects on public utility service providers in the area. Local municipal and commercial utility entities provide all major utilities (water, sewer, natural gas, electricity) at Fort Hamilton. The utility systems on the installation are in good condition and have sufficient capacity to meet current and foreseeable mission needs. All utilities are also accessible at the proposed locations for the AFRC and its associated facilities.

4.12.1.1 Potable Water Supply

The existing potable water system consists of a distribution system which serves both domestic and fire protection use. NYC supplies potable water to Fort Hamilton for there are no supply wells on the installation. NYC's surface water is supplied from 19 reservoirs and three controlled lakes in a 1,969-square-mile area. All surface water and groundwater entering NYC's distribution system is treated with chlorine, fluoride, orthophosphate, and in some cases sodium hydroxide and once delivered to the installation it needs no additional treatment before use. Current fire demand at Fort Hamilton is met by accessing any of the 64 fire hydrants on the installation.

4.12.1.2 Sanitary Sewer Service

The existing sanitary sewer system consists of one large subsystem and four relatively small subsystems. The large system, which collects sewage from most of the post, ultimately leads southwestward to Building 231 (Pump House), where the sewage is pumped via a force main to the NYC system in Fort Hamilton Parkway. The four smaller subsystems serve individual buildings and groups of buildings along the northern perimeter of the installation and discharge directly to NYC mains in Poly Place and Battery Avenue (Parsons HBA, 2000). Within the boundary of the installation,

the sewer system is mostly separated from the storm water system and is only a combined system as it approaches the tie-in points to the external NYC combined sewer and storm water system.

Fort Hamilton does not operate its own wastewater treatment facility; instead, it uses the NYC Department of Environmental Protection's Owl's Head Water Pollution Control Plant (OHWPCP). The OHWPCP has a current rated capacity of 120 million gallons per day. When flows exceed the hydraulic capacity of the OHWPCP due to excessive runoff, the combined sewage is discharged untreated into the Upper New York Bay (USACE, 2003a).

4.12.1.3 Electrical Service and Distribution

The electrical system at Fort Hamilton consists of a single substation and loop distribution system. ConEdison provides power to the system through a single feeder that enters the installation near the Main Gate. The 3,000-kilowatt-hour peak electrical demand for Fort Hamilton is readily met by ConEdison, and the electrical grid in the lower Brooklyn service area has the capacity to provide additional power to Fort Hamilton as needed to accommodate future development (Parsons HBA, 2000).

4.12.1.4 Storm Water System

Roof drains, gutters along streets, and drain inlets are used to intercept and collect runoff throughout Fort Hamilton. Some relatively small areas of ground surface covered with lawn and landscaping do absorb some rainfall, but because the soil is slow to infiltrate water these areas also produce runoff during moderate and heavy rains or snow melts. The storm sewer system at Fort Hamilton consists of several subsystems (see Figure 4-4). The western portion of the installation drains by gravity to Building 231 (Pump House), where it is pumped to a NYC combined sanitary and storm sewer main in Fort Hamilton Parkway. The northern portion of the installation drains by gravity to NYC combined sanitary and storm sewer mains in Battery Avenue and Poly Place, while the eastern portion of the installation drain by gravity to three separate outfalls to Gravesend Bay.

Fort Hamilton is regulated by state and federal storm water management regulations that apply to all federal non-industrial installations in New York State. The regulations include employment of storm water management best management practices (BMPs) during and after construction of new facilities. In March 2003, due to the Phase II storm water regulations becoming effective, Fort Hamilton filed a Notice of Intent and obtained a State Pollutant Discharge Elimination System (SPDES) permit for a small municipal separate storm sewer system (MS4).

Figure 4.4 Fort Hamilton Storm Sewer Drainage Basins



The volume of eroded soil and other sediment that can reach the storm drainage system is relatively limited at Fort Hamilton under the present conditions of development and land cover. The topography at Fort Hamilton is gently sloping and well vegetated where not paved, so the flow of rainwater over the surface does not cause much soil erosion. Therefore, sediment accumulations in the catch basins and drainage pipes are easily controlled and do not reduce the capacity of the system to convey storm water (Parsons HBA, 2000).

4.12.1.5 Natural Gas

Natural gas and fuel oil provide heat for most of the facilities at Fort Hamilton. Natural gas is distributed on-post through an U.S. Army-owned underground piping system that connects to the KeySpan Energy Delivery Company through two metered mains at 101st Street and Fort Hamilton Parkway. The mains traverse the installation and supply fuel for heating and cooking in buildings throughout the installation. Utility personnel cite no extraordinary system problems or capacity concerns (Parsons HBA, 2000).

4.12.1.6 Communications

The communications system at Fort Hamilton consists primarily of a telephone system, but it also includes a fire/security system and computer local area networks. The fire/security system alarms use the telephone lines to alert the Military Police (MP) in Building 130. When an emergency alarm is received by the MP, the personnel on duty notify the NYC emergency services. The alarms are owned by the U.S. Army and maintained by a private contractor responsible for the installation's operations department.

4.12.1.7 Solid Waste

Fort Hamilton does not operate a municipal solid waste landfill or a C&D debris landfill. Solid waste is disposed of through the services of private contractors who collect and transport waste to transfer stations in the vicinity of Fort Hamilton. From there, the waste is carried to public and private landfills and other waste disposal sites.

Fort Hamilton also maintains a recycling program. Currently, recycled materials consist of cardboard, aluminum containers, plastic and glass bottles, scrap metal, batteries, tires and used oil. Recyclable materials are transported to commercial recycling facilities off-post.

4.12.2 Environmental Consequences

To assess whether impacts to utilities were potentially significant, the following impact thresholds were used to define significance for each utility:

No effect – The proposed action does not impact the human or natural environment

Not Significant Effect – An impact to the human and/or natural environment would occur, but it is less than thresholds indicated below for “significant effect.”

Significant Effect – thresholds for significance are defined below:

General Utility Construction – Impacts from construction of utilities would be considered potentially significant if expected to cause human health and safety issues considerably above industry norms, or if disruptions to Fort Hamilton operations or mission were expected to exceed what was acceptable by the Army and there were no ways to mitigate the disruptions.

Potable Water Supply – Impacts would be considered potentially significant if the proposed action or alternatives would require more potable water than could be reliably provided by the combination of available potable water sources, leading to shortages, or if regulatory limitations on withdrawals or the treatment plant would potentially be exceeded. Major systemic distribution constraints could also be potentially significant; however, the fact that major investments would be required to provide potable water reliably would not necessarily constitute a significant impact if the investments were reasonable for the overall magnitude of proposed construction, or to provide needed restoration or modernization, and would prevent shortages or harm to the environment.

Wastewater System – Impacts would be considered potentially significant if the proposed action or alternatives would require more wastewater treatment capacity than could be reliably provided by the wastewater treatment system, potentially leading to the discharge of effluents in excess of standards, or if regulatory limitations on the wastewater treatment plant would potentially be exceeded. Major shortfalls in collection capacity could also be potentially significant; however, the fact that major investments would be required to collect wastewater reliably would not necessarily constitute a significant impact if the investments were reasonable for the overall magnitude of proposed construction, or to provide needed restoration or modernization, and would prevent overflows or harm to the environment.

Stormwater System – Impacts would be considered potentially significant if the proposed action or alternatives would not comply with State or Federal laws governing stormwater discharges.

Energy Sources – Impacts would be considered potentially significant if the proposed action or alternatives would require energy in quantities that would exceed local and/or regional capacities for supply, leading to potentially unreliable service or shortfalls of power or other energy that could affect Fort Hamilton’s mission. Major systemic distribution constraints could also be potentially significant; however, the fact that major investments would be required to provide energy reliably would not necessarily constitute a significant impact if the investments were reasonable for the overall magnitude of proposed construction, or to provide needed restoration or modernization, and would prevent shortages that could affect Fort Hamilton’s mission.

Communications – Impacts would be considered potentially significant if the proposed action or alternatives would require communication systems to meet mission requirements that could not be provided without major modifications to the existing Installation systems.

Municipal Solid Waste – Impacts would be considered potentially significant if the proposed action or alternatives would require collection and/or disposal that could not be provided in a reliable manner, which could cause waste to accumulate or be disposed of in a manner that could adversely affect human health or the environment.

4.12.2.1 No Action Alternative

Under the No Action Alternative, no changes would occur at the Preferred Alternative site and current conditions would prevail without change. No effects on utilities would occur.

4.12.2.2 Preferred Alternative

The overall impacts on utilities as a result of implementing the Preferred Alternative would be negligible with no significant effects. Under the Proposed Action the work force at Fort Hamilton would increase by approximately 384 personnel; however, the majority of those personnel are reservists who would only be on the installation one weekend of every month. The minor increase in the installation’s workforce would likely only result in a negligible effect on utility demand since existing utility services at Fort Hamilton can meet the demand of the proposed facilities (U.S. Army, 2007). In addition, the design of the proposed facilities will meet the Leadership in Energy and Environmental

Design (LEED™) Silver rating, reducing the overall utility demand of the facilities (The Louis Berger Group, 2007).

Potable Water Supply – No significant effects would result from implementing the Preferred Alternative. The projected increase in the workforce would have negligible effects on the existing potable water system since the incoming personnel are relocating from within the ROI and the majority of them will only be on the installation one weekend a month. There are existing potable water supply lines at or nearby that can provide potable water to the proposed facilities and in meeting the LEED™ Silver rating, it is likely that the new facilities would be outfitted with Energy Star rated water-efficient control devices which would decrease the amount of water usage.

Sanitary Sewer System – No significant adverse effects would result from implementing the Preferred Alternative. The new facilities would tie into the existing sewer system lines at the proposed sites, and the projected minor increase in the workforce population would have negligible effects on the existing wastewater system. The OHWPCP would experience a negligible increase in sanitary wastewater flow from Fort Hamilton due to the increased workforce population, but the overall system has the capacity to meet current and future demand usage (U.S. Army, 2007).

Electric Service and Distribution – No significant adverse effects would result from implementing the Preferred Alternative. No new transmission supply lines would be needed for they currently exist at the proposed site locations, and the likely installation of Energy Star rated energy-efficient interior and exterior lighting fixtures would decrease the overall utility demand.

Storm Water System – No significant adverse effects would result from implementing the Preferred Alternative. The proposed facilities are not expected to increase the amount of storm water runoff since the existing sites are comprised predominantly of impervious surfaces (buildings and paved areas). The sites for the proposed facilities are also serviced by storm drainage systems that eventually connect to the NYC combined sewer and storm water system (see Figure 4-4); therefore no storm water runoff from the sites would directly enter the waters of Gravesend Bay or the Narrows. In addition, the proposed facilities would not alter the type or amount of pollutant load to the combined sewer and storm water system as oil water separators are being included in the design of the OMS to prevent petroleum, oil and lubricants (POLs) from entering the storm sewer system (U.S. Army, 2007).

Because storm water from the proposed construction sites would drain to the NYC combined sewer and storm water system and would not enter any NY State waters, a SPDES permit is not required for the construction of this project. However, per standard operating procedures for the installation, a SWPPP

(to include soil erosion and sediment control plans) will still be required during the construction phase of the project to protect the sewer and storm water system from being impacted by sedimentation or other potential contaminants.

Natural Gas – No significant effects would result from implementing the Preferred Alternative. A negligible increase in natural gas usage would result from the increase in the workforce population; however, the existing distribution system has the capacity to accommodate current and future usage demand (U.S. Army, 2007). In addition, natural gas supply lines currently exist at the proposed site locations.

Communications – Communication lines exist at the proposed site locations so no effects would result from implementing the Preferred Alternative.

Solid Waste – No significant adverse effects would result from implementing the Preferred Alternative, though short-term minor adverse effects would occur. Debris from the demolition of the existing buildings on the proposed sites and construction of the new facilities would temporarily increase the amount of solid waste generated by Fort Hamilton relative to what is normally generated annually; however, sufficient capacity exists in the regional landfill to accommodate the increase in C&D-related debris generated by the project. To reduce the amount of C&D debris to be disposed of at the regional landfill, C&D debris will be recycled to the greatest extent feasible. All C&D debris that is not able to be recycled would be disposed of in accordance with applicable federal and state laws at a permitted disposal facility.

4.13 HAZARDOUS AND TOXIC SUBSTANCES

Hazardous materials are substances that, because of their quantity, concentration, or physical, chemical, or infectious characteristics, may present a substantial danger to public health or the environment if released. These typically include reactive materials such as explosives, ignitables, toxics (such as pesticides), and corrosives (such as battery acid). When improperly stored, transported, or otherwise managed, hazardous materials can significantly affect human health and safety and the environment.

4.13.1 Affected Environment

4.13.1.1 Hazardous Materials Use

Hazardous materials are used in many facilities at Fort Hamilton, ranging from small quantities of cleaners and printing supplies to larger quantities of fuels, oils, and various chemicals. Current Fort

Hamilton hazardous materials policy requires compliance with all federal, State, and local laws and regulations governing the use of and reporting requirements for hazardous materials and control of hazardous materials to minimize hazards to public health and damage to the environment.

Both the existing USARC at Fort Hamilton and the NYARNG units in Brooklyn, NY conduct routine maintenance on their vehicles. As a result, they store and use limited quantities of hazardous materials including degreasers, solvents, and batteries.

4.13.1.2 Hazardous Waste Storage and Handling Areas

Fort Hamilton generates minor quantities of hazardous waste, as defined by RCRA, from the normal maintenance and operations of Army programs. The installation has an U.S. EPA identification (ID) number as a hazardous waste generator, but has qualified for “Conditionally Exempt” status for most of the years that it has been registered. Small quantity generator (SQG) status was triggered during 2 years when timely spill cleanups resulted in the generation of more than 220 pounds of hazardous waste within 1 month (USACE, 2003a). There are satellite accumulation points and a 180-day storage facility on the installation in the event that Fort Hamilton is classified as a SQG. Fort Hamilton is not permitted as a Transportation, storage, or disposal (TSD) facility or for the on-site disposal of hazardous waste. Through a contract with Defense Reutilization and Marketing Office (DRMO), hazardous wastes are transported by approved carriers to licensed treatment or disposal facilities in accordance with regulatory requirements.

The current USARC on Fort Hamilton generates only small amounts of hazardous wastes associated with the maintenance of their vehicles, and these wastes are collected and properly disposed of off-site as described above. The NYARNG guard units also generate small amounts of hazardous wastes associated with vehicle maintenance. This waste is collected and transported within 3 days to their supporting OMS on Staten Island or Jamaica, Queens.

4.13.1.3 Site Contamination Cleanup

Fort Hamilton is not regulated under RCRA as a hazardous waste management facility and therefore, there are no solid waste management units on the installation. However, the March 1997 Installation Action Plan (IAP) describes nine buildings/locations at Fort Hamilton that have had contamination problems, their cleanup status, and future studies scheduled to be conducted on them. A summary of the locations covered by the IAP is presented below (USACE, 2003a).

Department of Public Works (DPW) Vehicle Washracks at Building 128. An oil/water separator located at this site (IAP No. FTHM-03) was identified, cleaned out, and put back into use in 1994. The contaminants of concern in and around the separator were POL and solvents. These chemicals may have impacted the soil and groundwater in the area. No additional reports or information related to this site were located.

Vehicle Washrack at Building 127. A vehicle washrack, located at Building 127, is connected to an oil/water separator. Water and drippings from the washrack drain by gravity flow to the separator where oil is retained. Periodically, the oil is removed from the separator and disposed of off-post by a contractor. The wash water is discharged to the sanitary sewer, which is subsequently treated at a New York City wastewater treatment plant. The sanitary sewers and storm drainage systems at Fort Hamilton are combined for considerable portions of the installation.

Abandoned Washrack at Building 107. An abandoned washrack at Building 107 (IAP No. FTHM-04) may have impacted the soil and groundwater at this site. An oil/water separator may not have been functional at this washrack. POLs are the chemicals of concern. Soil samples have been collected at this site and analyzed. This area has been demolished as part of the new commissary.

DPW Vehicle Motorpool. Light automotive and organizational mechanical maintenance occurs at Building 127 (DPW Motorpool). Numerous types of chemical materials are used and stored at Building 127, and include POL, paints, thinners, and solvents. The soil and groundwater in and around the site may have been impacted by past and present activities.

Denyse Wharf. The IAP describes the Wharf as a historic pier (circa 1825) where past activities have resulted in metals contamination. Additional investigations and possible cleanup may occur in the future.

Building 103. There used to be two unleaded gasoline dispensers and approximately ten 55-gallon drums at this site. The ten 55-gallon drums were used for temporary (less than 90-day) storage of waste prior to disposal. The March 1997 IAP stated that a record search cleared this site. This site, as well as several other adjacent structures and associated USTs, has recently been demolished and the fuel tanks removed as part of the development of the new commissary. Gross soil contamination in the pits was removed and soil samples have been analyzed.

Full-Service Gas Station at Building 200. A Site Investigation (SI) dated August 1997 reports the results of an investigation at Building 200 (Base Exchange Gas Station). The investigation was prompted after all USTs at the site were replaced in 1991; at that time, gasoline contamination was observed in and around three gasoline UST excavation pits. A fuel oil UST and a waste oil UST were also located at this site. Three soil borings were drilled during the 1991 investigation. The report indicated that significant concentrations of benzene, toluene, ethylbenzene and xylene were detected in the vicinity of the tank field. The SI recommended several actions: additional soil borings be drilled, and samples collected to determine the extent of soil contamination around the gasoline UST field; collect a groundwater sample down-gradient of the Gas Station; and determine the status of the fuel oil UST located west of the gasoline USTs.

Gasoline UST at Building 114. An abandoned 1,000-gallon gasoline UST was closed and removed in August 1996. Although the soils were stained and hydrocarbon odors were observed, soil sample results were below New York State cleanup levels. Therefore, no further action was deemed necessary at this site.

Within the boundary of the proposed facilities there has been previous soil contamination by POLs. On September 4, 1996, a steel UST was removed from a grassy area located next to (southwest side) Building 216, the current USARC OMS. This 1,080-gallon UST contained No. 2 fuel oil and was replaced with a 1,000-gallon fiberglass UST, which was subsequently removed in July 2007. Soil contamination was observed visually in and around the excavated tank pit, and petroleum vapors were logged via a photoionization detector (PID). The subcontractor was instructed by the COE to line the pit with polyethylene sheeting and backfill with clean fill until further evaluation tasks could be conducted. No soil samples were collected from this excavation pit (USACE, 2003b).

In addition, there was a release of an unknown volume of fuel oil in 1996 in the boiler room of Building 216. The unknown quantity of fuel oil flowed into the boiler room sump and was then discharged onto the ground surface just outside the southwest corner of the boiler room. The material then reportedly flowed topographically downgradient and pooled in front of the roll-up door to Building 216. It was reported that the pooled product was containerized and all impacted soils, limited to the less than one-foot depth, were completely removed.

Subsequently, a Focused Remedial Investigation (FRI) was conducted at Building 216. The FRI was conducted in accordance with the EPA Region II and NYSDEC regulatory guidelines. The objective of

the FRI was to 1) evaluate the nature and extent of any impact to soils and/or groundwater, 2) to evaluate for light non-aqueous phased liquids (LNAPL), and 3) to determine the need for additional investigative or remedial action. The FRI was conducted in November 2000.

The general findings of the FRI were as follows:

- Field monitoring of soil boring activities indicated elevated PID readings south (downgradient) of Building 216 in the area between the boiler room and Roosevelt Lane;
- Soil intervals encountered ranged lithologically from clayey silts to intervals with an increasing gravel component;
- The observed presence of an LNAPL at a depth of approximately 35 feet in a silty sand interval which is believed to be limited in aerial extent;
- The depth to groundwater of approximately 33 feet below ground surface and direction of shallow groundwater flow to the south –southwest (towards the RCI footprint boundary);
- Soil samples detected with levels of VOCs and semi-volatile organic compounds (SVOCs) exceeding the recommended soil cleanup objectives of NYSDEC [Technical and Administrative Guidance Memorandum (TAGM) #4046, January 1994]; and
- Groundwater samples from one monitoring well detected to have levels of 6 VOCs exceeding the NYSDEC ambient water quality standards and guidance values for water class GA: Division of Water Technical and Operational Guidance Series (TOGS), 1.1.1 (June 1998 reissue).

The FRI concluded that the extent of impact to environmental media has not been determined and that the associated dissolved plume likely extends in a downgradient direction. The FRI recommended further definition of extent of potential impact to groundwater (USACE, 2003b).

Currently, POL levels measured at three monitoring wells for this site are below regulatory levels and Fort Hamilton has applied for a “No Further Action” determination (Koutroubis, 2007b).

4.13.2 Environmental Consequences

For the purposes of assessing the significance of impacts related to hazardous and toxic substances, the following impact thresholds were developed:

No Effect – There would be no increase in the amount of hazardous materials or waste handled, stored, used, or disposed of.

No Significant Effect – Action would result in an increase in the amount of materials or waste to be handled, stored, used, or disposed; but all hazardous or toxic materials and/or wastes could be safely and adequately managed in accordance with all applicable regulations and policies, with limited exposures or risks.

Significant Effect – Action would result in a substantial increase (more than 100%) in the amount of materials or waste to be handled, stored, used, or disposed of, and this could not be safely or adequately handled or managed by the proposed staffing, resulting in unacceptable risk, exceedance of available waste disposal capacity, or probable regulatory violation. Site contamination conditions would preclude development of the site for the proposed use.

4.13.2.1 No Action Alternative

No effects would be expected for under the No Action Alternative, for the proposed new facilities would not be constructed.

4.13.2.2 Preferred Alternative

Implementing the Proposed Action would result in no significant adverse effects in relation to hazardous or toxic substances.

The proposed AFRC building would consist primarily of office space and administrative service areas. There would be minimal use of hazardous materials, such as janitorial products and printing supplies. Any hazardous materials will be handled and stored in accordance with applicable regulations and label precautions and will not have any significant adverse impacts, though some negligible long-term adverse effects would be expected from the very minimal increase in use of hazardous materials and waste generated by the proposed facilities over what is currently used and generated at the existing USARC.

The AFRC would include an emergency generator and associated above ground storage tank (AST) or UST that would likely contain adequate amounts of diesel fuel to ensure that the AFRC could continue

to function while running the emergency generator. Fort Hamilton's SPCC plan would need to be updated to include any new fuel storage tanks.

The proposed OMS facility would include vehicle service bays for routine vehicle maintenance and a controlled waste storage area. Routine vehicle maintenance activities require the use of several types of hazardous materials as described in *Section 4.13.1.1*. All hazardous materials would be handled and stored in appropriate hazardous materials cabinets or containers in accordance with applicable regulations and label precautions. The facility design includes floor drains that convey flow through oil-water separators. Plans also include a covered vehicle wash rack and discharge flow from this facility will also be conveyed through oil/water separators (U.S. Army, 2007).

The activities at the proposed OMS would be the same as activities currently ongoing at the USARC on Fort Hamilton and the amount of hazardous waste generated from the new facility would only increase slightly as a result of the addition of the NYARNG units, for the NYARNG currently generate less than 10 gallons annually of any one particular waste associated with their vehicle maintenance (Murphy, 2007b). Hazardous wastes would be stored in a satellite accumulation area in containers and with labels as required by applicable regulations. Within the allotted time frame all hazardous wastes will be transported off-installation to licensed treatment or disposal facilities by approved carriers contracted with by DRMO. Any spills or releases of hazardous wastes at the proposed facilities would be handled according to the Fort Hamilton SPCC Plan.

However, based on the potential for small spills and the overall use of hazardous materials and disposal of hazardous waste from the OMS, negligible short- and long-term adverse impacts would be expected from the Proposed Action. The possibility for even these very small amounts of materials to migrate off-site or impact area natural resources would be greatly reduced by the use of drip trays, mats and the application of standard BMPs.

At Building 216, the existing USARC OMS, there has been previous POL contamination of the soils requiring the installation of three monitoring wells to evaluate the potential impact to groundwater. Measured POL levels are currently very low and below regulatory levels and a "No further action" determination has been applied for by Fort Hamilton. Soil testing would occur prior to site preparation and construction and any contamination will be removed and disposed of in accordance with all appropriate local, state and federal regulations.

Buildings 111 (existing Recruiting Battalion Headquarters), 136 and 138 (family housing), 213 (existing USARC), 216 (existing USARC OMS) and 216A (USARC storage shed) are all located

within the footprint of the proposed facilities and will need to be demolished prior to construction of the new facilities. Demolition of these buildings, which were all built prior to 1978, would be expected to require some abatement and removal of asbestos-containing materials and/or lead-based paint. A survey prior to demolition will be conducted to identify any hazardous materials that need to be abated. Such materials would be removed and disposed of in accordance with applicable OSHA, U.S. EPA and other state, federal and U.S. Army regulations. In addition, Building 111 has a 4,000 gallon UST for fuel oil that needs to be removed prior to construction. Removal and disposal of the fuel tank will be done in accordance with all local, state, and federal regulations. If any soil contamination is discovered during removal of the tank, the soil will appropriate measures will be taken in accordance with all local, state, and federal regulations to mitigate the contamination.

4.14 CUMULATIVE EFFECTS SUMMARY

A cumulative impact is defined as “the impacts on the environment that result from the incremental impact of the action when added to other past, present, or reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertake such other actions” (40 CFR 1508.7). The section goes on to note: “such impacts can result from individually minor but collectively significant actions taking place over a period of time.” Cumulative impacts associated with implementation of the Preferred Alternative would include any impacts from other on-going actions that would be incremental to the impacts of constructing the proposed AFRC complex and realigning units to Fort Hamilton, NY. Other past, present or future projects that are considered for their cumulative impacts include the recent Residential Communities Initiative (RCI), the ongoing 101st Street and 7th Avenue gate upgrades, and the future construction of a permanent Youth Center. The RCI conveyed 289 existing family housing units in three housing areas to Fort Hamilton Housing, LLC (FHH), a limited liability corporation consisting of the Army and its development partner, GMH Military Housing Fort Hamilton, LLC (GMHMHFH). Implementation of the RCI involved decreasing the on-post-housing inventory by 208 units to provide an end state inventory of 228 units, including 6 renovated units and 222 new units on what used to be the baseball fields/parade ground in the central area of Fort Hamilton. The current Gate Upgrades include improvements to paving/curbing, bollards, planters, a covered search area, a visitor control center and support facilities. These upgrades would be completed prior to construction beginning on the Proposed Action. The new Youth Center will comprise a 17,640 sf facility and will be built in the future. Supporting facilities will include among other things an 800 sf mechanical room, self-contained heating and cooling systems, and parking for 30 vehicles.

4.14.1 No Action Alternative

Implementation of the No Action Alternative would avoid new impacts that could interact with the impacts of other past, present, or reasonably foreseeable actions. Therefore, there would be no cumulative impacts associated with the No Action Alternative.

4.14.2 Preferred Alternative

Implementation of the other projects under consideration would not likely cause any significant cumulative effects. Though the RCI increased the population living on the installation and the Proposed Action would increase the workforce population, no adverse cumulative effect on traffic would be expected, while only negligible impacts on utilities would be expected. The RCI housing development layout reduced nonresidential vehicle traffic in housing areas and the increase in work force population resulting from the Proposed Action will be mostly limited to one weekend a month when most of the work force population is not on the installation. The gates used of entering and exiting the installation would continue to operate below their capacity, and the ongoing Gate Upgrades will make entering and exiting the installation more efficient for traffic. The use of Energy Star rated energy and water-efficient equipment (e.g. light fixtures and low flow water faucets, toilets and showerheads) by the new RCI housing units and the LEED™ Silver rating of the proposed AFRC design will minimize any slight increase in utility demand on the installation. Also, the Proposed Action will not contribute cumulatively to storm water runoff as the proposed sites for the AFRC are already predominantly impervious surfaces (buildings and pavement) and drain to the NYC combined sewer and storm water system while the RCI housing units and future Youth Center location drain to outfalls in Gravesend Bay.

Under the Proposed Action there would be a cumulative increase in wear and tear on installation roads because of their use by construction vehicles for the various projects and might require an increase in maintenance activities to prevent road failure. There would also be cumulative economic benefits from the projects under consideration. These benefits would minor short-term increases in area jobs and indirect economic expenditures during the construction phases of the projects.

4.15 MITIGATION SUMMARY

None of the predicted effects of the Proposed Action would result in significant impacts; therefore, mitigation is not needed. However, the U.S. Army may consider the use of BMPs in the construction

and operation of the AFRC and associated facilities, including specific measure to reduce potential erosion, storm water runoff, and sediment transport during site preparation and construction activities.

5.0 FINDING AND CONCLUSIONS

5.1 FINDINGS

5.1.1 Consequences of the No Action Alternative

Under the No Action Alternative, the proposed new AFRC and the associated facilities would not be constructed, and no environmental impacts would occur.

5.1.2 Consequences of the Preferred Alternative

The Proposed Action would not have any significant adverse effects on any of the environmental or related resource areas at Fort Hamilton or to areas surrounding the installation. All of the resource areas were evaluated to be at the No Effects or No Significant Effect levels.

A summary of impacts by resource area for the No Action and Preferred Alternatives is provided in Table 5-1.

Table 5-1. Summary of the Impacts of the Proposed Action Alternatives

Resource	No Action Alternative	Preferred Alternative	
		Construction	Operation
Land Use			
<i>Regional Geographic Setting and Location</i>	No Effect.	No Effect.	No Effect.
<i>Installation Land</i>	No Effect.	No Significant Effect; all proposed facilities occur within Fort Hamilton boundary are consistent with planned future land use designations.	No Significant Effect; all proposed facilities occur within Fort Hamilton boundary are consistent with planned future land use designations.
<i>Current and Future Development in the Region of Influence</i>	No Effect.	No Significant Effect; all projects occur within Fort Hamilton boundary; short-term construction requirements add financial capital to local and regional economy.	No Significant Effect; all projects occur within Fort Hamilton boundary; increase in personnel living off-post adds financial capital to the local and regional economy.
Aesthetic and Visual Resources	No Effect.	No Significant Effect.	No Significant Effect.
Air Quality			

Resource	No Action Alternative	Preferred Alternative	
		Construction	Operation
<i>Ambient Air Quality Conditions</i>	No Effect.	No Significant Effect - temporary emissions during construction do not exceed <i>de minimis</i> levels.	No Significant Effect - operational emissions do not exceed <i>de minimis</i> levels.
<i>Meteorology/Climate</i>	No Effect.	No Effect.	No Effect.
<i>Air Pollutant Emissions at Installation</i>	None. No Significant Impact.	No Significant Effect – emissions during construction are temporary.	No Significant Effect – Emissions do not exceed <i>de minimis</i> levels.
<i>Regional Air Pollutant Emissions Summary</i>	No Effect.	No Significant Effect – Temporary emissions do not exceed 10% of allowable limits laid out by the SIP.	No Significant Effect – Emissions do not exceed 10% of allowable limits laid out by the SIP.
Noise	No Effect.	No Significant Effect. Increased temporary noise from construction would not exceed applicable noise standards.	No Significant Effect. Long-term noise from increased vehicle use/traffic would not exceed applicable noise standards.
Geology and Soils			
<i>Geologic and Topographic Conditions</i>	No Effect.	No Significant Effect; minor leveling and grading required.	No Effect.
<i>Soils</i>	No Effect.	No Significant Effect; majority of soils are already disturbed or modified.	No Effect.
<i>Prime Farmland</i>	No Effect.	No Effect; no lands suitable for classification as prime farmland.	No Effect; no lands suitable for classification as prime farmland.
Water Resources			
<i>Surface Water</i>	No Effect.	No Significant Effect; no wetlands to impact and storm water flows to NYC combined sewer and stormwater system with no increase in pollutant loads.	No Significant Effect; no wetlands to impact and storm water flows to NYC combined sewer and stormwater system with no increase in pollutant loads.

Resource	No Action Alternative	Preferred Alternative	
		Construction	Operation
<i>Hydrogeology/Groundwater</i>	No Effect.	No Significant Effect; Possible impacts due to potential for minor oil and antifreeze spills, leaks from vehicles, and pollutant leaching as a result of demolition activities.	No significant Effect; Possible impacts due to potential for minor oil and antifreeze spills, leaks from vehicles, etc.
<i>Floodplains</i>	No Effect.	No Effect.	No Effect.
<i>Coastal Zone</i>	No Effect.	No Effect.	No Effect.
Biological Resources			
<i>Vegetation</i>	No Effect.	No Significant Effect; minor removal of vegetation.	No Effect.
<i>Wildlife</i>	No Effect.	No Significant Effect; minor removal of vegetation.	No Effect.
<i>Threatened, Endangered, and Sensitive Species</i>	No Effect.	No Effect.	No Effect.
Cultural Resources			
<i>Archaeology</i>	No Effect.	No Effect.	No Effect.
<i>Built Environment</i>	No Effect.	No Effect.	No Effect.
<i>Native American Resources</i>	No Effect.	No Effect.	No Effect.
Socioeconomics			
<i>Economic Development</i>	No Effect.	No Significant Effect; .07% of jobs created will be directly caused by construction, most of which will be temporary.	No Significant Effect; minor increases in jobs, sales volume, and personal income.
<i>Demographics</i>	No Effect.	No Effect; no change in ROI population.	No Effect; no change in the ROI population.
<i>Environmental Justice</i>	No Effect.	No Effect.	No Effect.
Transportation			
<i>Roadways and Traffic</i>	No Effect.	No Significant Effect; transitory increase in traffic due to construction vehicles.	No Significant Effect; minimal increased traffic from additional workforce.
<i>Installation Transportation</i>	No Effect.	No Effect.	No Effect.

Resource	No Action Alternative	Preferred Alternative	
		Construction	Operation
<i>Public Transportation</i>	No Effect.	No Significant Effect; no increase in transit ridership is expected during construction.	No Significant Effect; no significant increase in transit ridership is expected as a result of implementing the action.
Utilities			
<i>Potable Water Supply</i>	No Effect.	No Significant Effect; Requires normal short-term disruptions from utility extensions.	No Significant Effect; comparatively small increase in demand would not be cause for system or regulatory limits to be exceeded.
<i>Sanitary Sewer System</i>	No Effect.	No Significant Effect; Requires normal short-term disruptions from utility extensions.	No Significant Effect; comparatively small increase in demand would not be cause for system or regulatory limits to be exceeded.
<i>Electrical Service and Distribution</i>	No Effect.	No Significant Effect; Requires normal short-term disruptions from utility extensions.	No Significant Effect; comparatively small increase in demand would not be cause for system or regulatory limits to be exceeded.
<i>Storm water System</i>	No Effect.	No Significant Effect; BMPs under an approved SWPPP protect NYC combined sewer/storm water system.	No Significant Effect; compliance with all State and Federal guidelines.
<i>Natural gas</i>	No Effect.	No Significant Effect; Requires normal short-term disruptions from utility extensions.	No Significant Effect; only a negligible increase in use.
<i>Communications</i>	No Effect.	No Significant Effect. Requires normal short-term disruptions from utility extensions.	No Significant Effect; communication requirements can be provided.
<i>Municipal Solid Waste</i>	No Effect.	No Significant Effect: adequate landfill space to accommodate waste; adherence to approved solid waste handling procedures prevents adverse effects during construction.	No Significant Effect: adequate landfill space to accommodate minimal waste; adherence to approved solid waste handling procedures prevents adverse effects during operations.
Hazardous and Toxic Substances			

Resource	No Action Alternative	Preferred Alternative	
		Construction	Operation
<i>Uses of Hazardous Materials</i>	No Effect.	No Significant Effect.	No Significant Effect with proper handling; minimal use.
<i>Storage and Handling Areas</i>	No Effect.	No Significant Effect; little hazardous waste from construction.	No Significant Effect with continued regulatory compliance and use of BMPs.
<i>Site Contamination and Cleanup</i>	No Effect.	No Significant Effect; site contamination issues unlikely, but can be handled if encountered.	No Significant Effect.
Cumulative Effects	No Effect.	No Significant Effect.	No Significant Effect.

