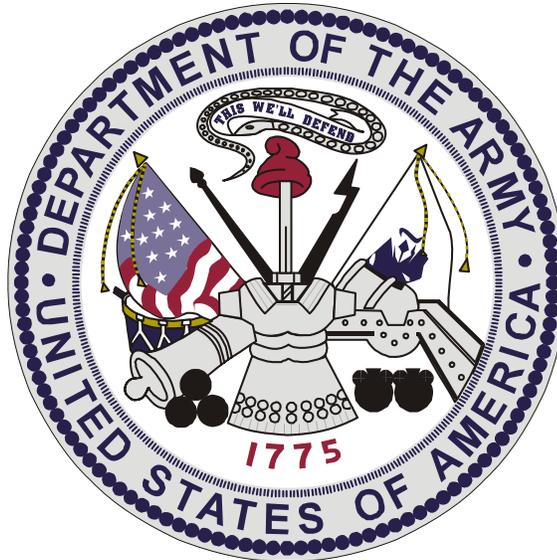

**Final Environmental Impact Statement
for Implementation of Base Realignment and Closure 2005
and Enhanced Use Lease Actions
at Fort George G. Meade, Maryland**



August 2007

Prepared for

Fort Meade Directorate of Public Works

Fort Meade, MD

Prepared by

U.S. Army Corps of Engineers

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**Final Environmental Impact Statement
for Implementation of Base Realignment and Closure 2005
and Enhanced Use Lease Actions at Fort George G. Meade, Maryland**

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Final Environmental Impact Statement

LEAD AGENCY: United States Department of Army

TITLE OF PROPOSED ACTION: Environmental Impact Statement for Implementation of Base Realignment and Closure 2005 and Enhanced Use Lease Actions at Fort George G. Meade, Maryland

AFFECTED JURISDICTION: Anne Arundel County, Howard County, Montgomery County, Prince George's County, Maryland

PREPARED BY: United States Army Corps of Engineers, Mobile District

TECHNICAL ASSISTANCE FROM: The Louis Berger Group, Inc., Washington, D.C.

APPROVED BY: COL Kenneth O. McCreedy, Installation Commander, Fort George G. Meade, Maryland

ABSTRACT: This Environmental Impact Statement (EIS) assesses the environmental effects of implementing Army transformation activities and Enhanced Use Lease (EUL) actions at Fort George G. Meade, Maryland. The transformation activities are Base Realignment and Closure (BRAC), Global Defense Posture Realignment (GDPR), and Army Modular Force Initiatives (AMF) and are needed to prepare the Army's combat forces for deployment around the world. This proposal involves the arrival of about 5,695 workforce personnel (660 military, 3,324 civilian, 1,711 A-Es) at Fort George G. Meade and the construction of new facilities. The EUL action involves leasing two parcels of land (173 acres) for 50 years to a private developer to construct administrative buildings for an estimated 10,000 personnel and providing a third parcel (367 acres) for in-kind development of two 18-hole golf courses. Three alternatives including the No Action Alternative are analyzed. The principal significant environmental consequences are to transportation, wastewater, and natural resources.

WAITING PERIOD: The waiting period for the FEIS will end not less than 30 days after publication of the Notice of Weekly Receipts in the Federal Register by the U.S Environmental Protection Agency, at which point the Army will sign a Record of Decision (ROD).

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EXECUTIVE SUMMARY

ES.1 INTRODUCTION

On September 8, 2005, the Defense Base Closure and Realignment Commission (BRAC Commission) recommended a set of domestic realignment and closure actions (BRAC Commission 2005). These recommendations were approved by the President on September 15, 2005, and forwarded to Congress (DoD 2005). The Congress did not alter any of the BRAC Commission's recommendations, and on November 9, 2005, the recommendations became law (DoD 2006). The BRAC Commission recommendations must now be implemented as provided for in the Defense Base Closure and Realignment Act of 1990 (Public Law [PL]101-510), as amended (hereinafter BRAC Law).

Fort George G. Meade, Maryland (hereafter "Fort Meade") is a permanent U.S. Army installation located about midway between Baltimore, Maryland, and Washington, DC, encompassing 5,067 acres in Anne Arundel County, Maryland (Figure 1-1). Fort Meade supports more than 80 tenant organizations from all military services, and several federal agencies. The major tenants include the National Security Agency, the Defense Information School, the 704th Military Intelligence Brigade, 902nd Military Intelligence Group, the U.S.EPA Science Center, Asymmetric Warfare Group, and 1st Army Division East.

The BRAC Commission recommended that three major activities relocate to Fort Meade: the Defense Information Systems Agency (DISA), the Defense Media Activity (DMA), and the Adjudication Activities co-location offices. The recommendation realigns and relocates DISA activities to Fort Meade, and it establishes joint command, control, communications, computers, intelligence, surveillance and reconnaissance (C4ISR), development and acquisition (D&A) capability at the Army post. DISA activities at leased and government installations in Louisiana, Florida, and Virginia are to be relocated to Fort Meade. The recommendation also realigns and relocates various DoD media activities into a new organization, DMA, at Fort Meade. DoD Media Activities at government installations in Washington, DC, Texas, and Virginia are to be relocated to Fort Meade. Finally, the recommendation realigns and relocates Adjudication and Office of Hearing and Appeals Offices activities in the Washington DC Navy Yard and Pentagon and in leased facilities in Arizona, California, Massachusetts, Maryland, Ohio, and Virginia as Adjudication Activities to Fort Meade. All BRAC realignment activities are to relocate to Fort Meade by 2011.

In addition to the BRAC realignment actions, Fort Meade proposes to use the Army's Enhanced Use Lease (EUL) program to implement actions that would involve leasing two parcels of non-excess Army land to a private developer for 50 years. The private developer would in turn provide in-kind services to include developing and constructing recreational facilities on a third parcel of Army land for Army use.

This arrangement would benefit the installation by freeing space for BRAC-related construction in the center of the installation and providing a resource stream through the period of the lease for necessary services.

ES.2 BACKGROUND AND SETTING

Fort Meade covers approximately 5,067 acres and is a permanent U.S. Army installation located in the northwest corner of Anne Arundel County, Maryland. The installation is 17 miles southwest of downtown Baltimore, Maryland, and 24 miles northeast of Washington, DC. Annapolis is the Anne Arundel county seat and is located on the Chesapeake Bay approximately 14 miles southeast of the installation. The southeastern part of Howard County extends within 2 miles of Fort Meade. The northern part of Prince Georges County extends within 3 miles of Fort Meade.

Fort Meade is bounded by the Baltimore-Washington Parkway (MD 295) to the northwest, Annapolis Road (MD 175) to the east, Patuxent Freeway (MD 32) to the south and west, and the MARC Penn Line and AMTRAK Line to the southeast. Other significant nearby transportation arteries include US Route 1 and Interstate 95 which run parallel to and just to the north of the Baltimore-Washington Parkway. Interstate 97 which connects Baltimore and Annapolis is about 5 miles east of Fort Meade and can be reached by taking MD 175 or MD 32 east.

ES.3 PROPOSED BRAC ACTION

The BRAC Commission recommended the realignment of three main federal agencies/activities to Fort Meade, MD. The following describes the realignment actions for the three major groups affected:

For the Joint Cross Service Group - Headquarters and Support Activities, to consolidate Defense Information System Agency and Establish Joint C4ISR D&A capability

- Close 5600 Columbia Pike and Skyline Place (Skyline VII) leased installations in Falls Church, VA, and 1010 Gause Boulevard, a leased installation in Slidell, LA and relocate all components of the Defense Information Systems Agency (DISA) to Fort Meade, MD.
- Close the Logicon Building, a leased installation in Arlington, VA and relocate the Joint Task Force-Global Network Operation (JTF-GNO) to Fort Meade, MD.
- Realign Skyline IV and Skyline V, leased installations in Falls Church, VA, and GSA Franconia Warehouse Depot, a leased installation in Springfield, VA, by relocating all components of DISA to Fort Meade, MD.
- Realign Arlington Service Center, VA, by relocating all components of DISA and the JTF-GNO to Fort Meade, MD.

- Realign Naval Support Activity Panama City, FL by relocating the Deployable Joint Command and Control (DJC2) Program Office of the Naval Surface Warfare Center to Fort Meade, MD.
- Realign Rosslyn Plaza North, a leased location in Arlington, VA, by relocating the Joint Tactical Radio System (JTRS) Program Office to Fort Meade, MD.

For the Joint Cross Service Group – Headquarters and Support Activities, to consolidate Media Organizations into a New Agency for Media Publications

- Realign Fort Belvoir, VA, by relocating Soldier Magazine to Fort Meade, MD.
- Realign Anacostia Annex, District of Columbia, by relocating the Naval Media Center to Fort Meade, MD.
- Realign 2320 Mill Road, a leased installation in Alexandria, VA, by relocating Army Broadcasting-Soldier Radio/TV to Fort Meade, MD.
- Realign 103 Norton Street, a leased installation in San Antonio, TX, by relocating Air Force News Agency-Army/Air Force Hometown News Service (a combined entity) to Fort Meade, MD.
- Close 601 North Fairfax Street, a leased installation in Alexandria, VA, by relocating the American Forces Information Service and the Army Broadcasting-Soldier Radio/TV to Fort Meade, MD.
- Consolidate Soldier Magazine, Naval Media Center, Army Broadcasting-Soldier Radio/TV, and the Air Force News Agency-Army/Air Force Hometown News Service into a single DoD Media Activity at Fort Meade, MD.

For the Joint Cross Service Group – Headquarters and Support Activities, collocate Department Adjudication Activities

- Close 21820 Burbank Boulevard, a leased installation in Woodland Hills, CA, and relocate all components of the Defense Office of Hearings and Appeals Western Hearing Office to Fort Meade, MD.
- Realign 800 Elkridge Landing Road, a leased installation in Linthicum, MD, and relocate all components of the National Security Agency Central Adjudication Facility to Fort Meade, MD.
- Realign 2780 Airport Drive, a leased installation in Columbus, OH, by relocating all components of the Defense Industrial Security Clearance Office and the Defense Office of Hearings and Appeals Personal Security Division to Fort Meade, MD.
- Realign 1777 N. Kent Street, a leased installation in Arlington, VA, by relocating all components of the Washington Headquarters Service Central Adjudication Facility to Fort Meade, MD.
- Realign 875 N. Randolph Street, a leased installation in Arlington, VA, by relocating all components of the Defense Office of Hearings and Appeals Headquarters to Fort Meade, MD.

- Realign 10050 North 25th Avenue, a leased installation in Phoenix, AZ, by relocating all components of the Defense Office of Hearings and Appeals Arizona office to Fort Meade, MD.
- Realign the Washington Navy Yard, DC, by relocating all components of the Navy Central Adjudication Facility Fort Meade, MD.
- Realign Bolling Air Force Base, DC, by relocating all components of the Air Force Central Adjudication Facility and the Defense Intelligence Agency Central Adjudication Facility to Fort Meade, MD.
- Realign the Pentagon, Washington, DC, by relocating all components of the Joint Staff Central Adjudication Facility to Fort Meade, MD.
- Realign the U.S. Army Soldiers Systems Center Garrison, Natick, MA, by relocating all components of the Defense Office of Hearings and Appeals Boston Hearing office to Fort Meade, MD.

ES.4 PROPOSED EUL ACTION

Under Title 10 U.S.C., Section 2667, of the National Defense Authorization Act, DoD installations have the authority and incentive to obtain a broad range of financial and in-kind considerations for leasing opportunities. This EUL program is intended to maximize the utility and value of installation real property and provide additional tools for managing an installation's assets to achieve business efficiencies.

In addition to the BRAC realignments, Fort Meade proposes to use the Army's EUL program to make Site Y (125 acres) and Site Z (48 acres) available for development. Sites Y and Z, located along Reece Road and MD 175, would be leased to a private developer for 50 years. These parcels would be used for development of office and administrative buildings for an estimated 10,000 personnel. In consideration, the lessee would develop and construct two 18-hole golf courses on Site S (367 acres) to replace existing golf course facilities which would be the site for BRAC construction. Site S is located south of MD 32 near MD 175. The EUL projects would allow Fort Meade to derive substantial benefits from non-excess land and would generate revenue that would support installation and national security missions on post. The EUL program is a tool designed to improve federal property utilization, provide revenue to the installation, reduce installation operating costs, and enhance mission performance by fostering cooperation between military services and the private sector.

ES.5 REALIGNMENT PROCESS

Under BRAC Law, the Army must initiate all realignments no later than September 15, 2007, and complete all realignments no later than September 15, 2011. On a priority basis, facilities construction would be synchronized to meet the timelines of realigning organizations. The realignment of organizations earlier than 2007 is not feasible in light of the time required to build facilities.

Following the completion of the National Environmental Policy Act (NEPA) requirements in 2007, the construction of EUL facilities would begin in late 2007 or early 2008 and would continue through the duration of the lease.

ES.6 ALTERNATIVES

The following alternatives are included in this EIS:

- (1) Alternative 1 – No Action Alternative
- (2) Alternative 2 - BRAC Realignment plus EUL Actions (Preferred Alternative)
- (3) Alternative 3 – BRAC Realignment Action

Alternative 2 and Alternative 3 were identified as being reasonable and are carried forward for detailed evaluation in this EIS. Several other siting alternatives were considered but dismissed from further detailed analysis. These are discussed in the last part of this section, along with the reasons for their dismissal.

The new Post Exchange (PX), Physical Fitness Center (GYM) and Unaccompanied Personnel Housing (UPH) Barracks are not included in the BRAC realignment or the DoD EUL actions. Because the PX, GYM, and UPH projects will be implemented shortly after the BRAC projects are implemented, they are being considered in this analysis. The PX, GYM, and UPH are support facilities that will be utilized by incoming BRAC personnel and other installation personnel.

Alternative 1 - No Action Alternative

Council on Environmental Quality (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. For the purposes of this EIS, November 2005 is being used as the baseline date.

Under the No Action Alternative, Fort Meade would not implement the proposed BRAC action. Organizations presently assigned to Fort Meade would continue to train and operate from the post. No units would be reassigned due to BRAC actions. Fort Meade would use its current inventory of facilities. Routine replacement or renovations actions could occur through normal military maintenance and construction procedures. The No Action Alternative is not feasible because the BRAC actions are congressionally-mandated.

Also under the No Action Alternative, the EUL actions would not be implemented. Sites Y and Z would not be leased to a private developer. Development on Sites Y, Z, and S would not occur. No new

administration buildings would be constructed on Sites Y and Z and no new golf facilities would be constructed on Site S.

Alternative 2 – BRAC Realignment and EUL Actions

This alternative includes the implementation of the BRAC realignment actions and the DoD EUL actions. Under this alternative, several sub-alternatives for siting incoming BRAC realignment organizations are presented. In addition sub-alternatives for construction build-out on the proposed EUL sites are also presented.

The sub-alternatives for the EUL actions were all developed based on the construction of administration space to accommodate 10,000 personnel. The specific layout and orientation of the buildings have not been determined. The layout of the new buildings could be oriented in such a way that would result in a trade-off in impacts to some of the more sensitive natural resource areas on the sites, such as wetlands or floodplains. A range of alternatives was developed to address this trade-off and to strike different balances between site development and resource area protection.

Selection of the siting options for sub-alternatives were based on the consideration of site advantages and disadvantages. The EUL sub-alternatives may be incorporated with the BRAC sub-alternatives in any combination.

Support facilities projects including the PX, GYM and UPH Barracks are not included in the BRAC realignment action or the DoD EUL actions, however, because these projects will be constructed during the later stages of or shortly following the BRAC construction projects, they are considered in this analysis.

Table ES-1 presents the options for site locations for BRAC realignment actions. Under each alternative, the different site locations that were considered for DISA, Media, and Adjudication are presented. BRAC Sub-Alternative 2A is the preferred BRAC alternative. BRAC Sub-alternative 2A shows the preferred site location for DISA, Media, and Adjudication are Site F, Site G, and Site X, respectively. Other site locations considered for DISA, Media, and Adjudication construction are shown under BRAC Sub-alternatives 2B, 2C, and 2D. The preferred locations for the new PX, GYM, and UPH under BRAC Sub-alternative 2A is Site G. Other siting locations considered for the new PX, GYM and UPH construction are shown under BRAC Sub-alternatives 2B, 2C, and 2D

Table ES-1: BRAC Realignment Actions

BRAC Realignment Action - Sub-Alternatives for Siting Incoming Organizations				
Alternative	Administration and Vehicle Storage	PX	GYM	UPH
BRAC Sub-Alternative 2A (Preferred BRAC Alternative) (Preferred Site Location)	Site F,G,X DISA – Site F Media – Site G Adjudication – Site X	Site G Site G Site G	Site G Site G None	Site G Site G Site G
BRAC Sub-alternative 2B	Site F,G,K DISA – Site F Media – Site G Adjudication – Site K	Site F Site N Site K	Site F Site N None	Site M Site M Site N
BRAC Sub-alternative 2C	Site F,G,C DISA – Site F Media – Site G Adjudication – Site C	Site N Site K Site N	Site N Site K None	Site M Site M Site N
BRAC Sub-alternative 2D	Site A, L,C DISA – Site A Media – Site L Adjudication – Site C	Site K Site K Site K	Site K Site N None	Site M Site N Site N

Table ES-2 shows alternatives considered for EUL actions. The build-out options are presented for each Sub-alternative for the proposed EUL sites. Figure ES-1 shows the proposed site locations for BRAC and EUL action projects.

