
FINDING OF NO SIGNIFICANT IMPACT AND ENVIRONMENTAL ASSESSMENT FOR BRAC 05 REALIGNMENT AT FORT DIX, NEW JERSEY



September 2006

Prepared for:

Fort Dix, New Jersey

Prepared by:

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FINDING OF NO SIGNIFICANT IMPACT BRAC05 REALIGNMENT AT FORT DIX, NEW JERSEY

On September 8, 2005, the Defense Base Closure and Realignment Commission (“BRAC Commission”) recommended that certain realignment actions occur at Fort Dix, New Jersey. 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 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 environmental effects of the BRAC Commission’s recommended realignment of Fort Dix in Burlington and Ocean Counties, New Jersey. 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. The 2006 Base Realignment and 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 Dix. The following first provides the mission and vision of Fort Dix, before detailing the BRAC increase in personnel loading, proposed action, and schedule. Specific BRAC Commission recommendations included:

- 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 Maneuver Enhancement/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.
- Relocate 228th Aviation and Reserve Intelligence Area 16 from Naval Air Station Joint Reserve Base Willow Grove, PA, to Fort Dix.
- Realign Aberdeen Proving Ground, MD, Washington Navy Yard, DC, and Naval Submarine Base New London, CT, by relocating all mobilization functions to Fort Dix, NJ, designating it as Joint Pre-Deployment/Mobilization Site Dix/McGuire/Lakehurst (Department of Army 2006).

To implement these recommendations, the following new facilities, as defined in existing DD Form 1391s, are proposed for construction:

Army Reserve Center (ARC) for the 77th, 78th, and 99th. Fort Dix will construct an ARC headquarters for the 99th Regional Readiness Command and a combined headquarters for the 78th Division and the 77th Regional Readiness Command in the 5200 area along Maryland Avenue between Pennsylvania Avenue and South Scott Plaza. No demolition of existing buildings is required and the building will contain 163,500 square feet and will occupy a first floor footprint of up to 88,500 square feet. The entire footprint, including parking for between 350 and 400 vehicles, will cover approximately 9.5 acres.

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

Aviation Support Facility. A 21,300 square foot aircraft maintenance hangar will be constructed for the 244th Aviation Brigade and Company A/228th Aviation. In addition, a 1,510 square foot aviation support operations building, 350 square foot unheated storage area, 733 square yard aircraft washing apron, and 20,170 square yards of fixed-wing taxiway and apron space will be constructed. Organizational parking covering 1,250 square yards (approximately 30 vehicles) will be provided. These facilities will be located in the 4400 area off Texas Avenue. Demolition of the existing Department of Logistics (DOL) Vehicle Maintenance Facilities will be required to construct the new facility. No aircraft are permanently assigned to Fort Dix, however, an inventory of eight C-12 aircraft will be assigned to Fort Dix and supported by this facility and apron space.

Physical Fitness Facility. A 64,799 square foot new physical fitness facility will be constructed adjacent to the existing Fort Dix indoor swimming pool located in the 5900 area off Doughboy loop and will replace the existing substandard Building 6053 Griffith Field House, Building 5953 Physical Fitness Facility, the Doughboy Gym, and Building 6035 trailer. Demolition of these buildings is not required as part of constructing the new facility but may occur later if determined to be necessary by the Installation.

Child Development Center (CDC) and School Age Services (SAS) Complex. A CDC/SAS complex will be constructed in the 1500 area off Elm, Filmore, and Fir Streets to support additional permanent party personnel dependents resulting from the proposed BRAC realignments. Demolition of existing buildings will not be required. The single-story building will contain 22,159 square feet (8,230 square feet for the CDC and 13,929 square feet for the SAS). The CDC will accommodate 93 preschool age children (6 weeks to 5 years of age), and the SAS will accommodate 105 school age children (6 to 10 years of age).

Organization Maintenance Shop (OMS) Facility and Additional Parking Area. A new 15,700 square foot OMS facility at the Equipment Concentration Site 27 (ECS 27) and additional parking area for the 77th & 78th Motor Pool will be constructed to support the increased mobilization/demobilization maintenance requirements resulting from the designation of Fort Dix as a Joint Pre-Deployment/ Mobilization Site. As part of this action, a 3,796 square foot unheated storage facility will be constructed. Demolition of existing buildings will not be required.

2.0 ALTERNATIVES CONSIDERED

Under the no action alternative, Fort Dix would not implement the proposed action. Although the President's CEQ regulations require consideration of the no action alternative, implementation of the no action alternative is not viable under BRAC law. Therefore, the no action alternative was included in the analysis to serve as a baseline for comparison.

The Army considered and analyzed one other alternative, the realignment, or "preferred," alternative. Under the preferred alternative, all five projects will be constructed as described in the proposed action, adding approximately 293,000 square feet of built space. Siting of these projects will be consistent with the 1999 Fort Dix Real Property Master Plan. All projects, with the exception of the OMS Facility, will be located within the Fort Dix Cantonment Area, and the OMS Facility will be located just southeast of the Cantonment Area on Range Road near facilities with similar functions.

Other alternatives were considered, but not analyzed. These included (1) use of existing facilities at Fort Dix, (2) acquisition of new property; (3) leasing existing space off post; use of other DoD installations; 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 ENVIRONMENTAL IMPACT STATEMENT IS NOT REQUIRED

The EA, which is incorporated by reference into this Finding of No Significant Impact (FNSI), examined potential effects of the proposed action and no action alternative on 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 (including environmental justice and protection of children), transportation, utilities, and hazardous and toxic substances.

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 Dix or to areas surrounding the post. The most severe potential effects with the realignment (preferred) alternative are anticipated to be minor to moderate. These impacts would be experienced by the following areas: aesthetic and visual resources, wildlife (biological resources), roadways and traffic (transportation), and special hazards (hazardous and toxic substances).

None of the predicted effects of the proposed realignment actions would result in significant impacts; therefore, mitigation is not needed. Known potential effects resulting from implementing the proposed action on the physical and natural environment will not be significant. Therefore, implementation of the proposed action will not require the preparation of an Environmental Impact Statement (EIS). Preparation of a FNSI is appropriate.

4.0 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 EIS is not required and will not be prepared.

Date: 26 SEP 06



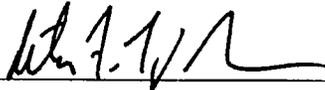
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ENVIRONMENTAL ASSESSMENT
IMPLEMENTATION OF BRAC 05 REALIGNMENT
AT FORT DIX, NEW JERSEY

Prepared by:

U.S. ARMY CORPS OF ENGINEERS
MOBILE DISTRICT



Peter F. Taylor, Jr.
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Approved by:

FORT DIX, NEW JERSEY



R. David McNeil
Colonel, U.S. Army Commanding

ENVIRONMENTAL ASSESSMENT

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

TITLE OF PROPOSED ACTION: Environmental Assessment for Implementation of BRAC 05 Realignment at Fort Dix, New Jersey

AFFECTED JURISDICTIONS: Burlington and Ocean Counties, New Jersey

PREPARED BY: Peter F. Taylor, Jr., Colonel, U.S. Army Corps of Engineers, Mobile District, Commanding

TECHNICAL ASSISTANCE FROM: The Louis Berger Group, Inc.

APPROVED BY: R. David McNeil, Colonel, U.S. Army Commanding

ABSTRACT: On September 8, 2005, the Defense Base Closure and Realignment Commission (“BRAC Commission”) recommended that certain realignment actions occur at Fort Dix, New Jersey. 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 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 enable implementation of the BRAC recommendations, the Army proposes to provide necessary facilities to support the changes in force structure at Fort Dix. This environmental assessment (EA) analyzes and documents environmental effects associated with the Army’s proposed action at Fort Dix—an installation receiving realigned missions.

None of the predicted effects of the proposed action would result in significant impacts at Fort Dix. Moreover, mitigation would not be necessary to offset impacts. Therefore, preparation of an Environmental Impact Statement (EIS) is not required and a Finding of No Significant Impact (FNSI) will be published in accordance with the National Environmental Policy Act.

REVIEW PERIOD: Interested parties are invited to review and comment on the EA and Draft FNSI within 30 days of publication. Comments and requests for copies of the EA should be addressed to Ms. Carolee Nisbet, Fort Dix Public Affairs, Building 5165, Maryland Avenue, Fort Dix, New Jersey, 08640. Phone: (609) 562-4034; e-mail: carolee.nisbet@dix.army.mil. The EA is available for review at the following libraries:

Burlington County Headquarters Library
5 Pioneer Boulevard
West Hampton, New Jersey 08060

Burlington County Community College Library
Pemberton Browns Mills Road
Pemberton, New Jersey 08068

Ocean County Library
Toms River Branch (Headquarters)
101 Washington Street
Toms River, New Jersey 08753

EXECUTIVE SUMMARY

ES.1 INTRODUCTION

On September 8, 2005, the Defense Base Closure and Realignment Commission (“BRAC Commission”) recommended that certain realignment actions occur at Fort Dix, New Jersey. 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 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 following highlights the BRAC Commission recommendation for Fort Dix:

- 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.
- Realign Aberdeen Proving Ground, MD, Washington Navy Yard, DC, and Naval Submarine Base New London, CT, relocating all mobilization functions to Fort Dix, NJ, designating it as Joint Pre-Deployment / Mobilization Site Dix / McGuire Lakehurst (Department of Army 2006).

To enable implementation of this recommendation, the Army proposes to provide necessary facilities to support the changes in force structure at Fort Dix. This environmental assessment (EA) analyzes and documents environmental effects associated with the Army’s proposed action at Fort Dix—an installation receiving realigned missions.

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 for concurrent actions, both BRAC-directed and discretionary, at each installation that is receiving realigned missions. A NEPA document is not required for those installations that are only losing activities. Table ES-1 lists major environmental statutes, regulations, and Executive Orders applicable to federal projects.

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 (USEPA), Subchapter C-Air Programs (40 CFR 52-99)
Noise	Noise Control Act of 1972 (PL 92-574) and Amendments of 1978 (PL 95-609); USEPA, 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); USEPA, Subchapter D-Water Programs (40 CFR 100-145); Water Quality Act of 1987 (PL 100-4); USEPA, 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); USEPA, 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); USEPA, 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 and Health and Safety	Resource Conservation and Recovery Act (RCRA) of 1976 (PL 94-5800), as Amended by PL 100-582; USEPA, 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); USEPA, 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 300-399); Federal Compliance with Pollution Control Standards-1978 (EO 12088), Superfund Implementation (EO 12580); Greening the Government Through Waste Prevention, Recycling, and Federal Acquisition (EO 13101), Greening the Government Through Efficient Energy Management (EO 13123), Greening the Government Through Leadership in Environmental Management (EO 13148); Occupational Safety and Health Act of 1970 (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.2 BACKGROUND AND SETTING

Fort Dix is located in central New Jersey, 90 miles southwest of New York City, 16 miles southeast of Trenton, and 32 miles northeast of Philadelphia. Fort Dix extends across the county line that separates Burlington County from Ocean County. Major transportation arteries include the Garden State Parkway, 23 miles to the east; Interstate 195, 11 miles to the north; and the New Jersey Turnpike located 10 miles to the west. Major geographical features include the Atlantic Ocean located 31 miles to the east and the Delaware River located 18 miles to the west.

Fort Dix is the largest military installation in the northeastern United States, covering 30,960 acres. Fort Dix also shares common boundaries with two other military installations: McGuire Air Force Base (AFB) borders Fort Dix to the north, east, and west, and Naval Air Engineering Station (NAES) Lakehurst to the east. NAES Lakehurst is composed of approximately 7,430 acres and McGuire AFB is composed of approximately 3,600 acres.

ES.3 PROPOSED ACTION

The proposed action's overall purpose is to implement the Commission's recommendation as mandated by the BRAC legislation, Public Law 101-510. The proposed action involves constructing new facilities to accommodate the personnel and functions of organizations realigning and relocating to Fort Dix. The following first provides the mission and vision of Fort Dix, before detailing the BRAC increase in personnel loading, proposed action, and schedule.

This section describes the Army's proposed action for carrying out the BRAC Commission's recommendations. The BRAC Commission recommended the realignment of the following agencies/activities with relocation to Fort Dix, NJ. These include, but may not be limited to:

- 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 Maneuver Enhancement/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.
- Relocate 228th Aviation and Reserve Intelligence Area 16 from Naval Air Station Joint Reserve Base Willow Grove, PA, to Fort Dix.
- Realign Aberdeen Proving Ground, MD, Washington Navy Yard, DC, and Naval Submarine Base New London, CT, by relocating all mobilization functions to Fort Dix, NJ, designating it as Joint Pre-Deployment/Mobilization Site Dix/McGuire/Lakehurst (Department of Army 2006).

The following presents the proposed action, or BRAC related projects, assessed in this EA. The projects constituting the proposed action are defined by existing DD Form 1391s (Hand 2006a). The DD Form 1391 is used by the Department of Defense to submit requirements and justifications in support of funding requests for military construction to Congress. Figures 2-2 and 2-3 within the EA identify each project's location.

Army Reserve Center (ARC) for the 77th, 78th, and 99th. As part of the BRAC recommendations, Fort Dix would construct an ARC headquarters for the 99th Regional Readiness Command and a combined headquarters for the 78th Division and the 77th Regional Readiness Command. The preferred location is in the 5200 area along Maryland Avenue between Pennsylvania Avenue and South Scott Plaza. No demolition of existing buildings would be required. The building would contain 163,500 square feet and would occupy a first floor footprint of up to 88,500 square feet. The entire footprint, including parking for between 350 and 400 vehicles, would cover approximately 9.5 acres.

Aviation Support Facility. A 21,300 square foot aircraft maintenance hangar would be constructed for the 244th Aviation Brigade and Company A/228th Aviation. In addition, a 1,510 square foot aviation support operations building, 350 square foot unheated storage area, 733 square yard aircraft washing apron, and 20,170 square yards of fixed-wing taxiway and apron space would be constructed. Organizational parking covering 1,250 square yards (approximately 30 vehicles) would be provided. These facilities are proposed for the 4400 area off Texas Avenue. Demolition of the existing Department

of Logistics (DOL) Vehicle Maintenance Facilities would be required to construct the new facility. Currently, no aircraft are permanently assigned to Fort Dix. In the future, an inventory of eight C-12 aircraft would be assigned to Fort Dix and supported by this facility and apron space.

Physical Fitness Facility. A 64,799 square foot new physical fitness facility would be constructed adjacent to the existing Fort Dix indoor swimming pool located in the 5900 area off Doughboy loop. This facility would be constructed to replace the existing substandard Building 6053 Griffith Field House, Building 5953 Physical Fitness Facility, the Doughboy Gym, and Building 6035 trailer. Demolition of these buildings is not required as part of constructing the new facility but may occur at a later date if the installation determines need. Combining all the prior physical fitness activities into one modern complex would lower construction, maintenance, and enhance accessibility. The new physical fitness facility would be designed to accommodate the projected population increases due to the BRAC 05 mission gains.

Child Development Center (CDC) and School Age Services (SAS) Complex. A CDC/SAS complex would be constructed to support additional permanent party personnel dependents resulting from the proposed BRAC realignments. This facility is proposed for the 1500 area off Elm, Filmore, and Fir Streets. No demolition of existing buildings would be required. The single-story building would contain 22,159 square feet (8,230 square feet for the CDC and 13,929 square feet for the SAS). The CDC would include space for 93 preschool age children (6 weeks to 5 years of age), and the SAS would include space for 105 school age children (6 to 10 years of age).

Organization Maintenance Shop (OMS) Facility and Additional Parking Area. A new 15,700 square foot OMS facility at the Equipment Concentration Site 27 (ECS 27) and additional parking area for the 77th & 78th Motor Pool would be required to support the increased mobilization/demobilization maintenance requirements resulting from the designation of Fort Dix as a Joint Pre-Deployment/Mobilization Site. In addition, a 3,796 square foot unheated storage facility would be required. No demolition of existing buildings would be required.

ES.4 REALIGNMENT PROCESS

The timeline for implementing the action at Fort Dix 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 Dix. New BRAC facilities at Fort Dix are programmed through fiscal year 2010 with realignment moves scheduled to occur by 2011. Under the BRAC law, the Army must initiate all realignments not later than September 15, 2007, and complete all realignments not later than September 15, 2011.¹ 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

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, Fort Dix would not implement the proposed action. Organizations presently assigned to Fort Dix would continue to train at and operate from the post. No units would relocate from overseas locations. No new units would be established. Fort Dix would use its current inventory of facilities, though routine replacement or renovations 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.

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.

Realignment (Preferred) Alternative

Fort Dix has identified five major facilities projects required to support the proposed action. These projects involve new construction that would provide approximately 293,114 square feet of built space. Siting of the new construction follows the Fort Dix Real Property Master Plan (RPMP) (Fort Dix 1999). All of the projects included in the proposed action, with the exception of the OMS Facility, would be located in the Fort Dix Cantonment Area—this area is where most of the post's existing infrastructure, facilities, and personnel are located. The OMS Facility would be located just southeast of the Cantonment Area on Range Road near facilities with similar functions.

To prepare its master plan, a team consisting of facility and environmental planners was formed to define the components for a preferred plan. The primary objective of this integrated planning/environmental team approach was to maximize the potential for the plan to support mission goals and objectives, while limiting the potential for adverse environmental impacts. Composite development constraints/environmental overlay maps were used to proactively screen and adjust specific components of the preferred plan during their formulation. The Fort Dix Installation Planning Board reviewed each component of the preferred plan, including the anticipated environmental effects of specific aspects of the comprehensive master plan. Therefore, adherence to the master plan helps assure that siting of the projects limits potential environmental impacts.

The Fort Dix Comprehensive Master Plan also seeks generally to collocate like uses and to separate incompatible uses, according to the Army's 12 general land use categories.² Siting of the proposed BRAC facilities, which is also based on this precept as shown below, locates facilities in a way to support mission goals and objectives as efficiently and effectively as possible.

- The proposed ARC and parking area for the 77th, 78th, and 99th are located in areas the Master Plan identifies for local training.
- Aviation units are generally located near the McGuire Air Force Base. Construction of an Aviation Support Facility for the 244th Aviation Brigade and Company A/228th Aviation is proposed near the McGuire AFB boundary.
- The Physical Fitness Facility is proposed for an area adjacent to the existing Fort Dix indoor swimming pool located in the 5900 area off Doughboy loop. The Master Plan designates this area as recreational.
- The proposed CDC/SAS complex is located in the family housing area.
- The proposed OMS Facility, Storage, and 77th & 78th Motor Pool additional parking area are located outside of the Brown Mills gate in an area designated as industrial—this area is outside of the main Cantonment Area, but still on Fort Dix owned and controlled land. A few facilities with similar functions currently exist in this area.

While variations of the present proposal for siting of facilities could be developed, the locations reflected in the realignment (preferred) alternative reflect a sound comprehensive approach, already taken in developing the comprehensive RPMP that limits environmental impacts while assuring efficient support to mission goals and objectives. While master plans identify general or broad areas where projects could be built, the sites selected for analysis in the EA represent areas that were further narrowed down by Fort Dix staff who analyzed where it makes the most sense to place each facility and its function from an environmental, facilities planning, engineering, and operational perspective. Fort Dix staff used the master plan as a guide and then applied their intimate knowledge of the base to help in making narrowed site selection determinations. Fort Dix planners have chosen site locations that would minimize environmental impacts and maximize functional adjacencies and mission effectiveness. Alternative siting of facilities would neither reduce impacts nor provide more efficient or effective support to mission goals and objectives. Therefore, alternative siting of facilities is not further evaluated in this EA.

² Army land use planning recognizes the following 12 land use categories: Airfields, Maintenance, Industrial, Supply/Storage, Administration, Training/ranges, Unaccompanied Personnel Housing, Family Housing, Community Facilities, Medical, Outdoor Recreation, and Open Space.

Additional Alternatives

Other alternatives were considered, including use of existing facilities at Fort Dix, acquisition of new property; leasing existing space off post; use of other DoD installations; and 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.

ES.6 ENVIRONMENTAL CONSEQUENCES

Under the no action alternative, the proposed new facilities required as part of the BRAC 05 realignment actions would not be constructed, and no environmental impacts would occur.

The proposed realignment actions would not have any significant adverse effects or impacts on any of the environmental or related resource areas at Fort Dix or to areas surrounding the post.

The most severe potential effects with the realignment (preferred) alternative are anticipated to be minor to moderate. These impacts would be experienced by the following resource areas:

- Wildlife (Biological Resources)
- Special Hazards (Hazardous and Toxic Substances)

A summary of impacts by resource area for the no action alternative and the realignment (preferred) alternative is provided in Table ES-2.

ES.7 MITIGATION RESPONSIBILITY AND PERMIT REQUIREMENTS

None of the predicted effects of the proposed realignment actions would result in significant impacts; therefore, mitigation is not needed, although the Army may consider the use of Best Management Practices (BMPs) in the construction and operation of these facilities. The following permits would be required in implementing the projects identified in this analysis:

- A soil erosion and sediment control plan for the construction phase of each project may be necessary under Section 401 and 404 requirements of the Clean Water Act.
- A Pinelands Commission application must be prepared and submitted to the Pinelands Commission for approval prior to construction to ensure that the resources of the Pinelands are not adversely affected when construction occurs. As construction moves forward, it will be the responsibility of the construction contractor to obtain the Pinelands Commission permit, along with all the other applicable permits.

**Table ES-2: Summary of Effects of the No Action Alternative
and the Realignment (Preferred) Alternative**

Resource	No Action Alternative	Realignment (Preferred) Alternative
Land Use		
<i>Regional Geographic Setting and Location</i>	None	None
<i>Installation Land / Airspace Use</i>	None	Minor
<i>Surrounding Land / Airspace Use</i>	None	None
<i>State Coastal Management Program</i>	None	N/A
<i>Current and Future Development in the Region of Influence</i>	None	Minor
Aesthetic and Visual Resources	None	None to Minor
Air Quality		
<i>Ambient Air Quality Conditions</i>	None	Minor
<i>Air Pollutant Emissions at Installation</i>	None	Minor
<i>Regional Air Pollutant Emissions Summary</i>	None	Minor
Noise	None	Minor
Geology and Soils		
<i>Geologic and Topographic Conditions</i>	None	None
<i>Soils</i>	None	Minor
<i>Prime Farmland</i>	None	None
Water Resources		
<i>Surface Water</i>	None	Negligible to Minor
<i>Hydrogeology/Groundwater</i>	None	Minor
<i>Floodplains</i>	None	None
<i>Coastal Zone</i>	None	None
Biological Resources		
<i>Vegetation</i>	None	Minor
<i>Wildlife</i>	None	Minor to Moderate (Organization Maintenance Shop [OMS] Facility)
<i>Threatened and Endangered Species</i>	None	None
<i>Wetlands Habitat</i>	None	None
Cultural Resources		
<i>Built Environment</i>	None	None to Minor
<i>Archaeology</i>	None	Minor
<i>Native American Resources</i>	None	None

Resource	No Action Alternative	Realignment (Preferred) Alternative
Socioeconomics		
<i>Economic Development</i>	None	Minor
<i>Demographics</i>	None	Minor
<i>Housing</i>	None	None
<i>Quality of Life</i>	None	Minor
<i>Environmental Justice</i>	None	None
<i>Protection of Children</i>	None	None
Transportation		
<i>Roadways and Traffic</i>	None	Minor
<i>Installation Transportation</i>	None	Negligible
<i>Public Transportation</i>	None	Negligible
Utilities		
<i>Potable Water Supply</i>	None	Negligible
<i>Wastewater System</i>	None	Negligible
<i>Stormwater System</i>	None	Minor
<i>Energy Sources</i>	None	Negligible
<i>Communications</i>	None	Negligible
<i>Solid Waste</i>	None	Negligible
Hazardous and Toxic Substances		
<i>Uses of Hazardous Materials</i>	None	Negligible to Minor
<i>Storage and Handling Areas</i>	None	Negligible to Minor
<i>Hazardous Waste Disposal</i>	None	Negligible to Minor
<i>Site Contamination and Cleanup</i>	None	Negligible to Minor
<i>Special Hazards</i>	None	Negligible to Moderate (Aviation Support Facility)

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1.0 PURPOSE, NEED, AND SCOPE

1.1 INTRODUCTION

On September 8, 2005, the Defense Base Closure and Realignment Commission (“BRAC Commission”) recommended that certain realignment actions occur at Fort Dix, New Jersey. 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 recommendations must now be implemented as provided for in the Defense Base Closure and Realignment Act of 1990 (Public Law 101-510), as amended.

The BRAC 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 for concurrent actions, both BRAC-directed and discretionary, at each installation that is receiving realigned missions. A NEPA document is not required for those installations that are only losing activities.

The following highlights the BRAC Commission recommendation for Fort Dix:

- 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.
- Relocate 228th Aviation and Reserve Intelligence Area 16 from Naval Air Station Joint Reserve Base Willow Grove, PA, to Fort Dix.
- Realign Aberdeen Proving Ground, MD, Washington Navy Yard, DC, and Naval Submarine Base New London, CT, relocating all mobilization functions to Fort Dix, NJ, designating it as Joint Pre-Deployment / Mobilization Site Dix / McGuire Lakehurst (Department of Army 2006).

To enable implementation of this recommendation, the Army proposes to provide necessary facilities to support the changes in force structure at Fort Dix. This environmental assessment (EA) analyzes and documents environmental effects associated with the Army’s proposed action at Fort Dix—an installation receiving realigned missions.

Details on the proposed action covered by this EA are described in Section 2.0.

1.2 PURPOSE AND NEED

The purpose of the proposed action is to implement the BRAC Commission’s recommendation pertaining to Fort Dix.

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

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

the goals of transformation, improving military capabilities, and enhancing military value. The Army needs to carry out the BRAC recommendations at Fort Dix in order to achieve the objectives for which Congress established the BRAC process.

The following provides the Secretary of Defense's justification for the BRAC recommendation at Fort Dix:

This recommendation transforms Reserve Component facilities and command and control structure throughout the Northeast Region of the United States. The implementation of this recommendation would 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 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 would further support the re-engineering and streamlining of the command and control structure of the Army Reserves throughout the United States. This restructuring would 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 would 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 relocating Company 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 U.S. Army Reserve Centers in the greater New York City area with relocation of those units to Fort Totten. These actions would 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 would also improve business processes. The implementation of this recommendation and creation of these new command structures would 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 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 Cost, Operational Benefit, and Requirements Analysis (COBRA) analysis, this recommendation avoids an estimated \$168.3M in mission facility renovation costs and procurement avoidance associated with meeting Anti Terror / Force Protection [AT/FP] 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 Net Present Value (NPV) (Department of Army 2006).

Army Transformation and the Army Modular Force. On October 12, 1999, the Secretary of the Army and the Chief of Staff articulated a vision about people, readiness, and transformation of the Army to meet challenges emerging in the 21st century and the need to be able to respond more rapidly to different types of operations requiring military action. The strategic significance of land forces continues to lie in their ability to fight and win the Nation's wars and in their providing options to shape the global environment to the benefit of the United States and its allies. Transformation responds to the Army's need to become more strategically responsive and dominant at every point on the spectrum of operations. In March 2002, the Army published its Programmatic Environmental Impact Statement for Army Transformation for its proposal to conduct a multiyear, phased, and synchronized program of transformation. Over a 30-year period, the Army will conduct a series of transformation activities affecting virtually all aspects of Army doctrine, training, leader development, organizations, installations, materiel, and soldiers. On April 11, 2002, the Army issued a Record of Decision reflecting its intent to transform the Army. This EA evaluates a proposed action that comports with the transformation process, which is 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 Army to train and maintain military readiness.

1.3 SCOPE

This EA identifies, documents, and evaluates environmental effects of the BRAC Commission's recommended realignment of Fort Dix in Burlington and Ocean Counties, New Jersey. The EA has been developed in accordance with the NEPA and implementing regulations issued by the President's Council on Environmental Quality (CEQ) and the Army.³ 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.

Section 1.0 of the EA provides the purpose, need, and scope. The proposed action is described in Section 2.0, and alternatives, including the no action alternative, are described in Section 3.0. Conditions existing as of 2006, considered to be the "baseline" conditions, are described in Section 4.0, Affected Environment and Environmental Consequences. The expected effects 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 findings and conclusions.

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

³ 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.

deliberation and decision, as well as the need for closing or realigning a military installation, are exempt from NEPA. Accordingly, this EA does not address the need for realignment.

1.4 PUBLIC INVOLVEMENT

The Army invites public participation in the NEPA process. Consideration of the views and information of all interested people 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 CFR 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). At the end of the 30-day public review period, the Army will consider any comments submitted by individuals, agencies, or organizations on the proposed action, the EA, or draft FNSI. As appropriate, the Army may then execute the FNSI and proceed with implementation of the proposed action. If it is determined prior to issuance of a final FNSI that implementation of the proposed action would result in significant impacts, the Army will publish in the Federal Register a notice of intent to prepare an environmental impact statement, commit to mitigation actions sufficient to reduce impacts below significance levels, or not take the action.

Throughout this process, the public may obtain information on the status and progress of the proposed action and the EA through the Fort Dix Public Affairs Office by calling Ms. Carolee Nisbet at (609) 562-4034.

1.5 IMPACT ANALYSIS PERFORMED

This EA identifies, documents, and evaluates environmental effects of the BRAC Commission's recommended realignment of Fort Dix. The existing conditions at Fort Dix as of 2006 are described in Section 4.0, Affected Environment and Consequences, which, with information presented in the no action alternative, constitutes the baseline for the analysis of the effects of disposal and reuse. Conditions in 2006 reflect the operating status of the installation prior to the BRAC Commission's decision. Conditions in 2011 reflect fully operational facilities that implement the BRAC Commission's decision/recommendations for Fort Dix.

An interdisciplinary team of ecologists, planners, economists, engineers, archaeologists, historians, scientists, and military technicians analyzed the proposed action against existing conditions and identified the relevant beneficial and adverse effects associated with the action. The effects are described in Section 4.0, immediately following presentation of each resource area and condition relevant to the proposed action.

The effects of the proposed action on socioeconomics were assessed using the Economic Impact Forecast System (EIFS) developed by the U.S. Army Construction Engineering Research Laboratory (CERL). This model allows all base closure and realignment actions to be evaluated in the same way.

1.6 FRAMEWORK FOR ANALYSIS

A decision on whether to proceed with the proposed action rests on numerous factors such as mission requirements, schedule, availability of funding, and environmental considerations. Under the BRAC law, the Army must initiate all realignments not later than September 15, 2007, and complete all realignments not later than September 15, 2011. In addressing environmental considerations, Fort Dix is guided by relevant statutes (and their implementing regulations) and Executive Orders that establish standards and provide guidance on environmental and natural resources management and planning.

1.6.1 BRAC Procedural Requirements

External coordination in the preparation of an EA is not explicitly required by 32 CFR 651 although, in some cases, coordination with regulators and the public might be well advised. An offer of outside coordination should usually be accepted. Coordination of the proposed action under the Endangered Species Act and the National Historic Preservation Act is required as a component of the EA.

1.6.2 Relevant Statutes and Executive Orders

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

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2.0 DESCRIPTION OF THE PROPOSED ACTION

2.1 INTRODUCTION

This section describes the Army's proposed action for carrying out the BRAC Commission's recommendations. The BRAC Commission recommended the realignment of the following agencies/activities with relocation to Fort Dix, New Jersey. These include, but may not be limited to:

- 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 Maneuver Enhancement/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.
- Relocate 228th Aviation and Reserve Intelligence Area 16 from Naval Air Station Joint Reserve Base Willow Grove, PA, to Fort Dix.
- Realign Aberdeen Proving Ground, MD, Washington Navy Yard, DC, and Naval Submarine Base New London, CT, by relocating all mobilization functions to Fort Dix, NJ, designating it as Joint Pre-Deployment/Mobilization Site Dix/McGuire/Lakehurst (Department of Army 2006).

2.2 PROPOSED ACTION / IMPLEMENTATION PROPOSED

The overall purpose of the proposed action is to implement the Commission's recommendation as mandated by the BRAC legislation, Public Law 101-510. The proposed action involves constructing new facilities to accommodate the personnel and functions of organizations realigning and relocating to Fort Dix. The following first provides the mission and vision of Fort Dix, before detailing the BRAC increase in personnel loading, proposed action, and schedule.

2.2.1 Fort Dix Mission and Vision

Fort Dix is a permanent U.S. Army installation. The current mission is to "train and mobilize America's Armed Forces, be a power projection platform, provide base operations and area support, and provide service and support for our community. Fort Dix's vision is to be "a world class center for training, a premier power projection platform, and a model installation" (Fort Dix 2006a).

2.2.2 Personnel Loading

The BRAC Commission recommendations for relocating the organizations described above would increase the Fort Dix workforce by about 409 personnel (267 Military⁴, 142 Civilian). The potential direct and/or cumulative impacts to the environment from the increase in personnel will be considered in the EA (Hand 2006).

2.2.3 Proposed Action—BRAC Related Projects

The following presents the proposed action, or BRAC related projects assessed in this EA. The projects constituting the proposed action are defined by existing DD Form 1391s (Hand 2006a). The DD Form 1391 is used by the Department of Defense to submit requirements and justifications in support of funding requests for military construction to Congress. Figure 2-1 provides a regional and vicinity map for Fort Dix. Figures 2-2 and 2-3 identify each project's location at Fort Dix.

⁴ Military figure includes Full-Time Equivalent (FTE) numbers of Reserve soldiers relocating from off-site commands. The FTE number is derived by multiplying the number of officers, warrant officers, and enlisted soldiers by 65 days (48 drill days plus 17 annual training days per year), divided by 365 days per year. This number is then added to active duty personnel numbers to provide a total.

Army Reserve Center (ARC) for the 77th, 78th, and 99th. As part of the BRAC recommendations, Fort Dix would construct an ARC headquarters for the 99th Regional Readiness Command and a combined headquarters for the 78th Division and the 77th Regional Readiness Command. The preferred location is in the 5200 area along Maryland Avenue between Pennsylvania Avenue and South Scott Plaza. No demolition of existing buildings would be required. The building would contain 163,500 square feet and would occupy a first floor footprint of up to 88,500 square feet. The entire footprint, including parking for between 350 and 400 vehicles, would cover approximately 9.5 acres.

Aviation Support Facility. A 21,300 square foot aircraft maintenance hangar would be constructed for the 244th Aviation Brigade and Company A/228th Aviation. In addition, a 1,510 square foot aviation support operations building, 350 square foot unheated storage area, 733 square yard aircraft washing apron, and 20,170 square yards of fixed-wing taxiway and apron space would be constructed. Organizational parking covering 1,250 square yards (approximately 30 vehicles) would be provided. These facilities are proposed for the 4400 area off Texas Avenue. Demolition of the existing Department of Logistics (DOL) Vehicle Maintenance Facilities would be required to construct the new facility. Currently, no aircraft are permanently assigned to Fort Dix. In the future, an inventory of eight C-12 aircraft would be assigned to Fort Dix and supported by this facility and apron space.

Physical Fitness Facility. A 64,799 square foot new physical fitness facility would be constructed adjacent to the existing Fort Dix indoor swimming pool located in the 5900 area off Doughboy loop. This facility would be constructed to replace the existing substandard Building 6053 Griffith Field House, Building 5953 Physical Fitness Facility, the Doughboy Gym, and Building 6035 trailer. Demolition of these buildings is not required as part of constructing the new facility but may occur at a later date if the installation determines need. Combining all the prior physical fitness activities into one modern complex would lower construction, maintenance, and enhance accessibility. The new physical fitness facility would be designed to accommodate the projected population increases due to the BRAC 05 mission gains.

Child Development Center (CDC) and School Age Services (SAS) Complex. A CDC/SAS complex would be constructed to support additional permanent party personnel dependents resulting from the proposed BRAC realignments. This facility is proposed for the 1500 area off Elm, Filmore, and Fir Streets. No demolition of existing buildings would be required. The single-story building would contain 22,159 square feet (8,230 square feet for the CDC and 13,929 square feet for the SAS). The CDC would include space for 93 preschool age children (6 weeks to 5 years of age), and the SAS would include space for 105 school age children (6 to 10 years of age).

Organization Maintenance Shop (OMS) Facility and Additional Parking Area. A new 15,700 square foot OMS facility at the Equipment Concentration Site 27 (ECS 27) and additional parking area for the 77th & 78th Motor Pool would be required to support the increased mobilization/demobilization maintenance requirements resulting from the designation of Fort Dix as a Joint Pre-Deployment/Mobilization Site. In addition, a 3,796 square foot unheated storage facility would be required. No demolition of existing buildings would be required.

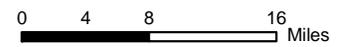
Figure 2-1: Regional and Vicinity Map



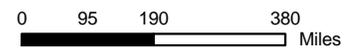
Vicinity Map



Regional Map

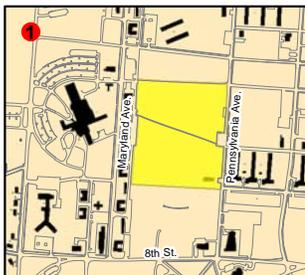
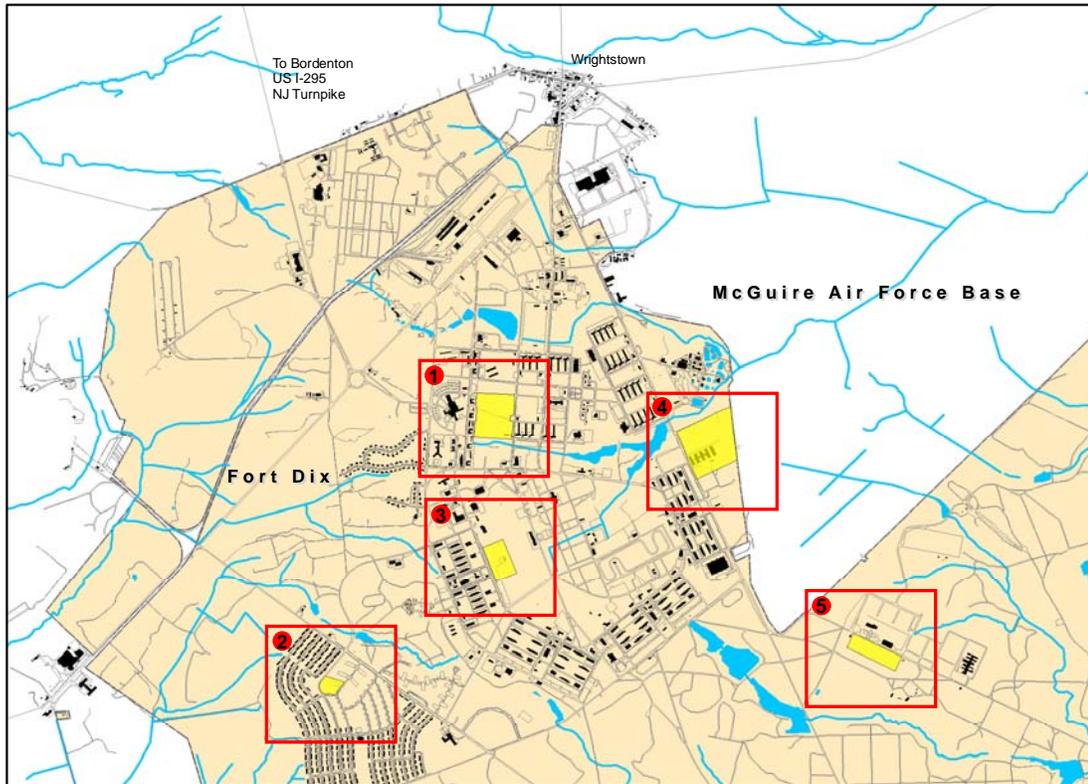


Scale for Vicinity Map



Scale for Regional Map

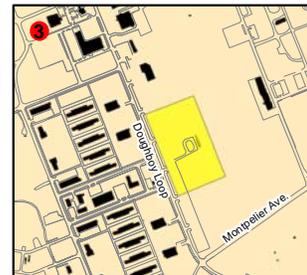
Figure 2-2: BRAC 05 Realignment Project Locations



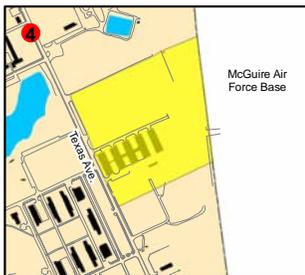
Army Reserve Center (ARC) for the 77th, 78th, and 99th



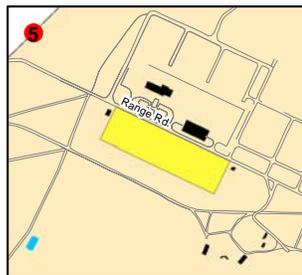
Child Development Center (CDC) and School Age Services (SAS) Complex



Physical Fitness Facility



Aviation Support Facility



Organization Maintenance Shop (OMS) Facility and Additional Parking Area

 Project Area (Generalized)



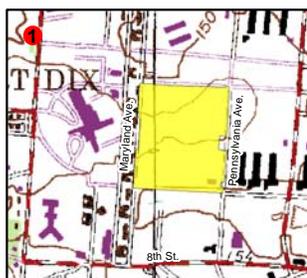
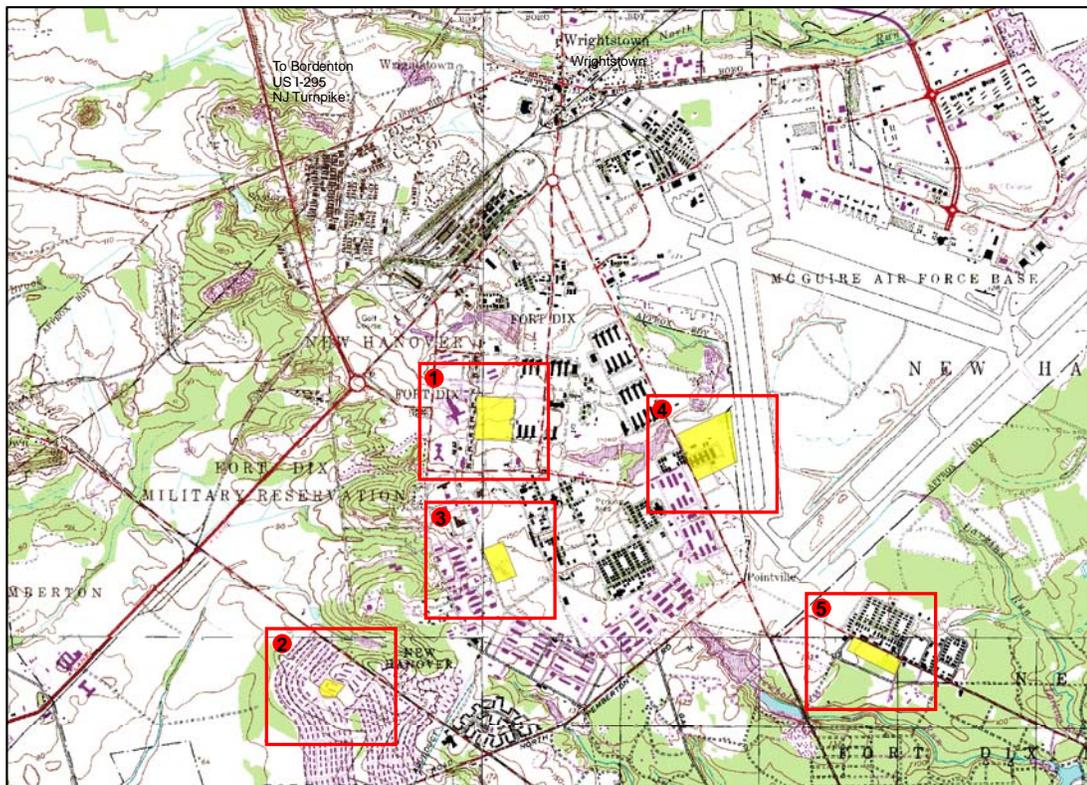
0 1,400 2,800 5,600
Feet

Scale for Reference Map

0 600 1,200 2,400
Feet

Scale for Project Detail Maps

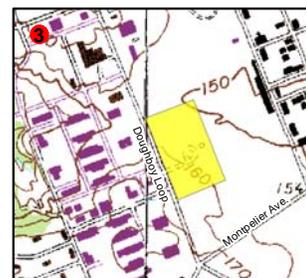
Figure 2-3: BRAC 05 Realignment Project Locations —USGS Quadrangles



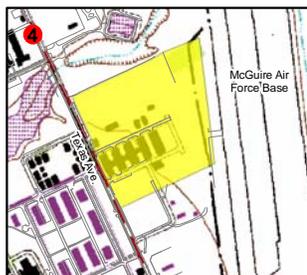
Army Reserve Center (ARC)
for the 77th, 78th, and 99th



Child Development Center (CDC) and
School Age Services (SAS) Complex



Physical Fitness Facility



Aviation Support Facility



Organization Maintenance Shop (OMS)
Facility and Additional Parking Area

 Project Area (Generalized)



0 1,400 2,800 5,600
Feet

Scale for Reference Map

0 600 1,200 2,400
Feet

Scale for Project Detail Maps

2.2.4 Schedule

The timeline for implementing the action at Fort Dix 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 Dix. New BRAC facilities at Fort Dix are programmed through fiscal year 2010 with realignment moves scheduled to occur by 2011. Under the BRAC law, the Army must initiate all realignments not later than September 15, 2007, and complete all realignments not later than September 15, 2011. This BRAC EA examines the environmental impact from efforts that will take place within the 6-year BRAC implementation window.