5.2 CONCLUSIONS

None of the predicted effects of the Proposed Action would result in significant impacts. Moreover, mitigation would not be necessary to offset any impacts. Therefore, the results of the analyses warrant a FNSI.

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The Louis Berger Group, Inc.

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9.0 ACRONYMS

°	Degrees
AEPI	U.S. Army Environmental Policy Institute
AFRC	Armed Forces Reserve Center
AIRFA	American Indian Religious Freedom Act
AMSA	Area Maintenance Support Activity
AQI	Air Quality Index
ARPA	Archaeological Resources Protection Act
AST	Above Ground Storage Tank
AT/FP	Anti-Terrorism/Force Protection
bhp	brake horse power
BMP	Best Management Practice(s)
BRAC	Base Realignment and Closure
bgs	Below Ground Surface
C&D	Construction & Demolition
CAA	Clean Air Act
CAAA	Clean Air Act Amendments
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act (also known as SuperFund)
CERL	U.S. Army Construction Engineering Research Laboratory
CESQG	Conditionally Exempt Small Quantity Generator
CFR	Code of Federal Regulations
CMP	Coastal Management Plan
CO	Carbon Monoxide

COBRA	Cost of Base Realignment Actions
CT	Connecticut
CWA	Clean Water Act
CZMA	Coastal Zone Management Act
dB	Decibels
dBA	A-weighted Decibels
DD	Defense Department (forms only)
DoD	Department of Defense
DPW	Department of Public Works
DRMO	Defense Reuse and Marketing Organization
EA	Environmental Assessment
EIFS	Economic Impact Forecast System
EIS	Environmental Impact Statement
EO	Executive Order
ESA	Endangered Species Act
F	Fahrenheit
FNSI	Finding of No Significant Impact
FHH	Fort Hamilton Housing, LLC
FPPA	Farmland Protection Policy Act
FRI	Focused Remedial Investigation
ft ²	Square Feet
FWPCA	Federal Water Pollution Control Act
GMHMHFH	GMH Military Housing Fort Hamilton, LLC

HVAC	Heating, Ventilation, and Air Conditioning
IAP	Installation Action Plan
ICRMP	Integrated Cultural Resources Management Plan
ICUZ	Installation Compatible Use Zone
ID	Identification
ITE	Institute of Transportation Engineers
JFK	John F. Kennedy International Airport
kV	kilovolts
kva	kilovolt-amperes
lb	pound
LEED	Leadership in Energy and Environmental Design
LGA	La Guardia Airport
LNAPL	Light Non-aqueous Phased Liquids
LOS	Level of Service
LWRP	Local Waterfront Revitalization Program
m ³	cubic meters
MEP	Military Equipment Parking
MP	Military Police
MS4	Municipal Separate Storm Sewer System
MTA	Metropolitan Transportation Authority
MTMC	Military Traffic Management command
NAAQS	National Ambient Air Quality Standards

NAGPRA	Native American Graves Protection and Repatriation Act
NAMS	National Air Monitoring Stations
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NJ	New Jersey
NOI	Notice of Intent
NO ₂	nitrogen dioxide
NO _x	nitrogen oxides
NPV	Net Present Value
NRCS	Natural Resource Conservation Service
NRHP	National Register of Historic Places
NY	New York
NYARNG	New York Army National Guard
NYC	New York City
NYCDCP	New York City Department of City Planning
NYMTC	New York Metropolitan Transportation Council
NYSDEC	New York State Department of Environmental Conservation
NYSDOS	New York State Department of State
NYSHPO	New York State Office of Parks, Recreation and Historic Preservation
O ₃	Ozone
OHWPCP	Owl's Head Water Pollution Control Plant
OMS	Organizational Maintenance Shop
OSHA	Occupational Safety and Health Administration
OTR	Ozone Transport Region
Pb	Lead
PCB	polychlorinated biphenyls

PID	Photoionization Detector
PL	Public Law
PM ₁₀	particles with a diameter less than or equal to a nominal 10 micrometers
PM _{2.5}	particles with a diameter less than or equal to a nominal 2.5 micrometers
POL	petroleum, oils, and lubricants
POV	Privately-Owned Vehicle
ppm	parts per million
PVC	Polyvinyl Chloride
RCI	Residential Communities Initiative
RCRA	Resource Conservation and Recovery Act
ROD	Record of Decision
ROI	Region of Influence
RPP	Resource Preservation Potential
RTV	Rational Threshold Value
SDWA	Safe Drinking Water Act
SF	square feet
SI	Site Investigation
SIP	State Implementation Plan
SLAMS	State and Local Air Monitoring Stations
SO ₂	sulfur dioxide
SOP	Standard Operating Procedure
SPCC	Spill Prevention Control and Countermeasures
SPDES	State Pollution Discharge Elimination System
SVOC	Semi-volatile Organic Compounds
SWPPP	Storm Water Pollution Prevention Plan

TBTA	Tri-borough Bridge and Tunnel Authority
TOGS	Technical and Operational Guidance Series
TSCA	Toxic Substance Control Act
TSD	Transportation, Storage, or Disposal
TPY	tons per year
ug	micrograms
USACE	U.S. Army Corps of Engineers
USARC	U.S. Army Reserve Center
USC	United States Code
USDA	U.S. Department of Agriculture
U.S. EPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
UST	Underground Storage Tank
VA	Veterans Affairs
VOC	Volatile Organic Compounds
WRP	Waterfront Revitalization Program

APPENDIX A— SECRETARY OF DEFENSE JUSTIFICATION FOR BRAC ACTIONS AT FORT HAMILTON, NY

USAR Control and Command – Northeast (Army Recommendation)

Secretary of Defense Recommendation

Realign Pitt USARC, Coraopolis, PA, by disestablishing the HQ 99th Regional Readiness Command and establishing a Northeast Regional Readiness Command Headquarters at Fort Dix, NJ. Close Camp Kilmer, NJ, and relocate the HQ 78th Division at Fort Dix, NJ. Realign Fort Totten, NY, by disestablishing the HQ 77th Regional Readiness Command and establishing a Sustainment Brigade at Fort Dix, NJ. Realign Fort Sheridan, IL, by relocating the 244th Aviation Brigade to Fort Dix, NJ. Realign Fort Dix, NJ, by relocating Equipment Concentration Site 27 to the New Jersey Army National Guard Mobilization and Training Equipment Site joint facility at Lakehurst, NJ. Close Charles Kelly Support Center and relocate units to Pitt US Army Reserve Center, Coraopolis, PA. Close Carpenter USARC, Poughkeepsie, NY, close McDonald USARC, Jamaica, NY, close Fort Tilden USARC, Far Rockaway, NY, close Muller USARC, Bronx, NY, and relocate units to a new Armed Forces Reserve Center at Fort Totten, NY. Close the United States Army Reserve Center on Fort Hamilton, NY and relocate the New York Recruiting Battalion Headquarters and Army Reserve units into a new Armed Forces Reserve Center on Fort Hamilton, NY. The new AFRC shall have the capacity to accommodate units from the NYARNG 47th Regiment Marcy Armory, Brooklyn and the Brooklyn Bedford Armory/OMS, Brooklyn, NY, if the state decides to relocate those National Guard units.

Secretary of Defense Justification

This recommendation transforms Reserve Component facilities and command and control structure throughout the Northeast Region of the United States. The implementation of this recommendation will enhance military value, improve homeland defense capability, greatly improve training and deployment capability, create significant efficiencies and cost savings, and is consistent with the Army's force structure plans and Army transformational objectives.

This recommendation is the result of a nation-wide analysis of Reserve Component installations and facilities conducted by a team of functional experts from Headquarters, Department of the Army, the Office of the State Adjutant General, and the Army Reserve Regional Readiness Command.

This recommendation transforms Army Reserve command and control by consolidating four major headquarters onto Fort Dix, NJ; this recommendation supports the Army Reserve's nationwide Command and Control restructuring initiative to reduce Regional Readiness Commands from ten to four. The realignment of Pitt USARC, Coraopolis, PA, by the disestablishment of the 99th Regional Readiness Command allows for the establishment of the Northeast Regional Readiness Command Headquarters at Fort Dix, NJ, which will further support the re-engineering and streamlining of the Command and Control structure of the Army Reserves throughout the United States. This restructuring will allow for the closure of Camp Kilmer, NJ, and the relocation of the HQ 78th Division to Fort Dix and establishment of one of the new Army Reserve Sustainment Units of Action, which establishes a new capability for the Army Reserve while increasing the support capabilities of the Army Reserve to the Active Army. To further support restructuring; the realignment of Fort Totten and the disestablishment of the HQ 77th RRC will enable the establishment of a Maneuver Enhancement Brigade at Fort Dix, resulting in a new operational capability for the Army Reserve. The realignment of Fort Sheridan, IL, by relocating the 244th Aviation Brigade to Fort Dix coupled with the Department of the Navy recommendation to close NAS Willow Grove, PA, and relocate Co A/228th Aviation to Fort Dix consolidates Army aviation assets in one location. Other actions supporting restructuring include realigning maintenance functions on Fort Dix, the closure of Charles Kelly Support Center, PA, and relocation of multiple subordinate units to Pitt USARC, PA; and the closure of five US Army Reserve Centers in the greater New York City area with relocation of those units to Fort Totten. These actions will significantly enhance training, mobilization, equipment readiness and deployment.

This recommendation reduces military manpower and associated costs for maintaining existing facilities by closing one Camp, five Army Reserve Centers, realigning five facilities and relocating forces to multiple installations throughout the Northeast Region of the United States. These actions will also improve business processes. The implementation of this recommendation and creation of these new command structures will enhance military value, improve homeland defense capability, greatly improve training and deployment capability, create significant efficiencies and cost savings, and is consistent with the Army's force structure plans and Army transformational objectives. The Department understands that the State of New York will close NYARNG Armories: 47th Regiment Marcy Armory, Brooklyn and Brooklyn Bedford Armory/OMS 12. The Armed Forces Reserve Centers will have the capability to accommodate these units if the state decides to relocate the units from these closed facilities into a new AFRC on Fort Hamilton, NY.

This recommendation provides the opportunity for other Local, State, or Federal organizations to partner with the Reserve Components to enhance homeland security and homeland defense at a reduced cost to those agencies.

This recommendation considered feasible locations within the demographic and geographic areas of the closing facilities and affected units. The sites selected were determined as the best locations because they optimize the Reserve Components' ability to recruit and retain Reserve Component soldiers and to train and mobilize units affected by this recommendation.

Although not captured in the COBRA analysis, this recommendation avoids an estimated \$168.3M in mission facility renovation costs and procurement avoidance associated with meeting Anti Terror / Force Protection construction standards and altering existing facilities to meet unit training and communication requirements. Consideration of these avoided costs would reduce costs and increase the net savings to the Department of Defense in the 6-year BRAC implementation period, and in the 20-year period used to calculate NPV.

Community Concerns

Community representatives from the area near the Kelly Support Center, in Pittsburgh, PA, expressed concerns about the base's Commissary and Exchange facilities. The next nearest comparable facilities are 188 miles away in Carlisle, PA. The community stated that 69,000 active and reserve military personnel, as well as retirees, are supported by these facilities. All other activities on the post will be moved to the nearby 99th RRC Reserve Center, but DoD has not indicated a plan to place the Commissary and Exchange facilities at nearby sites.

Commission Findings

The Commission found DoD's recommendation consistent with the final selection criteria and the Force Structure Plan. Community concerns were carefully weighed and considered, but the Commission did not find they rose to the level of substantial deviation. The Commission also notes that DoD will address the further requirements for the commissary and exchange at the Kelly Support Center after the BRAC recommendations are approved and the effects on the area population can be assessed.

Commission Recommendations

The Commission found the Secretary's recommendation consistent with the final selection criteria and force structure plan. Therefore, the Commission approved the recommendation of the Secretary.

APPENDIX B— FEDERAL AND STATE COORDINATION LETTERS

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DEPARTMENT OF THE ARMY
US ARMY INSTALLATION MANAGEMENT COMMAND
HEADQUARTERS, UNITED STATES ARMY GARRISON FORT HAMILTON
BROOKLYN NY 11252-5300

REPLY TO
ATTENTION OF:

November 14, 2007

Robyn Niver
U.S. Fish and Wildlife Service
New York Field Office
3817 Luker Road
Cortland, NY 13045-9349

**RE: Intergovernmental and Interagency Coordination of Environmental Planning (IICEP)
for the Fort Hamilton Realignment Environmental Assessment.**

Dear Ms. Niver:

The Department of the Army (DA) is preparing an Environmental Assessment (EA) for the proposed construction of an Armed Forces Reserve Center (AFRC) at U.S. Army Garrison Fort Hamilton, NY (Fort Hamilton). On September 8, 2005, the Defense Base Closure and Realignment Commission ("BRAC Commission") recommended to close the United States Army Reserve Center (USARC) on Fort Hamilton and relocate the Army Reserve units, the NY Recruiting Battalion Headquarters, and area NY Army National Guard (NYARNG) units into a new AFRC to be constructed at Fort Hamilton. These recommendations were approved by the President on September 23, 2005, and forwarded to Congress. The Congress did not alter any of the BRAC Commission's recommendations, and on November 9, 2005, the recommendations became law. To implement these recommendations, the U.S. Army proposes to provide the necessary facilities to support the changes in force structure at Fort Hamilton.

The EA will analyze and document potential environmental effects associated with the U.S. Army's proposed realignment actions at Fort Hamilton. The EA is being prepared in strict accordance with the National Environmental Policy Act (NEPA) of 1969, as amended (42 USC 4321 et seq.); the Council on Environmental Quality (CEQ) Regulations (40 CFR 1500-1508); and Environmental Analysis of Army Actions (32 CFR Part 651).

The AFRC would be the primary facility for one active U.S. Army, five U.S. Army Reserve, and seven NYARNG units that would be relocating to the facility from the local Brooklyn, NY area. Along with unit personnel, associated vehicles, equipment, and materials would also be relocated to the new AFRC.

The proposed AFRC would include an approximately 123,315 square feet (SF) training building located on existent federal property at Fort Hamilton. The building would provide adequate space for training, classrooms, offices, administrative and other support spaces for approximately 800 people. The AFRC site would also include an approximately 3,543 SF Organizational Maintenance Shop (OMS), and an approximately 9,328 SF unheated storage building. In addition, there would be approximately 6 acres of paved areas including military equipment parking (MEP) areas, privately-owned vehicle (POV) parking areas, and access roads. To facilitate construction, five buildings, totaling 289,064 SF, will be demolished.

The Army also proposes improvements to support the AFRC and associated facilities. These include fencing, the extension of utilities to service the project, and general site improvements. AT/FP safety and security measures, including minimum stand-off distance from roads, parking areas and vehicle unloading areas, would be incorporated into the facility designs and siting, and accessibility for disabled persons would also be provided.

We are initiating this consultation in accordance with NEPA to evaluate the potential impacts (both beneficial and adverse) of implementing the proposed action. The affected areas where the construction of the proposed AFRC and its associated facilities would occur are shown in Enclosures 1 and 2. The project site locations are serviced by storm drains that discharge to the City of New York combined wastewater treatment system, preventing surface runoff from flowing into and potentially impacting the Narrows and Gravesend Bay. Oil water separators are also being included in the design of the OMS to prevent petroleum, oil and lubricants (POLs) from entering the storm sewer system. Based on information available we do not anticipate that the project will impact any federally listed species, migratory birds, or wetlands. Please confirm that no federally endangered, threatened or candidate species occur in the project area and that consultation under Section 7 of the Endangered Species Act is not necessary.

I would like to thank you in advance for your cooperation in this matter. Please send correspondence to my attention. If you have any question concerning this request, please do not hesitate to contact me at (718) 630-4485 or email me at peter.koutroubis@us.army.mil.

Sincerely,

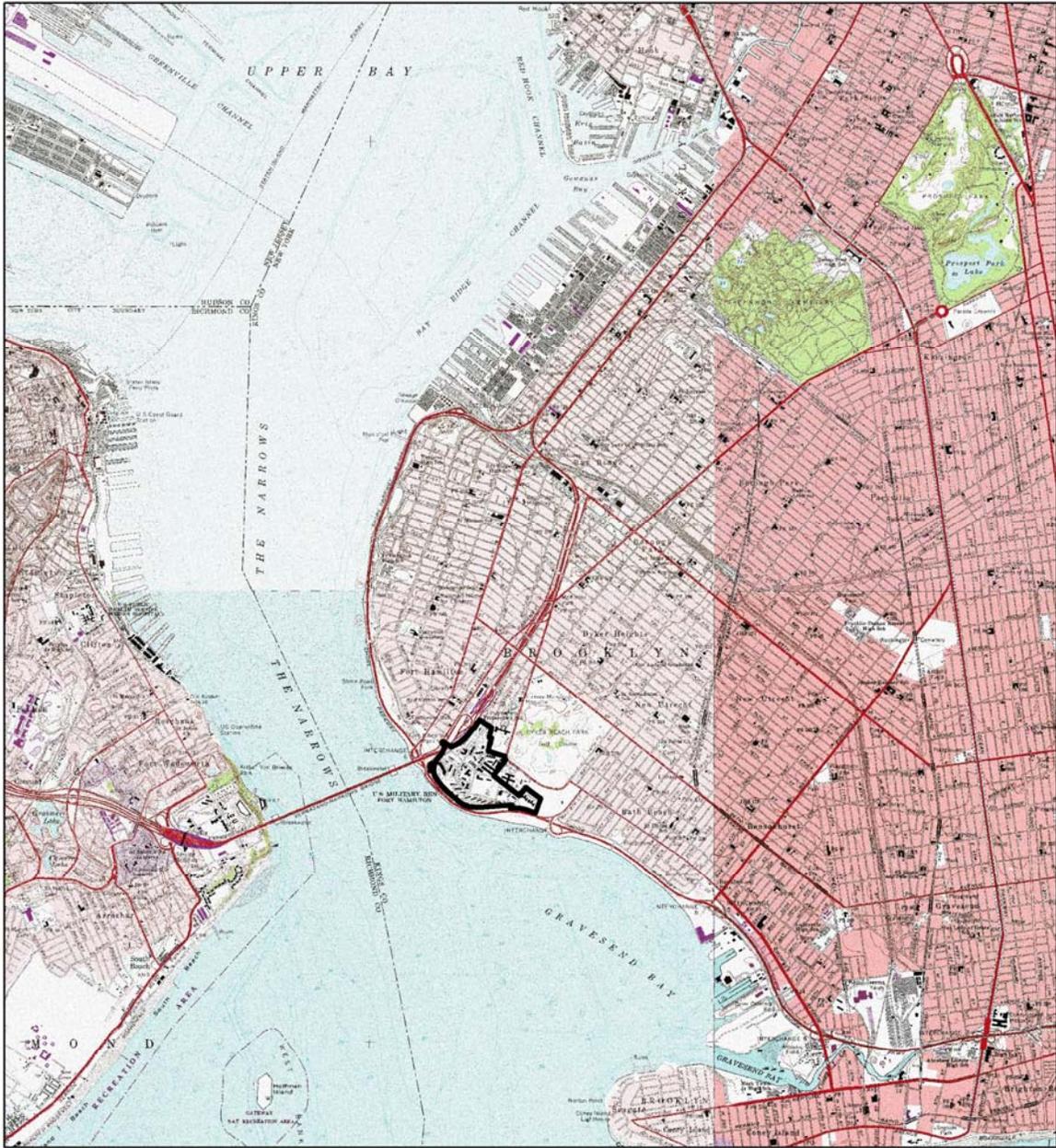


Peter Koutroubis
Chief, Environmental Division
Directorate of Public Works

Enclosures:

1. Overall project location
2. Preferred sites for the proposed action

Enclosure 1
Project Location for BRAC Proposed Action Alternative—
USGS Topographic Quadrangle



<p>Legend</p> <p> Fort Hamilton Boundary</p> <div style="text-align: center; margin-top: 20px;"> </div> <div style="margin-top: 10px;"> <p>0 2,000 4,000 6,000 8,000</p> <p>————— Feet</p> </div>	<p>Fort Hamilton Quadrangle Map (The Narrows Quad)</p> <p style="font-size: small;">Sources: Fort Hamilton, NYSGIS, ESRI Coordinate System: NAD 1983, State Plane New York Long Island FIPS 3104 Feet Prepared By: The Louis Berger Group</p>	<p style="text-align: center; font-size: small;">MAP INDEX</p> <p style="text-align: center; font-size: small;">QUAD INDEX</p>
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Enclosure 2
Preferred Sites for the Proposed AFRC at Fort Hamilton, NY



<p>Legend</p> <p> Fort Hamilton Boundary</p> <p> AFRC Boundary</p>	<p>Fort Hamilton Proposed AFRC Site</p>  <p>0 250 500 Feet</p> <p><small>Sources: Fort Hamilton, USGS, ESRI Imagery is from 2004 Coordinate System: NAD 1983, State Plane New York Long Island FIPS 3104 Feet Prepared By: The Louis Berger Group</small></p>	<p>MAP INDEX</p> 
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DEPARTMENT OF THE ARMY
US ARMY INSTALLATION MANAGEMENT COMMAND
HEADQUARTERS, UNITED STATES ARMY GARRISON FORT HAMILTON
BROOKLYN NY 11252-5300

REPLY TO
ATTENTION OF:

November 14, 2007

John Cryan, Regional Permit Administrator
New York State Department of Environmental Conservation
Division of Environmental Permits
One Hunters Point Plaza
47-40 21st Street
Long Island City, NY 11101-5407

**RE: Intergovernmental and Interagency Coordination of Environmental Planning (IICEP)
for the Fort Hamilton Realignment Environmental Assessment.**

Dear Mr. Cryan:

The Department of the Army (DA) is preparing an Environmental Assessment (EA) for the proposed construction of an Armed Forces Reserve Center (AFRC) at U.S. Army Garrison Fort Hamilton, NY (Fort Hamilton). On September 8, 2005, the Defense Base Closure and Realignment Commission ("BRAC Commission") recommended to close the United States Army Reserve Center (USARC) on Fort Hamilton and relocate the Army Reserve units, the NY Recruiting Battalion Headquarters, and area NY Army National Guard (NYARNG) units into a new AFRC to be constructed at Fort Hamilton. These recommendations were approved by the President on September 23, 2005, and forwarded to Congress. The Congress did not alter any of the BRAC Commission's recommendations, and on November 9, 2005, the recommendations became law. To implement these recommendations, the U.S. Army proposes to provide the necessary facilities to support the changes in force structure at Fort Hamilton.

The EA will analyze and document potential environmental effects associated with the U.S. Army's proposed realignment actions at Fort Hamilton. The EA is being prepared in strict accordance with the National Environmental Policy Act (NEPA) of 1969, as amended (42 USC 4321 et seq.); the Council on Environmental Quality (CEQ) Regulations (40 CFR 1500-1508); and Environmental Analysis of Army Actions (32 CFR Part 651).

The AFRC would be the primary facility for one active U.S. Army, five U.S. Army Reserve, and seven NYARNG units that would be relocating to the facility from the local Brooklyn, NY area. Along with unit personnel, associated vehicles, equipment, and materials would also be relocated to the new AFRC.

The proposed AFRC would include an approximately 123,315 square feet (SF) training building located on existent federal property at Fort Hamilton. The building would provide adequate space for training, classrooms, offices, administrative and other support spaces for approximately 800 people. The AFRC site would also include an approximately 3,543 SF Organizational Maintenance Shop (OMS), and an approximately 9,328 SF unheated storage building. In addition, there would be approximately 6 acres of paved areas including military equipment parking (MEP) areas, privately-owned vehicle (POV) parking areas, and access roads. To facilitate construction, five buildings, totaling 289,064 SF, will be demolished.

The Army also proposes improvements to support the AFRC and associated facilities. These include fencing, the extension of utilities to service the project, and general site improvements. AT/FP safety and security measures, including minimum stand-off distance from roads, parking areas and vehicle unloading areas, would be incorporated into the facility designs and siting, and accessibility for disabled persons would also be provided.

We are initiating this consultation in accordance with NEPA to evaluate the potential impacts (both beneficial and adverse) of implementing the proposed action. The affected areas where the construction of the proposed AFRC and its associated facilities would occur are shown in Enclosures 1 and 2. The project site locations are serviced by storm drains that discharge to the City of New York combined wastewater treatment system, preventing surface runoff from flowing into and potentially impacting the Narrows and Gravesend Bay. Oil water separators are also being included in the design of the OMS to prevent petroleum, oil and lubricants (POLs) from entering the storm sewer system. Based on information available we do not anticipate that the project will impact any state or federally listed species, migratory birds, or wetlands. We seek confirmation from the NYS DEC that this BRAC-related action at Fort Hamilton would not impact any of the trust resources of the State of New York.

I would like to thank you in advance for your cooperation in this matter. Please send correspondence to my attention. If you have any question concerning this request, please do not hesitate to contact me at (718) 630-4485 or email me at peter.koutroubis@us.army.mil.

Sincerely,



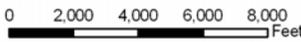
Peter Koutroubis
Chief, Environmental Division
Directorate of Public Works

Enclosures:

1. Overall project location
2. Preferred sites for the proposed action

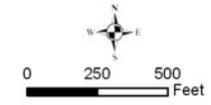
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Enclosure 2
Preferred Sites for the Proposed AFRC at Fort Hamilton, NY



<p>Legend</p> <ul style="list-style-type: none"> Fort Hamilton Boundary AFRC Boundary 	<p>Fort Hamilton Proposed AFRC Site</p>  <p>Sources: Fort Hamilton, USGS, ESRI Imagery is from 2004 Coordinate System: NAD 1983, State Plane New York Long Island FIPS 3104 Feet Prepared By: The Louis Berger Group</p>	<p>MAP INDEX</p> 
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DEPARTMENT OF THE ARMY
US ARMY INSTALLATION MANAGEMENT COMMAND
HEADQUARTERS, UNITED STATES ARMY GARRISON FORT HAMILTON
BROOKLYN NY 11252-5300

REPLY TO
ATTENTION OF:

November 14, 2007

Jeff Zappieri
New York State Department of State
Division of Coastal Resources
Attn: Consistency Unit
41 State Street – 8th Floor
Albany, NY 12231

**RE: New York State Coastal Consistency for the Fort Hamilton Realignment
Environmental Assessment.**

Dear Mr. Zappieri:

The Department of the Army (DA) is preparing an Environmental Assessment (EA) for the proposed construction of an Armed Forces Reserve Center (AFRC) at U.S. Army Garrison Fort Hamilton, NY (Fort Hamilton). On September 8, 2005, the Defense Base Closure and Realignment Commission ("BRAC Commission") recommended to close the United States Army Reserve Center (USARC) on Fort Hamilton and relocate the Army Reserve units, the NY Recruiting Battalion Headquarters, and area NY Army National Guard (NYARNG) units into a new AFRC to be constructed at Fort Hamilton. These recommendations were approved by the President on September 23, 2005, and forwarded to Congress. The Congress did not alter any of the BRAC Commission's recommendations, and on November 9, 2005, the recommendations became law. To implement these recommendations, the U.S. Army proposes to provide the necessary facilities to support the changes in force structure at Fort Hamilton.

The EA will analyze and document potential environmental effects associated with the U.S. Army's proposed realignment actions at Fort Hamilton. The EA is being prepared in strict accordance with the National Environmental Policy Act (NEPA) of 1969, as amended (42 USC 4321 et seq.); the Council on Environmental Quality (CEQ) Regulations (40 CFR 1500-1508); and Environmental Analysis of Army Actions (32 CFR Part 651).

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to the City of New York combined wastewater treatment system, preventing surface runoff from flowing into and potentially impacting the Narrows and Gravesend Bay. The affected areas where the construction of the proposed AFRC and its associated facilities would occur are shown in Enclosures 1 and 2.

The Army also proposes improvements to support the AFRC and associated facilities. These include fencing, the extension of utilities to service the project, and general site improvements. AT/FP safety and security measures, including minimum stand-off distance from roads, parking areas and vehicle unloading areas, would be incorporated into the facility designs and siting, and accessibility for disabled persons would also be provided.

Fort Hamilton is located within the Coastal Zone Boundary of the State of New York and the DA is initiating this consultation in accordance with the *Coastal Zone Management Act of 1972* and New York State's *Waterfront Revitalization and Coastal Resource Act of 1981*. The DA has completed a New York State Department of State Coastal Management Program Federal Consistency Assessment Form for the project and attached it as Enclosure 3 with supporting information addressing "Yes" responses to the Policy Questions attached as Enclosure 4.

The DA has determined that the proposed project to construct a new AFRC at Fort Hamilton, NY is consistent with the New York State Department of State Coastal Policies and is seeking the State's confirmation of this determination.

Fort Hamilton is also located within the area covered by The City of New York's state approved Local Waterfront Revitalization Program (LWRP). A copy of this plan was obtained from the New York City Department of City Planning Waterfront Revitalization Program (WRP) website.¹ According to the WRP, the project site is not located in a Significant Maritime and Industrial Area or a Special Natural Waterfront Area, and is not located in or adjacent to a Significant Coastal Fish and Wildlife Habitat. The DA is also initiating consultation with the City of New York under separate correspondence and is seeking confirmation from their office of our determination that the proposed project is consistent with their WRP policies.

I would like to thank you in advance for your cooperation in this matter. Please send correspondence to my attention. If you have any question concerning this request, please do not hesitate to contact me at (718) 630-4485 or email me at peter.koutroubis@us.army.mil.

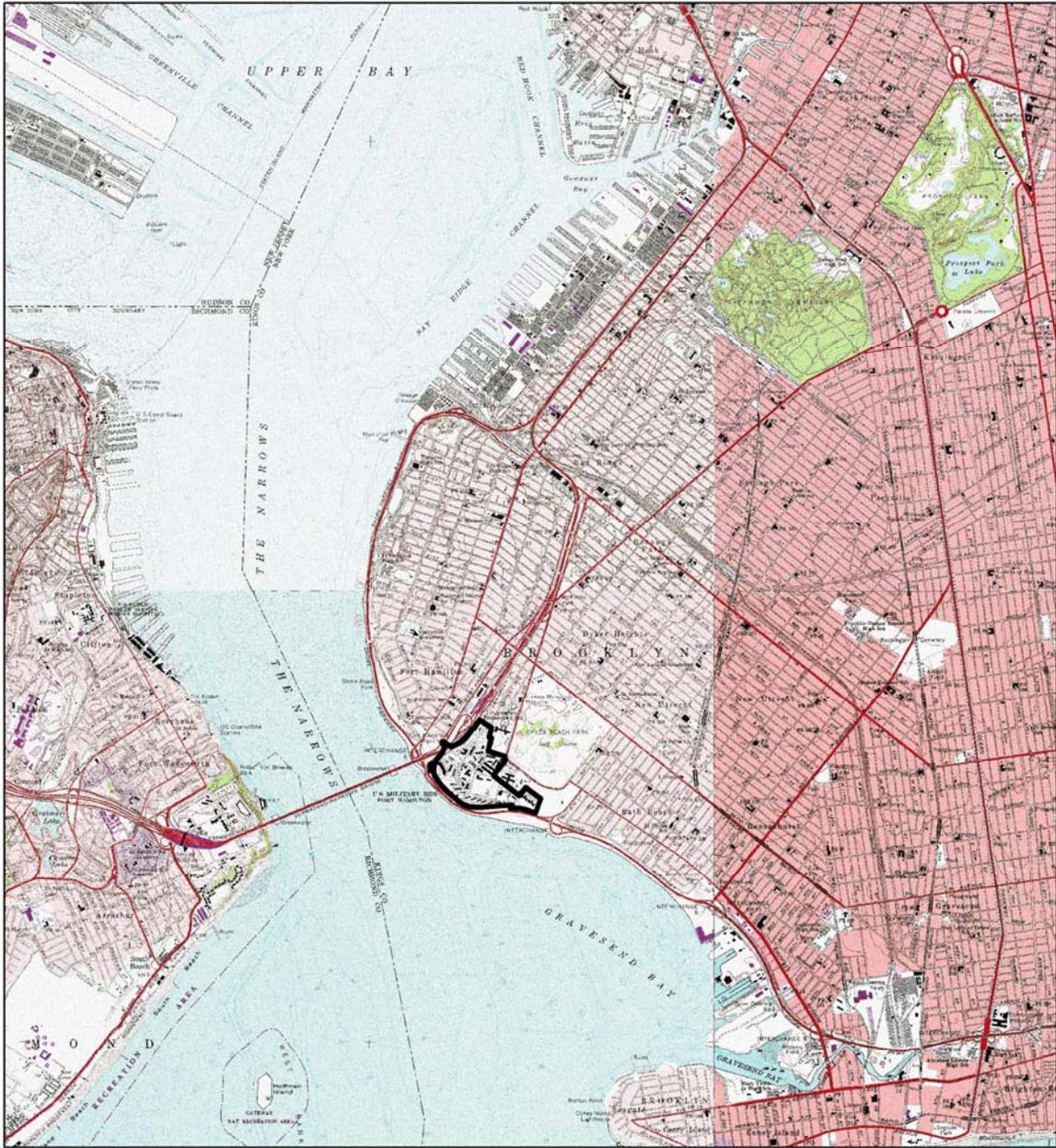
Sincerely,


Peter Koutroubis
Chief, Environmental Division
Directorate of Public Works

Enclosures

¹ <http://www.nyc.gov/html/dcp/html/wrp/wrp.shtml>

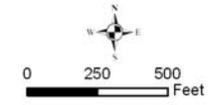
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Project Location for BRAC Proposed Action Alternative—
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Enclosure 2
Preferred Sites for the Proposed AFRC at Fort Hamilton, NY



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Enclosure 3

**New York State Department of State Coastal Management Program
Federal Consistency Assessment Form**

NEW YORK STATE DEPARTMENT OF STATE
COASTAL MANAGEMENT PROGRAM
Federal Consistency Assessment Form

An applicant, seeking a permit, license, waiver, certification or similar type of approval from a federal agency which is subject to the New York State Coastal Management Program (CMP), shall complete this assessment form for any proposed activity that will occur within and/or directly affect the State's Coastal Area. This form is intended to assist an applicant in certifying that the proposed activity is consistent with New York State's CMP as required by U.S. Department of Commerce regulations (15 CFR 930.57). It should be completed at the time when the federal application is prepared. The Department of State will use the completed form and accompanying information in its review of the applicant's certification of consistency.

A. APPLICANT (please print)

1. Name: U.S. Army Garrison, Fort Hamilton
2. Address: c/o Environmental-DPW (P. Koutroubis), Brooklyn, NY 11252
3. Telephone: Area Code (718) 603-4485

B. PROPOSED ACTIVITY

1. Brief description of activity:
See attached letter.

2. Purpose of activity:
See attached letter.

3. Location of activity:

<u>Kings County</u>	<u>Brooklyn, NY</u>	<u>Fort Hamilton</u>
County	City, Town, or Village	Street or Site Description
4. Type of federal permit/license required: NA
5. Federal application number, if known: _____
6. If a state permit/license was issued or is required for the proposed activity, identify the state agency and provide the application or permit number, if known:
NA

C. COASTAL ASSESSMENT Check either "YES" or "NO" for each of these questions. The numbers following each question refer to the policies described in the CMP document (see footnote on page 2) which may be affected by the proposed activity.