Table ES-2: Enhanced Use Lease Actions

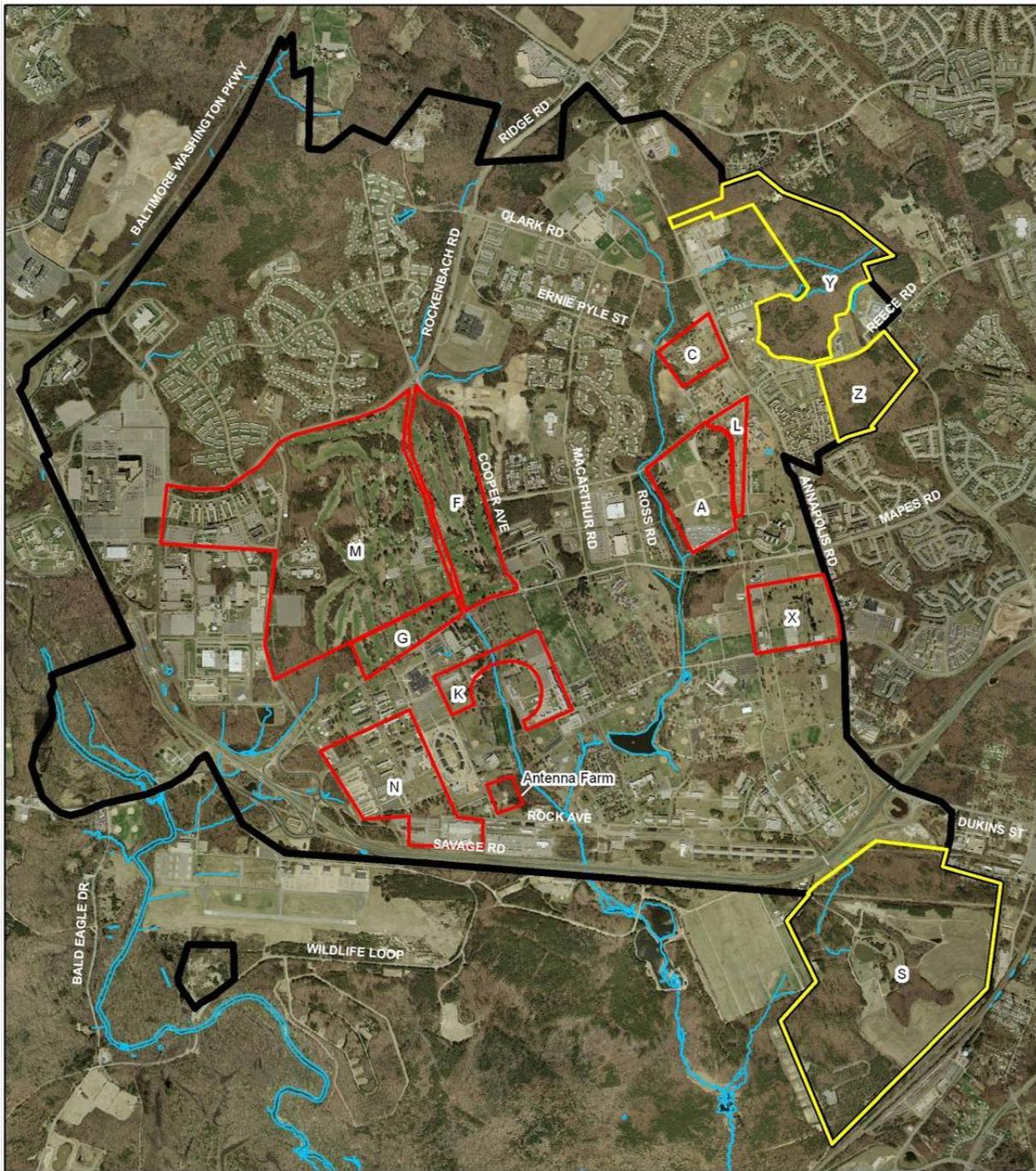
EUL Action - Sub-Alternatives for EUL Build-Out Options				
Alternative	Administration and Vehicle Storage	PX	GYM	UPH
EUL Sub-alternative 2A	Construct administrative buildings for an estimated 10,000 personnel on Sites Y and Z. Development would be constrained by the requirements of the Executive Order 13423, Fort Meade Green Building Manual, Installation Design Guide and INRMP, conserving natural resources areas. Construct two 18-hole golf courses on Site S.	N/A	N/A	N/A
EUL Sub-alternative 2B	Construct administration buildings for an estimated 10,000 personnel, maximum build out, on Sites Y and Z with no environmental constraints beyond regulatory and permit requirement. Development would encroach on natural resources areas and require significant mitigation. Construct two 18-hole golf courses on Site S.	N/A	N/A	N/A
EUL Sub-alternative 2C	Construct administration buildings for an estimated 10,000 people on Sites Y and Z with limited encroachment on natural resources areas and require some mitigation. Construct two 18-hole golf courses on Site S.	N/A	N/A	N/A

BRAC Actions Sub-Alternatives

BRAC Sub-alternative 2A (FGX Arrangement, Preferred Site Location)

Selection of the sites for BRAC Sub-alternative 2A was based on the consideration of site advantages and disadvantages taking into account the environmental impacts to natural resources. The proposed FGX arrangement (preferred site location) places sensitive operations, like DISA and DMA, which require more security at the center of the installation, increasing the overall security of the facility, and places troop working locations and housing in close proximity, allowing easy access for troops to get to their work location. The FGX arrangement places DMA in close proximity to the Defense Information School (DINFOS), which allows ease in collaboration on mutual missions. The arrangement places the Adjudication Activities site in proximity to similar OPM activities. Another key consideration for this site is it allows for ease of access for uncleared personnel who are going through appeals processes. The arrangement also sites the UPH, GYM, and PX next to each other, allowing for easy access to these facilities and grouping three main supporting services (PX, GYM, UPH) in one place. Disadvantages to the proposed action's location include its collocation with 7 holes of the existing golf course. There may be potential environmental clean up requirements at the existing golf course, dependent on the outcome of data review and/or further investigations. In addition, Adjudication Activities' proposed location near the base periphery is not consistent with the siting parameters established by the Garrison for post September 11 operational security requirements.

Figure ES-1: Proposed BRAC and EUL Action Site Locations



<p>Legend</p> <ul style="list-style-type: none"> BRAC Parcel EUL Parcel Ft Meade Waterbodies 	<p>Proposed BRAC and EUL Action Site Locations</p>	<p>Sources: Fort Meade, ESRI</p> <p>Coordinate System: NAD 1983, Maryland State Plane, Feet</p> <p>Prepared By: The Louis Berger Group</p>	<p>MAP INDEX</p>
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Under BRAC Sub-alternative 2A, up to 91 acres of forestland could be affected by the construction of administration buildings for DISA, DMA, and Adjudications Activities, the PX, Gym, UPH, and associated parking. There are no wetlands located on any of the proposed BRAC sites. The amount of land required for construction of BRAC facilities would be the same for each BRAC sub-alternative, however, some site locations vary depending on the sub-alternative.

The selection of site locations under BRAC sub-alternatives 2B, 2C, and 2D were based on the following advantages and disadvantages.

BRAC Sub-alternative 2B (FGK Arrangement)

This sub-alternative places the administrative areas for BRAC actions at Sites F, G, and K, and the support facilities at Sites F, M, N, and K. The PX and Gym would be located on either Site F, N, or K and the UPH Barracks would be located on either Site M or Site N (see Table ES-1 and Figure ES-1). This arrangement has some of the same advantages as the preferred siting FGX. The arrangement places some operations that require more protection at the center of the installation, increasing the security of the facility. The arrangement places the DMA in the vicinity of the DINFOS, allowing for collaboration on similar activities, and places troop work and housing areas in close proximity. This sub-alternative places the Adjudication Activities at the center of the installation's historic district, at a prime location for court facilities; however, future development and construction on Site K may displace existing facilities. Moreover, the Adjudication Activities would be located away from a main gate entrance, which makes escorting visitors more difficult and time consuming. Site N has been proposed in previous MILCON planning efforts for DINFOS barracks. The amount of land required for construction of BRAC facilities would be the same as BRAC Sub-alternative 2A. No wetlands would be affected.

BRAC Sub-alternative 2C (FGC Arrangement)

This sub-alternative places the administrative areas at Sites F, G, and C, and the support facilities at Sites M, N, and K. The PX and Gym would be located on either Site N or Site K and the UPH Barracks would be located on either Site M or Site N (see Table ES-1 and Figure ES-1). This siting arrangement also places some operations (DISA and DMA) that require more security toward the center of the installation, increasing the security of the facility. However, this sub-alternative places the Adjudication Activities at the periphery on site C. The GYM and PX would be located a greater distance from the barracks and the administrative buildings, which would be an inconvenience for users of these facilities. In addition, this sub-alternative would use prime real estate at Site K for activities that require less security. Similar to BRAC sub-alternative 2B, Site N has been designated in previous MILCON planning efforts for DINFOS barracks. Finally, the area at site C allocated for Adjudication Activities is a Solid Waste Management

Unit (SWMU) site that would require further evaluation to determine the nature and extent of potential contamination. The amount of land required for construction of BRAC facilities would be the same as BRAC Sub-alternative 2A. No wetlands would be affected.

BRAC Sub-alternative 2D (ALC Arrangement)

This sub-alternative places the administrative areas at Sites A, L, and C, and the support facilities at Sites M, N, and K (see Table ES-1 and Figure ES-1). This siting arrangement has the advantage of close proximity to the main gate for easy access by DMA.– The Adjudication Activities building would be located near the Reece Road gate, which would allow easy escort of visitors. BRAC sub-alternative 2D has many disadvantages, partly due to the dispersed locations for the various facilities. The proposed barracks site for DISA (Site M) would be located a substantial distance from the administrative buildings. The PX and Gym also would be located a substantial distance from the administrative buildings. The DISA administrative facility, would be located near the perimeter of the installation, not toward the center, and is therefore not consistent with the siting parameters established by the Garrison for operational and physical security. Ernie Pyle Street would need to be rerouted to provide an entrance to the DISA building, and this would add to project costs and impacts. This sub-alternative would also require the removal of youth playing fields and relocation elsewhere on the post. The Friedhofer and Gary cemeteries are both located on the proposed Site A for DISA. For the DMA site, extensive cut and fill would be required during construction, thereby adding to project costs and impacts. Similar to BRAC sub-alternative 2C, Site N has been proposed for DINFOS barracks, and the area at site C is a SWMU site that requires further evaluation to determine the nature and extent of potential contamination. The amount of land required for construction of BRAC facilities would be the same as BRAC Sub-alternative 2A. No wetlands would be affected.

Enhanced Use Lease Actions Sub-Alternatives

The EUL sites contain wetlands, streams, and woodlands. The natural resources on these sites would be accurately delineated and mapped before any EUL action is initiated. Any wetlands, wetland buffers, streams, and floodplains impacts would be reviewed by the U.S. Army Corps of Engineers and Maryland Department of the Environment before any action is initiated. The Development Plan will require coordination with the Fort Meade Environmental Management staff regarding onsite mitigation options for unavoidable impacts if mitigation is required.

Fort Meade manages its Forest Conservation Program in agreement with the Maryland Department of Natural Resources and the Installation's Tree Management and Forest Conservation Act policies, which dictate that all development must generally comply with Forest Conservation Act and requires an

equivalent of 20 percent of the site must be forested. An evaluation of the woodlands on the EUL sites will be conducted and a Forest Conservation Plan which includes preservation, reforestation and afforestation will be developed and implemented to meet the stated goal of 20 percent forested area.

EUL Sub-alternative 2A

EUL Sub-alternative 2A proposes maximum build out of administrative buildings for 10,000 personnel on Sites Y and Z with development constraint in accordance with the Fort Meade Green Building Manual, Installation Design Guide (IDG), and Integrated Natural Resources Management Plan (INRMP), which conserve natural resources areas, and other applicable laws, regulations, policies and permit requirements. The development would avoid encroachment on natural resource areas including maintaining a buffer between the construction activities and wetlands and restricting the number of trees cleared in the forested areas. This EUL sub-alternative would also include the construction of two 18-hole golf courses on Site S (see Table ES-2 and Figure ES-1). The advantages of implementing this EUL action are that it places non-federal operations outside the security fence, permits the installation to configure site security to meet force protection requirements; and allows the installation to obtain modern facilities, services, and maintenance. The disadvantages of implementing this EUL action are the potential for a more substantial loss of trees and forest habitat on Sites Y and Z and an increase in traffic volume in the immediate areas.

Under this EUL sub-alternatives, up to 205 acres of forestland would be affected, including 45 acres to construct administrative and associated facilities for 10,000 EUL personnel on Sites Y, and Z and 160 acres of forestland on Site S to develop two 18-hole golf courses. No wetlands would be affected on Sites Y, Z, and S under this sub-alternative.

EUL Sub-alternative 2B

This EUL sub-alternative also proposes maximum build-out on Sites Y and Z without development constraint that complies with the IDG and INRMP (see Table ES-2). Development would encroach on natural resource areas and would maintain a buffer between the construction activities, installation boundary line, and wetlands. There would be restrictions on the number of trees cleared in the forested areas. The advantages of this EUL sub-alternative are similar to those discussed in EUL sub-alternative 2A. The disadvantages include the potential loss of forest habitat and wetlands on Sites Y and Z.

Although this alternative is evaluated, it is not a preferred alternative. Fort Meade's goal is to comply with Executive Order 13423, Strengthening Federal Environmental, Energy and Transportation Management; Fort Meade's Green Building Manual, and embrace design/construction approaches such as Leadership in Energy and Environmental Design (LEED) criteria, or other design/construction approaches, as well as comply with all applicable laws, regulations, policies, and permit requirements.

Development on EUL sites would include constructing administration buildings for an estimated 10,000 personnel, maximum build-out, on Sites Y and Z with no environmental constraints (see Table ES-2 and Figure ES-1). Development would encroach on natural resource areas. The amount of forest land that would be affected under EUL Sub-alternative 2B would be the same as EUL Sub-alternative 2A. Approximately 10 acres of wetlands could be affected on Sites Y and Z. This EUL sub-alternative would also include the construction of two 18-hole golf course facilities on Site S. Development would avoid wetlands on Site S.

EUL Sub-alternative 2C

This EUL sub-alternative also proposes maximum build-out with limited environmental constraint and some degree of conformance with the IDG and the INRMP. Development would have limited encroachment on natural resource areas including constraints that are less than required by the IDG and INRMP for buffer zones between the construction activities, the installation boundary line, and wetlands and restrictions on the number of trees cleared in the forested areas. The advantages and disadvantages are similar to those identified in EUL sub-alternative 2A. The disadvantages would also depend on the degree of encroachment in Sites Y and Z.

The amount of forest land that would be affected under EUL Sub-alternative 2C would be the same as EUL Sub-alternative 2A. The amount of wetlands that would be disturbed on Sites Y and Z has not been determined, however some amount of encroachment would occur. This EUL sub-alternative would also include the construction of two 18-hole golf courses on Site S, however, development would avoid wetlands on Site S.

Combined BRAC-Directed and EUL Actions

The preferred federal action is to implement the combined BRAC realignment actions and the EUL development actions. The estimated combined population change associated with implementing the preferred federal action is approximately 15,695 personnel, of which 5,695 are related to BRAC. The estimated area of development for the combined actions would be around 5.7 million square feet.

Alternative 3 – BRAC Realignment Actions

Alternative 3 consists of the implementation of all BRAC realignment actions mandated by the BRAC Commission Report through construction of the needed facilities to accommodate the incoming BRAC organizations, but excludes the EUL actions. This alternative is similar to the BRAC sub-alternatives presented in Alternative 2 in that it supports all of the identified BRAC missions. This alternative does not include the potential development of the EUL Sites Y, Z, and S.

Based on various advantages and disadvantages, the main administrative and vehicle storage facilities for the DISA, Media, and Adjudication, as well as the support facilities, could be constructed on various sites on the installation, creating locational sub-alternatives. Under any of the Alternative 3 BRAC sub-alternatives, the details regarding the construction of the administrative and support facilities would be the same as described under “BRAC Action Project Descriptions”, above and are not repeated here.

A disadvantage of this alternative would be the loss of at least part of the existing golf course with no replacement. The BRAC action sub-alternatives selected for analysis are summarized in Table ES-3 below:

Table ES-3: BRAC Realignment Actions

BRAC Realignment Action - Sub-Alternatives for Siting Incoming Organizations				
Alternative	Administration and Vehicle Storage	PX	GYM	UPH
BRAC Sub-Alternative 3A (Preferred BRAC Alternative) Preferred Site Location	Site F,G,X DISA – Site F Media – Site G Adjudication – Site X	Site G Site G Site G	Site G Site G None	Site G Site G Site G
Sub- Alternative 3B	Site F,G,K DISA – Site F Media – Site G Adjudication – Site K	Site F Site N Site K	Site F Site N None	Site M Site M Site N
Sub- Alternative 3C	Site F,G,C DISA – Site F Media – Site G Adjudication – Site C	Site N Site K Site N	Site N Site K None	Site M Site M Site N
Sub- Alternative 3D	Site A,L,C DISA – Site A Media – Site L Adjudication – Site C	Site K Site K Site K	Site K Site N None	Site M Site N Site N

The description of BRAC Sub-alternatives 3B, 3C, and 3D, and the advantages and disadvantages are the same as described under Alternative 2 above. The difference is that under this alternative, the EUL actions are not included in the implementation.

ES. 7 Centralized Support Facilities

There are centralized support facilities that are not included in the BRAC actions but would be constructed subsequent to the BRAC actions including a PX, Gym, and a UPH barracks complex for unaccompanied personnel. The western sections of Site G and Site M include an area being addressed in the Military Munitions Response Program. Future development of these areas would take into consideration environmental requirements.

Centralized PX

A PX would be constructed to consolidate PX functions and would be designed to accommodate expected soldier population increases due to BRAC 05 mission gains. This facility is proposed for Site G, just north of Mapes Road and within a portion of the existing golf course. The PX would be located in the same site location as the proposed centralized Gym and Child Development Center. The centralized PX facility would contain 32,362 square feet.

Centralized Physical Fitness Center

A new Gym would be constructed to provide physical fitness facilities for the military and authorized civilians for Fort Meade. The facility would be located adjacent to the proposed PX on Site G. The new center would be designed to accommodate the increase of 5,695 incoming personnel associated with the BRAC 05 mission gains. It would encompass 44,347 square feet. Supporting facilities would include intrusion detection system, energy monitoring and control systems, utilities, electric service, exterior lighting, fire protection and alarm systems, paving, sidewalks, curbs and gutters, parking, sedimentation and erosion control, storm drainage, storm water management structure, picnic area and bicycle racks, dumpster pads and enclosures, information systems, bus stop, and site improvements.

Centralized Whole Barracks Complex (Unaccompanied Personnel Housing or UPH)

A standard-design barracks complex is proposed to provide housing for permanent parties of various military service activities stationed at Fort Meade, including the military personnel arriving at Fort Meade due to the addition of the new organizations under BRAC 05 realignment actions. The complex would consist of a barracks and a soldier community building that meets current Army standards. Barracks would include living/sleeping rooms, semi-private baths, closets, storage, laundry facilities, and service areas. The soldier community building would include office space, kitchen area, day room, and television room. The preferred location for the barracks complex is Site G, within a portion of the existing golf course. The buildings would contain 110,624 square feet. The facility would provide 288 room spaces, and serve 700 incoming active duty military personnel. Supporting infrastructure would include an intrusion detection system, energy monitoring and control systems, utilities, electric service, exterior lighting, fire protection and alarm systems, paving, sidewalks, curbs and gutters, parking, sedimentation and erosion control, storm drainage, storm water management structure, picnic area and bicycle racks, dumpster pads and enclosures, information systems, and site improvements.

ES.8 ENVIRONMENTAL CONSEQUENCES

Table ES-4 summarizes the potential impacts from the No Action Alternative, construction and operation of the BRAC and EUL Actions Alternative (Preferred Alternative), and construction and operation of

BRAC Action Alternative (excluding EUL actions), respectively. The criteria used to determine the significance thresholds for each resource area is provided in Table 4-1.

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 construction projects and increase personnel represent the direct effects of the action. Based on the input data related to BRAC actions and regional 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 30-year historical range (1969-2000), or rational threshold value (RTV) of ROI economic variation. A more detailed discussion of the EIFS methodology is presented in Appendix D.

Table ES-4: Summary of Effects of the No Action Alternative, BRAC Realignment and EUL Actions Alternative, and BRAC Realignment Alternative

Resource	No Action Alternative	BRAC and EUL Actions Alternative	BRAC Actions Alternative
Land Use			
<i>Installation Land Use</i>	No adverse effects	No significant adverse effects – BRAC actions Significant adverse effects-EUL actions Cumulative effects would occur.	No significant adverse effects – BRAC actions Cumulative effects would occur.
<i>Surrounding Land Use</i>	No adverse effects	No adverse effects	No adverse effects
Aesthetic and Visual Resources			
<i>Sites A, F, G, X</i>	No adverse effects	Significant short-term adverse effects during construction phase Significant long-term effects on viewshed and character, not adverse Cumulative effects would occur. Proposed Mitigations: Revegetate disturbed areas with native vegetation. Maintain trees and native vegetation wherever possible.	Significant short-term adverse effects during construction phase Significant long-term effects on viewshed and character, not adverse Cumulative effects would occur. Proposed Mitigations: Revegetate disturbed areas with native vegetation. Maintain trees and native vegetation wherever possible.