3.0 ALTERNATIVES

3.1 INTRODUCTION

The proposed action described in Section 2.0 is the Army's preferred alternative. Potential alternatives to the proposed action have been examined for their applicability according to three variables:

- means to physically accommodate realigned units
- siting of new construction
- schedule

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 "ripe" for decision-making (any necessary preceding events having taken place), affordable, capable of implementation, and satisfactory with respect to meeting the purpose of and need for the action. This section presents the Army's consideration of whether reasonable action alternatives exist other than the proposed action alternative that require detailed evaluation in this EA. The section also describes the no action alternative.

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 for personnel and their operational requirements. The 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

Army Regulation 210-20, Master Planning for Army Installations, establishes Army policy that new construction will not be proposed or authorized in a master plan to meet an installation mission that can be supported by reassignment of existing adequate facilities. Such reassignments must meet mission requirements, support operational efficiency, and promote sustainable development of the installation.

DD Form 1391s prepared for each of the projects contained in the proposed action provide justifications that construction of new facilities is required to meet mission requirements. 1391s state that existing facilities are deficient to accommodate the requirements to be fulfilled by the proposed facilities and therefore these proposed facilities would be implemented as new construction projects.

Siting of New Construction. The 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 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. Under the BRAC law, the Army must initiate all realignments not later than September 15, 2007, and complete all realignments not later than September 15, 2011.

3.3 NO ACTION ALTERNATIVE

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, Fort Dix would not implement the proposed action. Organizations presently assigned to Fort Dix would continue to train at and operate from the post. No units would relocate from overseas locations. No new units would be established. Fort Dix would use its current inventory of facilities, though routine replacement or renovations 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.

3.4 REALIGNMENT (PREFERRED) ALTERNATIVE

Fort Dix has identified five major facilities projects required to support the proposed action. These projects involve new construction that would provide approximately 293,000 square feet of built space. Siting of the new construction follows the Fort Dix Real Property Master Plan (RPMP) (Fort Dix 1999). All of the projects, with the exception of the OMS Facility, would be located in the Fort Dix Cantonment Area—the area where most of the post’s existing infrastructure, facilities, and personnel are located. The OMS Facility would be located just southeast of the Cantonment Area on Range Road near facilities with similar functions.

To prepare its master plan, a team consisting of facility and environmental planners was formed to define the components for a preferred plan. The primary objective of this integrated planning/environmental team approach was to maximize the potential for the plan to support mission goals and objectives, while limiting the potential for adverse environmental impacts. Composite development constraints/environmental overlay maps were used to proactively screen and adjust specific components of the preferred plan during their formulation. The Fort Dix Installation Planning Board reviewed each component of the preferred plan, including the anticipated environmental effects of specific aspects of the comprehensive master plan. Therefore, adherence to the master plan assures that siting of the projects limits potential environmental impacts.

The Fort Dix Comprehensive Master Plan also seeks generally to collocate like uses and to separate incompatible uses, according to the Army’s 12 general land use categories. Siting of the proposed BRAC facilities, which is also based on this precept as shown below, locates facilities in a way to support mission goals and objectives as efficiently and effectively as possible.

- The proposed ARC and parking area for the 77th, 78th, and 99th are located in areas the Master Plan identifies for local training.
- Aviation units are generally located near the McGuire Air Force Base. Construction of an Aviation Support Facility for the 244th Aviation Brigade and Company A/228th Aviation is proposed near the McGuire AFB boundary.
- The Physical Fitness Facility is proposed for an area adjacent to the existing Fort Dix indoor swimming pool located in the 5900 area off Doughboy loop. The Master Plan designates this area as recreational.
- The proposed CDC/SAS Complex is located in the family housing area.
- The proposed OMS Facility, Storage, and 77th & 78th Motor Pool additional parking area are located outside of the Brown Mills gate in an area designated as industrial. A few facilities with similar functions currently exist in this area.

While variations of the present proposal for siting of facilities could be developed, the locations reflected in the realignment (preferred) alternative reflect a sound comprehensive approach, already taken in developing the comprehensive RPMP that limits environmental impacts while assuring efficient support to mission goals and objectives. While master plans identify general or broad areas where projects could be built, the sites selected for analysis in the EA represent areas that were further narrowed down by Fort Dix staff who analyzed where it makes the most sense to place each facility and its function from an environmental, facilities planning, engineering, and operational perspective. Fort Dix staff used the master plan as a guide and then applied their

intimate knowledge of the installation to help narrow site selection determinations. Fort Dix planners selected site locations that would minimize environmental impacts and maximize functional adjacencies and mission effectiveness. Alternative siting of facilities would neither reduce impacts nor provide more efficient or effective support to mission goals and objectives. Therefore, alternative siting of facilities is not further evaluated in this EA.

3.5 ADDITIONAL ALTERNATIVES

3.5.1 Existing Facilities at Fort Dix

Existing facilities at Fort Dix are not available to satisfy BRAC requirements. Opportunities to add to or alter existing facilities are very limited due to constraints related to current AT/FP standards, facility functionality and efficiency, and costs associated with altering facilities that are substandard or inadequate with respect to facility condition. In no case could all of the requirements of the U.S. Army Reserve Center and other projects be met by alteration and/or addition to an existing Fort Dix structure or group of structures, without creating an offsetting new construction requirement for some other unit or activity on the installation. Accordingly, new construction would be required and use of existing facilities at Fort Dix is not further evaluated in this EA.

3.5.2 Acquisition of New Property

This alternative is not permitted under the BRAC action as authorized by the U.S. Congress and the President, and would undermine the cost savings realized through the closure of multiple Army Reserve and related facilities.

3.5.3 Lease or Contract

This option is not feasible since the BRAC action requires that the new facilities be located on Fort Dix property.

3.5.4 Other DoD Installations

This option is not feasible since the BRAC action requires that the new facilities be located on Fort Dix property.

3.5.5 New Construction Alternate Locations

Location for siting the projects in the proposed action were identified and evaluated through consultation with Fort Dix personnel using the Fort Dix RPMP (Fort Dix 1999). The RPMP outlines land use and compatibility guidelines and constraints for planned development at the installation. Site locations were selected by Fort Dix personnel with the goal of minimize environmental impacts and maximize functional adjacencies and mission effectiveness when creating the DD Form 1391 project documentation that served as a basis for describing the proposed action and alternatives in this EA. The selected locations for the projects in the proposed action are consistent with the Fort Dix RPMP (Fort Dix 1999), which designates specific areas on Post that are suitable for all projects, including those in the proposed action. Other sites within Fort Dix for the proposed action projects would not be consistent with the RPMP and therefore are not analyzed in this EA.

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4.0 AFFECTED ENVIRONMENT AND CONSEQUENCES

4.1 INTRODUCTION

This section contains a description of the current environmental conditions of the areas that would be affected should the proposed action be implemented. It also includes analysis of potential effects arising from the implementation of the proposed action. Description of environmental conditions represent 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 realignment. The environmental consequences portion represents the culmination of scientific and analytic analysis of potential effects arising from the implementation of the proposed action. Direct, indirect, and cumulative effects of the proposed action are also addressed.

Baseline existing environmental conditions are presented first for each environmental resource or condition, followed immediately thereafter by evaluation of potential effects of the no action and the proposed action, or realignment (preferred) alternative.

4.2 LAND USE

4.2.1 Affected Environment

4.2.1.1 *Regional Geographic Setting and Location*

Fort Dix is located in central New Jersey, 90 miles southwest of New York City, 16 miles southeast of Trenton, and 32 miles northeast of Philadelphia, Pennsylvania. Fort Dix extends across the county line that separates Burlington County from Ocean County. Major transportation arteries include the Garden State Parkway, 23 miles to the east; Interstate 195, 11 miles to the north; and the New Jersey Turnpike located 10 miles to the west. Major geographical features include the Atlantic Ocean located 31 miles to the east and the Delaware River located 18 miles to the west. The installation is located in the Atlantic Coastal Plain, which is characterized by level to gently rolling terrain with only minor variations in elevation. Fort Dix elevation ranges from 70 feet above mean sea level (MSL) in the eastern portion of the installation to 200 feet MSL in the northwest region (Fort Dix 1999, Fort Dix Real Master Property Plan [RPMP]; and Fort Dix 2002, Fort Dix Integrated Natural Resources Management Plan [INRMP]).

Fort Dix is the largest military installation in the northeastern United States, covering 30,960 acres. Fort Dix also shares common boundaries with two other military installations: McGuire Air Force Base (AFB) borders Fort Dix to the north, east, and west, and Naval Air Engineering Station (NAES) Lakehurst to the east. McGuire AFB encompasses approximately 3,600 acres. The 305th Air Mobility Wing is the host unit at McGuire AFB and is responsible for deployment and re-supply of major U.S. combat units. NAES Lakehurst, often referred to as Navy Lakehurst, is 7,430 acres and hosts major components of the Naval Air Systems Command and more than twenty other tenant activities. The three installations have entered into a Joint Installation Partnership—this partnership promotes the three installations working together when possible to achieve higher levels of efficiencies and cooperation. The combined acreage of all three installations is just less than 40,000 acres.

Climate – The Fort Dix area has a humid continental climate, characterized by a moderate range of temperature, relatively mild winters, and a generally dependable rainfall. The average monthly temperature ranges from a low of 34.2 degrees Fahrenheit (° F) in January to a high of 75.7° F in July, with an annual mean temperature of 55° F. Winter temperatures below 0° F are rare, and summer temperatures seldom exceed 100° F. Readings of 80° F and above occur on an average of 85 days a year. Temperatures of 32° F and below are recorded on an average of 103 days per year.

Most of the weather systems that affect the site develop in the Midwest and are steered eastward by the prevailing winds, or move northeastward parallel to the Atlantic coast. The prevailing wind direction is northwest in the winter and southwest in the summer with an average annual speed of 6.9 knots. The average annual precipitation

is 43.6 inches with measurable rain occurring an average of 115 days a year. The mean annual snowfall is 20.3 inches (Fort Dix 2002).

4.2.1.2 Installation Land/Airspace Use

Fort Dix covers approximately 30,960 acres in Burlington and Ocean Counties, New Jersey. The Fort Dix land area is classified as “unplanned” on a local level, because municipal zoning does not apply to Federal property. Primary military land uses on-post include the following categories: range and impact area, training area, Cantonment Area, recreation area, and housing area. Table 4-1 provides a summary of land utilization at Fort Dix.

Table 4-1: Land Utilization at Fort Dix

Area	Acres	Percent
Range	5,685	18.3
Impact	8,080	26.1
Training	14,177	45.8
Cantonment	1,972	6.4
Recreation	679	2.2
Housing	367	1.2
Total	30,960	100.0

Source: Fort Dix 1999, RPMP

The Cantonment Area is in the northwest section of the installation. This area supports the urban core of Fort Dix. Major uses include troop housing and family quarters, administrative areas, recreation areas and community facilities, military training facilities, ammunition storage facilities, and industrial service areas. All of the projects constituting the proposed action, with the exception of the OMS Facility, would be located in the Cantonment Area. The OMS Facility would be located just southeast of the Cantonment Area on Range Road near facilities with similar functions.

Airspace Use – Fort Dix’s Cantonment Area is located under Federal Aviation Administration (FAA) Class D and Alert Area A-220 airspace. This airspace is associated with operations at Fort Dix, McGuire AFB, and NAES Lakehurst. Most of the airfields’ flight pattern and local training operations take place within these areas. To the east of the Cantonment Area and McGuire AFB are Restricted Areas R-5001 A and B. These areas allow for air-to-ground training at the ranges and are used by rotary-wing aircraft (FAA 2006).

McGuire AFB has two active runways, 06/24 and 18/36, supporting approximately 60,000 annual aircraft operations. According to the 2005 Installation Operational Noise Management Program Report (IONMPR) for Fort Dix⁵, Clear Zones (CZs), Accident Potential Zones (APZs), and imaginary surfaces associated with McGuire AFB runways encroach on Fort Dix property (Fort Dix 2005). CZs, APZs, and imaginary surfaces are safety tools that help identify and aid in the elimination of objects that potentially obstruct or interfere with aircraft arrivals, departures, and flight patterns. The tools also help identify incompatible land uses and promote compatible land uses surrounding air installations. In general, no aboveground structures are permitted in CZs while some structures are compatible with APZs. Imaginary surfaces consist of a variety of geometric planes where the height of structures should be controlled to prevent penetration. The CZs, APZs, and imaginary surfaces do not create any existing incompatible land uses on Fort Dix according to the study.

In addition, rotary-wing helicopter operations take place throughout Fort Dix and consist of maneuver training, range training, and live-fire exercises. There is an on-post aviation ramp located in the eastern portion of the

⁵ This report references the U.S. Air Force 1999 Air Installation Compatible Use Zone (AICUZ) Study for McGuire AFB.

Cantonment Area, directly adjacent to McGuire AFB and Runway 18/36. Small rotary-wing aircraft landing areas have also been established on Delaware and Scott Plaza (near the post's Headquarters), TAC 13D Armament Research and Design Center (ARDC), as well as at several of the range areas. Takeoff Safety Zones (TSZs) and Approach-Departure Zones (ADZs) are associated with these landing areas—TSZs are much like fixed-wing runway CZs and ADZs are similar to fixed-wing runway APZs, though much smaller in size.

4.2.1.3 Surrounding Land/Airspace Use

Surrounding Fort Dix is a semi-rural area that contains small communities close to and adjoining the post. These communities include Wrightstown immediately north of Fort Dix, Pemberton located to the southwest, and Browns Mills to the south. Other lands around the installation consist of New Jersey conservation and forest land, private agricultural land, and residential neighborhoods. The Brendan T. Bryne State Forest is located south of the post. Fort Dix is entirely located within the Pinelands National Reserve (Pinelands), an important ecological area designated by state and federal legislation. The Pinelands is an area designated as a National Reserve by Congress and the State of New Jersey, and as a Biosphere Reserve by the United Nations. The Pinelands covers an area of 1.1 million acres, which is 22 percent of the state's total area. The Pinelands is composed of a patchwork of pine oak forests, streams, rivers, and wetlands, and stretches across southern New Jersey (Fort Dix 1999).

Airspace Use – Fort Dix is located in the New York / New Jersey / Philadelphia metropolitan area airspace and near the following four major airports: Newark International, John F. Kennedy International, LaGuardia, and Philadelphia International Airports. According to the FAA, the closeness of the airports results in complex pilot/controller and controller/controller coordination and circuitous flight paths. The FAA believes that the current airspace environment is inefficient for aviation users and they are currently conducting an environmental impact statement (EIS) to help redesign the airspace. The redesign of the airspace may result in local airspace changes (FAA 2006a).

4.2.1.4 State Coastal Management Program

Fort Dix is not within a Coastal Zone Management Area, and therefore coastal management measures do not apply.

4.2.1.5 Current and Future Development in the Region of Influence

Burlington and Ocean Counties have traditionally been defined as the Region of Influence (ROI) for Fort Dix—these two counties define the ROI for this study as well. The ROI is described in greater detail in Section 4.10 Socioeconomics. Although portions of both Burlington and Ocean Counties are being developed for residential and commercial use at a rapid pace, the majority of land in these two counties consists of agricultural, vacant, and wooded areas. While the western section of Burlington County is part of the Philadelphia and Trenton metropolitan areas, the eastern portion where Fort Dix is located remains mainly rural and agricultural, with the exception of denser development in a number of small communities. To the east, Ocean County is most densely developed between the Atlantic Ocean and Garden State Parkway. Intensive resort use takes place in this area. Most of the land west of the parkway is undeveloped (Fort Dix 2002).

4.2.2 Environmental Consequences

4.2.2.1 No Action Alternative

No direct or indirect effects would be expected. Implementation of the no action alternative would not alter the existing land use at the sites being considered under the proposed action.

4.2.2.2 Realignment (Preferred) Alternative

Regional Geographic Setting and Location – No direct or indirect effects would be expected. Four of the five proposed projects would occur within the Fort Dix Cantonment Area and the fifth would occur in an area just outside of it of the Cantonment Area.

Installation Land/Airspace Use – Minor beneficial direct effects would be expected. Four of the five proposed projects would occur within the Fort Dix Cantonment Area and the fifth would occur in an area just outside of it of the Cantonment Area. Siting of projects would locate facilities in a way to support mission goals and objectives as efficiently and effectively as possible. The siting of facilities would also follow the Fort Dix RPMP (Fort Dix 1999).

- The proposed ARC and parking area for the 77th, 78th, and 99th are located in areas the RPMP identifies for local training. The ARC, the largest of the projects, would be located at the core of the Cantonment Area.
- Aviation units are generally located near the McGuire Air Force Base. Construction of an Aviation Support Facility for the 244th Aviation Brigade and Company A/228th Aviation is proposed near the McGuire AFB boundary. The post's on-base aviation ramp is currently located in this area, directly adjacent to McGuire AFB Runway 18/36. The Fort Dix Aviation Ramp provides base operations support services (e.g., flight planning, fuel, ramp support, range briefings) to aviation units assigned to the Department of the Army Active, Reserve, National Guard, and the Coast Guard. Rotary-wing aircraft aviation units across the northeastern United States utilize aviation support functions at Fort Dix in addition to Area Weapons Scoring System (AWSS) ranges for aerial gunnery training. During both weekend training events and annual training events (lasting as long as 2 weeks), aircraft involved in training activities are based out of the Fort Dix Flight Detachment. Many types of transient rotary-wing aircraft receive service from the flight detachment. Transient aircraft typically do not participate in range-related activities, often stopping only for refueling or rest (Fort Dix 2005, IONMP).
- The Physical Fitness Facility is proposed for an area adjacent to the existing Fort Dix indoor swimming pool located in the 5900 area off Doughboy loop. The RPMP designates this area as recreational.
- The proposed CDC/SAS Complex would be located in the family housing area—a strong functional relationship exists between the proposed facility and the family housing area.
- The proposed OMS Facility, Storage, and 77th & 78th Motor Pool additional parking area would be located outside of the Cantonment Area and Brown Mills Gate in an area designated as industrial and where like uses already exist.

In terms of airspace use, the project where airfield safety guidelines related to airspace are of concern is the Aviation Support Facility, due to its close proximity to McGuire AFB's runways—particularly Runway 18/36. Design of the Aviation Support Facility and surrounding area would have to take into consideration development constraints associated with McGuire AFB's airfield CZs, APZs, and imaginary surfaces. All of the other facilities would be located in areas where their massing, size, and height would not have the potential to penetrate the airspace safety surfaces associated with fixed-wing runways or rotary-wing landing areas.

Surrounding Land/Airspace Use – No direct or indirect effects would be expected. All projects would be located within the Fort Dix installation boundary. None of the projects interfere with public surrounding lands or airspace use.

Current and Future Development in the Region of Influence – Minor direct and indirect beneficial effects would be expected. All projects would be located within the Fort Dix installation boundary. Development impacts associated with project construction and increased personnel within the ROI are discussed in Section 4.10, Socioeconomics. In general, short-term construction requirements and an increase in personnel living off-post would add financial capital to the local and regional economy and create an additional demand for housing and business that provide goods and services.

4.3 AESTHETICS AND VISUAL RESOURCES

4.3.1 Affected Environment

Fort Dix is located in a semi-rural area of New Jersey where adjacent land uses are primarily low density residential and agricultural. The installation occupies 30,960 acres and is characterized by a balance of developed areas and open space. The developed areas, mainly located in the Cantonment Area, include buildings and structures that support the cantonment, living quarters, family housing, maintenance, warehouse, health and administrative areas. The open space areas include plazas, parade grounds, test ranges, recreation areas, and training areas (Fort Dix 1999, RPMP).

The roads in the north portion of the Cantonment Area are arranged in a grid system, while the south portion of the area is arranged by a loose network of streets connected by the Doughboy Loop. The north and south parts of the Cantonment Area are separated by 8th Street, which runs east to west. Without a clear network of contiguous main roads leading to prominent areas, way finding can be difficult. Most roads are tree lined and the buildings that front the roads all have a fairly uniform setback, contributing to a consistent streetscape.

The building styles at Fort Dix reflect the age, history, and evolving role of the installation within the U.S. Army since the late 1930s. The character of the buildings depends on the particular age, historical significance⁶, function, and location within the installation. As a result, various building styles range from single and multi-story brick gabled structures to single-story stucco installation-style barracks to prefabricated metal shed structures.

The five proposed project sites within the Cantonment Area have separate and distinct surrounding character, contexts, densities, and viewsheds. The following describes each site.

Army Reserve Center (ARC) for the 77th, 78th, and 99th

Site Character – This proposed project site is in the center of the installation, adjacent to the Scott Plaza historic district, bounded by Maryland Avenue to the west, South Scott Street to the north, and Pennsylvania Avenue to the east. Maryland Avenue, a main road that runs north to south on the installation, is fronted by single-story painted brick or stucco administrative buildings of similar and consistent style and age. The Scott Plaza historic district is located north of the project site along South Scott Avenue and extends east toward the post's Headquarters (Building 5417). Scott Plaza is a historically important area of the installation, functioning as the symbolic and ceremonial center of the installation. Thirteen of the buildings surrounding Scott Plaza are eligible for inclusion in the NRHP. The western portion of the project site is occupied by a dense arrangement of planted mature pines and sycamores. In the upper northeast corner of the proposed site, there is an existing tennis court.



Army Reserve Center (ARC) for the 77th, 78th, and 99th Site

Viewsheds – The existing site would allow for unobstructed views from the hospital looking east toward the Scott Plaza historic district. The buildings fronting Maryland Avenue currently have little or no visual access looking northeast towards the historic plaza due to the density of mature trees at the western edge of the project site.

Aviation Support Facility

Site Character – The proposed project site is located toward the far east of the Cantonment Area at the intersection of 8th Street, a major East-West Road, and Texas Avenue, a main road that runs northwest of southeast and serves as the eastern edge of the site. The site would also be situated against the fence line separating the property from the McGuire AFB



Aviation Support Facility Site

⁶ Buildings designated as historically significant are eligible for the National Register of Historic Places (NRHP) due to their contribution to the WWII mobilization effort.

Runway 18/36 to the east. Therefore, this site would be situated between two edges: the eastern perimeter road and the property line at the eastern edge of the installation.

The character of the surrounding area reflects this peripheral location. The adjacent buildings lack the scale, presence, and prominence of the buildings located in the core training area or Scott Plaza historic district. The southern portion of this project site, between Orange Street and Nassau Street, is occupied by the DOL Vehicle Maintenance Facilities Complex, a series of slab on grade, single-story, high-bay facilities with aluminum clapboard siding and gable roofs. The northern edge of the site is densely forested area and stream valley buffer.

Viewsheds – The existing site allows for unobstructed views toward the McGuire AFB runway from Texas Avenue.

Physical Fitness Facility

Site Character – This proposed project site is in the recreational area of the installation on the western edge of the Doughboy Field, off the Doughboy Loop, a ring road that encircles the core of the installation south of 8th Street. The project site would be located along the tree-lined stretch of the Doughboy Loop between 10th Street West and 16th Street West. The site would be adjacent to both recreational buildings and residential barracks.

The recreational buildings surrounding the site consist of the Griffith Field House (Building 6053, formerly the Fort Dix Sports Arena), the Bowling Center, Outdoor Recreation (Building 6045), Doughboy Gym (Building 6038), indoor swimming pool, and Common Facility Fields. Most of these recreational facilities have painted concrete foundations and are single-story wood clapboard or aluminum sided buildings. However, Building 6053 is a two and a half story metal frame structure with a barrel roof profile.



Physical Fitness Facility Site

There is a crescent shaped residential area on the outer periphery of the Doughboy Loop to the south and west of the project site. The barracks are typical of the housing stock at Fort Dix. They are slab on grade single-story wood frame structures with brick and wood siding and gabled roofs.

Viewsheds – The residential barracks off the Doughboy Loop have existing viewsheds looking northeast past the proposed project site to the Common Facility Doughboy Field. Cars driving north or south along the Doughboy Loop also have unobstructed visual access to the Doughboy Field.

Child Development Center (CDC) and School Age Services (SAS) Complex

Site Character – This proposed project site is in the residential area of the installation, in the southwest corner of the installation, south of Juliustown Road. The residential area is characterized by meandering tree-lined streets, sidewalks, and moderately forested area. The single-family homes are slab on grade single-story wood frame structures with brick and wood siding and gabled roofs. Homes typically have



Child Development Center (CDC) and School Age Services (SAS) Complex Site

half-acre yards with garages or carports. The project site would be bounded by Elm Street, Fir Street, and Filmore Avenue.

Viewsheds – There are no historic sites close to this proposed project area, nor are there any viewsheds that look onto anything other than typical residential units as previously described. There are two residential units north of Filmore Avenue that abut the project site. These units presently have an unobstructed view north towards an open area and Juliustown Road in the distance.

Organization Maintenance Shop (OMS) Facility and Additional Parking Area

Site Character – This proposed project site is outside the Cantonment Area and co-located with existing maintenance facilities east of Texas Avenue off of Range Road. The existing maintenance facilities are pre-fabricated metal shed buildings with negligible architectural significance and no aesthetic connection to the building styles prevalent in the main installation.

Viewsheds – This site’s remote location would result in little or no visual access to the main installation. The existing facilities currently look southward onto heavily forested area.



Organization Maintenance Shop (OMS) Facility and Additional Parking Area Site

4.3.2 Environmental Consequences

4.3.2.1 No Action Alternative

Under the no action alternative, no construction would occur within the five proposed project areas. As a result, there would be no beneficial or adverse impacts to the viewsheds encompassing these areas.

4.3.2.2 Realignment (Preferred) Alternative

All of the buildings to be constructed as part of the Proposed Action, except the OMS facility, would be located in the Cantonment Area. The OMS facility would be located in the Range-Training Area just outside of the Cantonment Area.

Army Reserve Center (ARC) for the 77th, 78th, and 99th

Impacts to the Site Character and Viewsheds – Although the new ARC is located in proximity to the Scott Plaza historic district, this new facility would have no adverse visual/aesthetic impacts on the project area. Scott Plaza exists within a military landscape and the addition of the ARC would not change the character of this viewscape.

The building would contain 163,500 square feet and would occupy a first floor footprint of up to 88,500 square feet (450 ft x 175 ft), positioned at a 45 degree angle to South Scott Street and Pennsylvania Avenue. The parking lots would be separated into two areas on either side of the existing tennis courts, joined by a front driveway/loading area connecting South Scott Street and Pennsylvania Avenue. The loading dock would be in the rear of the building, with access from West Infantry Road.

The new structure would be visible from the Scott Plaza historic district. Therefore, the exterior design of the building should be consistent with the aesthetic quality of the surrounding brick buildings with similar articulation of architectural elements and pursuant to the design guidelines in the RPMP for Fort Dix. The site plan design should also follow in accordance with the RPMP guidelines that state that the landscape should “strengthen the image of the headquarters area... Reinforce allies of existing plantings; strengthen the axial quality of the formal green.” A coordination letter was sent to the New Jersey State Historic Preservation Office (SHPO) on May 26, 2006. This letter is contained in Appendix C – Coordination Letters. The coordination letter provided descriptions of the proposed projects and project locations and invited SHPO participation in further coordination.

Aviation Support Facility

Impacts to the Site Character and Viewsheds – Minor adverse direct effects would be expected due to the facility's peripheral location within the installation. A building of similar height to surrounding buildings would be visible from Texas Avenue and could impact the existing viewsheds onto McGuire AFB.

Physical Fitness Facility

Impacts to the Site Character and Viewsheds – Minor adverse direct effects would be expected. The new facility would be visible from the adjacent residential area and could obscure viewsheds of the Doughboy Field from the north/south stretch of the Doughboy Loop. The proposed structure would be highly visible, due in part to its lack of immediately adjacent buildings and the backdrop of an open Common Facility Field. However, adverse visual impacts would be minor if the exterior design follows in accordance with the RPMP design guidelines and remains consistent with the style, materials, and color of the adjacent facilities.

Child Development Center (CDC) and School Age Services (SAS) Complex

Impacts to the Site Character and Viewsheds – Minor adverse direct effects would be expected due to the site's peripheral location to the historic core. However, since this new structure would be located in a residential area, the design should be consistent with the height, size, and scale of its surrounding context.

Organization Maintenance Shop (OMS) Facility and Additional Parking Area

Impacts to the Site Character and Viewsheds – Minor adverse direct effects would be expected due to facility's peripheral location outside the cantonment area; however, adjacent buildings in the area have little or no aesthetic connection to the style or design of buildings in the main part of the installation. Therefore, the proposed design does not necessarily need to be consistent with the neighboring facilities.

4.4 AIR QUALITY

The 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 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 EPA has issued NAAQS for six 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

The EPA classified Burlington and Ocean Counties, including the area of the Proposed Action, as in non-attainment for ozone and Burlington in non-attainment for PM_{2.5}. The NAAQS for ozone and PM_{2.5} are presented in Table 4-2.

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). The Proposed Action is located within a moderate non-attainment area for ozone and non-attainment for PM_{2.5}; therefore, a General Conformity Rule applicability analysis is warranted.

The rules governing an applicability analysis for PM_{2.5} and *de minimis* levels are in the process of promulgation by EPA. During this interim period, EPA believes it is appropriate for Federal agencies to use the PM₁₀ *de minimis* level of 100 tons per year as a surrogate for PM_{2.5} *de minimis* levels in their General Conformity applicability analysis. Since PM_{2.5} emissions are a subset of PM₁₀ emissions, PM_{2.5} emissions and its precursors will always be less than PM₁₀. Under EPA's guidance, if an action's direct or indirect emissions of PM_{2.5}, or any precursor that has been identified as a significant contributor to nonattainment for a specific PM_{2.5} nonattainment area, a General Conformity determination would be required if annual emissions exceed the 100 ton per year threshold.

Table 4-2: Ambient Air Quality Standards for Ozone and PM_{2.5}

Pollutant	Federal Standard	New Jersey Standard
Ozone (O ₃)		
1-Hour Average	0.12 ppm	Revoked June 15, 2005
8-Hour Average	0.08 ppm	0.12 ppm
Particulate Matter (PM _{2.5})		
24-Hour Average	65 µg/m ³	N/A
Annual Arithmetic Mean	15 µg/m ³	N/A
Total Suspended Particulates (TSP)		
24-Hour Average	N/A	260 µg/m ³
12-Month Geometric Mean	N/A	75 µg/m ³

Source: 40 CFR 50, July 1991, revised July 1997 and March 26, 2002 EPA Announcement, Ambient Air Quality Standards, 1997 Air Quality Report, NJ DEP

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.

Direct emissions are those caused by, or initiated by the federal action that occur at the same time and place as the action. Indirect emissions are those caused by the action, but which occur later in time and/or at a distance removed from the action itself, yet are reasonably foreseeable and the federal agency responsible for the action can maintain control as part of the actions program responsibility. To determine the applicability of the Rule to this action, emissions must be estimated for particulate matter (10 microns) and for the ozone precursor pollutants nitrogen oxides (NO_x) and volatile organic compounds (VOC). Annual emissions for these compounds were estimated for the Proposed Action to determine if they would be below or above the *de minimis* levels established in the Rule. The *de minimis* for moderate ozone areas is 50 tons per year (TPY) for VOCs and 100 tons per year for NO_x and PM₁₀.

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% of the total emissions inventory for a particular criteria pollutant in a non-attainment or maintenance area. If the emissions exceed this 10% 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

The EPA has designated Burlington and Ocean Counties as non-attainment for the NAAQS pollutant ozone and Burlington County as non-attainment for the NAAQS pollutant PM_{2.5}. Both counties were previously listed as severe non-attainment for the 1-hour ozone standard but as of June 15, 2005, the 1-hour standard has been revoked per 40 CFR 50.9 and therefore no longer applies to this region. As a result, both counties are now classified as moderate non-attainment for the 8-hour ozone standard. This can be attributed primarily to mobile sources. Specific sources on Fort Dix include: vehicle exhaust from traffic on site as well as from military equipment and aircraft at McGuire Air Force Base. These counties are in attainment for all other NAAQS pollutants. Since the project is located in an ozone non-attainment area, conformity to the State Implementation Plans (SIPs) has been determined.

4.4.1.2 Meteorology/Climate

Temperature is a parameter used in calculations of emissions for air quality applicability. Temperature data from the Trenton Mercer Airport, approximately 20 miles north of Fort Dix represents the meteorological conditions for the study area. The annual mean temperature is 54° F.

4.4.1.3 Air Pollutant Emissions at Installation

Fort Dix has submitted a Title V Air Permit Application to cover all significant and minor air emission sources throughout Fort Dix. These sources include boilers, generators, underground storage tanks, and aboveground storage tanks. Fort Dix received a final approved initial operating permit from the New Jersey Department of Environmental Protection on February 8, 2001 to cover all significant and minor air emission sources throughout Fort Dix. (Frank Nolan, CR, 2001). Table 4-3 is a list of total emissions from all sources at Fort Dix.

Table 4-3: 2005 Total Emissions from All Sources at Fort Dix

Pollutant	Total Facility Emissions (TPY)
VOC	10.89
NO _x	21.88
CO	54.32
SO ₂	3.72
TSP*	5.83
PM ₁₀	5.44
PB	0.108

*TSP: Total Suspended Particulates

Source: Versar, 2005 Annual Emission Statement

Fort Dix has a Clean Air Program to ensure compliance with Clean Air Act Regulations and enhance the capability of Fort Dix to succeed in its overall readiness mission and to improve air quality for neighboring communities. The Post has made substantial improvements in Pollution Prevention and Environmental Quality by significantly reducing overall air pollutant emissions at Fort Dix (Table 4-4).

Fort Dix has voluntarily initiated an extensive Air Emissions Reduction Program, which includes a commitment to convert two of three remaining oil-fired boiler plants on Fort Dix to gas fired. One plant required the installation of low NO_x burners and the project was funded in December of 1997. An Emission Offset Analysis was conducted in fiscal year (FY) 1997 to determine if new air emission sources exceeded major facility threshold levels for NO_x. The threshold levels were not exceeded. (Comprehensive Master Plan EA, 2003)

Table 4-4: Efforts Undertaken by Fort Dix to Improve Air Quality and Reduce Air Emissions

Air Emission Reduction Action	Results/Remarks
<ul style="list-style-type: none"> ▪ Substantial overall reductions in air emissions and associated air emission fees 	<p>Between FY 1997-1999 overall air emissions have reduced 91% with a 77% decrease in air emission fees.</p>
<ul style="list-style-type: none"> ▪ Conversion of building 5881 boiler plant to natural gas and installation of low-NO_x burners in the boilers 	<p>By voluntarily converting these boilers to cleaner burning natural gas, Fort Dix went beyond regulatory compliance requirements to ensure substantial decrease in pollutant air emissions and fees. The percent reduction in emissions and fees for this boiler was 95% in FY 1999.</p>
<ul style="list-style-type: none"> ▪ Conversion of building 5426 boiler plant to natural gas and installation of low-NO_x burners in the boilers 	<p>Since the conversion, the plant has experienced an 80% reduction in emissions and fees.</p>
<ul style="list-style-type: none"> ▪ Closure of building 5252 boiler plant 	<p>By keeping this boiler plant off-line.</p>
<ul style="list-style-type: none"> ▪ Installation of new low-NO_x natural gas boiler to replace fuel oil boiler in building 5324 	<p>The new boiler emits only 0.4 TPY of criteria air pollutants annually, and the annual emissions fee is only \$12</p>
<ul style="list-style-type: none"> ▪ Closure of building 5891, the Resource Recovery Facility (RRF) 	<p>Overall, Fort Dix is estimated to save \$1.3 million annually from the closure of the RRF. The RRF closure also pleased the local community who expressed concerns in the past over air pollutant emissions from the facility.</p>
<ul style="list-style-type: none"> ▪ Applying for emission credits from the New Jersey DEP based upon emission reductions 	<p>By significantly reducing overall air emissions and taking air emission sources off-line, Fort Dix has enabled itself to apply the NJDEP for Emission Reduction Credits that may be applied in the future to allow for the necessary expansion of Fort Dix.</p>
<ul style="list-style-type: none"> ▪ Exemption from costly Risk Management Plan (RMP) requirements by utilizing alternative technologies and inventory control 	<p>By utilizing alternate technologies and inventory control, Fort Dix achieved compliance with the RMP rule and save approximately \$100,000 annually.</p>
<ul style="list-style-type: none"> ▪ Excluding non-army, non-DoD tenants from Title V Operating Permit and from the responsibility of annual emission fees 	<p>Fort Dix was the first Army Installation in the country to obtain approval to exclude fourteen tenants from its Title V Operating Permit. In doing so, compliance could be better ensured by holding the tenant activity managers, not the installation commander, responsible for compliance.</p>
<ul style="list-style-type: none"> ▪ Closure of large fuel oil aboveground storage tanks (ASTs) 	<p>Fort Dix eliminated fuel vapor emissions such as Volatile Organic Compounds (VOCs) that occur during the filling, fuel pumping, steam heating of the fuel, and tank breathing.</p>

Source: FY-1999 Secretary of the Army Environmental Awards Summary Sheet

4.4.1.4 Regional Air Pollutant Emissions Summary

Air quality in New Jersey has been steadily improving with less than one day out of thirty meeting the “unhealthy” standard for 1995 through 1997. An “unhealthy” day is defined as a day when air quality standards are above the National Standards for the concentration of any given pollutant. The state recorded 10 unhealthy days in 1997 for ozone while all other criteria pollutants remained below the National Standards. (NJDEP, 1998) In 1998, this trend changed as stricter standards for ozone and particulates went into effect, increasing the number of unhealthy days per year. As a result, in 2000 there were 20 recorded unhealthy days and 21 unhealthy days in 2003. The trend has been for improving air quality, with only 11 unhealthy days in 2005. (EPA, 2006)

Fort Dix is located in a relatively rural area of the state with very few private industries in the vicinity. It can be assumed that Fort Dix experiences higher air quality than the more urban regions of New Jersey. However, due to ozone transport and prevailing westerly winds, Fort Dix may experience the effects of pollutants carried by the winds from the nearby Philadelphia-Trenton metropolitan region.

4.4.2 Environmental Consequences

A project construction and operations-related General Conformity Applicability Analysis was performed for the proposed construction and operation activities under the Proposed Action Alternative. The General Conformity applicability analysis estimated the level of potential air emissions (VOC, NO_x, and PM_{2.5}) for the Proposed Action Alternative. It is assumed that the No Action Alternative would not impact air quality beyond existing conditions; therefore, it was not included in the analysis. Appendix H contains a detailed description of the assumptions and methodology used to estimate potential emissions for the construction and operation phases of the proposed BRAC actions at Fort Dix.

4.4.2.1 No Action Alternative

Implementation of the No Action Alternative would not change current conditions and is not expected to impact the current air quality conditions in the region.

4.4.2.2 Realignment (Preferred) Alternative

Table 4-5 summarizes the total annual emissions associated with the construction and operation of the proposed BRAC facilities at Fort Dix. Construction related emissions will be temporary and only occur during the 30-month development period for each building. Operations emissions will occur throughout the life of the facilities.

Table 4-5 Total Emissions from BRAC 05 Realignment Actions (Preferred Alternative) and Peak Year Emissions

Activity	Construction Emissions (TPY)			Operation Emissions (TPY)			Combined Emissions (TPY)		
	PM ₁₀	NO _x	VOC	PM ₁₀	NO _x	VOC	PM ₁₀	NO _x	VOC
Heavy Equipment (building/parking construction)	0.84	4.98	0.54				0.84	4.98	0.54
Construction Crew	0.02	0.89	0.95				0.02	0.89	0.95
Painting	N/A	N/A	1.46				N/A	N/A	1.46
Stationary Heating Unit (boiler and water heater)				0.00	5.35	6.75	0.00	5.35	6.75
Commuter Traffic				0.084	4.84	5.16	0.084	4.84	5.16
Totals							0.944	16.06	15.00

When compared to the *de minimis* values for this non-attainment area of 100 TPY for NO_x, PM₁₀ and 50 TPY for VOC the emissions associated with implementation of the realignment of Fort Dix fall below the *de minimis* values. As a result, the construction and operation of the five new buildings is not subject to the General Conformity Rule requirements. Impacts to air quality under the Proposed Action Alternative would not represent a significant impact.

Air emissions were also evaluated to determine regional significance. According to the *Proposed State Implementation Plan (SIP) Revisions for the Attainment and Maintenance of the 8-Hour Carbon Monoxide National Ambient Air Quality Standard, 1-Hour Ozone National Ambient Air Quality Standard, and Fine Particulate Matter National Ambient Air Quality Standard; and the 2002 Periodic Emission Inventory* (NJDEP, 2006), 2002 statewide emissions for VOCs were 470,689 TPY, NO_x emissions were 352,968 TPY and PM_{2.5} emissions were 18,173 TPY. The expected peak emissions for Fort Dix, combining construction and operational emissions, fall well below 10 percent of statewide emissions, therefore the impacts would not be regionally significant.

4.5 NOISE

Noise is unwanted sound. Sound is all around us; sound becomes noise when it interferes with normal activities such as speech, concentration, or sleep. Noise associated with airfield and airspace operations and air-to-ground and ground-to-ground range operations are of concern in communities surrounding military installations, including Fort Dix. The noise associated with these operations is also a factor in land use planning both on- and off-post. In addition, noise can emanate from vehicular traffic associated with new facilities and from project sites during construction.

4.5.1 Affected Environment

4.5.1.1 Noise from Airfield and Range Operations

Higher noise levels result from airfield operations at McGuire AFB located immediately adjacent to Fort Dix. According to the Fort Dix IONMP Report, 2005, noise levels ranging from 65 to 80 A-weighted Average Day/Night Sound Level (ADNL) encroach on Fort Dix property including a portion of the Cantonment Area adjacent to McGuire AFB⁷. Higher noise levels associated with range operations do not reach the Fort Dix Cantonment Area.

Higher noise levels from both airfield and airspace operations and air-to-ground and ground-to-ground range operations also extend into the surrounding communities. Fort Dix, along with McGuire AFB and NAES Lakehurst all actively promote land use compatibility in these communities experiencing higher noise levels.

4.5.1.2 Noise from Vehicle Operations

Current vehicle use associated with operations at Fort Dix consists of passenger vehicles, delivery trucks (tractor semi-trailers), and military off- and on-road vehicles. Passenger vehicles constitute most of the vehicles present at Fort Dix and the surrounding community roadways. Tractor semi-trailers are used for delivery of large cargo. Military on-road vehicles would be similar to those owned/operated by civilians. Military off-road vehicles would include some modified on-road vehicles for off-road use, and wheeled and tracked troop transport, fighting vehicles, and tanks. Noise from on-post vehicle operations does not exceed 65 A-weighted decibels (dBA) outside Fort Dix according to the Fort Dix IONMP Report (Fort Dix 2005). Within community areas adjacent to Fort Dix, the majority of noise caused by vehicles is attributed to highway use. The noise impact created by vehicle operations is rarely considered significant.