- | | | | |
|----|---|------------|-----------|
| 1. | Will the proposed activity <u>result</u> in any of the following: | <u>YES</u> | <u>NO</u> |
| | a. Large physical change to a site within the coastal area which will require the preparation of an environmental impact statement? (11, 22, 25, 32, 37, 38, 41, 43) | — | <u>x</u> |
| | b. Physical alteration of more than two acres of land along the shoreline, land under water or coastal waters? (2, 11, 12, 20, 28, 35, 44) | — | <u>x</u> |
| | c. Revitalization/redevelopment of a deteriorated or underutilized waterfront site? (1) | — | <u>x</u> |
| | d. Reduction of existing or potential public access to or along coastal waters? (19, 20) | — | <u>x</u> |
| | e. Adverse effect upon the commercial or recreational use of coastal fish resources? (9,10) | — | <u>x</u> |
| | f. Siting of a facility essential to the exploration, development and production of energy resources in coastal waters or on the Outer Continental Shelf? (29) | — | <u>x</u> |
| | g. Siting of a facility essential to the generation or transmission of energy? (27) | — | <u>x</u> |
| | h. Mining, excavation, or dredging activities, or the placement of dredged or fill material in coastal waters? (15, 35) | — | <u>x</u> |
| | i. Discharge of toxics, hazardous substances or other pollutants into coastal waters? (8, 15, 35) | — | <u>x</u> |
| | j. Draining of stormwater runoff or sewer overflows into coastal waters? (33) | — | <u>x</u> |
| | k. Transport, storage, treatment, or disposal of solid wastes or hazardous materials? (36, 39) | <u>x</u> | — |
| | l. Adverse effect upon land or water uses within the State's small harbors? (4) | — | <u>x</u> |
| 2. | Will the proposed activity <u>affect</u> or be <u>located</u> in, on, or adjacent to any of the following: | <u>YES</u> | <u>NO</u> |
| | a. State designated freshwater or tidal wetland? (44) | — | <u>x</u> |
| | b. Federally designated flood and/or state designated erosion hazard area? (11, 12, 17,) | — | <u>x</u> |
| | c. State designated significant fish and/or wildlife habitat? (7) | — | <u>x</u> |
| | d. State designated significant scenic resource or area? (24) | — | <u>x</u> |
| | e. State designated important agricultural lands? (26) | — | <u>x</u> |
| | f. Beach, dune or barrier island? (12) | — | <u>x</u> |
| | g. Major ports of Albany, Buffalo, Ogdensburg, Oswego or New York? (3) | — | <u>x</u> |
| | h. State, county, or local park? (19, 20) | — | <u>x</u> |
| | i. Historic resource listed on the National or State Register of Historic Places? (23) | <u>x</u> | — |
| 3. | Will the proposed activity <u>require</u> any of the following: | <u>YES</u> | <u>NO</u> |
| | a. Waterfront site? (2, 21, 22) | — | <u>x</u> |
| | b. Provision of new public services or infrastructure in undeveloped or sparsely populated sections of the coastal area? (5) | — | <u>x</u> |
| | c. Construction or reconstruction of a flood or erosion control structure? (13, 14, 16) | — | <u>x</u> |
| | d. State water quality permit or certification? (30, 38, 40) | — | <u>x</u> |
| | e. State air quality permit or certification? (41, 43) | — | <u>x</u> |
| 4. | Will the proposed activity <u>occur within</u> and/or <u>affect</u> an area covered by a State approved local waterfront revitalization program? (see policies in local program document) | <u>x</u> | — |

D. ADDITIONAL STEPS

1. If all of the questions in Section C are answered "NO", then the applicant or agency shall complete Section E and submit the documentation required by Section F.
2. If any of the questions in Section C are answered "YES", then the applicant or agent is advised to consult the CMP, or where appropriate, the local waterfront revitalization program document*. The proposed activity must be analyzed in more detail with respect to the applicable state or local coastal policies. On a separate page(s), the applicant or agent shall: (a) identify, by their policy numbers, which coastal policies are affected by the activity, (b) briefly assess the effects of the activity upon the policy; and, (c) state how the activity is consistent with each policy. Following the completion of this written assessment, the applicant or agency shall complete Section E and submit the documentation required by Section F.

E. CERTIFICATION

The applicant or agent must certify that the proposed activity is consistent with the State's CMP or the approved local waterfront revitalization program, as appropriate. If this certification cannot be made, the proposed activity shall not be undertaken. If this certification can be made, complete this Section.

"The proposed activity complies with New York State's approved Coastal Management Program, or with the applicable approved local waterfront revitalization program, and will be conducted in a manner consistent with such program."

Applicant/Agent's Name: U.S. Army Garrison, Fort Hamilton

Address: c/o Environmental DPW (P. Koutroubis), Brooklyn, NY 11252

Telephone: Area Code (718) 630-4485

Applicant/Agent's Signature: Peter Koutroubis Date: 11/14/07

F. SUBMISSION REQUIREMENTS

1. The applicant or agent shall submit the following documents to the New York State Department of State, Division of Coastal Resources, 41 State Street - 8th Floor, Albany, New York 12231.
 - a. Copy of original signed form.
 - b. Copy of the completed federal agency application.
 - c. Other available information which would support the certification of consistency.
2. The applicant or agent shall also submit a copy of this completed form along with his/her application to the federal agency.
3. If there are any questions regarding the submission of this form, contact the Department of State at (518) 474-6000.

*These state and local documents are available for inspection at the offices of many federal agencies, Department of environmental Conservation and Department of State regional offices, and the appropriate regional and county planning agencies. Local program documents are also available for inspection at the offices of the appropriate local government.

Enclosure 4

New York State Department of State Coastal Management Program

Federal Consistency Assessment Form

Supporting Information for “Yes” Responses to Policy Questions

1. Will the proposed activity result in any of the following:

1.k. Transport, storage, treatment, or disposal of solid wastes or hazardous materials? (36, 39)

No Effect. The proposed action will involve the transport of normal construction materials, some of which may contain petroleum products or hazardous materials. In addition, demolition and construction debris from the project may contain hazardous materials such as asbestos and lead-based paint. Any demolition or construction debris that contains hazardous materials will be handled separately from nonhazardous waste. Only persons certified and licensed to handle and dispose of hazardous materials will be used for these aspects of the project, and all applicable Federal, State and local laws and regulations relating to hazardous waste storage, handling, and disposal will be strictly adhered to. No on-water transport of such materials will be associated with the project. All solid waste generated by the project will be disposed of at landfills licensed to accept the applicable type of wastes, or in a manner otherwise suitable for the type of waste (e.g., incineration) at a licensed facility.

2. Will the proposed activity affect or be located in, on, or adjacent to any of the following:

2.i. Historic resource listed on the National or State Register of Historic Places? (23)

No Effect. The project will occur at Fort Hamilton in Brooklyn, an army installation rich in history in its own right. There are no NRHP archaeological sites on the installation and the specific project locations, which are currently built upon, have been previously surveyed and were found to have a condition of disturbance due to construction, and low sensitivity for archaeology. Construction of the AFRC will require the demolition of Building 213, which is the existing USARC; Building 216, which is the Reserve Maintenance Shop; and Building 216A, which is a storage shed, Building 111, which is the existing New York Recruiting Battalion Headquarters, and Buildings 136 and 138, which are vacant housing units which were already slated for demolition or conversion to administrative space prior to this BRAC Action. Buildings 213, 216, 216A, and 111 have been previously evaluated and determined ineligible for the NRHP. Buildings 136 and 138 are Capehart Wherry era housing which is covered by an U.S. Army-wide Program Comment by the Advisory Council on Historic Preservation and are thereby exempted from documentation or preservation requirements under NHPA.

Previous cultural resource surveys at Fort Hamilton have resulted in the listing of three structures or buildings in the NRHP and the determination of another three as NRHP eligible. The first category includes Building 207 (Casemate Fortification), Building 220 (Sentry Station), and Building 230 (Caponier). The second includes Building 113 (now Garrison Headquarters), Building 201 (Colonels' Row Housing), and the Denyse Wharf. The proposed AFRC facilities would be visually buffered from the NRHP eligible and listed buildings by other buildings, topography, and distance. Therefore, they will not adversely impact their setting. Additionally, under separate correspondence the State Historic Preservation Officer (SHPO) is being notified of the nature of the project and is being coordinated with to ensure there are no impacts to any cultural resources.

4. Will the proposed activity occur within and/or affect an area covered by a State approved local waterfront revitalization program? (See policies in local program document)

The project will take place at Fort Hamilton which is an area covered by the City of New York's state approved Local Waterfront Revitalization Program (LWRP). The Department of the Army has completed the New York City Waterfront Revitalization Program Consistency Assessment Form, and under separate correspondence is initiating consultation with the City of New York.

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DEPARTMENT OF THE ARMY
US ARMY INSTALLATION MANAGEMENT COMMAND
HEADQUARTERS, UNITED STATES ARMY GARRISON FORT HAMILTON
BROOKLYN NY 11252-5300

REPLY TO
ATTENTION OF:

November 14, 2007

Amanda M. Burden, Director
New York City Department of City Planning
22 Reade Street
New York, NY 10007-1216

RE: New York State Coastal Consistency for the Fort Hamilton Realignment Environmental Assessment.

Dear Ms. Burden:

The Department of the Army (DA) is preparing an Environmental Assessment (EA) for the proposed construction of an Armed Forces Reserve Center (AFRC) at U.S. Army Garrison Fort Hamilton, NY (Fort Hamilton). On September 8, 2005, the Defense Base Closure and Realignment Commission ("BRAC Commission") recommended to close the United States Army Reserve Center (USARC) on Fort Hamilton and relocate the Army Reserve units, the NY Recruiting Battalion Headquarters, and area NY Army National Guard (NYARNG) units into a new AFRC to be constructed at Fort Hamilton. These recommendations were approved by the President on September 23, 2005, and forwarded to Congress. The Congress did not alter any of the BRAC Commission's recommendations, and on November 9, 2005, the recommendations became law. To implement these recommendations, the U.S. Army proposes to provide the necessary facilities to support the changes in force structure at Fort Hamilton.

The EA will analyze and document potential environmental effects associated with the U.S. Army's proposed realignment actions at Fort Hamilton. The EA is being prepared in strict accordance with the National Environmental Policy Act (NEPA) of 1969, as amended (42 USC 4321 et seq.); the Council on Environmental Quality (CEQ) Regulations (40 CFR 1500-1508); and Environmental Analysis of Army Actions (32 CFR Part 651).

The AFRC would be the primary facility for one active U.S. Army, five U.S. Army Reserve, and seven NYARNG units that would be relocating to the facility from the local Brooklyn, NY area. Along with unit personnel, associated vehicles, equipment, and materials would also be relocated to the new AFRC.

The proposed AFRC would include an approximately 123,315 square feet (SF) training building located on existent federal property at Fort Hamilton. The building would provide adequate space for training, classrooms, offices, administrative and other support spaces for approximately 800 people. The AFRC site would also include an approximately 3,543 SF Organizational Maintenance Shop (OMS), and an approximately 9,328 SF unheated storage building. In addition, there would be approximately 6 acres of paved areas including military equipment parking (MEP) areas, privately-owned vehicle (POV) parking areas, and access roads. To facilitate construction, five buildings, totaling 289,064 SF, will be demolished. The project site locations are serviced by separate storm drains and sanitary sewer that discharge to the City of New York combined wastewater treatment system, preventing surface runoff from flowing into and potentially impacting the Narrows and Gravesend Bay. The affected areas

where the construction of the proposed AFRC and its associated facilities would occur are shown in Enclosures 1 and 2.

The Army also proposes improvements to support the AFRC and associated facilities. These include fencing, the extension of utilities to service the project, and general site improvements. AT/FP safety and security measures, including minimum stand-off distance from roads, parking areas and vehicle unloading areas, would be incorporated into the facility designs and siting, and accessibility for disabled persons would also be provided.

Fort Hamilton is located within the Coastal Zone Boundary of the State of New York and the DA is initiating this consultation in accordance with the *Coastal Zone Management Act of 1972* and New York State's *Waterfront Revitalization and Coastal Resource Act of 1981*. The City of New York has implemented a Local Waterfront Revitalization Program (LWRP) that identifies policies that should be used to review the compliance of projects with the LWRP. A copy of this plan was obtained from the New York City Department of City Planning Waterfront Revitalization Program (WRP) website.¹ According to the WRP, the project site is not located in a Significant Maritime and Industrial Area or a Special Natural Waterfront Area, and is not located in or adjacent to a Significant Coastal Fish and Wildlife Habitat. A New York City Waterfront Revitalization Program Consistency Assessment Form has been completed for the project and is attached as Enclosure 3 with supporting information addressing "Yes" responses to the Policy Questions attached as Enclosure 4.

The DA has determined that the proposed project to construct a new AFRC at Fort Hamilton, NY is consistent with the New York State Department of State Coastal Policies as set forth in the City of New York's WRP and is seeking the City's confirmation of this determination. Under separate correspondence the DA is also initiating consultation with the New York State Department of State and is seeking confirmation of our coastal consistency determination from their office as well.

I would like to thank you in advance for your cooperation in this matter. Please send correspondence to my attention. If you have any question concerning this request, please do not hesitate to contact me at (718) 630-4485 or email me at peter.koutroubis@us.army.mil.

Sincerely,

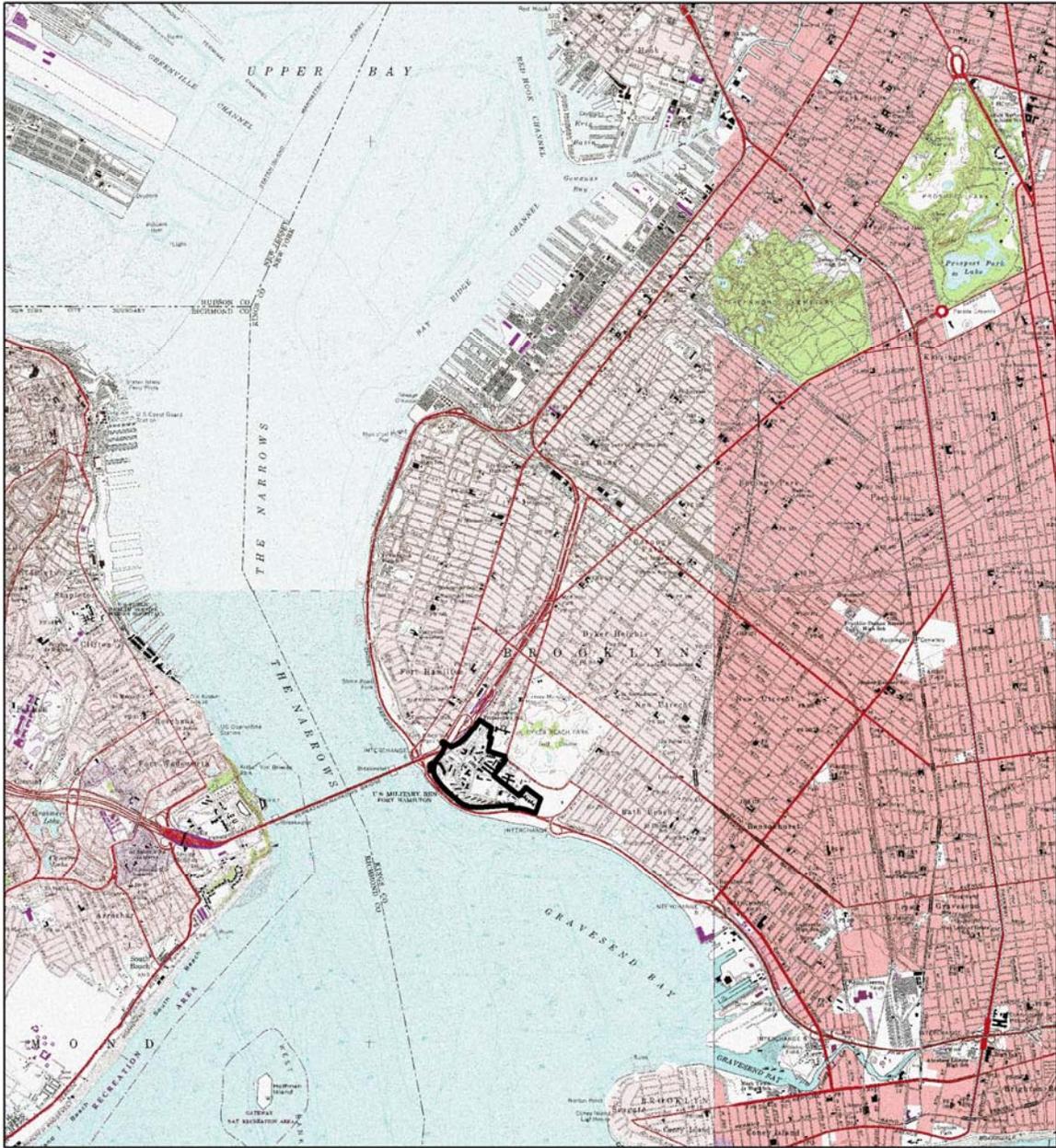


Peter Koutroubis
Chief, Environmental Division
Directorate of Public Works

Enclosures

¹ <http://www.nyc.gov/html/dcp/html/wrp/wrp.shtml>

Enclosure 1
Project Location for BRAC Proposed Action Alternative—
USGS Topographic Quadrangle



<p>Legend</p> <p> Fort Hamilton Boundary</p> <div style="text-align: center; margin-top: 20px;"> </div> <div style="margin-top: 10px;"> <p>0 2,000 4,000 6,000 8,000</p> <p>————— Feet</p> </div>	<p>Fort Hamilton Quadrangle Map (The Narrows Quad)</p> <p style="font-size: small;">Sources: Fort Hamilton, NYSGIS, ESRI Coordinate System: NAD 1983, State Plane New York Long Island FIPS 3104 Feet Prepared By: The Louis Berger Group</p>	<p style="text-align: center; font-size: small;">MAP INDEX</p> <p style="text-align: center; font-size: small;">QUAD INDEX</p>
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Enclosure 2
Preferred Sites for the Proposed AFRC at Fort Hamilton, NY



<p>Legend</p> <p>Fort Hamilton Boundary</p> <p>AFRC Boundary</p>	<p>Fort Hamilton Proposed AFRC Site</p> <p>Sources: Fort Hamilton, USGS, ESRI Imagery is from 2004 Coordinate System: NAD 1983, State Plane New York Long Island FIPS 3104 Feet Prepared By: The Louis Berger Group</p>	<p>MAP INDEX</p>
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Enclosure 3

**New York City Waterfront Revitalization Program
Consistency Assessment Form**

For Internal Use Only:

Date Received: _____

WRP no. _____

DOS no. _____

NEW YORK CITY WATERFRONT REVITALIZATION PROGRAM Consistency Assessment Form

Proposed actions that are subject to CEQR, ULURP or other local, state or federal discretionary review procedures, and that are within New York City's designated coastal zone, must be reviewed and assessed for their consistency with the New York City Waterfront Revitalization Program (WRP). The WRP was adopted as a 197-a Plan by the Council of the City of New York on October 13, 1999, and subsequently approved by the New York State Department of State with the concurrence of the United States Department of Commerce pursuant to applicable state and federal law, including the Waterfront Revitalization of Coastal Areas and Inland Waterways Act. As a result of these approvals, state and federal discretionary actions within the city's coastal zone must be consistent to the maximum extent practicable with the WRP policies and the city must be given the opportunity to comment on all state and federal projects within its coastal zone.

This form is intended to assist an applicant in certifying that the proposed activity is consistent with the WRP. It should be completed when the local, state, or federal application is prepared. The completed form and accompanying information will be used by the New York State Department of State, other state agencies or the New York City Department of City Planning in their review of the applicant's certification of consistency.

A. APPLICANT

1. Name: U.S. Army Garrison, Fort Hamilton
2. Address: ATTN: Peter Koutroubis, 129 Wainwright Drive, Brooklyn, NY 11252
3. Telephone: 718-630-4485 Fax: 718-630-4486 E-mail: peter.koutroubis@us.army.mil
4. Project site owner: U.S. Army

B. PROPOSED ACTIVITY

1. Brief description of activity:
See attached letter.
2. Purpose of activity:
See attached letter.
3. Location of activity: (street address/borough or site description):
Fort Hamilton, Brooklyn, New York

Proposed Activity Cont'd

4. If a federal or state permit or license was issued or is required for the proposed activity, identify the permit type(s), the authorizing agency and provide the application or permit number(s), if known:

NA

5. Is federal or state funding being used to finance the project? If so, please identify the funding source(s).

BRAC 2005 funding.

6. Will the proposed project require the preparation of an environmental impact statement?

Yes _____ No If yes, identify Lead Agency:

The project does, however, require an Environmental Assessment (EA). The lead agency is the US Army Corps of Engineers, Mobile District.

7. Identify city discretionary actions, such as a zoning amendment or adoption of an urban renewal plan, required for the proposed project.

NA

C. COASTAL ASSESSMENT

Location Questions:

Yes No

1. Is the project site on the waterfront or at the water's edge?

2. Does the proposed project require a waterfront site?

3. Would the action result in a physical alteration to a waterfront site, including land along the shoreline, land underwater, or coastal waters?

Policy Questions

Yes No

The following questions represent, in a broad sense, the policies of the WRP. Numbers in parentheses after each question indicate the policy or policies addressed by the question. The new Waterfront Revitalization Program offers detailed explanations of the policies, including criteria for consistency determinations.

Check either "Yes" or "No" for each of the following questions. For all "yes" responses, provide an attachment assessing the effects of the proposed activity on the relevant policies or standards. Explain how the action would be consistent with the goals of those policies and standards.

4. Will the proposed project result in revitalization or redevelopment of a deteriorated or under-used waterfront site? (1)

5. Is the project site appropriate for residential or commercial redevelopment? (1.1)

6. Will the action result in a change in scale or character of a neighborhood? (1.2)

Policy Questions cont'd

Yes No

- | | Yes | No |
|---|--------------------------|-------------------------------------|
| 7. Will the proposed activity require provision of new public services or infrastructure in undeveloped or sparsely populated sections of the coastal area? (1.3) | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 8. Is the action located in one of the designated Significant Maritime and Industrial Areas (SMIA): South Bronx, Newtown Creek, Brooklyn Navy Yard, Red Hook, Sunset Park, or Staten Island? (2) | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 9. Are there any waterfront structures, such as piers, docks, bulkheads or wharves, located on the project sites? (2) | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 10. Would the action involve the siting or construction of a facility essential to the generation or transmission of energy, or a natural gas facility, or would it develop new energy resources? (2.1) | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 11. Does the action involve the siting of a working waterfront use outside of a SMIA? (2.2) | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 12. Does the proposed project involve infrastructure improvement, such as construction or repair of piers, docks, or bulkheads? (2.3, 3.2) | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 13. Would the action involve mining, dredging, or dredge disposal, or placement of dredged or fill materials in coastal waters? (2.3, 3.1, 4, 5.3, 6.3) | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 14. Would the action be located in a commercial or recreational boating center, such as City Island, Sheepshead Bay or Great Kills or an area devoted to water-dependent transportation? (3) | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 15. Would the proposed project have an adverse effect upon the land or water uses within a commercial or recreation boating center or water-dependent transportation center? (3.1) | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 16. Would the proposed project create any conflicts between commercial and recreational boating? (3.2) | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 17. Does the proposed project involve any boating activity that would have an impact on the aquatic environment or surrounding land and water uses? (3.3) | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 18. Is the action located in one of the designated Special Natural Waterfront Areas (SNWA): Long Island Sound- East River, Jamaica Bay, or Northwest Staten Island? (4 and 9.2) | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 19. Is the project site in or adjacent to a Significant Coastal Fish and Wildlife Habitat? (4.1) | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 20. Is the site located within or adjacent to a Recognized Ecological Complex: South Shore of Staten Island or Riverdale Natural Area District? (4.1 and 9.2) | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 21. Would the action involve any activity in or near a tidal or freshwater wetland? (4.2) | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 22. Does the project site contain a rare ecological community or would the proposed project affect a vulnerable plant, fish, or wildlife species? (4.3) | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 23. Would the action have any effects on commercial or recreational use of fish resources? (4.4) | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 24. Would the proposed project in any way affect the water quality classification of nearby waters or be unable to be consistent with that classification? (5) | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 25. Would the action result in any direct or indirect discharges, including toxins, hazardous substances, or other pollutants, effluent, or waste, into any waterbody? (5.1) | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 26. Would the action result in the draining of stormwater runoff or sewer overflows into coastal waters? (5.1) | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 27. Will any activity associated with the project generate nonpoint source pollution? (5.2) | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 28. Would the action cause violations of the National or State air quality standards? (5.2) | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

Policy Questions cont'd

Yes No

29. Would the action result in significant amounts of acid rain precursors (nitrates and sulfates)? (5.2C)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
30. Will the project involve the excavation or placing of fill in or near navigable waters, marshes, estuaries, tidal marshes or other wetlands? (5.3)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
31. Would the proposed action have any effects on surface or ground water supplies? (5.4)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
32. Would the action result in any activities within a federally designated flood hazard area or state-designated erosion hazards area? (6)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
33. Would the action result in any construction activities that would lead to erosion? (6)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
34. Would the action involve construction or reconstruction of a flood or erosion control structure? (6.1)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
35. Would the action involve any new or increased activity on or near any beach, dune, barrier island, or bluff? (6.1)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
36. Does the proposed project involve use of public funds for flood prevention or erosion control? (6.2)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
37. Would the proposed project affect a non-renewable source of sand ? (6.3)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
38. Would the action result in shipping, handling, or storing of solid wastes, hazardous materials, or other pollutants? (7)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
39. Would the action affect any sites that have been used as landfills? (7.1)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
40. Would the action result in development of a site that may contain contamination or that has a history of underground fuel tanks, oil spills, or other form or petroleum product use or storage? (7.2)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
41. Will the proposed activity result in any transport, storage, treatment, or disposal of solid wastes or hazardous materials, or the siting of a solid or hazardous waste facility? (7.3)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
42. Would the action result in a reduction of existing or required access to or along coastal waters, public access areas, or public parks or open spaces? (8)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
43. Will the proposed project affect or be located in, on, or adjacent to any federal, state, or city park or other land in public ownership protected for open space preservation? (8)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
44. Would the action result in the provision of open space without provision for its maintenance? (8.1)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
45. Would the action result in any development along the shoreline but NOT include new water-enhanced or water-dependent recreational space? (8.2)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
46. Will the proposed project impede visual access to coastal lands, waters and open space? (8.3)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
47. Does the proposed project involve publicly owned or acquired land that could accommodate waterfront open space or recreation? (8.4)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
48. Does the project site involve lands or waters held in public trust by the state or city? (8.5)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
49. Would the action affect natural or built resources that contribute to the scenic quality of a coastal area? (9)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
50. Does the site currently include elements that degrade the area's scenic quality or block views to the water? (9.1)	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Policy Questions cont'd

Yes No

51. Would the proposed action have a significant adverse impact on historic, archeological, or cultural resources? (10)

52. Will the proposed activity affect or be located in, on, or adjacent to an historic resource listed on the National or State Register of Historic Places, or designated as a landmark by the City of New York? (10)

D. CERTIFICATION

The applicant or agent must certify that the proposed activity is consistent with New York City's Waterfront Revitalization Program, pursuant to the New York State Coastal Management Program. If this certification cannot be made, the proposed activity shall not be undertaken. If the certification can be made, complete this section.

"The proposed activity complies with New York State's Coastal Management Program as expressed in New York City's approved Local Waterfront Revitalization Program, pursuant to New York State's Coastal Management Program, and will be conducted in a manner consistent with such program."

Applicant/Agent Name: U.S. Army Garrison, Fort Hamilton

Address: ATTN: Peter Koutroubis, 129 Wainwright Drive, Brooklyn, NY 11252

Telephone 718-630-4485

Applicant/Agent Signature: *Peter Koutroubis*

Date: 11/14/07

Enclosure 4

New York State Department of State Coastal Management Program

New York City Waterfront Revitalization Program Consistency Assessment Form

Supporting Information for “Yes” Responses to Policy Questions

38. Would the action result in shipping, handling, or storing of solid wastes, hazardous materials or other pollutants? (7)

No Effect. The proposed action will involve the transport of normal construction materials, some of which may contain petroleum products or hazardous materials. In addition, demolition and construction debris from the project may contain hazardous materials such as asbestos and lead-based paint. Any demolition or construction debris that contains hazardous materials will be handled separately from nonhazardous waste. Only persons certified and licensed to handle and dispose of hazardous materials will be used for these aspects of the project, and all applicable Federal, State and local laws and regulations relating to hazardous waste storage, handling, and disposal will be strictly adhered to. No on-water transport of such materials will be associated with the project. All solid waste generated by the project will be disposed of at landfills licensed to accept the applicable type of wastes, or in a manner otherwise suitable for the type of waste (e.g., incineration) at a licensed facility.

40. Would the action result in the development of a site that may contain contamination or that has a history of underground fuel tanks, oil spills, or other form of petroleum product use or storage? (7.2)

No Effect. On September 4, 1996, a steel UST was removed from a grassy area located next to (southwest side) Building 216, the current USARC OMS and site of the new AFRC. This 1,080-gallon UST contained No. 2 fuel oil and was replaced with a 1,000-gallon fiberglass UST, which was subsequently removed in July 2007. Soil contamination was observed visually in and around the excavated tank pit, and petroleum vapors were logged via a photoionization detector. In addition, there was a release of an unknown volume of fuel oil in 1996 in the boiler room of Building 216 (existing Reserve Maintenance Shop). The unknown quantity of fuel oil flowed into the boiler room sump and was then discharged onto the ground surface just outside the southwest corner of the boiler room. The material then reportedly flowed topographically downgradient and pooled in front of the roll-up door to Building 216. It was reported that the pooled product was containerized and all impacted soils, limited to less than one-foot depth, were completely removed. A Focused Remedial Investigation (FRI) was conducted at Building 216. The FRI was conducted in accordance with the EPA Region II and NYSDEC regulatory guidelines. Currently, POL levels measured at three monitoring wells for this site are below regulatory levels. Another round of soil samples were taken on October 11, 2007 and Fort Hamilton has applied for a “No Further Action” determination pending review of the soil samples by the NYSDEC.

41. Will the proposed activity result in any transport, storage, treatment, or disposal of solid wastes or hazardous materials, or the siting of a solid or hazardous waste facility? (7.3)

No Effect. See response to *Policy Question 38*.

52. Will the proposed activity affect or be located in, on or adjacent to an historic resource listed on the National or State Register of Historic Places, or designated as a landmark by the City of New York? (10)

No Effect. The project will occur at Fort Hamilton in Brooklyn, an army installation rich in history in its own right. There are no NRHP archaeological sites on the installation and the specific project locations, which are currently built upon, have been previously surveyed and were found to have a condition of disturbance due to

construction, and low sensitivity for archaeology. Construction of the AFRC will require the demolition of Building 213, which is the existing USARC; Building 216, which is the Reserve Maintenance Shop; and Building 216A, which is a storage shed, Building 111, which is the existing New York Recruiting Battalion Headquarters, and Buildings 136 and 138, which are vacant housing units which were already slated for demolition or conversion to administrative space prior to this BRAC Action. Buildings 213, 216, 216A, and 111 have been previously evaluated and determined ineligible for the NRHP. Buildings 136 and 138 are Capehart Wherry era housing which is covered by an U.S. Army-wide Program Comment by the Advisory Council on Historic Preservation and are thereby exempted from documentation or preservation requirements under NHPA.

Previous cultural resource surveys at Fort Hamilton have resulted in the listing of three structures or buildings in the NRHP and the determination of another three as NRHP eligible. The first category includes Building 207 (Casemate Fortification), Building 220 (Sentry Station), and Building 230 (Caponier). The second includes Building 113 (now Garrison Headquarters), Building 201 (Colonels' Row Housing), and the Denyse Wharf. The proposed AFRC facilities would be visually buffered from the NRHP eligible and listed buildings by other buildings, topography, and distance. Therefore, they will not adversely impact their setting. Additionally, under separate correspondence the State Historic Preservation Officer (SHPO) is being notified of the nature of the project and is being coordinated with to ensure there are no impacts to any cultural resources.



**DEPARTMENT OF THE ARMY
US ARMY INSTALLATION MANAGEMENT COMMAND
HEADQUARTERS, UNITED STATES ARMY GARRISON FORT HAMILTON
BROOKLYN NY 11252-5300**

REPLY TO
ATTENTION OF:

November 14, 2007

Beth Cummings
New York State Office of Parks, Recreation,
and Historic Preservation
Historic Preservation Field Services Bureau
Peebles Island, PO Box 189
Waterford, NY 12188-0189

Dear Ms. Cummings:

The Department of the Army (DA) is preparing an Environmental Assessment (EA) for the proposed construction of an Armed Forces Reserve Center (AFRC) at U.S. Army Garrison Fort Hamilton, NY (Fort Hamilton). On September 8, 2005, the Defense Base Closure and Realignment Commission ("BRAC Commission") recommended to close the United States Army Reserve Center (USARC) on Fort Hamilton and relocate the Army Reserve units, the NY Recruiting Battalion Headquarters, and area NY Army National Guard (NYARNG) units into a new AFRC to be constructed at Fort Hamilton. These recommendations were approved by the President on September 23, 2005, and forwarded to Congress. The Congress did not alter any of the BRAC Commission's recommendations, and on November 9, 2005, the recommendations became law. To implement these recommendations, the U.S. Army proposes to provide the necessary facilities to support the changes in force structure at Fort Hamilton.

The EA will analyze and document potential environmental effects associated with the U.S. Army's proposed realignment actions at Fort Hamilton. The EA is being prepared in strict accordance with the National Environmental Policy Act (NEPA) of 1969, as amended (42 USC 4321 et seq.); the Council on Environmental Quality (CEQ) Regulations (40 CFR 1500-1508); and Environmental Analysis of Army Actions (32 CFR Part 651).

The AFRC would be the primary facility for one active U.S. Army, five U.S. Army Reserve, and seven NYARNG units that would be relocating to the facility from the local Brooklyn, NY area. Along with unit personnel, associated vehicles, equipment, and materials would also be relocated to the new AFRC.

The proposed AFRC would include an approximately 123,315 square feet (SF) training building located on existent federal property at Fort Hamilton. The building would provide adequate space for training, classrooms, offices, administrative and other support spaces for approximately 800 people. The AFRC site would also include an approximately 3,543 SF Organizational Maintenance Shop (OMS), and an approximately 9,328 SF unheated storage building. In addition, there would be approximately 6 acres of paved areas including military equipment parking (MEP) areas, privately-owned vehicle (POV) parking areas, and access roads.

The Army also proposes improvements to support the AFRC and associated facilities. These include fencing, the extension of utilities to service the project, and general site improvements. AT/FP safety and security measures, including minimum stand-off distance from roads, parking areas and vehicle unloading areas, would be incorporated into the facility designs and siting, and accessibility for disabled persons would also be provided.

The affected areas where the construction of the AFRC and its associated facilities would occur are shown in Enclosures 1 and 2.

In accordance with NEPA and Section 106 of the National Historic Preservation Act (NHPA), an evaluation of the potential impacts associated with implementing this action is required. Construction of the AFRC and associated facilities will require the demolition of Building 213, which is the existing USARC; Building 216, which is the Reserve Maintenance Shop; Building 216A, which is a storage shed; Building 111, which

is the existing New York Recruiting Battalion Headquarters, and Buildings 136 and 138, which are vacant housing units. Buildings 213, 216, 216A and Building 111 have been evaluated and determined ineligible for the National Register of Historic Places (NRHP) as documented in the Integrated Cultural Resource Management Plan (ICRMP) for Fort Hamilton that was approved by your office by letter dated October 25, 2007 (Enclosure 3). Buildings 136 and 138 are Capehart Wherry era housing which is covered by an U.S. Army-wide Program Comment by the Advisory Council on Historic Preservation and are thereby exempted from documentation or preservation requirements under NHPA.