Resource	No Action Alternative	BRAC and EUL Actions Alternative	BRAC Actions Alternative
<i>Sites C, K, L</i>	No adverse effects	<p>Significant short-term adverse effects- construction phase</p> <p>No significant long-term effects on viewshed and character</p> <p>Cumulative effects would occur.</p> <p>Proposed Mitigations:</p> <p>Revegetate disturbed areas with native vegetation.</p> <p>Maintain trees and native vegetation wherever possible.</p>	<p>Significant short-term adverse effects- construction phase</p> <p>No significant long-term effects on viewshed and character</p> <p>Cumulative effects would occur.</p> <p>Proposed Mitigations:</p> <p>Revegetate disturbed areas with native vegetation.</p> <p>Maintain trees and native vegetation wherever possible.</p>
<i>Sites M, N</i>	No adverse effects	<p>Significant short-term adverse effects during construction phase</p> <p>Significant long-term effects on viewshed and character, not adverse</p> <p>Cumulative effects would occur.</p> <p>Proposed Mitigations:</p> <p>Revegetate disturbed areas with native vegetation.</p> <p>Maintain trees and native vegetation wherever possible</p>	<p>Significant short-term adverse effects during construction phase</p> <p>Significant long-term effects on viewshed and character, not adverse</p> <p>Cumulative effects would occur.</p> <p>Proposed Mitigations:</p> <p>Revegetate disturbed areas with native vegetation.</p> <p>Maintain trees and native vegetation wherever possible</p>
<i>Site S, Y, Z</i>	No adverse effects	<p>Significant short-term adverse effects-construction phase</p> <p>Significant long-term adverse effects on viewshed and character for Sites Y and Z.</p> <p>Cumulative effects would occur.</p> <p>Proposed Mitigations:</p> <p>Revegetate disturbed areas with native vegetation.</p> <p>Maintain trees and native vegetation wherever possible.</p>	No adverse effects
Air Quality	No adverse effects	No significant adverse effects	No significant adverse effects
Noise	No adverse effects	<p>No significant short-term adverse effects - construction phase</p> <p>No significant long-term adverse effects related to operation</p> <p>Cumulative effects would occur.</p> <p>Proposed Mitigations:</p> <p>Apply Best Management Practices during construction.</p>	No significant adverse effects

Resource	No Action Alternative	BRAC and EUL Actions Alternative	BRAC Actions Alternative
Geology and Soils			
<i>Geologic and Topographic Conditions</i>	No adverse effects	No significant adverse effects	No significant adverse effects
<i>Soils</i>	No adverse effects	No significant adverse effects	No significant adverse effects
<i>Prime Farmland</i>	No adverse effects	No adverse effects	No adverse effects
Water Resources			
<i>Surface Water</i>	No adverse effects	Indirect and cumulative impacts to Midway Branch and Franklin Branch are possible. Impacts are not anticipated to be significant in consideration of BMP's aimed at reducing impacts to surface water to the greatest extent feasible Proposed Mitigations: CWA 404 (b)(1) & 401, NPDES and construction permit compliance;	Indirect and cumulative impacts to Midway Branch and Franklin Branch are possible. Impacts are not anticipated to be significant in consideration of BMP's aimed at reducing impacts to surface water to the greatest extent feasible Proposed Mitigations: CWA 404 (b)(1) & 401, NPDES and construction permit compliance;
<i>Hydrogeology/Groundwater</i>	No adverse effects	No significant adverse effects	No significant adverse effects
<i>Floodplains</i>	No adverse effects	No significant adverse effects related to BRAC or EUL actions	No significant adverse effects
<i>Coastal Zone</i>	No adverse effects	No significant adverse effects related to BRAC or EUL actions	No significant adverse effects
Biological Resources			
<i>Vegetation</i>	No adverse effects	Significant adverse effects Cumulative effects would occur. Proposed Mitigations: To the maximum extent practicable comply with the Maryland Forest Conservation Act. Ensure contractor coordinates with the Fort Meade forester before implementing tree removal or planting actions.	No significant adverse effects Cumulative effects would occur. Proposed Mitigations: To the maximum extent practicable comply with the Maryland Forest Conservation Act. Ensure contractor coordinates with the Fort Meade forester before implementing tree removal or planting actions.
<i>Wildlife</i>	No adverse effects	Significant adverse effects Cumulative effects would occur. Proposed Mitigations: Preserve associated roads and blocks of connective native vegetation on each site, where possible, to act as buffers and wildlife corridors.	No significant adverse effects Cumulative effects would occur.

Resource	No Action Alternative	BRAC and EUL Actions Alternative	BRAC Actions Alternative
		To the extent feasible, construct bridges or oversized culverts to allow for wildlife passage.	
<i>Sensitive Species</i>	No adverse effects	No significant adverse effects	No significant adverse effects
<i>Aquatic</i>	No adverse effects	No significant adverse effects Proposed Mitigations: If necessary following delineation, obtain appropriate Section 404 permits from the Corps of Engineers to dredge and fill wetlands. As appropriate, mitigate for losses of wetland acreage in the footprint with constructed wetlands. Obtain MDE authorization before action is initiated.	No significant adverse effects. Proposed Mitigations: If necessary following delineation, obtain appropriate Section 404 permits from the Corps of Engineers to dredge and fill wetlands. As appropriate, mitigate for losses of wetland acreage in the footprint with constructed wetlands. Obtain MDE authorization before action is initiated.
Cultural Resources			
<i>Prehistoric and Historic Background</i>	No adverse effects	No adverse effects	No adverse effects
<i>Status of Cultural Resource Inventories and Section 106 Consultations</i>	No adverse effects	No adverse effects	No adverse effects
<i>Native American Resources</i>	No adverse effects	No adverse effects	No adverse effects
Socioeconomics			
<i>Economic Developments</i>	No adverse effects	No significant effects	No significant effects
<i>Demographics</i>	No adverse effects	Significant effects	Significant effects
<i>Housing</i>	No adverse effects	No significant adverse effects	No significant adverse effects
<i>Quality of Life</i>			
<i>Schools</i>	No adverse effects	Significant adverse effects	Significant adverse effects
<i>Law Enforcement</i>	No adverse effects	Significant adverse effects	No significant adverse effects
<i>Recreation</i>	No adverse effects	No adverse effects	No adverse effects
<i>Environmental Justice</i>	No adverse effects	No adverse effects	No adverse effects
<i>Protection of Children</i>	No adverse effects	No adverse effects	No adverse effects
Transportation			
<i>Roadways and Traffic</i>	No significant adverse effects	Short-term adverse effects-construction phase Significant long-term adverse effects Cumulative effects would occur. Proposed mitigations: During construction, the Army will limit construction vehicle movements during peak travel	Short-term adverse effects-construction phase No significant adverse effects Cumulative effects would occur. Proposed mitigations: During construction, the Army will limit construction vehicle movements during peak travel

Resource	No Action Alternative	BRAC and EUL Actions Alternative	BRAC Actions Alternative
		<p>hours as feasible</p> <p>Army will coordinate with all appropriate transportation agencies and the Army is committed to the process of information sharing and design coordination.</p> <p>FGGM is working with the SHA to develop plans for widening MD 175. Based on the outcome of the planning process, FGGM will negotiate to provide any necessary easement..</p> <p>The federal Department of Defense Economic Adjustment Program is available to local communities to seek assistance in addressing impacts from DoD actions.</p> <p>FGGM will analyze highway and transit mitigation projects to determine if any would meet the requirements of the Defense Access Roads (DAR) Program (23 USC §210). Those that meet the DAR requirements will be forwarded for certification to the Military Surface Deployment and Distribution Command (SDDC). If the SDDC determines that the road or transit facility is important to national defense under the rules of the program, the projects will be eligible for the use of defense funds.</p> <p>The Army will require the EUL developer to conduct a traffic study to support SHA planning</p>	<p>hours as feasible</p> <p>The Army will coordinate with all appropriate transportation agencies and the Army is committed to the process of information sharing and design coordination.</p> <p>FGGM is working with the SHA to develop plans for widening MD 175. Based on the outcome of the planning process, FGGM will negotiate to provide any necessary easements.</p> <p>The federal Department of Defense Economic Adjustment Program is available to local communities to seek assistance in addressing impacts from DoD actions.</p> <p>FGGM will analyze highway and transit mitigation projects to determine if any would meet the requirements of the Defense Access Roads (DAR) Program (23 USC §210). Those that meet the DAR requirements will be forwarded for certification to the Military Surface Deployment and Distribution Command (SDDC). If the SDDC determines that the road or transit facility is important to national defense under the rules of the program, the projects will be eligible for the use of defense funds.</p> <p>The Army will coordinate with SHA on potential gate management strategies to avoid exterior roadway impacts from gate operations.</p>
<p><i>Roadways and Traffic (continued)</i></p>		<p>and to identify possible road improvements and entry/ exit strategies.</p> <p>The Army will coordinate with SHA on potential gate management strategies to avoid exterior roadway impacts from gate operations.</p> <p>The Army will continue current planning actions with Anne Arundel County and Howard</p>	<p>The Army will continue current planning actions with Anne Arundel County and Howard County to lease the land to develop a coordinated transit operations facility on Fort Meade property, in the expectation of the Fort receiving in-kind transit service (service details not yet determined).</p> <p>The Army will evaluate and implement local versions of</p>

Resource	No Action Alternative	BRAC and EUL Actions Alternative	BRAC Actions Alternative
		<p>County to lease the land to develop a coordinated transit operations facility on Fort Meade property, in the expectation of the Fort receiving in-kind transit service (service details not yet determined).</p> <p>The Army will evaluate and implement local versions of successful rideshare/commuter programs (see Installation mitigation, immediately below).</p>	<p>successful rideshare/commuter programs (see Installation mitigation, immediately below).</p>
<i>Installation Transportation</i>	No significant adverse effects	<p>No significant adverse effects overall, significant delays projected at a few unsignalized intersections</p> <p>Cumulative effects would occur.</p> <p>Proposed Mitigations:</p> <p>Fort Meade will initiate an Installation Traffic Study to develop engineered projects/strategies necessary to improve intersections and roads. These projects will be implemented as funds become available.</p> <p>The Installation transportation study will identify which transportation actions or improvements will be adopted to address identified capacity problems.</p> <p>Fort Meade will alter existing directional flows at all FGGM gates as needed to improve access and reduce traffic impacts on exterior roadways. Corrective measures could include designating specific gates for one-way entrance or</p>	<p>No significant adverse effects</p> <p>Cumulative effects would occur.</p> <p>Fort Meade will initiate an Installation Traffic Study to develop engineered projects/strategies necessary to improve intersections and roads. These projects will be implemented as funds become available.</p> <p>The Installation transportation study will identify which transportation actions or improvements will be adopted to address identified capacity problems.</p> <p>Fort Meade will alter existing directional flows at all FGGM gates as needed to improve access and reduce traffic impacts on exterior roadways. Corrective measures could include designating specific gates for one-way entrance or exit at peak volume hours, managing gate volumes by assigning specific gates to specific organizations and</p>
<i>Installation Transportation (continued)</i>		<p>exit at peak volume hours, managing gate volumes by assigning specific gates to specific organizations and limiting gate exit options, e.g., right turn only exits.</p> <p>Roadways: Where feasible, FGGM will implement DMA ADG Section 2.4.2 guidance by providing turning lanes and minimizing intersections along</p>	<p>limiting gate exit options, e.g., right turn only exits.</p> <p>Roadways: Where feasible, FGGM will implement DMA ADG Section 2.4.2 guidance by providing turning lanes and minimizing intersections along primary roads.</p> <p>Bicycle/ pedestrian: Where feasible, FGGM will develop sidewalks, paths and bicycle</p>

Resource	No Action Alternative	BRAC and EUL Actions Alternative	BRAC Actions Alternative
		<p>primary roads.</p> <p>Bicycle/ pedestrian: Where feasible, FGGM will develop sidewalks, paths and bicycle trails on the Post consistent with guidance from the CEMP Transportation Plan and DMA ADG Section 2.4.6.</p> <p>The Army will evaluate and implement expanded transit service on the Post, as warranted, coordinated with off-Post services such as a regular shuttle from the Odenton MARC station. Funding and coordination for such services is under discussion between the Installation and local governments in the context of the Central Maryland Transit Operations Facility agreements.</p>	<p>trails on the Post consistent with guidance from the CEMP Transportation Plan and DMA ADG Section 2.4.6.</p> <p>The Army will evaluate and implement expanded transit service on the Post, as warranted, coordinated with off-Post services such as a regular shuttle from the Odenton MARC station. Funding and coordination for such services is under discussion between the Installation and local governments in the context of the Central Maryland Transit Operations Facility agreements.</p>
Utilities			
<i>Potable Water Supply</i>	No adverse effects	<p>No significant adverse effects</p> <p>Cumulative effects would occur.</p>	<p>No significant adverse effects</p> <p>Cumulative effects would occur.</p>
<i>Wastewater System</i>	No adverse effects	<p>Significant long-term adverse effects</p> <p>Cumulative effects would occur.</p> <p>Proposed Mitigations:</p> <p>Restore the WWTP to its original capacity</p>	<p>Significant long-term adverse effects</p> <p>Cumulative effects would occur.</p> <p>Proposed Mitigations:</p> <p>Restore the WWTP to its original capacity</p>
<i>Stormwater Drainage</i>	No adverse effects	<p>Significant long-term adverse effects</p> <p>Cumulative effects would occur.</p> <p>Proposed Mitigations:</p> <p>Use appropriate measures to minimize surface erosion and runoff of pollutants.</p> <p>Continue to implement a Storm Water Pollution Prevention Plan (See Section 4.7).</p>	<p>Significant long-term adverse effects</p> <p>Cumulative effects would occur.</p> <p>Proposed Mitigations:</p> <p>Use appropriate measures to minimize surface erosion and runoff of pollutants.</p> <p>Continue to implement a Storm Water Pollution Prevention Plan (See Section 4.7).</p>
<i>Energy Sources</i>	No adverse effects	<p>Short-term adverse effects – construction</p> <p>No adverse effects-operation</p>	<p>Short-term adverse effects – construction</p> <p>No adverse effects-operation</p>
<i>Solid Waste</i>	No adverse effects	Minimize landfill disposal by recycling the maximum amounts of materials possible.	Minimize landfill disposal by recycling the maximum amounts of materials possible.

Resource	No Action Alternative	BRAC and EUL Actions Alternative	BRAC Actions Alternative
<i>Communications</i>	No adverse effects	No adverse effects	No adverse effects
Hazardous and Toxic Substances			
<i>Uses of Hazardous Materials</i>	No adverse effects	No significant adverse effects	No significant adverse effects
<i>Storage and Handling Areas</i>	No adverse effects	No significant adverse effects	No significant adverse effects
<i>Hazardous Waste Disposal</i>	No adverse effects	No significant adverse effects	No significant adverse effects
<i>Site Contamination and Cleanup</i>	No adverse effects	No significant adverse effects Proposed Mitigations: Implement Health and Safety Plans for construction activities in areas of known contamination and possible UXOs on EUL sites, as appropriate.	No significant adverse effects Proposed Mitigations: Implement Health and Safety Plans for construction activities in areas of known contamination.
<i>Special Hazards</i>	No adverse effects	No significant adverse effects	No significant adverse effects

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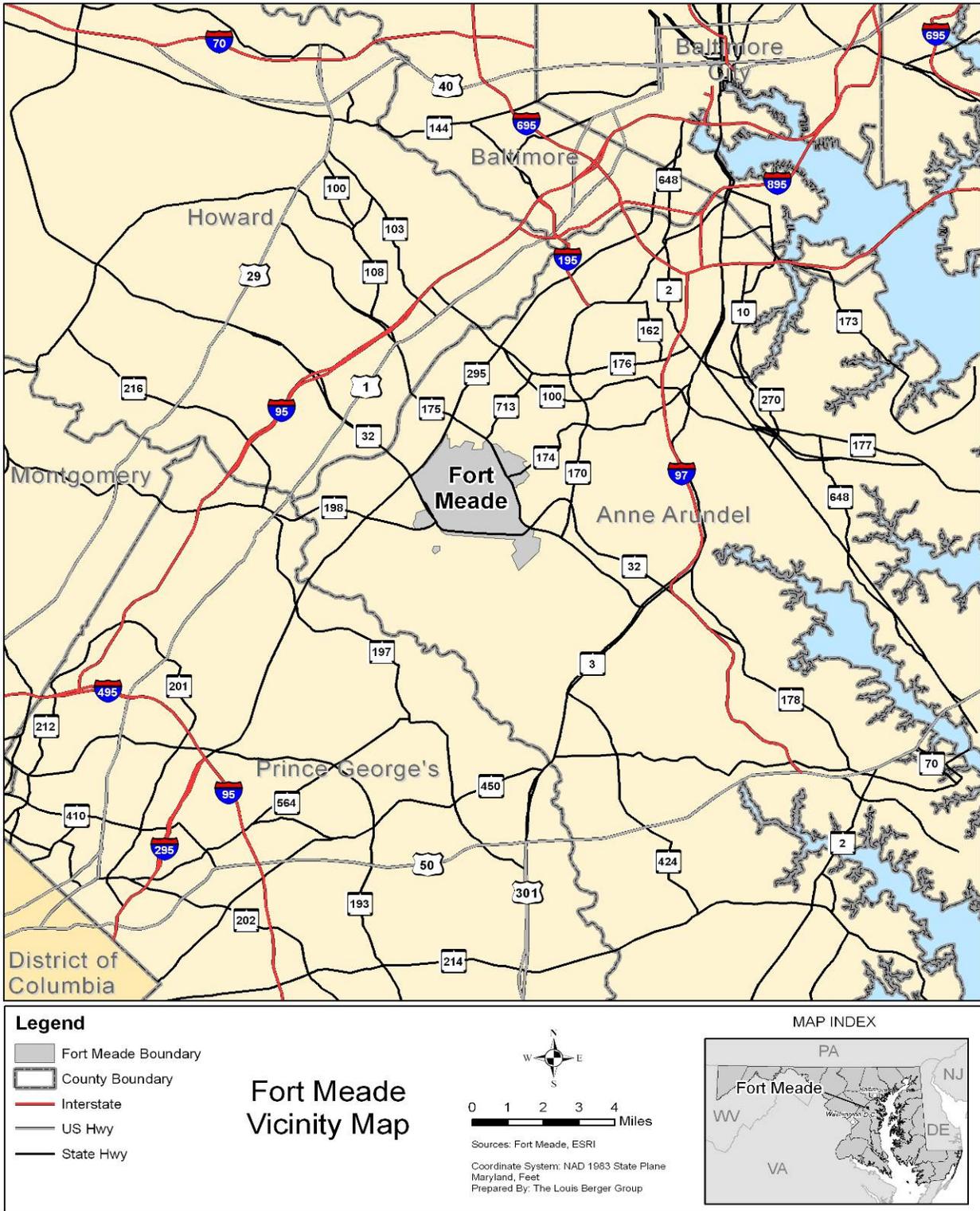
1.0 PURPOSE, NEED, AND SCOPE

1.1 INTRODUCTION

On September 8, 2005, the Defense Base Closure and Realignment Commission (BRAC Commission) recommended a set of domestic realignment and closure actions (BRAC Commission 2005). These recommendations were approved by the President on September 15, 2005, and forwarded to Congress (DoD 2005). The Congress did not alter any of the BRAC Commission's recommendations, and on November 9, 2005, the recommendations became law (DoD 2006). The BRAC Commission recommendations must now be implemented as provided for in the Defense Base Closure and Realignment Act of 1990 (Public Law [PL]101-510), as amended, hereinafter, BRAC Law.