⁷ Noise levels related to airfield operations reported in the IONMP were obtained from the U.S. Air Force 1999 Air Installation Compatible (AICUZ) Study for McGuire AFB. In general, residential and other noise-sensitive land uses are considered “normally incompatible” when noise levels ranging from 65 to 75 ADNL. Approximately 15% to 39% of the Affected population is typically expected to be “highly annoyed” within these noise levels. For noise levels above 75 ADNL, residential and other noise sensitive uses are deemed “incompatible.” This includes both on- and off-post land uses.

4.5.2 Environmental Consequences

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 the sites being considered under the proposed action, nor at any additional locations.

4.5.2.2 Realignment (Preferred) Alternative

Minor adverse short-term noise impacts related to the construction of the projects would be expected to occur. Once the facilities become operational, minor adverse long-term noise effects would be expected. These effects are related to the stationing of fixed-wing aircraft at the Aviation Support Facility and the additional use of passenger vehicles, delivery trucks (tractor semi-trailers), and military off- and on-road vehicles. The following describes estimated noise impacts during the construction and operation phases of the proposed actions.

Noise from Construction – Minor adverse short-term direct effects would be expected. These effects would occur during the construction of each of the proposed projects. Noise impacts during the construction and demolition⁸ phases could be mitigated by confining construction activities to normal working hours and employing noise-controlled construction equipment to the extent possible. Furthermore, arrival 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.

Noise from Airfield Operations – Minor adverse effects would be expected. An inventory of eight C-12 turboprop aircraft would be located at Fort Dix⁹. These aircraft would be assigned to Company A/228th Aviation, and would be located at the Aviation Support Facility that includes an aircraft maintenance hangar and fixed-wing taxiway and apron space.

This facility would be located immediately adjacent to McGuire AFB and the aircraft would use the base's airfield, which is also located immediately adjacent to the proposed project. The additional noise generated by the C-12 aircraft would be minor in comparison to the current noise levels generated by larger-scale jet aircraft air operations that occur at McGuire AFB. The C-12s would be located and operated in an area where noise from other aircraft is common. As a result, this change would be minor in comparison to the baseline. Furthermore, the Aviation Support Facility would be located adjacent to the existing Fort Dix Aviation Ramp. Both transient fixed-wing and rotary-wing aircraft currently use the McGuire AFB runways and taxi to the Fort Dix Aviation Ramp for servicing, refueling, and/or rest. Aircraft, including the eight C-12s, would use the new facility's apron space in a similar manner. According to the Fort Dix IONMP Report (Fort Dix 2005), noise levels associated with baseline and future aircraft operations (2008, 2013, and 2033) would be considered compatible with land use within Fort Dix. The report recognizes the addition of C-12 aircraft.

Noise from Vehicles – There would be minor day-to-day noise impacts from additional vehicles after the construction of the new facilities is completed. Aside from the Child Development (CDC) and School Age Services (SAS) Complex located in the residential area of Fort Dix, the remaining projects would be located in areas that are not sensitive noise receptors such as residences or schools and would be in compliance with all applicable noise standards. The Army Reserve Center (ARC) for the 77th, 78th, and 99th would generate the most passenger vehicle trips and inherent noise. Military vehicles associated with the Organization Maintenance Shop (OMS) Facility and Additional Parking Area would be located outside of the Cantonment Area and near similar facilities. According to the Fort Dix IONMP Report (Fort Dix 2005), noise levels associated with an increase in on- and off-road vehicle operations would not exceed land use compatibility guidelines at proposed vehicle storage or maintenance facilities, vehicle training areas, or at any ranges. Minor noise impacts associated with military vehicle operations would be focused around these facilities and between the facilities, ranges, and off-post destinations.

⁸ Demolition is associated with the Aviation Support Facility only. Demolition at this site would include the existing DOL Vehicle Maintenance Facilities.

⁹ The C-12 Huron, a twin turboprop passenger and cargo aircraft, is the military version of the Beachcraft Super King Air. The aircraft provides operational support for military bases, sites, fleet and shore units. The C-12 generally carries a crew of two and has maximum gross take-off load of 15,000 lbs (6,750 kg). Information obtained from <http://www.fas.org/man/dod-101/sys/ac/c-12.htm> (Federation of American Scientists, 2006).

4.6 GEOLOGY AND SOILS

This subsection describes the geological and topographical resources occurring in the proposed project areas. The assessment of the existing geology, topography, and soils is based on U.S. Geological Survey (USGS) topographic maps and the Natural Resources Conservation Service Soil (NRCS) Survey for Burlington County (USDA Natural Resources Conservation Service).

4.6.1 Affected Environment

4.6.1.1 *Geologic and Topographic Conditions*

Fort Dix is located in the Atlantic Coastal Plain geographic region, which is characterized by level to gently rolling terrain with only minor variations in elevation. Elevations on the Fort Dix installation range from 70 feet MSL in the eastern portion of the installation to 200 feet above MSL. All of the five proposed project areas are located on relatively level terrain.

The Fort Dix reservation is located on non-conforming sedimentary deposits that are typical of Atlantic Coastal Plain composed primarily of layers of unconsolidated to semi-consolidated sand or sand and gravel interrupted only by localized beds of clay, sandy clay, or gravelly clay. The major mineral resources of the area are sand, gravel and clay deposits.

4.6.1.2 *Soils*

Soils throughout Fort Dix are characterized by a very sandy surface layer and sandy subsoil with occasional clay layers. Soil series found within the five proposed project areas include Adelphia fine sandy loam (AdmA), Downer loamy sand (DocB), Lakewood sand (LasB), Sassafras sandy loam (SacA and SacB), and Shrewsbury fine sandy loam (ShsA). Table 4-6 provides a summary of the properties of these soil series.

Table 4-6: Properties of Soils found in the Proposed Sites

Mapping Unit	Series	% Slope	Surface Texture ¹	Flooding	Water Table (feet)	Hydrologic Group ²	Drainage ³	Hydric Soil	Important Farmland ⁴
AdmA	Adelphia	0-2	FSL	None	1.5-4.0	C	MW	N	P
DocB	Downer	0-5	LS	None	6	B	W	N	S
LasB	Lakewood	0-5	S	None	6	A	E	N	L
SacA	Sassafras	0-2	SL	None	6	B	W	N	P
SacB	Sassafras	0-2	SL	None	6	B	W	N	P
Shs	Shrewsbury	0-2	FSL	None	0-1.0	C/D	P	Y	S (drained)

¹ S = sand; LS = loamy sand; FS = fine sand; SL = sandy loam; FSL = fine sandy loam; SCL = sandy clay loam; L = loam; LFS = loamy fine sand; GR-S = gravelly sand; VAR = varies

² A = low runoff potential; B = moderate infiltration rate; C = slow infiltration rate; D = high runoff potential

³ E = excessively well drained; W = well drained; MW = moderately well drained; P = poorly drained; VP = very poorly drained

⁴ U = unique farmland; P = prime farmland; S = farmland of State-wide importance; L = farmland of local importance

Source: Natural Resources Conservation Service Soil U.S. Department of Agriculture, Natural Resources Conservation Service <http://soildatamart.nrcs.usda.gov/Metadata.aspx?Survey=NJ005&UseState=NJ#7>

The following are detailed descriptions of soils found within the five proposed sites.

Army Reserve Center (ARC) for the 77th, 78th, and 99th – The soil found on the proposed site of the ARC is the Sassafras sandy loam (SacA). The Sassafras series is characterized as a very deep, well-drained soil. The soil is in hydrologic soil group B, meaning that it has a moderate infiltration rate when thoroughly wet and moderate

to moderately slow permeability with surface runoff. This soil has been classified as a prime farmland soil by the NRCS. It has a low shrink-swell potential, suggesting that this soil has a low potential for uneven or problematic settling of a structure. It has a moderate to high potential for erosion. Overall, the soil at this site has characteristics that are favorable for construction and would require little maintenance.

Aviation Support Facility – Although this site is nearly completely paved, the underlying soils on the proposed site are the SacA, DocB, Shrewsbury fine sandy loam (Shs), and AdmA. The Sassafras sandy loam described in Army Reserve Center (ARC) for the 77th, 78th, and 99th.

DocB is characterized as a very deep well drained soil on uplands. It is in hydrologic soil group B, meaning that it has a moderate infiltration rate when thoroughly wet. It has a moderate to moderately rapid permeability and low potential of shrink-swell. It has a moderate potential for erosion. It has a low shrink-swell potential, an indicator that this soil has a low potential for uneven or problematic settling of the structure. Overall, the soil at this site has characteristics that are favorable for construction and would require little maintenance.

ShsA is characterized as a deep, poorly drained soil in low positions. It is in hydrologic soil group C/D, which means it has slow to very slow infiltration rates and a high runoff potential. Surface runoff is slow or ponded. The soil has a moderate shrink-swell potential, an indicator that the soil has the potential for uneven or problematic settling of the structure.

AdmA is characterized as a deep moderately well drained or somewhat poorly drained soil on uplands. This soil has been classified as a prime farmland soil by the NRCS. The soil has a moderate potential of experiencing shrink-swell, an indicator that there is potential for uneven or problematic settling of the structure. The soil belongs to hydrologic group C, which means it has a slow infiltration rate when thoroughly wet. They have a fine sandy loam surface layer 14 inches thick. The subsoil from 14 to 30 inches is sandy clay loam and it contains 10 to 40 percent glauconite. The substratum from 30 to 60 inches is sandy loam and loamy sand. Slopes range from 0 to 10 percent.

Physical Fitness Facility – The soils within this site are the SacA and SacB. The Sassafras sandy loam is described in Army Reserve Center (ARC) for the 77th, 78th, and 99th.

Child Development Center (CDC) and School Age Services (SAS) Complex – The soil at the proposed site of the complex is the Lakewood sand (LasB). The Lakewood series is characterized as a deep, excessively drained soil on uplands. The soil is in hydrologic group A, meaning it has a high infiltration rate and low runoff potential when thoroughly wet. It has a low potential for erosion. It has a low shrink-swell potential, an indicator that this soil has a low potential for uneven or problematic settling of the structure. Overall, the soil at this site has characteristics that are favorable for construction and would require little maintenance.

Organization Maintenance Shop (OMS) Facility and Additional Parking Area – This site is composed of the Downer loamy sand. A description is given in the Aviation support facility.

4.6.1.3 Prime Farmland

Three of the soil series described above are considered prime farmland soils. However, these soils are heavily modified in most cases from operations on the post, and no agricultural use of these lands occurs.

4.6.2 Environmental Consequences

4.6.2.1 No Action Alternative

No effects would be expected. Implementation of the no action alternative would not entail any surface disturbing activities at the sites being considered on under the proposed action.

4.6.2.2 Realignment (Preferred) Alternative

Geologic and Topographic Conditions – No effects would be expected. All of the sites proposed for construction under the proposed action are primarily flat, and would likely require only minor leveling and grading. No major alterations of the general topographic character of the site would occur.

Soils – Minor adverse direct effects would be expected. Soils on some portion of the 47 acres of land proposed for new construction under the proposed action would likely be adversely affected by the leveling and grading of the site. Vegetative cover would be removed, soils would be compacted, and soil layer structure would be disturbed and modified. These effects would be considered minor, given that the majority of soils at Fort Dix have been previously disturbed or modified. Soils at the Aviation Support Facility are currently covered by concrete, and therefore no additional impacts on soils at this site would be anticipated.

Soil productivity, that is, the capacity of the soil to produce vegetative biomass, would decline in disturbed areas and be eliminated in those areas within the footprint of building structures or parking facilities. Disturbed areas outside of the building and parking facility footprints would be reseeded following construction activities, and soil productivity on these sites would return.

Soil erosion and sediment production would be minimized for all construction operations as a result of following an approved sediment and erosion control plan. All 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 at each site. Each site would be constructed with storm water controls favoring methods that allow for storm water to reenter the groundwater system rather than leaving the site as surface flow. Use of storm water control measures that favor infiltration in this way would minimize the potential for erosion and sediment production as a result of future storm events.

The majority of the soils underlying the proposed sites have limited shrink-swell potential, indicating that there would be low potential for uneven or problematic settling of any newly constructed buildings or parking facilities.

Prime Farmland – No effects would be expected since no lands suitable for Prime Farm Land consideration were identified.

4.7 WATER RESOURCES

4.7.1 Affected Environment

The following sections provide a summary of the general condition and character of water resources found at Fort Dix, as well as more specific descriptions of the water resources in the immediate vicinity of the proposed project sites.

4.7.1.1 Surface Water

Watersheds – The majority of the Fort Dix area drains into Rancocas Creek Watershed (8 digit HUC, 02040202) and the Crosswicks-Neshaminy Watershed (8 digit HUC 02040201), both of which drain east into the Delaware River Basin. A small portion of the post drains to the east into the Mullica-Toms Watershed (8 digit HUC 02040301) and into the Atlantic Ocean.

All of the proposed project sites exist within the Rancocas or Crosswicks-Neshaminy Watersheds. Within these watersheds, there are three small subwatersheds (14-digit HUCs) that have the potential to receive runoff from the proposed project sites: South Run, Pemerton/Ft. Dix Tributary, and Ong Run/Jacks Run Watersheds (Figure 4-1).

Due to the localized nature of the proposed actions and limited likelihood of any potential adverse effects occurring far from the proposed project sites, the following inventory and characterization focuses only on those water resources within the three 14 digit HUC subwatersheds that have the potential to be affected by the proposed actions.

Hydrologic Unit Codes (HUC):

Watersheds are organized into a system that divides and subdivides the United States into successively smaller watersheds. These levels of subdivision, used for organization of hydrologic data, are called “hydrologic units.” Hydrologic Unit Codes are given to each of these units in a manner that preserves watershed hierarchy. This is done by adding additional digits to a watershed’s HUC to designate smaller subwatersheds within an encompassing watershed. As an example, a large river watershed may have an 8 digit HUC of 02040301. All subwatersheds to this watershed would begin with this 8 digit number, but would have additional digits as their unique identifier (02040301102, 02040301103, etc.).

Streams, Waterbodies, and Wetlands – All surface waters within Fort Dix have been classified as Pinelands (PL) Waters. Designated uses of PL waters include: cranberry bog water supply and other agricultural uses; maintenance, migration, and propagation of the natural and established biota indigenous to the ecosystem; public potable water supply after treatment; primary and secondary contact recreation; and any other reasonable uses (NJDEP 1993).

Within the three subwatersheds there are roughly 40 miles of streams, the majority of which (90%) are either first or second order streams within modified drainages, many of which support perennial flows. There are roughly 6 miles of stream that are enclosed in pipes, the majority of which are located under McGuire AFB. Small impoundments (2.5 acres in size on average) are located in many of the drainages.

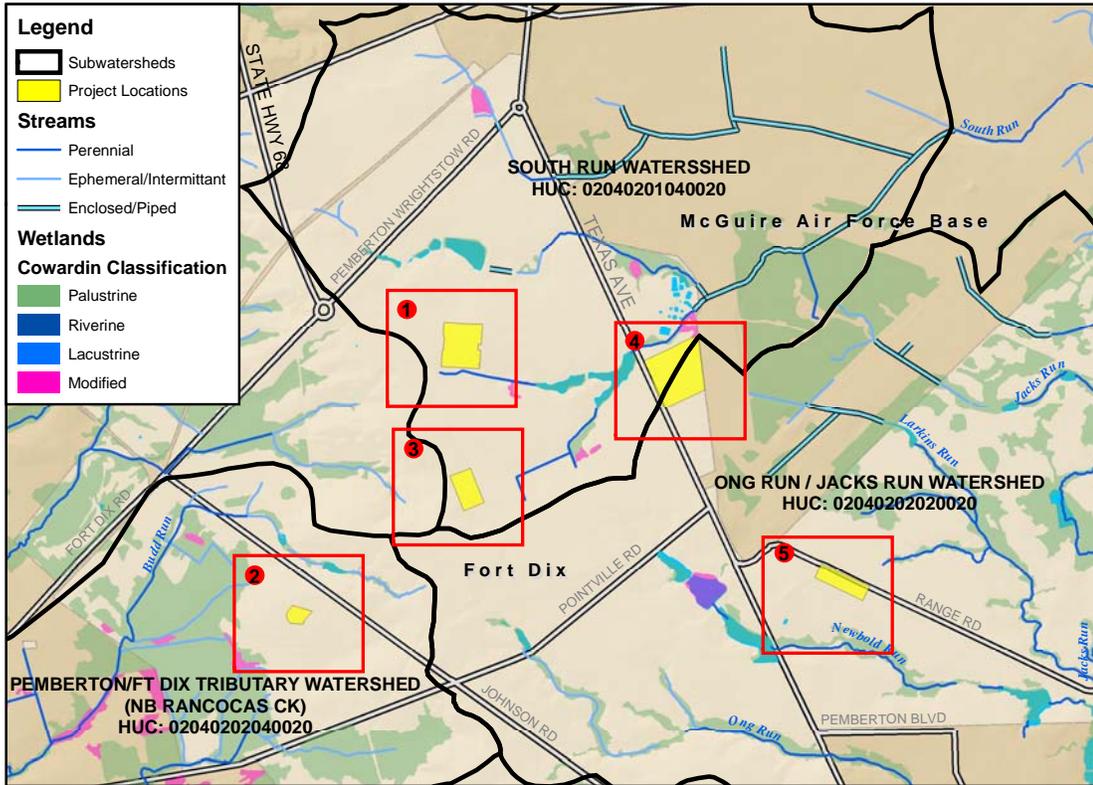
Based on the most current New Jersey Integrated Water Quality Monitoring and Assessment Report (NJDEP, 2006b), there are two stream segments near the proposed development sites which are not currently meeting water quality standards for pH; Ong Run and Jacks Run. Only Jacks Run has the potential to receive runoff from any of the proposed projects; the Organizational Maintenance Shop 1.5 miles northwest of the impaired segment along Newbold Run. Streams with high pH are generally found in watersheds with a greater proportion of developed lands in this region.

Freshwater wetlands within Fort Dix are wholly regulated by the New Jersey Pinelands Commission, pursuant to subchapter 7:50-6.1 through 6.14 of the Pinelands Management Plan, and therefore are exempt from the permit requirements of the New Jersey Freshwater Wetlands Protection Act (Subchapter 7:7A-2.8). The Pinelands Commission reviews impacts on wetlands and/or an associated 300-foot wetland protection buffer. Impacts to wetlands and/or their associated 300-foot buffer require approval from the Pinelands Commission. Only two of the proposed project sites are within 300 feet of a potential wetland based on the New Jersey State Wetlands Map GIS data (NJDEP, 1998)—these sites are the Aviation Support Facility and the Army Reserve Center (ARC) for the 77th, 78th, and 99th.

A small complex of wetlands exists north of the proposed Aviation Support Facility (Figure 4-1). Approximately 17 acres of these wetlands, based on GIS data derived from aerial photo interpretation, have some portion of their area within 300 feet of the proposed Aviation Support Facility site. The complex includes an artificial pond to the west of Texas Avenue, a small linear scrub shrub wetland to the immediate east of Texas Avenue, and a disturbed/modified wetland to the east and south of the scrub shrub wetland adjacent to McGuire AFB. Though the artificial pond to the west of Texas Ave is within 300 feet of the proposed facility, it is upstream of the proposed site and therefore no drainage from the facility would effect this wetland.

Small pockets of herbaceous wetland totaling 0.12 acres are found in an existing storm drainage channel on the southern edge of the site proposed for construction of the Army Reserve Center (Figure 4-1). The channel delivers storm drainage to Willow Pond to the east and exists within a developed residential area of the Fort Dix post, surrounded by manicured lawns and monotypic stands of white pine to the north. This wetland was reviewed by Philadelphia District, Army Corps of Engineers and a Land Capability Areas Buffer Delineation Procedure was conducted (based on buffer delineation procedures developed by Roman and Good (1983) and submitted to the Pinelands Commission. Appendix E presents the results of the buffer delineation—a 110-foot buffer zone was proposed for protection of the wetland. Appendix F is the Pinelands Commission response to buffer delineation in which the Pinelands Commission found that a 50-foot buffer would be sufficient.

Figure 4-1: Water Resources in the Project Area



Army Reserve Center (ARC) for the 77th, 78th, and 99th



Child Development Center (CDC) and School Age Services (SAS) Complex



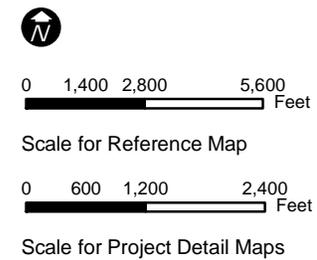
Physical Fitness Facility



Aviation Support Facility



Organization Maintenance Shop (OMS) Facility and Additional Parking Area



4.7.1.2 Hydrogeology/Groundwater

The majority of Fort Dix, and all of the potential project site areas, are underlain by the Kirkwood-Cohansey aquifer system. This aquifer can be highly productive, ranking in the highest two groundwater yield categories for the State of New Jersey (Category B and A, median high capacity well yields from 250 to 500 gallons per minute, and greater than 500 gallons per minute, respectively) (Herman et al. 1998). Although the Kirkwood-Cohansey aquifer produces high yields of groundwater, it is seldom used except for private domestic supplies (Fort Dix 2003, Programmatic EA).

Groundwater quality in the area is considered to be of generally good quality; water is fresh and low in dissolved solids, although it can be acidic and highly corrosive. Less corrosive water is common in confined aquifers that border Fort Dix. Groundwater iron and manganese levels are locally elevated.

Fort Dix is located in the New Jersey Coastal Plain, which has been designated as a sole source aquifer pursuant to the Safe Drinking Water Act. As a sole source aquifer, it is considered highly susceptible to contamination through its recharge zone from a number of sources, including but not limited to, chemical spills, leachate from landfills, stormwater runoff, highway deicing, faulty septic systems, wastewater treatment systems and waste disposal lagoons. Under the Safe Drinking Water Act, the EPA is tasked to review Federally assisted projects (projects which receive Federal financial assistance through a grant, contract, loan guarantee, or otherwise) proposed for construction in a project review area which includes the New Jersey Coastal Plain Area and a portion of the aquifer streamflow source zone.

4.7.1.3 Floodplains

Information regarding the presence of 100 and 500-year floodplains within Fort Dix is not provided on the Federal Emergency Management Agency's (FEMA's) flood insurance rate maps as no major streams or buffer zones are known to exist on the Installation. As a result, it is believed that none of the project locations are known to exist within any 100-year floodplains.

4.7.1.4 Coastal Zone

The State of New Jersey protects coastal waters and the land adjacent to them under a variety of laws, including the Waterfront Development Law (N.J.S.A. 12:5-3), the Coastal Area Facility Review Act (N.J.S.A. 13:19), and the Wetlands Act of 1970 (N.J.S.A. 13:9A). The state applies these laws in designated Coastal Planning Areas through the Coastal Permit Program Rules, N.J.A.C. 7:7, and the Coastal Zone Management Rules, N.J.A.C. 7:7E, and determines what may or may not be built under these three laws. Fort Dix is not located in a Coastal Planning Area as described in the Coastal Area Facility Review Act.

4.7.2 Environmental Consequences

4.7.2.1 No Action Alternative

No effects would be expected. Implementation of the no action alternative would not alter the existing water resources at the sites being considered under the proposed action. .

4.7.2.2 Realignment (Preferred) Alternative

All of the projects contained in the proposed action would fall under the permitting and regulatory requirements of the New Jersey Stormwater Management Rule (N.J.A.C. 7:8) and the Soil Erosion and Sediment Control Act (N.J.S.A. 4:24-39) and its implementing regulations (N.J.A.C 2:90-1.1 through 1.4). Prior to construction at any site, a Soil Erosion and Sediment Control Plan will be prepared, submitted, and reviewed for approval by the Burlington County Soil Conservation District or the State Soil Conservation Committee, as well as by the Pinelands Commission.

In addition, four of the five proposed construction operations would result in the disturbance of more than five acres of total land area and deliver stormwater runoff to surface waters, and therefore, these activities would be considered industrial activity requiring an NJ Pollution Discharger Elimination System (NJPDES) permit for stormwater discharges (N.J.A.C. 7:14A). Construction of the Child Development Center, would also likely require consideration under an NPDES permit, since "construction activity also includes the disturbance of less than five acres of total land area that is a part of a larger common plan of development or sale if the larger

common plan will ultimately disturb five acres or more.” The following describes effects on each of the water resource areas described in the preceding section.

Surface Water/Wetlands – Minor adverse effects would be expected. All projects are expected to either exceed 0.25 acres of new impervious surface or one acre of disturbance and would therefore be classified as major development subject to the New Jersey storm water management rules. Measures implemented to comply with stormwater permits from the State, Burlington County, and the Pinelands Commission during both construction and operation would ensure that impacts from increased runoff, altered drainage patterns, or changes in water quality due to surface water runoff would be minor. No anticipated impacts on surface water resources would be anticipated as a result of the construction and operation of the Child Development Center or Physical Fitness Center since these facilities would be constructed in residential areas with no significant nearby water resources.

Effects on water quality and quantity on surface water resources will be minimized through the use of buffer zones and bioretention measures to control stormwater runoff whenever possible. These measures would minimize the possibility of any downstream impacts on the non-attaining segment of Jacks Run (in non-attainment due to elevated pH levels) from drainage derived from the Organizational Maintenance Shop site. No other sites would deliver drainage to a stream segment that is currently not attaining its designated use.

Through the use of wetland buffers and bioretention measures to control stormwater runoff, effects on wetlands in the vicinity of the Army Reserve Center and Aviation Support Facility (Figure 4-1) would be minor. Preliminary designs indicate that construction of the Army Reserve Center would avoid the drainage channel wetland along the south end of the site by upwards of 200 feet. As provided in Appendix F, the Pinelands Commission found that a 50-foot buffer would be sufficient. Given this additional setback and protection measure, the Pinelands Commission and Philadelphia District of the Army Corps of Engineers have concurred that a formal wetland delineation at this site would not be necessary. (Cavanaugh, 2006)

Approximately 8 acres wetlands, based on GIS data derived from aerial photo interpretation, have some potential to receive drainage from the Aviation Support Facility site (Figure 4-1). These wetlands include a small linear scrub shrub wetland to the immediate east of Texas Avenue, and a disturbed/modified wetland to the east and south of the scrub shrub wetland adjacent to McGuire AFB. No additional impervious surfaces will be created as a result of the proposed action, since existing structures will be demolished, and new facilities constructed in their place. Therefore, no anticipated impacts associated with storm water flows would be anticipated as a result of proposed development plans on this site.

Construction of the Organizational Maintenance Shop and additional Parking Facility would occur upgradient of Newbold Run and the forested wetlands found along its course (Figure 4-1). The distance between the proposed facility and the stream and associated wetlands to the southeast is beyond the 300 foot buffer distance required by the Pinelands Commission for formal evaluation of potential wetland impacts from surface runoff. Additionally, the gradient along the most direct route from the project site to the wetland (approx. 700 feet) is only slightly more than a -1% grade. With the implementation of bioretention measures and storm water controls as necessary under an approved stormwater management plan, it is not anticipated that drainage from the facility would impact the stream course and wetlands to the south as a result of construction of an Organizational Maintenance Shop and Parking Facility at this site. However, the potential for fuel and lubricant spills at this facility suggests that there may be minor effects associated with the operation of a maintenance and parking facility at this site.

Hydrogeology/Groundwater – Minor adverse effects would be expected. Oil and antifreeze spills, leaks from vehicle maintenance operations, and pollutant leaching as a result of demolition activities (at the Aviation Support Facility) could pose a threat to ground water sources at Fort Dix. Spills and leaks will be minimized by adherence to safety procedures for vehicle maintenance and the operation of equipment, and any potentially toxic substances in areas proposed for demolition will be removed and safely disposed prior to demolition. Any construction, demolition, and operation of facilities on the post would continue to adhere to existing groundwater protection protocols as required under the Safe Drinking Water Act (1974, with amendments 1986) and described in the Guidance for Providing Safe Drinking Water at Army Installations (USACHPPM [1995] Technical Guide No. 179). No effects would be expected as a result of these protocols for the proposed development and operations under the proposed action.

Floodplains – No effects would be expected. None of the proposed project sites requires construction within a known floodplain.

Coastal Zones – No effects would be expected. Fort Dix is not within a Coastal Zone Management Area, and therefore coastal management measures do not apply.

4.8 BIOLOGICAL RESOURCES

4.8.1 Affected Environment

Fort Dix is entirely located within the Pinelands National Reserve, an ecological area designated by State and Federal legislation. This area is characterized by a variety of habitats and supports unique vegetation and wildlife. The Pinelands National Preserve was created by the National Parks and Recreation Act of 1978 and encompasses parts of seven southern New Jersey counties. The Pinelands Commission monitors and controls the Preserve under the Comprehensive Management Plan for the Pinelands. This Plan was designed to protect the unique natural, ecological, agricultural, archaeological, historical, scenic, cultural and recreational resources of the Pinelands. Additionally, this area is designated as a Biosphere Reserve by the United Nations

4.8.1.1 Vegetation

A variety of habitats and vegetation exists at Fort Dix due to its location in the Atlantic coastal plain. Representatives of the various Pineland habitat types are present within the undeveloped portions of Fort Dix, which makes up approximately two-thirds of the post. Vegetation communities and acreages are presented in Table 4-7.

Table 4-7: Fort Dix Vegetation Communities

Community Type	Acres
Deciduous Hardwoods	5,260
Pitch Pine Barrens	12,350
Cedar Forests	500
Other Pine	660
Mixed Deciduous-Pine	3,450
Shrubland	1,620
Grassland	700
Agriculture	2,100
Other	3,130
Total	29,770

Source: Fort Dix 1999, RPMP

A Land Condition Trend Analysis (LCTA) inventory conducted in 1998 found approximately 200 plant species in the training areas of Fort Dix (Fort Dix 2002). The list of species found on the installation is presented in Appendix A.

Army Reserve Center (ARC) for the 77th, 78th, and 99th – The proposed project site consists primarily of manicured lawns and landscape vegetation, including sycamores and pines, and paved sidewalks. A parking lot is located on the eastern portion of the site and a stand of densely planted white pine (*Pinus strobus*) is located on the western edge of the site. An existing storm drainage channel runs along the southern portion of the site and contains pockets of herbaceous wetlands. Vegetation present in the wetland area includes manna grass (*Glyceria sp.*), common cattail (*Typha latifolia*), and common rush (*Juncus effusus*) (Department of Army 2006).

Aviation Support Facility – The proposed project site is located in a highly developed area with an impervious asphalt surface. Existing vegetation consists of species that are tolerant to human disturbances. A mixed scrub/shrub wetlands and successional fields are present on the northern edge of the site. The successional fields consist of grasses and forbs, while the scrub/shrub areas are predominantly vegetated by sweet gum (*Liquidambar styraciflua*), eastern red cedar (*Juniperus virginiana*), and scarlett oak (*Quercus coccinea*).

Physical Fitness Facility – The proposed project site is situated on Doughboy Field, which consists primarily of manicured fields used for recreational purposes. Planted white pines line the western edge of the project site along Doughboy Loop.

Child Development Center (CDC) and School Age Services (SAS) Complex – The proposed project site is in a residential area of the installation. The park-like setting consists of scattered mature cedars, pines, sycamores, and oaks.

Organization Maintenance Shop (OMS) Facility and Additional Parking Area – This proposed site is composed of oak/pine woodland, with dominant species consisting of white, northern red, and chestnut oak (*Quercus alba*, *Q. rubra*, and *Q. prinus*) and white pine in the canopy layer. Dominant vegetation in the shrub layer consists of chokecherry (*Prunus virginiana*), lowbush blueberry (*Vaccinium corymbosum*), red cedar (*Juniperus virginiana*), and sheep laurel (*Kalmia angustifolia*). Pitch pine (*Pinus rigida*) is also present in the shrub layer. A power line easement is located adjacent to the proposed site. This area is composed of successional field, vegetated by grasses and forbs, with pitch pine and red cedar beginning to invade (Fort Dix 2000).

4.8.1.2 Wildlife

The Forests, savannas, meadows, wetlands, bogs, and lakes of Fort Dix are home to a variety of wildlife, including various terrestrial mammals, birds, reptiles, and amphibians; game and non-game; and threatened and endangered species (most of which are NJ State concern or Pineland protected) (Fort Dix 2002). Appendix B lists wildlife observed on Fort Dix.

White-tailed deer (*Odocoileus virginianus*), cottontail rabbit (*Sylvilagus floridanus*), gray squirrel (*Sciurus carolinensis*), gray fox (*Urocyon cinereoargenteus*), and red fox (*Vulpes fulva*) are common game species found on the installation along with game birds such as ruffed grouse (*Bonasa umbellus*), woodcock (*Scolopax minor*), pheasant (*Phasianus colchicus*), bob-white quail (*Colinus virginiana*), and wild turkeys (*Meleagris gallopavo*) (Fort Dix 2002).

Numerous fish species are found in the man-made lakes of Fort Dix. In addition to fish naturally occurring in these lakes, the installation has an active stocking program that includes trout and bass. Anadromous fish (fish that live most of their lives in salt water but spawn in fresh water) could potentially use the streams of Fort Dix. The Crosswicks, Rancocas Creeks, and Toms River are spawning grounds for blueback herring (*Alosa aestivalis*) and alewife (*Alosa pseudoharengus*), both anadromous fish (Fort Dix 2002).

Army Reserve Center (ARC) for the 77th, 78th, and 99th – The proposed site consists of manicured lawns and landscape vegetation within a developed portion of the base. A stand of densely planted white pine is located on the western edge of the site. The site is impacted with areas of concrete sidewalks and a parking lot. The level of disturbance at the site limits the abundance and diversity of species utilizing the site. Species found on this site include the American robin (*Turdus migratorius*), European starling (*Sturnus vulgaris*) and sparrows. Spring peepers (*Hyla crucifer*) could also be found within the grassy swale wetland area.

Aviation Support Facility – The proposed project site is located in a highly developed area, with an area of successional fields and scrub/shrub on the northern edge. Wildlife on-site includes species that typically inhabit edge habitats and are tolerant to human disturbances.

Physical Fitness Facility – The project site consists primarily of manicured fields used for recreational purposes. Wildlife species common on-site include species that are tolerant to human disturbances.

Child Development Center (CDC) and School Age Services (SAS) Complex – The proposed project site is situated in a residential area with park-like settings. Wildlife species common on-site include species that are tolerant to human disturbances.

Organization Maintenance Shop (OMS) Facility and Additional Parking Area – The proposed project site contains habitat consisting of mixed-oak/pine woodland, surrounded by additional pine and mixed pine/hardwood woodlands. Wildlife found in this area includes species that are typical of forest and edge habitats. Species common to this site include the tufted titmouse (*Parus bicolor*), black-capped chickadee (*Parus atricapillus*), fish crow (*Corvus ossifragus*), wild turkey, and white-tailed deer (Fort Dix 2000).

4.8.1.3 Threatened and Endangered Species

There are a number rare, threatened, and endangered species of vegetation and wildlife known to occur at Fort Dix. These species include grasses, sedges, herbs, birds, reptiles, and invertebrates (butterflies, moths, and skippers). Table 4-8 lists rare, threatened, and endangered species on the installation.

Table 4-8: Federally-Listed and State-Listed Threatened and Endangered Species Known or Likely to Occur at Fort Dix, New Jersey

	Family	Scientific Name	Common Name	Status
Grasses	Poaceae	<i>Aristida basiramea</i> var. <i>curtissii</i>	Curtiss' Three-awn grass	State Special concern
		<i>Calamovilfa brevipilis</i>	Pine Barrens reed grass	State Special concern Pine Barrens protected
		<i>Muhlenbergia torreyana</i>	Pine Barrens smoke grass	State Special concern Pine Barrens protected
		<i>Paspalum dissectum</i>	Mud Bank paspalum	State Special concern
Sedges	Cyperaceae	<i>Carex barratti</i>	Barratt's sedge	State Special concern Pine Barrens protected
		<i>Rhynchospora cephalantha</i>	Large-headed beaked rush	State Special concern Pine Barrens protected
		<i>Rhynchospora pallida</i>	Pale beaked rush	State Special concern
		<i>Scirpus longii</i>	Long's bulrush	Federal candidate species State imperiled, Endangered Pine Barrens protected
		<i>Scleria minor</i>	Slender nut rush	Pine Barrens protected
Rushes	Juncaceae	<i>Juncus caesariensis</i>	New Jersey rush	Federal candidate species State Special concern, Endangered Pine Barrens protected
		<i>Juncus greenei</i>	Greene's rush	State Special concern
Terrestrial Herbs	Asteraceae	<i>Chrysopsis falcata</i>	Sickle-leaved golden star	State Special concern Pine Barrens protected
		<i>Prenanthes autumnalis</i>	Pine barrens rattlesnake root	State Special concern Pine Barrens protected
		<i>Solidago stricta</i>	Wand-like goldenrod	State Special concern Pine Barrens protected
	Fabaceae	<i>Desmodium strictum</i>	Pineland tick-trefoil	State Special concern Pine Barrens protected
	Gentianaceae	<i>Gentiana autumnalis</i>	Pine barren gentian	State Special concern Pine Barrens protected
	Rubiaceae	<i>Hedyotis uniflora</i>	Clustered bluets	State Special concern
	Lobeliaceae	<i>Lobelia canbyi</i>	Canby's lobelia	State Special concern Pine Barrens protected
Aquatic Herbs	Elatinaceae	<i>Elatine minima</i>	Small waterwort	State Special concern
	Lentabulariaceae	<i>Utricularia gibba</i>	Humped bladderwort	State Special concern Pine Barrens protected

	Family	Scientific Name	Common Name	Status
Shrubs	Rosaceae	<i>Rubus recurvicaulis</i>	Blanchard's dewberry	State Special concern
Moths	Arctiidae	<i>Gammia placentia</i>	Placentia tiger moth	State critically imperiled/rare
	Geometrid	<i>Hypomecis bucholtzaria</i>	Bucholtz's gray	State rare
		<i>Metarranthus sp.</i>	A geometrid moth	Possible new Federal candidate species State Imperiled species
	Noctuidae	<i>Acronicta albarufa</i>	Barrens daggermoth	Federal candidate species State status uncertain
		<i>Agrotis bucholtzi</i>	Bucholtz's dart moth	Federal candidate species State imperiled
		<i>Catocala pretiosa pretiosa</i>	Precious underwing moth	Federal candidate species State imperiled/rare
		<i>Loxagrotis sp.</i>	A noctuid moth	Possible new Federal candidate species State critically Imperiled
		<i>Macrochilo sp.</i>	A noctuid moth	State rare
		<i>Merolonche dollii</i>	Doll's merolonche	Federal candidate species State critically imperiled/rare
		<i>Spartinophaga carteri</i>	Carter's noctuid moth	Federal candidate species State imperiled species
	Pyrilidae	<i>Crambus daekellus</i>	Daeckes Pyralid moth	Federal candidate species State critically imperiled/rare
Butterflies and Skippers	Nymphalidae	<i>Boloria selene myrina</i>	Silver-bordered fritillary	State imperiled/rare
		<i>Neonympha areolus septentrionalis</i>	Georgia Satyr butterfly	State rare
	Hesperiidae	<i>Atrytone arogos arogos</i>	Easter beard grass skipper	Federal candidate species State critically imperiled
		<i>Euphytes bimaculata</i>	Two-spotted skipper	State rare
		<i>Hesperia attalus slossonae</i>	Dotted skipper butterfly	State imperiled/rare
<i>Atrytone arogos arogos</i>	Arogos skipper	Federal candidate species State endangered		
Amphibians	Hylidae	<i>Hyla andersonii</i>	Pine barrens tree frog	State rare/endangered
Reptiles	Colubridae	<i>Pituophis melanoleucus melanoleucus</i>	Northern pine snake	State rare/threatened species Federal candidate species

	Family	Scientific Name	Common Name	Status
Birds	Ardeidae	<i>Ardea herodias</i>	Great blue heron	State imperiled, Threatened (for breeding population only)
	Accipitridae	<i>Pandion haliaetus</i>	Osprey	State threatened breeding population
		<i>Haliaeetus leucocephalus</i>	Bald eagle	Federal threatened species State endangered breeding population, and state threatened otherwise
	Fringillidae	<i>Ammodramus savannarum</i>	Grasshopper sparrow	State imperiled, Threatened
	Tytonidae	<i>Strix varia</i>	Barred owl	State rare/threatened

Source: Department of Army 2006; Fort Dix 2002

The U.S. Fish and Wildlife Service and the New Jersey Department of Environmental Protection (NJDEP), Division of Parks and Forestry were contacted for information regarding the presence of endangered, threatened, and rare species on each of the project sites considered. Copies of the letters sent to and received from these agencies are provided in Appendix C and D, respectively. In addition, several reports prepared for Fort Dix were reviewed for information concerning endangered, threatened, and rare species occurring on the installation. The relevant information from these reports is presented below, along with comments provided by the agencies consulted.

Army Reserve Center (ARC) for the 77th, 78th, and 99th – No threatened and endangered species have been identified on the proposed project site (Smith 2006). Appendix D contains USFWS response letter, which states: “Except for an occasional transient bald eagle (*Haliaeetus leucocephalus*), no other federally listed or proposed endangered or threatened flora or fauna under Service jurisdiction are known to occur within the vicinity of the proposed project site. Therefore, no further consultation pursuant to Section 7 of the Endangered Species Act is required by the Service.” (USFWS New Jersey Field Office letter, 14 June 2006).

Aviation Support Facility – No threatened and endangered species have been identified on the project site (Smith 2006). Appendix D contains USFWS response letter, which states: “Except for an occasional transient bald eagle (*Haliaeetus leucocephalus*), no other federally listed or proposed endangered or threatened flora or fauna under Service jurisdiction are known to occur within the vicinity of the proposed project site. Therefore, no further consultation pursuant to Section 7 of the Endangered Species Act is required by the Service.” (USFWS New Jersey Field Office letter, 14 June 2006).

Physical Fitness Facility -- No threatened and endangered species have been identified on the project site (Smith 2006). Appendix D contains USFWS response letter, which states: “Except for an occasional transient bald eagle (*Haliaeetus leucocephalus*), no other federally listed or proposed endangered or threatened flora or fauna under Service jurisdiction are known to occur within the vicinity of the proposed project site. Therefore, no further consultation pursuant to Section 7 of the Endangered Species Act is required by the Service.” (USFWS New Jersey Field Office letter, 14 June 2006).

Child Development Center (CDC) and School Age Services (SAS) Complex – No threatened and endangered species have been identified on the project site (Smith 2006). Appendix D contains USFWS response letter, which states: “Except for an occasional transient bald eagle (*Haliaeetus leucocephalus*), no other federally listed or proposed endangered or threatened flora or fauna under Service jurisdiction are known to occur within the vicinity of the proposed project site. Therefore, no further consultation pursuant to Section 7 of the Endangered Species Act is required by the Service.” (USFWS New Jersey Field Office letter, 14 June 2006).

Organization Maintenance Shop (OMS) Facility and Additional Parking Area – No threatened and endangered species have been identified on the project site (Smith 2006). Appendix D contains USFWS response letter, which states: “Except for an occasional transient bald eagle (*Haliaeetus leucocephalus*), no other federally

listed or proposed endangered or threatened flora or fauna under Service jurisdiction are known to occur within the vicinity of the proposed project site. Therefore, no further consultation pursuant to Section 7 of the Endangered Species Act is required by the Service.” (USFWS New Jersey Field Office letter, 14 June 2006).

4.8.1.4 Wetlands Habitat

The U.S. Environmental Protection Agency (EPA), the NJDEP and the New Jersey Pinelands Commission (NJPC) protect wetlands. Freshwater wetlands under the jurisdiction of the NJPC are exempt from the permit requirements of the New Jersey Freshwater Wetlands Protection Act (Subchapter 7:7A-2.8). Freshwater wetlands within Fort Dix are wholly regulated by the NJPC, pursuant to subchapter 7:50-6.1 through 6.14 of the Pinelands Management Plan. The Pinelands Commission reviews impacts to wetlands and an associated 300-foot wetland protection buffer. Impacts to wetland and/or their associate 300-foot buffer require approval from the Pinelands Commission (Fort Dix 2000).