In addition, the proposed facilities would be visually buffered from the NRHP eligible and listed buildings of the Historic Fort landscape area by other buildings, topography, and distance.

Regarding archaeological resources, the two areas of construction under the proposed action correspond to the ICRMP's Resource Preservation Potential (RPP) Area 2, described as "Area that abuts Lee Ave. and Grimes Road" and RPP Area 6, described as "Area of Buildings 136, 137, and 138". The ICRMP indicates that both RPP Areas have been surveyed, have a condition of disturbance due to modern construction, and have low sensitivity for archaeology.

Based on the conclusions found in the ICRMP and the historically disturbed nature of the proposed sites, it is believed that the proposed action will not have significant effects on any cultural resources.

We welcome your input and request your confirmation of this determination.

I would like to thank you in advance for your cooperation in this matter. Please send correspondence to my attention. If you have any question concerning this request, please do not hesitate to contact me at (718) 630-4485 or email me at peter.koutroubis@us.army.mil.

Sincerely,



Peter Koutroubis
Chief, Environmental Division
Directorate of Public Works

Enclosures:

1. Overall project location
2. Preferred sites for the proposed action
3. NYSHPO Correspondence with Fort Hamilton

Enclosure 1
Project Location for BRAC Proposed Action Alternative—
USGS Topographic Quadrangle



<p>Legend</p> <p> Fort Hamilton Boundary</p> <div style="text-align: center; margin-top: 20px;"> </div> <div style="margin-top: 10px;"> <p>0 2,000 4,000 6,000 8,000</p> <p>————— Feet</p> </div>	<p>Fort Hamilton Quadrangle Map (The Narrows Quad)</p> <p style="font-size: small;">Sources: Fort Hamilton, NYSGIS, ESRI Coordinate System: NAD 1983, State Plane New York Long Island FIPS 3104 Feet Prepared By: The Louis Berger Group</p>	<p style="text-align: center; font-size: small;">MAP INDEX</p> <p style="text-align: center; font-size: small;">QUAD INDEX</p>
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Enclosure 2
Preferred Sites for the Proposed AFRC at Fort Hamilton, NY



<p>Legend</p> <ul style="list-style-type: none"> Fort Hamilton Boundary AFRC Boundary 	<p>Fort Hamilton Proposed AFRC Site</p> <p>0 250 500 Feet</p> <p><small>Sources: Fort Hamilton, USGS, ESRI Imagery is from 2004. Coordinate System: NAD 1983, State Plane New York Long Island FIPS 3104 Feet Prepared By: The Louis Berger Group</small></p>	<p>MAP INDEX</p>
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Enclosure 3

NYSHPO Correspondence with Fort Hamilton
04PR06451



Bernadette Castro
Commissioner

New York State Office of Parks, Recreation and Historic Preservation
Historic Preservation Field Services Bureau
Peebles Island, PO Box 189, Waterford, New York 12188-0189

518-237-8643

October 28, 2005

Peter Koutroubis
Chief, Environmental Division
Directorate of Public
Department of the Army
United States Army Garrison Fort Hamilton
Brooklyn, New York 11252

Dear Mr. Koutroubis:

Re: ARMY
Cultural Resources Management Plan
Fort Hamilton
Brooklyn, Kings County
04PR06451

Thank you for requesting the comments of the State historic Preservation Office (SHPO). We have reviewed Integrated Cultural Resources Management Plan (ICRMP) for the Fort Hamilton in accordance with Section 106 of the National Historic Preservation Act of 1966 and relevant implementing regulations.

Based on our review of the ICRMP the SHPO concurs with the plan dated February 2001 (updated September 2005 by DPW) and has no further comments at this time.

If you have any questions, please call me at (518) 237-8643. Please refer to the SHPO Project Review (PR) number in any future correspondences regarding this project.

Sincerely,

Beth A. Cumming
Historic Preservation Specialist – Technical Unit
(beth.cumming@oprhp.state.ny.us)

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New York State Office of Parks, Recreation and Historic Preservation

Historic Preservation Field Services • Peebles Island, PO Box 189, Waterford, New York 12188-0189

518-237-8643

www.nysparks.com

Eliot Spitzer
Governor

Carol Ash
Commissioner

December 12, 2007

Peter Koutroubis
Chief, Environmental Division
Directorate of Public
Department of the Army
United States Army Garrison Fort Hamilton
Brooklyn, New York 11252

Re: ARMY
New AFRC at Fort Hamilton
Brooklyn, Kings County
07PR06325

Dear Mr. Koutroubis:

Thank you for requesting the comments of the State historic Preservation Office (SHPO). We have reviewed the submitted information for the proposed construction of an Armed Forces Reserve Center at Fort Hamilton in accordance with Section 106 of the National Historic Preservation Act of 1966 and the relevant implementing regulations.

Based upon our review of the information submitted, the Integrated Cultural Resource Management Plan for Fort Hamilton and the U.S. Army-wide Program Comment by the Advisory Council on Historic Preservation for Capehart Wherry era housing we are unable to concur with your effect determination at this time. We concur that the demolition of buildings 136, 138, 213, 216, 216A and 111 is not problematic. However, due to the proximity of the new construction to buildings that are listed or eligible for listing on the National Register of Historic Places, we must evaluate any potential impacts caused by the proposed new construction upon these historic buildings. Potential impacts include visually impacts to the historic setting. To assess any visual impacts of the proposed new construction, please provide elevations and floor plans for the proposed new construction. Renderings would be useful if they are available. If the proposed new construction is within 90 feet of the historic buildings, then please submit a construction protection plan to protect these historic buildings.

If you have any questions, please call me at (518) 237-8643. Please refer to the SHPO Project Review (PR) number in any future correspondences regarding this project

Sincerely,

Beth A. Cumming
Historic Site Restoration Coordinator
e-mail: Beth.cumming@oprhp.state.ny.us

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DEPARTMENT OF THE ARMY
US ARMY INSTALLATION MANAGEMENT COMMAND
UNITED STATES ARMY GARRISON FORT HAMILTON
DIRECTORATE OF PUBLIC WORKS
129 WAINWRIGHT DRIVE
BROOKLYN NY 11252-6800

REPLY TO
ATTENTION OF:

February 11, 2008

Ms. Beth Cumming
New York State Office of Parks, Recreation and Historic Preservation
Peebles Island
P.O. Box 189
Waterford, New York 12188-0189

RE: ARMY
New AFRC at Fort Hamilton
07PR06325

Dear Ms. Cumming:

Thank you for your response to our request for Section 106 consultation regarding the new AFRC project at Fort Hamilton. As requested, we have enclosed additional information in hard copy and on a CD including photos; map; design build contract request for proposal; and drawings/conceptual floors.

Once the draft design is available, there will be another opportunity to comment. However, the new AFRC will be comparable to, and on the same site of, existing Bldg 213, which is more than 400 feet away from the nearest historic building. Hopefully the additional information provided will clarify the situation. We'd also like to extend an invitation to you for a site visit to see up close how there won't be any adverse visual impacts.

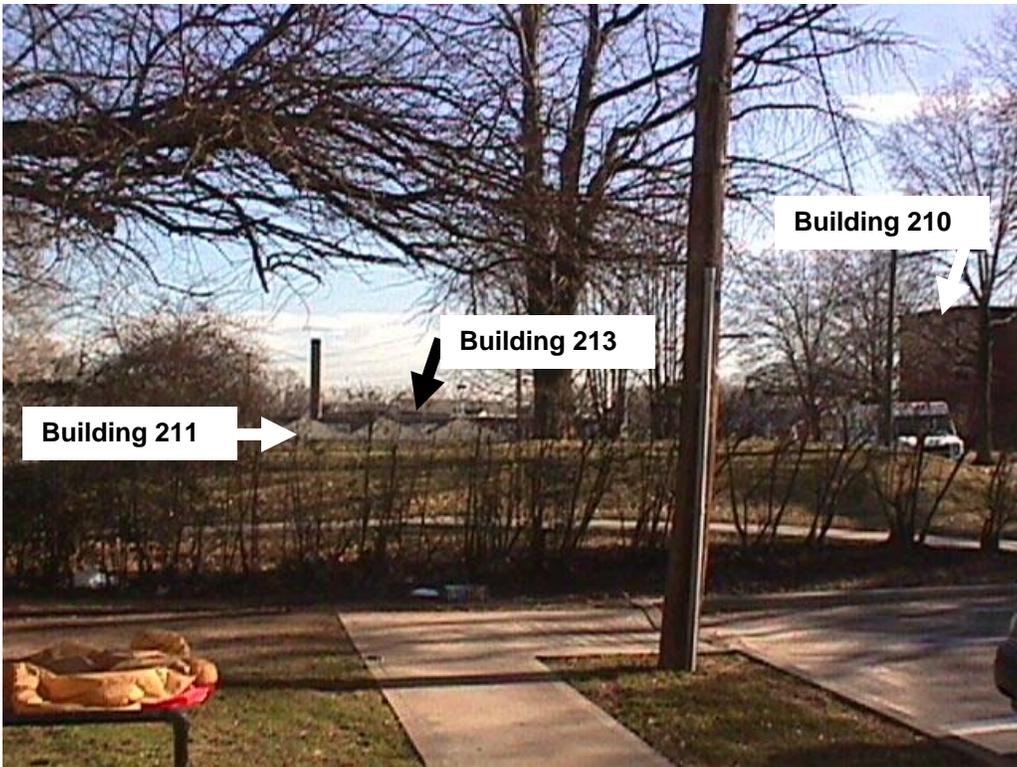
Thank you in advance for your timely review and comments. If you require further information please contact Ms. Jennifer Pipe at (718)-630-4689 or email at jennifer.pipe@us.army.mil.

Sincerely,

A handwritten signature in black ink that reads "Peter Koutroubis".

Peter Koutroubis
Chief, Environmental Division
Directorate of Public Works

Enclosures



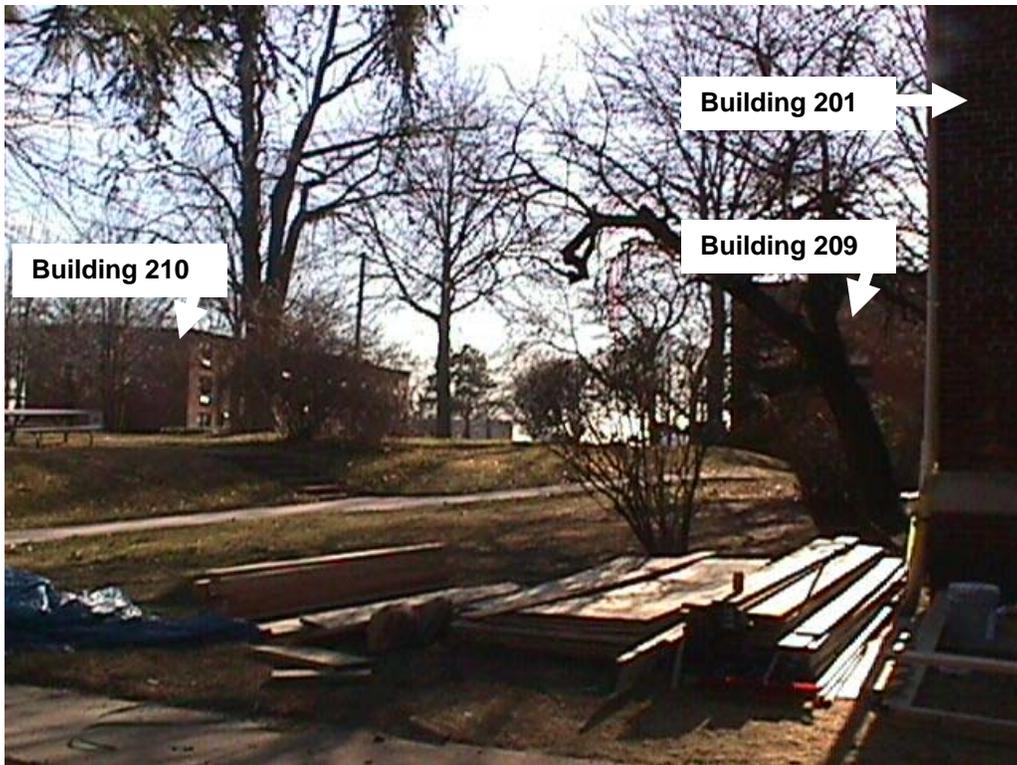
View from the rear of Building 201, Building 211 is in the foreground, Building 213 is in the background, Building 210 is on the right.



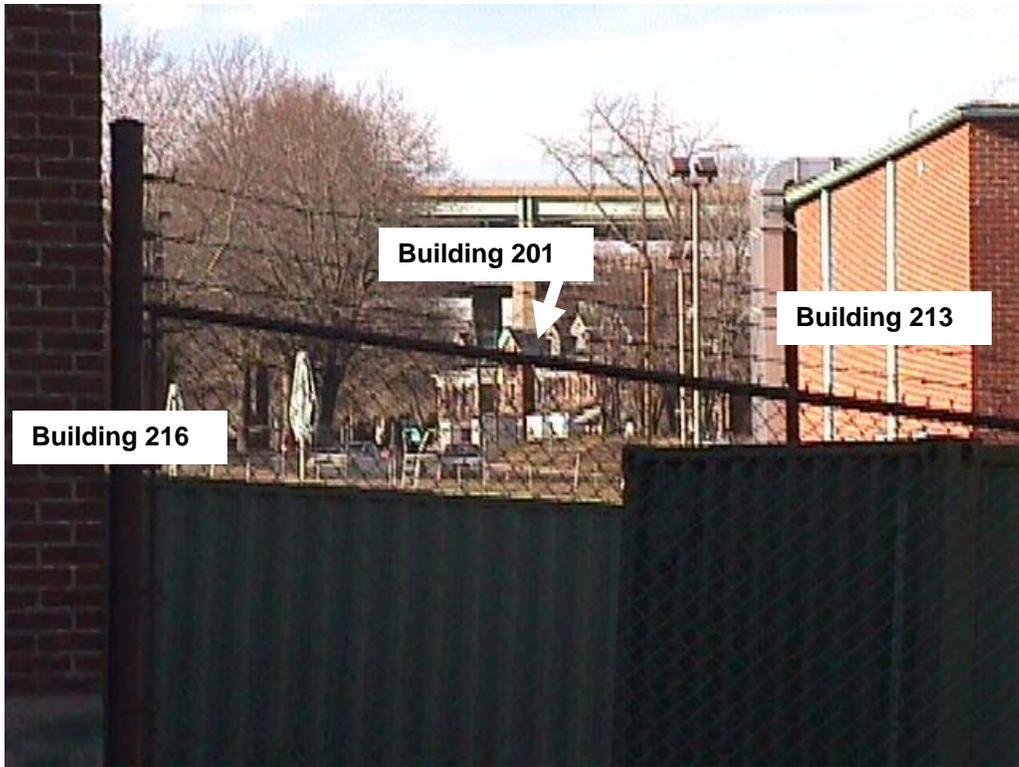
View from the driveway of Building 201, Building 211 is in the foreground, Building 213 is in the background (smokestack), Building 137 is behind the trees.



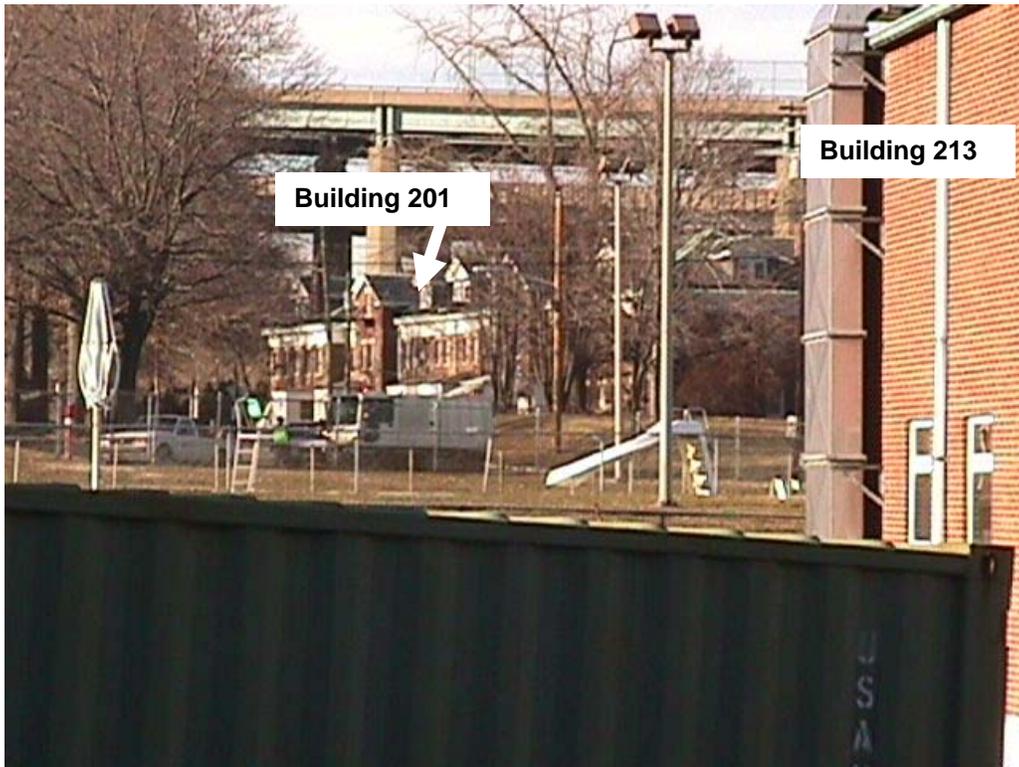
View from the front of Building 201, Building 211 peaks are in the foreground, Building 213 is in the background.



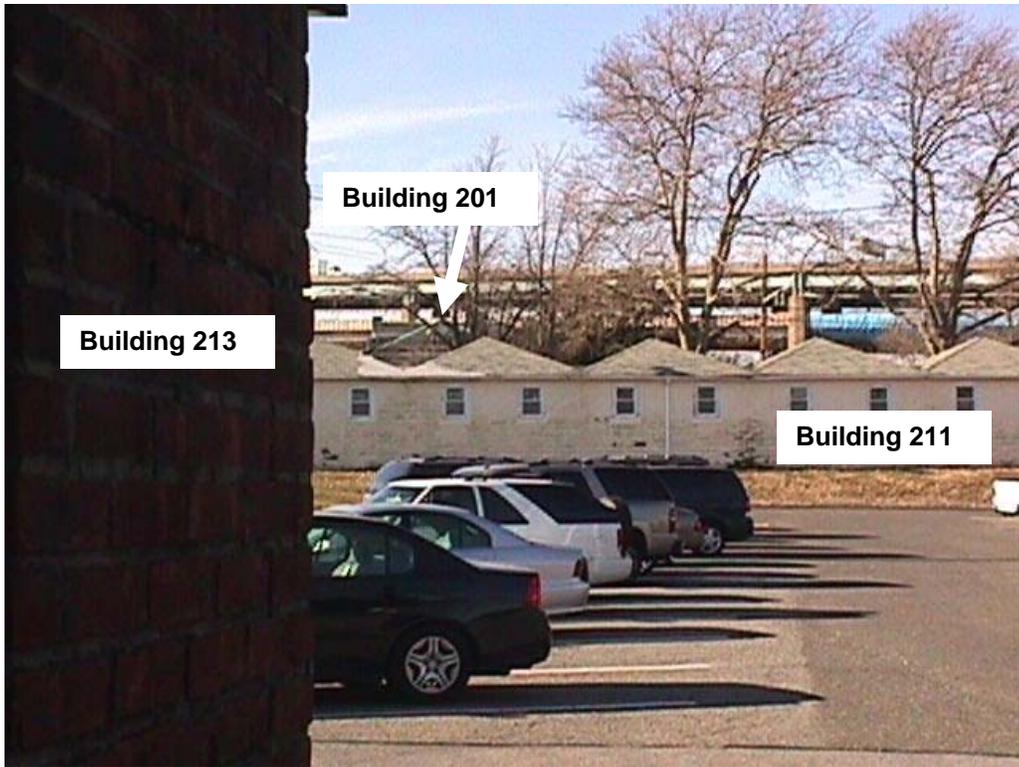
View from the corner in front of Building 201 towards Building 209 (right) and Building 210 (left).



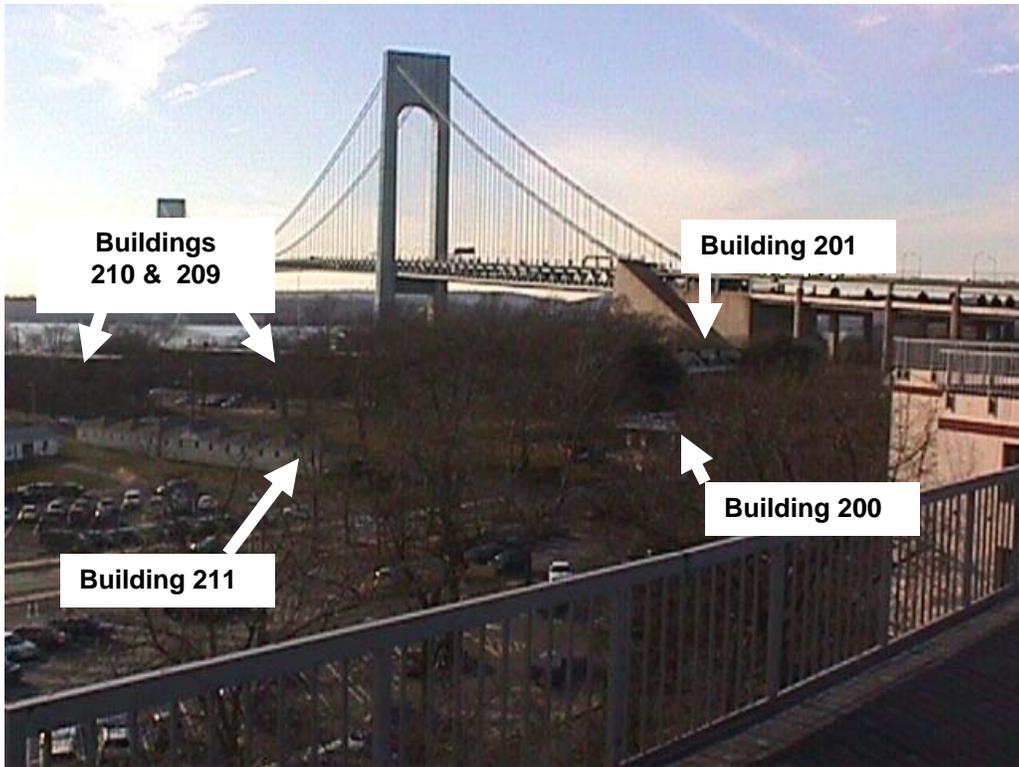
View from between Buildings 213 (right) and 216 (left) towards Building 201.



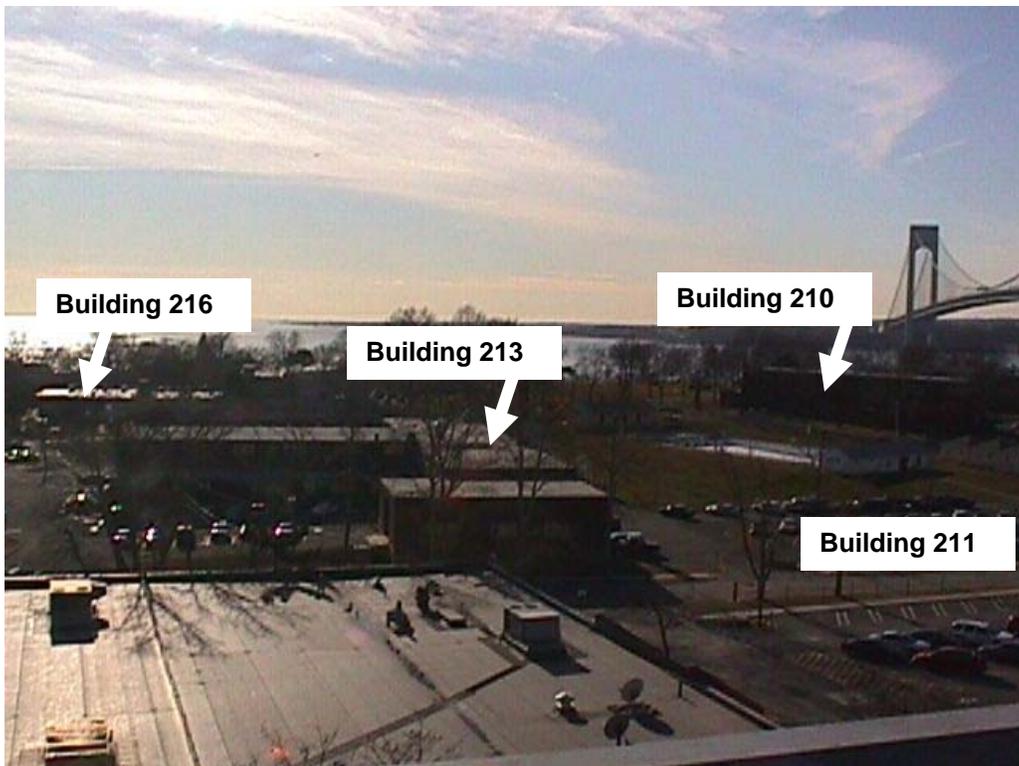
Closer view from between Buildings 213 (right) and 216 towards Building 201.



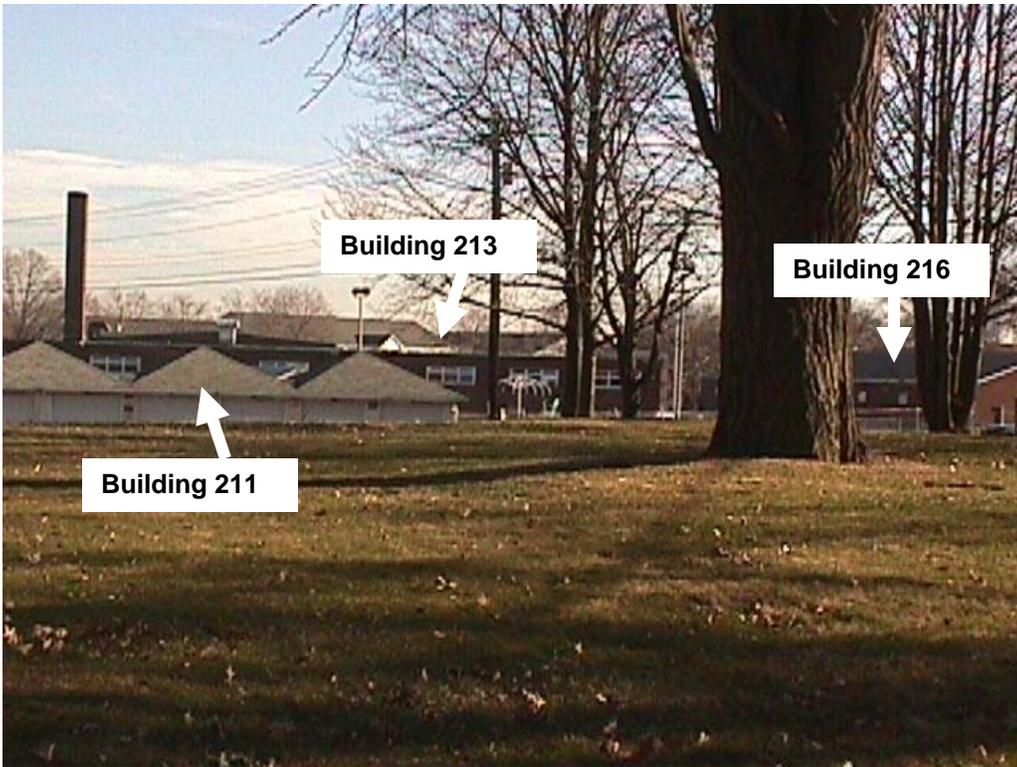
View from Building 213 towards Building 201 in the background, which Building 211 in the foreground.



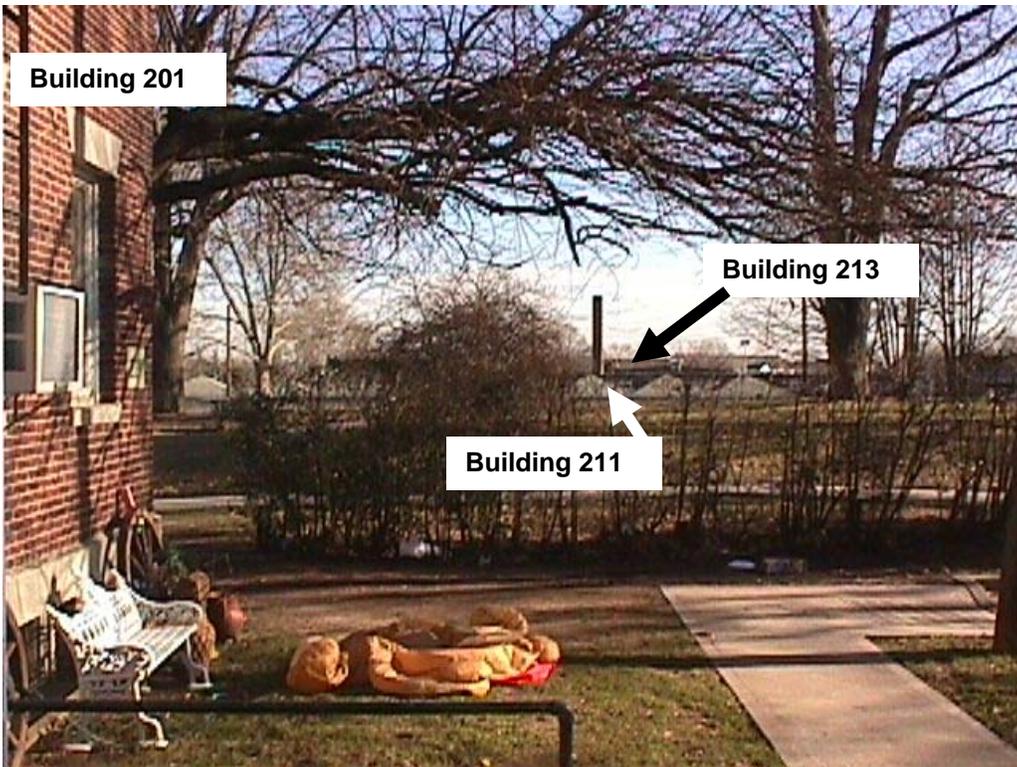
View from the top of Building 137 towards Buildings 201, 200, 211, 209 & 210.



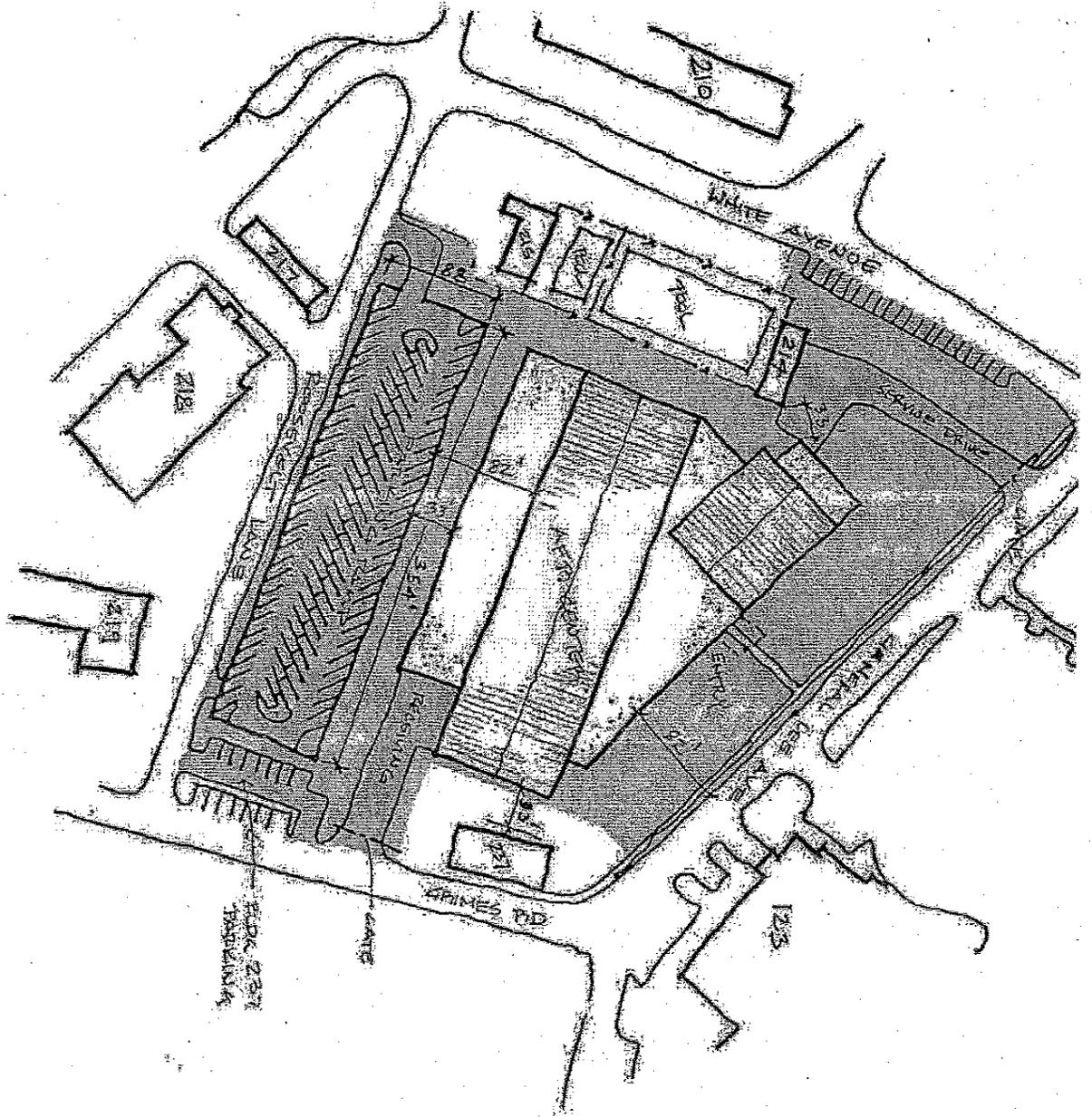
View from the top of Building 137 towards Building 213.



View from the rear of Building 201, Building 211 is in the foreground, Building 213 is in the background (smokestack), Building 216 is to the right.



View from the rear of Building 201, Building 211 is in the foreground, Building 213 is in the background (smokestack).



PAVING SUMMARY

POVERB KING APPROXIMATE AREA 13,705 Y

DECKED AREA

LEVEL 1 3,400 SQ (68 SPACES)
 LEVEL 4 1,600 SQ (32 SPACES)
 TOTAL 5,000 SQ (100 SPACES)

WHITE/VEH PAVING

300 SQ (20 SPACES)
 TOTAL 7,200 SQ

ACCESS ROAD

APPROXIMATE AREA 1,300 SQ PAVEMENT
 1,600 SQ PAVEMENT

SITELAN - PERSONS
 APPROXIMATE
 FOR HAMPTON, NY
 17 APRIL 2007

PART 6

ARCHITECTURAL AND INTERIOR DESIGN

6.1 **DESIGN GOAL.** The overall architectural design goal for the facility is to provide a functional, visually appealing facility that is a source of pride for facility users, and the Installation. The conceptual building drawings present a building design scheme which considers the Army Reserve (AR), New York Army National Guard (ARNG) and Active Army programs and which has the approval of the Government. This does not preclude the Contractor from making improvements to the design so long as such improvements are consistent with the requirements of the RFP and acceptable to the Government. The building designs are conceptual; the Contractor shall finalize all elements of the design, including exact dimensions. In completing the design, the Contractor will be allowed some latitude in manipulating the plans and elevations to improve functional layout, to accommodate structural, mechanical, electrical and other systems, and to allow flexibility for design/aesthetic expression. The spatial relationships and adjacencies, however, must be maintained, unless the Contractor recommends changes to the Government, and the Government approves such changes.