Fort George G. Meade, Maryland (hereinafter "Fort Meade") is a permanent U.S. Army installation located about midway between Baltimore, Maryland, and Washington, DC, encompassing about 5,067 acres in Anne Arundel County, Maryland (Figure 1-1). Fort Meade supports more than 80 tenant organizations from all military services, and several federal agencies. The major tenants include the National Security Agency (NSA), the Defense Information School (DINFOS), the 704th Military Intelligence Brigade, 902nd Military Intelligence Group, the U.S.EPA Science Center, Asymmetric Warfare Group, and 1st Army Division East. The BRAC Commission recommended that three major activities relocate to Fort Meade: the Defense Information Systems Agency (DISA), the Department of Defense (DoD) Media Activities, and the Adjudication and Office of Hearing and Appeals Offices. The recommendation realigns and relocates DISA activities to Fort Meade, and it establishes joint command, control, communications, computers, intelligence, surveillance and reconnaissance (C4ISR), development and acquisition (D&A) capability at the Army post. DISA activities at leased and government installations in Louisiana, Florida, and Virginia are to be relocated to Fort Meade. The recommendation also realigns and relocates DoD Media Activities into a new agency for Media Publications at Fort Meade. DoD Media Activities at government installations in Washington, DC, Texas, and Virginia are to be relocated to Fort Meade. Finally, the recommendation realigns and relocates Adjudication and Office of Hearing and Appeals Offices activities in the Washington DC Navy Yard and Pentagon and in leased facilities in Arizona, California, Massachusetts, Maryland, Ohio, and Virginia to Fort Meade. All BRAC realignment activities are to relocate to Fort Meade by 2011.

Figure 1-1. Fort Meade Vicinity Map



In addition, following the 2005 BRAC decisions approved by Congress, Fort Meade's mission as a major federal administrative center has increased, and it was recognized that it would be advantageous to accommodate additional tenants and activities to support the incoming missions.

Fort Meade also proposes to assess the environmental impacts related to the implementation of the DoD Enhanced Use Lease (EUL) Program. Under the EUL Program, Fort Meade would make available three parcels totaling approximately 540 acres (Figure 2-1). Two parcels, Sites Y and Z, which total 173 acres, would be leased to a private developer for 50 years. The third parcel, Site S, would be reserved for in-kind development of two new 18-hole golf courses, which will free the existing golf courses for BRAC-related construction and future mission requirements. The EUL projects would allow Fort Meade to derive substantial benefits from non-excess land and would support BRAC-related and national security missions on post. The EUL projects would generate long-term revenue that the installation would use to support future projects and missions for the installations and installation personnel, and reduce installation operating costs.

1.2 PURPOSE AND NEED

The purpose of the proposed action is to implement the BRAC Commission's directed actions and the proposed U.S. Army EUL actions for Fort Meade.

The need for the BRAC-related actions 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 improve its capabilities to respond to a variety of circumstances across the full spectrum of military operations.

The major initiatives that contribute to the need for the proposed action are:

- Base Realignment and Closure
- Army Transformation and the Army Modular Force
- Installation Sustainability

Each of these is discussed below.

1.2.1 BRAC-Directed Realignment; Purpose, Authority, and Need

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, DoD sought to reorganize its installation infrastructure to support its forces efficiently, 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 Meade to achieve the objectives for which Congress established the BRAC process.

The following provides the Secretary of Defense's justification for each of the major BRAC actions recommended for Fort Meade:

Joint Cross Service Group – Consolidate Defense Information Systems Agency (DISA) and Establish Joint C4ISR D&A Capability

This recommendation consolidates headquarters components of DISA and the Joint Task Force - Global Network Operations (JTF-GNO), a related organization with a dual-hatted command and shared facilities, at Fort Meade. This recommendation also realigns the scattered Combatant Commander Development and Acquisition activities, of which certain DISA components are a part, into a single activity at Fort Meade. These DISA components include Global Information Grid-Bandwidth Expansion (GIG-BE), Global Command and Control System (GCCS), Network Centric Enterprise Services (NCES), and Teleport Program Offices. This realignment will provide for the delivery of integrated, interoperable C4ISR systems to the warfighters with increased efficiency at less cost.

The Army's recommendation to close Fort Monmouth relocates the Joint Network Management System (JNMS) Program Office from Fort Monmouth, New Jersey to Fort Meade in a complementary action to those described herein.

This recommendation meets several important DoD objectives with regard to future use of leased space, rationalizing the presence of DoD activities outside the National Capital Region (NCR), consolidation of Headquarters operations at single locations, and enhanced security for DoD activities.

Implementation will reduce the Department's reliance on leased space, which historically has higher overall costs than government-owned space and generally does not meet Anti-terrorism Force Protection standards as prescribed in UFC 04-010-01. The recommendation eliminates more than 720,000 Usable Square Feet (USF) of leased administrative space. The relocation of a DoD Agency headquarters to a military installation that is outside of the NCR provides dispersion of DoD activities away from a dense concentration within the NCR. This, plus the immediate benefit of enhanced Force Protection afforded by a location within a military installation fence-line, will provide immediate compliance with Force Protection Standards.

DISA's current leased locations are not compliant with current Force Protection Standards. This action provides a consolidation for DISA's headquarters, reducing the number of buildings from eight to two.

Joint Cross Service Group – Headquarters and Support Activities - Consolidate Media Organizations into a New Agency for Media and Publications

This recommendation creates a new DoD Media Activity by consolidating a number of military department media organizations with similar missions into a new organization. It also collocates the American Forces Information Service (AFIS) with the new DoD Media Activity and the existing Defense Information School.

This recommendation meets several important DoD objectives with regard to future use of leased space, rationalizing the presence of DoD activities outside the NCR, and enhanced security for DoD activities. The creation of a new DoD Media Activity as the result of consolidating a number of entities with similar missions promotes "jointness" and creates opportunities for cost savings and operational synergy. The co-location of AFIS with the new Activity will facilitate further consolidation of common support functions.

Implementation will reduce the Department's reliance on leased space, which has historically higher overall costs than government-owned space and generally does not meet Anti-terrorism Force Protection standards as prescribed in UFC 04-010-01. The recommendation eliminates approximately 75,000 Usable Square Feet (USF) of leased administrative space. The relocation to a military installation that is outside the boundaries of the NCR provides a dispersion of DoD activities away from a dense concentration with the NCR. This, plus the immediate benefit of enhanced force protection afforded by a location within a military installation fence-line for those activities currently in leased space, will provide immediate compliance with force protection standards.

Joint Cross Service Group – Headquarters and Support Activities - Collocate Defense / Military Department Adjudication Activities

This recommendation collocates all Military Department (MILDEP) and DoD security clearance adjudication and appeals activities at Fort Meade, MD. It meets several important DoD objectives with regard to future use of leased space, enhanced security for DoD activities, and collocates National Capital Area intelligence community activities. It also enables the Intelligence Reform and Terrorism Act of 2004, the Administration's counterintelligence strategy, and the Remodeling

Defense Intelligence initiative. Additionally, this recommendation results in a significant improvement in military value due to a shift from predominately-leased space to a location on a military installation. The military value of adjudication activities current portfolio of locations ranges from 152nd to 280th out of 334 entities evaluated by the Major Administration and Headquarters (MAH) military value model. Fort Meade ranks 94 out of 334.

Implementation will reduce the Department's reliance on leased space, which has historically higher overall costs than government-owned space and generally does not meet Anti-terrorism Force Protection standards as prescribed in UFC 04-010-01. The benefit of enhanced Force Protection afforded by a location within a military installation fence-line will provide immediate compliance with Force Protection Standards. MILDEP and Defense adjudication activities located currently at leased locations are not compliant with current Force Protection Standards.

This recommendation eliminates 136,930 gross square feet of leased administrative space. This action provides a collocation of these activities, and reduces the number of locations from 13 to one.

1.2.2 U.S. Army Enhanced Use Lease; Purpose, Authority, and Need

Fort Meade proposes to use the U.S. Army's EUL program to help support mission-oriented uses on post, to derive value from underutilized property, to build future land value, and to enhance the installation's ability to implement its comprehensive master plan.

Under the proposed action, Fort Meade would issue a real estate lease that would involve adding enhanced use lease projects to supplement and support installation projects and provide a source of future services for the installation. Under the EUL program, the installation would lease two tracts of land to a developer. This would consist of about 173 acres in two parcels (Sites Y and Z) for a term of 50 years (see Figure 2-1). The EUL projects would provide in-kind services to the installation, reduce the installation's operating costs, and support non-BRAC-related and national security missions on post. The installation would receive in-kind development of a 367-acre parcel (Site S). Because the development of these three parcels would have potential impacts in the same region as the BRAC realignment actions and would be expected to be initiated in the same time period, it is considered in this EIS.

Under Title 10 U.S.C, Section 2667, DoD installations now have the authority and incentive to obtain a broad range of financial and in-kind considerations for leasing opportunities.

The proposed EUL would assist Fort Meade in meeting the following goals:

- Use available under-used, non-excess property
- Build high-quality, sustainable facilities to support mission requirements

- Enhance accessibility for recreation activities on Fort Meade
- Augment Military Construction (MILCON) by providing ancillary facilities
- Improve, maintain and support aging infrastructure
- Obtain in-kind service

Fort Meade proposes to make available to a private developer Sites Y and Z (Figure 2-1), located along Reece Road and MD 175, to develop office and administrative buildings to accommodate an estimated 10,000 personnel. The developer would finance, plan, construct, operate, and manage the buildings and receive market rent from tenants. The developer would provide Fort Meade in-kind consideration equal to no less than the fair market value of the leased asset. Site S, located south of MD 32, would be reserved for development of two 18-hole golf courses to replace the existing golf courses. Sites Y and Z which are outside the installation's fence line and Site S, which is inside the fence line on the periphery of the installation, are located mostly on vacant forest land. Implementation of the proposed EUL actions would allow the installation to generate revenue that could be used to support other missions on post. After construction and an appropriate period to mature, the golf courses would be turned over to the Morale, Welfare, Recreation Office (MWR) to operate. The final agreement could also include maintenance support.

The proposal would result in the building of high quality, sustainable facilities to support mission requirements, leveraging existing land assets to achieve in-kind consideration to support Fort Meade's needs for modern facilities, services, and maintenance. The proposed golf courses would replace the golf facilities that would be lost to BRAC-related and potential other future construction. The proposed actions would augment military construction (MILCON) by providing ancillary facilities that would improve and support the aging infrastructure on the installation.

1.2.3 Army Transformation and 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 (EIS) for Army Transformation for its proposal to conduct a multiyear, phased, and synchronized program of transformation. Over a 30-year period, the Army would conduct a

series of transformation activities affecting virtually all aspects of Army doctrine, training, leader development, organizations, installations, material, and soldiers. On April 11, 2002, the Army issued a Record of Decision (ROD) reflecting its intent to transform the Army (USACE 2002). This EIS evaluates BRAC realignment actions that support the transformation process, which is designed to provide the Nation with combat forces that are more responsive, deployable, agile, versatile, lethal, survivable, and sustainable.

1.2.4 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. This EIS evaluates proposed actions that support installation sustainability, since sustainable principles would be incorporated into the design, development, and construction of the proposed facilities, in accordance with Executive Order 13123 and other applicable laws and executive orders.

1.3 SCOPE

This EIS identifies, documents, and evaluates environmental effects of proposed realignment activities and potential EUL actions at Fort Meade in accordance with the National Environmental Policy Act of 1969 (NEPA) and implementing regulations issued by the President's Council on Environmental Quality (CEQ) and the Army. The 2006 Base Realignment Closure Manual for Compliance with the National Environmental Policy Act was used for guidance in preparing the EIS. The purpose of the EIS is to inform decision makers and the public of the likely environmental consequences of the proposed action and alternatives. As further described in the EIS, the scope pertains to the geographic areas potentially affected by the realignment and EUL activities at Fort Meade and the area of potential environmental effect, which varies by resource.

1.3.1 BRAC-Specific NEPA Context

BRAC Law specifies that NEPA does not apply to actions of the President, the Commission, or the DoD, except "(i) during the process of property disposal, and (ii) during the process of relocating functions from a military installation being closed or realigned to another military installation after the receiving installation has been selected but before the functions are relocated. 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.” The Commission’s deliberation and decision, as well as the need for closing or realigning a military installation, are exempt from NEPA. Accordingly, this EIS does not address the need for realignment. Accordingly, locations for incoming organizations other than at Fort Meade are not considered.

1.3.2 Scope of Environmental Analysis for All Actions

Army regulations, 32 Code of Federal Regulations (CFR) Part 651.5, call for the environmental analysis to be proportionate to the nature and scope of the action, the complexity and level of anticipated effects on important resources, and the capacity of Army decisions to influence those effects in a productive, meaningful way from the standpoint of environmental quality. The environmental analysis for this EIS is commensurate with the planning horizon and diverse array of actions associated with realignment and potential EUL actions at Fort Meade.

An interdisciplinary team of environmental scientists, biologists, planners, economists, engineers, archaeologists, historians, and military technicians has analyzed the proposed action and alternatives in light of existing conditions and has identified relevant beneficial and adverse effects associated with the actions. The first section of the EIS provides the purpose, need, and scope of the EIS. The proposed actions are 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 actions and the alternatives considered, also described in Section 4.0, are presented immediately following the description of baseline conditions for each environmental resource addressed in the EIS. Section 4.0 also addresses the potential for cumulative effects that could occur due to the combined effects of other related actions (see Section 2.4), and mitigation measures are identified where appropriate.

Resources categories addressed in this EIS include: Land Use, Aesthetics and Visual Resources, Air Quality, Noise, Geology and Soils, Water Resources, Biological Resources (including Threatened and Endangered Species), Cultural Resources, Socioeconomics, Transportation, Utilities, and Hazardous and Toxic Substance.

1.4 PUBLIC INVOLVEMENT

1.4.1 General Public Involvement Process

The Army invites public participation in the NEPA process. Consideration of the views and information of all interested persons promotes open communication and enables better decision making. 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. Throughout this process, the public may obtain information on the status and progress of the proposed actions and the EIS through the Fort Meade Public Affairs Office.

Public participation opportunities with respect to this EIS and decision making on the proposed actions are guided by 32 CFR Part 651, which requires the preparation and implementation of a Public Involvement Plan (PIP) to guide public and stakeholder involvement throughout the EIS process. Details about the main steps that occur in the preparation of the EIS and the associated public involvement process are outlined in Sections 1.4.2 to 1.4.3.

1.4.2 Notice of Intent

The Army published a Notice of Intent (NOI) addressing the realignment actions resulting from the BRAC Commission's recommendations in the *Federal Register* on November 23, 2005 (Volume 70, Number 225, Pages 70793-70795). Appendix A provides a copy of the NOI.

1.4.3 Scoping Process

The scoping process is designed to solicit comment on issues or concerns that should be addressed early in the EIS process. Comments are solicited through mailings, media advertisements, and both agency and public scoping meetings. These items are developed to ensure the public is informed and provided opportunities to participate in the decision-making process. While informal comments are welcome at any time throughout the process, the scoping period and scoping meeting provided formal opportunities for public participation in, and comment on, the environmental impact analysis process. The scoping period concluded on September 7, 2006. Comments from the scoping process are found in Appendix A.

1.4.3.1 Project Mailing List

A project mailing list is developed to solicit public input throughout the scoping process. The mailing list includes members of the general public who expressed interest in prior environmental documents prepared by the Army, including special interest groups; Federal, State and local agencies and elected

officials; public repositories (libraries); and regional, state and local media outlets (television, radio and newspaper). This list is maintained and updated throughout the EIS process, and any additional individuals or organizations that express interest in the process are added to the list. The mailing list is used to distribute project notices and information, as appropriate, throughout the EIS process.

1.4.3.2 Public Scoping Process

The initial scoping meeting was held on April 27, 2006 on the BRAC actions at Fort Meade. Subsequent to that scoping meeting a proposed EUL was added to the BRAC NEPA review. A second scoping meeting was held on September 7, 2006 to allow public input on the EUL actions proposed for Fort Meade. Legal notices were published in *The Baltimore Sun* (April 14-15, 2006 and August 23, 2006), *The Annapolis Capital* (April 14-15, 2006 and August 24, 2006), and *The Laurel Leader* (April 20, 2006 and August 24, 2006). These legal notices provided the dates and locations for public scoping meetings, which were held on April 27 and September 7, 2006 at the School Age Services Building, 1900 Reece Road, Fort Meade, Maryland.

Announcements letters were mailed to public agencies, public interest groups and organizations, political representatives, and individuals known, or thought to have, an interest in the BRAC actions and EUL actions at Fort Meade. The letters consisted of a description of the purpose of the meeting, with an invitation to attend the meeting and/or submit written comments identifying key issues considered as part of the EIS. Notices were mailed to the interested parties on the mailing list approximately two weeks prior to the scheduled scoping meetings.

An informational flyer, comment sheet, and registration card were made available to all attendees at the public scoping meetings.

1.4.3.3 Agency Coordination

Notification letters of the pre-scoping meeting and public scoping meeting were prepared and mailed by the U.S. Army Corps of Engineers (USACE) to Federal, State, and local agencies; and political representatives. A pre-scoping meeting was held on September 7, 2006, at Fort Meade. The intent of this meeting was to address the project with key Federal, State, and local agencies.

1.4.3.4 Scoping Results

Twenty-three comments were received (16 written and 7 oral) during the public scoping period. Comments were received from Federal agencies, State agencies, local agencies; elected officials; interest groups; commercial/industrial groups; and citizens (See Appendix A).

Major issues identified through the scoping process include transportation, air quality, water quality, availability of public water supply, preservation of biological resources, and socioeconomics, housing, schools, and environmental contamination.

The following summarizes the comments/issues raised in these comments and/or during the scoping meeting to Army representatives:

- Transportation infrastructure and public transit
- Concerns for impacts in the MD 175 and Reece Road area expressed by citizens living in this area regarding traffic, noise, air emissions, and quality of life.
- Maintaining appropriate buffer zones.
- Notifying the community of all proposed changes.
- Increased volume of traffic and access to businesses and homes.
- Noise due to increases in traffic.
- Air emissions due to increase in traffic and construction
- Overcrowding of local schools
- Housing availability for new workers in the area
- Impacts on the environment that would be caused by construction
- Environmental contamination on the installation property that could affect neighboring communities

These issues and concerns are addressed in: Sections 4.2 (Land Use), 4.4 (Air Quality), 4.5 (Noise), 4.7 (Water Resources), 4.10 (Socioeconomics), and 4.11 (Transportation). Mitigation measures that would be undertaken to minimize impacts to the environment are addressed in the consequences section.