Fort Dix lies in the headwaters of the Assiscunk, Crosswicks, Rancocas Creeks, and Toms River. These headwaters and their tributaries form a complex network of wetlands and smaller watercourses. Most of this network is found in association with either red maple-hardwood swamps or Atlantic white-cedar forests, which forms the basis for rich and diverse habitats for beaver, muskrat, deer, other mammals, amphibians, reptiles and birds, including waterfowl. Close to 30% of Fort Dix is wetlands. The National Wetlands Inventory classifies four basic types of wetlands on the installation: Palustrine Open Water, Emergent, Palustrine Scrub/Shrub, and Palustrine Forested (Fort Dix 2002).

Wetlands on-site were identified based on the vegetation present and evidence of wetland hydrology observed at the time of the site investigations. In addition, GIS data and a report for wetlands were obtained from the installation and reviewed to determine the presence of wetlands within the five project sites and within a 300-foot radius of the sites.

Army Reserve Center (ARC) for the 77th, 78th, and 99th – Pockets of herbaceous wetlands are located within an existing storm drainage channel adjacent to the proposed site of the Army Reserve Center. The average width of this grassy swale is seven feet. The entire channel within the project area is 0.12 acres. Isolated pockets of herbaceous wetland vegetation exist within the channel. Plant species common in this type of disturbed Pinelands site include Manna grass (*Glyceria sp.*), common cattail (*Typha latifolia*), and common rush (*Juncus effusus*) (Department of Army 2006).

This wetland area does not support resident and/or breeding populations of threatened or endangered species (as designated by state and federal regulations nor is the wetland area critical to the survival of any threatened or endangered species (Department of Army 2006).

For the Army Reserve Center (ARC) for the 77th, 78th, and 99th project, the Philadelphia District, Army Corps of Engineers submitted the results of the Roman and Good’s “*Buffer Delineation Model for New Jersey Pinelands Wetlands*” on April 17, 2006 (Appendix E). The model calculated that a 110-foot buffer distance, instead of a 300-foot, would be adequate for this site to not have a significant impact on adjacent wetlands (Department of Army 2006). The modified buffer would be applied to wetlands associated with the proposed development of the ARC. This project would be designed to avoid the calculated 110-foot buffer and would be designed to deliberately avoid the buffer by upwards of 90 feet.

Aviation Support Facility – A small complex of wetlands exists north of the proposed Aviation Support Facility. Approximately 17 acres of these wetlands have some portion of their area within 300 feet of the proposed Aviation Support Facility site. The complex is composed of an artificial pond to the west of Texas Avenue, a small linear scrub shrub wetland to the immediate east of Texas Avenue, and a disturbed/modified wetland to the east and south of the scrub shrub wetland adjacent to McGuire AFB.

Physical Fitness Facility – No wetlands are located on the proposed Physical Fitness Facility site. The closest wetland identified is located approximately 1,500 feet west of the project site.

Child Development Center (CDC) and School Age Services (SAS) Complex – No wetlands are located are the proposed Child Development Center and School Age Services Complex site. The closest wetland is located approximately 1,200 feet southwest of the project site.

Organization Maintenance Shop (OMS) Facility and Additional Parking Area – No wetlands are located on the proposed Organizational Maintenance Shop Facility and Associated Parking Area site. The closest wetland is located approximately 900 feet to the south of the project site.

4.8.2 Environmental Consequences

4.8.2.1 Vegetation

No Action Alternative – No effects would be expected. Under the no action alternative, the proposed new BRAC facilities would not be constructed on the proposed sites and no adverse impacts to plant species would occur.

Realignment (Preferred) Alternative – Under the preferred alternative (proposed action), approximately 12 acres of land would be developed. Because Fort Dix is located entirely in the Pinelands National Preserve, approval for construction of the proposed facilities would be required from the Pinelands Commission prior to construction. The following describes expected effects to vegetation at each of the proposed sites.

Army Reserve Center (ARC) for the 77th, 78th, and 99th – Minor effects would be expected. The proposed site has already been highly altered by human activities and development. Appendix F provides the Pinelands Commission review response to the buffer delineation model for the ARC. The Pinelands Commission states that a 50-foot buffer is appropriate for the proposed development.

Aviation Support Facility – No effects would be expected. The proposed project site is located in a highly developed area with an impervious asphalt surface.

Physical Fitness Facility – Minor adverse effects would be expected. The project site is situated on Doughboy Field, which consists primarily of manicured fields used for recreational purposes. Construction of the Physical Fitness Center could require the removal of the strip of planted white pines lining the western edge of the project site along Doughboy loop. The remainder of the proposed site has already been highly altered by human activities.

Child Development Center (CDC) and School Age Services (SAS) Complex – Minor adverse effects would be expected. Construction of the CDC and SAS Complex would require the removal of planted mature cedars, pines, sycamores, and oaks scattered on the project site; however the proposed site is park-like, with planted landscape vegetation, and is located in a developed portion of the installation.

Organization Maintenance Shop (OMS) Facility and Additional Parking Area – Minor adverse effects would be expected. Construction of the OMS Facility and Additional Parking area would require the removal of approximately 1 acre of oak/pine woodland, which consists of northern red, chestnut oak, and white pine in the canopy layer.

4.8.2.2 Wildlife

No Action Alternative – No effects would be expected. Under the no action alternative, the proposed new BRAC facilities would not be constructed on the proposed sites and adverse effects to wildlife species would not occur.

Realignment (Preferred) Alternative – The following describes the expected effects on wildlife species at each of the proposed project sites.

Army Reserve Center (ARC) for the 77th, 78th, and 99th – Minor adverse effects would be expected. Diversity of wildlife on-site is limited; species that utilize this area have adapted to living conditions in urban and suburban habitats.

Aviation Support Facility – Minor adverse effects would be expected. Diversity of wildlife is limited in this highly developed area. Wildlife that inhabits the northern portion of the project site (areas of successional fields and scrub/shrub) includes species that typically inhabit edge habitats and are tolerant to human disturbances.

Physical Fitness Facility – Minor adverse effects would be expected. Wildlife species common on the project site include species that are tolerant to human disturbances.

Child Development Center (CDC) and School Age Services (SAS) Complex – Minor adverse effects would be expected. Wildlife species common on the project site include species that are tolerant to human disturbances.

Organization Maintenance Shop (OMS) Facility and Additional Parking Area – Minor adverse effects would be expected. Approximately 1 acre of existing oak/pine woodland would be cleared for the construction of the Organization Maintenance Shop (OMS) Facility and Additional Parking Area. Wildlife species inhabiting this area, particularly birds and deer might be discouraged from the project site as the site is developed creating an urban wildlife habitat.

4.8.2.3 Threatened and Endangered Species

No Action Alternative – No effects would be expected. Under the no action alternative, the proposed BRAC facilities would not be constructed.

Realignment (Preferred) Alternative – No effects would be expected. No threatened or endangered species are known to occur in any of the proposed project locations. Appendix D contains USFWS response letter, which states: “Except for an occasional transient bald eagle (*Haliaeetus leucocephalus*), no other federally listed or proposed endangered or threatened flora or fauna under Service jurisdiction are known to occur within the vicinity of the proposed project site. Therefore, no further consultation pursuant to Section 7 of the Endangered Species Act is required by the Service.” (USFWS New Jersey Field Office letter, 14 June 2006)

4.8.2.4 Wetlands Habitat

No Action Alternative – No effects would be expected. Under the no action alternative, the proposed BRAC facilities would not be constructed.

Realignment (Preferred) Alternative – Impacts to wetlands require the approval from the Pinelands Commission prior to construction of new facilities. The Pinelands Commission will regulate all wetlands within the vicinity of the proposed project sites.

Army Reserve Center (ARC) for the 77th, 78th, and 99th – No effects would be expected. A small wetland area created by an existing storm drainage channel is located within the boundaries of the project site; however, a 50-foot buffer would be required for all construction around this wetland area.

Aviation Support Facility – No effects would be expected. No additional impervious surfaces would be created as a result of the proposed action, because existing structures would be demolished and new facilities constructed in their place.

Physical Fitness Facility – No effects would be expected. Wetlands are not present within the boundaries of the proposed project site. The nearest wetland identified is located approximately 1,500 feet west of the project site.

Child Development Center (CDC) and School Age Services (SAS) Complex – No effects would be expected. Wetlands are not present within the boundaries of the proposed project site. The nearest wetland is located approximately 1,200 feet southwest of the project site.

Organization Maintenance Shop (OMS) Facility and Additional Parking Area – No effects would be expected. Wetlands are not present within the boundaries of this proposed project site. The nearest wetland identified is located approximately 900 feet south of the project site. Impacts to wetlands would not occur under this alternative.

4.9 CULTURAL RESOURCES

This section assesses buildings, sites, structures, districts, and objects eligible for or included in the National Register of Historic Places; 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.

The information immediately below and in Section 4.9.1 is largely excerpted from “The U. S. Army Reserve Integrated Cultural Resource Management Plan (ICRMP) (Fort Dix 2000a)” and its “Historic Preservation Component (HPC)” of 2001 prepared by the Mobile District, U. S. Army Corps of Engineers (USACE).

4.9.1 Affected Environment

Fort Dix is the largest military installation in the northeastern United States and contains 30,960 acres. Although situated at the center of one of the most densely settled states in the U.S. it is predominantly rural and low density in character, due in part to its location within the New Jersey Pine Barrens, a natural area less conducive to settlement than other parts of the state. Officially established in 1917, Fort Dix was designated as a Cantonment Area and training post for troops sent to Europe in World War I and has played a major role in U.S. troop training in subsequent conflicts. Its extensive acreage contains both prehistoric and historic archaeological sites, the latter often connected with farmsteads and villages predating the establishment of the post.

The five projects constituting the proposed action addressed in this EA are sited in the more developed northwestern area of the post below the Main Gate at Wrightstown and adjacent McGuire Air Force Base. Each project site will be described in more detail in the following sections; however, from the “cultural landscape” perspective, (see DA PAM 200-4), all of the BRAC projects are to be inserted into an established moderate density military training complex with a pre-existing road and utility network, often based upon historic New Jersey roadways. In keeping with the overall goal of BRAC to make more efficient use of the Department of Defense’s land and facility assets, the BRAC projects contained in the proposed action have been sited in conformance with Fort Dix Master Plan and avoid both unnecessary duplication of infrastructure and demolition of useful (including historic) facilities.

4.9.1.1 Prehistoric and Historic Background

The history of Fort Dix consists of Native American occupation followed by the arrival and settlement of European Americans and then the acquisition of great tracts of land by the Army, beginning in the early twentieth century, for the training of American troops. Cultural resources remain from all these periods.

Prehistoric sites at Fort Dix have not been thoroughly evaluated but may be correlated with the 1980 inventory of similar sites in the Pinelands by Cavallo and Mounier which showed a tendency for them to be located in riverine, wetland, and periglacial settings, most of them dating from the Woodland and Archaic Periods. Fort Dix sites usually date from the Late Archaic and late Woodland periods and contain chipped stone tools, some clay pottery and fire cracked rock. They have been interpreted as seasonal target locations away from the Indians’ base locations.

From the mid 18th century to the early 20th century the territory of the future Fort Dix was the home of a sparse array of Pinelands villages or crossroad settlements along the historic roads that still exist within the post. For the most part only the foundations or other ancillary features of farm houses, mills, taverns, and meeting houses survive as historic archaeological sites. Exceptions are a late 18th century tavern/hotel and Quarters 1 and 2 dating from the 19th century.

The military era began with the establishment in 1917 of Camp Dix, a cantonment area and training facility for troops deployed to Europe in World War I. Like many military installations, Fort Dix expanded and contracted in activity along with the exigencies of United States involvement in foreign conflicts and other domestic priorities. After WWI it was a demobilization center, then it was a training area for reserves; later it served as center for the Depression era Civilian Consolidation Corps before going into mothballs. The year 1939 and the approach of World War II saw the newly renamed Fort Dix brought back to life to train an eventual ten divisions that served in

the conflict. During this time substantial additional land was acquired. Since the BRAC actions of 1992 Fort Dix has operated as a multi purpose installation under the U.S. Army Reserve Command and accommodates tenants such as the New Jersey State Police, the FBI, The Coast Guard, Navy, and National Guard. Recently, the New Jersey State Historic Preservation Office (NJ SHPO) in its review of a 2003 pre-1960 historic building survey (see following sections for more details) has recognized the mobilization for WWII that occurred from 1938 to 1941 as the period of prime historic significance for Fort Dix.

4.9.1.2 Status of Cultural Resource Inventories and Section 106 Consultations

In accordance with Army regulations and Section 110 of the National Historic Preservation Act (NHPA), many cultural resource surveys and investigations have been carried out at Fort Dix since 1985. As Fort Dix contains approximately 1,000 buildings and structures on 30,960 acres, it was possible over the past twenty years to achieve nearly full coverage of buildings while archaeology could only be addressed by a sophisticated program of prediction, sampling, and fieldwork, often dictated by the need to stay ahead of ground disturbing construction projects and operational activities. In 1995, a professional archaeologist, Dr. Peter Pagoulatos, took on the role of Fort Dix Historic Preservation Officer (FDHPO) and with the cooperation of the NJ SHPO as well as the Pinelands Commission, developed a Fort Dix Cultural Resources Management program. Evaluation of buildings was performed by consultant firms under the direction of the FDHPO while archaeological research was performed both in-house and by consultants under Government direction.

The Built Environment – Historic building inventories and evaluations carried out over the past twenty years are affected by both changing standards of technical documentation and the fact that the usual requirement of the NRHP that properties be at least fifty years old is a moving target. “The Cultural Resource Survey and Evaluation U.S. Army Training Center and Fort Dix” was done in 1985; in 1996 a major survey of post-1917 structures that were 50 years old including HABS/HAER documentation was performed; and in 2003 “An Architectural Investigation of Pre-1960 Buildings, Fort Dix Military Installation, Burlington and Ocean Counties, New Jersey” was carried out for the post by John Milner Assocs. (JMA). According to a personal communication with Dr. Pagoulatos (who has recently left the FDHPO position at Fort Dix), the last item provides the most complete reference for the NRHP status of structures at the post. The JMA survey was officially submitted by the Army to the NJ SHPO for its review. The NJ SHPO responded by letter on March 7, 2003 and confirmed most of the Army/consultant’s determinations of eligibility. Therefore, there exists a credible and recent consensus determination under NHPA Sec. 110 as to which structures at Fort Dix are and are not “historic”, i.e. NRHP eligible.

Archaeological Resources – Resource limitations have required that Fort Dix follow a cost effective strategy for assessing the archaeological resources present and for documenting and protecting sites. According to the ICRMP HPC, 48 percent or 14,856 acres of the post have been deemed testable by the FDHPO. Areas of high archaeological sensitivity consist of those testable areas within 500 feet of stream margins and wetlands. However, excluded from the program of archaeological investigations called for in the ICRMP HPC are “areas of high disturbance, such as impact zones, ranges, borrow pits, land fills, and the heavily paved/grade[d] cantonment”. Survey work carried out to date has identified 29 precontact sites, most along streams in the northwester part of Fort Dix and 41 European American or historic sites, most along the historic roads surrounding the Cantonment Area. Of the former, none have been evaluated for NRHP eligibility; of the latter four are on or determined eligible for the NRHP.

According to a personal communication with Dr. Pagoulatos, the in-house “Synthesis” document that he produced prior to leaving Fort Dix incorporates all the archaeological survey and evaluation work done to date and provides a simple guide as to what further archaeological investigation, if any, is required to construct in a given area. The “Synthesis”, as incorporated into the post’s Graphic Information System (GIS) will therefore be utilized in section 4.9.2., Environmental Consequences (Cultural Resources) of the EA below.

4.9.1.3 Native American Resources

Appendix B of the ICRMP HPC indicates “Currently, there are no known NRHP eligible properties of traditional, religious, and cultural significance that are located on Fort Dix.” The ICRMP does identify the following Federally recognized American Indian tribes as having a cultural affiliation with the territory of Fort Dix: the Delaware Nation, the Delaware Tribe of Indiana, and the Stockbridge Munsee Community of Wisconsin. The

ICRMP contains the post's procedures for consultation with Indian tribes when it determines that planned activities may result in the intentional excavation or inadvertent discovery of cultural items or human remains of possible Native American origin.

4.9.2 Environmental Consequences

4.9.2.1 No Action Alternative

Implementation of the no action alternative would not alter any existing cultural resources at the sites being considered under the proposed action. There would be no impacts.

4.9.2.2 Realignment (Preferred) Alternative

Implementation of the realignment (preferred) alternative has been reviewed against the baseline knowledge of National Register of Historic Places eligible resources present for each of the five specific BRAC project areas. No individual comment is given for Native American resources because of the lack of known resources present and the across the board applicability of the ICRMP procedures for unanticipated Native American issues.

For the purposes of this EA, a general assessment will be made as to whether each BRAC project has no effect, no adverse effect, or adverse effect in terms of NHPA.

Army Reserve Center (ARC) for the 77th, 78th, and 99th – No adverse effects would be expected.

Built Resources: No demolition is required by the project. The ARC is sited adjacent and to the east of Buildings # 5204, 5207, 5208 & 5210 which the 1985 LBG survey identified as “individually Category 3 but part of a complex...which is also Category 3 and will be eligible for inclusion in the National Register when all members are 50 years old. At that time, the complex should be upgraded to Category 2. Avoid unsympathetic additions and alterations.” Category 3 refers to those cultural resources that should be preserved, *if practicable*, whereas Category 2 resources are those that should be preserved. The LBG survey used these distinctions based on Army technical manual TM 5-801-1, which is cited in the LBG survey. These buildings, built in 1932-33, are now more than 50 years old and may be NRHP eligible. They appear to be significantly altered, in any case. Since the buildings exist within a military landscape, there would be no effect concerning any setting or viewshed issues.

The ARC is to the west of the Scott Plaza complex. In its March 7, 2003 letter reviewing the JMA survey, the NJ SHPO confirmed thirteen buildings in Scott Plaza as NRHP eligible under Criterion A, but also under Criterion C “for their site and landscaping planning, which establishes them as a distinguishable entity”. The NJ SHPO also requested that the Army develop a boundary definition for Scott Plaza as a historic district. At present, Scott Plaza exists within a military landscape, including substantial buildings within its viewscape. The addition of the ARC will not change the character of this viewscape and as such will have no adverse effect on Scott Plaza.

Archaeology: An examination of the site by Ernie Seckinger, Mobile District USACE archaeologist in March 2006 confirmed that it was heavily disturbed and lacked potential for archaeological sites.

NHPA Impact: No adverse effect

Aviation Support Facility – Minor adverse effects would be expected.

Built Environment: The project requires the demolition of the DOL Vehicle Maintenance Facility. This building complex which carries the building numbers of 4429 -38 and 1440 was evaluated in the JMA survey. The survey states for each building “As a temporary World War II building constructed to standardized plans, and as a heavily altered example of its type, Bldg. 44xx has no architectural or historic significance.” The March 2003 review letter from NJ SHPO takes no issue with this finding. Therefore the complex is considered *not* NRHP eligible.

Archaeology: There are several documented Historic Sites near and, in one case at the center, of the project area. Information from JMA indicated the past presence of mid nineteenth century structures. This site will be avoided or evaluated if avoidance is not practicable. The Section 106 process will be completed before construction begins.

NHPA Impact: Potential effect.

Physical Fitness Facility – No effects would be expected.

Built Environment: The proposed project would require no demolition

Archaeology: The project area is already disturbed by the construction of the existing buildings. No sites are recorded nearby.

NHPA Impact: No effect.

Child Development Center (CDC) and School Age Services (SAS) Complex – No effects would be expected.

Built Environment: The project requires no demolition. It is adjacent to non historic housing.

Archaeology: No sites are recorded or predicted on or near the project area.

NHPA Impact: No effect.

Organization Maintenance Shop (OMS) Facility and Additional Parking Area – Minor adverse effects would be expected.

Built Environment: No demolition is required for this project.

Archaeology: There is a documented Historic Site at the western edge of the project area. Information from JMA indicated the past presence of a 1917 structure. This site will be avoided or evaluated if avoidance is not practicable. The Section 106 process will be completed before construction begins.

NHPA Impact; Potential effect.

4.10 SOCIOECONOMICS

4.10.1 Affected Environment

The economic ROI for Fort Dix encompasses Burlington and Ocean Counties in New Jersey, and comprises the area in which the predominant socioeconomic effects of the proposed action would occur. The geographical extent of the ROI is based on 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 Army estimates that a large majority of military and civilian personnel working at the Fort Dix Installation reside in Burlington and Ocean Counties; with the remainder widely dispersed among other counties within New Jersey and nearby Pennsylvania (Fort Dix 2002, INRMP).

Fort Dix is bordered by the communities of Wrightstown, Browns Mills, and Pemberton, which are the primary beneficiaries of local spending by the installation and its assigned units. The installation's financial impact, however, extends well beyond these communities, affecting outlying towns throughout the ROI as well as to other counties in New Jersey and Pennsylvania.

The baseline year for the socioeconomic analysis is 2006, although much of the economic and demographic data for the ROI are only available through the years 2004 and 2005. The descriptions of affected environment are based on the most recent data available to accurately reflect baseline economic and social conditions of the ROI.

4.10.1.1 Economic Development

Regional Economic Activity – The Economic ROI containing Fort Dix is dominated by the retail trade and service sectors, including health care, financial and government, real estate, and professional services. Together, the trade and service sectors supply more than 80 percent of the jobs in the ROI. Public sector employment is also significant for the ROI, accounting for 14.2 and 13.8 percent of the total jobs, in Burlington and Ocean Counties, respectively. In contrast, the manufacturing and construction sectors generate only about 12 percent of the regional employment. Employment associated with farming, mining, and forestry activities is negligible. Table 4-9 presents 2004 total employment in the two counties and a percentage distribution of jobs by sector.

Table 4-9: ROI Employment

	Burlington County		Ocean County	
	2004		2004	
Farm employment	1,540	0.60%	350	0.17%
Private non-farm employment	220,181	85.17%	176,981	85.99%
Forestry, fishing, related activities, and other	(D)	(D)	(D)	(D)
Mining	(D)	(D)	(D)	(D)
Utilities	688	0.27%	1,038	0.50%
Construction	12,116	4.69%	16,317	7.93%
Manufacturing	19,732	7.63%	6,569	3.19%
Wholesale trade	12,682	4.91%	4,529	2.20%
Retail trade	34,726	13.43%	32,732	15.90%
Transportation and warehousing	9,084	3.51%	3,999	1.94%
Information	3,816	1.48%	1,887	0.92%
Finance and insurance	20,834	8.06%	8,229	4.00%
Real estate and rental and leasing	10,681	4.13%	13,375	6.50%
Professional and technical services	17,978	6.95%	11,603	5.64%
Management of companies and enterprises	2,193	0.85%	346	0.17%
Administrative and waste services	15,942	6.17%	8,374	4.07%
Educational services	2,883	1.12%	4,722	2.29%
Health care and social assistance	25,905	10.02%	30,195	14.67%
Arts, entertainment, and recreation	4,218	1.63%	7,544	3.67%
Accommodation and food services	13,699	5.30%	13,134	6.38%
Other services, except public administration	12,461	4.82%	13,134	5.71%
Government and government enterprises	36,796	14.23%	28,488	13.84%
Federal, civilian	5,822	2.25%	2,760	1.34%
Military	6,086	2.35%	1,701	0.83%
State and local	24,888	9.63%	24,027	11.67%
State government	4,705	1.82%	1,844	0.90%
Local government	20,183	7.81%	22,183	10.78%
Total employment	258,517	100%	205,819	100%

Source: Regional Economic Information System, Bureau of Economic Analysis (BEA), U.S. Department of Commerce (DOC) 2006.

Notes: (D) Not shown to avoid disclosure of confidential information.

The ROI 2004 per capita personal income (PCPI) was \$38,575 in Burlington County and \$33,558 in Ocean County, both of which were lower than the New Jersey average of \$41,626. The ROI 2004 PCPI for the entire United States was \$33,050 (DOC 2006).

The unemployment rate for the ROI averaged 4.1 percent in 2005, compared to 4.4 percent for the State of New Jersey and the national unemployment rate of 5.1 percent. The ROI annual unemployment rate has dropped from a high of 4.8 percent in 2001 with improving regional economic conditions during the past five years.

Installation Contribution to the Local Economy – During Fiscal Year 2005 (FY05), Fort Dix supported an average daily working population of 15,829. Of this total, military personnel accounted for 5,798, federal civilians 1,172, and contractors 7,918. The total installation workforce accounts for about 3.4 percent of all ROI employment, although for Burlington County alone this proportion increases to more than 6 percent. Fort Dix expenditures in FY05 totaled \$1.01 billion; of which \$382 million were directly associated with Army activities and \$628 million associated with Fort Dix tenant activities. The average annual salary for civilian workers at Fort Dix is estimated at \$62.7k and the average military salary at \$95.7k (Fort Dix, 2006).

4.10.1.2 Demographics

The most recent Bureau of Census estimates indicate that the ROI’s population has reached 1,009,084 inhabitants. Ocean County’s population totaled 558,341, making it the sixth largest county in New Jersey; it ranks 102 out of 3,141 county and county equivalents (boroughs and parishes), nationally. Burlington County ranks eleventh out of 21 counties in New Jersey and 141 out of out of 3,141 counties in the nation.

The two ROI Counties, however, have undergone very different growth patterns in recent decades. For example, the population growth rate for Ocean County has significantly outpaced population increases in Burlington County during the past 30 years. Whereas the population of Burlington County grew by only 31 percent during the period 1970 to 2000, or slightly more than 1 percent per year, Ocean County’s population has increased by more than 145 percent (or almost 5 percent annually). As shown in Table 4-10, Burlington County’s population exceeded Ocean County’s population by almost 115,000 in 1970. By the mid-year 2005, however, Burlington County’s population was smaller than that of Ocean County by about 108,000. Ocean County’s robust growth mirrored the population increases in other coastal counties in the United States during the same time period. Population data for New Jersey and the United States are also provided in Table 4-10 for comparison purposes.

Table 4-10: ROI Population Growth 1970–2005

Location	1970	1980	1990	2000	2005
Burlington County	323,132	362,542	395,066	423,394	450,743
Ocean County	208,470	346,038	433,203	510,916	558,341
*ROI	531,602	708,580	828,269	934,310	1,009,084
New Jersey	7,171,112	7,365,011	7,747,750	8,414,350	8,717,925
United States	203,302,037	226,542,250	248,790,925	281,421,906	296,655,404

Source: U.S. Bureau of Census (BOC) 2006

Notes: * Sum of Burlington and Ocean Counties

4.10.1.3 Housing

The ROI housing stock is summarized in Table 4-11, which identifies both owner-occupied and renter-occupied homes, along with median home values, for each county in the ROI. The housing units identified in the table include all structure types (e.g., single-family homes, apartments, and mobile homes).

Table 4-11: Housing Characteristics for Burlington and Ocean Counties (2000 Census)

	Burlington County	Ocean County
Total Housing Units	161,311	248,711
Occupied Housing Units	154,371	200,402
Owner-occupied	119,500	166,779
Renter-occupied	34,871	33,623
Vacant Housing Units	6,940	48,309
Vacant for Seasonal, Recreational, or Occasional Use	595	35,667
Median Home Value (Owner-occupied)	\$134,000	\$128,000

Source: BOC 2006

As with other economic indicators, both counties have experienced robust growth in their housing markets. According to U.S. BOC 2004 estimates, Burlington County’s number of housing units totaled 169,905, an increase of 8,594 units, or 5.3 percent over the 2000 Census. For Ocean County, a total of 265,447 housing units was estimated for 2004, an increase of 16,736 units, or 6.7 percent increase over the 2000 Census. Many of the new units in Ocean County are likely to be vacation homes. As shown in that table, the year 2000 median value of owner-occupied housing units in both Burlington and Ocean Counties exceeded the national median value of \$119,600.

4.10.1.4 Quality of Life

Quality of Life refers to those amenities available to the installation’s military personnel, their dependents, and civilian employees and which contribute to their well being. The relative importance of these amenities to a person’s well being is subjective (e.g., some individuals consider educational opportunities essential to their well-being, others may place a high value on the availability of health care services, and still others may hold public safety as their primary quality-of-life concern). BRAC quality-of-life analyses typically address issues relating to potential impacts of the proposed action on the availability of public services and leisure activities that contribute to quality of life of the affected installation’s workforce and their dependents. For purposes of this study, the affected environment for quality of life includes military housing, schools for DoD dependents, family support services, medical facilities, shops and services, and recreational opportunities.

Installation Housing or Barracks and Single Officer Quarters and Family Housing – The Fort Dix Installation contains housing for its military personnel and their dependents. The U.S. Army and the U.S. Air force are currently implementing a plan to jointly privatize the multi-family housing located at Fort Dix and McGuire Air Force Base. The privatization effort will transfer 582 Army-owned units to a private entity. All 474 units at the Garden Terrace will be demolished and 83 multi-family housing (MFH) units at the Grove Park Area will be renovated. Within 6 years the private entity will have to provide 2,083 units of housing, of which 457 must be newly constructed (Fort Dix 2005). Fort Dix also provides housing for unmarried permanent and transient military personnel.

Schools for DOD Dependents – The U.S. Department of Education provides federal impact aid to school districts that have federal lands within their jurisdiction. This federal impact aid is authorized under Public Law 103-282 as payment in lieu of taxes that would have been paid if the land were not held by the federal government. School districts receive federal impact aid for each federally connected student whose parent or parents live on or work on federal property. The amount of federal impact aid a school receives is dependent on the number of “federal” students the district supports in relation to the total district student population. Schools received more federal impact aid for those students whose parents both live and work on federal property. Total federal impact aid varies year by year according to congressional appropriations for the program, but in general federal impact aid has ranged from \$250 to \$2,000 per student.

There are 72 independent school districts within the two-county area surrounding Fort Dix. During the 2003 and 2004 school year, 79,971 students were enrolled in Burlington County public schools and 82,460 in Ocean County. The Pemberton Township School District receives the majority of the Fort Dix school-age dependents, and a district elementary school is located on post. Because the municipal elementary school accommodates that demand, there are no DoD-operated schools at Fort Dix. The children of military personnel and civilian employees of Fort Dix account for approximately 44 percent of the school population in this township, which totaled approximately 6,200 during the 2003-2004 school year (Fort Dix 2003, Programmatic EA; Burlington County 2006; Ocean County 2006).

Family Support Facilities – Family support services include commercial and community services at the installation’s community center as well as installation support service activities. These support service activities include the operation of family housing, continuing education programs, the on-post library, the Fort Dix Military Museum, the child care and development center, recreation, police and fire protection, service clubs, the recycling center, solid waste disposal, various social services, religious programs, as well as commercial services such as the Exchange, Commissary, mini-marts, cafeterias, banks and credit unions, and the Post Office (Fort Dix 2003, Programmatic EA).

Police and Fire – Fort Dix has its own police and fire protection, as does McGuire AFB and NAES Lakehurst. In addition, the majority of municipalities within the Burlington and Ocean Counties have their own police and fire departments.

Medical Facilities – Medical services on Fort Dix are provided to service personnel and their dependents through three on-Post medical facilities: the Department of Veterans’ Affairs Clinic, the Mills Clinic at Building 5660, and the Army Veterinary Clinic. Until recently, the Walson Air Force Clinic provided medical care for military personnel on-Post, however, it underwent BRAC review, and is now closed and vacant. Reuse options for the old Walson Air Force Clinic may include conversion into barracks, offices, or possibly a Veterans’ Affairs Hospital.

Medical services from the old Walson Air Force Clinic have now been moved to McGuire Air Force Base, with the creation of a “superclinic,” which serves military personnel from Fort Dix (Army), Lakehurst (Navy) and McGuire (Air Force). The newly formed “superclinic” provides emergency care, some specialized care, and pharmacy services to service active and retired military personnel and their dependents. Patients in need of specialties not available at the hospital are generally sent to Walter Reed Hospital near Washington, D.C.

Civilians working at Fort Dix and in need of emergency medical attention may be transported to off-Post, civilian medical facilities, such as the Virtua Memorial Hospital Burlington County, located approximately 15 to 25 minutes away. Burlington County has several non-military medical helicopters that can be utilized in emergency medical situations. Emergency and non-emergency care of civilians is not normally provided by Post medical services.

Medical facilities are also available in the Philadelphia area for special problems. Dependents of military personnel rely heavily on the Civilian Health and Medical Program of the Uniformed Service.

Shops and Services – Most of Fort Dix’s community and service facilities are located in the Cantonment Area within close proximity to the housing areas. A main shoppette and commissary are provided, but they are situated farther away from the housing areas. Additional shops and services are available outside the post (Fort Dix 2003, Programmatic EA).

Recreation – Recreational facilities constitute a significant land use for the installation. The Outdoor Recreation Branch operates and manages several facilities to provide members of the military community with the opportunity for fishing, boating, camping, picnicking, and hunting. Most of the fishing ponds and lakes on the installation are stocked. There are approximately 12 lakes in the reservation. Brindle Lake is no longer used for recreational purposes as it has been re-classified as part of the training area. Willow Pond is one of the recently developed Installation recreational areas.

Fort Dix has several indoor recreation facilities. The installation has a bowling center, 3 physical fitness centers, a recreation center, and an indoor pool. Recreational facilities on the post include a golf course and driving range, a miniature golf course, tennis and handball courts, baseball and 8 softball fields, a skeet field, 5 running tracks, and

a swimming pool. There are also 22 playgrounds, 4 bandstands/pavilions, 2 recreational piers, 1 outdoor roller rink, 1 go cart track, and 1 batting cage (Fort Dix 2003, Programmatic EA).

4.10.1.5 Environmental Justice

On February 11, 1994, President Clinton issued Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority and Low-Income Populations*. The Executive Order 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 people with income below 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.

According to 2000 census data, the median household income is \$52,543 for Burlington County and \$42,053 for Ocean County. The poverty rate is 5.8 percent for Burlington County and 7.8 percent for Ocean County. In 2000, the populations of Burlington and Ocean Counties totaled 423,394 and 510,916, respectively. According to the 2000 Census, Burlington County's population was 74 percent white, 4 percent Hispanic, 15 percent black and 5 percent other. Ocean County's population was 93 percent white, 5 percent Hispanic, 3 percent black and 3 percent other. The elderly accounted for 12.6 percent of Burlington County population and 22.2 percent of Ocean County (Fort Dix 2003, Programmatic EA).

4.10.1.6 Protection of Children

On April 21, 1997, the President issued Executive Order 13045, *Protection of Children from Environmental Health Risks and Safety Risks*. This Executive Order directs each federal agency to ensure that its policies, programs, activities, and standards address disproportionate risks to children that result from environmental health risks or safety risks. EO 13045 recognizes that a growing body of scientific knowledge demonstrates that children may suffer disproportionately from environmental health risks and safety risks. These risks arise because children's neurological, immunological, digestive, and other bodily systems are still developing; children eat more food, drink more fluids, and breathe more air in proportion to their body weight than adults; children's size and weight may diminish their protection from standard safety features; and children's behavior patterns make them more susceptible to accidents because they are less able to protect themselves. Therefore, to the extent permitted by law and appropriate, and consistent with the agency's mission, the President has directed each federal agency to (1) make it a high priority to identify and assess environmental health risks and safety risks that may disproportionately affect children, and (2) ensure that the agency's policies, programs, and standards address disproportionate health risks to children that result from environmental health risks or safety risks. Examples of risks to children include increased traffic volumes and industrial or production-oriented activities that would generate substances or pollutants children might come into contact with or ingest. Actions or alternatives indicating potential disproportionate risks to children will be identified and addressed in Section 4.10.2 of this EA.

4.10.2 Environmental Consequences

EIFS Model Methodology – 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 G discusses this methodology in more detail and presents the model input and output tables developed for this analysis.

4.10.2.1 No Action Alternative

Economic Development – 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. No new construction would take place. Therefore, economic activity levels would be the same as under the baseline conditions.

Demographics – No direct or indirect effects would be expected. Under the No Action Alternative, the installation working population would remain unchanged from baseline levels and no new construction would take place. Therefore, the ROI population growth would be the same as under baseline conditions.

Housing – No direct or indirect effects would be expected. Under the No Action Alternative, the installation working population would remain unchanged from baseline levels. Therefore, the demand for housing units would be the same as under baseline conditions.

Public Services – No effects would be expected for any other of the public services including health, fire, law enforcement given the relative small size of the incoming population relative to the size of the ROI.

Environmental Justice – No effects would be expected. The no action alternative would not result in significant adverse impacts to any demographic group residing or working in the economic ROI. Therefore, there would be no disproportionately high and adverse impacts to minority populations or low-income populations. Hence, the no action alternative for Fort Dix would not result in any environmental justice impacts.

4.10.2.2 Realignment (Preferred) Alternative

Economic Development – Minor direct and indirect beneficial effects would be expected. Under the proposed action 267 military personnel and 142 civilian employees would be added to the Fort Dix Workforce. In addition, the construction of the new facilities on the installation would further generate economic activity due to the associated increase in expenditures on labor and materials during the building period. The proposed action would generate a total net gain of 1004 jobs in the Fort Dix economic ROI, including additional 599 direct and induced jobs. This increase in employment would represent a 0.26 percent increase in the region's employment levels and would fall far short of the RTV Value of 3.63 percent. It should be noted that the employment associated with construction would be short-term. Only about 648 of the newly created jobs would be sustained over the long term. The proposed action would also generate positive changes in the other economic indicators estimated by the EIFS model, including a 0.42 percent in sales volume, and a 0.23 percent increase in regional personal income.

Demographics – Minor direct and indirect effects would be expected. Under the proposed action, incoming military and civilian personnel and their dependents would increase the ROI population by 1018, or by about 0.1 percent.

Housing – No direct or indirect effects would be expected. Under the proposed action, there would be a minor increase in the demand for housing. Available housing in both Burlington and Ocean Counties appear to be plentiful. The 2000 Census estimated more than 6,300 available units in Burlington County and more than 12,600 available units in Ocean County. Assuming all new permanent Fort Dix employees required off-post housing, implementing the proposed action would increase regional housing demand by only 409 units or by approximately 2 percent. The small increase in demand would not likely affect housing costs for either rental or purchased residences.

Public Services – Minor adverse direct effects would be expected. Approximately 500 school age children would likely accompany the incoming military and civilian personal. The ROI school districts have more than 162,000 students enrolled. An increase of 500 students would represent only a 0.3 percent increase. The actual impact on any particular school district would depend on the residential distribution of the new employees and their dependents. If for example, all of the employees resided in just a few school districts, the impact could be larger, especially, if those schools are operating near or at full capacity. For example, if all the new students resided in

the Pemberton school district, school enrollments could increase by as much as 7 percent. As noted in the affected environment section, school districts educating dependents of DoD personnel receive federal impact funds to reduce the financial burden of local governments. In either case, unless additional teachers were hired, the incoming students could increase the student teacher ratios at affected schools.

Environmental Justice – No effects would be expected. The proposed action would not result in significant adverse impacts to any demographic group residing or working in the economic ROI. Therefore, there would be no disproportionately high and adverse impacts to minority or low-income populations. Hence, the proposed action for Fort Dix would not result in any environmental justice impacts.

Protection of Children – No effects would be expected. All proposed construction would be carried out in areas where few or no children reside or visit. In all cases, proper precautions including the placement of fencing and other types of barriers would be used to prevent potential harm to all civilians, including children. None of the additional operations proposed for Fort Dix would occur in areas frequented by children.

4.11 TRANSPORTATION

This section describes the general traffic conditions within the affected environment in terms of access and circulation, and assesses any impacts related to these issues.

4.11.1 Affected Environment

4.11.1.1 Roadways and Traffic

The primary access road to Fort Dix is State Route 68, which connects the post to the New Jersey Turnpike to the west. Until recently, there were no access controls in place. There are four gates that serve as gateways and checkpoints for access control and security. These gates are located on the access points to the Fort Dix on State Route 68, Wrightstown Road, Browns Mills Road and Pemberton Boulevard.

The basic street pattern at the post is a grid system. North of 8th Street, the street network follows more or less a north-south and east-west direction. South of 8th street the grid shifts approximately 30 degrees. The Fort Dix road network can be organized in three categories: primary, secondary, and tertiary roads. The most important are Texas Avenue (two lanes), Fort Dix Road, Delaware Avenue, New Jersey Avenue, and 8th Street. Range Road is the primary route connecting Fort Dix to the range and training areas. Of the secondary roads, the most important are 4th Street, Pointville Road, North and South Scott Street, Pennsylvania Avenue, Maryland Avenue and Airfield Road. Texas Avenue is the most important thoroughfare of the cantonment, used by both Fort Dix and McGuire AFB. It supports the highest traffic volume on Fort Dix.

There are several types of traffic controls at Fort Dix; the most relevant are traffic signals and circles. All but one are pre-timed traffic signals. There are two traffic circles at the post, one at the main entrance on State Route 68 and Fort Dix Road, and the other on Fort Dix Road and Wrightstown Road. According to the Circulation Plan from the Real Property Master Plan for Fort Dix (Fort Dix 1999), during morning, noon, and evening rush hours the Circles operate at a Level of Service D¹⁰.

4.11.1.2 Installation Transportation

There is Shuttle Bus service from 0700 to 2200, Monday – Sunday.

4.11.1.3 Public Transportation

There is Shuttle Bus service from 0700 to 2200, Monday – Sunday.

¹⁰ Level of Service (LOS) D borders on a range in which small increases in flow may cause substantial increases in delay and decreases in travel speed. LOS D may be due to adverse signal progression, inappropriate signal timing, high volumes, or a combination of these factors. Average travel speeds are about 40 percent of free flow speed. Source: 2000 Highway Capacity Manual, for Urban Streets (Transportation Research Board, 2000).

4.11.2 Environmental Consequences

4.11.2.1 No Action Alternative

No effects would be expected. Implementation of the no action alternative would not alter the existing transportation infrastructure at the sites being considered under the proposed action.

4.11.2.2 Realignment (Preferred) Alternative

Roadways and Traffic – Minor effects would be expected. The effect that the projects constituting the proposed action would have on the transportation infrastructure is given by the number of trips that they will generate in addition to the current volumes.

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 students/residents/employees) and time period of analysis (AM and PM peak on Weekdays; Peak hour in Saturday and Sunday) through a regression analysis.

Using the trip generation procedure outlined by the ITE, the trips generated by each of the projects were estimated. These trips are presented in Table 4-12. As the table shows, the projects that would have the greatest potential impact on neighboring transportation infrastructure are the Army Reserve Center (ARC) followed by the Physical Fitness Facility. The ARC project is expected to receive 262 trips in the AM peak and generate 240 trips in the PM peak. The Physical Fitness Facility would generate 141 trips in the PM peak.

Table 4-12: Trips Generated by Peak Hour and Direction of Flow

No.	Project Description	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
1	Army Reserve Center (ARC)	262	32	294	42	240	282
2	Aviation Support Facility	6	14	20	1	26	27
3	Physical Fitness Facility	69	50	119	83	141	224
4	Child Development Center (CDC) and School Age Services (SAS)	45	38	83	25	30	55
5	Organization Maintenance Shop (OMS)	31	16	47	28	27	55

Source: Louis Berger Group, Inc. 2003

Installation Transportation and Public Transportation – Negligible impacts would be expected.

4.12 UTILITIES

This section assesses potable water supply, wastewater systems, storm water systems, energy sources, communications, and solid waste service (Cavanaugh 2006; Fort Dix 2003; Fort Dix 1999).

4.12.1 Affected Environment

4.12.1.1 Potable Water Supply

The water supply at Fort Dix consists of both surface and groundwater sources, treatment, storage, and a waterline distribution system. The water system is in good condition; an interconnect of the water system with McGuire Air Force Base and Wrightstown exists for emergencies. The primary water supply for Fort Dix is surface water from the Greenwood Branch of the Rancocas Creek, located about 5 miles from the Fort Dix water plant. The State of

New Jersey owns all water rights and oversees the use of water in the State. The pumping station for the water is located at New Lisbon, and has a 4.0 million gallon per day (MGD) pumping capacity. It reportedly supplies an average of 2.5 MGD in the summer months and 1.5 MGD in winter months.

In addition to surface water, there are five potable water wells available to the post. The wells are secondary, in part because the State of New Jersey mandates that primary sources be surface water. These wells each have a 1.0 MGD capacity, but are limited by an installation groundwater allocation of 1.5 MGD issued by the State. The wells are used as a backup water supply and in emergency conditions for fire protection; however, three of the five are presently not being used due to the high mineral content in the water.