6.1.1 **Site Planning Objectives.** Provide a functional layout of building and site elements. The site plan should place emphasis on creating a safe work environment. Arrange vehicular circulation to minimize conflict with pedestrian circulation. Pavement marking and signage shall clearly delineate traffic patterns, even to first time visitors to the site. Integrate sustainable design principles by retaining and using existing topography to advantage; preserve environmentally sensitive areas and reduce overall project impact on the site.

6.1.1.2 Provide a site development plan that shows the spatial and functional arrangement of all facility requirements. The plan should ensure an economical, compatible and functional land use development that utilizes the advantages of the site, allows convenient access to the units which the facility supports, and fosters visual order. The site development plan shall show consideration for the site opportunities and constraints, program requirements, and specific site design criteria and guidance provided.

6.1.2 **Exterior Design Objectives.** Design buildings to enhance the visual environment of the installation. Exterior materials, roof forms, and detailing shall comply with the provisions of this RFP, and shall be compatible with the immediate local context. Building 107 is to be the basis for exterior design and color, refer to Attachment T for building photo. Use durable, low-maintenance materials. Configure building massing and use exterior elements such as entry elements and material detailing to provide human scale, especially at core areas.

6.1.2.1 The Army Reserve has approved the conceptual building plan, including the color scheme as discussed herein. Any appreciable change to the building footprint requires Army Reserve approval.

6.1.2.2 The AFRC Building should be the primary visual focus of the project. The Unheated Storage Buildings and Maintenance Training Building color should be complementary to the AFRC Building color palette.

6.1.3 **Interior Design Objectives.** Arrange spaces in an efficient, functional manner. Provide simple circulation schemes that allow easy wayfinding within buildings. Use durable materials and furnishings that can be easily maintained and replaced. Maximize use of daylighting and operable windows. Use interior surfaces that are easy to clean and light in color; avoid trendy or bright color schemes. Where feasible, arrange spaces to allow rearrangement of furniture layout. Structure interior spaces to allow maximum flexibility for future modifications.

6.1.3.1 The RFP provides basic finishes and a color palette for most spaces. Contractor's designers are encouraged to develop a more comprehensive finish and color palette for approval by the Government, including accent colors and finishes, especially for common-use areas of the building. Such finish and color palette shall include doors, door frames and window frames.

6.1.3.2 Functional space requirements are noted in Part 1 of this Statement of Work; Contractor's designer is to coordinate the layout with Government. The Contractor shall develop restroom and locker room plan layouts in conformance with the requirements of this RFP and UFC 4-171-05, for the approval of the Government. Fixture counts shall be based on code requirements, accessibility requirements and the requirements of the UFC 4-171-05, Appendix F. Provide a total of 95 full height lockers and the remainder half height. The number of lockers shall be based on the largest drill weekend consisting of approximately 477 reservists.

6.1.3.3 Where Contractor provides schedules, labeling or key plans (for signage, lockset keying, electrical panel schedules, communications/data wiring, etc.), Contractor shall use final room numbers if different from Construction Document room numbers. Refer to UFC 4-171-05 for guidance on room numbering.

6.1.3.4 Special design emphasis should be given to the Lobby 107 and Stair 141 areas.

6.1.3.4.1 The lobby area will serve as the formal entry to the facility. Finishes in this area shall be of higher quality and aesthetics than in the other spaces, but durability and maintainability remains important. Ceramic or quarry tile is the minimum requirement for flooring, and walls will be of abuse-resistant gypsum board, as a minimum. Designers should consider brick, tile, or specialty CMU products for walls. Corner guards shall be provided, and protective wainscoting or trim shall be provided for the walls. Bulletin boards and display cases shall be provided; confirm location with Users. Provide ample glazing for natural lighting and exterior views. Minimum ceiling height of 10 feet.

6.1.3.4.2 Stair 141 will serve as the formal connection to the classrooms and offices on the upper floors. Finishes in this stair area shall be of higher quality and aesthetics than in the other spaces, but durability and maintainability remains important. Ceramic or quarry tile is the minimum requirement for flooring, and walls will be of abuse-resistant gypsum board, as a minimum. Designers should consider brick, tile, or specialty CMU products for walls.

6.1.4 **Material and Product Selection Criteria.** Materials shall meet the requirements of this RFP, which establish a minimum quality level. Higher quality materials will be evaluated more favorably.

6.1.5 Not Used

6.1.6 **Installation Design Guide Applicability.** Refer to Attachment C for the Executive Summary from the Installation Design Guide, Fort Hamilton, NY. Excerpts from the Installation Design Guide are included for information only.

6.1.6.1 Coordinate the exterior design of the AFR Center and Maintenance Training Building with paragraph 6.4.1.1.

6.2 **GENERAL CONSTRUCTION REQUIREMENTS.**

6.2.1 The AFRC Building and Maintenance Training Building buildings shall consist of foundations to support building construction. On-grade floors shall be poured concrete, and the exterior wall system shall be as indicated below. Exterior openings shall receive steel or aluminum frame door systems, steel or aluminum windows, or aluminum curtainwall – provide operable windows at offices, unit commons, and other typically occupied spaces. The Contractor is encouraged to develop an attractive exterior design, and will be permitted to use accents of varying brick, precast concrete, stone, tile, metal or translucent panels for exterior expression. The roofing system shall be as noted below. Sloped roof structure may be joist, joist and purlin, or light gauge metal truss system.

6.2.1.1 The exterior walls of the AFRC Building shall be one of the following systems in descending order of preference:

6.2.1.1.1 Exterior cavity wall of masonry veneer and either CMU, tilt-up or pre-cast backup. Brick veneer is preferable to other masonry. Highly preferred.

6.2.1.1.2 Tilt-up or pre-cast concrete panel exterior wall, without separate wythe of masonry veneer. Exterior face of concrete panels may be cast-in thin brick. Preferred

6.2.1.1.3 Exterior wall of masonry veneer and steel stud backup. Brick veneer is preferable to other masonry.

6.2.1.2 The exterior walls of the Maintenance Training Building shall be one of the following systems in descending order of preference:

6.2.1.2.1 Exterior cavity wall of masonry veneer and either CMU, tilt-up or pre-cast backup. Brick veneer is preferable to other masonry. Highly preferred.

6.2.1.2.2 Tilt-up or pre-cast concrete panel exterior wall, without separate wythe of masonry veneer. Exterior face of concrete panels may be cast-in thin brick. Preferred.

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6.2.1.2.3 Exterior wall of masonry veneer and steel stud backup. Brick veneer is preferable to other masonry.

6.2.1.3 The roofing system of the AFRC Building and Maintenance Training Building shall be one of the following systems in descending order of preference:

6.2.1.3.1 Sloped, standing seam metal roofing – The Army Reserve prefers that sloped roofs include an overhang of at least three feet. Highly preferred.

6.2.1.3.2 Sloped, 50-year shingle –The Army Reserve prefers that sloped roofs include an overhang of at least three feet. Preferred

6.2.1.3.3. Low-slope, single-ply EPDM membrane. The Army Reserve prefers roof drainage at the perimeter of the building to interior roof drains.

6.2.1.3.4 Low-slope, modified bitumen. The Army Reserve prefers roof drainage at the perimeter of the building to interior roof drains.

6.2.1.3.5 The roof over the Kitchen area may be either of the low-slope systems noted above. Over entire Kitchen roof, provide protective covering suitable for Kitchen roofs as recommended and warranted by the manufacturer.

6.2.2 **UHS Building.** The exterior walls and roof of the Unheated Storage Building (UHS) shall be the following system:

6.2.2.1 Pre-engineered steel building with steel skin.

6.3 **OCCUPANCY AND BUILDING TYPE CLASSIFICATIONS.** Occupancy classifications, construction types, allowable areas, maximum building heights, and fire separation requirements shall comply with the requirements of the International Building Code.

6.4 **EXTERIOR DESIGN.**

6.4.1 **Acceptable Materials and Colors.** The exterior building materials are prescribed below. The RFP also provides a basic color palette; the Contractor shall develop an exterior design using this palette as the basis for color selections.

6.4.1.1 The exterior materials shall match those on the existing Army Lodging Building 107, refer to Attachment T for building photo. The following exterior materials and colors are provided as a basis for completion of the exterior design:

Brick: Glen-Gery Brick, York, Red Mat (field verify match to Building 107).

Standing Seam Metal Roof System: Color to match Kynar 500, Medium Bronze (field verify match to Building 107).

Door and Window Frames: Color to match Kynar 500, Medium Bronze (field verify match to Building 107).

Precast Sills: Field verify match to Building 107.

6.4.2 **Exterior Walls.** The major preferred materials for the exterior of the AFRC Building and Maintenance Training Building are brick for the walls, and standing seam

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Fort Hamilton, New York

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metal for the roofing. A 1 ½" minimum air gap is required for masonry veneer walls. The Contractor is encouraged to develop an attractive exterior design, and will be permitted to use accents of varying brick, precast concrete, stone, tile, metal or translucent panels for exterior expression.

6.4.2.1 In the RFP Outline Technical Specifications, Section 04 20 00.00 48-Unit Masonry System, Products, Paragraph 10 – Joint Reinforcement - replace "All wires shall be a minimum of 4 gauge" with "All wires shall be a minimum of 9 gauge."

6.4.3 **Roofs.** Sloped roofs, except for pre-engineered buildings, shall have a minimum pitch of 3:12 for standing seam metal and 4:12 for shingles. Low sloped roofs shall have a minimum pitch of ¼" per foot. Roofing system shall have a minimum of Underwriters Laboratory (UL) Class A rating for fire resistance, UL 90 wind resistance rating, and Factory Mutual (FM) I-120 fire and wind resistance rating. Roof system assembly for this project shall be a complete system, tested and approved in accordance with FM I-120, UL 580 and local building code requirements. For sloped roofs, provide snow and ice guards in accordance with industry practice.

6.4.3.1 Revise the RFP Outline Technical Specifications as follows:
Section 01 52 00.00 48 – Modified Bituminous Sheet Roofing- shall have a no dollar limit warranty. In the RFP Outline Technical Specification,
Section 01 53 30.00 48 - Single Ply Membrane Roofing revise the warranty period from 10 year to 20 year. Provide rooftop walkways to and around rooftop equipment that require maintenance.
Section 07 61 13.00 48 – Hydrokinetic (Water-Shedding) Standing Seam Metal Roofing Systems (HSSMRS) – remove section in its entirety.
Section 07 61 14.00 48 – Hydrostatic (Water-Tight) Standing Seam Metal Roofing Systems (HS-SSMRS).

1. Remove reference to UL 580 Tests for Resistance of Roof Assemblies in the following sections.

References

Design Requirements, Paragraph 2.a.

Products, Paragraph 1.a and 1.b

Products, Paragraph 4.a

2. Design Requirements, Paragraphs 2.a and 2.b – add the following "Roof manufacturer's professional engineer to perform and provide the calculations for wind uplift."

3. Warranties, Paragraph 1.a – Add the following "Provide a separate bond in an amount equal to the installed total material and installation roofing system cost in favor of the Government covering the installer's warranty responsibilities effective throughout the five (5 yr) year warranty period."

4. Products, Paragraph 1.c – Remove reference to "stucco embossed".

5. Installation, Paragraph 4 "Underlayment" – Revise the first sentence as follows: "Install self adhering underlayment parallel to roof slope and in a watershedding fashion at all valleys, eaves and rakes. In accordance with manufacturer's instructions."

6.4.4 **Trim and Flashing.** Gutters, downspouts, and fascias shall be prefinished metal; comply with SMACNA Architectural Sheet Metal Manual; provide 5-year manufacturer's finish warranty.

6.4.4.1 Provide gutters, downspouts, splash blocks and other roof drainage elements as appropriate to direct runoff away from the building without damage or erosion to landscaping or paving. Gutters and downspouts shall be provided with heat tape.

6.4.5 Miscellaneous Exterior Elements.

6.4.5.1 Trash Enclosure. Provide trash enclosure sized for two dumpsters. The trash enclosure will be CMU with brick veneer with swinging screen doors. Provide exterior and interior bollards to protect door and enclosure.

6.4.5.2 Loading Ramp. Provide bi-level concrete loading ramp, refer to Sheet A112 in drawing set for standard design.

6.4.5.3 Covered Wash Platform. Guidelines for the covered wash platform are in UFC 4-171-05 Section 3-2.6.

6.4.5.4 Splashblocks. Provide precast concrete splashblocks at all downspout or roof drain daylight locations.

6.4.5.5 Antiterrorism Gate. Provide a swing gate at the service drives as shown on the site plan to resist vehicular entry beyond the gate.

6.4.6 **Exterior Signage.** Facility monument sign and building mounted signage are minimum requirements. Signs will adhere to the Installation Sign Design Plan, refer to Attachment C. Exterior signage should read "United States Armed Forces Reserve Center."

6.4.7 Exterior Personnel Doors and Frames.

6.4.7.1 Main Entrance Doors and Hardware. Main entrance doors shall be an aluminum storefront system; other exterior doors at corridors and lobbies shall be an aluminum storefront system or full-glazed hollow metal.

6.4.7.1.1 Hardware. Provide electrified main entrance doors consisting of the following minimum hardware: Double doors shall have a removable mullion, each leaf shall have a closer, hinges (1/2 pair electric), overhead stops, offset pulls and full weather strip. Locking devices shall consist of one leaf with Electric Latch Retraction Rim Exit Device and one leaf with Night Latch Function. Single doors shall consist of a closer, hinges, overhead stops, offset pulls and full weather strip. Locking devices shall consist of Night Latch Function Rim Exit Device and electric strike. Exit devices shall comply with Life Safety requirements of NFPA 101 and UL listed modern rim style device and shall be fail secure. The exit device shall have a dogging feature or have the ability to lock the latch in a retracted position for unrestricted building entry at times of the User's choosing. Doors as noted in Section 01 02 00.01 48 "Room by Room Supplemental Requirements" shall be equipped with Entry Control Card Readers for both single and double doors (1 leaf) and shall include entry control software to control passage. Communications protocol shall be compatible with the local processor and Facility Security System. All wiring shall be concealed.

6.4.7.2 Other Exterior Non-entrance Doors and Hardware. Exterior doors and frames opening to spaces other than corridors or lobbies shall be hollow metal; comply with ANSI A250.8/SDI 100. Doors shall be Level 3, physical performance Level A, Model 2; insulated; top edge closed flush. Frames shall be Level 3, 14 gauge, with continuously welded corners and seamless face joints. Doors and frames shall be constructed of hot dipped zinc coated steel sheet, complying with ASTM A653, Commercial Steel, Type B, minimum A40 coating weight; factory primed. Anchors and accessories shall be zinc coated. Frames in masonry shall have bituminous back-coating, plaster guards, and shall be grouted solid. Fire-rated openings shall comply with NFPA 80, and the requirements of the labeling authority.

6.4.7.2.1 Hinges. ANSI/BHMA A156.1; template, full mortise, heavy duty, ball bearing, minimum size 114mm x 114mm, non-ferrous base metal, non-removable pins.

6.4.7.2.2. Locksets. ANSI/BHMA A156.13; series 1000, Grade 1 mortise locksets, non-ferrous base metal, removable core.

6.4.7.2.3 Exit (Panic) Devices. ANSI/BHMA 156.3; heavy-duty touch-pad type, through-bolted mounting. Listed and labeled for panic protection based on UL 305.

6.4.7.2.4 Closers. ANSI/BHMA A156.4; series C02000, Grade 1, hydraulic, factory-sized, adjustable to meet field conditions. Provide for all exterior doors, all doors opening to corridors, and as otherwise required by codes. At all exterior doors provide overhead holders or closers with hold-open capability.

6.4.7.2.5 Auxiliary Hardware. ANSI/BHMA A156.16. Provide wall or floor stops for all exterior doors that do not have overhead holder/stops. Provide other hardware as necessary for a complete installation.

6.4.7.2.6 Thresholds. ANSI/BHMA A156.21; non-ferrous metal. Provide at all exterior doors.

6.4.7.2.7 Weatherstripping. ANSI/BHMA A156.22. Provide at all exterior doors.

6.4.7.2.8 Kick Plates. ANSI/BHMA A156.6; non-ferrous metal. Provide at all doors with closers.

6.4.8 **Overhead Doors.** Doors to be electric motor-driven coiling or track, insulated, except at Unheated Storage building, which may be manually-operated.

6.4.9 **Exterior Windows.** Provide aluminum windows complying with American Architectural Manufacturers Association AAMA/NWWDA 101 / I.S. 2. Minimum performance class shall be Heavy Commercial (HC). Minimum wind load, and resulting design pressure and performance grade shall be determined in accordance with the International Building Code (IBC). Provide windows with insulating glass and thermal break necessary to achieve a minimum Condensation Resistance Factor (CRF) of 45. Finish shall be Architectural Class I anodic coating or AAMA 2605 organic coating. Operable windows shall have locks; provide fiberglass or aluminum insect screens removable from the inside. Design of glass, glazing, frames, connections and structure shall comply with force protection minimum standards, and other code requirements.

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Design of glass, glazing, frames, connections and structure shall comply with Antiterrorism and Force Protection Considerations, refer to Section 01 02 00.01 48 paragraph 1.2.8.

6.4.9.1 Storefront systems. Provide swing-type aluminum doors and storefront frames of size and design sufficient to withstand design minimum wind load, and with resulting design pressure determined in accordance with the International Building Code (IBC). Deflection shall be limited to not more than 1/175 times the length of the member, with a safety factor of not less than 1.65. Provide glazing beads, moldings, and trim of not less than 0.050 inch nominal thickness. Provide doors complete with frames, framing members, subframes, transoms, adjoining sidelights, adjoining window wall, trim, and accessories. Provide windows with insulating glass and thermal break to achieve no water penetration at a pressure of 8 pounds per square foot of fixed area, and air infiltration not to exceed 0.06 cubic feet per minute per square foot of fixed area at a test pressure of 6.24 pounds per square foot. Finish shall be Architectural Class I anodic coating or AAMA 2605 organic coating. Design of glass, glazing, frames, connections and structure shall comply with force protection minimum standards, and other code requirements.

6.4.10 **Thermal Insulation.** Provide exterior wall, floor, and roof/ceiling assemblies with thermal transmittance (U-values) required to comply with the energy calculations for the facilities. Insulation shall not be installed directly on top of suspended acoustical panel ceilings. The building envelope shall comply with ASHRAE Standard 90.1. The AFRC and Maintenance Training Facility minimum insulation value for exterior walls is R-13; for roofs R-30. For UHS building, provide roof and wall insulation, minimum insulation value of R-13 for roof and R-10 for walls.

6.5 INTERIOR DESIGN.

6.5.1 **General Guidance.** Interior design guidelines are addressed in UFC 4-171-05, Section 3.6. In the UFC, where finishes are indicated as "preferred" or are listed first, with alternative finishes noted, the preferred or first-listed finishes are the minimum requirement of this RFP. Additional project specific requirements are listed below and in the table in Part 1 of this Section 01 02 00.00 48.

6.5.1.1 The Army Reserve has selected four basic color palettes for interior design of AR facilities; for this project, the blue color palette has been selected. The following interior colors and materials are provided as the basis for the completion of the interior design:

Carpet

CPT1 Lees
Style: Heartland Modular D8446
Color: 427 Cascade
Type: Carpet tile

Vinyl Composition Tile

VCT1 Armstrong
Standard Excelon Imperial Texture
51874 Grayed Blue

Paint

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- PNT1 Dulux Professional
1814 Arizona White 42YY 87/084
- PNT2 Dulux Professional
1958 Connecticut Blue 90BG 17/090

6.5.1.2 Modular carpet tiles shall meet AATCC 174 test method for anti-microbial properties. A passing carpet must pass either Part I or Part II and Part III. The face and the back of the carpet must show no growth.

6.5.2 **Floors.** Non-combustible construction is preferable, even where combustible materials are allowed by code. Floor finish materials shall be as specified in the Design Guide; where "preferred" flooring materials are listed in the DG, the preferred flooring shall be the minimum requirement for this project, unless noted elsewhere in this RFP.

6.5.3 **Ceramic Floor Tile.** Comply with ANSI A 137.1 and the recommendations of Tile Council of America (TCA) Handbook For Ceramic Tile Installation. Provide marble threshold under doors where a ceramic tile floor meets a different floor finish.

6.5.4 **Interior Walls and Partitions.** Non-combustible construction is preferable, even where combustible materials are allowed by code. All stud partitions shall be steel stud.

6.5.5 **Metal Support Systems.** Non-load bearing metal studs and furring shall comply with ASTM C 645; stud gauge shall be as required by height and loading, but shall not be less than 25 gauge. Maximum stud spacing: 16 inches on center. Provide galvanized finish.

6.5.6 **Gypsum Board.** Comply with ASTM C 36. Minimum panel thickness shall be 5/8 inch. Provide Type X panels in fire-rated assemblies. Provide moisture resistant panels at locations subject to moisture. Provide abuse-resistant panels for corridors and other areas of likely high circulation use. Joint treatment: ASTM C 475. Screws ASTM C 646. Drywall installation: ASTM C 840.

6.5.7 **Ceramic Wall Tile.** Comply with ANSI A 137.1 and the recommendations of Tile Council of America (TCA) Handbook For Ceramic Tile Installation. Substrate for wall tile shall be mortar setting bed or cement backer board (gypsum board is not acceptable).

6.5.8 **Ceilings.** Non-combustible construction is preferable, even where combustible materials are allowed by code. Provide access panels where required for access to equipment or controls.

6.5.9 **Interior Doors and Frames.** Provide hollow metal frames, and wood or hollow metal doors. Doors to offices, unit commons, classrooms, toilets, and other typically occupied spaces shall be wood; doors to more utilitarian spaces shall be hollow metal. Provide lights in doors where reasonable based on space usage and borrowing of daylight. Refer to UFC 4-171-05, Section 3.5.5 for additional guidance on interior doors.

6.5.9.1 Hollow Metal Doors. Comply with ANSI A250.8/SDI 100. Doors shall be Level 2, physical performance Level B, Model 2; factory primed. Anchors and accessories shall be zinc coated. Frames in masonry shall have bituminous back-coating, plaster guards, and shall be grouted solid.

6.5.9.2 Wood Doors. Solid core flush wood door with staved lumber or particleboard core, Type II flush doors for interior use conforming to WWDA I.S.1-A with faces of premium grade hardwood veneer. Fire Rated Wood Doors shall conform to the requirements of UL 10B, ASTM E 152, or NFPA 252 for the class of door indicated and shall be provided with hardware reinforcement blocking in compliance with the manufacturer's labeling requirements and shall not be mineral material similar to the core. Affix a permanent metal label with raised or incised markings indicating testing agency's name and approved hourly fire rating to hinge edge of each door.

6.5.9.3 Hollow Metal Frames. Comply with ANSI A250.8/SDI 100. Frames shall be Level 2, 16 gauge, with continuously welded corners and seamless face joints; factory primed. Anchors and accessories shall be zinc coated. Frames in masonry shall have bituminous back-coating, plaster guards, and shall be grouted solid.

6.5.9.4 Fire-rated and Smoke Control Doors and Frames. Comply with International Building Code (IBC), NFPA 80, and requirements of labeling authority. Doors and frames shall bear labels from IBC approved testing laboratory. Comply with positive pressure testing requirements of IBC.

6.5.10 **Interior Door Finish Hardware.** Refer to UFC 4-171-05, Section 3.5.3 for guidance on door hardware and lockset guidance.

6.5.10.1 Hinges. ANSI/BHMA A156.1; template, full mortise; heavy duty, ball bearing on doors with closers; standard duty anti-friction bearing on doors without closers. Minimum size: 114mm x 114mm.

6.5.10.2 High Security Locksets. [Consult User for hardware type for secure areas]

6.5.10.3 Locksets on Interior Doors. ANSI/BHMA A156.13; series 1000, Grade 1 mortise locksets, non-ferrous base metal, removable core

6.5.10.4 Exit (Panic) Devices. ANSI/BHMA 156.3; heavy-duty touch-pad type, through-bolted mounting. Listed and labeled for panic protection based on UL 305.

6.5.10.5 Closers. ANSI/BHMA A156.4; series C02000, Grade 1, hydraulic, factory-sized, adjustable to meet field conditions. Provide for all entry doors to living units, all doors opening to corridors and as required by codes.

6.5.10.6 Auxiliary Hardware. ANSI/BHMA A156.16. Provide wall stops for all doors that do not have overhead holder/stops. Provide other hardware as necessary for a complete installation.

6.5.10.7 Kick Plates. ANSI/BHMA A156.6; non-ferrous metal. Provide at all doors with closers.

6.5.11 **Casework.**

6.5.11.1 **Vanity Countertop at Toilet Rooms.** Countertops shall be solid surfacing material, with integral coved backsplash. Substrate shall be two layers of 19 mm thick exterior grade plywood. Reinforce countertop with concealed steel angles so that top will not deflect more than 5 mm when 115 kg load is applied at mid-span. Comply with AWI Section 400 Custom Grade requirements.

6.5.11.2 **Other Casework.** Provide architectural casework complying with AWI Section 400, Custom Grade cabinets with high pressure decorative laminate finish meeting NEMA LD3 standards. Horizontal laminate: nominal 1.27mm thick; vertical laminate: nominal 0.71mm thick. Door and drawer edges shall be heavy duty 3 mm extruded polyvinyl chloride with self-locking serrated tongue. Worksurfaces and counter shall be high pressure decorative laminate, or solid surfacing material.

6.5.12 **Window Treatments.** Provide horizontal aluminum mini-blinds at all interior and exterior windows in core areas, except windows and storefront in corridors. Blinds shall have 25.4mm wide x 0.2mm thick slats with anti-static, anti-microbial polyester baked enamel finish. Provide heavy duty 25.4mm x 38.1mm steel headrail, and tubular steel bottom rail finished to match slats. Provide window blinds at all exterior windows, except in Lobby and at door sidelights. Color should be off-white.

6.5.13 Interior Signage. Comply with requirements of ADAAG and UFAS. Provide interior room identification signage for all rooms, directional signage, Army Reserve Minuteman plaque, and building directory in corridor at main entry. Coordinate locations with User. List all rooms which require room identification signage; coordinate with the installation interior signage standard, if one exists.

UFC 3-120-01, Air Force Sign Standard, 6 Feb 2003, has been accepted by the services as the signage criteria. Note that it has no A, N, or F subscript. It is the signage criteria without Army exception or supplement, and should be substituted for the TM reference in the Installation Design Standards. The document is available at:

http://www.wbdg.org/ccb/DOD/UFC/ufc_3_120_01.pdf

6.5.14 **Corner Guards.** Provide wall and corner guards in corridors to match wall color. In the Unit Storage provide steel angle corner guards or bollards at wall corners and overhead doors.

6.5.15 **Column Enclosures.** If not required by code, provide gypsum board column enclosures, finished and painted, for all exposed columns in offices, classrooms, open office areas, simulation suites, break room, lobby, corridors, toilets, mail room, physical training, locker room, and similar finished or normally occupied spaces. Columns in building service spaces and other utilitarian spaces may be painted and left exposed, unless enclosure is required by code.

6.5.16 **Fire Extinguishers.** Provide fire extinguishers in accordance with applicable criteria in Section 01 02 00.02 48 and with the Fire Protection/Life Safety Code Submittal document provided in Attachment G. Provide recessed or semi-recessed fire

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extinguisher cabinets in occupied areas. Provide surface-mounted fire extinguisher cabinets in storage and mechanical/electrical spaces.

6.5.17 **GFGI Office Equipment.** Provide power and data connections as required for at least the following GFGI office equipment as noted in Section 01 02 00.01 48 "Room by Room Supplemental Requirements". Coordinate desired locations with Users.

6.5.18 Not Used

6.5.19 Extra heavy duty shelving for AFRC Building, Rooms 117, 134,135, 137, 138 and 139, and for AR Unheated Storage Building, ARNG Storage Buildings 1 and 2.

6.5.19.1 Typical storage shelving shall be metal storage shelving, and nominal 24 inches in depth – see Outline Specification Section 10 56 13.00 48.

6.5.19.2 Storage racks for the duffle bag cages in AFRC Building, Room 117 shall be as detailed on Attachment N.

6.6 FURNITURE AND EQUIPMENT.

6.6.1 The Contractor shall provide design and design documents (Comprehensive Interior Design or CID), as described in this RFP, for the furniture and some equipment that is to be purchased and installed by the Government (Government-furnished, Government-installed or GFGI). The following items are the GFGI furniture and equipment in this project (see also Paragraph 1.3.4):

Items shown with identifying notes, or detailed, on the "I" series sheets in this RFP
Workbenches

6.6.1.1 Provide design and other required documentation for furniture in all spaces as indicated on floor plans, furniture plans, in Part 2, and in Spec Section 12705.

6.6.1.2 The Government will purchase and install the furniture using the Contractor's design documents and information. See Section 01 03 00.00 48 and its attachments for requirements for design documents and information (CID). Furniture is shown and called out on the "I" series drawings. The Contractor is responsible for coordinating its work with the furniture installation, and for connection of power, voice and data cabling and devices to the workbenches and system furniture once it is installed. Contractor shall base the design of the office and unit common workstation furniture on the "Knoll Designated Furniture Project" as per the requirement of Section 01 03 00.00 48- Attachment A. The Government has already performed a study establishing Knoll as the provider for this project.

6.6.2 Where offices are noted as requiring wood furniture, provide high quality wood furniture of a traditional type, with ornamentation. Chairs shall be wood and leather; desk chair shall be high-backed.

6.6.3 Seating will be by UNICOR, refer to Section 01 03 00.00 48, Attachment A.



SYMBOL	REVISIONS	DATE	APPR

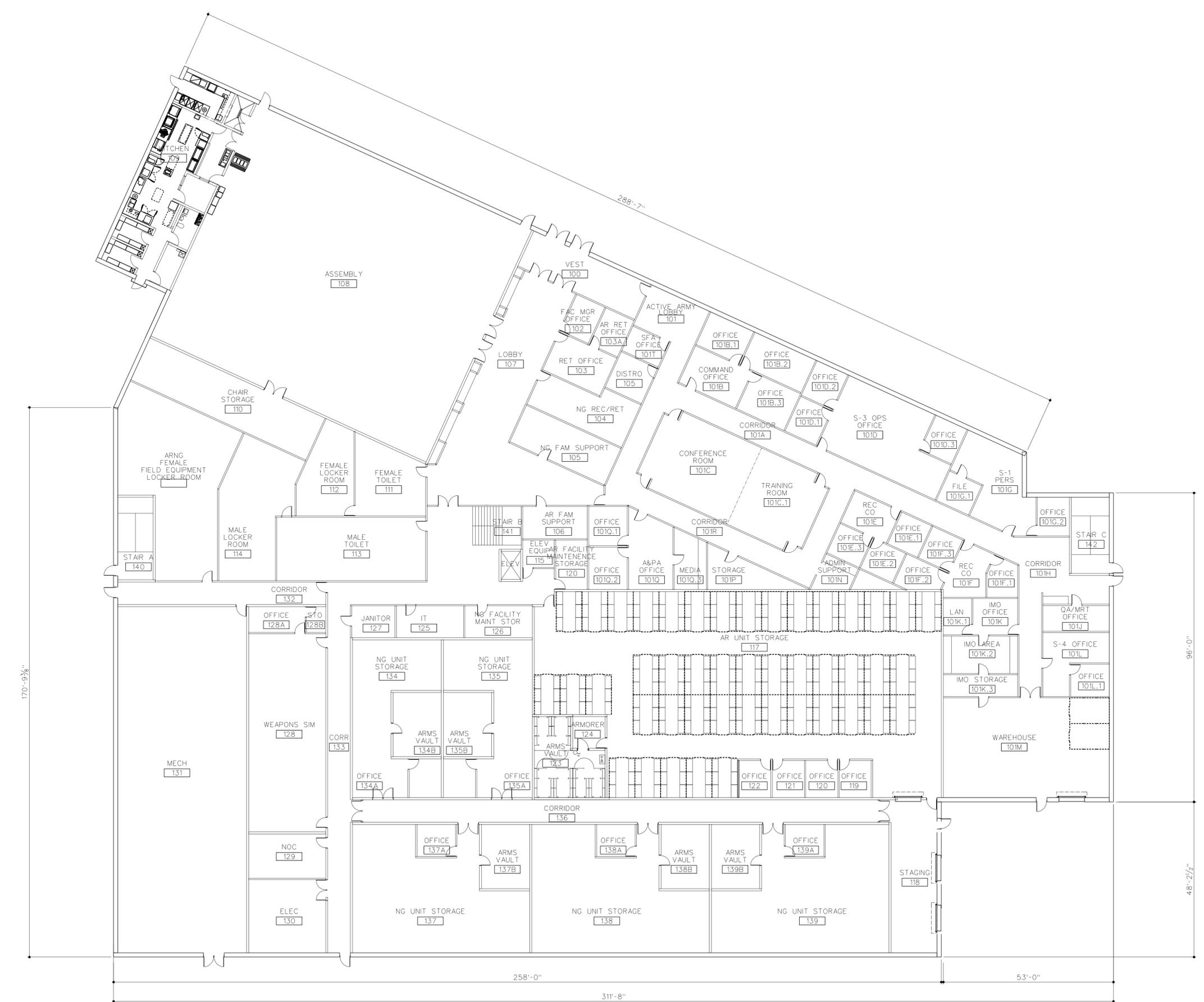
Designed by: J NELSON	Checked by: M STOBLEAD	Date: 3 JUNE 2007	Rev. 2007
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		Drawing code: XXXXXXXXXX	Drawing code: XXXXXXXXXX
		File name: 	File name:
		Submitted by: 	Submitted by:

RSP Architects, Ltd.
 612.677.7000
 Minneapolis, MN 55415

PROJECT:
 AFR CENTER / UNH STRG
 FORT HAMILTON, NEW YORK

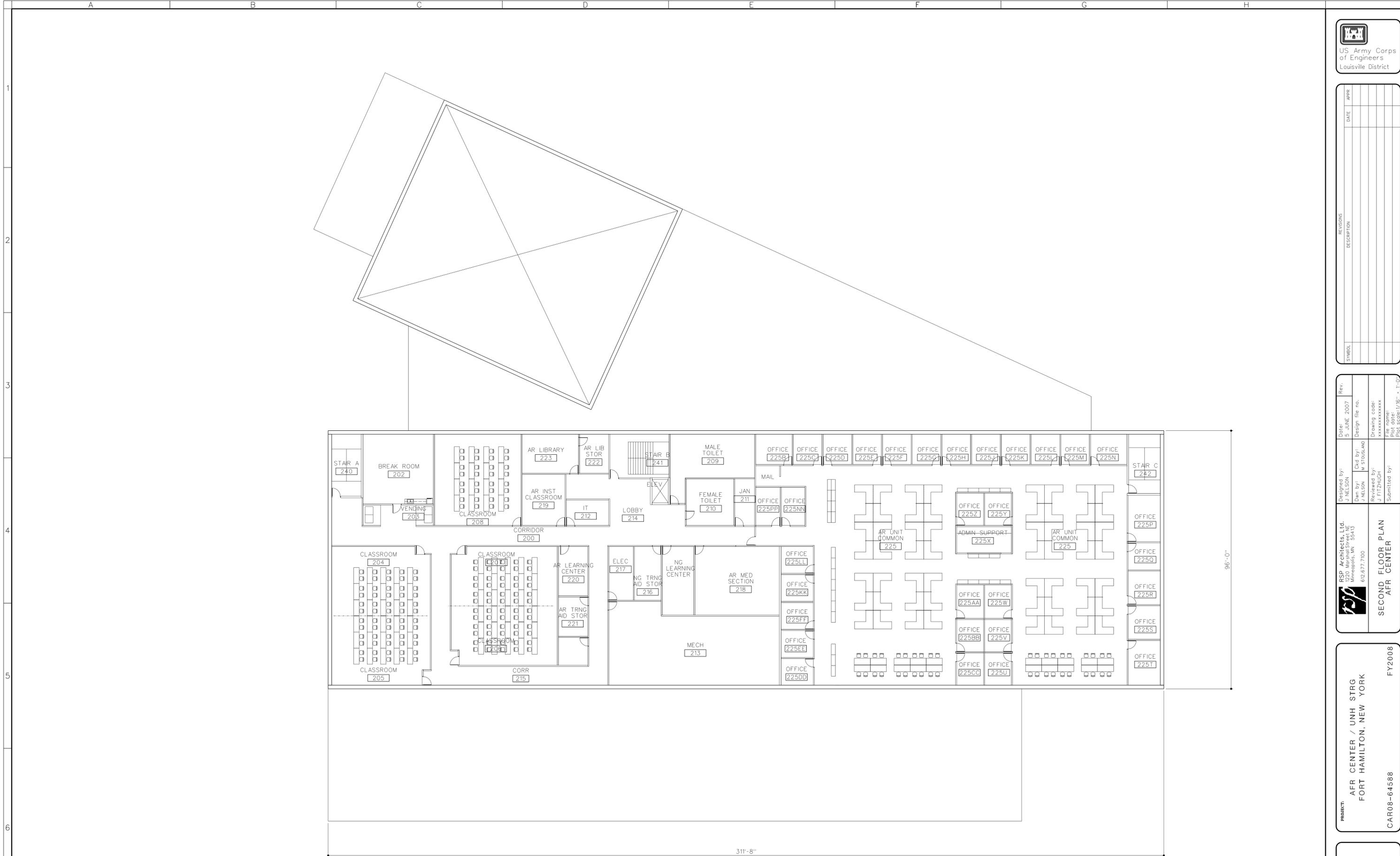
FY2008
 CAR08-64588

A111a



1 FIRST FLOOR PLAN
A111a 1/16" = 1'-0"





1
2
3
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1 SECOND FLOOR PLAN
A111b 1/16" = 1'-0"



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 RSP Architects, Ltd. Minneapolis, MN 55415 612.677.7100		SECOND FLOOR PLAN AFR CENTER	

PROJECT: AFR CENTER / UNH STRG
FORT HAMILTON, NEW YORK
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New York State Office of Parks, Recreation and Historic Preservation

Carol Ash
Commissioner

Historic Preservation Field Services • Peebles Island, PO Box 189, Waterford, New York 12188-0189

518-237-8643

www.nysparks.com

March 14, 2008

Peter Koutroubis
Chief, Environmental Division
Directorate of Public
Department of the Army
United States Army Garrison Fort Hamilton
Brooklyn, New York 11252

Re: ARMY
New AFRC at Fort Hamilton
Brooklyn, Kings County
07PR06325

Dear Mr. Koutroubis:

Thank you for providing additional information to the State historic Preservation Office (SHPO). We have reviewed the submitted information for the proposed construction of an Armed Forces Reserve Center at Fort Hamilton in accordance with Section 106 of the National Historic Preservation Act of 1966 and the relevant implementing regulations.