1.4.4 Draft Environmental Impact Statement

When a draft EIS (DEIS) is prepared and filed with the United States Environmental Protection Agency (U.S.EPA), the Army publishes a notice of availability (NOA) in the *Federal Register* and in newspapers in the vicinity of the proposed action. A 45-calendar day comment period (starting with the publication of the NOA in the *Federal Register*) is established to provide all agencies, organizations and individuals with the opportunity to comment on the DEIS. The NOA identified a point of contact to obtain more information regarding the EIS process, identified means of obtaining a copy of the DEIS for review, and list several locations where paper copies of the DEIS can be reviewed. The NOA was published on March 23, 2007.

Public Meeting or Hearing - During the 45-day comment period, but after at least 15 days following publication of the NOA, a public meeting or hearing is typically held to provide an opportunity for the public, organizations, and regulatory agencies to present comments and information.

1.4.5 Final Environmental Impact Statement

Comments provided by members of the interested public and Federal, State, and local agencies on the DEIS are reviewed, addressed, and incorporated into the Final Environmental Impact Statement (FEIS), as appropriate. The FEIS contains responses to all comments received during the DEIS review period. A NOA is published in the *Federal Register* and in the newspapers of record to inform the public that the FEIS has been released. This notice identifies a point of contact to obtain more information regarding the EIS process and note the public facilities where the FEIS is available for review.

1.4.6 Record of Decision

Following a 30-day waiting period from the date of the FEIS NOA, a Record of Decision (ROD) is prepared and published in the *Federal Register*. The ROD will be signed by the Army. Comments received during the FEIS 30-day waiting period are considered in reaching the final decision on the proposed action. The ROD describes the Army's decision regarding the BRAC actions and other Army actions. The ROD also describes actions the Army will take to reduce or mitigate any significant adverse impacts associated with implementing the proposed action. Throughout this process, the public may obtain information on the status and progress of the proposed action and the EIS through the Fort Meade Public Affairs Office by contacting the following office: Attn: Community Relations Director, Fort Meade Public Affairs Office, 4550 Pershing Hall, Room 102, Fort Meade, MD 20755.

1.5 FRAMEWORK FOR PROPOSED ACTIONS

1.5.1 BRAC Procedural Requirements

The BRAC Law specifically addresses the applicability of NEPA to BRAC actions, the Congressional waiver of the procedural elements of NEPA to the actions of DoD and the BRAC Commission in recommending bases for closure and realignment, and the actions of the President in approving or disapproving the BRAC Commission's recommendations (see Section 1.3.1). The BRAC Commission procedures for identifying affected installations and bases are specified by this law and include the DoD Force Structure Plan, selection criteria (published in the Federal Register for public comment), DoD recommendations, review and recommendations by the BRAC Commission, and review by the President. The BRAC Commission assessed the DoD's closure and realignment recommendations for consistency with the eight statutory selection criteria (Table 1-1) and the DoD Force Structure Plan.

Table 1-1. BRAC Statutory Selection Criteria¹

Military Value (Given Priority Consideration)
<ol style="list-style-type: none">1. The current and future mission capabilities and the impact on operational readiness of the total force of the DoD, including the impact on joint war fighting, training, and readiness.2. The availability and condition of land, facilities, and associated airspace (including training areas suitable for maneuver by ground, naval, or air forces throughout a diversity of climate and terrain areas and staging areas for the use of the Armed Forces in homeland defense missions) at both existing and potential receiving locations.3. The ability to accommodate contingency, mobilization, surge, and future total force requirements at both existing and potential receiving locations to support operations and training.4. The cost of operations and the manpower implications.
Other Considerations
<ol style="list-style-type: none">5. The extent and timing of potential costs and savings, including the number of years, beginning with the date of completion of the closure or realignment, for the savings to exceed the costs.6. The economic impact on existing communities in the vicinity of military installations.7. The ability of the infrastructure of both the existing and potential receiving communities to support forces, missions, and personnel.8. The environmental impact, including the impact of costs related to potential environmental restoration, waste management, and environmental compliance.

¹Source: BRAC Commission 2005

Additionally, the BRAC Law requires that all closures and realignments must be initiated no later than 2 years after the date on which the President transmits a report to Congress including the recommendations for closures and realignments and all such closures and realignments must be completed no later than the end of the 6-year period beginning on the same. President Bush concurred with and sent the 2005 BRAC Commission’s report to Congress on September 15, 2005. Therefore, the BRAC actions at Fort Meade must be initiated no later than September 15, 2007 and completed no later than September 15, 2011.

1.5.2 Enhanced Use Lease Procedural Requirements

Title 10 United States Code (USC), Section 2667 of the National Defense Authorization Act, allows for military installations to lease land and facilities to a private or public entity and provides the basis for the proposed Enhanced Use Lease actions described in this document. Specifically, this section of the U.S. Code gives military departments the authority to:

- Enter into long-term or short-term leases, providing greater flexibility for facility reuse
- Lease land and/or buildings
- Receive income on leased property, which can be used to fund other new construction

With the expanded authority of Title 10 USC Section 2667, DoD installations have the authority and incentive to obtain a broad range of financial and in-kind considerations for leasing opportunities. This

maximizes the utility and value of installation real property and provides additional tools to manage the installation's assets to achieve business efficiencies.

The Secretary of the Army must approve all real or personal property available for leasing, and the property must not be considered "excess" property. Leases may be entered into if the Secretary considers it advantageous to the U.S. and upon such terms as he considers will promote the national defense or be in the public interest.

1.5.3 Relevant Statutes, Executive Orders, Permits, and Consultations

In accordance with 40 CFR 1502.25, the Army has prepared this EIS concurrently with and integrated with environmental impact analyses and related surveys and studies required by the Fish and Wildlife Coordination Act (16 U.S. Code [USC] 661 *et seq.*), the National Historic Preservation Act of 1966 (NHPA, 16 USC 470 *et seq.*), the Endangered Species Act of 1973 (ESA, 16 USC 1531 *et seq.*), and other applicable statutes, regulations, and Executive Orders (EOs) (Table 1-2).

Table 1-2. Major Environmental Statutes, Regulations, and Executive Orders Applicable to Federal Projects

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

2.0 DESCRIPTION OF THE PROPOSED ACTION

2.1 INTRODUCTION

The proposed federal action includes:

- 1) Implementation of the BRAC Commission's recommendations as mandated by the BRAC Law and the National Defense Authorization Act for Fiscal Year 2002, proposed to occur at Fort Meade during the fiscal years (FY) 2007 - 2011.
- 2) Implementation of other Army actions that would have potential impacts in the same general area as BRAC realignment and would begin during the same period, specifically, the Army's EUL program to develop about 540 acres, which includes 173 acres of forestland and 367 acres of wetlands, forestland, and open fields, including about 90 acres of landfill.

2.2 BRAC-DIRECTED REALIGNMENT ACTIONS

The BRAC Commission recommended the realignment of three main agencies/activities with relocation to Fort Meade, MD. The following describes the missions and activities being realigned under the proposed action, the construction activities supporting these changes, and the personnel or force structure changes associated with these efforts.

The following describes the realignment actions for the three major groups affected:

2.2.1 For the Joint Cross Service Group – Headquarters and Support Activities, to consolidate Defense Information System Agency and Establish Joint C4ISR D&A capability

- Close 5600 Columbia Pike and Skyline Place (Skyline VII) leased installations in Falls Church, VA, and 1010 Gause Boulevard, a leased installation in Slidell, LA and relocate all components of the Defense Information Systems Agency (DISA) to Fort Meade, MD.
- Close the Logicon Building, a leased installation in Arlington, VA and relocate the Joint Task Force-Global Network Operation (JTF-GNO) to Fort Meade, MD.
- Realign Skyline IV and Skyline V, leased installations in Falls Church, VA, and GSA Franconia Warehouse Depot, a leased installation in Springfield, VA, by relocating all components of DISA to Fort Meade, MD.
- Realign Arlington Service Center, VA, by relocating all components of DISA and the JTF-GNO to Fort Meade, MD.
- Realign Naval Support Activity Panama City, FL by relocating the Deployable Joint Command and Control (DJC2) Program Office of the Naval Surface Warfare Center to Fort Meade, MD.

- Realign Rosslyn Plaza North, a leased location in Arlington, VA, by relocating the Joint Tactical Radio System (JTRS) Program Office to Fort Meade, MD.

2.2.2 For the Joint Cross Service Group – Headquarters and Support Activities, to consolidate Media Organizations into a New Agency for Media Publications

- Realign Fort Belvoir, VA, by relocating Soldier Magazine to Fort Meade, MD.
- Realign Anacostia Annex, District of Columbia, by relocating the Naval Media Center to Fort Meade, MD.
- Realign 2320 Mill Road, a leased installation in Alexandria, VA, by relocating Army Broadcasting-Soldier Radio/TV to Fort Meade, MD.
- Realign 103 Norton Street, a leased installation in San Antonio, TX, by relocating Air Force News Agency-Army/Air Force Hometown News Service (a combined entity) to Fort Meade, MD.
- Close 601 North Fairfax Street, a leased installation in Alexandria, VA, by relocating the American Forces Information Service and the Army Broadcasting-Soldier Radio/TV to Fort Meade, MD.
- Consolidate Soldiers Magazine, Naval Media Center, Army Broadcasting-Soldier Radio/TV, and the Air Force News Agency-Army/Air Force Hometown News Service into a single DoD Media Activity at Fort Meade, MD.

2.2.3 For the Joint Cross Service Group – Headquarters and Support Activities, collocate Department Adjudication Activities

- Close 21820 Burbank Boulevard, a leased installation in Woodland Hills, CA, and relocate all components of the Defense Office of Hearings and Appeals Western Hearing Office to Fort Meade, MD.
- Realign 800 Elkridge Landing Road, a leased installation in Linthicum, MD, and relocate all components of the National Security Agency Central Adjudication Facility to Fort Meade, MD.
- Realign 2780 Airport Drive, a leased installation in Columbus, OH, by relocating all components of the Defense Industrial Security Clearance Office and the Defense Office of Hearings and Appeals Personal Security Division to Fort Meade, MD.
- Realign 1777 N. Kent Street, a leased installation in Arlington, VA, by relocating all components of the Washington Headquarters Service Central Adjudication Facility to Fort Meade, MD.
- Realign 875 N. Randolph Street, a leased installation in Arlington, VA, by relocating all components of the Defense Office of Hearings and Appeals Headquarters to Fort Meade, MD.
- Realign 10050 North 25th Avenue, a leased installation in Phoenix, AZ, by relocating all components of the Defense Office of Hearings and Appeals Arizona office to Fort Meade, MD.

- Realign the Washington Navy Yard, DC, by relocating all components of the Navy Central Adjudication Facility Fort Meade, MD.
- Realign Bolling Air Force Base, DC, by relocating all components of the Air Force Central Adjudication Facility and the Defense Intelligence Agency Central Adjudication Facility to Fort Meade, MD.
- Realign the Pentagon, Washington, DC, by relocating all components of the Joint Staff Central Adjudication Facility to Fort Meade, MD.
- Realign the U.S. Army Soldiers Systems Center Garrison, Natick, MA, by relocating all components of the Defense Office of Hearings and Appeals Boston Hearing office to Fort Meade, MD.

2.2.4 Personnel Changes Related to BRAC-Directed Realignment

Implementation of the BRAC Commission recommendations for relocating the organizations would increase Fort Meade’s workforce by 5,695 (including 660 military, 3,324 civilian, and 1,711 contractors) or about 18.5 percent over current workforce of 30,742 (5,441 military personnel, 17,256 civilian employees, and 7,775 contractor personnel). The potential direct and/or cumulative impacts to the environment from the increase in personnel are evaluated in this EIS. The breakout of incoming personnel by mission is shown in Table 2-1.

Table 2-1. Fort Meade 2005 BRAC Actions Incoming Activities

Action	Organization	From	Total Estimated Incoming Personnel
Incoming	Defense Information Systems Agency (DISA), Joint Task Force-Global Network Operation (JTF-GNO), Deployable Joint Command & Control Program Office, Joint Network Management Systems Program Office, Joint Tactical Radio System Program Office	Various locations: Louisiana Florida Virginia	4,272
Incoming	Army Broadcasting and Soldiers Radio/TV, Armed Forces Information Service (AFIS); Soldiers Magazine; Naval Media Center; Air Force News Agency Headquarters	Virginia Texas District of Columbia	663
Incoming	Military Departments (MILDEP) Adjudication Activities: DoD, U.S. Air Force, U.S. Navy adjudication and security clearance offices and agencies	Various locations: Arizona, California, District of Columbia, Ohio, Maryland, Massachusetts, Virginia	760
		TOTAL	5,695

2.2.5 Facility Requirements Related to BRAC-Directed Realignments

Implementation of the proposed action requires construction of new facilities to accommodate the incoming organizations. Table 2-2 shows the facilities needed at Fort Meade, and the estimated space required for these facilities. The table provides estimates only; as planning, engineering, and design of facilities progresses, the actual amount of new construction and renovated space can vary from the estimates shown in the table. The total required space listed in the table does not include space required for the PX, GYM, and UPH.

Table 2-2: Facilities Needed for Incoming BRAC-Directed Realignment Organizations

Organization	Required Space (square feet)				
	Administration	Vehicle Storage	PX	GYM	UPH
DISA	1,070,515	1,097,280	23,362	37,251	28,339
Media and Publications	203,870	167,040	4,000	7,096	42,508
Adjudication	151,978	196,560	5,000	0	5,510
Subtotal	1,426,363	1,460,880	32,362	44,347	76,357
Total Required Space = 2,887,243 Square Feet (Administrative and Vehicle Storage Only)					

(Sources DD Form 1391s for DISA, Media, and Adjudication and application of Department of Defense Unified Facilities

PX-Post Exchange

GYM-Physical Fitness Center

UPH-Unaccompanied Personnel Housing

2.2.6 Proposed BRAC Realignment Construction Actions

Site-specific projects would be constructed to implement the proposed BRAC realignment actions. The Army's proposed action consists of constructing new administrative facilities and vehicle storage for the three BRAC realignment actions at Sites F, G, and X; and placing all support facilities at Site G (Figure 2-1). Facilities for each BRAC realignment action would be construction on the sites indicated below:

- DISA Administration – Site F
- Media and Publications Administration – Site G
- Adjudication Administration – Site X
- Support Facilities (PX, Gym, UPH Barracks) – Site G
- Vehicle storage (A parking lot for DISA would be constructed on Site F. Smaller parking lots would be constructed to support each activity on the respective sites.)

The proposed site locations for BRAC realignment actions are shown on Figure 2-1. The proposed siting for these facilities was selected for several reasons. The proposed action places more sensitive land uses such as DISA, Media and Adjudication at the center of the installation, increasing the security of these facilities.

The proposed action places less sensitive land uses such as the PX, GYM and UPH Barracks away from the center of the installation. Troop working locations and housing would be in close proximity, allowing easy access for troops to their work location. The arrangement also sites the UPH Barracks, Gym, and PX next to each other, allowing for easy access to these facilities and grouping three main supporting services (PX, Gym, and UPH Barracks) in one place. The DISA administrative facility would be located near the proposed Directorate of Information Management (DOIM) site, which is advantageous because DOIM has IT staff that would benefit from being close to DISA. The proposed action also places the media function in the vicinity of DINFOS, allowing the collocation of media activities. The proposed action places the adjudication administrative buildings near both Mapes and Llewellyn Gates, so it would be close to the OPM facility which has a similar mission and it would be easier to escort visitors to the facility.

Disadvantages to the proposed action's location include its collocation with 7 holes of the existing golf course. The golf course relocation is part of the siting parameters established by the Garrison for operational security. There may be potential environmental clean up requirements at the existing golf course, dependent on the outcome of further investigations. In addition, the Adjudication proposed location is not consistent with the siting parameters of the Garrison. Site X has been proposed for recreational fields, and placement of the Adjudication Activities would require selection of a new location for those fields. The projects planned for the proposed action are defined by existing DD Form 1391s, which are used by the DoD to submit requirements and justifications in support of funding requests for military construction to Congress. The following summarizes these BRAC-related projects.

2.2.6.1 DISA Administration Buildings

Fort Meade would construct a multi-story administration building to support the DISA, Joint Tactical Radio System Program Office (JTRS), the Deployable Joint Command and Control Program office (DJC2), and the Joint Network Management System Program (JNMS) Office. The proposed new facilities would include office space, administrative support space, and storage space (including general purpose and controlled humidity warehouse space). The facilities would include a total of 1,070,515 square feet including a general administrative facility (412,851 square feet), a special compartmented information facility (379,009 square feet), a Research, Development, Test, and Evaluation (RDT&E) laboratory (110,700 square feet), a general purpose storage facility (31,284



square feet), and a Joint Network Management System Program Office (JNMSPO) (400 square feet). The preferred location for the administration buildings is Site F, just west of Cooper Avenue, within a portion of the existing golf course. The facilities would provide space for officers, enlisted personnel, civilian personnel, and contractors. Supporting facilities include utilities, electric service, security lights, fire protection and alarm systems, paving, walks, parking, antennae farm, curbs and gutters, storm drainage, communications systems, intrusion detection system, energy management and control system, signage, and site improvement.

The depiction shown is a typical administrative facility that could be placed on the DISA site. The actual facility would be determined in the design phase of the project.



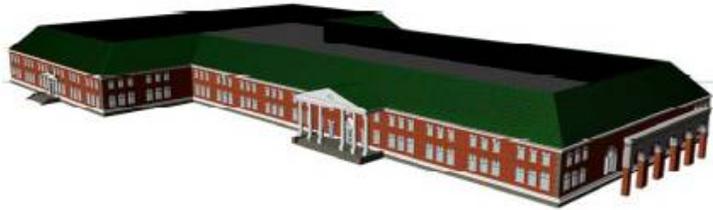
2.2.6.2 Media Administration Buildings

Fort Meade would construct a multi-story administrative building to support the Army Broadcasting Service, Soldiers Radio and TV (ABSRTV), Soldier's Magazine (SM), Air Force News Agency-Army/Air Force Hometown News Service (AFNS), and the Naval Media Center (NMC), Anacostia Annex. The new facilities would consist of office space, administrative support space, and storage space (including general purpose and controlled humidity warehouse space). The proposed facilities include a total of 203,870 square feet including a general administrative facility (57,885 square feet), an Army Public Affairs Center (APAC) administrative facility (10,000 square feet), a controlled humidity warehouse (9,000 square feet), a computer center (7,420 square feet), a televideo center (58,821 square feet), and a photo lab (2,522 square feet). The preferred location for the administration buildings is Site G,

just north of Mapes Road, within a portion of the existing golf course. The facilities would provide space for officers, enlisted personnel, civilian personnel, and contractors. Supporting facilities would include utilities, electric service, security lights, fire protection and alarm systems, paving, walks, curbs and gutters, parking, satellite dish farm, storm drainage, communications systems, intrusion detection system, energy management and control system, signage, and site improvement.