The Fort Dix water treatment plant can treat 4 MGD, and with planned improvements, it is anticipated that the water plant's capacity will be increased to about 9 MGD. The water distribution system comprises water mains and pipes ranging from 2 inches to 16 inches in diameter, and there is a 12-inch line around the outer portion of the cantonment. As part of the water distribution system, there are two 500,000-gallon elevated storage tanks, located in the southern portion of the installation along 16th street, and a 1-million-gallon elevated water tank, located in the northern part of the installation near Gettysburg Avenue. After treatment, the water first flows to a ground storage clear water reservoir, then is pumped from the ground storage to elevated tanks that provide distribution storage and pressure.

There are existing water mains near all five proposed projects to provide water service.

4.12.1.2 Wastewater System

The sewer system at Fort Dix consists of a collection system, a number of lift stations, and a wastewater treatment plant. The sewer collection system has been constructed over many years, mostly in the 1940s, with upgrades and additions since then. The new \$43 million wastewater plant was accepted in January 1998 and is located on the east side of Texas Avenue. It serves both Fort Dix and McGuire Air Force Base. The wastewater treatment facility has an average design capacity of 4.6 MGD. The peak flow is 12.7 MGD.

The wastewater treatment plant is considered a tertiary treatment facility. The plant also has the capacity to both divert the incoming flow to a diversion facility if the waste stream is known to be untreatable and to divert disinfected flow to another diversion facility in case of failure of the effluent pumping or recharging system.

Fort Dix contributes approximately 55 percent of the wastewater to the daily flow at the wastewater treatment plant; contributing 1.7 MGD.

There are existing sanitary sewers near all five proposed projects to provide wastewater conveyance.

4.12.1.3 Storm Water System

Natural drainage patterns or modified drainage facilities, in developed areas, are used to direct surface runoff at Fort Dix. Runoff in developed areas is mainly collected by extensive storm water drainage networks that discharge the runoff into detention ponds, lakes, (Hanover Lake) or streams (Assiscunk, Crosswicks, and Rancocas Creeks) within Fort Dix.

Any project that proposes 0.25 acres of "new" impervious surface and/or 1 acre of disturbance overall is considered a "major development" and triggers State storm water management rules. The rules emphasize, as a primary consideration, the use of non-structural storm water management techniques including minimizing disturbance, minimizing impervious surfaces, minimizing the use of storm water pipes, preserving natural drainage features, etc. The rules also set forth requirements for groundwater recharge, storm water runoff quantity control, storm water runoff quality control and a buffer adjacent to Category One waters¹¹ and their immediate tributaries.

¹¹ "Category One Waters" or "C-1 Waters" means those waters designated in the New Jersey Surface Water Quality Standards, for purposes of implementing its anti-degradation policies, for protection from measurable changes in water quality characteristics because of their clarity, color, scenic setting, other characteristics of

4.12.1.4 Energy Sources

External public utilities provide the electrical system at Fort Dix, maintain all lines, substations, and transformers, and supply electricity to Fort Dix. They also supply Fort Dix with natural gas.

One main central heating plant exists on the post. The major energy sources for heating facilities at Fort Dix are fuel oil, natural gas, electricity, and coal. The majority of permanent structures in the main cantonment area are heated by central heating systems that are being converted from fuel oil to natural gas. Either natural gas or heat pumps supply heat for family housing units. Approximately one-fourth of the family housing is heated by individual fuel oil heaters located in each structure. The barracks, latrines, and mess facilities use individual heaters or central heating plants.

Electrical power serves the area in which all proposed projects are located. There are very seldom power outages at Fort Dix; therefore, no campus-wide emergency backup exists. Gas lines also exist near all proposed projects except the Organization Maintenance Shop (OMS) Facility and Additional Parking Area.

4.12.1.5 Communications

Local phone service is privately provided, with an infrastructure of both aerial and buried cable. Both copper and fiber lines are used.

4.12.1.6 Solid Waste

A contractor provides solid waste removal. Solid waste is hauled to a landfill off-post.

4.12.2 Environmental Consequences

4.12.2.1 No Action Alternative

No effects would be expected. Implementation of the no action alternative would not alter the existing utility/infrastructure at the sites being considered under the proposed action.

4.12.2.2 Realignment (Preferred) Alternative

Utility extensions would be required to provide service to all five proposed projects. These would result in short-term minor adverse impacts caused by trenching and burial along and potentially in/across roadways; however, no significant utility impacts are expected. System capacities are adequate and distribution is convenient to each site, except for potential upgrades needed for communications cable and natural gas pipelines to the Organization Maintenance Shop.

Potable Water Supply – Negligible effects would be expected. There are existing water mains near all proposed project sites; therefore, provision of potable water should not pose problems for any project. Water pressure would need to be tested for adequacy to meet fire suppression requirements; however, if pressure is inadequate, there are a number of remedies such as provision of booster pumps.

Water demand for the proposed Army Reserve Center has been estimated as approximately 1.5 thousand gallons per day. Other projects have not been estimated; however, the surplus of supply versus demand at Fort Dix is sufficiently great that no shortages of water supply capacity to meet the water demand posed by the five projects are expected.

Wastewater System – Negligible effects would be expected. There are existing wastewater mains near all proposed project sites; therefore, provision of wastewater conveyance is not expected to pose problems for any project. Wastewater treatment capacity is adequate to handle sanitary waste from each project.

aesthetic value, exceptional ecological significance, exceptional recreational significance, exceptional water supply significance, or exceptional fisheries resource(s).

Storm Water System – Minor effects would be expected. All projects are expected to either exceed 0.25 acres of new impervious surface or one acre of disturbance and would therefore be classified as major development subject to the New Jersey storm water management rules. Measures implemented to comply with storm water permits from the State, County, and Pinelands Commission during both construction and operation would ensure that impacts would be minor.

Energy Sources – Negligible effects would be expected. Power exists near each site, but each project would require secondary distribution to the building 5-foot line, and would potentially require transformers as well. Any project determined to need emergency backup would need to provide its own generators.

Natural gas is expected to be readily available for each site except the Organization Maintenance Shop (OMS) Facility and Additional Parking Area, where either a major gas line extension or fuel oil would be needed. Each site would require secondary distribution to the building 5-foot line. Conveyance is not expected to pose problems for any project.

Communications – Negligible effects would be expected. A general need for modernized communications infrastructure at many locations on Fort Dix would require each project to identify needs and potentially provide for additional telecommunications cable to their site. Conveyance is not expected to pose problems for any project.

Solid Waste – Negligible effects would be expected. Solid waste would be handled privately according existing regulations.

4.13 HAZARDOUS AND TOXIC SUBSTANCES

This section addresses the use, handling, and storage of hazardous and toxic substances at the proposed BRAC facilities; the generation and disposal of hazardous wastes associated with the proposed operations; and potential site contamination issues, including the potential presence of hazardous or toxic substances in structures to be demolished.

4.13.1 Affected Environment

4.13.1.1 Hazardous Materials Use, Handling, and Storage

Hazardous materials are used in most facilities at Fort Dix, ranging from small quantities of cleaners and printing supplies to larger quantities of fuels, oils, and chemicals. The following describes hazardous materials (hazardous or toxic substances) expected to be used, handled, and/or stored at the various BRAC-related facilities assessed in this EA, based on interviews with Fort Dix personnel and the description of the facilities provided. Current policy stipulates that DoD facilities will use materials that are the most environmentally suitable and least damaging as long as the materials meet the criteria and specifications for a given task (Fort Dix 2003).

Army Reserve Center (ARC) for the 77th, 78th, and 99th – The proposed ARC would consist primarily of office space and administrative service areas. There will 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.

Aviation Support Facility – This proposed facility would consist of an aircraft hanger with fixed wing taxiway and apron space, with no refueling or ongoing maintenance. There may be the need for various cleaners or oils and lubricants in small quantities. These will be handled and stored in accordance with applicable regulations and label precautions.

Physical Fitness Facility – This proposed facility would consist of a gym, with no pool (pool is located next door). There will be little need for any hazardous material use, except for minor amounts of cleaners and possibly printing supplies, similar to an administrative facility. Any hazardous materials would be handled and stored in accordance with applicable regulations and label precautions.

Child Development Center (CDC) and School Age Services (SAS) Complex – Similar to the Physical Fitness Facility, hazardous material use would be limited to minor amounts of cleaners and possibly printing supplies.

Any hazardous materials will be handled and stored in accordance with applicable regulations and label precautions.

Organization Maintenance Shop (OMS) Facility and Additional Parking Area – This proposed facility would include a 15,700 square foot vehicle maintenance shop, with 8 service bays and a controlled waste storage area. Maintenance activities will require the use of several types of hazardous materials. Typical products used would include antifreeze; various petroleum products, oils, and lubricants (POL); brake fluid, hydraulic fluid, cleaners, degreasers, solvents, paints, fuels (gasoline and diesel), and batteries. An aqueous (water-based) parts washer would likely be specified, thereby reducing the amount of solvent use considerably (McMire 2006). No fuel storage would occur at this location, since there are refueling stations available nearby on the post (Chominski 2006; McMire 2006). All hazardous materials would be handled and stored in appropriate HAZMAT cabinets or containers in accordance with applicable regulations and label precautions.

4.13.1.2 Hazardous Waste Generation, Storage, and Disposal

Hazardous wastes are generated at Fort Dix from various operations and facilities. The installation has a RCRA Part B Hazardous Waste Storage permit, which was renewed in 2005 and expires on November 28, 2015 (Schwartz 2006). The permit authorizes storage of hazardous waste in containers for a facility maximum of 17,700 gallons at Building 8132. Authorized wastes include those typically generated by offices, administrative areas, and vehicle maintenance shops, such as those included in the proposed action. These wastes include spent solvents (F-listed wastes) and discarded commercial chemical products and spill residues (U-listed wastes) (McMire 2006).

Each hazardous waste generated must be fully identified and classified, and is handled and stored in accordance with applicable federal and state hazardous waste regulations by the Fort Dix Hazardous Materials Team. All hazardous waste is transported offsite for disposal or recycling by a licensed hazardous waste contractor (Fort Dix 2003; McMire 2006).

4.13.1.3 Site Contamination Issues

Throughout its history, Fort Dix has been subjected to various potential sources of contamination, including landfilling of wastes, leaking underground tanks, construction of buildings containing asbestos and lead based paint, and use of polychlorinated biphenyls (PCBs) in hydraulic and transformer fluids. Known contaminated sites have been identified through IRP efforts and potential Areas of Concern (AOC) are listed in the Comprehensive Master Plan Programmatic EA (Fort Dix 2003). None of the identified AOCs except for the 4400 spill site are located on or next to any of the proposed locations for the BRAC actions addressed in this EA. The 4400 spill site is discussed in more detail under the Aviation Support Facility description, below.

Based on interviews with Fort Dix personnel and the description of the facilities provided, the only sites with potential site contamination issues from past use are the Aviation Support Facility and the Child Development Center (CDC) and School Age Services (SAS) Complex sites, as described below. The Aviation Support Facility is the only project that includes demolition of existing buildings as part of the BRAC proposed action.

All transformers known to hold PCBs, except one (not located near any of the sites), have already been removed from the installation (Fort Dix 1999; Aitken 2006), and no PCB contamination is known or expected at any of the sites. Likewise, radon is not expected to be an issue at any site, since the buildings are not planned to have occupied underground space, and Fort Dix is not located in an area of high radon levels. According to the EPA, the counties containing Fort Dix are in low to moderate radon areas, with levels expected to be below the suggested action level of 4 pCi/L (USEPA 2006). In addition, previous surveys done at the installation in other areas have not identified high radon levels (McMire 2006).

Army Reserve Center (ARC) for the 77th, 78th, and 99th – The project site is located on vacant land with no past history of hazardous material use or waste disposal. No buildings will be demolished on this site.

Aviation Support Facility – The development of the aviation hangar and associated facilities will require demolition of the existing DOL Vehicle Maintenance Facility and warehouse, including an associate sandblasting operation. These structures are WWII-era and may contain asbestos and lead based paint, and sandblasting operations are known to produce metal-containing residue and dusts. Although POL underground storage tanks

(USTs) were used at this location, all USTs have been removed and closed in accordance with applicable regulations, and only aboveground storage tanks (ASTs) are currently in use (McMire 2006). The site is in the same vicinity as the 4400 spill site, identified as an AOC (Fort Dix 2003). The spill site is a general designation assigned to the area surrounding the 4400 Motor Pool. The wash racks, oil/water separators, and drum storage areas are areas of concern (Fort Dix 2003). According to the post's Installation Restoration Program (IRP) manager (Lewendowski 2006), there are 3 Trichloroethylene (TCE) plumes in the groundwater in this area. A map supplied by Mr. Lewendowski shows the outline of these plumes, which extend under the site for the Aviation Support Facility. However, USACE review of the monitoring data reports indicates that the contamination is at a depth of about 10 to 15 feet below the ground surface (Lewendowski 2006).

Physical Fitness Facility – The project site is located on vacant land with no past history of hazardous material use or waste disposal. No buildings will be demolished on this site.

Child Development Center (CDC) and School Age Services (SAS) Complex – The project site is located on vacant land with a past history of use as a housing area. Several concrete pads on the site and aerial photos of this area indicate former locations of older duplex housing units. No buildings will be demolished on this site, since those housing units that were present have already been removed. According to McMire (2006), all buildings were tested for the presence of asbestos and lead based paint, and all demolition debris was removed from this site. In addition, to the best of the installation staff's knowledge, this area was heated by steam, so there is little likelihood that residential heating oil tanks would still remain on the site (Aitken 2006). However, chlordane was commonly used in housing areas in the past as a pesticide, and this chemical can stay active in the soil for many years. This would be of concern due to the proposed use of the site as a childcare center (Aitken 2006).

Organization Maintenance Shop (OMS) Facility and Additional Parking Area – The project site is located on vacant land with no past history of hazardous material use or waste disposal. No buildings will be demolished on this site.

4.13.2 Environmental Consequences

4.13.1.4 No Action Alternative

No effects would be expected. Under the no action alternative, the proposed new BRAC facilities would not be constructed.

4.13.1.5 Realignment (Preferred) Alternative

Implementing the proposed action would not cause any significant impacts related to hazardous or toxic substances, with most impacts being minor or negligible. Impacts specific to the sites included in this BRAC EA are addressed below.

Army Reserve Center (ARC) for the 77th, 78th, and 99th – Negligible long-term adverse effects would be expected. Because of the minimal use of hazardous materials and minimal waste generation in this proposed facility, there would be negligible long-term adverse impacts related to hazardous or toxic substances from the proposed facility's operation. No buildings would need to be demolished and the proposed site is vacant land and free from contamination issues; therefore, it is expected that no hazardous waste would be generated from construction activities. If any hazardous materials or wastes were used or generated during construction, they would be managed in accordance with applicable regulations, reducing any impacts to negligible levels.

Hazardous wastes would consist of small amounts of spent cleaners, possibly paints, and printing supplies, such as spent toner. Based on their characteristics and applicable regulations, if these are not able to be disposed of in the regular solid waste stream, then they would be collected and stored on site in accordance with applicable hazardous waste regulations, and taken to the permitted storage area for off-site disposal by a licensed hazardous waste contractor.

Aviation Support Facility – Negligible to minor long-term adverse effects would be expected; and minor to potentially moderate short-term adverse impacts would be expected. Because of the small amount of hazardous materials used and the relatively minimal waste generation in this facility, there would be negligible to minor long-term adverse impacts related to hazardous or toxic substances from the proposed facility's operation.

However, minor to potentially moderate short-term adverse impacts could occur from the demolition and/or removal of the DOL Vehicle Maintenance Facility/warehouse, including the sandblast facility, due to the potential presence of asbestos, lead-based paint, sandblast residue, and possible soil contamination from minor spills of petroleum, oil, and lubricants (POLs) or hazardous materials used at the facility. The magnitude of the impact would depend on the amount of contamination found during site sampling prior to demolition. However, any hazards related to these concerns would be addressed and minimized through proper site preparation, management, and waste disposal during demolition and site preparation for the new facility. All demolition would be performed in accordance with applicable regulations, including regulations for identification and handling of asbestos, lead-based paint contamination, or other hazardous wastes. Identified wastes would be disposed of off-site by a qualified contractor, in accordance with all applicable regulations. No USTs remain at the site, so no impacts related to UST contamination would occur. Finally, since the construction is not expected to include extensive subsurface excavation, and assuming all monitoring wells would remain intact, there would be no impacts related to the presence of the spill site TCE plume under the site.

Small amounts of hazardous waste would likely be generated from spent cleaners, solvents, and oils, and possible spill residues and absorbents or rags. Since maintenance would not be performed here, there should be minimal, if any, amounts of used oil or other hazardous wastes. Based on their characteristics and applicable regulations, if these are not able to be disposed of in the regular solid waste stream, then they would be collected and stored on site in accordance with applicable hazardous waste regulations, and taken to the permitted storage area for off-site disposal by a licensed hazardous waste contractor.

Physical Fitness Facility – Negligible adverse impacts would be expected. Impacts related to hazardous or toxic substances would be expected to occur in a manner similar to those described for the ARC, above.

Child Development Center (CDC) and School Age Services (SAS) Complex – Negligible adverse impacts would be expected. Impacts related to hazardous or toxic substances from the proposed use or expected waste generation would be negligible, similar to that described for the ARC, above. Impacts related to past site use (housing) would be expected to be negligible to minor and short-term, assuming all demolition debris was removed from the site when the housing was removed, and that the soil is tested for any potential residual chlordane contamination prior to construction and appropriate remedial action is taken to reduce risk, if necessary.

Organization Maintenance Shop (OMS) Facility and Additional Parking Area – Negligible to minor long-term adverse effects would be expected. Due to ongoing vehicle maintenance activities, it would be expected that this facility would generate relatively small amounts of hazardous wastes regularly, such as used oil, discarded chemicals, used antifreeze, used batteries, spill residues, and contaminated rags and absorbents. With the use of an aqueous parts washer, there would be very little spent solvent generated at this facility. Freon would be reclaimed, and antifreeze would be sent to the hazardous waste storage facility for off-site recycling (McMire 2006). It is expected that used oil would be stored in a vault that includes secondary containment (probably a “convault” that consists of a concrete box with an aboveground tank inside) and will be collected periodically at the OMS facility by a recycling contractor (McMire 2006). Other hazardous wastes would be stored in a satellite accumulation area in containers and with labels as required by applicable regulations, and taken to the permitted hazardous waste storage facility within the allotted time frame for disposal or recycling. Any spills or releases of hazardous wastes would be handled according to the Fort Dix Installation Spill Contingency Plan (Aitken 2006).

The continued use, handling and storage of hazardous materials at this facility would result in negligible to minor long-term adverse impacts, since all materials would be stored in accordance with applicable regulations and in safe HAZMAT lockers, cabinets, or containers with appropriate containment. Used oil would be expected to be stored in a double-walled vault, minimizing the possibility of any releases, and would be removed from the site regularly by a licensed recycling contractor. The generation of hazardous waste at this new facility would likely result in minor short- and long-term adverse impacts, based on the potential for small spills and the slight increase in Fort Dix’s hazardous waste quantities that must be handled at the permitted storage facility. The current Part B permit covers the types of wastes expected to be produced, and, the current Part B permit will not need to be modified, because of the small volume of waste expected from this operation (McMire 2006). As for spills, installation safety procedures will be followed in the handling and storage of wastes, and any spills or releases would be contained and cleaned up in accordance with the Fort Dix Installation Spill Contingency Plan (Aitken 2006).

No buildings would need to be demolished and the site is vacant land and free from contamination issues; therefore, it is expected that no hazardous waste would be generated from construction activities. If any hazardous materials or wastes were used or generated during construction, they would be managed in accordance with applicable regulations, reducing any impacts to negligible levels.

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 realignment (preferred) alternative would include any impacts from other on-going mission actions that would be incremental to the impacts of constructing and operating the five different projects at Fort Dix.

Future projects that would contribute to cumulative impacts include the construction projects listed in the Table 4-13. These projects are on the current Fort Dix Military Construction Army Reserve (MCAR). Additional projects at McGuire AFB and NAES Lakehurst, including \$35.5 million for two new construction funded for FY07, would contribute to cumulative impacts. McGuire AFB is budgeted to receive \$15.5 million for a new Northeast region assault landing zone for C-17 aircraft, and Lakehurst is budgeted to receive \$20 million for the second phase of an Army consolidated logistics training facility that will serve the National Guard (Ocean County Observer 2006).

Table 4-13: Fort Dix MCAR Priority List

Project Name	Project Number	Cost (\$Million)	Program year
Combined Maintenance Facility	11008	15.568	FYDP FY08
Officer Education System Classroom, Phase I	11545	10.134	FYDP FY08
MOS Barracks Renovations, 5501	11003	7.225	FYDP FY09
MOS Barracks Renovations, 5502, 5503, 5504	11676	18.031	FYDP FY11
Barracks Renovations, 5431	11679	6.079	FYDP FY11
Barracks Renovations, 5433	11680	7.471	FYDP FY11
Remote Enhanced Targeting Systems (RETSs) Range (Record Fire)	11008	15.568	FYDP FY08

Source: Fort Dix 2006b

Notes: Future Years Defense Program (FYDP), Fiscal Year (FY)

In addition, there are potential cumulative effects related to noise associated with additional aircraft being relocated to or added at McGuire AFB. McGuire AFB has been identified as one location to bed down an additional 12 C-17 aircraft, increasing the total number of C-17 aircraft to 24. Should McGuire AFB be selected, an additional 766 acres would be exposed to noise levels exceeding 65 ADNL in the surrounding communities. The current noise levels associated with aircraft operations from McGuire AFB on the Fort Dix Cantonment Area in 54 ADNL. If this action were implemented, the Fort Dix Cantonment Area could expect an increase of 4 ADNL. However, the increase of 4 ADNL to a total of 58 ADNL is still compatible with land use with the Cantonment Area. (Fort Dix 2005)

A pallet facility is proposed for development south of the new aircraft-loading ramp and would enable Fort Dix to load aircraft, up to the size of a C-5 aircraft (the largest in the DoD inventory), with cargo via McGuire AFB Taxiway H. Noise levels associated with aircraft at taxiway speed and idling would be introduced; however, these noise levels would only slightly contribute to the existing noise levels associated with aircraft operations at

McGuire AFB. The pallet facility would be within and compatible with land use acceptable within the 65 to 75 ADNL. (Fort Dix 2005)

The noise associated with both of these potential actions would be in addition to the minor noise created by the additional eight C-12 aircraft related to the Aviation Support Facility project. Overall, the noise associated with all of the actions, if they were to happen, would not be expected to surpass a significant impact threshold.

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 Realignment (Preferred) Alternative

The impacts from past, present, and reasonably foreseeable future actions in combination with the construction of the proposed BRAC facilities detailed in this EA would be expected to create cumulative impacts from noise, air quality, geology and soils, water resources, socioeconomics, and transportation. Impacts from construction would be short-term in nature and last only as long as the construction period.

Most of the cumulative impacts are expected to be minimal and managed through the use of best management practices (BMPs), such as stormwater management plans and erosion and sediment control plans. Long-term impacts would likely relate to aircraft noise, different transportation patterns, and further development of open space/vegetated areas.

4.15 MITIGATION SUMMARY

None of the predicted effects of the proposed action would result in significant impacts; therefore, mitigation is not needed, although the Army may consider the use of Best Management Practices (BMPs) in the construction and operation of these facilities.

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5.0 FINDING AND CONCLUSIONS

5.1 FINDINGS

5.1.1 Consequences of No Action Alternative

Under the no action alternative, the proposed new BRAC facilities would not be constructed, and no environmental impacts would occur.

5.1.2 Consequences of Realignment (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 Dix or to areas surrounding the post.

The greatest potential adverse effects with the realignment (preferred) alternative are anticipated to be minor to moderate. These impacts would be experienced by the following resource areas:

- Wildlife (Biological Resources)
- Special Hazards (Hazardous and Toxic Substances)

A summary of impacts by resource area for the no action alternative and the realignment (preferred) alternative is provided in Table 5-1.

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 impacts. Therefore, the results of the analyses warrant issuance of a FNSI.

**Table 5-1: Summary of Effects of
the Proposed Action and the No Action Alternative**

Resource	No Action Alternative	Realignment (Preferred) Alternative
Land Use		
<i>Regional Geographic Setting and Location</i>	None	None
<i>Installation Land/Airspace Use</i>	None	Minor
<i>Surrounding Land/Airspace Use</i>	None	None
<i>State Coastal Management Program</i>	None	N/A
<i>Current and Future Development in the Region of Influence</i>	None	Minor
Aesthetic and Visual Resources	None	None to Minor
Air Quality		
<i>Ambient Air Quality Conditions</i>	None	Minor
<i>Air Pollutant Emissions at Installation</i>	None	Minor
<i>Regional Air Pollutant Emissions Summary</i>	None	Minor
Noise	None	Minor
Geology and Soils		
<i>Geologic and Topographic Conditions</i>	None	None
<i>Soils</i>	None	Minor
<i>Prime Farmland</i>	None	None
Water Resources		
<i>Surface Water</i>	None	Negligible to Minor
<i>Hydrogeology/Groundwater</i>	None	Minor
<i>Floodplains</i>	None	None
<i>Coastal Zone</i>	None	None
Biological Resources		
<i>Vegetation</i>	None	Minor
<i>Wildlife</i>	None	Minor to Moderate (Organization Maintenance Shop [OMS] Facility)
<i>Sensitive Species</i>	None	None
<i>Wetlands Habitat</i>	None	None
Cultural Resources		
<i>Built Environment</i>	None	None to Minor
<i>Archaeology</i>	None	Minor
<i>Native American Resources</i>	None	None

Resource	No Action Alternative	Realignment (Preferred) Alternative
Socioeconomics		
<i>Economic Development</i>	None	Minor
<i>Demographics</i>	None	Minor
<i>Housing</i>	None	None
<i>Quality of Life</i>	None	Minor
<i>Environmental Justice</i>	None	None
<i>Protection of Children</i>	None	None
Transportation		
<i>Roadways and Traffic</i>	None	Minor
<i>Installation Transportation</i>	None	Negligible
<i>Public Transportation</i>	None	Negligible
Utilities		
<i>Potable Water Supply</i>	None	Negligible
<i>Wastewater System</i>	None	Negligible
<i>Stormwater System</i>	None	Minor
<i>Energy Sources</i>	None	Negligible
<i>Communications</i>	None	Negligible
<i>Solid Waste</i>	None	Negligible
Hazardous and Toxic Substances		
<i>Uses of Hazardous Materials</i>	None	Negligible to Minor
<i>Storage and Handling Areas</i>	None	Negligible to Minor
<i>Hazardous Waste Disposal</i>	None	Negligible to Minor
<i>Site Contamination and Cleanup</i>	None	Negligible to Minor
<i>Special Hazards</i>	None	Negligible to Moderate (Aviation Support Facility)

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Fort Dix, NJ 08640-5501

U.S. Navy
ATTN: CDR Komykowski, Chief Staff Officer
Naval Fleet Support Command
Fort Dix, NJ 08640

Libraries

Burlington County Headquarters Library
5 Pioneer Boulevard
West Hampton, New Jersey 08060

Burlington County Community College Library
Pemberton Browns Mills Road
Pemberton, New Jersey 08068

Ocean County Library
Toms River Branch (Headquarters)
101 Washington Street
Toms River, New Jersey 08753

Ocean County Library
Plumstead Branch
119 Evergreen Road
New Egypt, New Jersey 08533

Fort Dix General Library
Delaware Avenue
Building 5403
Fort Dix, New Jersey

Media

Fort Dix Post Newspaper
Building 5407
Pennsylvania Avenue
Fort Dix, NJ 08640

Burlington County Times
ATTN: Legal
4284 Route 130
Willingboro, NJ 08046

The Times
ATTN: Legal
500 Perry Street
PO Box 847
Trenton, 08618

Asbury Park Press
ATTN: Legal
3601 Hwy.66
Neptune, NJ 07754

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9.0 ACRONYMS AND ABBREVIATIONS

AdmA	Adelphia fine sandy loam
ADNL	Average Day/Night Sound Level
ADZ	Approach-Departure Zone
AEPI	U.S. Army Environmental Policy Institute
AFB	Air Force Base
AIRFA	American Indian Religions Freedom Act
AICUZ	Air Installation Compatible Use Zone
AOC	Areas of Concern
APZ	Accident Potential Zone
ARC	Army Reserve Center
ARDC	Armament Research and Design Center
AST	aboveground storage tank
AT/FP	Anti Terror / Force Protection
AWSS	Area Weapons Scoring System
BMPs	Best Management Practices
BOC	U.S. Bureau of Census
BRAC Commission	Base Closure and Realignment Commission
CAA	Clean Air Act
CAAA	Clean Air Act Amendments
CDC	Child Development Center
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act (also known as SuperFund)
CERL	Construction Engineering Research Laboratory
CO	carbon monoxide
COBRA	Cost, Operational Benefit, and Requirements Analysis
CZs	Clear Zones
dBA	decibels
DocB	Downer loamy sand
DoD	Department of Defense
DOL	Department of Logistics
EA	environmental assessment
ECS 27	Equipment Concentration Site 27
EIFS	Economic Impact Forecast System
EIS	Environmental Impact Statement
EO	Executive Order
EPA	U.S. Environmental Protection Agency
F	Fahrenheit
FAA	Federal Aviation Administration
FDHPO	Fort Dix Historic Preservation Officer
FEMA	Federal Emergency Management Agency
FNSI	Finding of No Significant Impact
FTE	full-time equivalent
FY	Fiscal Year
FY05	Fiscal Year 2005
FYDP	Future Years Defense Program
GIS	Graphic Information System
HAZMAT	hazardous materials
HPC	historic preservation component
HUC	hydrologic unit code
INRMP	Integrated Natural Resources Management Plan
IONMPR	Installation Operational Noise Management Program Report

IRP	Installation Restoration Program
ITE	Institute of Transportation Engineers
LasB	Lakewood sand
LCTA	Land Condition Trend Analysis
LOS	Level of Service
MBTU	million British thermal units
MCAR	Military Construction Army Reserve
MGD	million gallon per day
MSL	mean sea level
NAAQS	National Ambient Air Quality Standards
NAES	Naval Air Engineering Station
NAGPRA	Native American Graves Protection and Repatriation Act
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NJ SHPO	New Jersey State Historic Preservation Office
NJDEP	New Jersey Department of Environmental Protection
NJPC	New Jersey Pinelands Commission
NO ₂	nitrogen dioxide
NO _x	Nitrogen oxide
NPV	Net Present Value
NRCS	Natural Resources Conservation Service Soil
NRHP	National Register of Historic Places
O ₃	Ozone
OMS	Organization Maintenance Shop
Pb	lead
PCBs	polychlorinated biphenyls
PCPI	per capita personal income
Pinelands	Pinelands National Reserve
PL	Pinelands
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
RCRA	Resource Conservation and Recovery Act
RETS	Remote Enhanced Targeting Systems
RMP	Risk Management Plan
ROI	Region of Influence
RPMP	Real Property Master Plan
RRF	Resource Recovery Facility
RTV	rational threshold value
SacA and SacB	Sassafras sandy loam
SAS	School Age Services
Shs	Shrewsbury fine sandy loam
ShsA	Shrewsbury fine sandy loam
SIP	State Implementation Plan
SO ₂	sulfur dioxide
the Rule	<i>Determining Conformity of Federal Actions to State or Federal Implementation Plans</i>
TCE	Trichloroethylene
TPY	tons per year
TSP	Total Suspended Particulates
TSZ	Takeoff Safety Zone
USGS	U.S. Geological Survey
UST	Underground Storage Tank
VOC	volatile organic compounds

APPENDIX A—FORT DIX PLANT INVENTORY

This appendix lists the plant species identified during LCTA Plot Survey conducted the summer of 1998 by the United States Department of Agriculture-Natural Resources Conservation Service for Fort Dix.

Common Name	Scientific Name
American Beech	<i>Fagus grandifolia</i>
Apple	<i>Malus sp</i>
Arrowleaf Tearthumb	<i>Polygonum sagittatum</i>
Ash, White	<i>Fraxinus americana</i>
Aster, Stiff	<i>Aster linariifolius</i>
Aster, White Old Field	<i>Aster pilosus</i>
Avens	<i>Geum virginianum</i>
Bayberry	<i>Myrica pennsylvanica</i>
Bearberry	<i>Arctostaphylos uva-ursi</i>
Bermuda Grass	<i>Cynadon dactylon</i>
Bigtooth Aspen	<i>Populus grandidentata</i>
Birch, Gray	<i>Betula populifolia</i>
Birch, River	<i>Betula nigra</i>
Bittersweet, Asian	<i>Celastrus orbiculata</i>
Black gum	<i>Nyssa sylvatica</i>
Black locust	<i>Robinia pseudoacacia</i>
Black oatgrass	<i>Piptochaetium avenace</i>
Black walnut	<i>Juglans nigra</i>
Blackberry	<i>Rubus allegheniensis</i>
Blackberry	<i>Rubus sp</i>
Blackhaw	<i>Viburnum prunifolium</i>
Blueberry, Highbush	<i>Vaccinium corymbosum</i>
Blueberry, Lowbush	<i>Vaccinium angustifolium</i>
Bluestem, Broomsedge	<i>Andropogon virginicus</i>
Bluestem, Little	<i>Schizachyrium scopar</i>
Broom crowberry	<i>Corema conradii</i>
Calex Luriola	<i>Calex luriola</i>
Canada Mayflower	<i>Maianthemum canadense</i>
Carex	<i>Carex sp</i>

Common Name	Scientific Name
Carrot, Wild (Queen Anne's Lace)	<i>Daucus carotoa</i>
Cedar, Atlantic White	<i>Chamaecyparis thyoide</i>
Cedar, Eastern Red	<i>Juniperus virginiana</i>
Cherry, Choke	<i>Prunus virginiana</i>
Cherry, Wild Black	<i>Prunus serotina</i>
Chestnut, American	<i>Castanea dentata</i>
Chickweed, Common	<i>Stellaria media</i>
Chokeberry	<i>Aronia arbutifolia</i>
Cinquefoil	<i>Potentilla sp</i>
Climbing False Buckwheat	<i>Polygonum scandens</i>
Clover, white	<i>Trifolium repens</i>
Clubmoss (ground cover only)	<i>Lycopodium dendroideu</i>
Crabapple, Sweet	<i>Malus coronaria</i>
Crabgrass	<i>Digitaria sp</i>
Cranberry	<i>Vaccinium macrocarpon</i>
Dangleberry	<i>Gaylussacia frondosa</i>
Deertongue panicgrass	<i>Dicanthelium clandestinum</i>
Dewberry, Swamp	<i>Rubus hispidus</i>
Dewberry, Northern	<i>Rubus flagellaris</i>
Dogwood, Flowering	<i>Cornus florida</i>
Ebony spleenwort	<i>Asplenium platyneuron</i>
Enchanter's nightshade	<i>Circaea lutetiana</i>
Eulalia	<i>Microstegium viminium</i>
Fall Panicum (Panicgrass)	<i>Panicum dichotomiflorum</i>
Fall witchgrass	<i>Digitaria cognata var cognata</i>
Fern, Bracken	<i>Pteridium aquilinum</i>
Fern, Cinnamon	<i>Osmunda cinnamomea</i>
Fern, Eastern HayScented	<i>Dennstaedtia punctilobula</i>
Fern, Netted Chain	<i>Woodwardia areolata</i>
Fern, New York	<i>Thelypteris noveboroaice</i>
Fern, Royal	<i>Osmunda regalis</i>
Fern, Sensitive	<i>Onoclea sensibilis</i>
Fern, Sweet	<i>Comptonia peregrina</i>
Fescue	<i>Festuca sp</i>

Common Name	Scientific Name
Fetter bush (Swamp doghobble)	<i>Leucothoe racemosa</i>
Field paspalum	<i>Paspalum laeve</i>
Field sowthistle	<i>Sonchus arvensis</i>
Fine fescue	<i>Festuca rubra</i>
Frostweed	<i>Helianthemum canadense</i>
Goat's rue	<i>Tephrosia virginica</i>
Golden heather	<i>Hudsonia ericoides</i>
Goldenrod sp	<i>Solidago sp</i>
Goldenrod, Canada	<i>Solidago canadensis</i>
Goldenrod, Rough (Wrinkleleaf)	<i>Solidago rugosa</i>
Goldenrod, Slender	<i>Euthanamia tenuifolia</i>
Goldenrod, Sweet	<i>Solidago odora</i>
Grape, Fox	<i>Vitis labrusca</i>
Greenbriar (common)	<i>Smilax rotundifolia</i>
Greenbriar (glaucous)	<i>Smilax glauca</i>
Hickory, Mockernut	<i>Carya alba</i>
Hickory, Pignut	<i>Carya glabra</i>
Hobblebush	<i>Viburnum lantanoides</i>
Holly, American	<i>Ilex opaca</i>
Holly, Winterberry	<i>Ilex verticillata</i>
Honey locust	<i>Gleditsia triacanthos</i>
Horse (Carolina) nettle	<i>Solanum carolinense</i>
Huckleberry, Black	<i>Gaylussacia baccata</i>
Huckleberry, Dwarf	<i>Gaylussacia dumosa</i>
Indianhemp (dogbane)	<i>Apocynum cannabinum</i>
Inkberry	<i>Ilex glabra</i>
Jack in the pulpit	<i>Arisaema triphyllum</i>
Japanese barberry	<i>Berberis thunbergii</i>
Japanese honeysuckle	<i>Lonicera japonica</i>
Jewelweed	<i>Impatiens capensis</i>
Jump seed	<i>Polygonum virginianum</i>
Laurel, Mountain	<i>Kalmia latifolia</i>
Laurel, Sheep	<i>Kalmia angustifolia</i>
Leatherleaf	<i>Chamaedaphne calycul</i>

Common Name	Scientific Name
Lespedeza, Shrub (Thunberg's)	<i>Lespedeza thunbergii</i>
Lespedeza, Sericea	<i>Lespedeza cuneata</i>
Magnolia, Sweet bay	<i>Magnolia virginiana</i>
Maleberry	<i>Lyonia ligustrina</i>
Maple, Red	<i>Acer rubrum</i>
Maple, Silver	<i>Acer Saccharinum</i>
Nannyberry	<i>Viburnum Lentago</i>
Oak, Swamp Chestnut	<i>Quercus michauxii</i>
Oak, Black	<i>Quercus velutina</i>
Oak, Blackjack	<i>Quercus marilandica</i>
Oak, Chestnut	<i>Quercus prinus</i>
Oak, Pin	<i>Quercus palustris</i>
Oak, Post	<i>Quercus stellata</i>
Oak, Scarlet	<i>Quercus coccinea</i>
Oak, Scrub	<i>Quercus ilicifolia</i>
Oak, Swamp White	<i>Quercus bicolor</i>
Oak, White	<i>Quercus alba</i>
Oak, Willow	<i>Quercus phellos</i>
Orchardgrass	<i>Dactylis glomerata</i>
Partridgeberry	<i>Mitchella repens</i>
Persimmon, Common	<i>Diospyros virginiana</i>
Pine, Eastern White	<i>Pinus strobus</i>
Pine, Pitch	<i>Pinus rigida</i>
Pine, Shortleaf	<i>Pinus echinata</i>
Pine, Virginia	<i>Pinus Virginiana</i>
Plantain, Narrowleaf	<i>Plantago lanceolata</i>
Plantane	<i>Plantago sp</i>
Poison ivy	<i>Toxicodendron radicans</i>
Pokeweed	<i>Phytolacca americana</i>
Privot (European)	<i>Ligustrum vulgare</i>
Purple love grass	<i>Eragrostis spectabilis</i>
Purpletop tridens	<i>Tridens flavus</i>
Ragweed, Annual	<i>Ambrosia artemisiifolia</i>
Rattlesnake weed	<i>Hieracium venosum</i>

Common Name	Scientific Name
Redtop	<i>Agrostis gigantea</i>
Redtop panic grass	<i>Panicum rigidulum</i>
Rice cut grass	<i>Leersia oryzoides</i>
Rose	<i>Rosa sp</i>
Rose, Multiflora	<i>Rosa multiflora</i>
Rosette grass	<i>Dicanthelium sp</i>
Rush, Beak (Brownish Beaksedge)	<i>Rhynchospora capitellata</i>
Rush, Canadian	<i>Juncas canadensis</i>
Rush, Path (Poverty)	<i>Juncas tenuis</i>
Rush, Soft (common)	<i>Juncas effusus</i>
Sassafras	<i>Sassafras albidum</i>
Sedge, Long	<i>Carex folliculata</i>
Sedge, Pennsylvania	<i>Carex pennsylvanica</i>
Sedge, Shallow	<i>Carex lurida</i>
Sedge, Three Seeded	<i>Carex trisperma</i>
Sedge, Tussock	<i>Carex stricta</i>
Skunk cabbage	<i>Symplocarpus foetidus</i>
Slender spikegrass	<i>Chasmanthium laxum</i>
Slippery elm	<i>Ulmus rubra</i>
Smartweed, Pennsylvania	<i>Polygonum pennsylvanicum</i>
Sorghum	<i>Sorghum sp</i>
Sorghum, grain	<i>Sorghum bicolor ssp bicolor</i>
Southern arrowwood	<i>Viburnum dentatum</i>
Speckled alder	<i>Alnus incana ssp. Rugosa</i>
Spicebush	<i>Lindera benzoin</i>
St. Johnswort (Coppery)	<i>Hypericum denticulatum</i>
Staggerbush	<i>Lyonia mariana</i>
Starved panic grass	<i>Dicanthelium depauperatum</i>
Sumac, Staghorn	<i>Rhus hirta</i>
Sumac, Winged (Dwarf)	<i>Rhus copallinum</i>
Swamp azalea	<i>Rhododendron viscosum</i>
Sweet gum	<i>Liquidambar styraciflua</i>
Sweet pepperbush	<i>Clethra alnifolia</i>
Sweet vernal grass	<i>Anthoxanthum odoratum</i>

Common Name	Scientific Name
Switchgrass	<i>Panicum virgatum</i>
Tartarian honeysuckle	<i>Lonicera tatarica</i>
Tickle grass (Winter Bentgrass)	<i>Agrostis hyemalis</i>
Timothy	<i>Phleum pratense</i>
Trailing arbutus	<i>Epigaea repens</i>
Tulip poplar (Tuliptree)	<i>Liriodendron tulipifera</i>
Upland bent grass	<i>Agrostis perennans</i>
Velvet panicum	<i>Dichanthelium scoparium</i>
Virginia creeper	<i>Parthenocissus quinque</i>
Weeping love grass	<i>Egagrostus curvula</i>
White grass	<i>Leersia virginica</i>
White snake root	<i>Ageratina altissima</i>
Wild indigo	<i>Baptisia tinctoria</i>
Willow herb	<i>Epilobium stictum</i>
Wineberry	<i>Rubus phoenicolasius</i>
Winged euonymous	<i>Euonymus alata</i>
Wintergreen	<i>Gaultheria procumbens</i>
Wood reedgrass	<i>Cinna arundinacea</i>
Wood sorrel	<i>Oxalis</i>
Woolgrass	<i>Scirpus cyperinus</i>
Yellow rocket	<i>Barbarea sp</i>

sp = keyed to genus only, species unknown

APPENDIX B—FORT DIX FAUNA

This appendix lists the fauna species identified in Appendix B-4 of the Integrated Natural Resources Management Plan, Fort Dix Army Installation, Fort Dix, New Jersey, 2000-2004.