We have reviewed the photos provided, the "Part 6 Architectural and Interior Design," the preliminary plans and your letter of February 11, 2008 which states that the new AFRC will be comparable to, and on the same site of the existing Bldg 213. Based upon our review of this documentation, we can now concur that the proposed AFRC will have No Adverse Effect upon historic resources. If there are substantive changes to the project, these should be submitted for our review and comment.

If you have any questions, please call me at (518) 237-8643. Please refer to the SHPO Project Review (PR) number in any future correspondences regarding this project

Sincerely,

Beth A. Cumming
Historic Site Restoration Coordinator
e-mail: Beth.cumming@oprhp.state.ny.us

cc: Jennifer Pipe (via e-mail)

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**APPENDIX C— ECONOMIC IMPACT
FORECAST SYSTEM (EIFS) MODEL**

SOCIOECONOMIC IMPACT ASSESSMENT

Socioeconomic impacts are linked through cause-and-effect relationships. Military payrolls, local procurement of goods and services, and construction projects all contribute to the economic base of the region of influence (ROI). In this regard, changes at Fort Hamilton, per the Proposed Action, would have a multiplier effect on the local and regional economy. With the Proposed Action, direct jobs would be created, generating new income and increasing personal spending. This spending generally creates secondary jobs, increases business volume, and increases revenues for schools and other social services.

THE ECONOMIC IMPACT FORECAST SYSTEM

The U.S. Army, with the assistance of many academic and professional economists and regional scientists, developed the Economic Impact Forecast System (EIFS) to address the economic impacts of actions requiring analysis under the National Environmental Policy Act (NEPA) and to measure their significance. As a result of its designed applicability, and in the interest of uniformity, EIFS is used in NEPA assessments for a number of Army BRAC NEPA documents. The entire system is designed for the scrutiny of a populace affected by the actions being studied. The algorithms in EIFS are simple and easy to understand, but still have firm, defensible bases in regional economic theory.

EIFS was developed under a joint project of the U.S Army Corps of Engineers (USACE), the U.S. Army Environmental Policy Institute (AEPI), and the Computer and Information Science Department of Clark Atlanta University, Georgia. EIFS is an on-line system, and the EIFS Web application is hosted by the USACE, Mobile District. The system is available to anyone with an approved user-id and password. University staff and the staff of USACE, Mobile District is available to assist with the use of EIFS.

The databases in EIFS are national in scope and cover the approximately 3,700 counties, parishes, and independent cities that are recognized as reporting units by federal agencies. EIFS allows the user to define an economic ROI by identifying the counties, parishes, or cities to be analyzed. Once the ROI is defined, the system aggregates the data, calculates multipliers and other variables used in the various models in EIFS, and prompts the user for forecast input data.

THE EIFS MODEL

The basis of the EIFS analytical capabilities is the calculation of multipliers that are used to estimate the impacts resulting from Army-related changes in local expenditures or employment. In calculating the

multipliers, EIFS uses the economic base model approach, which relies on the ratio of total economic activity to basic economic activity. Basic, in this context, is defined as the production or employment engaged to supply goods and services outside the ROI or by federal activities (such as military installations and their employees). According to economic base theory, the ratio of total income to basic income is measurable (as the multiplier) and sufficiently stable so that future changes in economic activity can be forecast. This technique is especially appropriate for estimating aggregate impacts and makes the economic base model ideal for the EA and EIS process.

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

The user inputs into the model the data elements which describe the U.S. Army action: the change in expenditures, or dollar volume of the construction project(s); change in civilian or military employment; average annual income of affected civilian or military employees; the percent of civilians expected to relocate due to the U.S. Army's action; and the percent of military living on-post. Once these are entered into the EIFS model, a projection of changes in the local economy is provided. These are projected changes in sales volume, income, employment, and population. These four indicator variables are used to measure and evaluate socioeconomic impacts. Sales volume is the direct and indirect change in local business activity and sales (total retail and wholesale trade sales, total selected service receipts, and value-added by manufacturing). Employment is the total change in local employment due to the proposed action, including not only the direct and secondary changes in local employment, but also those personnel who are initially affected by the military action. Income is the total change in local wages and salaries due to the proposed action, which includes the sum of the direct and indirect wages and salaries, plus the income of the civilian and military personnel affected by the proposed action. Population is the increase or decrease in the local population as a result of the proposed action.

THE SIGNIFICANCE OF SOCIOECONOMIC IMPACTS

Once model projections are obtained, the Rational Threshold Value (RTV) profile allows the user to evaluate the significance of the impacts. This analytical tool reviews the historical trends for the defined region and develops measures of local historical fluctuations in sales volume, income, employment, and population. These evaluations identify the positive and negative changes within

which a project can affect the local economy without creating a significant impact. The greatest historical changes define the boundaries that provide a basis for comparing an action's impact on the historical fluctuation in a particular area. Specifically, EIFS sets the boundaries by multiplying the maximum historical deviation of the following variables:

		Increase	Decrease
Sales Volume	X	100%	75%
Income	X	100%	67%
Employment	X	100%	67%
Population	X	100%	50%

These boundaries determine the amount of change that will affect an area. The percentage allowances are arbitrary, but sensible. The maximum positive historical fluctuation is allowed with expansion because economic growth is beneficial. While cases of damaging economic growth have been cited, and although the zero-growth concept is being accepted by many local planning groups, military base reductions and closures generally are more injurious to local economics than are expansion.

The major strengths of the RTV are its specificity to the region under analysis and its basis on actual historical data for the region. The EIFS impact model, in combination with the RTV, has proven successful in addressing perceived socioeconomic impacts. The EIFS model and the RTV technique for measuring the intensity of impacts have been reviewed by economic experts and have been deemed theoretically sound.

APPENDIX D— AIR QUALITY APPLICABILITY ANALYSIS

GENERAL CONFORMITY APPLICABILITY ANALYSIS

An impact study was performed to assess air quality effects resulting from construction and operation of the Proposed Action. This study provides findings on ambient air quality concentrations and compliance with the regulations and standards promulgated by the Clean Air Act and Amendments (CAAA), the National Ambient Air Quality Standards (NAAQS), as well as the requirements indicated in the New York State Implementation Plan (SIP).

An air quality applicability analysis was conducted to identify potential increases or decreases in criteria air pollutant emissions associated with the proposed construction at Fort Hamilton, New York. The project will occur within a U.S. Environmental Protection Agency (USEPA) designated moderate non-attainment zone for ozone and non-attainment zone for particulate matter (2.5 microns) and is subject to the federal conformity requirements. The region recently came into attainment for carbon monoxide (CO) on 20 May 2002, and therefore the area is a maintenance zone for carbon monoxide. The purpose of the analysis is to apply the Federal General Conformity Rule established in 40 CFR, Part 93 entitled: *Determining Conformity of Federal Actions to State or Federal Implementation Plans* to the Proposed Action Alternative in order to determine any effect on air quality.

The federal conformity rules were established to ensure that federal activities do not hamper local efforts to control air pollution. In particular, Section 176(c) of the Clean Air Act (CAA) prohibits federal agencies, departments or instrumentalities from engaging in, supporting, licensing, or approving any action, in an area that is in non-attainment of the NAAQS, which does not conform to an approved state or federal implementation plan. Therefore, the agency must determine whether or not the project would interfere with the clean air goals in the SIP.

1.0 PROJECT DESCRIPTION

The Proposed Action would be constructed between February 2008 and February 2010. A conservative approach was initially employed in the applicability analysis to assure that construction scheduling would not result in higher levels of emissions than predicted. The analysis first assumed that the construction emissions for all of the buildings would occur concurrently over the same 1-year period. These results were further added to estimated data for 1 year of operations, bounding the potential emissions that might result for any overlap between construction and operations emissions.

2.0 METEOROLOGY/CLIMATE

Fort Hamilton is located in the borough of Brooklyn in New York City adjacent to Lower New York Bay, which results in wide seasonal swings of hot and cold temperatures. The climate is humid in the summer and precipitation is moderate and distributed evenly throughout the year (World Climate, ND).

The average temperature at Fort Hamilton is 55 degrees Fahrenheit (°F). The area experiences warm summers and cold winters. Summer temperatures average in the mid 80s, with temperatures above 90°F occurring occasionally in July and August. Winter temperatures range from lows in the mid 20s to highs in the upper 30s. The average rainfall is approximately 44 inches per year (World Climate, ND)

3.0 CURRENT AMBIENT AIR QUALITY CONDITIONS

Fort Hamilton is located in Kings County, New York which the U.S. EPA has classified as in non-attainment for PM_{2.5} and in moderate non-attainment for ozone.¹ Kings County was previously in non-attainment for CO, but came into attainment in 2002 and is now in maintenance for CO to ensure the county remains in attainment.

4.0 AIR QUALITY REGULATORY REQUIREMENTS

The U.S. EPA defines ambient air in 40 CFR Part 50 as “that portion of the atmosphere, external to buildings, to which the general public has access.” In compliance with the CAA and the CAAA, the U.S. EPA has promulgated NAAQS. The NAAQS were enacted for the protection of the public health and welfare, allowing for an adequate margin of safety. To date, the USEPA has issued NAAQS for seven criteria pollutants: carbon monoxide (CO), sulfur dioxide (SO₂), particulate matter (particles with a diameter less than or equal to a nominal 10 micrometers (PM₁₀) and particles with a diameter less than or equal to nominal 2.5 micrometers (PM_{2.5}), ozone (O₃), nitrogen dioxide (NO₂), and lead (P_b). Federal regulations designate Air-Quality Control Regions (AQCRs) in violation of the NAAQS as non-attainment areas. According to the severity of the pollution problem, non-attainment areas can be categorized as marginal, moderate, serious, severe, or extreme. The U.S. EPA classifies the New York – New Jersey – Long Island, NY – NJ- CT metropolitan area, which includes Kings County and Fort

¹ PM_{2.5} non-attainment areas have not yet been divided into severity levels and therefore are all classified as general non-attainment.

Hamilton, as in moderate non-attainment for the 8-hour ozone NAAQS and in non-attainment for PM_{2.5}. It is in maintenance for carbon monoxide.

The NAAQS for ozone, CO, and PM_{2.5} are presented in Table D-1.

Table D-1. National Ambient Air Quality Standards for Ozone, PM_{2.5} and CO

Pollutant	Federal Standard	New York Standard
Ozone (O ₃) [*] 8-Hour Average	0.08 ppm	0.08 ppm
Particulate Matter (PM _{2.5}) [*] 24-Hour Average Annual Geometric Mean	35 ug/m ³ 15 ug/m ³	N/A
Total Suspended Particulates (TSP): 12 consecutive months 24-Hour	N/A	75 ug/m ³ 250 ug/m ³
Carbon Monoxide (CO) ^{**} 1-Hour Average 8-Hour Average	35 ppm 9 ppm	35 ppm 9 ppm

* Federal primary and secondary standards for this pollutant are identical.

** There are no secondary standards for this pollutant.

Sources: USEPA, 2007c; NYSDEC, ND

Kings County is also in the ozone transport region (OTR). It is in attainment for all other criteria pollutants. In December 2006, a federal appellate court remanded the USEPA's 8-hour ozone standard. No final decision has been reached on the outcome for this decision. Fort Hamilton is not permitted as a major source and, therefore, is not subject to New Source Review (NSR).

To regulate the emission levels resulting from a project, federal actions located in non-attainment areas are required to demonstrate compliance with the general conformity rule established in 40 CFR Part 93 Determining Conformity of Federal Actions to State or Federal Implementation Plans (the Rule). The project area is located within a non-attainment area; therefore, a General Conformity Rule applicability analysis is warranted.

Section 93.153 of the Rule sets applicability requirements for projects subject to the Rule through establishment of *de minimis* levels for annual criteria pollutant emissions. These *de minimis* levels are set according to criteria pollutant non-attainment area designations. For projects below the *de minimis* levels, a conformity determination is not required. Those at or above the levels are required to perform

a conformity analysis as established in the Rule. The *de minimis* levels apply to emissions that can occur during the construction and operation phases of the action.

Fort Hamilton has completed a General Conformity Rule applicability analysis to analyze any impact to air quality. Emissions have been estimated for the ozone precursor pollutants NO_x and volatile organic compounds (VOC). Annual emissions for these compounds were estimated for each of the project actions (construction and operation) to determine if they would be below or above the *de minimis* levels established in the Rule. The *de minimis* for moderate ozone non-attainment areas in the OTR is 100 tons per year (TPY) for NO_x and 50 TPY for VOC. As a result of the revoking of the 1-hour ozone Standard in 2005, the New York Department of Environment Conservation (NYSDEC) did not adopt the relaxed standard. Instead the state has upheld the severe *de minimis* thresholds in areas that have previously been in severe non-attainment for ozone. Legislation is still pending regarding this decision. As a result, this applicability analysis displays both Federal and state *de minimis* levels. The state *de minimis* levels for ozone are 25 TPY for both NO_x and VOC (Lawyer, 2007).

On July 11, 2006 USEPA established *de minimis* levels for PM_{2.5}. The final rule established 100 TPY as the *de minimis* emission level under non-attainment for directly emitted PM_{2.5} and each of the precursors that form it (sulfur dioxide (SO₂), NO_x, VOC, and ammonia). This 100 TPY threshold applies separately to each precursor. This means that if an action's direct or indirect emissions of PM_{2.5}, SO₂, NO_x, VOC, or ammonia exceed 100 TPY, a General Conformity determination would be required. However, neither USEPA nor New York have found PM_{2.5} problems to be caused by VOC or ammonia; therefore, ammonia is not further addressed in this analysis (VOC is addressed as an ozone precursor). The *de minimis* level for a region in maintenance for CO is 100 TPY.

Sources of NO_x, VOC, PM_{2.5}, CO, and SO₂ associated with the proposed project would include emissions from construction and demolition equipment, construction crew commuting vehicles, fugitive dust (PM_{2.5}), painting of interior building surfaces, and parking spaces (VOC only), emissions from daily commuters, and emissions from stationary units (boilers and generators).

In addition to the evaluation of air emissions against *de minimis* levels, emissions are also evaluated for regional significance. A federal action that does not exceed the threshold emission rates of criteria pollutants may still be subject to a general conformity determination if the direct and indirect emissions from the action exceed 10 percent of the total emissions inventory for a particular criteria pollutant in a non-attainment or maintenance area. If the emissions exceed this 10 percent threshold, the federal

action is considered to be a “regionally significant” activity, and thus, the general conformity rules apply.

5.0 CONFORMITY APPLICABILITY ANALYSIS

This project construction- and operations-related General Conformity Applicability analysis was performed for the Proposed Action at Fort Hamilton. This analysis and air emissions evaluation follows the criteria regulated in *40 CFR Parts 6.303, 51, and 93, Determining Conformity of General Federal Actions to State or Federal Implementation Plans; Final Rule* (November 30, 1993).

5.1 CONSTRUCTION PHASE EMISSIONS

Construction emissions would result from the operation of heavy equipment, delivery trucks, the commuter vehicle traffic from the construction crew, and the painting of the building structures and parking spaces. The project would utilize a mix of heavy equipment for construction, mainly associated with preparing the site for the buildings and utility relocation.

5.1.1 Emissions from Heavy Equipment

Annual emissions were calculated for various types of diesel construction vehicles using model emission rate input for the year 2008 in the U.S. EPA’s *Nonroad2005 Emission Inventory Model: Diesel Construction Equipment, Kings County, New York* (USEPA, 2005). Truck emission levels were calculated using the U.S. EPA’s *MOBILE6* model for conditions in July 2008 (USEPA, 2006a). The total annual emissions in TPY were determined for each vehicle based on the number of vehicles used, average daily mileage, and the number of total operating hours. For dump trucks, total mileage for the project is used in calculations due to the fact that more assumptions are available, which allow for a more accurate analysis. Assuming the use of a 16 ton dump truck and the approximate location of a dump site, total number of miles can be calculated based on the SF of demolition needed or the amount of dirt to be removed during trenching activities. In the case of delivery trucks, no exact assumptions can be made, so the more approximate estimate of days of use and miles per day is calculated.

It was assumed that:

- Delivery trucks would travel 20 miles per trip, making three trips a day, for a total of 60 miles a day.
- Pick-up trucks would be used mainly by site foremen. There would be two at each site and would travel 5 miles per day around the construction site.

- During trenching activities, dump trucks would accumulate a total of 1,350 miles during regular construction. During demolition, dump trucks would travel approximately 54,600 miles².
- Water tankers travel 20 miles per day of operation.

Emissions factors used for construction vehicles are shown in Table D-2.

Table D-2. Emissions Factors for Construction Vehicles

Construction Vehicle Type	Emissions Factors lbs/hr-vehicle				
	NO _x	VOC	PM _{2.5}	SO ₂	CO
Chipping Machine	1.169	0.119	0.114	0.165	0.908
Front End Loader	3.402	0.204	0.194	0.496	0.866
Chain Saws	0.208	0.029	0.025	0.037	0.150
Excavator	2.763	0.204	0.149	0.529	1.157
Dozer	2.714	0.199	0.180	0.496	0.818
Pneumatic Tire Roller	0.927	0.099	0.090	0.156	0.792
Steel Wheel Roller	0.927	0.099	0.090	0.156	0.792
Asphalt Paver	1.284	0.100	0.082	0.215	0.483
Vibratory Roller	1.466	0.116	0.105	0.240	0.493
Grader	1.513	0.121	0.107	0.265	0.511
Concrete Pumper Truck	2.941	0.237	0.101	0.331	0.547
Concrete Truck	2.941	0.237	0.101	0.331	0.547
Crane	1.156	0.116	0.099	0.182	0.575
Backhoe	1.470	0.353	0.322	0.213	1.681
Water Tanker*	6.033	0.285	0.16	0.0132	1.158
Dump Truck*	6.033	0.285	0.16	0.0132	1.158
Pick-Up Truck*	1.027	1.751	0.0118	0.0015	21.39
Delivery Truck (Medium)*	2.323	1.405	0.418	0.016	7.98

² Total miles were determined by using the total SF of demolition (289,064 SF) and converting it into total tons based on the building footprint, number of floors, and the weights of the floors, walls, etc, to equal 34.9 million pounds of building material, or 17,473 tons. The nearest dumpsite (assumed 50 miles round trip for this location) and the use of a 16-ton dump truck were used to determine that there would need to be 1,092 trips to haul demolition debris from the site, equaling 54,600 miles total for demolition.

Construction Vehicle Type	Emissions Factors lbs/hr-vehicle				
	NOx	VOC	PM2.5	SO2	CO
Delivery Truck (Heavy)*	0.65	0.361	0.0614	0.0056	0.061

* units are in grams/mile/vehicle

5.1.1.1 Calculations for Construction Emissions

Using the emissions factors in Table D-2, construction emissions were calculated for the proposed construction at Fort Hamilton. Using the assumptions described above, the emissions in tons of NO_x, VOC, PM_{2.5}, CO, and SO₂ for construction equipment emissions were calculated for each vehicle type using the appropriate equations described in Table D-3. The number of construction vehicles is assumed in order to calculate total days of use. The amount of vehicles present at the construction site may increase, but this change would not affect the total annual emissions, for an increase in construction equipment on-site would perform the task faster and therefore lead to fewer construction days. The expected number of days for demolition using 1 crane, 1 front-end loader, 1 dozer, and 1 dump truck is 180 days. Demolition may occur in less than 180 days if more vehicles are used, but again, this increase will not affect the total annual emissions.

Table D-3. Equations for Construction Emissions Calculations

Emission Source	Equation	Sample Calculation
Heavy Equipment Emissions, Hourly On-Site Activities	(# of vehicle type) (Emission factor) (Total # of days in operation) (hours/day) (1 ton/2000 lbs) = tons of air emissions	(1 grader) (1.513 lbs/hr/vehicle) (28 days in operation) (8 hours/day) (1 ton/2000 lbs) = 0.17 tons of NO_x of equipment emissions
Demolition & Construction Truck Emissions with Vehicle-miles	(# vehicle type) (Emission factor) (Total # of days in operation) (miles/day)(1 ton/2000 lbs) = tons of air emissions	(1 dump truck) (54,600 miles) (1 lb/453.59 grams) (1 ton/2000 lb) = 0.363 tons NO_x of vehicle emissions
Construction Crew, Commuting	(# of vehicles) (#miles/day) (#days) (emissions factor grams/mile) (1 lb/453.59 grams) (1 ton/2000 lb) = tons of vehicle emissions	(50 vehicles) (60 miles/day) (240 days) (0.473 grams/mile/vehicle) (1 lb/453.59 grams) (1 ton/2000 lb) = 0.38 tons NO_x of vehicle emissions

5.1.1.2 Surface Disturbance (Fugitive PM_{2.5})

The quantity of dust emissions of PM_{2.5} from construction operations is assumed proportional to the days of construction activity on unpaved surfaces. The following sources for emission factors, with a capture fraction of 50 percent and silt and moisture contents of 20 percent, were used in PM_{2.5} emission calculations for fugitive emissions (AP-42 Section 13.2; USEPA, 2006b) (the relevant chapters of AP-42, as referenced below, are attached as an appendix to this analysis, and provide the actual equations and supporting information for them):

- The unpaved road equation 13.2.2.1 equation 1a (AP-42 Chapter 13.2.2) is used to estimate fugitive emissions for the concrete pumper truck, concrete truck, crane, water truck, dump truck pickup truck, and delivery truck. Mileage on unpaved surface for each day of operation by vehicle type is estimated, then multiplied by the number of construction days.
- Front end loader and backhoe emissions combine unpaved road travel from equation 13.2.2.1 equation 1a and the dumping equation from AP-42 Chapter 11, Chapter 11.9-4.
- Dozer, pneumatic tire roller, and vibratory roller emissions are based on the dozer equation from AP-42 Chapter 11, Table 11.9-1.
- Grader emissions are based on the grader equation from AP-42 Chapter 11, Table 11.9-1.

Resultant emission rates in lb/day are presented in Table D-4.

Table D-4: Fugitive PM_{2.5} Emission Factors for Construction Vehicles

Equipment/Vehicle Type	Fugitive PM_{2.5} (lb/day)	Equipment/Vehicle Type	Fugitive PM_{2.5} (lb/day)
Front End Loader	4.49	Concrete Pumper Truck	1.16
Dozer	1.77	Concrete Truck	1.16
Pneumatic Tire Roller	0.89	Water Tanker	13.39
Vibratory Roller	0.89	Dump Truck	11.16
Grader	0.01	Pick-Up Truck	2.64
Backhoe	2.25	Delivery Truck (Medium)	5.44
Crane	1.00	Delivery Truck (Heavy)	7.44

5.1.1.2 Preferred Alternative

Equipment requirements were estimated for the construction activities associated with site preparation for buildings, parking, and trenching for utilities. Table D-5 provides the equipment assumptions and resultant total equipment emissions.

Table D-5. Total Emissions for Construction – Proposed Action

Construction Vehicle Type	Number of Vehicles	Total Days of Operation	Total Emissions - Tons					
			NO _x	VOC	Exhaust PM _{2.5}	Fugitive PM _{2.5}	SO ₂	CO
Chipping Machine	1	9	0.04	0.00	0.00	0.00	0.01	0.03
Front End Loader	1	203	2.76	0.17	0.14	0.46	0.40	0.70
Chain Saws	2	18	0.02	0.00	0.00	0.00	0.00	0.01
Excavator	1	10	0.11	0.01	0.01	0.00	0.02	0.05
Dozer	1	18	0.20	0.01	0.01	0.02	0.04	0.06
Pneumatic Tire Roller	1	7	0.03	0.00	0.00	0.00	0.00	0.02
Steel Wheel Roller	1	14	0.05	0.01	0.00	0.00	0.01	0.04
Asphalt Paver	1	7	0.03	0.00	0.00	0.00	0.01	0.01
Vibratory Roller	1	117	0.19	0.02	0.01	0.05	0.03	0.06
Grader	1	28	0.17	0.01	0.01	0.00	0.03	0.06
Concrete Pumper Truck	1	62	0.73	0.06	0.05	0.04	0.08	0.14
Concrete Truck	1	370	4.35	0.35	0.27	0.21	0.49	0.81
Crane	1	415	1.92	0.18	0.14	0.21	0.63	0.95
Backhoe	2	95	1.67	0.40	0.24	0.11	0.24	1.91
Water Tanker	1	6	0.00	0.00	0.00	0.04	0.00	0.00
Dump Truck*	1	55,950 Miles	0.37	0.02	0.01	0.00	0.00	0.07
Pick-Up Truck	5	330	0.00	0.00	0.00	0.44	0.00	0.04
Delivery Truck (Medium)	1	62	0.01	0.01	0.00	0.17	0.00	0.03
Delivery Truck (Heavy)	1	62	0.00	0.00	0.00	0.23	0.00	0.00

Construction Vehicle Type	Number of Vehicles	Total Days of Operation	Total Emissions - Tons					
			NO _x	VOC	Exhaust PM _{2.5}	Fugitive PM _{2.5}	SO ₂	CO
Compressor	1	180	0.40	0.04	0.04	0.00	0.07	0.16
Total Emissions			13.059	1.288	0.948	1.965	2.061	5.163

* Assumption is in total miles, not days. Please see Section 5.1.1 for further explanation.

5.1.2 Emissions from Construction Crew Workers

Emissions from construction personnel traffic were calculated using the U.S. EPA's *MOBILE6*. It was assumed that at any given time the construction crew would consist of 50 workers. For a conservative analysis, it was assumed each person would drive to the site and that the average number of workers would drive approximately 60 miles each day, 240 days per year. Based on *MOBILE6*, the emission factor for NO_x is 0.473 grams/mile/vehicle, VOC is 0.872 grams/mile/vehicle, PM_{2.5} is 0.0113 grams/mile/vehicle, CO is 13.29 grams/mile/vehicle, and SO₂ is 0.0068 grams/mile/vehicle for the average fleet in Kings County, New York. Using the commuter equation in Table D-3, the resultant total emissions associated with the commuter vehicles from the construction crew are approximately:

- 0.38 tons of NO_x,
- 0.69 tons of VOC,
- 0.01 tons of PM_{2.5},
- 0.0054 tons of SO₂, and
- 10.55 tons of CO.

5.1.3 Emissions from Painting Activities

For painting building structures, it was assumed that water-based latex paint would be used with a VOC content of 1 pound per gallon and 1 gallon of paint covers approximately 300 square feet. It was also assumed that three coats of paint will be applied (one primer and two finish) to approximately 204,300 square feet of interior surfaces. This value assumes 50 percent of the interior space consists of rooms with drop ceilings and a ratio of walls needing paint to floor space of 3 to 1, with the remainder of the space (50-percent) consisting of open cubicle space not requiring paint. Based on these assumptions, approximately 2,043 gallons of paint would be needed to paint the interior building spaces and this would create approximately 1.02 tons of VOC emissions.

Emissions from painting parking spaces were based on four-inch wide stripes. It was assumed that the average parking space is 9 feet wide by 19 feet long and every two parking spaces share a common line. Approximately 20 square feet would be painted for every two parking spaces. For parking spaces, it was assumed that alkyd paint would be used with a VOC content of 3 pounds per gallon and that 1 gallon of paint would cover approximately 200 square feet. It was also assumed that one coat of paint would be applied to the parking surfaces. Based on the construction of 760 spaces, the Proposed Action would create approximately 0.06 tons of VOC emissions for painting parking spaces.

5.1.4 Summary of Construction Emissions

After the emissions analysis was performed for all aspects of construction, the totals were added to determine the total construction emissions. Table D-6 summarizes the results.

Table D-6: Total Emissions from Construction

Construction Activity	Total Annual Emissions (TPY)				
	NO _x	VOC	PM _{2.5}	SO ₂	CO
Use of Heavy Equipment	13.059	1.288	0.948	2.061	5.163
Fugitive Emissions	NA	NA	1.965	NA	NA
Construction Crew Workers	0.375	0.692	0.009	0.005	10.548
Painting	NA	1.079	NA	NA	NA
Total Emissions from Construction	13.434	3.059	2.922	2.066	15.711

5.2 OPERATIONAL EMISSIONS

5.2.1 Heating Source Emissions

Designs for the proposed facilities have not yet been finalized; therefore, actual boiler or furnace types and sizes have not been determined. Operational heating requirements for the analysis are based on the most recent Commercial Buildings Energy Consumption Survey (CBECS) in 2003 conducted by the Department of Energy, Energy Information Administration (DOI, 2003). Table C-30 from this document indicates that the average energy intensity for office buildings using natural gas in climate zone 3, which includes Kings County, NY, is 30.1 cubic feet (CF) of gas annually per square foot (SF) of floor space. At 1,000 British Thermal Units (BTUs) per CF of gas, this equates annually to 30,100 BTU annually per SF of office space. Water heating is assumed to either be provided electrically or to be included in the energy intensities from the CBECS. Since Fort Hamilton has been replacing fuel oil boilers with natural gas boilers, it is assumed that the new construction will be fueled by natural gas (USACE, 2003a).

Space and water heating for 126,858 SF of administrative space requires annually:

- $(126,858 \text{ SF})(30.1 \text{ CF/SF}) = 3.81 \text{ million CF natural gas}$

The AFRC and OMS are assumed to be heated by a small boiler that operates at less than 100 million Btu per hour. Operational heating emissions are based on the U.S. EPA’s *AP-42 Fifth Edition, Compilation of Air Pollution Emission Factors Volume I, Chapter 1: Stationary Sources, Supplement D* (EPA, 1998).

The following natural gas emission rates are assumed:

- $\text{NO}_x = 100 \text{ lb NO}_x / 10^6 \text{ CF natural gas}$
- $\text{VOC} = 5.5 \text{ lb}/10^6 \text{ CF natural gas}$
- $\text{PM}_{2.5} = 7.6 \text{ lb}/10^6 \text{ CF natural gas}$
- $\text{SO}_2 = 0.6 \text{ lb}/10^6 \text{ CF natural gas}$
- $\text{CO} = 84 \text{ lb}/10^6 \text{ CF natural gas}$

The resultant annual emissions are provided in Table D-7.

Table D-7: Total Annual Emissions from heating

Total Annual Emissions (TPY)				
NOx	VOC	PM _{2.5}	SO ₂	CO
0.191	0.010	0.015	0.001	0.16

There would also be one 400 kW (536.41 hp) generator for the AFRC. For the backup generator, emission rates for criteria pollutants were calculated using the U.S. EPA Nonroad model (EPA, 2005).

- $\text{NO}_x = 6.047 \text{ grams per brake horsepower hour (g/bhp-hr)}$
- $\text{VOC} = 0.466 \text{ g/bhp-hr}$
- $\text{PM} = 0.396 \text{ g/bhp-hr (all assumed to be PM}_{2.5}\text{)}$
- $\text{SO}_2 = 0.741 \text{ g/bhp-hr}$
- $\text{CO} = 2.169 \text{ g/bhp-hr}$

Using an assumption of 400 annual hours, allowing for monthly testing and emergency use, the annual emissions of NO_x, VOC, PM_{2.5}, CO, and SO₂ were calculated as shown in Table D-8.

Table D-8: Total Annual Emissions from Generator Usage

Total Annual Emissions (TPY)				
NO_x	VOC	PM_{2.5}	SO₂	CO
1.43	0.11	0.094	0.18	0.513

5.2.2 Vehicle Emissions from Daily Commuters

All of the units relocating to the Proposed AFRC at fort Hamilton would be coming from within the New York metropolitan region airshed, and therefore there would be no net change in commuter vehicle emissions.

5.2.3 Summary of Operation Emissions

Annual operations emissions include emissions from heating the building space and water and generator emissions. Table D-9 provides the total annual operations emissions.

Table D-9: Annual Emissions from Operations

Operations Activity	Total Annual Emissions –TPY				
	NO_x	VOC	PM_{2.5}	SO₂	CO
Heating	0.191	0.010	0.015	0.001	0.160
Generators	1.430	0.110	0.094	0.180	0.513
Total Emissions from Operations	1.621	0.120	0.109	0.181	0.673

5.3 COMBINED CONSTRUCTION AND OPERATIONS EMISSIONS

Construction related emissions would be temporary and only occur during the 24-month construction period for all buildings; however, a conservative approach was initially employed in the applicability analysis to assure that construction scheduling would not result in higher levels of emissions than predicted. The analysis first assumed that the construction emissions for all of the buildings would occur concurrently over the same 1 year period. These results were further added to estimated data for 1 year of operations, bounding the potential emissions that might result for any overlap between construction and operations emissions.