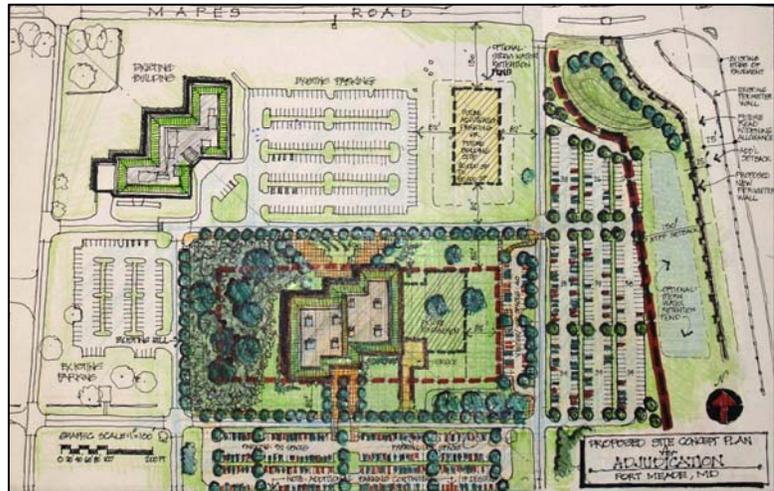


The depiction shown is a typical administrative facility that could be placed on the Media site. The actual facility would be determined in the design phase of the project.



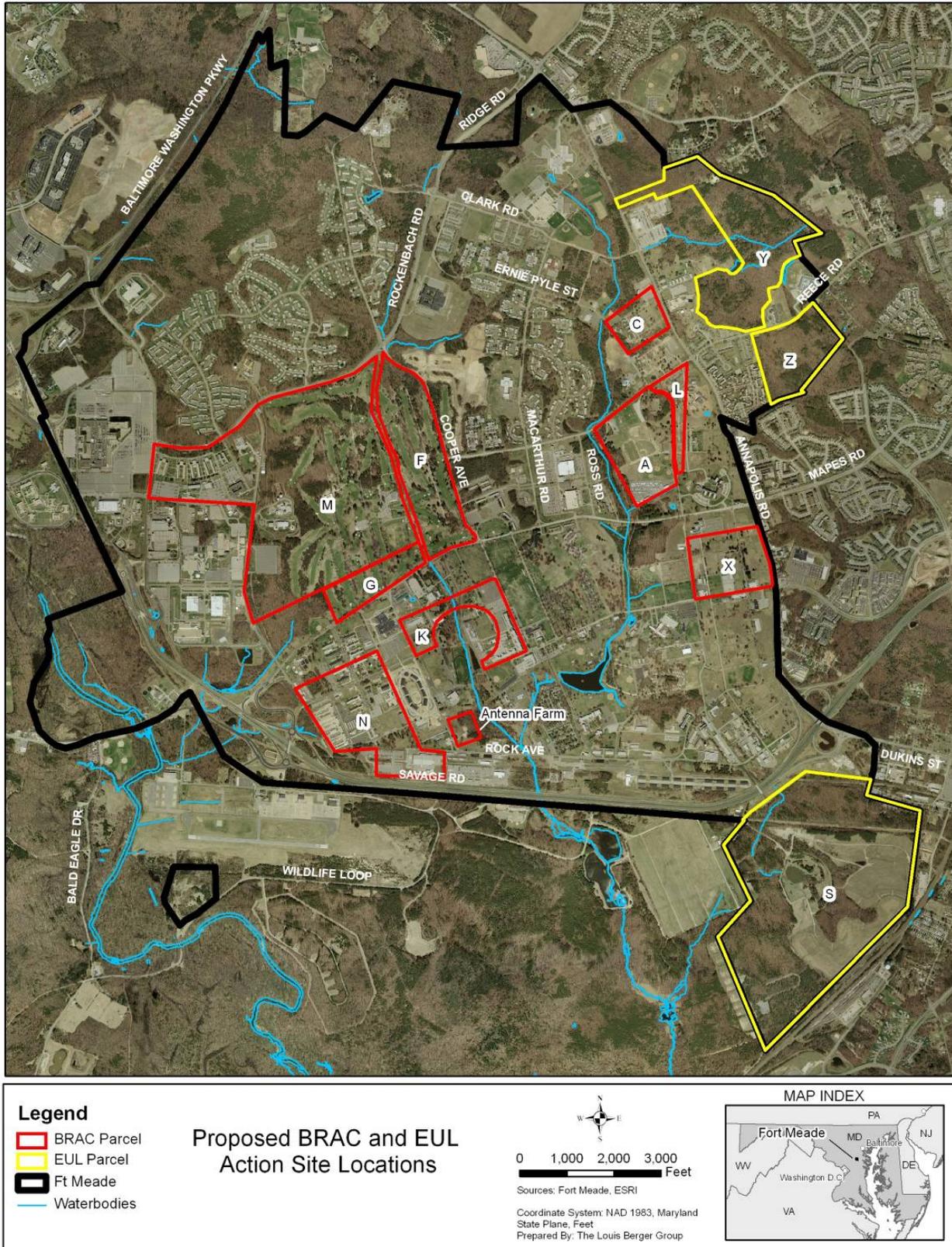
2.2.6.3 Adjudication Administration Buildings

Fort Meade would construct a multi-story administrative building to support the Military Department (MILDEP) and DoD security clearance adjudication and appeals activity. The new facilities would consist of office space, an information processing center, administrative support space, and storage space (including general purpose and controlled humidity warehouse space). The facilities would include a total of 151,978 square feet including a main general administrative facility (126,951 square feet) and a special compartmented information facility (16,515 square feet), and a courtroom (14,450 square feet). The preferred location for the buildings is Site X, just north of Llewellyn Avenue and west of MD Route 175. The facility would provide space for a officers, enlisted personnel, civilian personnel, and contractors. Supporting facilities include utilities, electric service, security lights, fire protection and alarm systems, paving, walks, curbs and gutters, parking, storm drainage, communications systems, intrusion detection system, energy management and control system, signage, and site improvement.



The depiction shown is a typical administrative facility that could be placed on the Adjudication site. The actual facility would be determined in the design phase of the project.

Figure 2-1: Proposed BRAC and EUL Action Site Locations



2.2.6.4 Centralized Support Facilities

Centralized support facilities including Post Exchange (PX), Physical Fitness Center, and a barracks complex for unaccompanied personnel housing (UPH), which are not included in the BRAC realignment actions would be constructed following the construction of the BRAC facilities and are therefore discussed here.

Centralized PX

A centralized Post Exchange (PX) would be constructed to consolidate PX functions and would be designed to accommodate expected soldier population increase of 660 due to BRAC 05 mission gains. This facility is proposed for Site G, just north of Mapes Road and within a portion of the existing golf course. The PX would be located in the same site location as the proposed centralized Physical Fitness Center and Child Development Center. The centralized PX facility would contain 32,362 square feet.

Centralized Physical Fitness Center

A new Physical Fitness Center (Gym) would be constructed to provide physical fitness facilities for the military and authorized civilians for Fort Meade. The facility would be located adjacent to the proposed PX on Site G. The new center would be designed to accommodate the increase of 5,695 incoming personnel associated with the BRAC 05 mission gains. It would contain 44,347 square feet. Supporting facilities would include intrusion detection system, energy monitoring and control systems, utilities, electric service, exterior lighting, fire protection and alarm systems, paving, walks, curbs and gutters, parking, sedimentation and erosion control, storm drainage, storm water management structure, picnic area and bicycle racks, dumpster pads and enclosures, information systems, bus stop, and site improvements.

Centralized Whole Barracks Complex (Unaccompanied Personnel Housing or UPH)

A standard-design barracks complex is proposed to provide housing for permanent parties of various military service activities stationed at Fort Meade, including the military personnel arriving at Fort Meade due to the addition of the new organizations under BRAC 05 realignment actions. The complex would consist of a barracks and a soldier community building that meet current Army standards. Barracks would include living/sleeping rooms, semi-private baths, closets, storage, laundry facilities, and service areas. The soldier community building would include office space, kitchen area, day room, and television room. The preferred location for the barracks complex is Site G, within a portion of the existing golf course. The buildings would contain 76,357 square feet. The facility would provide 288 room spaces, and serve 700 incoming active duty military personnel. Supporting infrastructure would include an intrusion detection system, energy monitoring and control systems, utilities, electric service, exterior lighting, fire protection

and alarm systems, paving, walks, curbs and gutters, parking, sedimentation and erosion control, storm drainage, storm water management structure, picnic area and bicycle racks, dumpster pads and enclosures, information systems, and site improvements.

2.2.6.5 Vehicle Storage

Details regarding the parking requirements were obtained from the DD Form 1391s for DISA, Adjudication, and Media. To estimate parking requirements for the PX, UPH, and Gym, standard planning criteria contained in Department of Defense Unified Facilities Criteria 2-000-05N, January 2005—Category Code Number 852-10 were applied. In total, 6,369 parking spaces would be required. Parking for DISA would be on Site F with smaller parking lots to support each activity.

2.3 ENHANCED USE LEASE ACTIONS

Under Title 10 U.S.C., Section 2667, DoD installations have the authority and incentive to obtain a broad range of financial and in-kind considerations for leasing opportunities. This EUL program is intended to maximize the utility and value of installation real property and provide additional tools for managing an installation's assets.

In addition to the BRAC realignments, Fort Meade proposes to use the Army's EUL program to make Site Y (125 acres) and Z (48 acres) available for development. Sites Y and Z, located along Reece Road and MD Route 175, would be leased to a private developer for 50 years. These parcels would be used for development of office and administrative buildings for an estimated 10,000 personnel. In consideration, the lessee would develop and construct two 18-hole golf courses on Site S (367 acres) which is located south of MD Route 32 near MD Route 175. The new golf facilities would be a replacement for the loss of the existing golf course area. The existing golf course is approximately 395 acres, of which about 126 acres will be used in the development of Sites F and G. The EUL projects would allow Fort Meade to derive substantial benefits from non-excess land and use the revenue that is generated to support various missions on post. The EUL program is intended to improve federal property utilization, provide revenue to the installation, reduce installation operating costs, and enhance mission performance by fostering cooperation between military services and the private sector.

2.3.1 Personnel Changes Related to EUL Action

Final design and build-out has not yet been determined. It is estimated that U.S. Army Enhanced Use Lease actions would bring approximately 10,000 new personnel to the Fort Meade Sites Y and Z to work in the proposed administrative and office facilities. The number of personnel was determined based on an

estimated two million square feet of office space with a standard 200 square feet per person. The golf course would not add any additional personnel at Fort Meade; the number of staff working there would be the same as those currently employed at the existing golf course.

2.3.2 Description of the Proposed EUL Actions

The proposed EUL actions include the development of office and administrative buildings on Sites Y and Z. Build-out on these sites would follow the Installation Design Guide and the Integrated Natural Resources Management Plan (INRMP). Construction for EUL sub-alternative 2A would be in compliance with all environmental constraints, stipulated by Army, state, and federal environmental laws, regulations, and policies. The developer has not determined which alternative will be selected. Specific details regarding types, numbers, and layout of the proposed structures are not yet available, but it is anticipated that the two sites would accommodate approximately 2 million square feet of office space and associated parking. Sites Y and Z are located outside the installation's security fence. Site S is located on the perimeter of the installation. The location would allow flexibility to include or exclude the activities within the security fenced area as appropriate.

The proposed EUL action would also include the in-kind development of two new 18-hole golf courses on Site S. The new golf courses replace the existing golf course on which portions of the proposed BRAC realignment actions would be constructed. Site S is a 367-acre site at the southeast corner of Fort Meade, of which 90 acres is a capped landfill. The existing golf course is located within the installation fence line. The proposed new golf courses would be constructed on the perimeter of the installation and the secure fence line would be adjusted to allow easier access to golf course facilities. The EUL site locations are shown in Figure 2-1.

2.3.3 Proposed EUL Construction Actions

Specific construction projects have not yet been finalized. Specific details regarding types, numbers, and layout of the proposed administration and vehicle storage structures are not yet available, but it is anticipated that Sites Y and Z would accommodate approximately 2 million square feet of office space and associated parking. It is also anticipated that construction projects for the proposed EUL action would include two 18-hole championship courses with club house, irrigation, cart paths, restrooms, rain shelters, drinking fountains, multiple tees for all skill levels, ponds for irrigation water, landscaping and drainage.

The clubhouse (approximately 24,000 square feet) would include a golf pro shop with storage area; locker rooms; showers; restrooms; golf bag storage; administrative area and storage; a kitchen with refrigeration, freezer space, equipment, and storage to support a snack bar operation and large catered events seating up

to 500 patrons; a golfers' lounge; and meeting and dining rooms and patio area. An environmentally-friendly electric golf cart checkout and storage facility (6,000 square feet) would include space for 130 carts with maintenance and charging spaces, and a tool and parts storage and wash area for the carts. The maintenance facility (14,000 square feet) would include office space; a break room; restrooms; a locker room; a tool and paint storage area; an equipment maintenance shop/garage; a repair and storage area; a pesticide mixing, storage, and wash area; fertilizer storage; an equipment wash area to meet environmental standards; petroleum storage and pumping station (gasoline and diesel facility for maintenance equipment); a parking area; and an exterior sand/gravel/topdressing holding area. A practice facility would also be constructed, including a practice range, putting green, chipping green, lighting for night use, and a practice range to include teeing space on booth turf and pavement for use with mats; 10 stations would be covered for inclement weather use.

Supporting facilities would include utilities, communications, fire detection and prevention systems, security system and alarms, parking for a minimum of 400 vehicles, a shuttle bus turn around point, landscaping, and heating and air conditioning for the clubhouse and maintenance facility. In addition, a two-lane paved access road from MD Route 175 to the clubhouse and parking lots would be constructed, with trees planted on each side.

The advantages of implementing this EUL action are that it allows optimal land use inside the security fence for BRAC related-actions; it places non-federal operations outside the security fence; it permits the installation to configure site security to meet force protection requirements; and it allows the installation to obtain modern facilities, services, and maintenance. Disadvantages of implementing this EUL action include the potential loss of trees and forest habitat on Sites Y and Z and an increase in traffic volume and air emissions in the immediate areas.

2.4 COMBINED BRAC-DIRECTED AND EUL ACTIONS

The preferred federal action is to implement the combined BRAC realignment actions and the EUL development actions. The estimated combined population change associated with implementing the preferred federal action is approximately 15,695 personnel, of which 5,695 are related to BRAC. The estimated area of development for the combined actions would be around 5.7 million square feet.

2.5 SCHEDULE

The projected timeline for the NEPA process related to BRAC realignments/organizational moves to Fort Meade and proposed EUL construction is shown in Table 2.3.

BRAC-Directed Realignment Actions. Under BRAC Law, the Army must initiate all realignments no later than September 15, 2007, and complete all realignments no later than September 15, 2011. On a priority basis, facilities construction would be synchronized to meet the timelines of realigning organizations. The realignment of organizations earlier than 2007 is not feasible in light of the time required to build facilities.

EUL Action. Following the completion of the NEPA requirements in 2007, the construction of EUL facilities would begin in late 2007 or early 2008 and would continue through 2011.

Table 2-3. Timeline for NEPA related to Proposed BRAC Realignment and EUL Actions

Task Name	Duration	Start	Finish
Project Kickoff	1 day	Mon. 3/27/06	Mon. 3/27/06
DOPAA	179 days	Mon. 3/27/06	Fri. 9/22/06
Public Scoping	189 days	Mon. 3/27/06	Fri. 9/15/06
Preliminary DEIS (PDEIS)	211 days	Tue. 3/28/06	Wed. 10/25/06
Draft EIS (DEIS)	95 days	Fri. 12/22/06	Tue. 3/23/07
Notice of Availability (NOA)	15 days	Thur. 3/08/07	Fri. 3/23/07
Public Comments	56 days	Fri. 3/23/07	Fri. 5/07/07
Final EIS (FEIS)	56 days	Tue. 5/08/07	Tue. 8/31/07
Notice of Availability (NOA)	42 days	Wed. 7/9/07	Wed. 8/31/07
Record of Decision (ROD)	5 days	Fri. 9/17/07	Wed. 9/21/07

2.6 OTHER RELATED ACTIONS

The following describes the other actions that are occurring or are expected to occur at Fort Meade, in addition to the BRAC and EUL actions described above. These other related actions could contribute to cumulative impacts and are therefore assessed in this EIS.

2.6.1 National Security Agency

The National Security Agency's (NSA's) long range planning includes options to expand its facilities at Site M, on a portion of the existing golf course. Details on the potential for NSA expansion are not yet available.

2.6.2 Integration of the BRAC Action with the Comprehensive Expansion Master Plan

Fort Meade has two master planning documents that were considered in the identification of the proposed actions and the alternatives. The Real Property Master Plan (RPMP) is a five-year plan covering the years 2000-2004. The Comprehensive Expansion Master Plan (CEMP) is currently in draft form. It addresses the installation's projected development for a 30-year period and projects changes to both the installation and the surrounding communities. Though the CEMP takes into consideration the existing military construction planning that directs the current siting of missions and building structures, the BRAC 2005 decisions slightly altered the analysis that was in progress. The installation is evaluating the BRAC build-out in light of the draft CEMP. The CEMP's preferred action identifies projects as representative of the expected build-out during this time. These projects include construction of new facilities that would consolidate tenants from dilapidated World War II structures and off-post leased facilities into more cost efficient and effective facilities; demolition and construction of barracks and dining facilities; and providing on-post development opportunities for new tenants from incoming activities/installations that are currently subject to BRAC.

2.6.3 Proposed Directorate of Information Management (DOIM) Facility

In proposed planning, a new 58,048 square foot building near the new DISA location would house the new DOIM, a standard design information systems facility with the following functional divisions: Command Group, Plans and Resource Management, Operations, Logistics, Visual Information, and Records Management. The facility would include warehouses for both the Logistics and Visual Information Divisions and a mailroom; supporting facilities would include utilities, electric service, fire protection, alarm/security system, heating/ventilation/air conditioning (self-contained units), auxiliary emergency generators with concrete padding, security lighting, paving, parking, and storm drainage. Force protection/antiterrorism measures would also be provided. NEPA documentation for this project is planned for the future.

2.6.4 Energy Savings Performance Contract (ESPC) Program Project

The ESPC project would transfer landfill methane gas from the Anne Arundel County Millersville Landfill to Fort Meade via a five-mile pipeline. The potential use of the landfill methane gas is limited to supplementing natural gas used for steam generation at various boilers on the installation. The EA for the landfill methane gas to energy project to support DISA is a future action.

2.6.5 Central Maryland Transit Operations Facility

Approximately 15 acres are proposed for lease to a Howard and Anne Arundel County Partnership for the construction, operation and maintenance of a bus terminal and maintenance facility. The proposed site is located in the southwest corner of the installation, bordered by Routes 32 and 198 and the Tipton Airfield. The facility would include administrative and maintenance facilities for 30-40 employees, 100 buses and bus drivers, motor fuel and oil tanks and adequate parking.. Fort Meade would receive compensation in the form of in-kind services. An EA for the Bus Maintenance and Terminal Facility would be done by the project proponent, the Federal Transit Administration and partnered Counties, Howard and Anne Arundel. Coordination is underway. Potential unexploded ordnance issues at this site have yet to be completely assessed, and may cause the proposed facility to be located off the installation.

2.6.6 Asymmetric Warfare Group (AWG) Compound and Motor Pool Site

The AWG would reconfigure approximately 600 existing and projected personnel in newly constructed and renovated facilities. An approximately 50-acre site would contain an administrative and operational complex and an indoor firing range in a secure compound. In addition, an approximately two-acre site would house a vehicle maintenance facility. The compound will be located in the southwest corner of the installation, bordered by Rock Avenue, Huber Road, Wilson Street, and the Fort Meade Travel Camp. The EA and FNSI were completed in 2006.