Amphibians

Common Name	Scientific Name
Fowler's toad	<i>Bufo woodhousei fowleri</i>
Pine barrens treefrog	<i>Hyla andersoni</i>
Spring peeper	<i>Hyla crucifer</i>
Gray treefrog	<i>Hyla versicolor</i>
Red-backed salamander	<i>Plethodon cinereus</i>
Chorus frog	<i>Pseudacris triseriata</i>
Bullfrog	<i>Rana catesbyana</i>
Green frog	<i>Rana clamitans</i>
Wood frog	<i>Rana sylvatica</i>
Southern leopard frog	<i>Rana utricularia</i>
Carpenter frog	<i>Rana virgatipes</i>

Reptiles

Common Name	Scientific Name
Snapping turtle	<i>Chelydra serpentina</i>
Painted turtle	<i>Chrysemys picta</i>
Spotted turtle	<i>Clemmys guttata</i>
Northern black racer	<i>Coluber constrictor</i>
Black rat snake	<i>Elaphe obsoleta</i>
Eastern hognose snake	<i>Heterodon platyrhinos</i>
Northern water snake	<i>Nerodia sipedon</i>
Northern pine snake	<i>Pituophis m. melanoleucus</i>
Red-bellied turtle	<i>Pseudemys rubriventris</i>
Fence lizard	<i>Sceloporus undulatus</i>
Stinkpot	<i>Sternotherus odoratus</i>
Eastern box turtle	<i>Terrapene carolina</i>

Birds

Common Name	Scientific Name
American goldfinch	<i>Spinus tristis</i>
American kestrel	<i>Falco sparverius</i>
American redstart	<i>Setophaga ruticilla</i>
American robin	<i>Turdus migratorius</i>
Barn Owl	<i>Tyto alba</i>
Barn swallow	<i>Hirundo rustica</i>
Belted kingfisher	<i>Megasceryle alcyon</i>
Black billed cuckoo	<i>Coccyzus erythrophthalmus</i>
Black-and white warbler	<i>Mniotilta varia</i>
Black-capped chickadee	<i>Parus atricapillus</i>
Black-throated green warbler	<i>Dendroi virens</i>
Blue jay	<i>Cyanocitta cristata</i>
Blue-gray gnatcatcher	<i>Poliopitila caerulea</i>
Blue-winged warbler	<i>vermivora pinus</i>
Bobwhite	<i>Colinus virginianus</i>
Broad winged hawk	<i>Buteo platypterus</i>
Brown creeper	<i>Certhia americana</i>
Brown thrasher	<i>Toxostoma rufum</i>
Brown-headed cowbird	<i>Molothrus ater</i>
Canada goose	<i>Branta canadensis</i>
Cardinal	<i>Richmondena cardinalus</i>
Carolina chickadee	<i>Parus carolinensis</i>
Carolina wren	<i>Thryothorus ludovicianus</i>
Cattle egret	<i>Bubulcus ibis</i>
Cedar waxwing	<i>Bombvquilla cedrorum</i>
Chesnut-sided warbler	<i>Dendroi pensylvanica</i>
Chimney swift	<i>Chaetura pelagica</i>
Chipping sparrow	<i>Spizella passerina</i>
Common crow	<i>Corvus brachyrhynchos</i>
Common flicker	<i>Colaptes auratus</i>
Common grackle	<i>Ouiscalus quiscalus</i>
Common nighthawk	<i>Chordeiles minor</i>
Common yellowthroat	<i>Geothlypis trichas</i>

Common Name	Scientific Name
Dark-eyed junco	<i>Junco hyemalis</i>
Downy woodpecker	<i>Dendrocopos pubescens</i>
Eastern bluebird	<i>Sialia sialis</i>
Eastern kingbird	<i>Tyrannus tyrannus</i>
Eastern meadowlark	<i>Sturnella magna</i>
Eastern phoebe	<i>Sayornis phoebe</i>
Eastern screech owl	<i>Otus asio</i>
Eastern wood pewee	<i>Contopus virens</i>
Evening grosbeak	<i>Coccothraustes vespertinus</i>
Field sparrow	<i>Spizella pusilla</i>
Fish crow	<i>Corvus ossifragus</i>
Fox sparrow	<i>Passerella iliaca</i>
Golden-crowned kinglet	<i>Regulus satrapa</i>
Gray catbird	<i>Dumetella carolinensis</i>
Great blue heron	<i>Ardea herodias</i>
Great crested flycatcher	<i>Myiarchus crinitus</i>
Great Horned owl	<i>Bubo virginianus</i>
Green-backed heron	<i>Butorides virescens</i>
Hairy woodpecker	<i>Picoides villosus</i>
Hermit thrush	<i>Catharus guttatus</i>
Herring gull	<i>Larus argentatus</i>
Hooded merganser	<i>Lophodytes cucullatus</i>
House finch	<i>Carpodacus mexicanus</i>
House sparrow	<i>Passer domesticus</i>
House wren	<i>Troglodytes aedon</i>
Indigo bunting	<i>Passerina cyanea</i>
Killdeer	<i>Charadrius vociferus</i>
Magnolia warbler	<i>Dendroica magnolia</i>
Mallard	<i>Anas platyrhynchos</i>
Merlin	<i>Falco columbaris</i>
Mockingbird	<i>Mimus polyglottos</i>
Mourning dove	<i>Zenaidura macroura</i>
Northern harrier	<i>Circus cyaneus</i>
Northern oriole	<i>Icterus galbula</i>

Common Name	Scientific Name
Northern parula	<i>Parula americana</i>
Northern waterthrush	<i>Seiurus noveboracensis</i>
Osprey	<i>Pandion haliaetus</i>
Ovenbird	<i>Seiurus aurocapillus</i>
Palm warbler	<i>Dendroica palmarum</i>
Pied-billed grebe	<i>Podilymbus podiceps</i>
Pine siskin	<i>Carduelis pinus</i>
Pine warbler	<i>Dendroica pinus</i>
Prairie warbler	<i>Dendroica discolor</i>
Purple finch	<i>Carpodacus purpureus</i>
Purple martin	<i>Progne subis</i>
Red –Eyed vireo	<i>Vireo olivaceus</i>
Red-bellied woodpecker	<i>Centurus carolinus</i>
Red-breasted nuthatch	<i>Sitta canadensis</i>
Red-shouldered hawk	<i>Buteo lineatus</i>
Red-tailed hawk	<i>Buteo jamaicensis</i>
Red-winged blackbird	<i>Agelaius phoeniceus</i>
Ring-billed gull	<i>Larus delawarensis</i>
Ring-necked duck	<i>Avthya collaris</i>
Rock dove	<i>Columba livia</i>
Rose-breasted grosbeak	<i>Pheucticus ludovicianus</i>
Ruby-throated hummingbird	<i>Archilochus colubris</i>
Rufous-sided towhee	<i>Pipilo erythrophthalmus</i>
Savannah sparrow	<i>Passerculus sandwichensis</i>
Saw-Whet owl	<i>Aegolius acadicus</i>
Scarlet tanager	<i>Pirange olivacea</i>
Sharped-shinned hawk	<i>Accipiter striatus</i>
Song sparrow	<i>Melospiza melodia</i>
Spotted sandpiper	<i>Actitis macularia</i>
Starling	<i>Sturnus vulgaris</i>
Swamp sparrow	<i>Melospiza georgiana</i>
Tree sparrow	<i>Passer montanus</i>
Tree swallow	<i>Iridoprocne bicolor</i>
Tufted titmouse	<i>Parus bicolor</i>

Common Name	Scientific Name
Turkey	<i>Meleagris gallopavo</i>
Turkey vulture	<i>Cathartes aura</i>
Veery	<i>Catharus fuscescens</i>
Virginia rail	<i>Rallus limicola</i>
Water pipit	<i>Anthus spinoletta</i>
Whip-poor-will	<i>Caprimulgus vociferus</i>
White throated sparrow	<i>Zonotrichia albicollis</i>
White-breasted nuthatch	<i>Sitta carolinensis</i>
White-crowned sparrow	<i>Zonotrichia albicollis</i>
White-eyed vireo	<i>Vireo griseus</i>
Wood thrush	<i>Hylocichla mustelina</i>
Yellow warbler	<i>Dendroica petechia</i>
Yellow-bellied sapsucker	<i>Sphyrapicus varius</i>
Yellow-billed cuckoo	<i>Coccyzus americanus</i>
Yellow-rumped warbler	<i>Dendroica coronata</i>
Yellow-throated warbler	<i>Dendroica dominica</i>

Fish

Common Name	Scientific Name
Mud sunfish	<i>Acantharchus pomotis</i>
American Eel	<i>Anguilla rostrata</i>
Pirate perch	<i>Aphrododerus sayanus</i>
White sucker	<i>Catostomus commersoni</i>
Carp	<i>Cyprinus carpio</i>
Bluespotted sunfish	<i>Enneacanthus gloriosus</i>
Black banded sunfish	<i>Enneacantus chaetodon</i>
Eastern chain pickerel	<i>Esox niger</i>
Eastern swamp darter	<i>Etheostoma fusiforme</i>
Tesselated darter	<i>Etheostoma olmstedii</i>
Banded killifish	<i>Fundulus diaphanus</i>
Yellow bullhead	<i>Ictalurus natalis</i>
Brown bullhead	<i>Ictalurus nebulosus</i>
Channel catfish (stocked)	<i>Ictalurus punctatus</i>
Pumkinseed	<i>Lepomis gibbosus</i>

Common Name	Scientific Name
Bluegill	<i>Lepomis macrochirus</i>
Redbreast sunfish	<i>Lepomis auritus</i>
Largemouth bass	<i>Micropterus salmoides</i>
Golden shiner	<i>Notemigonus crysoleucas</i>
Yellow perch	<i>Perca flavascens</i>
Black crappie	<i>Pomoxis nigromaculatus</i>
Rainbow trout (stocked)	<i>Salmo gairdneri</i>
Brown trout (stocked)	<i>Salmo trutta</i>
Brook Trout (stocked)	<i>Salvelinus fontinalis</i>
Eastern mud minnow	<i>Umbra pygmaea</i>

Mammals

Common Name	Scientific Name
Opossum	<i>Didelphis marsupialis</i>
Eastern mole	<i>Scalopus aquaticus</i>
Star-nosed mole	<i>Condylura cristata</i>
Masked shrew	<i>Sorex cinereus</i>
Least shrew	<i>Cryptotis parva</i>
Short-tail shrew	<i>Blarina brevicauda</i>
Little brown myotis	<i>Myotis lucifugus</i>
Keen myotis	<i>Myotis keeni</i>
Silver-haired bat	<i>Lasiurus noctivagans</i>
Eastern pipitrel	<i>Pipistrellus subflavus</i>
Red bat	<i>Lasiurus borealis</i>
Hoary bat	<i>Lasiurus cinereus</i>
Big brown bat	<i>Eptesicus fuscus</i>
Raccoon	<i>Procyon lotor</i>
Longtail weasel	<i>Mustela frenata</i>
Mink	<i>Mustela vison</i>
River otter	<i>Lutra canadensis</i>
Striped skunk	<i>Mephitis mephitis</i>
Coyote	<i>Canis latrans</i>
Red fox	<i>Vulpes fulva</i>
Gray fox	<i>Urocyon cinereoargenteus</i>

Common Name	Scientific Name
Woodchuck	<i>Marmota monax</i>
Gray squirrel	<i>Sciurus carolinensis</i>
Red squirrel	<i>Tamiasciurus hudsonicus</i>
Southern flying squirrel	<i>Glaucomys volans</i>
Beaver	<i>Castor canadensis</i>
White-footed mouse	<i>Peromyscus leucopus</i>
Southern Bog lemming	<i>Synaptomys cooperi</i>
Boreal redback vole	<i>Clethrionomys gapperi</i>
Meadow vole	<i>Microtus pennsylvanicus</i>
Pine vole	<i>Pitymys pinetorum</i>
Muskrat	<i>Ondatra zibethica</i>
Norway rat	<i>Rattus norvegicus</i>
House mouse	<i>Mus musculus</i>
Meadow jumping mouse	<i>Zapus hudsonius</i>
Eastern cottontail	<i>Sylvilagus floridanus</i>
White-tailed deer	<i>Odocoileus virginianus</i>

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APPENDIX C— FEDERAL AND STATE COORDINATION LETTERS

NOTE: Each of the consultation letters included in this appendix included two maps: Enclosure 1 and Enclosure 2. These enclosures were identical in each of the letters. Rather than including identical maps throughout this appendix, Enclosures 1 and 2 are presented once at the end of this appendix.



THE Louis Berger Group, INC.

2300 N Street, NW, Washington, DC 20037 U.S.A.
Tel 202 912 0200 Fax 202 293 0787 www.louisberger.com

May 26, 2006

ATTN: Clifford G. Day
Supervisor
U.S. Fish and Wildlife Service
New Jersey Field Office
927 North Main Street
Heritage Square, Building D
Pleasantville, New Jersey 08232

SUBJECT: Intergovernmental and Interagency Coordination of Environmental Planning (IICEP) for the Fort Dix Realignment Environmental Assessment.

Dear Mr. Day:

The Department of the Army (DA) is preparing an Environmental Assessment (EA) for the proposed construction of several facilities resulting from Base Realignment and Closure (BRAC) recommendations. On September 8, 2005, the Defense Base Closure and Realignment Commission ("BRAC Commission") recommended that certain realignment actions occur at Fort Dix in Burlington County, New Jersey. 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 enable implementation of these recommendations, the Army proposes to provide necessary facilities to support changes in force structure at Fort Dix.

The EA will analyze and document environmental effects associated with the Army's proposed realignment actions at Fort Dix. 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); Army Regulation (AR) 200-2; and the Army 2006 Base Realignment and Closure Manual for Compliance with the National Environmental Policy Act.

The following presents the BRAC-related projects planned as part of the realignment actions and their locations on Fort Dix (Enclosures 1 and 2).

- **Army Reserve Center (ARC) for the 77th, 78th, and 99th.** An ARC headquarters for the 99th Regional Readiness Command and a combined headquarters for the 78th Division and the 77th Regional Readiness Command would be constructed in the 5200 Area along Maryland Avenue between Pennsylvania Avenue and South Scott Plaza. The ARC would contain 163,500 square feet and occupy a first floor footprint of up to 88,500 square feet. The entire footprint, including parking, would cover approximately 9.5 acres.
- **Aviation Support Facility.** A 21,300 square foot aircraft maintenance hangar would be constructed for the 244th Aviation Brigade and Company A/228th Aviation. In addition, a 1,510 square foot aviation support operations building, 350 square foot unheated storage area, 733 square yard aircraft washing apron, and 20,170 square yards of fixed-wing taxiway and apron space would be constructed. Organizational parking covering 1,250 square yards would be provided. These facilities are proposed for the 4400 Area off Texas Avenue. Demolition of the existing DOL Vehicle Maintenance Facility would be required to construct the new facility.
- **Physical Fitness Facility.** A 64,799 square foot physical fitness facility would be constructed adjacent to the existing indoor swimming pool located in the 5900 area off Doughboy loop. This facility would be constructed to replace the existing substandard Building 6053 Griffith Field House, Building 5953 Physical Fitness Facility, the Doughboy Gym, and Building 6035 trailer. The physical fitness facility would be designed to accommodate the projected population increases due to the BRAC 05 realignment actions.



- **Child Development Center (CDC) and School Age Services (SAS) Complex.** A CDC/SAS complex would be constructed to support additional permanent party personnel dependents resulting from the proposed BRAC realignments. This facility is proposed for the 1500 Area off Elm, Filmore, and Fir Streets. The single-story building would contain 22,159 square feet (8,230 square feet for the CDC and 13,929 square feet for the SAS). The CDC would include space for 93 preschool age children (6 weeks to 5 years of age), and the SAS would include space for 105 school age children (6 to 10 years of age).
- **Organization Maintenance Shop (OMS) Facility and Additional Parking Area.** A new 15,700 square foot OMS facility at the Equipment Concentration Site 27 (ECS 27) and additional parking area for the 77th & 78th Motor Pool would be constructed to support the increased mobilization/demobilization maintenance requirements resulting from the designation of Fort Dix as a Joint Pre-Deployment/Mobilization Site. In addition, a 3,796 square foot unheated storage facility would be required.

In accordance with the National Environmental Policy Act, Endangered Species Act, and Fish and Wildlife Coordination Act, an evaluation of the potential effects (both beneficial and adverse) associated with implementing this action is required. We are requesting your input concerning any biological concerns regarding this action, such as the presence of federally listed threatened or endangered species, or critical habitat. The affected areas where the construction projects associated with the BRAC05 realignment actions are shown in Enclosures 1 and 2.

I would like to thank you in advance for your cooperation in this matter. Your prompt consideration and response would be greatly appreciated. Please provide any comments on issues you feel the Army should consider in its EA to me at the address listed above or fax your response to my attention at 202-293-0787. If you have any questions concerning this request, please do not hesitate to contact me at 202-912-0305.

Sincerely,

Gregory Dorn, AICP
Senior Planner
The Louis Berger Group, Inc.
Washington, DC

Enclosures



THE Louis Berger Group, INC.

2300 N Street, NW, Washington, DC 20037 U.S.A.
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May 26, 2006

ATTN: Ernest Deman, Regulatory Programs
The Pinelands Commission
PO Box 7
15 Springfield Road
New Lisbon, New Jersey 08064

SUBJECT: Intergovernmental and Interagency Coordination of Environmental Planning (IICEP) for the Fort Dix Realignment Environmental Assessment.

Dear Mr. Deman:

The Department of the Army (DA) is preparing an Environmental Assessment (EA) for the proposed construction of several facilities resulting from Base Realignment and Closure (BRAC) recommendations. On September 8, 2005, the Defense Base Closure and Realignment Commission ("BRAC Commission") recommended that certain realignment actions occur at Fort Dix in Burlington County, New Jersey. 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 enable implementation of these recommendations, the Army proposes to provide necessary facilities to support changes in force structure at Fort Dix.

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- **Aviation Support Facility.** A 21,300 square foot aircraft maintenance hangar would be constructed for the 244th Aviation Brigade and Company A/228th Aviation. In addition, a 1,510 square foot aviation support operations building, 350 square foot unheated storage area, 733 square yard aircraft washing apron, and 20,170 square yards of fixed-wing taxiway and apron space would be constructed. Organizational parking covering 1,250 square yards would be provided. These facilities are proposed for the 4400 Area off Texas Avenue. Demolition of the existing DOL Vehicle Maintenance Facility would be required to construct the new facility.
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- **Child Development Center (CDC) and School Age Services (SAS) Complex.** A CDC/SAS complex would be constructed to support additional permanent party personnel dependents resulting from the proposed BRAC realignments. This facility is proposed for the 1500 Area off Elm, Filmore, and Fir Streets. The single-story building would contain 22,159 square feet (8,230 square feet for the CDC and 13,929 square feet for the SAS). The CDC would include space for 93 preschool age children (6 weeks to 5 years of age), and the SAS would include space for 105 school age children (6 to 10 years of age).
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We are requesting your input regarding any concerns that you may have with respect to these projects. The affected areas where the construction projects associated with the BRAC05 realignment actions are shown in Enclosures 1 and 2.

For the Army Reserve Center (ARC) for the 77th, 78th, and 99th project, we are aware that the Philadelphia District, Army Corps of Engineers submitted the results of the Roman and Good's "Buffer Delineation Model for New Jersey Pinelands Wetlands" on April 17, 2006. This project would avoid the calculated 110ft buffer and would be designed to deliberately avoid the buffer by upwards of 90 feet.

I would like to thank you in advance for your cooperation in this matter. Your prompt consideration and response would be greatly appreciated. Please provide any comments on issues you feel the Army should consider in its EA to me at the address listed above or fax your response to my attention at 202-293-0787. If you have any questions concerning this request, please do not hesitate to contact me at 202-912-0305.

Sincerely,

Gregory Dorn, AICP
Senior Planner
The Louis Berger Group, Inc.
Washington, DC

Enclosures



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May 26, 2006

ATTN: Division of Parks and Forestry
New Jersey Department of Environmental Protection
P. O. Box 402
Trenton, NJ 08625-0402

SUBJECT: Intergovernmental and Interagency Coordination of Environmental Planning (IICEP) for the Fort Dix Realignment Environmental Assessment.

To Whom It May Concern:

The Department of the Army (DA) is preparing an Environmental Assessment (EA) for the proposed construction of several facilities resulting from Base Realignment and Closure (BRAC) recommendations. On September 8, 2005, the Defense Base Closure and Realignment Commission ("BRAC Commission") recommended that certain realignment actions occur at Fort Dix in Burlington County, New Jersey. 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 enable implementation of these recommendations, the Army proposes to provide necessary facilities to support changes in force structure at Fort Dix.

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- **Aviation Support Facility.** A 21,300 square foot aircraft maintenance hangar would be constructed for the 244th Aviation Brigade and Company A/228th Aviation. In addition, a 1,510 square foot aviation support operations building, 350 square foot unheated storage area, 733 square yard aircraft washing apron, and 20,170 square yards of fixed-wing taxiway and apron space would be constructed. Organizational parking covering 1,250 square yards would be provided. These facilities are proposed for the 4400 Area off Texas Avenue. Demolition of the existing DOL Vehicle Maintenance Facility would be required to construct the new facility.
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I would like to thank you in advance for your cooperation in this matter. Your prompt consideration and response would be greatly appreciated. Please provide any comments on issues you feel the Army should consider in its EA to me at the address listed above or fax your response to my attention at 202-293-0787. If you have any questions concerning this request, please do not hesitate to contact me at 202-912-0305.

Sincerely,

Gregory Dom, AICP
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Washington, DC

Enclosures



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May 26, 2006

ATTN: Dorothy Guzzo
Deputy Director
Department of Environmental Protection
Natural and Historic Resources
State Historic Preservation Office
P.O. Box 404
Trenton, NJ 08625-0404

SUBJECT: Intergovernmental and Interagency Coordination of Environmental Planning (IICEP) for the Fort Dix Realignment Environmental Assessment.

Dear Ms. Guzzo:

The Department of the Army (DA) is preparing an Environmental Assessment (EA) for the proposed construction of several facilities resulting from Base Realignment and Closure (BRAC) recommendations. On September 8, 2005, the Defense Base Closure and Realignment Commission ("BRAC Commission") recommended that certain realignment actions occur at Fort Dix in Burlington County, New Jersey. 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 enable implementation of these recommendations, the Army proposes to provide necessary facilities to support changes in force structure at Fort Dix.

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- **Physical Fitness Facility.** A 64,799 square foot physical fitness facility would be constructed adjacent to the existing indoor swimming pool located in the 5900 area off Doughboy loop. This facility would be constructed to replace the existing substandard Building 6053 Griffith Field House, Building 5953 Physical Fitness Facility, the Doughboy Gym, and Building 6035 trailer. The physical fitness facility would be designed to accommodate the projected population increases due to the BRAC 05 realignment actions. No demolition would occur.



- **Child Development Center (CDC) and School Age Services (SAS) Complex.** A CDC/SAS complex would be constructed to support additional permanent party personnel dependents resulting from the proposed BRAC realignments. This facility is proposed for the 1500 Area off Elm, Filmore, and Fir Streets. The single-story building would contain 22,159 square feet (8,230 square feet for the CDC and 13,929 square feet for the SAS). The CDC would include space for 93 preschool age children (6 weeks to 5 years of age), and the SAS would include space for 105 school age children (6 to 10 years of age). No demolition would occur.
- **Organization Maintenance Shop (OMS) Facility and Additional Parking Area.** A new 15,700 square foot OMS facility at the Equipment Concentration Site 27 (ECS 27) and additional parking area for the 77th & 78th Motor Pool would be constructed to support the increased mobilization/demobilization maintenance requirements resulting from the designation of Fort Dix as a Joint Pre-Deployment/Mobilization Site. In addition, a 3,796 square foot unheated storage facility would be required. No demolition would occur.

In accordance with NEPA and the National Historic Preservation Act (NHPA), an evaluation of the potential impacts associated with implementing these proposed projects is required. We are requesting your further input concerning this action with regard to any cultural resource concerns.

As highlighted above, demolition of DOL Maintenance Facilities (Buildings 4429, 4430, 4431, 4432, and 4433) is proposed. These facilities are located adjacent to McGuire AFB. Buildings in this complex were evaluated in a 2003 study titled "An Architectural Investigation of Pre-1960 Buildings, Fort Dix Military Installation, Burlington and Ocean Counties, New Jersey" by John Milner Assocs. The survey states "As temporary World War II buildings constructed to standardized plans, and as heavily altered examples of their type, the buildings (4429, 4430, 4431, 4432, and 4433) have no architectural or historic significance." A 07 March 2003 review letter of the study from NJ State Historic Preservation Office takes no issue with this finding. Enclosure 3 provides information on these buildings.

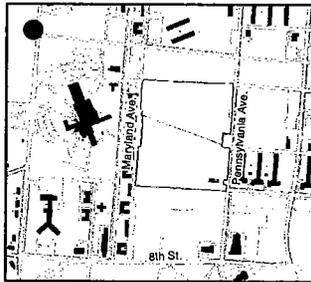
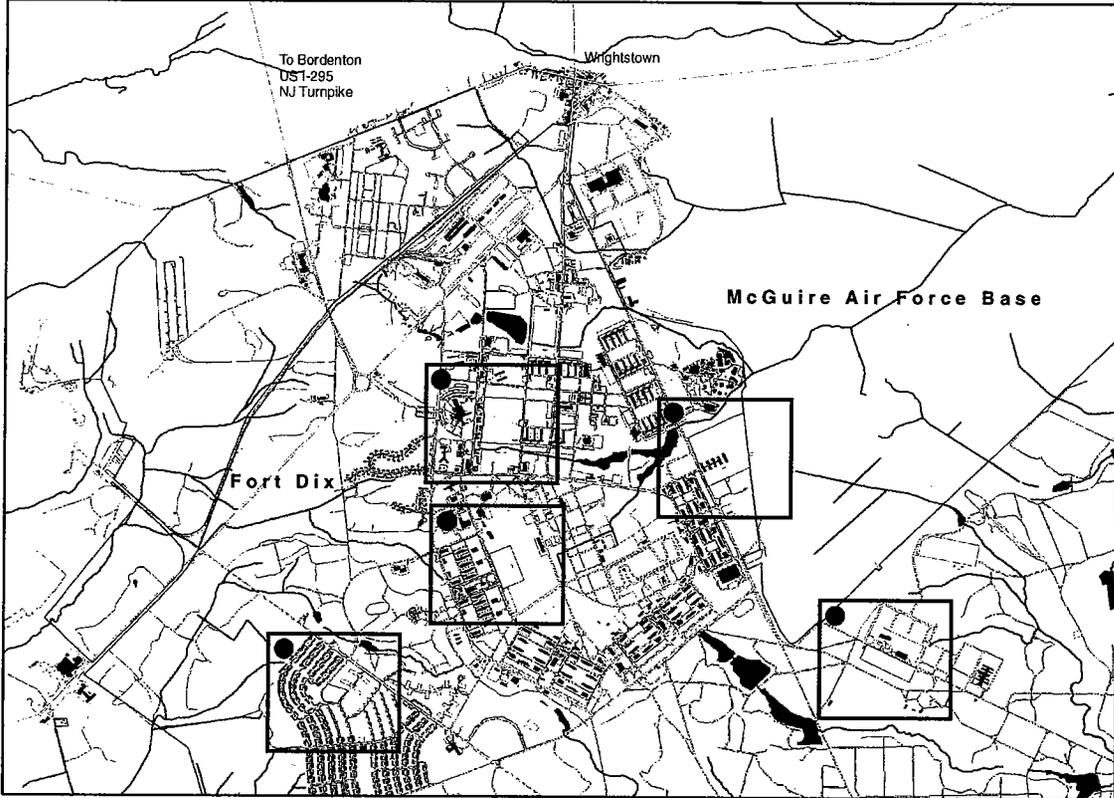
I would like to thank you in advance for your cooperation in this matter. Your prompt consideration and response would be greatly appreciated. Please provide any comments on issues you feel the Army should consider in its EA to me at the address listed above or fax your response to my attention at 202-293-0787. If you have any questions concerning this request, please do not hesitate to contact me at 202-912-0305.

Sincerely,

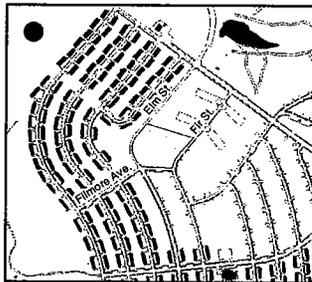
Gregory Dorn, AICP
Senior Planner
The Louis Berger Group, Inc.
Washington, DC

Enclosures

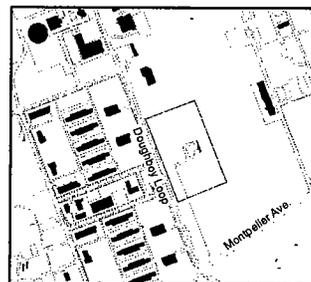
Enclosure 1
Project Locations for BRAC Proposed Action Alternative



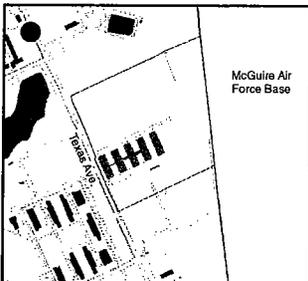
Army Reserve Center (ARC)
for the 77th, 78th, and 99th



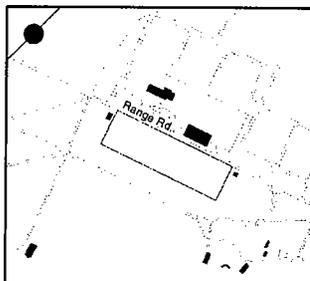
Child Development Center (CDC) and
School Age Services (SAS) Complex



Physical Fitness Facility



Aviation Support Facility



Organization Maintenance Shop (OMS)
Facility and Additional Parking Area

Project Area (Generalized)



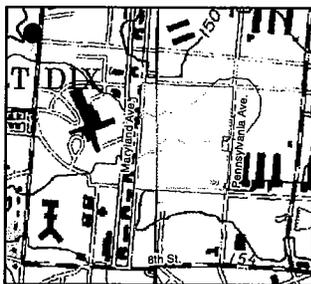
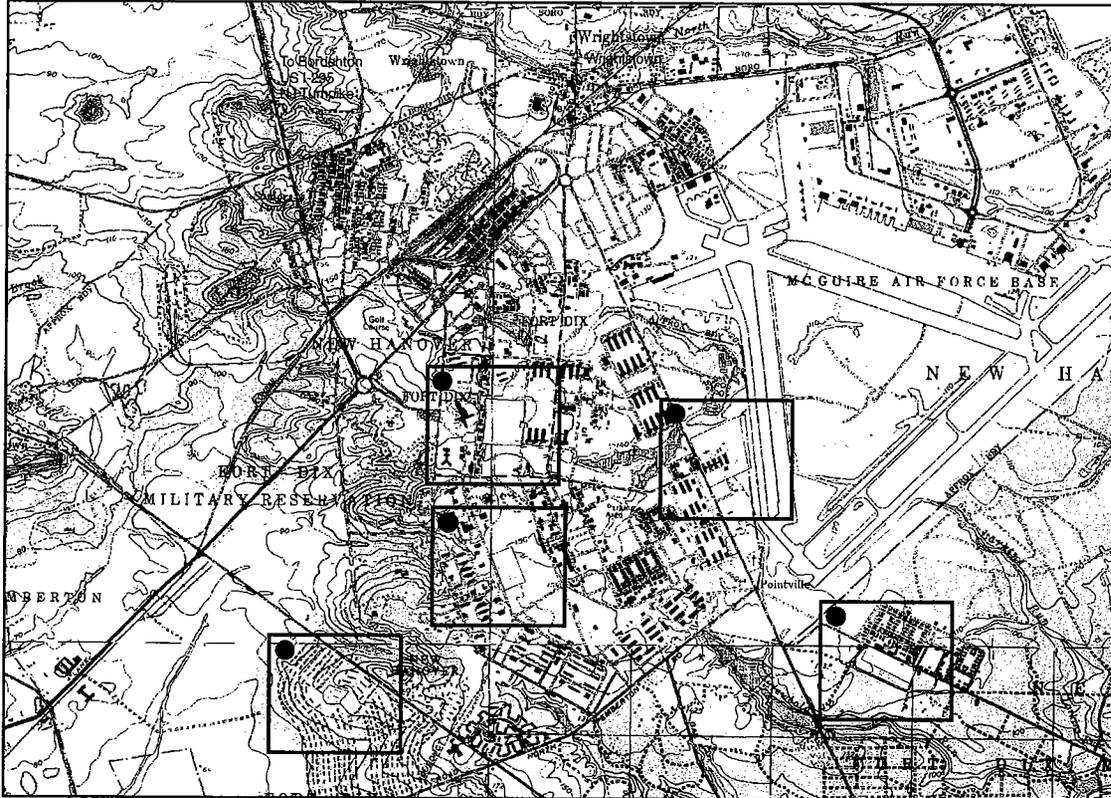
0 1,400 2,800 5,600
Feet

Scale for Reference Map

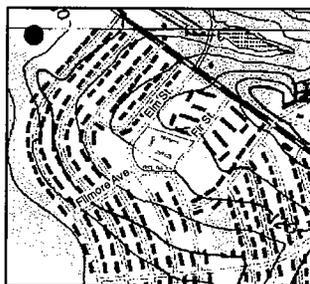
0 600 1,200 2,400
Feet

Scale for Project Detail Maps

Enclosure 2
Project Locations for BRAC Proposed Action Alternative—
USGS 1:24,000 Scale Topographic Quadrangles (Columbus, New Egypt, Pemberton, Browns Mills)



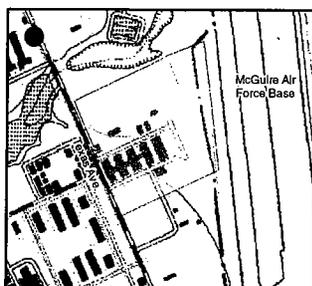
Army Reserve Center (ARC)
for the 77th, 78th, and 99th



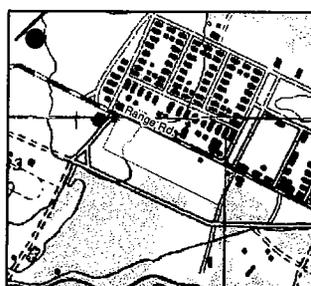
Child Development Center (CDC) and
School Age Services (SAS) Complex



Physical Fitness Facility



Aviation Support Facility



Organization Maintenance Shop (OMS)
Facility and Additional Parking Area

Project Area (Generalized)



0 1,400 2,800 5,600
Feet

Scale for Reference Map

0 600 1,200 2,400
Feet

Scale for Project Detail Maps

Enclosure 3

DOL Maintenance Facilities (Buildings 4429, 4430, 4431, 4432, and 4433) that would be demolished.

New Jersey Department of Environmental Protection
Historic Preservation Office Page 1 of 2

BASE SURVEY FORM Historic Sites #:

Property Name: Department of Logistics Complex (Fort Dix Buildings 4429-38, 4440)

Street Address: Street #: _____ Apartment #: _____
(Low) (High) (Low) (High)

Street Name: Texas Avenue at 8th St. Suffix: _____ Type: _____
(Low) (High)

County(s): Burlington Zip Code: 08849

Municipality(ies): New Hanover Twp.

Local Place Name(s): Fort Dix Block(s): 4400 Lot(s): _____

Ownership: Public USGS Quad: New Egypt, NJ

Description:

Complex of motor vehicle repair and service buildings, all originally constructed c. 1941 and now under control of the Department of Logistics. The complex is situated within a partially enclosed area on the east side of Texas Avenue, north of Nassau Street. Most of the buildings are still in use.

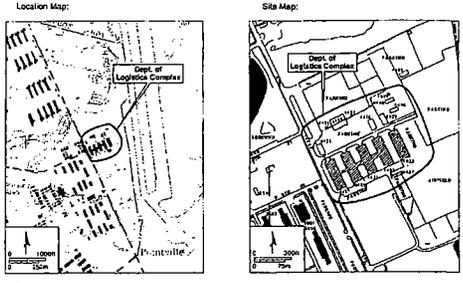
Registration and Status: National Historic Landmark: _____ SHPO Opinion: _____
National Register: _____ Local Designation: _____
New Jersey Register: _____ Other Designation: _____
Determination of Eligibility: _____ Other Designation Date: _____



Survey Name: Fort Dix 4 Date: January 2001
 Surveyor: Katherine Larson Farnham
 Organization: John Miner Associates, Inc.

New Jersey Department of Environmental Protection
Historic Preservation Office Page 2 of 2

BASE SURVEY FORM Historic Sites #:



Bibliography/Sources: _____
 Real Property Office files: _____
 Additional Information: _____

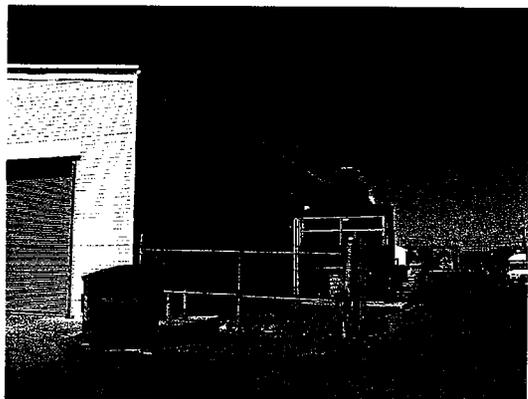
More Research Needed: Yes No

INTENSIVE-LEVEL USE ONLY:
 Attachments Included: 11 Building/Element _____ Landscape _____ Farm _____
 _____ Bridge _____ Industry _____

Historic District: Yes No Historic District Name: _____
 Status: _____ Key Contributing _____ Contributing _____ Non Contributing _____

Associated Archaeological Site/Deposits? Yes No
(Known or potential sites - if yes, please describe briefly)

Survey Name: Fort Dix 4 Date: January 2001
 Surveyor: Katherine Larson Farnham
 Organization: John Miner Associates, Inc.



HP: 2003-252-PROD
Log # 03-0513-1**State of New Jersey**James B. McGreevey
GovernorDepartment of Environmental Protection
Division of Parks & Forestry, Historic Preservation Office
PO Box 404, Trenton, NJ 08625
TEL: (609) 292-2023 FAX: (609) 984-0578
www.state.nj.us/dcp/hpoBradley M. Campbell
Commissioner

March 7, 2003

Director of Public Works
ARC-FAPWN (Dr. Peter Pagoulatos)
Snyder Lane, Building 5317
Fort Dix, NJ 08640

Dear Dr. Pagoulatos:

As Deputy State Historic Preservation Officer for New Jersey, in accordance with 36 CFR Part 800: Protection of Historic Properties, as published in the Federal Register 11 January 2001 (64 FR 77698 - 77739), I am providing Consultation Comments for the following project:

**New Hanover Township, Burlington County
Fort Dix Military Installation
An Architectural Investigation of Pre-1960 Buildings
U.S. Army Corps of Engineers**

§ 800.4 Identification of Historic Properties

Thank you for submitting this survey of Fort Dix's pre-1960 buildings to the Historic Preservation Office (HPO) for review and comment. Overall, the level of historical documentation and physical description of the military installation and each individual building is well prepared and comprehensive. I would suggest that the statement of significance from the eligibility worksheets in Volume Three, or a similar type of summary statement, be included at the end of the individual building descriptions in Volumes One and Two. A similar type of summary statement should also be included for buildings that were not individually assessed. Inclusion of these summary statements will improve the accessibility of the information provided in this survey, and will also convey the individual assessments of eligibility for each surveyed building.

In Section I Abstract, D. Evaluation, Impacts, and Recommendations, additional information for those buildings, or groups of buildings, identified by the consultant as eligible for listing on the National Register should be included to clarify the assessments. This additional information should convey the consultant's justification in determining these buildings, or groups of buildings, eligible for the New Jersey or National Registers. Also, in this section, Building 0099 is recommended eligible under Criterion C only, however, on the eligibility worksheet the consultant states that this building is eligible under Criterion A and C. Please clarify and resolve this discrepancy (see comments below).

H C2003-252- PROD
Log # 03-0513-1

Based on the information provided by John Milner Associates, it appears that the period of 1938 through 1941 was significant to the development of Fort Dix as a permanent military installation. During this period, the War Department responded to a request from Congress to upgrade Camp Dix by designating monies for the construction of new facilities on the installation. These funds, which came from the Works Progress Administration (WPA) and Public Works Administration (PWA), were used to construct a series of permanent redbrick buildings. These buildings, along with the new airfield, the site's potential for expansion, and its geographical location, led to the renaming of Camp Dix as Fort Dix in March 1939. The transition from Camp Dix to Fort Dix represents a significant change in the mission and character of the Base. Construction during the period from 1938 to 1941, however, prior to the United States involvement in WW II, should be considered as part of the continuum of World War II mobilization efforts at Dix. The construction and expansion efforts during this period must be considered as part of WW II preparations at the Base. As a permanent military installation, Fort Dix not only served as one of the largest World War II mobilization and training installations on the East Coast but has also been an important basic training location and mobilization site throughout the twentieth century. All the buildings considered in this letter, therefore, should be considered for their association with WW II mobilization efforts, which encompassed the transition to a permanent base.

The buildings associated with the WW II mobilization effort would be eligible for listing on the National Register of Historic Places under Criterion A. Depending upon their integrity and the ability of certain buildings or groups of buildings to convey an association with these events, the following buildings may be eligible under this criteria:

Buildings 5412, 5413, 5414, 5415, 5416, 5417, 5418, 5419, 5420, 5421, 5422, 5423, 5425 (Scott Plaza)
Buildings 5320, 5321, 5344, 5346, 5347, 5348, 5353 (Utility Complex)
Building 0099, Filtration Plant (Water Supply Infrastructure Facilities)
Building 7061, New Lisbon Pumping Station (Water Supply Infrastructure Facilities)
Buildings 4295, 4404, 5876 (Water Supply Infrastructure Facilities)
Buildings 3130, 3131, 3132, 3133, 3134, 3136, 3137, Warehouses/Storehouses:
Building 3135, Locomotive Repair Shop:
Building 9726, Day Room:

Scott Plaza:

Based on the previous findings, the thirteen buildings identified as Scott Plaza are eligible for inclusion in the National Register of Historic Places under Criterion A for their association with the establishment of Fort Dix as a permanent military installation. These buildings are also eligible, as a district, for listing under Criterion C for their site and landscape planning, which establishes them as a distinguishable entity. This is a new SHPO Opinion of Eligibility. The consultant should identify and justify the boundaries of this eligible historic district.

1939 Utility Complex:

Although the buildings in the 5400 area are utilitarian in appearance and use, they are clearly associated with the establishment of Fort Dix as a permanent military installation and the WW II mobilization effort. While these buildings are clearly associated with significant historic events and would be eligible under Criterion A, the question to be addressed is whether individually, or as a group, these buildings convey the association with the massive mobilization effort. It does not appear that they should be included as part of a discontinuous district along with Scott Plaza, the other collection of buildings constructed at this time. Further, given changes to the character and context of the area, it does not appear that this complex of buildings represents a separate distinct entity or district. Only two of these buildings appear to possess sufficient integrity of historic fabric to be potentially individually eligible for listing in the NRHP. Building 5347, the Gas Station, and Building 5353, the Fire Station, which both retain a high degree of architectural integrity, clearly convey their association with the period and should be evaluated individually in light of Criterion A significance.

Water-Supply Infrastructure Facilities:

Construction of Buildings 0099, 7061, 4295, 4404, and 5876 post-dates the construction of Scott Plaza and the Utility Complex by several years, but these facilities were certainly part of the War Department's plan for establishing Fort Dix as a permanent military installation. These buildings are clearly associated with historic events, namely transition to a permanent base and the massive WW II mobilization effort. These buildings all appear to retain a high degree of architectural integrity and use. Lacking association with a distinct historic district, are these buildings able to convey an association with the massive mobilization effort, which would make them eligible under Criterion A? This question must be answered in order to evaluate the eligibility of these buildings. The HPO feels that none of these buildings, including Building 0099 and Building 7061, convey the architectural significance necessary for resources eligible under Criterion C.

Buildings 3130, 3131, 3132, 3133, 3134, 3136, 3137, Warehouses/Storehouses:

The statement of significance provided in the Eligibility Worksheets for these buildings state that they are "typical World War II military warehouse(s)" that "lack historical and architectural significance." Due to the association with the WW II mobilization, these buildings clearly have historical significance. The questions that needs to be addressed is whether, given the reduction in the number of warehouses and the loss of context and setting, prevents these buildings from conveying their association with the WW II mobilization effort. On June 7, 1994 a SHPO Opinion of Eligibility was issued that included Buildings 3103, 3104, 3105, 3106, 3111, 3115, 3116, 3123, and 3125. This letter concluded that, despite alteration and the demolition of nearby associated warehouse buildings, these buildings still conveyed the general character and scale of the immense World War II mobilization at Fort Dix and were eligible under Criterion A. Since these building were similar in use and appearance to those evaluated in the current survey, and also suffered a loss of context, it appears that the remaining warehouse buildings in area 3100 might also eligible under Criterion A. The consultant should reassess these buildings in light of these considerations.