Table D-10 provides a summary of the annual emissions associated with constructing and operating the facilities associated with the Proposed Action. When compared to the *de minimis* values for an area that is in moderate non-attainment for ozone, non-attainment for PM_{2.5}, and maintenance for CO, the annual emission associated with the Proposed Action fall below the *de minimis* values for NO_x, VOC, SO₂, CO, and PM_{2.5}. Additionally, annual emissions fall below the more stringent NYSDEC severe ozone *de minimis* standards of 25 TPY for NO_x and VOC. Therefore, the Proposed Action is not subject to the General Conformity Rule requirements.

Table D-10. Summary of Annual Emissions

Activity	NO_x	VOC	PM_{2.5}	SO₂	CO
Federal <i>de minimis</i> Level	100	50	100	100	100
State <i>de minimis</i> Level	25	25	100	100	100
Heavy Equipment (building/parking/surface disturbance/demolition)	13.059	1.288	2.913	2.061	5.163
Construction Crew Commuting Vehicles	0.375	0.692	0.009	0.005	10.548
Painting	NA	1.079	NA	NA	NA
Stationary Heating Unit (boiler and water heater)	0.191	0.010	0.015	0.001	0.160
Generator	1.430	0.110	0.094	0.175	0.513
Total	15.055	3.179	3.031	2.242	16.384

5.4 REGIONAL SIGNIFICANCE

Air emissions were also evaluated to determine regional significance. The proposed *New York State Implementation Plan for Ozone (8-Hour NAAQS) Attainment Demonstration for New York Metro Area* (NYSDEC, 2007) sets forth daily target levels for the years 2008 and 2011 to meet the mandated attainment date of April 15, 2010. Daily target levels are broken down by source categories. Although the 8-hour ozone standard has been approved for use instead of the 1-hour ozone standard, the 8-hour SIP has not yet been approved. All of the daily target levels except PM_{2.5} are presented in Table D-11. Target levels for PM_{2.5} are not presented for there is no SIP in place for the newly promulgated PM_{2.5} regulations. The NY-NJ-CT region has 3 years to implement a SIP that will create a regional emission inventory for the pollutant PM_{2.5}.

Table D-11: Regional Emissions Inventory - SIP

Source of Emissions	2008 Daily Budget (Tons Per Day)			2011 Daily Budget (Tons Per Day)		
	NO _x	VOC	CO	NO _x	VOC	CO
Point	63.63	11.08	18.04	61.5	11.37	18.33
Non-Road	161.51	214.87	3,121	149.85	191.7	3,250
On-Road	224.16	159.83	1,444	173.7	126.7	1,226

Source: NYSDEC, 2007

Based on the daily target levels, the increase in annual emissions resulting from the Proposed Action would not make up 10 percent or more of the available regional emission inventory for VOC or NO_x and would not be regionally significant. Air quality impacts are therefore not considered to be significant.

APPENDIX A – CHAPTERS 11 AND 13 OF AP-42

11.9 Western Surface Coal Mining

11.9.1 General¹

There are 12 major coal fields in the western states (excluding the Pacific Coast and Alaskan fields), as shown in Figure 11.9-1. Together, they account for more than 64 percent of the surface minable coal reserves in the United States.² The 12 coal fields have varying characteristics that may influence fugitive dust emission rates from mining operations including overburden and coal seam thicknesses and structure, mining equipment, operating procedures, terrain, vegetation, precipitation and surface moisture, wind speeds, and temperatures. The operations at a typical western surface mine are shown in Figure 11.9-2. All operations that involve movement of soil or coal, or exposure of erodible surfaces, generate some amount of fugitive dust.

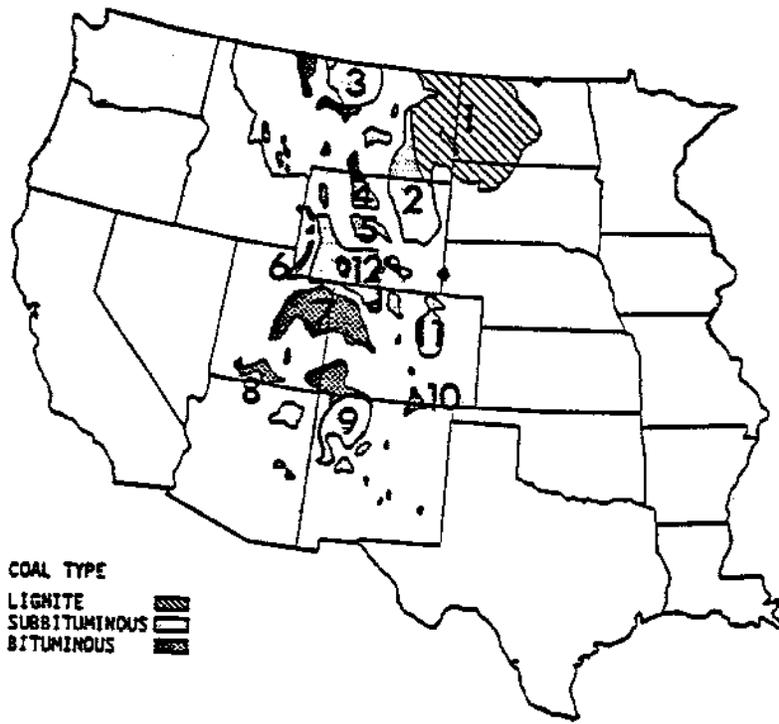
The initial operation is removal of topsoil and subsoil with large scrapers. The topsoil is carried by the scrapers to cover a previously mined and regraded area as part of the reclamation process or is placed in temporary stockpiles. The exposed overburden, the earth that is between the topsoil and the coal seam, is leveled, drilled, and blasted. Then the overburden material is removed down to the coal seam, usually by a dragline or a shovel and truck operation. It is placed in the adjacent mined cut, forming a spoils pile. The uncovered coal seam is then drilled and blasted. A shovel or front end loader loads the broken coal into haul trucks, and it is taken out of the pit along graded haul roads to the tippie, or truck dump. Raw coal sometimes may be dumped onto a temporary storage pile and later rehandled by a front end loader or bulldozer.

At the tippie, the coal is dumped into a hopper that feeds the primary crusher, then is conveyed through additional coal preparation equipment such as secondary crushers and screens to the storage area. If the mine has open storage piles, the crushed coal passes through a coal stacker onto the pile. The piles, usually worked by bulldozers, are subject to wind erosion. From the storage area, the coal is conveyed to a train loading facility and is put into rail cars. At a captive mine, coal will go from the storage pile to the power plant.

During mine reclamation, which proceeds continuously throughout the life of the mine, overburden spoils piles are smoothed and contoured by bulldozers. Topsoil is placed on the graded spoils, and the land is prepared for revegetation by furrowing, mulching, etc. From the time an area is disturbed until the new vegetation emerges, all disturbed areas are subject to wind erosion.

11.9.2 Emissions

Predictive emission factor equations for open dust sources at western surface coal mines are presented in Tables 11.9-1 and 11.9-2. Each equation applies to a single dust-generating activity, such as vehicle traffic on haul roads. The predictive equation explains much of the observed variance in emission factors by relating emissions to three sets of source parameters: (1) measures of source activity or energy expended (e. g., speed and weight of a vehicle traveling on an unpaved road); (2) properties of the material being disturbed (e. g., suspendable fines in the surface material of an unpaved road); and (3) climate (in this case, mean wind speed).



	<u>Coal field</u>	<u>Stripable reserves</u> <u>(10⁶ tons)</u>
1	Fort Union	23,529
2	Powder River	56,727
3	North Central	All underground
4	Highorn Basin	All underground
5	Wind River	3
6	Rams Fork	1,000
7	Vinta	308
8	Southwestern Utah	224
9	San Juan River	2,318
10	Raton Mesa	All underground
11	Denver	All underground
12	Green River	2,120

Figure 11.9-1. Coal fields of the western United States.³

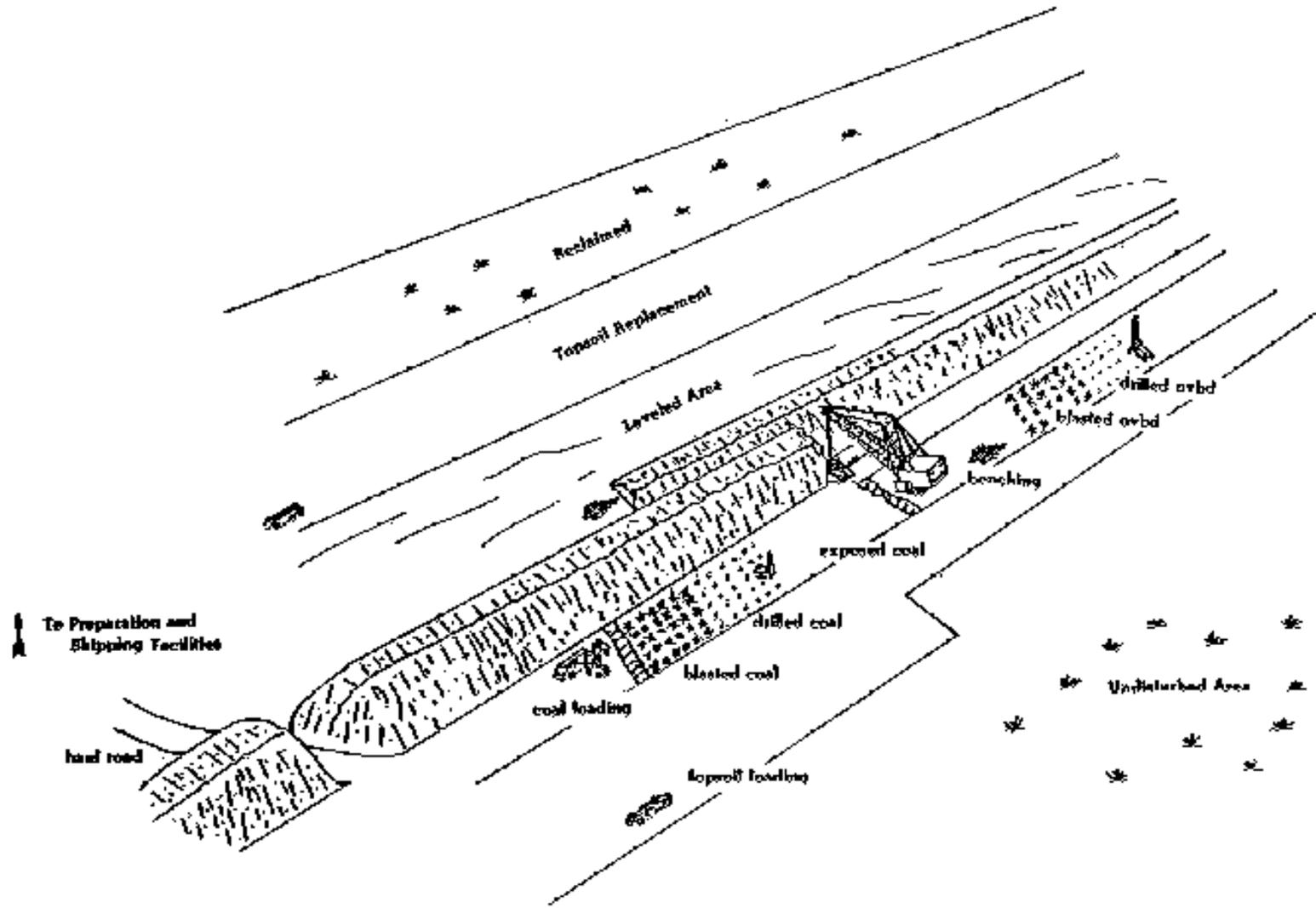


Figure 11.9-2. Operations at typical western surface coal mines.

The equations may be used to estimate particulate emissions generated per unit of source extent or activity (e. g., distance traveled by a haul truck or mass of material transferred). The equations were developed through field sampling of various western surface mine types and are thus applicable to any of the surface coal mines located in the western United States.

In Tables 11.9-1 and 11.9-2, the assigned quality ratings apply within the ranges of source conditions that were tested in developing the equations given in Table 11.9-3. However, the equations should be derated 1 letter value (e. g., A to B) if applied to eastern surface coal mines.

In using the equations to estimate emissions from sources found in a specific western surface mine, it is necessary that reliable values for correction parameters be determined for the specific sources of interest if the assigned quality ratings of the equations are to be applicable. For example, actual silt content of coal or overburden measured at a facility should be used instead of estimated values. In the event that site-specific values for correction parameters cannot be obtained, the appropriate geometric mean values from Table 11.9-3 may be used, but the assigned quality rating of each emission factor equation should be reduced by 1 level (e. g., A to B).

Emission factors for open dust sources not covered in Table 11.9-3 are in Table 11.9-4. These factors were determined through source testing at various western coal mines.

The factors in Table 11.9-4 for mine locations I through V were developed for specific geographical areas. Tables 11.9-5 and 11.9-6 present characteristics of each of these mines (areas). A “mine-specific” emission factor should be used only if the characteristics of the mine for which an emissions estimate is needed are very similar to those of the mine for which the emission factor was developed. The other (nonspecific) emission factors were developed at a variety of mine types and thus are applicable to any western surface coal mine.

As an alternative to the single valued emission factors given in Table 11.9-4 for train or truck loading and for truck or scraper unloading, two empirically derived emission factor equations are presented in Section 13.2.4 of this document. Each equation was developed for a source operation (i. e., batch drop and continuous drop, respectively) comprising a single dust-generating mechanism that crosses industry lines.

Because the predictive equations allow emission factor adjustment to specific source conditions, the equations should be used in place of the single-valued factors in Table 11.9-4 for the sources identified above, if emission estimates for a specific western surface coal mine are needed. However, the generally higher quality ratings assigned to the equations are applicable only if: (1) reliable values of correction parameters have been determined for the specific sources of interest, and (2) the correction parameter values lie within the ranges tested in developing the equations. Caution must be exercised so that only the unbound (sorbed) moisture (i. e., not any bound moisture) is used in determining the moisture content for input to the Chapter 13 equations.

Table 11.9-1 (English Units). EMISSION FACTOR EQUATIONS FOR UNCONTROLLED OPEN DUST SOURCES AT WESTERN SURFACE COAL MINES^a

Operation	Material	Emissions By Particle Size Range (Aerodynamic Diameter) ^{b,c}				Units	EMISSION FACTOR RATING
		Emission Factor Equations		Scaling Factors			
		TSP ≤30 μm	≤15 μm	≤10 μm ^d	≤2.5 μm/TSP ^e		
Blasting ^f	Coal or overburden	$0.000014(A)^{1.5}$	ND	0.52^e	0.03	lb/blast	C_DD
Truck loading	Coal	$\frac{1.16}{(M)^{1.2}}$	$\frac{0.119}{(M)^{0.9}}$	0.75	0.019	lb/ton	BBCC
Bulldozing	Coal	$\frac{78.4 (s)^{1.2}}{(M)^{1.3}}$	$\frac{18.6 (s)^{1.5}}{(M)^{1.4}}$	0.75	0.022	lb/hr	CCDD
	Overburden	$\frac{5.7 (s)^{1.2}}{(M)^{1.3}}$	$\frac{1.0 (s)^{1.5}}{(M)^{1.4}}$	0.75	0.105	lb/hr	BCDD
Dragline	Overburden	$\frac{0.0021 (d)^{1.1}}{(M)^{0.3}}$	$\frac{0.0021 (d)^{0.7}}{(M)^{0.3}}$	0.75	0.017	lb/yd ³	BCDD
Vehicle traffic ^g							
Grading		$0.040 (S)^{2.5}$	$0.051 (S)^{2.0}$	0.60	0.031	lb/VMT	CCDD
Active storage pile ^h (wind erosion and maintenance)	Coal	$0.72 u$	ND	ND	ND	$\frac{\text{lb}}{(\text{acre})(\text{hr})}$	C_i_ _ _

^a Reference 1, except as noted. VMT = vehicle miles traveled. ND = no data. Quality ratings coded where “Q, X, Y, Z” are ratings for ≤30 μm, ≤15 μm, ≤10 μm, and ≤2.5 μm, respectively. See also note below.

^b Particulate matter less than or equal to 30 μm in aerodynamic diameter is sometimes termed “suspendable particulate” and is often used as a surrogate for TSP (total suspended particulate). TSP denotes what is measured by a standard high volume sampler (see Section 13.2).

^cSymbols for equations:

A = horizontal area (ft²), with blasting depth ≤ 70 ft. Not for vertical face of a bench.

M = material moisture content (%)

s = material silt content (%)

u = wind speed (mph)

d = drop height (ft)

W = mean vehicle weight (tons)

S = mean vehicle speed (mph)

w = mean number of wheels

Table 11.9-1 (cont.).

-
- ^d Multiply the $\leq 15\text{-}\mu\text{m}$ equation by this fraction to determine emissions, except as noted.
 - ^e Multiply the TSP predictive equation by this fraction to determine emissions.
 - ^f Blasting factor taken from a reexamination of field test data reported in Reference 1. See Reference 4.
 - ^g To estimate emissions from traffic on unpaved surfaces by vehicles such as haul trucks, light-to-medium duty vehicles, or scrapers in the travel mode, see the unpaved road emission factor equation in AP-42 Section 13.2.2.
 - ^h Coal storage pile factor taken from Reference 5. To estimate emissions on a shorter time scale (e. g., worst-case day), see the procedure presented in Section 13.2.5.
 - ⁱ Rating applicable to mine types I, II, and IV (see Tables 11.9-5 and 11.9-6).

Note: Section 234 of the Clean Air Act of 1990 required EPA to review and revise the emission factors in this Section (and models used to evaluate ambient air quality impact), to ensure that they did not overestimate emissions from western surface coal mines. Due to resource and technical limitations, the haul road emission factors were isolated to receive the most attention during these studies, as the largest contributor to emissions. Resultant model evaluation with revised emission factors have improved model prediction for total suspended particulate (TSP); however, there is still a tendency for overprediction of particulate matter impact for PM-10, for as yet undetermined causes, prompting the Agency to make a policy decision not to use them for regulatory applications to these sources. However, the technical consideration exists that no better alternative data are currently available and the information should be made known. Users should accordingly use these factors with caution and awareness of their likely limitations.

Table 11.9-2 (Metric Units). EMISSION FACTOR EQUATIONS FOR UNCONTROLLED OPEN DUST SOURCES AT WESTERN SURFACE COAL MINES^a

Operation	Material	Emissions By Particle Size Range (Aerodynamic Diameter) ^{b,c}				Units	EMISSION FACTOR RATING
		Emission Factor Equations		Scaling Factors			
		TSP ≤30 μm	≤15 μm	≤10 μm ^d	≤2.5 μm/TSP ^e		
Blasting ^f	Coal or overburden	$0.00022(A)^{1.5}$	ND	0.52^e	0.03	kg/blast	C_DD
Truck loading	Coal	$\frac{0.580}{(M)^{1.2}}$	$\frac{0.0596}{(M)^{0.9}}$	0.75	0.019	kg/Mg	BBCC
Bulldozing	Coal	$\frac{35.6 (s)^{1.2}}{(M)^{1.4}}$	$\frac{8.44 (s)^{1.5}}{(M)^{1.4}}$	0.75	0.022	kg/hr	CCDD
	Overburden	$\frac{2.6 (s)^{1.2}}{(M)^{1.3}}$	$\frac{0.45 (s)^{1.5}}{(M)^{1.4}}$	0.75	0.105	kg/hr	BCDD
Dragline	Overburden	$\frac{0.0046 (d)^{1.1}}{(M)^{0.3}}$	$\frac{0.0029 (d)^{0.7}}{(M)^{0.3}}$	0.75	0.017	kg/m ³	BCDD
Vehicle traffic ^g							
Grading		$0.0034 (S)^{2.5}$	$0.0056 (S)^{2.0}$	0.60	0.031	kg/VKT	CCDD
Active storage pile ^h (wind erosion and maintenance)	Coal	1.8 u	ND	ND	ND	$\frac{\text{kg}}{(\text{hectare})(\text{hr})}$	C'---

^a Reference 1, except as noted. VKT = vehicle kilometers traveled. ND = no data. Quality ratings coded as "QXYZ", where Q, X, Y, and Z are quality ratings for ≤30 μm, ≤15 μm, ≤10 μm, and ≤2.5 μm, respectively. See also note below.

^b Particulate matter less than or equal to 30 μm in aerodynamic diameter is sometimes termed "suspendable particulate" and is often used as a surrogate for TSP (total suspended particulate). TSP denotes what is measured by a standard high volume sampler (see Section 13.2).

^c Symbols for equations:

A = horizontal area (m²), with blasting depth ≤ 21 m. Not for vertical face of a bench.

M = material moisture content (%)

s = material silt content (%)

u = wind speed (m/sec)

d = drop height (m)

W = mean vehicle weight (Mg)

S = mean vehicle speed (kph)

w = mean number of wheels

Table 11.9-2 (cont.).

-
- ^d Multiply the $\leq 15\text{-}\mu\text{m}$ equation by this fraction to determine emissions, except as noted.
 - ^e Multiply the TSP predictive equation by this fraction to determine emissions.
 - ^f Blasting factor taken from a reexamination of field test data reported in Reference 1. See Reference 4.
 - ^g To estimate emissions from traffic on unpaved surfaces by vehicles such as haul trucks, light-to-medium duty vehicles, or scrapers in the travel mode, see the unpaved road emission factor equation in AP-42 Section 13.2.2
 - ^h Coal storage pile factor taken from Reference 5. To estimate emissions on a shorter time scale (e. g., worst-case day), see the procedure presented in Section 13.2.5.
 - ⁱ Rating applicable to mine types I, II, and IV (see Tables 11.9-5 and 11.9-6).

Note: Section 234 of the Clean Air Act of 1990 required EPA to review and revise the emission factors in this Section (and models used to evaluate ambient air quality impact), to ensure that they did not overestimate emissions from western surface coal mines. Due to resource and technical limitations, the haul road emission factors were isolated to receive the most attention during these studies, as the largest contributor to emissions. Resultant model evaluation with revised emission factors have improved model prediction for total suspended particulate (TSP); however, there is still a tendency for overprediction of particulate matter impact for PM-10, for as yet undetermined causes, prompting the Agency to make a policy decision not to use them for regulatory applications to these sources. However, the technical consideration exists that no better alternative data are currently available and the information should be made known. Users should accordingly use these factors with caution and awareness of their likely limitations.

Table 11.9-3 (Metric And English Units). TYPICAL VALUES FOR CORRECTION FACTORS APPLICABLE TO THE PREDICTIVE EMISSION FACTOR EQUATIONS^a

Source	Correction Factor	Number Of Test Samples	Range	Geometric Mean	Units
Blasting	Area blasted	17	100 - 6,800	1,590	m ²
	Area blasted	17	1100 - 73,000	17,000	ft ²
Coal loading	Moisture	7	6.6 - 38	17.8	%
Bulldozers					
Coal	Moisture	3	4.0 - 22.0	10.4	%
	Silt	3	6.0 - 11.3	8.6	%
Overburden	Moisture	8	2.2 - 16.8	7.9	%
	Silt	8	3.8 - 15.1	6.9	%
Dragline	Drop distance	19	1.5 - 30	8.6	m
	Drop distance	19	5 - 100	28.1	ft
	Moisture	7	0.2 - 16.3	3.2	%
Scraper	Silt	10	7.2 - 25.2	16.4	%
	Weight	15	33 - 64	48.8	Mg
	Weight	15	36 - 70	53.8	ton
Grader	Speed	7	8.0 - 19.0	11.4	kph
	Speed		5.0 - 11.8	7.1	mph
Haul truck	Silt content	61	1.2 - 19.2	4.3	%
	Moisture	60	0.3 - 20.1	2.4	%
	Weight	61	20.9 - 260	110	mg
	Weight	61	23.0 - 290	120	ton

^a Reference 1,6.

Table 11.9-4 (English And Metric Units). UNCONTROLLED PARTICULATE EMISSION FACTORS FOR OPEN DUST SOURCES AT WESTERN SURFACE COAL MINES

Source	Material	Mine Location ^a	TSP Emission Factor ^b	Units	EMISSION FACTOR RATING
Drilling	Overburden	Any	1.3	lb/hole	C
			0.59	kg/hole	C
	Coal	V	0.22	lb/hole	E
			0.10	kg/hole	E
Topsoil removal by scraper	Topsoil	Any	0.058	lb/ton	E
			0.029	kg/Mg	E
		IV	0.44	lb/ton	E
			0.22	kg/Mg	E
Overburden replacement	Overburden	Any	0.012	lb/ton	C
			0.0060	kg/Mg	C
Truck loading by power shovel (batch drop) ^c	Overburden	V	0.037	lb/ton	E
			0.018	kg/Mg	E
Train loading (batch or continuous drop) ^c	Coal	Any	0.028	lb/ton	E
			0.014	kg/Mg	E
		III	0.0002	lb/ton	E
			0.0001	kg/Mg	E
Bottom dump truck unloading (batch drop) ^c	Overburden	V	0.002	lb/ton	E
			0.001	kg/Mg	E
	Coal	IV	0.027	lb/ton	E
			0.014	kg/Mg	E
		III	0.005	lb/ton	E
			0.002	kg/Mg	E
		II	0.020	lb/ton	E
			0.010	kg/Mg	E
		I	0.014	lb/T	E
			0.0070	kg/Mg	E
		Any	0.066	lb/T	D
			0.033	kg/Mg	D

Table 11.9-4 (cont.).

Source	Material	Mine Location ^a	TSP Emission Factor ^b	Units	EMISSION FACTOR RATING
End dump truck unloading (batch drop) ^c	Coal	V	0.007	lb/T	E
			0.004	kg/Mg	E
Scraper unloading (batch drop) ^c	Topsoil	IV	0.04	lb/T	E
			0.02	kg/Mg	E
Wind erosion of exposed areas ^d	Seeded land, stripped overburden, graded overburden	Any	0.38	$\frac{T}{(\text{acre})(\text{yr})}$	C
			0.85	$\frac{Mg}{(\text{hectare})(\text{yr})}$	C

^a Roman numerals I through V refer to specific mine locations for which the corresponding emission factors were developed (Reference 5).

Tables 11.9-4 and 11.9-5 present characteristics of each of these mines. See text for correct use of these “mine-specific” emission factors. The other factors (from Reference 7, except for overburden drilling from Reference 1) can be applied to any western surface coal mine.

^b Total suspended particulate (TSP) denotes what is measured by a standard high volume sampler (see Section 13.2).

^c Predictive emission factor equations, which generally provide more accurate estimates of emissions, are presented in Chapter 13.

^d To estimate wind erosion on a shorter time scale (e. g., worst-case day), see Section 13.2.5.

Table 11.9-5 (Metric And English Units). GENERAL CHARACTERISTICS OF SURFACE COAL MINES
REFERRED TO IN TABLE 11.9-4^a

Mine	Location	Type Of Coal Mined	Terrain	Vegetative Cover	Surface Soil Type And Erodibility Index	Mean Wind Speed		Mean Annual Precipitation	
						m/s	mph	cm	in.
I	N.W. Colorado	Subbitum.	Moderately steep	Moderate, sagebrush	Clayey loamy (71)	2.3	5.1	38	15
II	S.W. Wyoming	Subbitum.	Semirugged	Sparse, sagebrush	Arid soil with clay and alkali or carbonate accumulation (86)	6.0	13.4	36	14
III	S.E. Montana	Subbitum.	Gently rolling to semirugged	Sparse, moderate, prairie grassland	Shallow clay loamy deposits on bedrock (47)	4.8	10.7	28 - 41	11 - 16
IV	Central North Dakota	Lignite	Gently rolling	Moderate, prairie grassland	Loamy, loamy to sandy (71)	5.0	11.2	43	17
V	N.E. Wyoming	Subbitum.	Flat to gently rolling	Sparse, sagebrush	Loamy, sandy, clayey, and clay loamy (102)	6.0	13.4	36	14

^a Reference 4.

Table 11.9-6 (English Units). OPERATING CHARACTERISTICS OF THE COAL MINES
REFERRED TO IN TABLE 11.9-4^a

Parameter	Required Information	Units	Mine				
			I	II	III	IV	V
Production rate	Coal mined	10 ⁶ ton/yr	1.13	5.0	9.5	3.8	12.0 ^b
Coal transport	Avg. unit train frequency	per day	NA	NA	2	NA	2
Stratigraphic data	Overburden thickness	ft	21	80	90	65	35
	Overburden density	lb/yd ³	4000	3705	3000	ND	ND
	Coal seam thicknesses	ft	9,35	15,9	27	2,4,8	70
	Parting thicknesses	ft	50	15	NA	32,16	NA
	Spoils bulking factor	%	22	24	25	20	ND
	Active pit depth	ft	52	100	114	80	105
	Coal analysis data	Moisture	%	10	18	24	38
	Ash	%, wet	8	10	8	7	6
	Sulfur	%, wet	0.46	0.59	0.75	0.65	0.48
	Heat content	Btu/lb	11000	9632	8628	8500	8020
Surface disposition	Total disturbed land	acre	168	1030	2112	1975	217
	Active pit	acre	34	202	87	ND	71
	Spoils	acre	57	326	144	ND	100
	Reclaimed	acre	100	221	950	ND	100
	Barren land	acre	ND	30	455	ND	ND
	Associated disturbances	acre	12	186	476	ND	46
	Storage	Capacity	ton	NA	NA	ND	NA
Blasting	Frequency, total	per week	4	4	3	7	7 ^b
	Frequency, overburden	per week	3	0.5	3	NA	7 ^b
	Area blasted, coal	ft ²	16000	40000	ND	30000	ND
	Area blasted, overburden	ft ²	20000	ND	ND	NA	ND

^a Reference 5. NA = not applicable. ND = no data.

^b Estimate.

11.9.3 Updates Since the Fifth Edition

The Fifth Edition which was released in January 1995 reformatted the section that was dated September 1988. Revisions to this section since these dates are summarized below. For further detail, consult the memoranda describing each supplement or the background report for this section. These and other documents can be found on the CHIEF WEB site (home page <http://www.epa.gov/ttn/chief/>).

Supplement E

- The predictive equations for emission factors for haul trucks and light/medium duty vehicles were removed and replaced with a footnote referring users to the recently revised unpaved road section in the Miscellaneous Sources chapter.
- The emission factor quality ratings were revised based upon a revised predictive equation and single value criteria.
- The typographical errors for the TSP equation and the omission of the PM-2.5 scaling factor for blasting were corrected.

References For Section 11.9

1. K. Axetell and C. Cowherd, *Improved Emission Factors For Fugitive Dust From Western Surface Coal Mining Sources*, 2 Volumes, EPA Contract No. 68-03-2924, U. S. Environmental Protection Agency, Cincinnati, OH, July 1981.
2. *Reserve Base Of U. S. Coals By Sulfur Content: Part 2, The Western States*, IC8693, Bureau Of Mines, U. S. Department Of The Interior, Washington, DC, 1975.
3. *Bituminous Coal And Lignite Production And Mine Operations - 1978*, DOE/EIA-0118(78), U. S. Department Of Energy, Washington, DC, June 1980.
4. G. E. Muleski, *Update Of AP-42 Emission Factors For Western Surface Coal Mines And Related Sections*, Summary Report, Prepared for Emission Factors And Inventory Group (MD-14), Emissions, Modeling And Analysis Division, Office Of Air Quality, Planning, And Standards, U. S. Environmental Protection Agency, Research Triangle Park, NC 27711.
5. K. Axetell, *Survey Of Fugitive Dust From Coal Mines*, EPA-908/1-78-003, U. S. Environmental Protection Agency, Denver, CO, February 1978.
6. G. E. Muleski, *et al.*, *Surface Coal Mine Emission Factor Field Study*, EPA-454/R-95-010, U. S. Environmental Protection Agency, Research Triangle Park, NC, January 1994.
7. D. L. Shearer, *et al.*, *Coal Mining Emission Factor Development And Modeling Study*, Amax Coal Company, Carter Mining Company, Sunoco Energy Development Company, Mobil Oil Corporation, and Atlantic Richfield Company, Denver, CO, July 1981.

13.2.2 Unpaved Roads

13.2.2.1 General

When a vehicle travels an unpaved road, the force of the wheels on the road surface causes pulverization of surface material. Particles are lifted and dropped from the rolling wheels, and the road surface is exposed to strong air currents in turbulent shear with the surface. The turbulent wake behind the vehicle continues to act on the road surface after the vehicle has passed.

The particulate emission factors presented in the previous draft version of this section of AP-42, dated October 2001, implicitly included the emissions from vehicles in the form of exhaust, brake wear, and tire wear as well as resuspended road surface material²⁵. EPA included these sources in the emission factor equation for unpaved public roads (equation 1b in this section) since the field testing data used to develop the equation included both the direct emissions from vehicles and emissions from resuspension of road dust.

This version of the unpaved public road emission factor equation only estimates particulate emissions from resuspended road surface material^{23, 26}. The particulate emissions from vehicle exhaust, brake wear, and tire wear are now estimated separately using EPA's MOBILE6.2²⁴. This approach eliminates the possibility of double counting emissions. Double counting results when employing the previous version of the emission factor equation in this section and MOBILE6.2 to estimate particulate emissions from vehicle traffic on unpaved public roads. It also incorporates the decrease in exhaust emissions that has occurred since the unpaved public road emission factor equation was developed. The previous version of the unpaved public road emission factor equation includes estimates of emissions from exhaust, brake wear, and tire wear based on emission rates for vehicles in the 1980 calendar year fleet. The amount of PM released from vehicle exhaust has decreased since 1980 due to lower new vehicle emission standards and changes in fuel characteristics.

13.2.2.2 Emissions Calculation And Correction Parameters¹⁻⁶

The quantity of dust emissions from a given segment of unpaved road varies linearly with the volume of traffic. Field investigations also have shown that emissions depend on source parameters that characterize the condition of a particular road and the associated vehicle traffic. Characterization of these source parameters allow for "correction" of emission estimates to specific road and traffic conditions present on public and industrial roadways.

Dust emissions from unpaved roads have been found to vary directly with the fraction of silt (particles smaller than 75 micrometers [μm] in diameter) in the road surface materials.¹ The silt fraction is determined by measuring the proportion of loose dry surface dust that passes a 200-mesh screen, using the ASTM-C-136 method. A summary of this method is contained in Appendix C of AP-42. Table 13.2.2-1 summarizes measured silt values for industrial unpaved roads. Table 13.2.2-2 summarizes measured silt values for public unpaved roads. It should be noted that the ranges of silt content vary over two orders of magnitude. Therefore, the use of data from this table can potentially introduce considerable error. Use of this data is strongly discouraged when it is feasible to obtain locally gathered data.

Since the silt content of a rural dirt road will vary with geographic location, it should be measured for use in projecting emissions. As a conservative approximation, the silt content of the parent soil in the area can be used. Tests, however, show that road silt content is normally lower than in the surrounding parent soil, because the fines are continually removed by the vehicle traffic, leaving a higher percentage of coarse particles.

Other variables are important in addition to the silt content of the road surface material. For example, at industrial sites, where haul trucks and other heavy equipment are common, emissions are highly correlated with vehicle weight. On the other hand, there is far less variability in the weights of cars and pickup trucks that commonly travel publicly accessible unpaved roads throughout the United States. For those roads, the moisture content of the road surface material may be more dominant in determining differences in emission levels between, for example a hot, desert environment and a cool, moist location.

The PM-10 and TSP emission factors presented below are the outcomes from stepwise linear regressions of field emission test results of vehicles traveling over unpaved surfaces. Due to a limited amount of information available for PM-2.5, the expression for that particle size range has been scaled against the result for PM-10. Consequently, the quality rating for the PM-2.5 factor is lower than that for the PM-10 expression.