2.6.7 First Army Division East

The First Army Division East was activated to Fort Meade and is located in Pershing Hall, Building 4550. This command consists of approximately 216 staff (81 Officers, 69 enlisted and 66 civilians). The action displaced existing Garrison staff that was relocated to temporary spaces until permanent space is renovated. Activities required to support the addition of the new personnel at Fort Meade would include, but are not limited to, new and converted buildings for headquarters, barracks, dining, warehouse, recreation needs, new fencing and walls, and training/simulation centers.

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3.0 ALTERNATIVES

Alternatives form the core of the NEPA process. In compliance with NEPA, Environmental Analysis of Army Actions (32 CFR Part 651), which implements the NEPA process and CEQ regulations, the Army must consider reasonable alternatives to the proposed action. Only those alternatives determined as reasonable relative to their ability to fulfill the need for a proposed action warrant detailed analysis. To be considered reasonable, an alternative must not only fulfill the purpose and need for the action, it must be technically and fiscally feasible. It must also involve an action that is reasonably foreseeable. Through a rigorous evaluation, an agency needs to examine a range of alternatives, determining those deemed reasonable, and those not carried forward for detailed analysis.

This section presents the Army's development of alternatives and describes alternatives available for the proposed action. The section also describes the No Action Alternative.

3.1 DEVELOPMENT OF ALTERNATIVES

For the BRAC realignment actions, potential alternatives to the proposed action were identified and examined based on three criteria: (1) means to accommodate realigned units; (2) siting of new construction; and (3) schedule. For the EUL actions, alternatives were considered based on siting of new construction, and also on the extent to which the sites would be built out, i.e., the level of development and associated encroachment onto more sensitive resource areas.

3.1.1 Means to Accommodate Realigned Units for BRAC-Directed Actions

Relocation of incoming organizations 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 (AR) 210-20, *Master Planning for Army Installations*, establishes Army policy to maximize use of existing facilities. The regulation directs that new construction will not be authorized to meet a mission that can be supported by existing underutilized adequate facilities, provided that the use of such facilities does not degrade operational efficiency. Under this policy, selection and use of facilities to

support mission requirements adheres to the foregoing four means in the order in which they are listed. That is, if there are adequate existing facilities to accommodate requirements, and absent other overriding considerations, further examination of renovation, leasing, or construction alternatives is not required. Similarly, if a combination of use of existing facilities and renovation satisfies the Army's needs, leasing or new construction need not be addressed. New construction may proceed only when use of existing facilities, renovation, leasing, or a combination of such measures are inadequate to meet mission requirements.

3.1.2 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, vehicles, and other assets.

The siting criteria were derived from the following siting parameters established in the CEMP:

- Shift less sensitive land uses, such as recreational space, to the perimeter of the installation and shift more sensitive operations to the interior
- Retain Family Housing on the northern half of the installation
- Shift Public Access and Community Support areas to the southeast perimeter of the installation
- Allocate the existing golf course for higher security Administration/Operations functions; and replace the golf course by development of the old landfill area that is currently under remediation and listed on the EPA's National Priority List (NPL)

The following areas were excluded from siting of new facilities: family housing areas already allocated; environmentally sensitive areas; National Security Agency exclusive use areas; and other places too small for development.

3.1.3 Schedule

BRAC implementation is to be completed by September 2011, with various realignments phased in over the years. Alternatives for the scheduling of proposed realignment actions are principally affected by three factors: (1) the availability of facilities to house realigned personnel and functions, (2) 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 (3) early realization of benefits to be gained by completion of the realignments. In most cases, minor shifts in schedule would not produce different environmental results.

3.2 ALTERNATIVES

The following alternatives are included in this EIS:

Alternative 1 – No Action Alternative (Section 3.2.1)

Alternative 2 – BRAC-Directed Realignment and EUL Actions [Preferred Alternative] (Section 3.2.2)

Alternative 3 – BRAC-Directed Action (Section 3.2.3)

Alternative 2 and Alternative 3 were identified as being reasonable and are carried forward for detailed evaluation in this EIS. Several other alternatives were considered but dismissed from further detailed analysis. These are discussed in the last part of this section, along with the reasons for their dismissal.

3.2.1 Alternative 1 - 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. For the purposes of this EIS, November 2005 is used as the baseline date.

Under the No Action Alternative, Fort Meade would not implement the proposed BRAC action. Organizations presently assigned to Fort Meade would continue to train at and operate from the post. No units would be reassigned to Fort Meade, and no new units would be established. Fort Meade 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 not feasible because the BRAC actions are congressionally-mandated.

Also under the No Action Alternative, the EUL actions would not be implemented. Sites Y and Z would not be leased to a private developer. Development on Sites Y, Z, and S would not occur. No new administration buildings would be constructed on Sites Y and Z and no new golf facilities would be constructed on Site S.

3.2.2 Alternative 2 – BRAC-Directed Realignment and EUL Actions

This alternative includes the implementation of the BRAC realignment actions and the DoD EUL actions. Under this alternative, several sub-alternatives for specific site locations for the BRAC realignment actions are presented. In addition sub-alternatives for construction build-out on the proposed EUL sites are also presented.

The sub-alternatives for the EUL actions were developed based on whether new construction would fully comply with the Installation Design Guide (IDG) and Integrated Natural Resources Management Plan (INRMP), partially comply with the IDG and INRMP, or not comply with the IDG and INRMP. The size of new buildings that would be constructed under each compliance scenario would be the same. Build-out on the EUL sites with partial compliance or no compliance with the IDG and INRMP would mean sacrificing some of the more sensitive natural resource areas, such as wetlands or floodplains. A range of alternatives was developed to address this trade-off and to strike different balances between site development and resource area protection.

Site options for sub-alternatives were determined based on site advantages and disadvantages. Table 3-1 presents the options for site locations for BRAC realignment actions. Table 3-2 presents the options for the proposed EUL sites. The EUL sub-alternatives might be implemented with the BRAC sub-alternatives in any combination.

3.2.2.1 BRAC Sub-alternative 2A (FGX Arrangement, Preferred Site Location)

The proposed FGX arrangement (preferred site location) places sensitive operations, like DISA and DMA, which require more security at the center of the installation, and places troop working and housing areas in close proximity. DMA would be in close proximity to the Defense Information School (DINFOS), which allows ease in collaboration on mutual missions. Adjudication Activities would be located close to similar OPM activities. The UPH, GYM, and PX would be adjacent to each other, allowing for easy access and grouping three main supporting services (PX, GYM, UPH) in one place. Disadvantages to the FGX arrangement include its collocation with 7 holes of the existing golf course. There may be potential environmental clean-up requirements at the existing golf course, dependent on the outcome of data review and/or further investigations. In addition, Adjudication Activities' proposed location near the base periphery would not be consistent with the siting parameters established by the Garrison for post September 11 operational security requirements.

Table 3-1: BRAC Realignment Actions

BRAC Realignment Action - Sub-Alternatives for Siting Incoming Organizations				
Alternative	Administration and Vehicle Storage	PX	GYM	UPH
BRAC Sub-Alternative 2A (Preferred BRAC Alternative) (Preferred Site Location)	Site F,G,X DISA – Site F Media – Site G Adjudication – Site X	Site G Site G Site G	Site G Site G None	Site G Site G Site G
BRAC Sub-alternative 2B	Site F,G,K DISA – Site F Media – Site G Adjudication – Site K	Site F Site N Site K	Site F Site N None	Site M Site M Site N
BRAC Sub-alternative 2C	Site F,G,C DISA – Site F Media – Site G Adjudication – Site C	Site N Site K Site N	Site N Site K None	Site M Site M Site N
BRAC Sub-alternative 2D	Site A, L,C DISA – Site A Media – Site L Adjudication – Site C	Site K Site K Site K	Site K Site N None	Site M Site N Site N

Table 3-2: Enhanced Use Lease Actions

EUL Action - Sub-Alternatives for EUL Build Out				
Alternative	Administration and Vehicle Storage	PX	GYM	UPH
EUL Sub-alternative 2A	Construct administrative buildings for an estimated 10,000 personnel on Sites Y and Z. Development would be constrained by the requirements of the Fort Meade Installation Design Guide and INRMP, conserving natural resources areas. Construct two 18-hole golf courses on Site S.	N/A	N/A	N/A
EUL Sub-alternative 2B	Construct administration buildings for an estimated 10,000 personnel, maximum build out, on Sites Y and Z with no environmental constraints beyond regulatory and permit requirements. Development would encroach on natural resources areas. Construct two 18-hole golf courses on Site S.	N/A	N/A	N/A
EUL Sub-alternative 2C	Construct administration buildings for an estimated 10,000 people on Sites Y and Z with limited encroachment on natural resources areas. Construct two 18-hole golf courses on Site S.	N/A	N/A	N/A

Under BRAC Sub-alternative 2A, up to 91 acres of forestland could be affected to construct administration buildings for DISA, DMA, and Adjudications activities, the PX, Gym, UPH, and associated parking. There are no wetlands located on any of the proposed BRAC sites. The amount of land required for construction of BRAC facilities will be the same for each BRAC sub-alternative, however, some site locations vary depending on the sub-alternative.

Selection of the sites for BRAC sub-alternative 2A (Preferred Alternative) also considered the environmental impacts to the natural resources. The selection of site locations under BRAC sub-alternatives 2B, 2C, and 2D is discussed below and was based on advantages and disadvantages presented below:

3.2.2.2 BRAC Sub-alternative 2B (FGK Arrangement)

This sub-alternative places the administrative areas for BRAC actions at Sites F, G, and K, and the support facilities at Sites F, M, N, and K (see Table 3-1 and Figure 2-1). This arrangement has some of the same advantages as the preferred BRAC alternative site location FGX. The arrangement places some sensitive operations at the center of the installation, increasing the security of the facility. The arrangement places DMA in the vicinity of the Defense Information School (DINFOS), allowing for collaboration on similar activities, and places troop work and housing areas in close proximity. The Adjudication Activities would be located at the center of the installation's historic district, a prime location for court facilities. Some support facilities, however, would be located far from the barracks and the administrative buildings, and construction on Site K may reorganize or displace Smallwood Hall and the arts and crafts center. The Adjudication Activities would be located away from a main gate entrance, which makes escorting visitors more difficult and time consuming. Site N has been designated in previous MILCON planning efforts for DINFOS barracks.

3.2.2.3 BRAC Sub-alternative 2C (FGC Arrangement)

This sub-alternative places the administrative areas at Sites F, G, and C, and the support facilities at Sites M, N, and K (see Table 3-1 and Figure 2-1). This arrangement places some sensitive operations (DISA and DMA) that require more security toward the center of the installation. The Adjudication Activities, however, would be located at the periphery on site C and the Gym and PX would be located a greater distance from the barracks and the administrative buildings, which would be an inconvenience for users of these facilities. In addition, this sub-alternative would use prime real estate at Site K for a less sensitive activity. Similar to BRAC sub-alternative 2B, Site N has been designated in previous MILCON planning efforts for DINFOS barracks. Finally, the area at site C allocated for Adjudication Activities is a Solid

Waste Management Unit (SWMU) site that would require further evaluation to determine the nature and extent of potential contamination.

3.2.2.4 BRAC Sub-alternative 2D (ALC Arrangement)

This sub-alternative places the administrative areas at Sites A, L, and C, and the support facilities at Sites M, N, and K (see Table 3-1 and Figure 2-1). This siting arrangement has the advantage of close proximity to the main gate for easy access by DMA. The Adjudication Activities building would be located near the Reece Road gate, which would allow easy escort of visitors. This sub-alternative has many disadvantages, partly due to the dispersed locations for the various facilities. The proposed barracks site for DISA (Site M) would be located a substantial distance from the administrative buildings. The PX and Physical Fitness Center would also be located a substantial distance from the administrative buildings. The DISA administrative facility, a sensitive use facility, would be located near the perimeter of the installation, not toward the center, and would therefore not consistent with the siting parameters of the Garrison. Ernie Pyle Street would need to be rerouted to provide an entrance to the DISA building, and this would add to project costs and impacts. This sub-alternative would also require the removal and relocation of youth playing fields. The Friedhofer and Gary cemeteries are both located on the proposed Site A for DISA. For the DMA site, extensive cut and fill will be required during construction, thereby adding to project costs and impacts. Similar to BRAC sub-alternative 2C, Site N has been proposed for DINFOS barracks and the area at site C is a SWMU site that requires further evaluation to determine the nature and extent of potential contamination.

3.2.2.5 EUL Sub-alternative 2A

This EUL sub-alternative proposes maximum build-out of administrative buildings on Sites Y and Z with development constraint in accordance with the Fort Meade IDG and INRMP, conserving natural resources areas. Two 18-hole golf courses would be constructed on Site S (see Table 3-2 and Figure 2-1). Development would not encroach on natural resource areas including maintaining a buffer between the construction activities and wetlands and restrictions on the number of trees cleared in the forested areas, in compliance with the Maryland Forest Conservation Act. The advantages of implementing this EUL action are that it allows optimal land use inside the fence line for BRAC-related actions; it places non-federal operations outside the fence line; permits the installation to configure site security to meet force protection requirements; allows the installation to obtain modern facilities, services, and maintenance; and it frees the existing golf courses for BRAC-related construction. The disadvantages to implementing this EUL action are the potential loss of 144 acres of trees and forest habitat on Sites Y and Z; and increases in traffic volume and air emissions in the immediate areas.

3.2.2.6 EUL Sub-alternative 2B

This EUL sub-alternative proposes maximum build out on Sites Y and Z with no environmental constraint beyond regulatory and permit requirements (see Table 3-2 and Figure 2-1). Development would encroach on natural resources areas including not maintaining a buffer between the construction activities and wetlands and no restrictions on the number of trees cleared in the forested areas. This EUL sub-alternative would also include the construction of two 18-hole golf courses on Site S. EUL sub-alternative 2B would have similar advantages as EUL sub-alternative 2A regarding activities inside the fence line, but the disadvantage would be a greater loss of forest habitat and probable mitigated wetlands on Sites Y and Z than in sub-alternative 2A.

3.2.2.7 EUL Sub-alternative 2C

This EUL sub-alternative also proposes maximum build-out with limited environmental constraints and some degree of conformance with the IDG and the INRMP. Development would encroach on natural resources areas and would fail to meet the requirements by the IDG and INRMP for buffer zones between the construction activities and wetlands as well as the number of trees that would be cleared in the forested areas. This EUL sub-alternative would also include the construction of two 18-hole golf courses on Site S. EUL sub-alternative 2C would have similar advantages as sub-alternative 2A regarding activities inside the security fence. The disadvantage, however, would be a greater loss of forest habitat and wetlands on Sites Y and Z than sub-alternative 2A but less than sub-alternative 2B.

Table 3-3. Advantages and Disadvantages of BRAC and EUL Actions

Alternative	Advantages	Disadvantages
BRAC Sub-alternative 2A	<ol style="list-style-type: none"> 1. Increases the security of the facility by placing new construction (DISA and DMA) at the center of the installation 2. Places DMA facility in the vicinity of DINFOS 3. Allows for collaboration on common activities between DMA and DINFOS 4. Places troops in close proximity to their work location and housing 5. UPH, GYM, and PX located in one place next to each other and allow troops easy access. 6. Places Adjudication Activities in proximity to OPM facility which has the same mission. 	<ol style="list-style-type: none"> 1. Collocates facility with 7 holes of the existing golf course 2. Potential environmental clean up requirements at the existing golf course 3. Proposed location for Adjudication Activities is close to the installation fence line and thus is not consistent with the siting parameters established by the Garrison for post September 11 operational security requirements. 4. Site X was planned for recreational fields 5. Proposed recreational fields would have to be relocated or lose the fields. 6. Loss of open space and increases in impervious surfaces.
BRAC Sub-alternative 2B	<ol style="list-style-type: none"> 1. Places DMA facility in the vicinity of DINFOS 2. Allows for collaboration on common activities between DMA and DINFOS 3. Places troop work and housing areas in close proximity 	<ol style="list-style-type: none"> 1. Some support facilities would be located far from the barracks and the administrative buildings 2. Adjudication Activities would be located away from a main gate entrance and escorting visitors more difficult 3. Site N has been designated in previous MILCON planning efforts for DINFOS barracks 4. Displace the museum and Smallwood Hall 5. Loss of open space and increases in impervious surfaces.
BRAC Sub-alternative 2C	<ol style="list-style-type: none"> 1. Places DMA facility in the vicinity of DINFOS 2. Allows for collaboration on common activities between DMA and DINFOS 3. Adjudication Activities building would be close to the Reece Road gate, allowing for easy visitor access. 	<ol style="list-style-type: none"> 1. The GYM and PX would be located at a greater distance from the barracks and the administrative buildings 2. Prime real estate at Site K would be used for activities that require less security 3. Site N has been designated in previous MILCON planning efforts for DINFOS barracks 4. An area at site C is a SWMU site that would require further evaluation for potential contamination 5. Loss of open space and increases in impervious surfaces. 6. Places Adjudication Activities, near the perimeter of the installation.

Alternative	Advantages	Disadvantages
BRAC Sub-alternative 2D	<ol style="list-style-type: none"> 1. Adjudication Activities building would be close to the Reece Road gate, allowing for easy visitor access. 	<ol style="list-style-type: none"> 1. Barracks site for DISA would be located at a substantial distance from the administrative buildings 2. The PX and GYM would be located at a substantial distance from the administrative buildings 3. The BRAC administrative facilities requiring higher security would be located near the perimeter of the installation, not toward the center 4. Ernie Pyle Street would need to be rerouted to provide an entrance to the DISA building, and this would add to project costs and impacts 5. The Friedhofer and Gary cemeteries are both located on the proposed Site A for DISA 6. The land contours on site L for DMA would require extensive cut and fill during construction and thus would add to the project costs and impacts 7. Site N has been proposed for DINFOS barracks 8. The area at Site C is SWMU site that requires further evaluation for potential contamination 9. Loss of open space and increases in impervious surfaces.
EUL Sub-alternative 2A	<ol style="list-style-type: none"> 1. Avoid extensive encroachment on natural resource areas including maintaining a buffer between the construction activities and wetlands. 3. Restricts the number of trees cleared in the forested areas 4. Places non-federal operations outside the security fence 5. Allows the installation to configure site security to meet force protection requirements 6. Allows the installation to obtain modern facilities, services, and maintenance 	<ol style="list-style-type: none"> 1. Potential loss of trees and forest habitat on Sites Y and Z 2. Increase in traffic volume 3. Increase in air emissions

Alternative	Advantages	Disadvantages
EUL Sub-alternative 2B	<ol style="list-style-type: none"> 1. Allows the installation to configure site security to meet force protection requirements 2. Allows the installation to obtain modern facilities, services, and maintenance 3. Places non-federal operations outside the security fence 	<ol style="list-style-type: none"> 1. Potential loss of trees and forest habitat on Sites Y and Z 2. Increase in traffic volume 3. Increase in air emissions 4. Does not maintain a 100 foot buffer around wetlands 5. No restrictions on the number of trees cleared in the forested areas 6. Potential loss of forest habitat and wetlands on Sites Y and Z 7. Build-out, on Sites Y and Z with no environmental constraint
EUL Sub-alternative 2C	<ol style="list-style-type: none"> 1. Allows the installation to configure site security to meet force protection requirements 2. Allows the installation to obtain modern facilities, services, and maintenance 3. Places non-federal operations outside the security fence 	<ol style="list-style-type: none"> 1. Increase in traffic volume 2. Increase in air emissions 3. Allows limited encroachment on natural resource areas (wetlands) 4. Constraints that are less than required by the IDG and INRMP for buffer zones 5. Less restrictions on the number of trees cleared in the forested areas. 6. Potential loss of trees and forest habitat on Sites Y and Z

3.2.3 Alternative 3 – BRAC-Directed Realignment Actions

Alternative 3 would implement all BRAC realignment actions mandated by the BRAC Commission Report but would exclude the EUL actions. This alternative is similar to BRAC sub-alternatives presented in Alternative 2 in Section 3.2.2 in that it supports all of the identified BRAC missions. This alternative does not include the potential development of the EUL Sites Y, Z, and S.