Building 3135, Locomotive Repair Shop:

The consultant states that this building retains high integrity that clearly indicates its past use as a railroad facility and that it is the only railroad-specific building extant on Fort Dix, but finds that it is not individually eligible for listing. The movement of large amounts of food, clothing, building materials, and other goods into and out of Fort Dix was an important aspect of the

HP :2003-252-PROD
Log # 03-0513-1

immense World War II mobilization on the installation. Buildings related to the railroad, which conducted these vital goods through the Fort, and the warehouses where these goods were stored and distributed, are therefore historically significant for their historical association. There is not a question that this building is associated with significant historic events. Similar to the warehouse buildings discussed above the Locomotive Repair Shop must be evaluated in the context of whether, standing alone, this building is able to convey an association with the massive World War II mobilization effort.

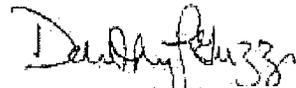
Building 9726, Day Room:

On the Eligibility Worksheet for this resource, the consultant states that "it has been previously determined that standardized temporary structures do not meet the requirements for National Register eligibility." The Nationwide Programmatic Memoranda of Agreement for temporary WW II buildings specifically states that "these buildings may meet the criteria of the National Register of Historic Places." This determination seems to run counter to the statement taken from the Eligibility Worksheet for Building 9726.

Given the intact condition of this building, it appears to be eligible for inclusion on the National Register under Criterion C. Although it has been moved, the building is an architecturally intact representation of the type of wood frame, Series 700, temporary buildings built at Fort Dix during the immense World War II mobilization. This is a new SHPO Opinion of Eligibility.

We look forward to consulting with you in the future. Should there be any further questions regarding this project, please contact either of the following members of my staff: Dan Saunders at (609) 777-3930 or Pika LaValley at (609) 984-6014.

Sincerely,



Dorothy P. Guzzo
Deputy State Historic
Preservation Officer

Cc: Douglas McVarish, John Milner Architects, Inc.
535 North Church Street, West Chester, PA 19380

C: my documents \ ... \ 03-0513
DG/KL/pl

**APPENDIX D—COPIES OF LETTERS RECEIVED IN RESPONSE TO
THE FEDERAL AND STATE COORDINATION LETTERS**



United States Department of the Interior

FISH AND WILDLIFE SERVICE

New Jersey Field Office

Ecological Service

927 North Main Street, Building D

Pleasantville, New Jersey 08232

Tel: 609-646-9310

Fax: 609-646-0352

<http://njfieldoffice.fws.gov>



IN REPLY REFER TO:

ES-05/NE 283

The Louis Berger Group, Inc.

Washington DC.

Attn: Gregory Dorn

Fax number: (202) 293-0787

JUN 14 2006

Threatened and endangered species review for:

Project identification: Fort Dix Realignment Environmental Assessment

Township: Fort Dix County: Burlington, New Jersey

The U.S. Fish and Wildlife Service (Service) has reviewed the above-referenced proposed project pursuant to Section 7 of the Endangered Species Act of 1973 (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*) (ESA) to ensure the protection of federally listed endangered and threatened species. The following comments do not address all Service concerns for fish and wildlife resources and do not preclude separate review and comment by the Service as afforded by other applicable environmental legislation.

Except for an occasional transient bald eagle (*Haliaeetus leucocephalus*), no other federally listed or proposed endangered or threatened flora or fauna under Service jurisdiction are known to occur within the vicinity of the proposed project site. Therefore, no further consultation pursuant to Section 7 of the Endangered Species Act is required by the Service. This determination is based on the best available information. If additional information on federally listed species becomes available, or if project plans change, this determination may be reconsidered.

Please refer to this office's web site at <http://www.fws.gov/northeast/njfieldoffice/Endangered/eslist.htm> for a current list of federally listed species or candidate species in New Jersey. Candidate species are species under consideration by the Service for federal listing. Although candidate species receive no substantive or procedural protection under the ESA, the Service encourages you to consider candidate species in project planning. The above web site also provides contacts for obtaining the most up-to-date information on federal candidate species and State-listed plant species in New Jersey from the New Jersey Natural Heritage Program and information on State-listed wildlife species from the New Jersey Endangered and Nongame Species Program. If information from either of these sources reveals the presence of any federal candidate species within your project area, the Service should be contacted at the above address immediately to ensure that these species are not adversely affected by project activities.

Authorizing Supervisor: _____



State of New Jersey

THE PINELANDS COMMISSION

PO Box 7

NEW LISBON NJ 08064

(609) 894-7300

June 7, 2006

JON S. CORZINE
Governor

JOHN C. STOKES
Executive Director

Gregory Dorn
The Louis Berger Group, Inc.
2300 N Street, NW
Washington, DC 20037

Please Always Refer To
This Application Number

Re: Fort Dix
New Hanover Township
Pemberton Township

Dear Mr. Dorn:

Thank you for your May 26, 2006 letter regarding proposed development at Fort Dix. The Commission has previously received applications for the proposed developments and the Commission has issued several incomplete letters requesting additional information to complete the applications. I have enclosed a copy of those letters for your review.

If you have any questions, please contact the Regulatory Programs staff.

Sincerely,

Ernest M. Deman
Environmental Specialist



<http://www.nj.gov/pinelands/>
E-mail: info@njpinelands.state.nj.us



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State of New Jersey

THE PINELANDS COMMISSION

PO Box 7

NEW LISBON NJ 08064

(609) 894-7300
December 29, 2005

RICHARD J. CODEY
Acting Governor

JOHN C. STOKES
Executive Director

David Peckham
Department of the Army Headquarters
Attn: IMNE-DIX-PWE - Building 5317
Snyder Lane
Fort Dix, NJ 08640

Please Always Refer To
This Application Number

Re: Application #1991-0820.053
Block 21, Lot 1
New Hanover Township

Dear Mr. Peckham:

This is in response to the information you submitted on November 16, 2005 regarding the construction of a Headquarters Facility for the 99th Regional Readiness Sustainment Command on the above referenced lot. Please submit the following information to complete the application:

1. Fill out, sign, have notarized and return the Pinelands Comprehensive Management Plan's Application. The submitted application form was not notarized.
2. A site plan prepared by an appropriately licensed professional showing the location of all existing and proposed development including all existing and proposed facilities, buildings, structures, parking areas, roads, utilities and limits of disturbance/clearing.
3. A storm water management plan prepared by an appropriately licensed professional along with stormwater drainage calculations. The calculations must be provided utilizing the Soil Conservation Service Technical Release No.55, "Urban Hydrology for Small Watersheds." The calculations should demonstrate compliance with the following standards:
 - a. The total volume of runoff generated from any net increase in impervious surfaces by a 10 year storm of a 24 hour duration shall be retained and



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E-mail: info@njpines.state.nj.us



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infiltrated on-site.

- b. The peak rates of runoff generated by the parcel for a 2 year, 10 year and 100 year storm of a 24 hour duration shall not increase as a result of development of the site.
4. The results of a soil boring taken within each recharge area must be submitted. The bottom of all recharge facilities must be located an adequate distance (2 feet minimum) above the seasonal high water table. Provide a numerical estimation of the seasonal high water table.
5. Provide a description of a proposed maintenance and inspection program for the stormwater management system. Identify the party that will be responsible for the maintenance and inspections and include a schedule for these activities.
6. A copy of the legal notice that has been published in the official newspaper of the municipality in which the property is located.

Please include your application number on any submitted information. Within 30 days of receipt, the Commission will review and respond in writing to any submitted information. No further review of the application will occur until the information requested in this letter is submitted.

If you have any questions, please contact the Regulatory Programs staff.

Sincerely,



Ernest M. Deman
Environmental Specialist



State of New Jersey

THE PINELANDS COMMISSION

PO Box 7

NEW LISBON NJ 08064

(609) 894-7300

May 12, 2006

JON S. CORZINE
Governor

JOHN C. STOKES
Executive Director

David Peckham
Department of the Army Headquarters
Attn: IMNE-DIX-PWE - Building 5317
Snyder Lane
Fort Dix, NJ 08640

Please Always Refer To
This Application Number

Re: Application #1991-0820.053
Block 21, Lot 1
New Hanover Township

Dear Mr. Peckham:

This is in response to the information you submitted on April 19, 2006 regarding the construction of a Headquarters Facility for the 99th Regional Readiness Sustainment Command on the above referenced lot.

The Commission staff has reviewed the submitted Buffer Delineation Model for New Jersey Pinelands Wetlands. A 50 foot buffer to the referenced wetlands is appropriate for the proposed development. Please submit the remaining items listed in our December 29, 2005 letter.

Please include your application number on any submitted information. Within 30 days of receipt, the Commission will review and respond in writing to any submitted information. No further review of the application will occur until the information requested in this letter is submitted.

If you have any questions, please contact the Regulatory Programs staff.

Sincerely,

Ernest M. Deman
Environmental Specialist



<http://www.nj.gov/pinelands/>
E-mail: info@njpines.state.nj.us



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NEW LISBON NJ 08064

(609) 894-7300

December 29, 2005

RICHARD J. CODEY
Acting Governor

JOHN C. STOKES
Executive Director

David Peckham
Department of the Army Headquarters
Attn: IMNE-DIX-PWE - Building 5317
Snyder Lane
Fort Dix, NJ 08640

Please Always Refer To
This Application Number

Re: Application #1991-0820.054
Block 21, Lot 1
New Hanover Township

Dear Mr. Peckham:

This is in response to the information you submitted on November 16, 2005 regarding the construction of a parking lot at the 5200 area on the above referenced lot. Please submit the following information to complete the application:

1. Fill out, sign, have notarized and return the Pinelands Comprehensive Management Plan's Application. The submitted application form was not notarized.
2. A site plan prepared by an appropriately licensed professional showing the location of all existing and proposed development including all existing and proposed facilities, buildings, structures, parking areas, roads, utilities and limits of disturbance/clearing.
3. A storm water management plan prepared by an appropriately licensed professional along with stormwater drainage calculations. The calculations must be provided utilizing the Soil Conservation Service Technical Release No.55, "Urban Hydrology for Small Watersheds." The calculations should demonstrate compliance with the following standards:
 - a. The total volume of runoff generated from any net increase in impervious surfaces by a 10 year storm of a 24 hour duration shall be retained and



<http://www.nj.gov/pinelands/>

E-mail: info@njpines.state.nj.us

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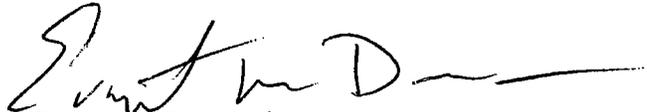
infiltrated on-site.

- b. The peak rates of runoff generated by the parcel for a 2 year, 10 year and 100 year storm of a 24 hour duration shall not increase as a result of development of the site.
4. The results of a soil boring taken within each recharge area must be submitted. The bottom of all recharge facilities must be located an adequate distance (2 feet minimum) above the seasonal high water table. Provide a numerical estimation of the seasonal high water table.
5. Provide a description of a proposed maintenance and inspection program for the stormwater management system. Identify the party that will be responsible for the maintenance and inspections and include a schedule for these activities.
6. A copy of the legal notice that has been published in the official newspaper of the municipality in which the property is located.

Please include your application number on any submitted information. Within 30 days of receipt, the Commission will review and respond in writing to any submitted information. No further review of the application will occur until the information requested in this letter is submitted.

If you have any questions, please contact the Regulatory Programs staff.

Sincerely,



Ernest M. Deman
Environmental Specialist



State of New Jersey

THE PINELANDS COMMISSION

PO Box 7

NEW LISBON NJ 08064

(609) 894-7300

December 29, 2005

RICHARD J. CODEY
Acting Governor

JOHN C. STOKES
Executive Director

David Peckham
Department of the Army Headquarters
Attn: IMNE-DIX-PWE - Building 5317
Snyder Lane
Fort Dix, NJ 08640

Please Always Refer To
This Application Number

Re: Application #1991-0820.059
Block 21, Lot 1
New Hanover Township

Dear Mr. Peckham:

This is in response to the information you submitted on November 16, 2005 regarding the construction of a Physical Fitness Facility on the above referenced lot. Please submit the following information to complete the application:

1. Fill out, sign, have notarized and return the Pinelands Comprehensive Management Plan's Application. The submitted application form was not notarized.
2. A site plan prepared by an appropriately licensed professional showing the location of all existing and proposed development including all existing and proposed facilities, buildings, structures, parking areas, roads, utilities and limits of disturbance/clearing.
3. A storm water management plan prepared by an appropriately licensed professional along with stormwater drainage calculations. The calculations must be provided utilizing the Soil Conservation Service Technical Release No.55, "Urban Hydrology for Small Watersheds." The calculations should demonstrate compliance with the following standards:
 - a. The total volume of runoff generated from any net increase in impervious surfaces by a 10 year storm of a 24 hour duration shall be retained and



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infiltrated on-site.

- b. The peak rates of runoff generated by the parcel for a 2 year, 10 year and 100 year storm of a 24 hour duration shall not increase as a result of development of the site.
4. The results of a soil boring taken within each recharge area must be submitted. The bottom of all recharge facilities must be located an adequate distance (2 feet minimum) above the seasonal high water table. Provide a numerical estimation of the seasonal high water table.
5. Provide a description of a proposed maintenance and inspection program for the stormwater management system. Identify the party that will be responsible for the maintenance and inspections and include a schedule for these activities.
6. A copy of the legal notice that has been published in the official newspaper of the municipality in which the property is located.

The Commission's staff is currently reviewing the application to determine if a cultural survey will be required. Once a determination is made we will notify you in writing.

Please include your application number on any submitted information. Within 30 days of receipt, the Commission will review and respond in writing to any submitted information. No further review of the application will occur until the information requested in this letter is submitted.

If you have any questions, please contact the Regulatory Programs staff.

Sincerely,



Ernest M. Deman
Environmental Specialist



State of New Jersey

THE PINELANDS COMMISSION

PO Box 7

NEW LISBON NJ 08064

(609) 894-7300

December 29, 2005

RICHARD J. CODEY
Acting Governor

JOHN C. STOKES
Executive Director

David Peckham
Department of the Army Headquarters
Attn: IMNE-DIX-PWE - Building 5317
Snyder Lane
Fort Dix, NJ 08640

Please Always Refer To
This Application Number

Re: Application #1991-0820.061
Block 943, Lot 1
Pemberton Township

Dear Mr. Peckham:

This is in response to the information you submitted on November 16, 2005 regarding the construction of a Child Development Center at the 1500 area on the above referenced lot. Please submit the following information to complete the application:

1. Fill out, sign, have notarized and return the Pinelands Comprehensive Management Plan's Application. The submitted application form was not notarized.
2. A site plan prepared by an appropriately licensed professional showing the location of all existing and proposed development including all existing and proposed facilities, buildings, structures, parking areas, roads, utilities and limits of disturbance/clearing.
3. A storm water management plan prepared by an appropriately licensed professional along with stormwater drainage calculations. The calculations must be provided utilizing the Soil Conservation Service Technical Release No.55, "Urban Hydrology for Small Watersheds." The calculations should demonstrate compliance with the following standards:
 - a. The total volume of runoff generated from any net increase in impervious surfaces by a 10 year storm of a 24 hour duration shall be retained and



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infiltrated on-site.

- b. The peak rates of runoff generated by the parcel for a 2 year, 10 year and 100 year storm of a 24 hour duration shall not increase as a result of development of the site.
4. The results of a soil boring taken within each recharge area must be submitted. The bottom of all recharge facilities must be located an adequate distance (2 feet minimum) above the seasonal high water table. Provide a numerical estimation of the seasonal high water table.
5. Provide a description of a proposed maintenance and inspection program for the stormwater management system. Identify the party that will be responsible for the maintenance and inspections and include a schedule for these activities.
6. A copy of the legal notice that has been published in the official newspaper of the municipality in which the property is located.

The Commission's staff is currently reviewing the application to determine if a cultural survey will be required. Once a determination is made we will notify you in writing.

Please include your application number on any submitted information. Within 30 days of receipt, the Commission will review and respond in writing to any submitted information. No further review of the application will occur until the information requested in this letter is submitted.

If you have any questions, please contact the Regulatory Programs staff.

Sincerely,



Ernest M. Deman
Environmental Specialist



State of New Jersey

THE PINELANDS COMMISSION

PO Box 7

NEW LISBON NJ 08064

(609) 894-7300

December 29, 2005

RICHARD J. CODEY
Acting Governor

JOHN C. STOKES
Executive Director

David Peckham
Department of the Army Headquarters
Attn: IMNE-DIX-PWE - Building 5317
Snyder Lane
Fort Dix, NJ 08640

Please Always Refer To
This Application Number

Re: Application #1991-0820.050
Block 15, Lot 1
New Hanover Township

Dear Mr. Peckham:

This is in response to the information you submitted on November 16, 2005 regarding the construction of a Airfield Operations and Support Facility at the 4400 area on the above referenced lot. Please submit the following information to complete the application:

1. Fill out, sign, have notarized and return the Pinelands Comprehensive Management Plan's Application. The submitted application form was not notarized.
2. Please flag or otherwise clearly mark in the field the boundaries of the wetlands that are located on or within 300 feet of the proposed development. Once the wetlands boundaries have been delineated, we suggest that you contact our office so that an on-site inspection of the wetlands line(s) can be completed by the Commission staff.
3. A Site Plan prepared by an appropriately licensed professional indicating the following:
 - a. The location of all verified wetlands.
 - b. The 300 foot buffer to all development. You may either locate all development, including clearing and land disturbance, at least 300 feet from wetlands or provide the results of Roman and Good's "Buffer Delineation



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Model for New Jersey Pinelands Wetlands” and maintain the determined wetland buffer. We suggest that you submit the results of the model for Commission staff confirmation prior to designing the project.

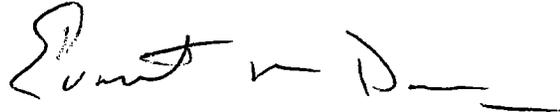
- c. The location of all existing and proposed development including all existing and proposed facilities, buildings, structures, parking areas, roads, utilities(sewer and water mains) and limits of disturbance/clearing.
 - d. A note stating that “No development, including clearing and land disturbance, is permitted in wetlands or wetland buffers”.
4. A storm water management plan prepared by an appropriately licensed professional along with stormwater drainage calculations. The calculations must be provided utilizing the Soil Conservation Service Technical Release No.55, "Urban Hydrology for Small Watersheds." The calculations should demonstrate compliance with the following standards:
 - a. The total volume of runoff generated from any net increase in impervious surfaces by a 10 year storm of a 24 hour duration shall be retained and infiltrated on-site.
 - b. The peak rates of runoff generated by the parcel for a 2 year, 10 year and 100 year storm of a 24 hour duration shall not increase as a result of development of the site.
 5. The results of a soil boring taken within each recharge area must be submitted. The bottom of all recharge facilities must be located an adequate distance (2 feet minimum) above the seasonal high water table. Provide a numerical estimation of the seasonal high water table.
 6. Provide a description of a proposed maintenance and inspection program for the stormwater management system. Identify the party that will be responsible for the maintenance and inspections and include a schedule for these activities.
 7. A copy of the legal notice that has been published in the official newspaper of the municipality in which the property is located.
 8. A cultural resource survey must be undertaken in accordance with the Pinelands Comprehensive Management Plan (N.J.A.C. 7:50-6.155) and the Pinelands Cultural Resource Management Plan. The survey is required due to the possibility that a significant historic resource exists on the parcel. A list of consultants and a copy of the Commission's Guidelines for Cultural Resource Surveys are available upon request from the Commission. In general, the survey will result in a report that

identifies all historic resources within a project area, determines those that are eligible for Pinelands Designation and clearly indicates what direct and indirect impacts the project will have upon them. The survey must be undertaken by a qualified professional according to the Guidelines for Cultural Resource Surveys established by the Commission. For further information regarding the survey requirements, please contact our planning staff.

Please include your application number on any submitted information. Within 30 days of receipt, the Commission will review and respond in writing to any submitted information. No further review of the application will occur until the information requested in this letter is submitted.

If you have any questions, please contact the Regulatory Programs staff.

Sincerely,

A handwritten signature in black ink, appearing to read "Ernest M. Deman", written over a horizontal line.

Ernest M. Deman
Environmental Specialist



State of New Jersey

THE PINELANDS COMMISSION

PO Box 7

NEW LISBON NJ 08064

(609) 894-7300
December 29, 2005

RICHARD J. CODEY
Acting Governor

JOHN C. STOKES
Executive Director

David Peckham
Department of the Army Headquarters
Attn: IMNE-DIX-PWE - Building 5317
Snyder Lane
Fort Dix, NJ 08640

Please Always Refer To
This Application Number

Re: Application #1991-0820.056
Block 14, Lot 1
New Hanover Township

Dear Mr. Peckham:

This is in response to the information you submitted on November 16, 2005 regarding the construction of a Motor Pool on the above referenced lot. Please submit the following information to complete the application:

1. Fill out, sign, have notarized and return the Pinelands Comprehensive Management Plan's Application. The submitted application form was not notarized.
2. A site plan prepared by an appropriately licensed professional showing the location of all existing and proposed development including all existing and proposed facilities, buildings, structures, parking areas, roads, utilities and limits of disturbance/clearing.
3. A storm water management plan prepared by an appropriately licensed professional along with stormwater drainage calculations. The calculations must be provided utilizing the Soil Conservation Service Technical Release No.55, "Urban Hydrology for Small Watersheds." The calculations should demonstrate compliance with the following standards:
 - a. The total volume of runoff generated from any net increase in impervious surfaces by a 10 year storm of a 24 hour duration shall be retained and



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E-mail: info@njpines.state.nj.us

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infiltrated on-site.

- b. The peak rates of runoff generated by the parcel for a 2 year, 10 year and 100 year storm of a 24 hour duration shall not increase as a result of development of the site.
4. The results of a soil boring taken within each recharge area must be submitted. The bottom of all recharge facilities must be located an adequate distance (2 feet minimum) above the seasonal high water table. Provide a numerical estimation of the seasonal high water table.
5. Provide a description of a proposed maintenance and inspection program for the stormwater management system. Identify the party that will be responsible for the maintenance and inspections and include a schedule for these activities.
6. A copy of the legal notice that has been published in the official newspaper of the municipality in which the property is located.

Please include your application number on any submitted information. Within 30 days of receipt, the Commission will review and respond in writing to any submitted information. No further review of the application will occur until the information requested in this letter is submitted.

If you have any questions, please contact the Regulatory Programs staff.

Sincerely,



Ernest M. Deman
Environmental Specialist

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**APPENDIX E—BUFFER DELINEATION FOR ARMY RESERVE
CENTER (ARC) FOR THE 77TH, 78TH, AND 99TH**



REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY

PHILADELPHIA DISTRICT, CORPS OF ENGINEERS
WANAMAKER BUILDING, 100 PENN SQUARE EAST
PHILADELPHIA, PENNSYLVANIA 19107-3390

Environmental Resources Branch

Mr. Ernest Deman, Regulatory Programs
The Pinelands Commission
PO Box 7
15 Springfield Road
New Lisbon, New Jersey 08064

APR 17 2006

Dear Mr. Deman:

The purpose of this letter is to submit the results of the Roman and Good's "Buffer Delineation Model for New Jersey Pinelands Wetlands" developed for the proposed U.S. Army Reserve Center located between Pennsylvania Avenue and Infantry Road at Fort Dix in Burlington County, New Jersey. The model was developed based on our April 07, 2006 site evaluation. The Pinelands application number is 1991-0820.053, Block 21, Lot 1 located in New Hanover Township.

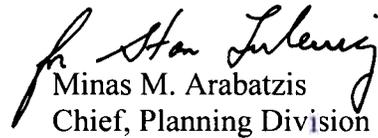
The following attachments are provided for your review:

- 1) Preliminary Data/Information Gathering Form;
- 2) Land Capability Areas Buffer Delineation Procedure Form;
- 3) Buffer Delineation Model Summary Form;
- 4) Figure 1 General Location Map;
- 5) Figure 2 Conceptual Site Plan on a 2005 Aerial Photograph;
- 6) Figure 3 Digital National Wetlands Inventory Map Reference;
- 7) Figure 4 Applicable sections of the New Egypt, Columbus, Pemberton, and Browns Mills New Jersey 7.5 Minute USGS Topographic Maps;
- 8) Copy of the Burlington County Soil Survey Sheet Page 25; and
- 9) List of Federally-listed and State Listed T&E Species Known or Likely to Occur at Fort Dix, Burlington County, New Jersey.

The proposed Army Reserve Center facility includes construction of a new 163,552 square foot (sf) Army Reserve Center, 15,787 sf Vehicle Maintenance Shop and a 3,341 sf Unheated Storage Building. Heating and air conditioning will be included. Supporting facilities include MEP and POV paving, fencing, general site improvements, extension of utilities, and storm water management. Accessibility for the disabled will be provided. Force protection measures will include maximum standoff distance from roads, parking areas, and vehicle unloading areas. Berms, heavy landscaping, and bollards will be used to prevent access when standoff distances cannot be maintained.

Please review the enclosed materials and provide a comment, concurrence or modified buffer determination as soon as possible so the design and site plan for the project can be finalized. If you have any questions regarding this submittal or have made a buffer determination, please contact Gregory Wacik of the Philadelphia District U.S. Army Corps of Engineers at (215) 656-6561. Thank You for your attention to this submittal and request.

Sincerely,


Minas M. Arabatzis
Chief, Planning Division

Enclosures

Copies Furnished:

Joseph J. Schwartz, Jr.
U.S. Army Fort Dix
Directorate of Public Works
Environmental Division
ATTN: IMNE-DIX-PWE
Bldg. 5317, Snyder Lane
Fort Dix, New Jersey 08640-5501

PRELIMINARY DATA/INFORMATION GATHERING FORM

Date: Office Work 4/10/06 Field Work 4/7/06; 4/12/06
Application No. 1991-0820,053 Applicant's Name Dep. of Army (IMNE-DIX-PWE)
Township (Municipality) New Hanover County Burlington

Block and Lot No(s).	Lot Size (acres or sq ft)
<u>Block 21 Lot 1</u>	<u>~20 acres</u>
_____	_____
_____	_____
_____	_____
_____	_____

Pinelands Land Capability Area _____

Zoning _____

Site Location: USGS Topographic Map Columbus and New Egypt, NJ
Soil Survey (County, Sheet, Page) Burlington Co. Sheet 25
Aerial Photographs 1995 and 2005 aerial and satellite imagery
Drainage Basin North Branch Rancocas Creek

Brief description of the proposed development
Proposed construction of an Army Reserve Center with
associated vehicle maintenance shop, parking lot, and
storage building.

Wetland type(s) adjacent to proposed development (attach copy of vegetation map)
Pockets of herbaceous wetlands located within an
existing storm drainage channel.

SPECIAL CASE BUFFER DELINEATION GUIDELINES FORM

Application No. 1991-0820.053 Applicant's Name Dep. of Army (IMNE-DIX-PWE)

- If no GUIDELINES pertain to the application, then the evaluator should proceed to the LAND CAPABILITY AREAS BUFFER DELINEATION PROCEDURE.

- Check the GUIDELINE(S) which pertain to the application:

- Preservation Area District (p. 10)¹
- Resource Extraction (p. 10)
- On-site Domestic Wastewater Treatment (p. 11)
- Infill (p. 14)
- Cedar Swamp (p. 15)

- For the Infill GUIDELINE: Buffer Distance Assigned _____

Rationale (Check One):

- The assigned buffer is compatible with adjacent and nearby existing buffers.
- Adjacent and nearby existing buffers are <50 ft, and thus, the minimum assignable buffer of 50 ft was assigned.

- For the Cedar Swamp GUIDELINE (see Clarifying Condition 3, p. 15):
Check the appropriate situation:

- The cedar swamp boundary is contiguous to the upland, and thus, the recommended buffer between the wetland-upland boundary and the proposed development is 300 ft.
- Another wetland type (or wetland complex) is present between the cedar swamp boundary and the wetland-upland boundary, and this other wetland type or complex is >250 ft. The cedar swamp GUIDELINE does not pertain. The evaluator should proceed to the LAND CAPABILITY AREAS BUFFER DELINEATION PROCEDURE.
- Another wetland type (or wetland complex) is present between the cedar swamp boundary and the wetland-upland boundary, and this other wetland type or complex is <250 ft.

Complete the following if the above box is checked:

Delineate a buffer of 300 ft from the cedar swamp boundary toward the proposed development site. What is the buffer distance from the wetland-upland boundary to the proposed development site? _____ ft

Proceed to the LAND CAPABILITY AREAS BUFFER DELINEATION PROCEDURE and determine a buffer distance from the wetland-upland boundary to the proposed development site. _____ ft

Assign the greater buffer from the wetland-upland boundary.

- If the buffer assigned according to a GUIDELINE does not pertain to the entire application, then proceed to the LAND CAPABILITY AREAS BUFFER DELINEATION PROCEDURE in order to complete the model.

¹Refer to appropriate page for detailed explanation.

LAND CAPABILITY AREAS BUFFER DELINEATION PROCEDURE FORM

Application No. 1991-0820.053

Applicant's Name Dep. of Army (IMNE-DIX-PWE)

EVALUATING RELATIVE WETLAND QUALITY (p. 17)

Check One: Wetland Evaluation Scheme
 Lake/Pond Evaluation Scheme

DEFINING BOUNDARIES FOR EVALUATION (p. 18)

Wetland Site Review Area (not applicable for Lake/Pond Evaluation Scheme):

- If there are distinct wetland types adjacent to the proposed development, then designate these as separate wetland site review areas.

wetland site review area	wetland type
A	Herbaceous
B	
C	
D	
Other	

Wetland Area (p. 21)

Check One: Large scale and/or high intensity development.
Circle diameter = 5 inches on a 1:24,000 scale map.
 All other development. Circle diameter = 3.5 inches on a 1:24,000 scale map.

THREATENED AND ENDANGERED SPECIES (p. 21)

- The wetland area is known to support resident and/or breeding populations of threatened or endangered species (as designated by state and federal regulations), and, the wetland area is critical to the survival of said population(s) of threatened or endangered species:

YES NO

If NO, proceed to Wetland Evaluation Scheme or Lake/Pond Evaluation Scheme
If YES, continue below

- Documentation (e.g., Pinelands Commission records, other source, or field identification/verification):

Species _____

Source _____

Habitat type of population _____

- Assign Wetland Value Index or Lake/Pond Evaluation Index of 3.0. Proceed to Potential for Impacts Scheme. Or, if applicable, proceed to Clarifying Conditions.

- Clarifying Conditions:

- 1) Two distinct wetland types are adjacent to the proposed development, and the primary habitat for the threatened or endangered species is only one of these wetland types (most applicable to plant species)

YES NO

If YES: Assign relative value index of 3.0 to the habitat, or wetland site review area which supports the population, and proceed to the Potential for Impacts Scheme. For other wetland type(s), which do not support threatened or endangered populations, continue to the appropriate Evaluation Scheme.

- 2) If Clarifying Condition (2) is applicable, provide documentation and rationale:

THE WETLAND EVALUATION SCHEME (p. 22)

Vegetation Quality (p. 22)

- Attach plant species checklist for wetland site review area(s).

wetland site review area(s)
A B C D Other

SCORE = |

Existing Surface Water Quality (p. 26)

- Documentation: Data Source None for site Available

Monitoring Station Location _____

Monitoring Station Identification (if available) _____

- Determine Existing Surface Water Quality Score

pH = actual median value ()

NO₃-N = actual mean value (ng/l)

High (< 4.5) 3

High (≤ 0.05) 3

Moderate (>4.6 - <5.9) 2

Moderate (> 0.06 - <0.69) .. 2

Low (≥ 6.0) 1

Low (≥ 0.70) 1

SCORE = $\frac{\text{pH} + \text{NO}_3\text{-N}}{2}$ =

NOTE: If complete data set is not available, then pH or NO₃-N score can be used alone.

VEGETATION QUALITY
- Plant Species Checklist -

Table 2. Plant species characteristic of disturbed and undisturbed Pinelands sites. These lists were adapted from Ehrenfeld (1983) and Ehrenfeld and Schneider (1983).

Disturbed Sites

- [] Actaea sp. (Banberry)
- [] Alisma subcordatum (Small Water Plantain)
- [] Allium vineale (Field Garlic)
- [] Anaphalis margaritacea (Pearly Everlasting)
- [] Arisaema triphillum (Jack-in-the-pulpit)
- [] Athyrium filix-femina (Lady Fern)
- [] Asclepias syriaca (Common Milkweed)
- [] Aster lateriflorus (Calico Aster)
- [] Aster simplex (Panicled Aster)
- [] Berberis thunbergii (Barberry)
- [] Bidens frondosa (Beggar Ticks)
- [] Boehmeria cylindrica (False Nettle)
- [] Callitriche heterophylla (Water Starwort)
- [] Carex lurida (Sallow Sedge)
- [] Circaea quadrisculata (Enchanter's Nightshade)
- [] Convolvulus sp. (Bindweed)
- [] Cuscuta compacta (Dodder)
- [] Decodon verticillata (Water Willow)
- [] Eclipta alba (Yerba-de-tajo)
- [] Erechtites hieracifolia (Pilewort)
- [] Eupatorium perfoliatum (Boneset)
- [] Eupatorium rotundifolium (Round-leaved Boneset)
- [] Fragaria virginiana (Strawberry)
- [] Galium sp. (Bedstraw)
- [] Glyceria sp. (Manna Grass)
- [] Habenaria blephariglottis (White Fringed Orchis)
- [] Habenaria clavallata (Green Wood Orchis)
- [] Habenaria lacera (Ragged Fringed Orchis)
- [] Hypericum multilum (St. John's-wort)
- [] Impatiens biflora (Jewel-weed)
- [] Lactuca canadensis (Wild Lettuce)
- [] Lemna sp. (Duckweed)
- [] Lonicera japonica (Japanese Honeysuckle)
- [] Ludwigia palustris (Water Purslane)
- [] Lycopus amplectens (Sessile-leaved Water Horehound)
- [] Maianthemum canadense (Lily-of-the Valley)
- [] Medeola virginica (Indian Cucumber-root)
- [] Mikania scandens (Climbing Hempweed)
- [] Oxalis stricta (Upright Yellow Wood Sorrel)
- [] Onoclea sensibilis (Sensitive Fern)
- [] Panicum sp. (Panic Grass)
- [] Parthenocissus quinquefolia (Virginia Creeper)

Table 2. Continued.

- [] Phragmites australis (Common Reed)
- [] Phytolacca americana (Pokeweed)
- [] Pilea pumila (Clearweed)
- [] Polygonum sp. (Smartweed)
- [] Ranunculus abortivus (Small Flowered Crowfoot)
- [] Ranunculus sceleratus (Cursed Crowfoot)
- [] Rhus copallina (Winged Sumac)
- [] Rhus radicans (Poison Ivy)
- [] Rhus vernix (Poison Sumac)
- [] Rosa sp. (Rose)
- [] Rubus sp. (Blackberry)
- [] Salix alba (White Willow)
- [] Sambucus canadensis (Common Elder)
- [] Smilax sp. (Brier)
- [] Solidago canadensis (Canada Goldenrod)
- [] Solidago graminifolia (Grass-leaved Goldenrod)
- [] Solidago rugosa (Rough-stemmed Goldenrod)
- [] Sparganium androcladum (Branching Bur-reed)
- [] Symplocarpus foetida (Skunk Cabbage)
- [] Taraxacum officinale (Dandelion)
- [] Thalictrum polygamum (Meadow rue)
- [] Vitis sp. (Wild Grape)

Undisturbed Sites

- [] Aralia nudicaulis (Wild Sarasparilla)
- [] Arethusa bulbosa (Arethusa)
- [] Aster nemoralis (Bog Aster)
- [] Bartonia virginica (Yellow Bartonia)
- [] Carex collinsii (Collins Sedge)
- [] Carex stricta (Tussock Sedge)
- [] Carex walteriana (Walters Sedge)
- [] Chamaedaphne calyculata (Leatherleaf)
- [] Drosera sp. (Sundew)
- [] Eleocharis tuberculosa (Tuberled Spike-rush)
- [] Eriophorum virginicum (Cotton Grass)
- [] Gaylussacia dumosa (Dwarf Huckleberry)
- [] Gaylussacia frondosa (Dangleberry)
- [] Helonias bullata (Swamp-pink)
- [] Juncus canadensis (Canada Rush)
- [] Kalmia angustifolia (Sheep Laurel)
- [] Kalmia latifolia (Mountain Laurel)
- [] Leucothoe racemosa (Fetterbush)
- [] Lyonia mariana (Staggerbush)
- [] Myrica pensylvanica (Bayberry)
- [] Orontium aquaticum (Golden Club)
- [] Panicum ensifolium (Small-leaved Panic)
- [] Pogonia ophioglossoides (Rose Pogonia)
- [] Polygala brevifolia (Short-leaved Milkweed)
- [] Pontederia cordata (Pickerelweed)
- [] Rhexia mariana (Meadow Beauty)

Table 2. Continued.

[]	<u>Rhododendron viscosum</u>	(Swamp Azalea)
[]	<u>Rhynchospora alba</u>	(White Beaked-rush)
[]	<u>Rhynchospora gracilentia</u>	(Slender Beaked-rush)
[]	<u>Sarracenia purpurea</u>	(Pitcher Plant)
[]	<u>Scirpus cyperinus</u>	(Wool Grass)
[]	<u>Utricularia sp.</u>	(Bladderwort)
[]	<u>Viburnum nudum</u>	(Possum Haw)
[]	<u>Vaccinium corymbosum</u>	(Highbush Blueberry)
[]	<u>Vaccinium macrocarpon</u>	(Cranberry)
[]	<u>Viola lanceolata</u>	(Lance-leaved Violet)

Other Wetland Species

Typha latifolia

Juncus effusus

- NO existing surface water quality data are available for the site. Assume high water quality (circle if appropriate).

SCORE = 3.0

- OR, provide adequate documentation to demonstrate that the surface water quality is of moderate or low relative quality.

Channel provides stormwater conveyance to willow Pond.
Small and isolated pockets of surface water remain in the channel
depending on debris accumulation and storm drainage channel
microtopography.

SCORE = 1

Water Quality Maintenance Value (p. 30)

a) Hydrologic regime

If Applicable: Average width of wetland area = 7 ft
 (Avg. stormwater channel width)

Subscore = 2

b) Nutrient retention/removal capacity of wetland soils

Soils of wetland area (Checklist)

Soil Series	Check if Present	Approx. % of wetland area
ATSION	<input checked="" type="checkbox"/>	2.5%
BERRYLAND	<input type="checkbox"/>	
POCOMOKE	<input checked="" type="checkbox"/>	2.5%
MUCK	<input checked="" type="checkbox"/>	1%
Others (list)	<input checked="" type="checkbox"/>	
<u>Ug (urban land)</u>		<u>85%</u>
<u>misc. inclusions</u>		<u>9%</u>

Subscore = 1

c) Nutrient retention by vegetation uptake

Wetland site review area(s)

	A	B	C	D	Other
SCORE =	<input type="checkbox" value="0"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

- Determine the Relative Water Quality Maintenance Score

	Hydrologic Regime	+	Nutrient Ret/Rem	+	Vegetation Uptake (A,B,C,D, etc.)
SCORE =	<input type="checkbox" value="2"/>		<input type="checkbox" value="1"/>		<input type="checkbox" value="0"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
	3				

	<u>Wetland site review area(s)</u>				
	A	B	C	D	Other
SCORE =	<input type="checkbox" value="1"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Wildlife Habitat Value (p. 33)

a) Vegetation Interspersion.

Describe vegetation interspersion of the wetland area

Vegetation within the wetland (storm channel) is very sparse.

The site, to include complexes within the wetland area are

located in the developed military reservation resulting in pockets of vegetation and monotypic stands of landscape vegetation.

Subscore =

b) Wetland size

Area of nonfragmented and contiguous wetland complex = 0 acres

The entire channel within the project area is .12 acres. Isolated pockets of herbaceous wetland vegetation exist within the channel.

Subscore =

c) Surrounding Habitat

Briefly describe surrounding habitat types

The wetland area is within the military reservation.
Habitat is primarily manicured lawns and monotypic
stands of vegetation (white pine).

Subscore =

- Determine the Relative Wildlife Habitat Score

Vegetation Interspersion	+	Size	+	Surrounding Habitat	
<input type="text" value="1"/>		<input type="text" value="1"/>		<input type="text" value="1"/>	-
3					<input type="text" value="1"/>

SCORE =

Socio-cultural Values (p. 35)

Answers to questions: Recreation

Question 1 YES NO

Question 2 YES NO

Research and Education

Question 1 YES NO

Question 2 YES NO

Visual/Aesthetic

Question 1 YES NO

Uniqueness

Question 1 YES NO

Question 2 YES NO

Question 3 YES NO

SCORE =

Determining an Overall Wetland Value Index (p. 36)

Vegetation	+	Water Quality	+	Water Quality Maintenance
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
		+ Habitat		+ Socio-cultural
		<input type="checkbox"/>		<input type="checkbox"/>
INDEX =		<hr style="border: 0.5px solid black;"/> <div style="display: flex; justify-content: center; align-items: center; gap: 10px;"> 5 </div>		

	<u>wetland site review area(s)</u>				
	A	B	C	D	Other
WETLAND VALUE INDEX =	$\frac{x}{5} =$				
	<input type="checkbox"/> 1.0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

THE LAKE/POND EVALUATION SCHEME (p. 36)

Existing Surface Water Quality (p. 37)

- Documentation: Data Source _____

Monitoring Station Location _____

Monitoring Station Identification (if available)

- Determine Existing Surface Water Quality Score

pH = actual median value ()	NO ₃ -N = actual mean value (mg/l)
High (≤ 4.5) 3	High (≤ 0.05) 3
Moderate (>4.6 - <5.9) 2	Moderate (> 0.06 - <0.69) .. 2
Low (≥ 6.0) 1	Low (≥ 0.70) 1

$$\text{SCORE} = \frac{\text{pH} + \text{NO}_3\text{-N}}{2} = \square$$

NOTE: If complete data set is not available, then pH or NO₃-N score can be used alone, and thus, do not divide by two.

- NO existing surface water quality data are available for the site. Assume high water quality (circle if appropriate).

SCORE = 3.0

- OR, provide extensive documentation to demonstrate that the surface water quality is of moderate or low relative quality.

SCORE =

Shoreline Habitat Quality (p. 37)

- Briefly describe shoreline habitat

SCORE =

Percent Shoreline Development (p. 37)

- Briefly describe type and relative percentage of development surrounding lake/pond shoreline

SCORE -

Socio-cultural Values (p. 38)

Answers to questions: Recreation (Circle)
Question 1 YES NO
Question 2 YES NO

Research and Education
Question 1 YES NO
Question 2 YES NO

Visual/Aesthetic
Question 1 YES NO

Uniqueness
Question 1 YES NO
Question 2 YES NO
Question 3 YES NO

SCORE -

Determine an Overall Lake/Pond Relative Value Index (p. 38)

Water Quality + Shoreline Habitat Quality + % Shoreline Development + Socio-cultural

+ + +

INDEX -

LAKE/POND VALUE INDEX -

POTENTIAL FOR IMPACTS SCHEME (p. 38)

Potential for Site-Specific Wetland Impacts (p. 38)

- Residential Development; Proposed Density = _____ units/acre of upland
- Non-residential Development; Percent of upland site proposed to be occupied by permanent development = 80 %

SCORE =

- If slope factor is applicable, increase score by 0.5 units. The score cannot be increased above the maximum 3.0 units.