Table 13.2.2-1. TYPICAL SILT CONTENT VALUES OF SURFACE MATERIAL ON INDUSTRIAL UNPAVED ROADS^a

Industry	Road Use Or Surface Material	Plant Sites	No. Of Samples	Silt Content (%)	
				Range	Mean
Copper smelting	Plant road	1	3	16 - 19	17
Iron and steel production	Plant road	19	135	0.2 - 19	6.0
Sand and gravel processing	Plant road	1	3	4.1 - 6.0	4.8
	Material storage area	1	1	-	7.1
Stone quarrying and processing	Plant road	2	10	2.4 - 16	10
	Haul road to/from pit	4	20	5.0-15	8.3
Taconite mining and processing	Service road	1	8	2.4 - 7.1	4.3
	Haul road to/from pit	1	12	3.9 - 9.7	5.8
Western surface coal mining	Haul road to/from pit	3	21	2.8 - 18	8.4
	Plant road	2	2	4.9 - 5.3	5.1
	Scraper route	3	10	7.2 - 25	17
	Haul road (freshly graded)	2	5	18 - 29	24
Construction sites	Scraper routes	7	20	0.56-23	8.5
Lumber sawmills	Log yards	2	2	4.8-12	8.4
Municipal solid waste landfills	Disposal routes	4	20	2.2 - 21	6.4

^aReferences 1,5-15.

The following empirical expressions may be used to estimate the quantity in pounds (lb) of size-specific particulate emissions from an unpaved road, per vehicle mile traveled (VMT):

For vehicles traveling on unpaved surfaces at industrial sites, emissions are estimated from the following equation:

$$E = k (s/12)^a(W/3)^b \quad (1a)$$

and, for vehicles traveling on publicly accessible roads, dominated by light duty vehicles, emissions may be estimated from the following:

$$E = \frac{k (s/12)^a(S/30)^d}{(M/0.5)^c} - C \quad (1b)$$

where k , a , b , c and d are empirical constants (Reference 6) given below and

E = size-specific emission factor (lb/VMT)

s = surface material silt content (%)

W = mean vehicle weight (tons)

M = surface material moisture content (%)

S = mean vehicle speed (mph)

C = emission factor for 1980's vehicle fleet exhaust, brake wear and tire wear.

The source characteristics s , W and M are referred to as correction parameters for adjusting the emission estimates to local conditions. The metric conversion from lb/VMT to grams (g) per vehicle kilometer traveled (VKT) is as follows:

$$1 \text{ lb/VMT} = 281.9 \text{ g/VKT}$$

The constants for Equations 1a and 1b based on the stated aerodynamic particle sizes are shown in Tables 13.2.2-2 and 13.2.2-4. The PM-2.5 particle size multipliers (k -factors) are taken from Reference 27.

Table 13.2.2-2. CONSTANTS FOR EQUATIONS 1a AND 1b

Constant	Industrial Roads (Equation 1a)			Public Roads (Equation 1b)		
	PM-2.5	PM-10	PM-30*	PM-2.5	PM-10	PM-30*
k (lb/VMT)	0.15	1.5	4.9	0.18	1.8	6.0
a	0.9	0.9	0.7	1	1	1
b	0.45	0.45	0.45	-	-	-
c	-	-	-	0.2	0.2	0.3
d	-	-	-	0.5	0.5	0.3
Quality Rating	B	B	B	B	B	B

*Assumed equivalent to total suspended particulate matter (TSP)

“-“ = not used in the emission factor equation

Table 13.2.2-2 also contains the quality ratings for the various size-specific versions of Equation 1a and 1b. The equation retains the assigned quality rating, if applied within the ranges of source conditions, shown in Table 13.2.2-3, that were tested in developing the equation:

Table 13.2.2-3. RANGE OF SOURCE CONDITIONS USED IN DEVELOPING EQUATION 1a AND 1b

Emission Factor	Surface Silt Content, %	Mean Vehicle Weight		Mean Vehicle Speed		Mean No. of Wheels	Surface Moisture Content, %
		Mg	ton	km/hr	mph		
Industrial Roads (Equation 1a)	1.8-25.2	1.8-260	2-290	8-69	5-43	4-17 ^a	0.03-13
Public Roads (Equation 1b)	1.8-35	1.4-2.7	1.5-3	16-88	10-55	4-4.8	0.03-13

^a See discussion in text.

As noted earlier, the models presented as Equations 1a and 1b were developed from tests of traffic on unpaved surfaces. Unpaved roads have a hard, generally nonporous surface that usually dries quickly after a rainfall or watering, because of traffic-enhanced natural evaporation. (Factors influencing how fast a road dries are discussed in Section 13.2.2.3, below.) The quality ratings given above pertain to the mid-range of the measured source conditions for the equation. A higher mean vehicle weight and a higher than normal traffic rate may be justified when performing a worst-case analysis of emissions from unpaved roads.

The emission factors for the exhaust, brake wear and tire wear of a 1980's vehicle fleet (C) was obtained from EPA's MOBILE6.2 model ²³. The emission factor also varies with aerodynamic size range

as shown in Table 13.2.2-4

Table 13.2.2-4. EMISSION FACTOR FOR 1980'S VEHICLE FLEET EXHAUST, BRAKE WEAR AND TIRE WEAR

Particle Size Range ^a	C, Emission Factor for Exhaust, Brake Wear and Tire Wear ^b lb/VMT
PM _{2.5}	0.00036
PM ₁₀	0.00047
PM ₃₀ ^c	0.00047

- ^a Refers to airborne particulate matter (PM-x) with an aerodynamic diameter equal to or less than x micrometers.
- ^b Units shown are pounds per vehicle mile traveled (lb/VMT).
- ^c PM-30 is sometimes termed "suspendable particulate" (SP) and is often used as a surrogate for TSP.

It is important to note that the vehicle-related source conditions refer to the average weight, speed, and number of wheels for all vehicles traveling the road. For example, if 98 percent of traffic on the road are 2-ton cars and trucks while the remaining 2 percent consists of 20-ton trucks, then the mean weight is 2.4 tons. More specifically, Equations 1a and 1b are *not* intended to be used to calculate a separate emission factor for each vehicle class within a mix of traffic on a given unpaved road. That is, in the example, one should *not* determine one factor for the 2-ton vehicles and a second factor for the 20-ton trucks. Instead, only one emission factor should be calculated that represents the "fleet" average of 2.4 tons for all vehicles traveling the road.

Moreover, to retain the quality ratings when addressing a group of unpaved roads, it is necessary that reliable correction parameter values be determined for the road in question. The field and laboratory procedures for determining road surface silt and moisture contents are given in AP-42 Appendices C.1 and C.2. Vehicle-related parameters should be developed by recording visual observations of traffic. In some cases, vehicle parameters for industrial unpaved roads can be determined by reviewing maintenance records or other information sources at the facility.

In the event that site-specific values for correction parameters cannot be obtained, then default values may be used. In the absence of site-specific silt content information, an appropriate mean value from Table 13.2.2-1 may be used as a default value, but the quality rating of the equation is reduced by two letters. Because of significant differences found between different types of road surfaces and between different areas of the country, use of the default moisture content value of 0.5 percent in Equation 1b is discouraged. The quality rating should be downgraded two letters when the default moisture content value is used. (It is assumed that readers addressing industrial roads have access to the information needed to develop average vehicle information in Equation 1a for their facility.)

The effect of routine watering to control emissions from unpaved roads is discussed below in Section 13.2.2.3, "Controls". However, all roads are subject to some natural mitigation because of rainfall and other precipitation. The Equation 1a and 1b emission factors can be extrapolated to annual

average uncontrolled conditions (but including natural mitigation) under the simplifying assumption that annual average emissions are inversely proportional to the number of days with measurable (more than 0.254 mm [0.01 inch]) precipitation:

$$E_{\text{ext}} = E [(365 - P)/365] \quad (2)$$

where:

E_{ext} = annual size-specific emission factor extrapolated for natural mitigation, lb/VMT

E = emission factor from Equation 1a or 1b

P = number of days in a year with at least 0.254 mm (0.01 in) of precipitation (see below)

Figure 13.2.2-1 gives the geographical distribution for the mean annual number of “wet” days for the United States.

Equation 2 provides an estimate that accounts for precipitation on an annual average basis for the purpose of inventorying emissions. It should be noted that Equation 2 does not account for differences in the temporal distributions of the rain events, the quantity of rain during any event, or the potential for the rain to evaporate from the road surface. In the event that a finer temporal and spatial resolution is desired for inventories of public unpaved roads, estimates can be based on a more complex set of assumptions. These assumptions include:

1. The moisture content of the road surface material is increased in proportion to the quantity of water added;
2. The moisture content of the road surface material is reduced in proportion to the Class A pan evaporation rate;
3. The moisture content of the road surface material is reduced in proportion to the traffic volume; and
4. The moisture content of the road surface material varies between the extremes observed in the area. The CHIEF Web site (<http://www.epa.gov/ttn/chief/ap42/ch13/related/c13s02-2.html>) has a file which contains a spreadsheet program for calculating emission factors which are temporally and spatially resolved. Information required for use of the spreadsheet program includes monthly Class A pan evaporation values, hourly meteorological data for precipitation, humidity and snow cover, vehicle traffic information, and road surface material information.

It is emphasized that the simple assumption underlying Equation 2 and the more complex set of assumptions underlying the use of the procedure which produces a finer temporal and spatial resolution have not been verified in any rigorous manner. For this reason, the quality ratings for either approach should be downgraded one letter from the rating that would be applied to Equation 1.

13.2.2.3 Controls¹⁸⁻²²

A wide variety of options exist to control emissions from unpaved roads. Options fall into the following three groupings:

1. Vehicle restrictions that limit the speed, weight or number of vehicles on the road;

2. Surface improvement, by measures such as (a) paving or (b) adding gravel or slag to a dirt road; and
3. Surface treatment, such as watering or treatment with chemical dust suppressants.

Available control options span broad ranges in terms of cost, efficiency, and applicability. For example, traffic controls provide moderate emission reductions (often at little cost) but are difficult to enforce. Although paving is highly effective, its high initial cost is often prohibitive. Furthermore, paving is not feasible for industrial roads subject to very heavy vehicles and/or spillage of material in transport. Watering and chemical suppressants, on the other hand, are potentially applicable to most industrial roads at moderate to low costs. However, these require frequent reapplication to maintain an acceptable level of control. Chemical suppressants are generally more cost-effective than water but not in cases of temporary roads (which are common at mines, landfills, and construction sites). In summary, then, one needs to consider not only the type and volume of traffic on the road but also how long the road will be in service when developing control plans.

Vehicle restrictions. These measures seek to limit the amount and type of traffic present on the road or to lower the mean vehicle speed. For example, many industrial plants have restricted employees from driving on plant property and have instead instituted bussing programs. This eliminates emissions due to employees traveling to/from their worksites. Although the heavier average vehicle weight of the busses increases the base emission factor, the decrease in vehicle-miles-traveled results in a lower overall emission rate.

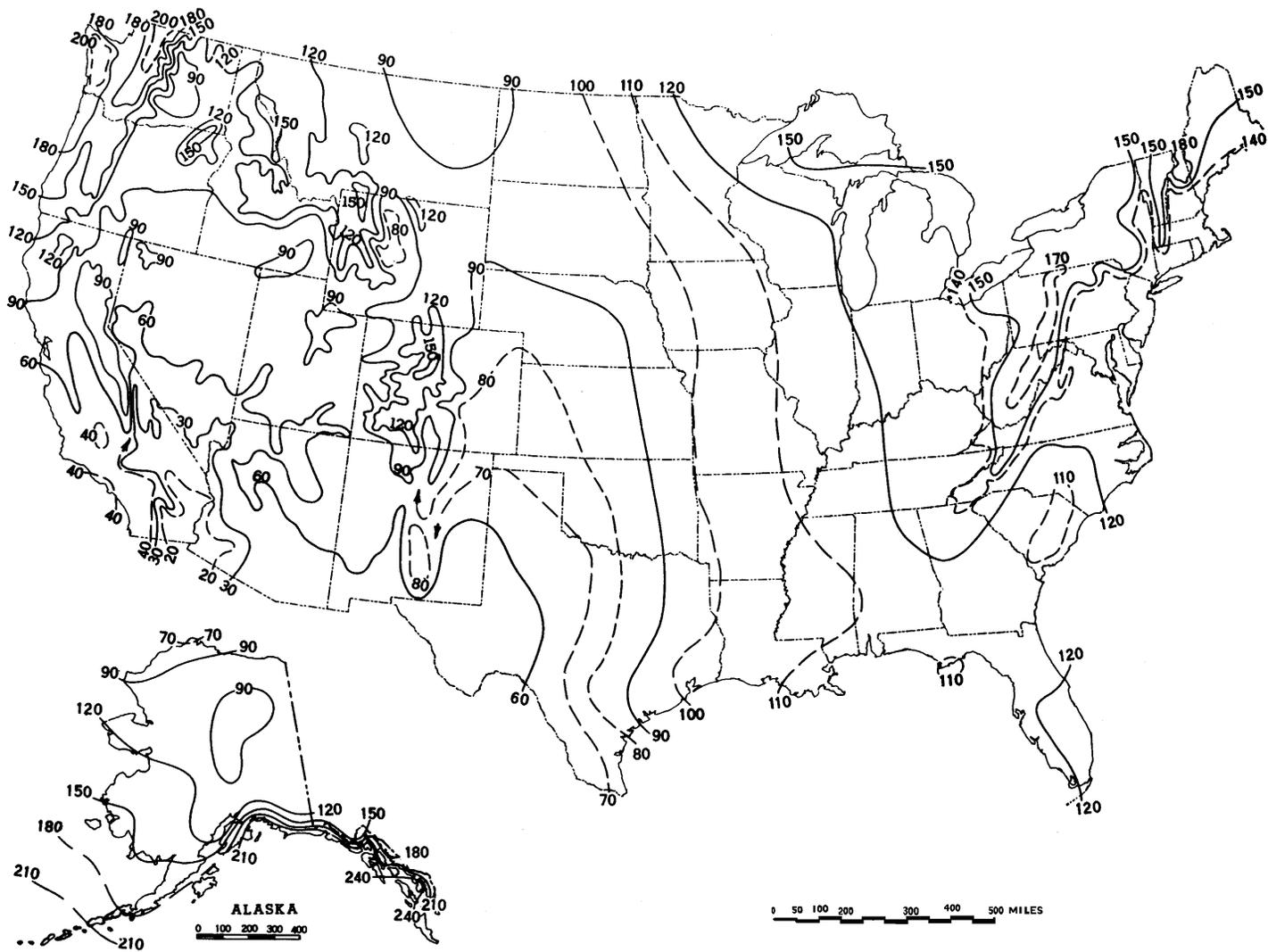


Figure 13.2.2-1. Mean number of days with 0.01 inch or more of precipitation in United States.

Surface improvements. Control options in this category alter the road surface. As opposed to the “surface treatments” discussed below, improvements are relatively “permanent” and do not require periodic retreatment.

The most obvious surface improvement is paving an unpaved road. This option is quite expensive and is probably most applicable to relatively short stretches of unpaved road with at least several hundred vehicle passes per day. Furthermore, if the newly paved road is located near unpaved areas or is used to transport material, it is essential that the control plan address routine cleaning of the newly paved road surface.

The control efficiencies achievable by paving can be estimated by comparing emission factors for unpaved and paved road conditions. The predictive emission factor equation for paved roads, given in Section 13.2.1, requires estimation of the silt loading on the traveled portion of the paved surface, which in turn depends on whether the pavement is periodically cleaned. Unless curbing is to be installed, the effects of vehicle excursion onto unpaved shoulders (berms) also must be taken into account in estimating the control efficiency of paving.

Other improvement methods cover the road surface with another material that has a lower silt content. Examples include placing gravel or slag on a dirt road. Control efficiency can be estimated by comparing the emission factors obtained using the silt contents before and after improvement. The silt content of the road surface should be determined after 3 to 6 months rather than immediately following placement. Control plans should address regular maintenance practices, such as grading, to retain larger aggregate on the traveled portion of the road.

Surface treatments refer to control options which require periodic reapplication. Treatments fall into the two main categories of (a) “wet suppression” (i. e., watering, possibly with surfactants or other additives), which keeps the road surface wet to control emissions and (b) “chemical stabilization/treatment”, which attempts to change the physical characteristics of the surface. The necessary reapplication frequency varies from several minutes for plain water under summertime conditions to several weeks or months for chemical dust suppressants.

Watering increases the moisture content, which conglomerates particles and reduces their likelihood to become suspended when vehicles pass over the surface. The control efficiency depends on how fast the road dries after water is added. This in turn depends on (a) the amount (per unit road surface area) of water added during each application; (b) the period of time between applications; (c) the weight, speed and number of vehicles traveling over the watered road during the period between applications; and (d) meteorological conditions (temperature, wind speed, cloud cover, etc.) that affect evaporation during the period.

Figure 13.2.2-2 presents a simple bilinear relationship between the instantaneous control efficiency due to watering and the resulting increase in surface moisture. The moisture ratio "M" (i.e., the x-axis in Figure 13.2.2-2) is found by dividing the surface moisture content of the watered road by the surface moisture content of the uncontrolled road. As the watered road surface dries, both the ratio M and the predicted instantaneous control efficiency (i.e., the y-axis in the figure) decrease. The figure shows that between the uncontrolled moisture content and a value twice as large, a small increase in moisture content results in a large increase in control efficiency. Beyond that, control efficiency grows slowly with increased moisture content.

Given the complicated nature of how the road dries, characterization of emissions from watered roadways is best done by collecting road surface material samples at various times between water truck passes. (Appendices C.1 and C.2 present the sampling and analysis procedures.) The moisture content measured can then be associated with a control efficiency by use of Figure 13.2.2-2. Samples that reflect average conditions during the watering cycle can take the form of either a series of samples between water applications or a single sample at the midpoint. It is essential that samples be collected during periods with active traffic on the road. Finally, because of different evaporation rates, it is recommended that samples be collected at various times during the year. If only one set of samples is to be collected, these must be collected during hot, summertime conditions.

When developing watering control plans for roads that do not yet exist, it is strongly recommended that the moisture cycle be established by sampling similar roads in the same geographic area. If the moisture cycle cannot be established by similar roads using established watering control plans, the more complex methodology used to estimate the mitigation of rainfall and other precipitation can be used to estimate the control provided by routine watering. An estimate of the maximum daytime Class A pan evaporation (based upon daily evaporation data published in the monthly Climatological Data for the state by the National Climatic Data Center) should be used to insure that adequate watering capability is available during periods of highest evaporation. The hourly precipitation values in the spreadsheet should be replaced with the equivalent inches of precipitation (where the equivalent of 1 inch of precipitation is provided by an application of 5.6 gallons of water per square yard of road). Information on the long term average annual evaporation and on the percentage that occurs between May and October was published in the Climatic Atlas (Reference 16). Figure 13.2.2-3 presents the geographical distribution for "Class A pan evaporation" throughout the United States. Figure 13.2.2-4 presents the geographical distribution of the percentage of this evaporation that occurs between May and October. The U. S. Weather Bureau Class A evaporation pan is a cylindrical metal container with a depth of 10 inches and a diameter of 48 inches. Periodic measurements are made of the changes of the water level.

The above methodology should be used only for prospective analyses and for designing watering programs for existing roadways. The quality rating of an emission factor for a watered road that is based on this methodology should be downgraded two letters. Periodic road surface samples should be collected and analyzed to verify the efficiency of the watering program.

As opposed to watering, chemical dust suppressants have much less frequent reapplication requirements. These materials suppress emissions by changing the physical characteristics of the existing road surface material. Many chemical unpaved road dust suppressants form a hardened surface that binds particles together. After several applications, a treated road often resembles a paved road except that the surface is not uniformly flat. Because the improved surface results in more grinding of small particles, the silt content of loose material on a highly controlled surface may be substantially higher than when the surface was uncontrolled. For this reason, the models presented as Equations 1a and 1b cannot be used to estimate emissions from chemically stabilized roads. Should the road be allowed to return to an

uncontrolled state with no visible signs of large-scale cementing of material, the Equation 1a and 1b emission factors could then be used to obtain conservatively high emission estimates.

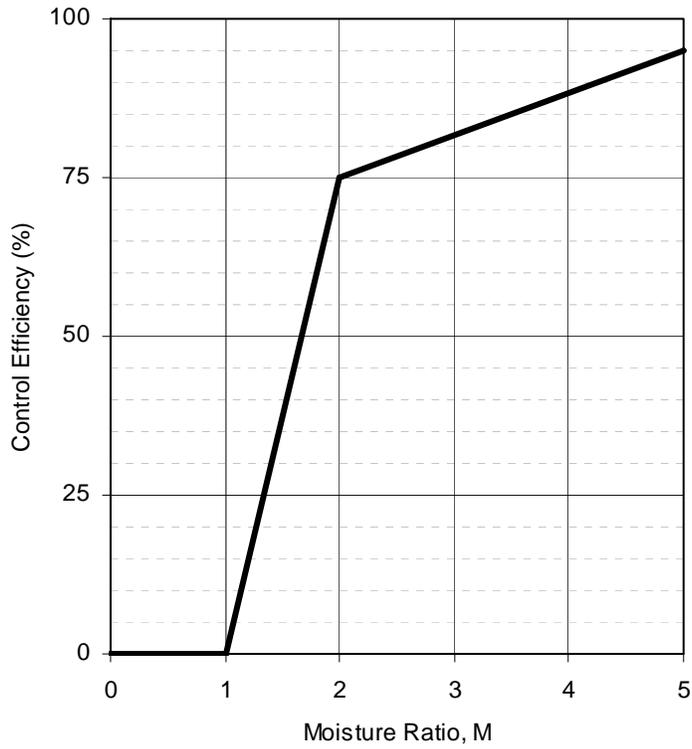


Figure 13.2.2-2. Watering control effectiveness for unpaved travel surfaces

The control effectiveness of chemical dust suppressants appears to depend on (a) the dilution rate used in the mixture; (b) the application rate (volume of solution per unit road surface area); (c) the time between applications; (d) the size, speed and amount of traffic during the period between applications; and (e) meteorological conditions (rainfall, freeze/thaw cycles, etc.) during the period. Other factors that affect the performance of dust suppressants include other traffic characteristics (e. g., cornering, track-on from unpaved areas) and road characteristics (e. g., bearing strength, grade). The variabilities in the above factors and differences between individual dust control products make the control efficiencies of chemical dust suppressants difficult to estimate. Past field testing of emissions from controlled unpaved roads has shown that chemical dust suppressants provide a PM-10 control efficiency of about 80 percent when applied at regular intervals of 2 weeks to 1 month.

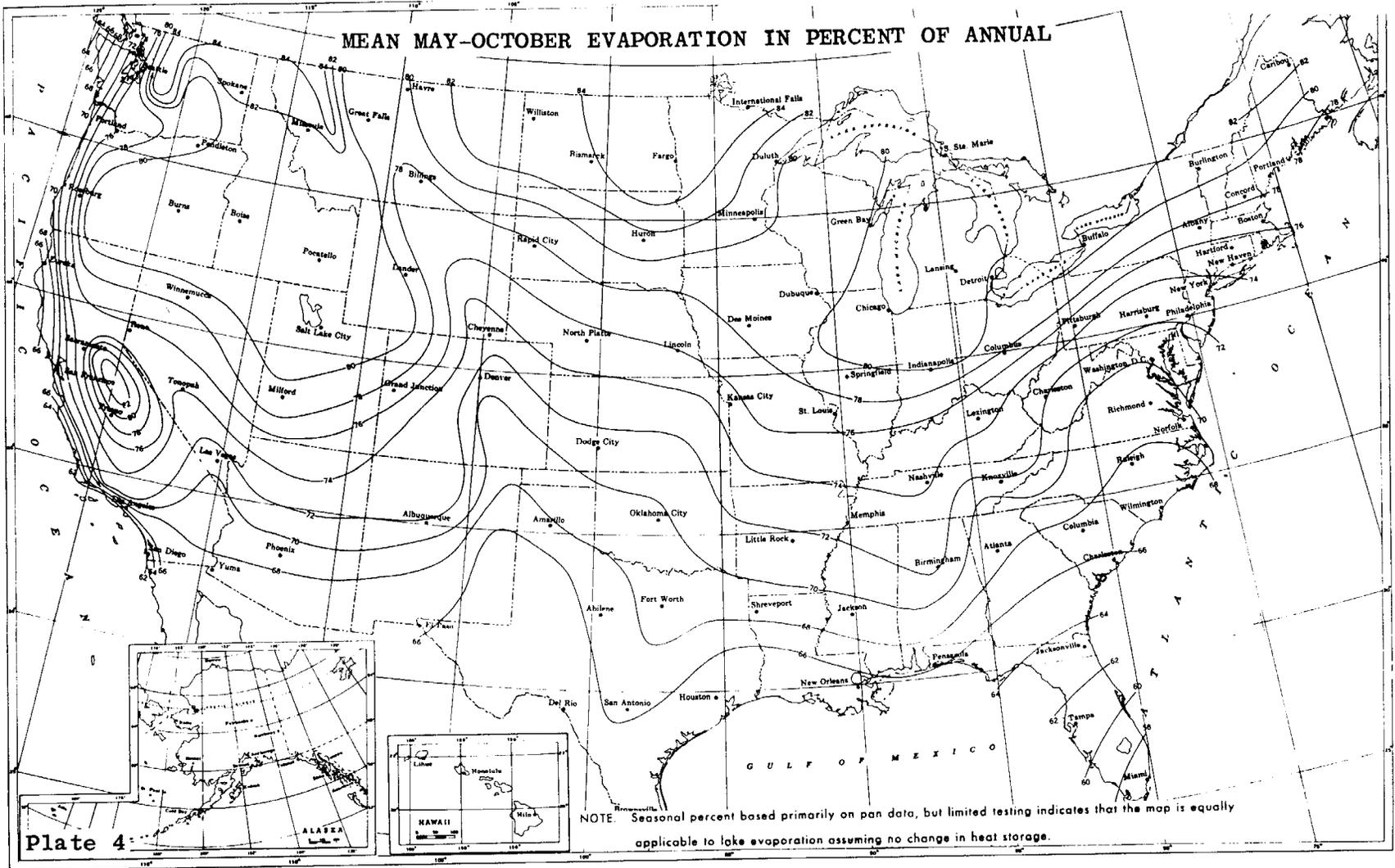


Figure 13.2.2-4. Geographical distribution of the percentage of evaporation occurring between May and October.

Petroleum resin products historically have been the dust suppressants (besides water) most widely used on industrial unpaved roads. Figure 13.2.2-5 presents a method to estimate average control efficiencies associated with petroleum resins applied to unpaved roads.²⁰ Several items should be noted:

1. The term "ground inventory" represents the total volume (per unit area) of petroleum resin concentrate (*not solution*) applied since the start of the dust control season.
2. Because petroleum resin products must be periodically reapplied to unpaved roads, the use of a time-averaged control efficiency value is appropriate. Figure 13.2.2-5 presents control efficiency values averaged over two common application intervals, 2 weeks and 1 month. Other application intervals will require interpolation.
3. Note that zero efficiency is assigned until the ground inventory reaches 0.05 gallon per square yard (gal/yd²). Requiring a minimum ground inventory ensures that one must apply a reasonable amount of chemical dust suppressant to a road before claiming credit for emission control. Recall that the ground inventory refers to the amount of petroleum resin concentrate rather than the total solution.

As an example of the application of Figure 13.2.2-5, suppose that Equation 1a was used to estimate an emission factor of 7.1 lb/VMT for PM-10 from a particular road. Also, suppose that, starting on May 1, the road is treated with 0.221 gal/yd² of a solution (1 part petroleum resin to 5 parts water) on the first of each month through September. Then, the average controlled emission factors, shown in Table 13.2.2-5, are found.

Table 13.2-2-5. EXAMPLE OF AVERAGE CONTROLLED EMISSION FACTORS FOR SPECIFIC CONDITIONS

Period	Ground Inventory, gal/yd ²	Average Control Efficiency, % ^a	Average Controlled Emission Factor, lb/VMT
May	0.037	0	7.1
June	0.073	62	2.7
July	0.11	68	2.3
August	0.15	74	1.8
September	0.18	80	1.4

^a From Figure 13.2.2-5, $\leq 10 \mu\text{m}$. Zero efficiency assigned if ground inventory is less than 0.05 gal/yd². 1 lb/VMT = 281.9 g/VKT. 1 gal/yd² = 4.531 L/m².

Besides petroleum resins, other newer dust suppressants have also been successful in controlling emissions from unpaved roads. Specific test results for those chemicals, as well as for petroleum resins and watering, are provided in References 18 through 21.

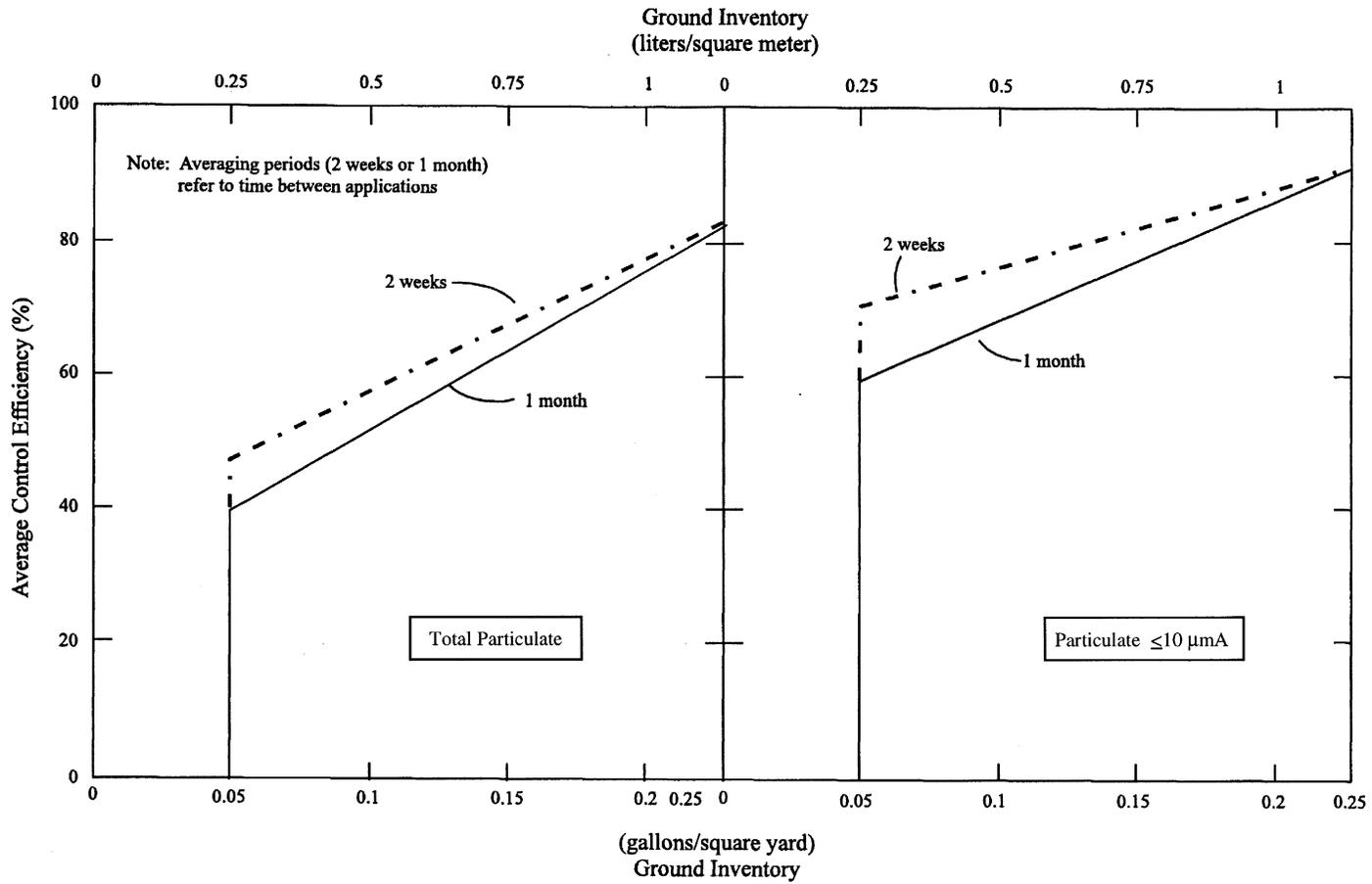


Figure 13.2.2-5. Average control efficiencies over common application intervals.

13.2.2.4 Updates Since The Fifth Edition

The Fifth Edition was released in January 1995. Revisions to this section since that date are summarized below. For further detail, consult the background report for this section (Reference 6).

October 1998 (Supplement E)– This was a major revision of this section. Significant changes to the text and the emission factor equations were made.

October 2001 – Separate emission factors for unpaved surfaces at industrial sites and publicly accessible roads were introduced. Figure 13.2.2-2 was included to provide control effectiveness estimates for watered roads.

December 2003 – The public road emission factor equation (equation 1b) was adjusted to remove the component of particulate emissions from exhaust, brake wear, and tire wear. The parameter *C* in the new equation varies with aerodynamic size range of the particulate matter. Table 13.2.2-4 was added to present the new coefficients.

January 2006 – The PM-2.5 particle size multipliers (i.e., factors) in Table 13.2.2-2 were modified and the quality ratings were upgraded from C to B based on the wind tunnel studies of a variety of dust emitting surface materials.

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**APPENDIX E – AIR QUALITY
RECORD OF NON-APPLICABILITY (RONA)**

GENERAL CONFORMITY – RECORD OF NON-APPLICABILITY

Project/Action

Name: Implementation of BRAC 05 Realignment at Fort Hamilton, NY

Project/Action

Point of Contact: Peter Koutroubis
Environmental Chief
Directorate of Public Works
Telephone: 718-630-4485

Begin Date: September 23, 2005

End Date: September 15, 2011

General Conformity under the Clean Air Act, Section 176 has been evaluated for the project described above according to the requirements of 40 CFR 93, Subpart B. The General Conformity Rule applies to federal actions occurring in regions designated as being in non-attainment for the NAAQS or attainment areas subject to maintenance plans (maintenance areas). Threshold (*de minimis*) rates of emissions have been established for federal actions with the potential to have significant air quality impacts. If a project/action located in an area designated as non-attainment exceeds these *de minimis* levels, a general conformity analysis is required. Kings County is designated as a moderate ozone non-attainment area, PM_{2.5} non-attainment area, and CO maintenance area thus the VOC, NO_x, PM_{2.5}, SO₂, and CO thresholds apply. (VOC and NO_x are ozone precursors and SO₂ is a precursor to PM_{2.5})

A General Conformity Analysis of this project/action is not required because:

Total direct and indirect emissions from this project/action have been estimated at:

NO_x: 15.055 tons; VOC: 3.179 tons; PM_{2.5}: 3.031 tons; SO₂: 2.242 tons; CO: 16.384 tons
and are below the *de minimis* levels established in 40 CFR 93.153 (b) of:
NO_x: 100 tons; VOC: 50 tons; PM_{2.5}: 100 tons; SO₂: 100 tons; CO: 100 tons;

Annual emissions also fall below the more stringent NYSDEC severe ozone *de minimis* standards of 25 TPY for NO_x and VOC.

Furthermore, the project/action is not considered regionally significant under 40 CFR 93.153 (i). Kings County is in attainment for criteria pollutants PM₁₀, SO₂ and Pb and therefore these pollutants are not subject to conformity review.

Supporting documentation and emissions estimates can be found in Section 4.4 and Appendix D of the Environmental Assessment.

Peter Koutroubis
Environmental Chief
Directorate of Public Works