SCORE (with slope factor) =

Potential for Cumulative Impacts on a Regional Basis (p. 40)

- Non-residential development (circle if appropriate):

- Residential development:

Land Capability Area _____

Municipal Zoning Requirements (Certified Municipalities only)
(based on gross land area; upland and wetland)

SCORE =

- Uncertified Municipalities (circle if appropriate):

- or, provide documentation to demonstrate that cumulative impacts will be less significant

SCORE =

Significance of Watershed-wide Impacts (p. 41)

Checklist of reason(s) for assigned SCORE

Within 2 miles downstream of the proposed development site there is (are):

- An environmentally sensitive open space/natural area.
Identify: _____
- An active cranberry area.
- Any portion of the Preservation Area District.
- Any portion of the Forest Area with low potential for development (>20 acres/unit).
- Any portion of the Pinelands National Reserve with moderate potential for development (>5 - < 20 acres/unit).
- Any portion of the Pinelands National Reserve with moderate to high potential for development (>1 - <5.0 acres/unit).
- Any portion of the state Pinelands National Reserve with a high potential for development (<=1 acre/unit).

OR,

- Threatened or endangered wetland species within 0.5 miles downstream of the proposed development site.
- Threatened or endangered wetlands species > 0.5 miles to 1 downstream of the proposed development site.

The wetland adjacent to the proposed development site is isolated and, a portion of the wetlands or upland immediately adjacent to the isolated wetland is,

- An environmentally sensitive open space/natural area.
Identify: _____
- Any portion of the Preservation Area District.
- A significant portion (>50%) is part of the Forest Area with a low potential for development (> 20 acres/unit).
- Above three factors do not pertain to the isolated wetland.

SCORE =

Determining a Relative Potential for Impacts Index (p. 44)

Site Specific + Cumulative + Watershed-wide

INDEX - $\frac{\boxed{3} + \boxed{3} + \boxed{1}}{3}$

IMPACTS INDEX = $\frac{x}{3} = \boxed{2.3}$

Assigning Buffer Distances (p. 44)

WETLAND VALUE INDEX (or) LAKE/POND VALUE INDEX + POTENTIAL FOR IMPACTS INDEX

A B C D Other

BUFFER DELINEATION INDEX - $\frac{\boxed{1.0} + \boxed{} + \boxed{} + \boxed{} + \boxed{2.3}}{2}$

Wetland site review area(s)

A B C D Other

BUFFER DELINEATION INDEX - $\boxed{1.65}$ $\boxed{}$ $\boxed{}$ $\boxed{}$

ASSIGNED BUFFER DISTANCE (refer to Buffer Index-Buffer Distance Conversion Table; Table 4, p. 45).

ft

BUFFER DISTANCE - A 110 (1.5 index)

B _____

C _____

D _____

Other _____

BUFFER DELINEATION MODEL SUMMARY FORM

Application No. 1991-0820.053 Applicant's Name Dep. of Army (IMNE-DIX-PWE)

- One buffer distance is applicable to all wetlands associated with the proposed development; Buffer Distance = 110 ft

Check aspect of model used in buffer determination:

GUIDELINE Number ()

PROCEDURE

Wetland Evaluation Scheme

Lake/Pond Evaluation Scheme

- More than one buffer distance is applicable to the wetlands associated with the proposed development;

Wetland Section	Buffer Distance
GUIDELINE No. () (_____)	_____ ft
GUIDELINE No. () (_____)	_____ ft
LAKE/POND SCHEME	_____ ft
WETLAND; site review area A	_____ ft
site review area B	_____ ft
site review area C	_____ ft
site review area D	_____ ft
Use additional space if necessary	
_____	_____ ft
_____	_____ ft
_____	_____ ft

Provide a site plan which indicates the approximate location of the various buffer sections.

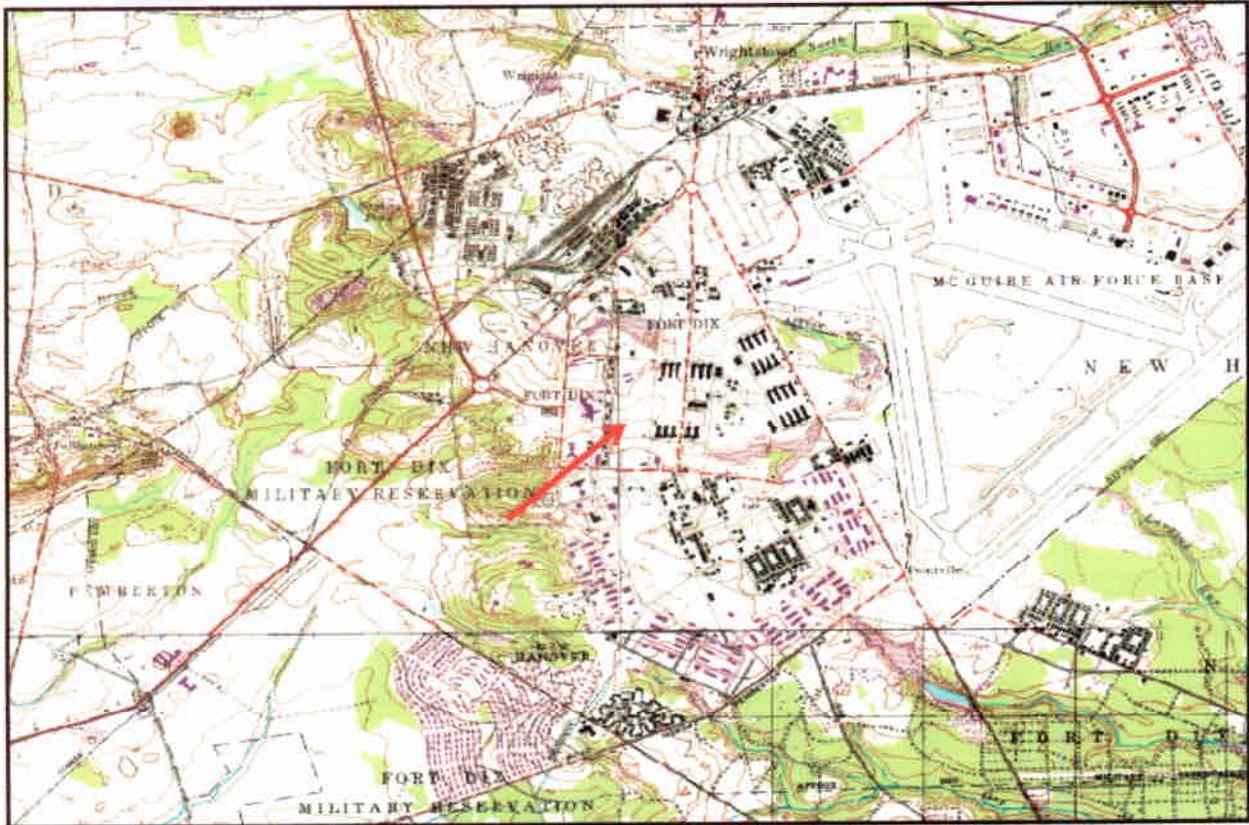


Figure 1 (Above). General location map for the proposed Army Reserve Center, Fort Dix, NJ

Figure 2 (Below). Conceptual layout of the proposed Army Reserve Center, Fort Dix, NJ with existing storm water drainage channel and proposed 110 foot buffer.



40°1'0"N

40°0'50"N

40°0'40"N

40°0'30"N

74°37'0"W

74°37'12"W

74°37'24"W

74°37'36"W

74°37'48"W

74°38'0"W

40°1'0"N

40°0'50"N

40°0'40"N

40°0'30"N



74°37'0"W

74°37'12"W

74°37'24"W

74°37'36"W

74°37'48"W

74°38'0"W



74°38'2"W Map Extent 74°36'51"W

40°18'N

40°0'26"N

Geographic Coordinate System (WGS84)



IMAGERY

TerraServer USA DOQ

No legend available

1/3 ArcSecond NED, CONUS



BOUNDARIES

State and Province Boundaries (USGS)



State and Province Boundaries

State Boundaries (USGS)



State Boundaries

TOPOGRAPHIC MAPS

7.5 Minute Index



Quad Index - 7.5min

TRANSPORTATION

County Road Labels (USGS)

No legend available

New Jersey Roads (BTS)

BTS Roads-New Jersey

Ferry Crossings

BTS Roads-New Jersey

Interstates

BTS Roads-New Jersey

Local Roads

BTS Roads-New Jersey

Local Roads (Small

Scale)

BTS Roads-New Jersey

Secondary Roads

BTS Roads-New Jersey

Trails

BTS Roads-New Jersey

US/Major State Highways

State Highway Labels (USGS)

No legend available

US Highway Labels (USGS)

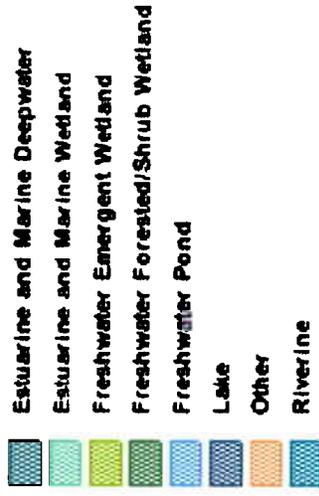
No legend available

US Road Labels

No legend available

HYDROGRAPHY

Wetland Polygons (USFWS)



ELEVATION

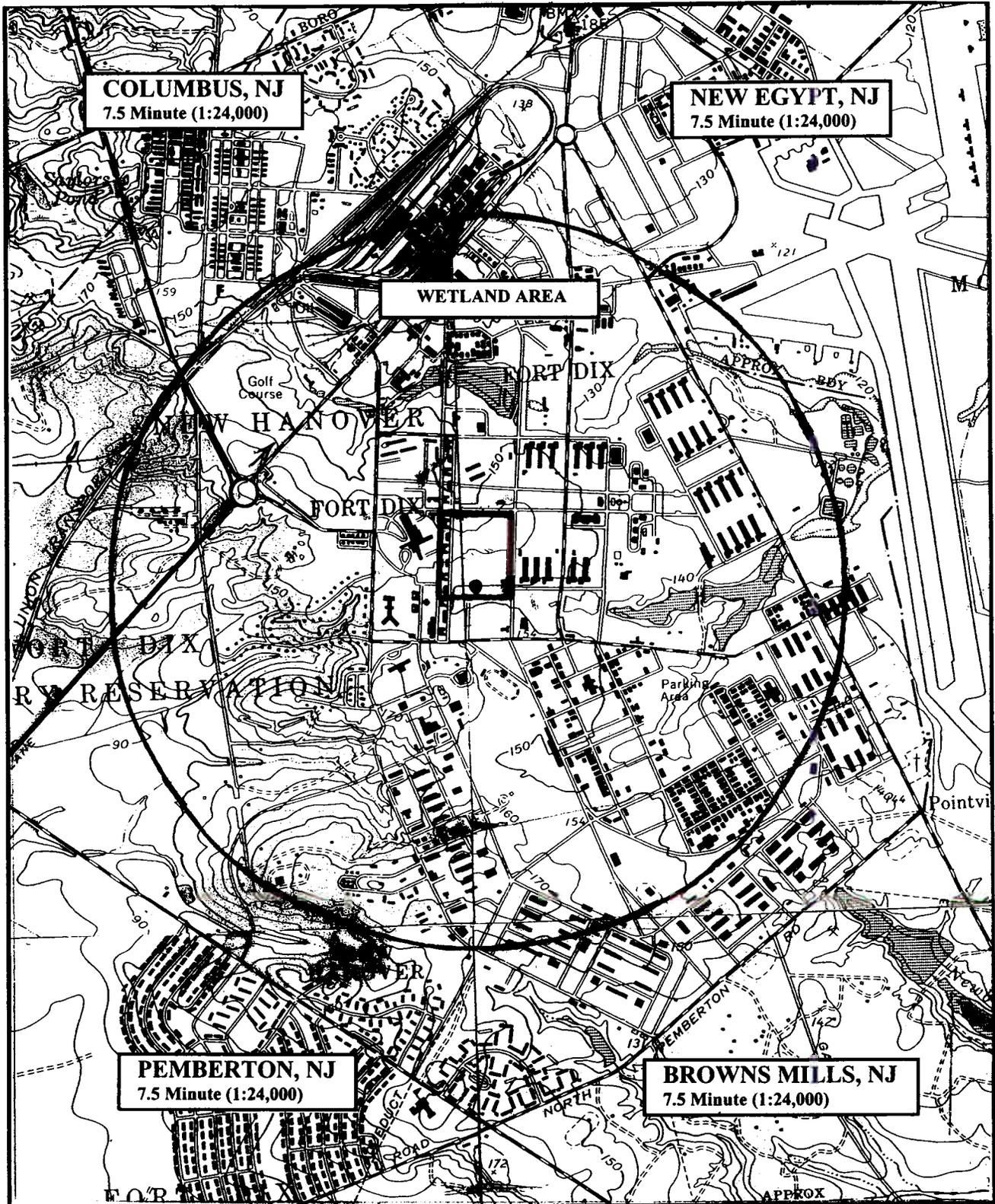


FIGURE 4
7.5 MINUTE TOPOGRAPHIC MAPS AND WETLAND AREA
Proposed Army Reserve Center, Fort Dix, New Jersey (Application # 1991-0820.053)

TABLE 1

List of Federally-Listed & State-Listed T&E Species Known or Likely to Occur at Fort Dix, Burlington County, New Jersey

From the Habitat Management Plan for Rare, Threatened, and Endangered Species Main Range, Fort Dix, New Jersey (EA Engineering, Science, and Technology, Inc. 1996) as modified by Roger Smith, Natural Resource Manager, Fort Dix.

		Scientific Name	Common Name	Status
Butterflies and Skippers	Hesperiidae	<i>Atrytone arogos arogos</i>	Arogos skipper	Federal candidate species and state endangered
	Nymphalidae	<i>Boloria myrina selene</i>	Silver-bordered fritillary	State threatened
Amphibians	Hylidae	<i>Hyla andersonii</i>	Pine barrens tree frog	State threatened
Reptiles	Colubridae	<i>Pituophis melanoleucus melanoleucus</i>	Northern pine snake	State threatened
Birds	Accipitridae	<i>Pandion haliaetus</i>	Osprey	State threatened breeding population
		<i>Haliaeetus leucocephalus</i>	Bald Eagle	Federal threatened species. state endangered breeding population, and state threatened otherwise
	Fringillidae	<i>Ammodramus savannarum</i>	Grasshopper sparrow	State threatened breeding population
	Tytonidae	<i>Strix varia</i>	Barred owl	State threatened



**FEDERALLY LISTED ENDANGERED
AND THREATENED SPECIES
IN NEW JERSEY**



An **ENDANGERED** species is any species that is in danger of extinction throughout all or a significant portion of its range.

A **THREATENED** species is any species that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.

	COMMON NAME	SCIENTIFIC NAME	STATUS
FISHES	Shortnose sturgeon*	<i>Acipenser brevirostrum</i>	E
REPTILES	Bog turtle	<i>Clemmys muhlenbergii</i>	T
	Atlantic Ridley turtle*	<i>Lepidochelys kempii</i>	E
	Green turtle*	<i>Chelonia mydas</i>	T
	Hawksbill turtle*	<i>Eretmochelys imbricata</i>	E
	Leatherback turtle*	<i>Dermochelys coriacea</i>	E
	Loggerhead turtle*	<i>Caretta caretta</i>	T
BIRDS	Bald eagle	<i>Haliaeetus leucocephalus</i>	T
	Piping plover	<i>Charadrius melodus</i>	T
	Roscate tern	<i>Sterna dougallii dougallii</i>	E
MAMMALS	Eastern cougar	<i>Felis concolor couguar</i>	E+
	Indiana bat	<i>Myotis sodalis</i>	E
	Gray wolf	<i>Canis lupus</i>	E+
	Delmarva fox squirrel	<i>Sciurus niger cinereus</i>	E+
	Blue whale*	<i>Balaenoptera musculus</i>	E
	Finback whale*	<i>Balaenoptera physalus</i>	E
	Humpback whale*	<i>Megaptera novaeangliae</i>	E
	Right whale*	<i>Balaena glacialis</i>	E
	Sei whale*	<i>Balaenoptera borealis</i>	E
	Sperm whale*	<i>Physeter macrocephalus</i>	E



FEDERAL CANDIDATE SPECIES IN NEW JERSEY



CANDIDATE SPECIES are species that appear to warrant consideration for addition to the federal List of Endangered and Threatened Wildlife and Plants. Although these species receive no substantive or procedural protection under the Endangered Species Act, the U.S. Fish and Wildlife Service encourages federal agencies and other planners to give consideration to these species in the environmental planning process.

SPECIES	SCIENTIFIC NAME
Bog asphodel	<i>Narthecium americanum</i>
Hirsts' panic grass	<i>Dichanthelium hirstii</i>

Note: For complete listings of taxa under review as candidate species, refer to Federal Register Vol. 69, No. 86, May 7, 2004 (Endangered and Threatened Wildlife and Plants; Review of Species that are Candidates or Proposed for Listing as Endangered or Threatened).

Revised June 2004

FEDERAL CANDIDATE AND STATE-LISTED SPECIES

Candidate species are species under consideration by the U.S. Fish and Wildlife Service (Service) for possible inclusion on the List of Endangered and Threatened Wildlife and Plants. Although these species receive no substantive or procedural protection under the Endangered Species Act, the Service encourages federal agencies and other planners to consider federal candidate species in project planning.

The New Jersey Natural Heritage Program maintains the most up-to-date information on federal candidate species and State-listed species in New Jersey and may be contacted at the following address:

Coordinator
Natural Heritage Program
Division of Parks and Forestry
P.O. Box 404
Trenton, New Jersey 08625
(609) 984-0097

Additionally, information on New Jersey's State-listed wildlife species may be obtained from the following office:

Dr. Larry Niles
Endangered and Nongame Species Program
Division of Fish and Wildlife
P.O. Box 400
Trenton, New Jersey 08625
(609) 292-9400

If information from either of the aforementioned sources reveals the presence of any federal candidate species within a project area, the Service should be contacted to ensure that these species are not adversely affected by project activities.

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**APPENDIX F—PINELANDS COMMISSION RESPONSE
TO BUFFER DELINEATION FOR ARMY RESERVE CENTER (ARC)
FOR THE 77TH, 78TH, AND 99TH**



State of New Jersey

THE PINELANDS COMMISSION

PO Box 7

New Lisbon NJ 08064

(609) 894-7300

May 12, 2006

JON S. CORZINE
Governor

JOHN C. STOKES
Executive Director

David Peckham
Department of the Army Headquarters
Attn: IMNE-DIX-PWE - Building 5317
Snyder Lane
Fort Dix, NJ 08640

Please Always Refer To
This Application Number

Re: Application #1991-0820.053
Block 21, Lot 1
New Hanover Township

Dear Mr. Peckham:

This is in response to the information you submitted on April 19, 2006 regarding the construction of a Headquarters Facility for the 99th Regional Readiness Sustainment Command on the above referenced lot.

The Commission staff has reviewed the submitted Buffer Delineation Model for New Jersey Pinelands Wetlands. A 50 foot buffer to the referenced wetlands is appropriate for the proposed development. Please submit the remaining items listed in our December 29, 2005 letter.

Please include your application number on any submitted information. Within 30 days of receipt, the Commission will review and respond in writing to any submitted information. No further review of the application will occur until the information requested in this letter is submitted.

If you have any questions, please contact the Regulatory Programs staff.

Sincerely,

Ernest M. Deman
Environmental Specialist

<http://www.nj.gov/pinelands/>
E-mail: info@njpines.state.nj.us



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APPENDIX G—ECONOMIC IMPACT FORECAST SYSTEM (EIFS) MODEL

Socioeconomic Impact Assessment

Socioeconomic impacts are linked through cause-and-effect relationships. Military payrolls and local procurement contribute to the economic base for the region of influence (ROI). In this regard, renovation, demolition, and construction of family housing at Fort Riley 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 EIFS to address the economic impacts of NEPA-requiring actions and to measure their significance. As a result of its designed applicability, and in the interest of uniformity, EIFS should be used in NEPA assessments for RCI. 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 is 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 are 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 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 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.

The following are the EIFS inputs and output data and the RTV values for the ROI. These data form the basis for the socioeconomic impact analysis presented in Section 4.10.

EIFS Report**Project Name**

Fort Dix

Study Area

34005 Burlington, NJ

34029 Ocean, NJ

Forecast Input

Change in Local Expenditures:	\$40,000,000
Change in Civilian Employment:	142
Average Income of Affected Civilian:	\$62,700
Percent Expected to Relocate:	100
Change in Military Employment:	267
Average Income of Affected Military:	\$95,200
Percent of Military Living On-post:	0

Forecast Output

Employment Multiplier:	3.72	
Income Multiplier:	3.72	
Sales Volume – Direct:	\$48,835,240	
Sales Volume – Induced:	\$132,831,900	
Sales Volume – Total:	\$181,667,100	0.42%
Income – Direct:	\$38,391,950	
Income – Induced:	\$18,485,310	
Income – Total (place of work)	\$56,877,260	0.23%
Employment – Direct:	569	
Employment – Induced:	435	
Employment – Total:	1004:	0.26%
Local Population:	1018	
Local Off-base Population:	10180.11%	

RTV Summary

Sales	Volume	Income	Employment	Population
Positive RTV	13.57 %	11.21 %	3.63 %	3.47 %
Negative RTV	-7.39 %	-4.6 %	-3.77 %	-0.43

APPENDIX H—AIR QUALITY APPLICABILITY ANALYSIS

This air quality applicability analysis was conducted to identify potential increases or decreases in criteria air pollutant emissions associated with the proposed construction of five buildings for the realignment of Fort Dix in New Jersey. Since the proposed action would occur within the U.S. EPA designated ozone and PM_{2.5} non-attainment area, it is subject to the federal conformity requirements. The purpose of the analysis is to further determine the applicability of the Federal General Conformity Rule established in 40 CFR 93 entitled: *Determining Conformity of Federal Actions to State or Federal Implementation Plans* to the action.

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 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 proposed action would interfere with the clean air goals in the State Implementation Plan (SIP).

The project construction- and operations-related General Conformity analysis needs to be performed for the proposed demolition, construction, and associated improvements within the project area. This conformity analysis and air emissions evaluation will follow the criteria regulated in 40 CFR 6, 51, and 93, *Determining Conformity of General Federal Actions to State or Federal Implementation Plans; Final Rule* (November 30, 1993).

H-1 PROJECT DESCRIPTION

As a result of BRAC actions, Fort Dix proposes to construct the five buildings described below.

Army Reserve Center (ARC) for the 77th, 78th, and 99th. As part of the BRAC recommendations, Fort Dix would construct an ARC headquarters for the 99th Regional Readiness Command and a combined headquarters for the 78th Division and the 77th Regional Readiness Command. The preferred location is in the 5200 Area along Maryland Avenue between Pennsylvania Avenue and South Scott Plaza. No demolition of existing buildings would be required. The building would contain 163,500 square feet and would occupy a first floor footprint of up to 88,500 square feet. The entire footprint, including parking, would cover approximately 9.5 acres.

Aviation Support Facility. A 21,300 square foot aircraft maintenance hangar would be constructed for the 244th Aviation Brigade and Company A/228th Aviation. In addition, a 1,510 square foot aviation support operations building, 350 square foot unheated storage area, 733 square yard aircraft washing apron, and 20,170 square yards of fixed-wing taxiway and apron space would be constructed. Organizational parking covering 1,250 square yards would be provided. These facilities are proposed for the 4400 Area off Texas Avenue. Demolition of the existing DOL Vehicle Maintenance Facility would be required to construct the new facility.

Physical Fitness Facility. A 64,799 square foot new physical fitness facility would be constructed adjacent to the existing Fort Dix indoor swimming pool located in the 5900 area off Doughboy loop. This facility would be constructed to replace the existing substandard Building 6053 Griffith Field House, Building 5953 Physical Fitness Facility, the Doughboy Gym, and Building 6035 trailer. Demolition of these buildings would occur as non-BRAC actions, and thereby are not examined in this EA. Combining all the prior physical fitness activities into one modern complex would lower construction, maintenance, and enhance accessibility. The new physical fitness facility would be designed to accommodate the projected population increases due to the BRAC 05 mission gains.

Child Development Center (CDC) and School Age Services (SAS) Complex. A CDC/SAS complex would be constructed to support additional permanent party personnel dependents resulting from the proposed BRAC realignments. This facility is proposed for the 1500 area off Elm, Filmore, and Fir Streets. No demolition of existing buildings would be required. The single-story building would contain 22,159 square feet (8,230 square feet for the CDC and 13,929 square feet for the SAS). The CDC would include space for 93 preschool age children (6 weeks to 5 years of age), and the SAS would include space for 105 school age children (6 to 10 years of age).

Organization Maintenance Shop (OMS) Facility and Additional Parking Area. A new 15,700 square foot OMS facility at the Equipment Concentration Site 27 (ECS 27) and additional parking area for the 77th & 78th Motor

Pool would be required to support the increased mobilization/demobilization maintenance requirements resulting from the designation of Fort Dix as a Joint Pre-Deployment/Mobilization Site. In addition, a 3,796 square foot unheated storage facility would be required. No demolition of existing buildings would be required.

H-2 METEOROLOGY/CLIMATE

Temperature is a parameter used in calculations of emissions for air quality applicability. Temperature data from the Trenton Mercer Airport, approximately 20 miles (32 km) north of Fort Dix represents the meteorological conditions for the study area. The average temperature is 54° F (12.2° C).

H-3 CURRENT AMBIENT AIR QUALITY CONDITIONS

The EPA has designated Burlington and Ocean Counties as non-attainment for the NAAQS pollutant ozone and Burlington County as non-attainment for the NAAQS pollutant particulate matter 2.5. Both counties were previously listed as severe non-attainment for the 1-hour ozone standard but as of June 15, 2005, the 1-hour standard has been revoked per 40 CFR 50.9 and therefore no longer applies to this region. As a result, both counties are now classified as moderate non-attainment for the 8-hour ozone standard. This can be attributed primarily to mobile sources. Specific sources on Fort Dix include: vehicle exhaust from traffic on site as well as from military equipment and aircraft at McGuire Air Force Base. These counties are in attainment for all other NAAQS pollutants.

H-4 AIR QUALITY REGULATORY REQUIREMENTS

The 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 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 EPA has issued NAAQS for six 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. The EPA classified Burlington and Ocean Counties, including the area of the Proposed Action, as in non-attainment for ozone and Burlington in non-attainment for PM_{2.5}. The NAAQS for ozone and PM_{2.5} are presented in Table H-1.

Table H-1: Ambient Air Quality Standards for Ozone and PM_{2.5}

Pollutant	Federal Standard	New Jersey Standard
Ozone (O ₃)		
1-Hour Average	0.12 ppm	Revoked June 15, 2005
8-Hour Average	0.08 ppm	0.12 ppm
Particulate Matter (PM _{2.5})		
24-Hour Average	65 µg/m ³	N/A
Annual Arithmetic Mean	15 µg/m ³	N/A
Total Suspended Particulates (TSP)		
24-Hour Average	N/A	260 µg/m ³
12-Month Geometric Mean	N/A	75 µg/m ³

Source: 40 CFR 50, July 1991, revised July 1997 and March 26, 2002 EPA Announcement, Ambient Air Quality Standards, 1997 Air Quality Report, NJ DEP

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). The Proposed Action is located within a moderate non-attainment area for ozone and non-attainment for PM_{2.5}; therefore, a General Conformity Rule applicability analysis is warranted.

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*

de minimis levels apply to direct and indirect sources of emissions that can occur during the construction and operational phases of the action.

Direct emissions are those caused by, or initiated by the federal action that occur at the same time and place as the action. Indirect emissions are those caused by the action, but which occur later in time and/or at a distance removed from the action itself, yet are reasonably foreseeable and the federal agency responsible for the action can maintain control as part of the actions program responsibility. To determine the applicability of the Rule to this action, emissions must be estimated for particulate matter (10 microns) and for the ozone precursor pollutants nitrogen oxides (NO_x) and volatile organic compounds (VOC). Annual emissions for these compounds were estimated for the Proposed Action to determine if they would be below or above the *de minimis* levels established in the Rule. The *de minimis* for moderate ozone areas is 50 tons per year (TPY) for VOCs and 100 tons per year for NO_x and PM₁₀.

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 ten percent of the total emissions inventory for a particular criteria pollutant in a non-attainment or maintenance area. If the emissions exceed this ten percent threshold, the federal action is considered to be a “regionally significant” activity, and thus, the general conformity rules apply.

H-5 CONFORMITY APPLICABILITY ANALYSIS

This project construction- and operations-related General Conformity analysis needs to be performed for the proposed construction at Fort Dix. This conformity analysis and air emissions evaluation will follow the criteria regulated in *40 CFR Parts 6, 51, and 93, Determining Conformity of General Federal Actions to State or Federal Implementation Plans; Final Rule* (November 30, 1993).

Construction Phase Emissions

Construction emissions would result from the operation of heavy equipment, the commuter vehicle traffic from the construction crew, and the painting of parking spaces. The project would utilize a mix of heavy equipment for construction, mainly associated with preparing the site for the building and utility relocation.

Emissions from Heavy Equipment

Annual emissions were calculated for various types of diesel construction vehicles using EPA’s document: *Exhaust Emission Factors for Nonroad Engine Modeling—Compression-Ignition* (Report No. NR-009A, 1998). Truck emission levels were calculated using NMIM for an average temperature at 54° F (12.2° C). The total annual emissions, in tons per year, were determined for each vehicle based on the number of vehicles used (70) and the number of operating hours per year. Emissions factors used for construction vehicles are shown in Table H-2.

Table H-2: Emissions Factors for Construction Vehicles

Construction Vehicle Type	Emissions Factors lbs/hr-vehicle		
	PM ₁₀	NO _x	VOC
Grader	0.134	1.53	0.116
Concrete Truck	0.190	2.94	0.225
Front End Loader	0.238	3.45	0.198
Paver	0.109	1.30	0.100
Vibratory Roller	0.125	1.49	0.112
Pneumatic Tire Roller	0.122	0.94	0.097
Steel Wheel Roller	0.122	0.94	0.097
Dozer	0.198	3.128	0.165
Concrete Pumper Truck	0.190	2.94	0.225
Backhoe	0.176	1.52	0.245
Crane	0.117	1.17	0.112
Pick-up Truck	0.011	0.974	0.976
Dump Truck (heavy duty) *	0.164	10.55	0.507
Excavator	0.198	3.154	0.155
Scraper	0.342	5.258	0.276
Water Tanker	0.232	8.56	0.495
Delivery Truck (Medium)*	0.84	1.339	1.605
Delivery Truck (Heavy)*	0.094	1.317	3.723

***units are in grams/mile/vehicle (lb/km/vehicle)**

Calculations for Construction Emissions

Using the emissions factors in Table H-2, annual construction emissions were calculated for the realignment of Fort Dix. Construction related emissions would be temporary and only occur during the 30-month development period; however, a conservative approach was initially employed in the applicability analysis to assure that construction scheduling would not yield more severe results than predicted. The analysis first assumed that construction and parking emissions would occur concurrently over the same one-year period, utilizing a 40-hour work week. Construction personnel were assumed to commute an average of 30 miles per day over the construction period of 24 months. Using the assumptions described above, the annual emissions in tons per year of PM_{2.5}, NO_x, VOC for construction emissions were calculated for each vehicle type using the appropriate equations displayed in Table H-3.

Table H-3: Equations for Construction Emissions Calculations

Emission Source	Equation	Sample Calculation
Heavy Equipment Emissions, On-Site Activities	(# of vehicle type) (Emission factor) (Total # of days in operation) (percent usage) (hours/day) (1 ton/2000 lbs) = TPY of air emissions	(1 bulldozer) (3.128 lbs/hr/vehicle) (7 days in operation) (100% usage) (8 hours/day) (1 ton/2000 lbs) = 0.0875TPY of NO_x emissions
Construction Crew, Commuting	(# of vehicles) (#miles/day) (#days) (emissions factor grams/mile) (1 lb/453.59 grams) (1ton/2000 lb) = TPY of Vehicle Emissions	(75 vehicles) (60 miles/day) (240 days) (0.747 grams/mile/vehicle) (1 lb/453.59 grams) (1ton/2000 lb) = 0.89 TPY NO_x of Vehicle Emissions

Table H-4 summarizes total annual emissions for the heavy equipment used during construction of the new facilities, based upon hours of usage. Utility trenching for electric, water, and gas would occur only in the immediate vicinity of the site and is included in total hours of equipment usage.

Table H-4: Emissions from On-Site Construction Activity

Construction Vehicle Type	Total Annual Days of Operation per Type	Total Annual Emissions –TPY		
		PM ₁₀	NO _x	VOC
Bulldozer	7	0.006	0.01	0.001
Backhoe	232	0.327	1.41	0.23
Grader	8	0.005	0.05	0.001
Concrete Truck	290.	0.022	0.34	0.03
Concrete Pumper Truck	115	0.087	1.35	0.10
Paver	1	0.00	0.01	0.00
Vibratory Roller	13	0.007	0.09	0.011
Pneumatic Tire Roller	1	0.00	0.00	0.00
Steel Wheel Roller	2	0.002	0.01	0.001
Front End Loader	6	0.006	0.08	0.002
Crane	87	0.041	0.41	0.04
Pick-up	1152	0.006	0.099	0.06
Delivery Truck (Medium)	35	0.00	0.006	0.00
Delivery Truck (Heavy)	311	0.002	0.121	0.01
Water Tanker	2	0.00	0.00	0.00
Dump Truck	18	0.00	0.023	0.00
Totals		0.84	4.98	0.54

Emissions from Construction Crew Workers

Emissions from construction personnel traffic were calculated using the EPA’s *NMIM*. It is assumed that there will be an average of 75 workers over the 30-month build period, or 240 days in a 12-month period, and that each person will drive to the site. It is assumed that the average number of workers (70) will drive approximately 30 miles each day. Based on *MOBILE6*, the emission factor for NO_x is 0.747 grams/mile/vehicle, VOC is 0.795 grams/mile/vehicle and PM₁₀ is 0.013 grams/mile/vehicle for the average fleet in Burlington County, New Jersey. It was found that the total emissions associated with the commuter vehicles from the construction crew are approximately 0.89 TPY of NO_x, 0.95 TPY of VOC and 0.02 for PM₁₀.

Emissions from Painting Activities

When calculating VOC emissions from painting building structures and parking spaces, it was assumed that water-based latex paint would be used with a VOC content of three pounds per gallon, and one-gallon of paint covers approximately 300 square feet. Three coats of paint will be applied (one primer and two finish) to approximately 283,557 square feet of interior surfaces based on the assumed interior wall space (Berger, 2006). Based on these assumptions approximately 2836 gallons of paint are needed. Interior painting will create approximate VOC emissions of 1.42 TPY.

Parking space emissions were based on four-inch wide stripes for 600 spaces. It was assumed that the average parking space is 8 feet wide (2.4 meters) by 20 feet long (6 meters) and every two parking spaces share a common line. Approximately 20 square feet will be painted for every two parking spaces. Overall, 300 two space areas (6,000 square feet) will need to be painted. Using the above assumptions, it was determined that 20 gallons of paint will be needed for parking spaces. This produces overall VOC emissions of 0.05 TPY. The total emissions associated with painting activities are approximately 2.95 TPY of VOC.

Summary of Construction Emissions

After emissions analysis was performed for all aspects of construction, the totals were added to determine the combined construction emissions. Table H-5 displays a summary of the findings compared to the *de minimis* values.

Table H-5: Emissions from Construction Related Activities

Construction Activity	Total Annual Emissions –TPY			<i>De minimis</i> values –TPY		
	PM ₁₀	NO _x	VOC	PM ₁₀	NO _x	VOC
Use of Heavy Equipment (on –site construction)	0.84	4.98	0.54	100	100	50
Construction Crew Workers	0.02	0.89	0.95			
Painting	N/A	N/A	1.46			
Total Emissions from Construction	0.856	5.87	2.95			

Operational Emissions

Emissions from operation of the new buildings on Fort Dix include emissions from daily activities including space and water heating, and the daily traffic due to new employees.

Heating Source and Emergency Power Emissions

In calculating emissions from boilers it was assumed that the proposed facilities would use heat for 150 days, or 5 months, out of the year and that the hot water heaters would operate year-round. It is also assumed that all primary heating equipment would be fueled only with natural gas. Steam would only be used for the Organization Maintenance Shop Facility. The Physical Fitness Facility, per form DD1391 provided by Fort Dix, is estimated to require 5,208 million British thermal units (MBTUs) per year for its heating system. Other facilities did not have data available on estimated energy consumption, therefore their energy requirements for heating were estimated as a function of their square footage of indoor space, relative to the indoor space for the Physical Fitness Facility.

Using EPA’s *AP-42 Fifth Edition, Compilation of Air Pollutant Emission Factors Volume I, Chapter 1: Stationary Sources, Supplements D and E (1998)* the emissions for both NO_x and VOC were determined for the facility boilers and water heaters. For the purposes of calculating NO_x emissions, the facility boilers and water heaters fall in the category of small, uncontrolled boilers. The NO_x emissions from small, uncontrolled boilers are approximately 100 lb/10⁶ standard cubic feet of natural gas, and for VOCs the emissions rate are 5.5 lb/10⁶ standard cubic feet of natural gas. Furthermore, one cubic foot of natural gas generates approximately 1,027 BTUs. For the purposes of estimating the oil-based heating system to be used at the Organization Maintenance Shop Facility, it was assumed that number 6 oil would be fired normally, generating NO_x emission rates of 47 lb/10³ gallons of fuel oil, and VOC emissions of 1.60 lb/10³ gallons of fuel oil. The emission rate for PM₁₀ was found to be 7.6 lb/10⁶ SCF of natural gas. Using these emission factors and natural gas demand, the emissions of NO_x, VOC, and PM₁₀ were calculated to be 5.35 TPY, 6.75 TPY, and 0.00 TPY , respectively.

Vehicle Emissions from Daily Commuters

Vehicle emissions from visitor vehicles are based on the *MOBILE6* air modeling program, estimating the emissions per vehicle per mile traveled. The *MOBILE6* modeling program takes into account the vehicle age, average speed, and vehicle type to create average emission factors to be used in an overall analysis. The analysis assumed that the annual average temperature is 54° F. Based on this assumption, the emissions factors for PM₁₀, NO_x and VOC from average vehicles are provided in Table H-6.

Table H-6: Emission Factors for Commuter Vehicles

Pollutant	Emissions Factor - grams/mile/vehicle
NO _x	0.747
VOC	0.795
PM ₁₀	0.013

The annual emissions in tons per year of NO_x, VOC, and PM₁₀ for commuter emissions were calculated using the appropriate equations displayed in Table H-7.

Table H-7: Equations for Operations Emissions Calculations

Emission Source	Equation	Sample Calculation
Operations, Commuters	$\begin{aligned} &(\# \text{ of vehicles}) (\# \text{ of trips/day}) (\# \text{miles/trip}) \\ &(\# \text{days/year}) = \# \text{miles/year} \\ &(\# \text{miles/year}) (\text{emissions factor grams/mile}) (1 \\ &\text{lb}/453.59 \text{ grams}) (1 \text{ton}/2000 \text{ lb}) = \text{TPY of Vehicle} \\ &\text{Emissions} \end{aligned}$	$\begin{aligned} &(409 \text{ vehicles}) (2 \text{ trips/day}) (30 \text{ miles/trip}) (240 \text{ days/year}) \\ &= (6,404,940 \text{ miles/year}) (0.747 \text{ g/mile/vehicle}) (1 \\ &\text{lb}/453.59 \text{ grams}) (1 \text{ ton}/2000 \text{ lbs}) = \mathbf{4.84 \text{ TPY NO}_x} \end{aligned}$

It also assumed that the number of employees at Fort Dix would increase by 409 and that no additional visitors would visit the site on a regular basis. It is assumed that Fort Dix employees would commute approximately 30 miles per trip. Based on these assumptions, the daily additional vehicle emissions are shown in Table H-8.

Table H-8: Emissions from Daily Vehicle Traffic

Total Annual Emissions – TPY		
NO _x	VOC	PM ₁₀
4.84	5.16	0.084

Summary of Operation Emissions

Operational emissions, as shown in the sections above, include emissions from stationary heating units to heat the building space and water and emissions from daily visitor traffic. Table H-9 combines all operational emissions and compares them to the *de minimis* values.

Table H-9: Total Emissions from Operation Activities

Operational Activity	Total Annual Emissions –TPY			<i>De minimis</i> values – TPY		
	PM ₁₀	NO _x	VOC	PM ₁₀	NO _x	VOC
Stationary Heating Unit (boiler and water)	0.00	5.35	6.75	100	100	50
Commuter Traffic	0.084	4.84	5.16			
Total Emissions from Operation	0.084	10.19	11.91			

Regional Significance

According to the *Proposed State Implementation Plan (SIP) Revisions for the Attainment and Maintenance of the 8-Hour Carbon Monoxide National Ambient Air Quality Standard, 1-Hour Ozone National Ambient Air Quality Standard, and Fine Particulate Matter National Ambient Air Quality Standard; and the 2002 Periodic Emission Inventory* (NJDEP, 2006), 2002 statewide emissions for VOCs were 470,689 TPY, NO_x emissions were 352,968 TPY and PM_{2.5} emissions were 18,173 TPY. The expected peak emissions of NO_x, VOCs, and PM_{2.5} for Fort Dix, combining construction and operational emissions, fall well below 10 percent of statewide emissions, therefore the impacts will not be regionally significant for those pollutants.

H-6 OVERALL RESULTS

Table H-10 summarizes the total annual emissions associated with the construction and operation of Fort Dix. Construction related emissions will be temporary and only occur during the 30-month development period for each building. Operations emissions will occur throughout the life of the facilities. When compared to the *de minimis* values for this non-attainment area of 100 and 50 TPY for NO_x, PM₁₀, and VOC, respectively, the emissions associated with implementation of the realignment of Fort Dix fall below the *de minimis* values. As a result, the construction and operation of the five new buildings is not subject to the General Conformity Rule requirements.

Table H-10: Total Emissions from the Proposed BRAC Actions

Activity	Construction Emissions (TPY)			Operation Emissions (TPY)			Combined Emissions (TPY)		
	PM ₁₀	NO _x	VOC	PM ₁₀	NO _x	VOC	PM ₁₀	NO _x	VOC
Heavy Equipment (building/parking construction)	0.84	4.98	0.54				0.84	4.98	0.54
Construction Crew	0.02	0.89	0.95				0.02	0.89	0.95
Painting	N/A	N/A	1.46				N/A	N/A	1.46
Stationary Heating Unit (boiler and water heater)				0.00	5.35	6.75	0.00	5.35	6.75
Commuter Traffic				0.084	4.84	5.16	0.084	4.84	5.16
Totals							0.944	16.06	15.00

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APPENDIX I— GENERAL CONFORMITY – RECORD OF NON-APPLICABILITY

Project/Action

Name: Implementation of BRAC 05 Realignment at Fort Dix, NJ

Project/Action

Identification Number:

Project/Action

Point of Contact:

Kenneth D. Smith
Chief, Environmental Division
Directorate of Public Works
Telephone: 609-562-2189

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. Burlington and Ocean Counties are designated as moderate Ozone (8-hour) non-attainment and Burlington County is also a non-attainment area Particulate Matter (2.5 microns) thus the VOC, NO_x and PM_{2.5} thresholds apply. PM_{2.5} thresholds have not yet been promulgated by the EPA and therefore emissions are bound by the current PM₁₀ standards.

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: 16.06 tons; VOC: 15.00 tons; PM_{2.5}: 0.944 tons

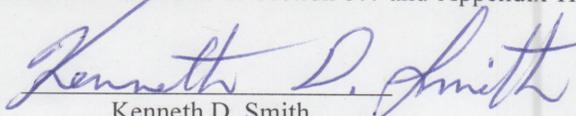
and are below the *de minimus* levels established in 40 CFR 93.153 (b) of:

NO_x: 100 tons; VOC: 100 tons; PM₁₀: 100 tons

Furthermore, the project/action is not considered regionally significant under 40 CFR 93.153 (i).

Burlington and Ocean Counties are in attainment for criteria pollutants PM₁₀, CO, SO₂ and Pb and therefore these pollutants are not subject to conformity review.

Supporting documentation and emissions estimates can be found in Section 5.4 and Appendix H of the Environmental Assessment document.



Kenneth D. Smith
Chief, Environmental Division

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