Based on various advantages and disadvantages, the main administrative and vehicle storage facilities for the DISA, Media, and Adjudication, as well as the support facilities, could be constructed on various sites on the installation, creating locational sub-alternatives. Under any of the Alternative 3 sub-alternatives, the details regarding the construction of the administrative and support facilities would be the same as described under “Proposed BRAC-realignment Construction Actions”, Section 2.2.6 and are not repeated here.

The BRAC action sub-alternatives selected for analysis are summarized in Table 3.4. The description of BRAC sub-alternatives 3B, 3C, and 3D, and their advantages and disadvantages are the same as described under Alternative 2 above. The difference is that under this alternative, the EUL actions are not included in the implementation. The implementation of BRAC actions with no EUL actions would result in loss of revenues from the existing golf courses and non-optimal siting of BRAC facilities.

Table 3-4. BRAC Realignment Actions

BRAC Directed Action - Sub-Alternatives for Site Location Alternatives				
Alternative	Administration and Vehicle Storage	PX	GYM	UPH
BRAC Sub- alternative 3A (Preferred Site Location Alternative)	Site F,G,X DISA – Site F Media – Site G Adjudication – Site X	Site G Site G Site G	Site G Site G None	Site G Site G Site G
BRAC Sub- alternative 3B	Site F,G,K DISA – Site F Media – Site G Adjudication – Site K	Site F Site N Site K	Site F Site N None	Site M Site M Site N
BRAC Sub- alternative 3C	Site F,G,C DISA – Site F Media – Site G Adjudication – Site C	Site N Site K Site N	Site N Site K None	Site M Site M Site N
BRAC Sub- alternative 3D	Site A,L,C DISA – Site A Media – Site L Adjudication – Site C	Site K Site K Site K	Site K Site N None	Site M Site N Site N

3.3 ALTERNATIVES CONSIDERED BUT DISMISSED

3.3.1 Use of Existing Facilities or Off-Post Leased Space

Realignment of Fort Meade would involve adding about 660 military, 3,324 civilians, and 1,711 contractors or about 5,695 personnel to the post's present workforce. Evaluation of all facilities at Fort Meade shows a substantial shortfall in built space to accommodate additional personnel and their equipment, as discussed by the CEMP. Overall, the post would require about 2,168,552 square feet of additional built space to meet the needs of the realigned units. Some of the activities being evaluated under this EIS would require a substantial amount of additional space for new missions that could not be provided efficiently by existing facilities. Other activities would require substantial facility upgrades to meet modern standards (e.g., the child development and physical fitness centers). For this reason, use of existing built space to accommodate all incoming organizations and their functions is not considered feasible and is not further evaluated in this EIS.

Construction of new facilities is driven by the need to ensure adequate space is available for mission requirements. Fort Meade's existing permanent administrative facilities are fully utilized for current mission requirements, and other on-post structures are unsuitable or uneconomical for renovation and conversion. Accordingly, new construction is required and is evaluated as the preferred alternative in this EIS.

Use of off-post leased space to meet Fort Meade's requirements would involve several major drawbacks. Force protection policies require certain facilities to meet certain specifications, such as physical security features, set-back from roadways, and "hardened" construction. Use of off-post leased space would adversely affect command and control functions, result in higher operational costs, and impair efficient use of resources. For these reasons, use of off-post leased space is not feasible and is not further evaluated in this EIS.

3.3.2 Use of Site S for BRAC-Directed Actions

One siting alternative considered but dismissed for all three BRAC realignment actions was locating all facilities for each of the actions on Site S, at the Installation's old landfill (see Figure 2-1). For any of the proposed realignment actions, this siting arrangement would have the advantage of using open space, with no requirements to move or relocate any other facilities, and would place the troops' work, services, and housing area in close proximity. There are numerous disadvantages to the use of this site for any of the actions, which outweigh the advantages and result in its dismissal from further analysis. In particular, infrastructure (utilities and roads) are lacking, and there would be excessive costs and associated environmental impacts to extend services to this location. In the case of DISA, use of this site would place a sensitive area near the post's perimeter, and would therefore not be in conformance with the siting

parameters of the CEMP. If DISA were to be located here, a separate cantonment area would need to be created, and DISA would need to provide its own security guards. For any of the realignment actions, there would also be concerns related to construction on a capped landfill. Contaminated areas and clean up requirements would need to be addressed prior to construction, adding to costs and possible delays. Finally, use of this site would isolate the proposed Physical Fitness Center, and PX, limiting use to only those employees at this location.

3.3.3 Separate Parking Locations Tied to the Administrative Building Locations for the BRAC-Directed Actions

Preliminary alternatives considered included construction of parking lots or garages immediately adjacent to the DISA, Media and Adjudication administrative buildings, on the separate site locations. Parking garages, however, were dismissed as an alternative because of their very high cost and the lack of convenient access to other BRAC facilities. Instead, the parking lots for each BRAC facility would be located to provide convenient access to the users of those individual facilities.

3.3.4 Alternative Sites for the U.S. Army EUL Actions

Other sites considered for the EUL actions included Sites A, C, and L. These sites were dismissed because using them would place non-federal activities inside the installation fence line and in close proximity to secure operations. This arrangement would compromise the ability of site security to meet force protection requirements, and could potentially cause some of the BRAC organizations to be placed outside the installation fence line. Excluding these sites for EUL actions allows the BRAC organization activities to be placed in the central portion of the installation. Because the EUL actions would support office and administrative functions and would house non-military personnel; it is preferable to located the facilities outside the security fencing for both ease of use and to free up the internal, more secure space for sensitive military functions.

3.4 ALTERNATIVES SCHEDULE

The schedule for implementation of the proposed action must balance facilities construction timeframes and planned arrival dates of inbound units, all within the 6-year limitation of the BRAC law (Section 2.5). Realignment earlier than that shown in the schedule in Section 2.5 is not feasible in light of the time required to build facilities. Shifting of schedules to accomplish realignment at a later date would unnecessarily delay realization of benefits to be gained. In addition, Congress requires completion by September 15, 2011. Since earlier implementation is not possible, and since delay is avoidable and unnecessary, alternative schedules are not further evaluated in this EIS.

4.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

4.1 INTRODUCTION

This section describes the environmental baseline conditions of each resource area. Environmental baseline conditions are 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 and quantification of changes in conditions that would result from the proposed actions. The environmental consequences portion represents the culmination of scientific and analytic analysis of potential effects arising from the implementation of the proposed action. Cumulative effects and possible mitigations of the proposed action are also addressed.

Baseline environmental conditions are presented first for each environmental resource or condition, followed immediately thereafter by evaluation of potential environmental effects of the following:

- Alternative 1 – No Action Alternative
- Alternative 2 – BRAC Realignment and EUL Actions Alternative (**Preferred Alternative**)
 - BRAC Sub-alternative 2A (FGX Arrangement) (**Preferred Site Option**)
 - BRAC Sub-alternative 2B (FGK Arrangement)
 - BRAC Sub-alternative 2C (FGC Arrangement)
 - BRAC Sub-alternative 2D (ALC Arrangement)
 - EUL Sub-alternative 2A
 - EUL Sub-alternative 2B
 - EUL Sub-alternative 2C
- Alternative 3 – BRAC Realignment Actions (**Excludes the EUL Actions**)
 - BRAC Sub-alternative 3A (FGX Arrangement) (Preferred Site Option)
 - BRAC Sub-alternative 3B (FGK Arrangement)
 - BRAC Sub-alternative 3C (FGC Arrangement)
 - BRAC Sub-alternative 3D (ALC Arrangement)

Each alternative is compared to the baseline condition of the No Action (No Action/No Build Alternative) to determine resource impacts. The thresholds of “No Effect,” “No Significant Effect,” and “Significant Effect” were used to assess the magnitude of impacts to each resource topic within the study area of the proposed project sites. Table 4-1 depicts the threshold definitions used for each separate resource topic in this EIS.

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Table 4-1. Resource Threshold Definitions

Resource	No Effect	No Significant Effects	Significant Effect
Land Use	No impacts to surrounding land use from the proposed project	The impact to land use would be measurable or perceptible, but would be limited to a relatively small change in land use that is still consistent with the surrounding land uses and on-post and off-post planning guidance.	The proposed action would cause or result in conflicts with existing or future land use plans at the project site or surrounding area. The land use of the proposed action would be substantially inconsistent with the land uses surrounding the proposed site.
Aesthetic and Visual Resources	The proposed action would not impact the aesthetics or visual viewshed of the proposed project area during construction or operations.	The impacts would be not significant if the proposed action did not substantially change the scenic vista; did not substantially change scenic resources; did not substantially change the existing visual character or quality of the site and its surroundings; and did not create substantial lights or glares that would affect day or nighttime views in the area.	The impacts would be significant if the proposed action resulted in a substantial effect on a scenic vista; substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings; substantially degrade the existing visual character or quality of the site and its surroundings; or created a new source of substantial light or glare that would adversely affect day or nighttime views in the area.
Air Quality	No impacts to air quality from the proposed project	Implementation of the proposed actions cause an increase in air emissions that is greater than the <i>de minimis</i> threshold levels but does not exceed ten percent of the daily limits established in the <i>Phase II Attainment Plan for the Baltimore Nonattainment Area and Cecil County SIP</i> .	For the impacts on air quality from the 2005 BRAC actions at Fort Meade to be significant, the potential increase in emissions would exceed the <i>de minimis</i> thresholds and demonstrate regional significance greater than ten percent of the daily emissions budget established in the <i>Phase II Attainment Plan for the Baltimore Nonattainment Area and Cecil County SIP</i> .
Noise	Natural sounds would prevail; noise generated by construction and facility operation would be infrequent or absent, mostly immeasurable.	Noise levels would exceed natural sounds, as described under no effect, but would not exceed applicable noise standards.	The proposed action would cause or result in a violation of existing noise standards on a long-term or permanent basis or exceedance of noise limit guidelines published in 32 CFR 651.
Geology and Soils	Geology, topography, or soils would not be impacted or the impact to these resources would be below or at the lower levels of detection.	Impacts to geology, topography, or soils would be detectable. Impacts to undisturbed areas would be proportionally small to the site. Mitigation would be needed to offset adverse impacts and would be relatively simple to implement and would likely be successful.	Impacts on geology, topography, or soils would be readily apparent and result in a change to the character of the resource over a relatively wide area.

Resource	No Effect	No Significant Effects	Significant Effect
Water Resources	Current water quality and hydrologic conditions would not be altered or existing conditions do not exist for impacts to occur.	Impacts (chemical, physical, or biological effects) would be either not detectable, but at or below water quality standard or criteria. Alterations in water quality and hydrologic conditions relative to historical baseline may occur, however, only on a localized and short-term basis.	Impacts (chemical, physical, or biological effects) would be detectable and would frequently vary from the historical baseline or desired water quality conditions; and/or chemical physical, or biological water quality standards or criteria would be locally, slightly and singularly, exceeded on either a short-term or prolonged basis.
Biological Resources Impacts to T&E species were classified using terminology, as defined under the ESA: <i>No effect, May affect / not likely to adversely affect, May affect / likely to adversely affect, Likely to jeopardize proposed species/adversely modify proposed critical habitat</i>	No impacts to native species, their habitats, or the natural processes sustaining them would occur, or such conditions do not exist for impacts to occur. For T&E species: No effect – The proposed action would not affect a listed species or designated critical habitat OR listed species or designated critical habitat are not present.	Impacts would be detectable, but would not be expected to be outside the natural range of variability. Occasional responses to disturbance by some individuals could be expected, but without interference to feeding, reproduction, or other factors affecting population levels. Sufficient habitat would remain functional to maintain viability of all species. For T&E species: May affect / not likely to adversely affect – Effects on special status species are discountable (i.e., extremely unlikely to occur and not able to be meaningfully measured, detected, or evaluated) or completely beneficial. OR May affect / likely to adversely affect – When an adverse effect to a listed species may occur as a direct or indirect result of proposed actions and the effect is either not discountable or completely beneficial.	Impacts on native species, their habitats, or the natural processes sustaining them would be detectable, and they would be expected to be outside the natural range of variability for long periods of time or be permanent. Population numbers, population structure, genetic variability, and other demographic factors for species might have large, short-term declines, with long-term population numbers significantly depressed. Frequent responses to disturbance by some individuals would be expected, with negative impacts to feeding, reproduction, or other factors resulting in a long-term decrease in population levels. Loss of habitat might affect the viability of at least some native species. For T&E species: Likely to jeopardize proposed T&E species or current T&E species listed/adversely modify proposed critical habitat – The appropriate conclusion when Fort Meade identifies situations in which actions could jeopardize the continued existence of a proposed T&E species/current T&E species listed or adversely modify critical habitat to a species within and/or outside Fort Meade boundaries.
Cultural Resources	No impact to the integrity of a building, structure, designed landscape, object, or archaeological site that is eligible for the National Register of Historic Places; equates to <i>no effect</i> for Section 106.	Impact would compromise the integrity of a building, structure, designed landscape, object, or archaeological site that is eligible for the National Register of Historic Places and can be adequately mitigated through Section 106 consultation.	Impact would destroy the integrity of a building, structure, designed landscape, object, or archaeological site that is eligible for the National Register of Historic Places and cannot be adequately mitigated through Section 106 consultation.

Resource	No Effect	No Significant Effects	Significant Effect
Socioeconomics	No change to socioeconomic conditions. 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.	A change that does not fall outside the historic positive and negative range of region of influence (ROI) economic variation for the key economic indicators, or demand for housing and school space would not risk exceeding future supply. For example, if the historical high increase in employment for an ROI is 5%, and the estimated increase in employment due to BRAC actions is 4% then the effect would be positive, but not significant since it falls short of the historical high increase.	A change is considered significant if it falls outside the historical year to changes in selected economic and demographic indicators for the ROI. This may mean that income levels, sales volume, employment, or population, would rise or fall more than deviations from the average year on year changes in the key economic indicators have been measured, or that demand for housing and school space would risk exceeding future supply during the life of BRAC actions. For example, if the historical annual high increase in employment for an ROI is 5%, and the estimated increase in employment due to BRAC actions is 6%, then the effects would be considered positive and significant.
Transportation	Short or long term changes to the traffic patterns and level of service that maintain the same or nearly the same levels of service as is expected under the No-Action alternative without crossing the threshold to failure. An intersection is said to have failed when it reaches LOS F. Specifically, if the level of service stays the same, or drops no more than one level, without going to LOS F for signalized intersections, then it will be determined that No Effect has occurred. For example, a drop from LOS A to LOS B (compared with the No-Action alternative) would be “No Effect”.	<p>Short or long term changes to the traffic patterns and level of service that would cause an intersection to perform more poorly as a result of implementing that action compared with what is expected under the No-Action alternative, but without the failure of the intersection. A drop from LOS A to LOS D, or from LOS B to LOS E, comparing specific intersections between the Alternative and the No Action Alternative, would be designated as No Significant Effects.</p> <p>If the intersection had already failed under the No Action Alternative and continues to fail under another alternative, the level of significance is determined based on the analysis of additional delay, and discussed in the appropriate section.</p> <p>From the perspective of a particular corridor or the area in general, failure of one or two intersections among the twenty-eight analyzed (in this case) would be considered “no significant” effect, because in most cases, choosing an alternative route or making a moderate change in schedule (leaving somewhat earlier or later) can mitigate the impact for individual travelers.</p>	<p>Short or long term changes to the traffic patterns and level of service that would cause an intersection to fail as a result of implementing that action beyond what is expected under the No Action Alternative. For the purposes of this EIS, a Significant Effect would be considered when an intersection that had not failed under the No Action Alternative fails under any other alternative. For example, a drop from LOS D to LOS F would be considered a Significant Effect. Also, an intersection that fails under the No Action Alternative and continues to fail under other alternatives may be considered to be significant depending on the magnitude of the additional delay.</p> <p>From the perspective of a particular corridor or the area in general, failure of multiple intersections on a corridor or in a particular area would be considered a “Significant Effect”, because it may be difficult to find an alternative route.</p> <p>It should be noted that the EIS LOS analysis does NOT include the effects of the planned added lanes and improved intersections along MD 175 and MD 198.</p>
Utilities	The proposed action	An impact to the usage and consumption of utilities	Thresholds for significance are defined below:

Resource	No Effect	No Significant Effects	Significant Effect
Utilities (continued)	would not impact the usage or consumption of utilities during construction or operation	would occur, but the demand would be less than thresholds indicated for “significant effect.”	<p><i>General Utility Construction</i> – Impacts from construction of utilities would be considered significant if expected to cause human health and safety issues considerably above industry norms, or if disruptions to Fort Meade operations or mission were expected to exceed what was acceptable by the Army and there are no ways to mitigate the disruptions.</p> <p><i>Potable Water Supply</i> – Impacts would be considered significant if the proposed action or alternatives would require more potable water than could be reliably provided by the combination of available potable water sources, leading to shortages, or if regulatory limitations on withdrawals or the treatment plant would potentially be exceeded. Major systemic distribution constraints could also be significant; however, the fact that major investments would be required to provide potable water reliably would not necessarily constitute a significant impact if the investments were reasonable for the overall magnitude of proposed construction, or to provide needed restoration or modernization, and would prevent shortages or harm to the environment.</p> <p><i>Wastewater System</i> – Impacts would be considered significant if the proposed action or alternatives would require more wastewater treatment capacity than could be reliably provided by the wastewater treatment system, potentially leading to the discharge of effluents in excess of standards, or if regulatory limitations on the wastewater treatment plant would potentially be exceeded. Major shortfalls in collection capacity could also be significant; however, the fact that major investments would be required to collect wastewater reliably would not necessarily constitute a significant impact if the investments were reasonable for the overall magnitude of proposed construction, or to provide needed restoration or modernization, and would prevent overflows or harm to the environment.</p> <p><i>Energy Sources</i> – Impacts would be considered significant if the proposed action or alternatives would require energy in quantities that would exceed local and/or regional capacities</p>

Resource	No Effect	No Significant Effects	Significant Effect
			<p>for supply, leading to potentially unreliable service or shortfalls of power or other energy that could affect Fort Meade's mission. Major systemic distribution constraints could also be potentially significant; however, the fact that major investments would be required to provide energy reliably would not necessarily constitute a significant impact if the investments were reasonable for the overall magnitude of proposed construction, or to provide needed restoration or modernization, and would prevent shortages that could affect Fort Meade's mission.</p> <p><i>Solid Waste</i> – Impacts would be considered significant if the proposed action or alternatives would require collection and/or disposal that could not be provided in a reliable manner, which could cause waste to accumulate or be disposed of in a manner that could adversely affect human health or the environment.</p> <p><i>Stormwater Drainage System</i> – Impacts would be considered significant if the proposed action or alternatives would not comply with State or Federal laws governing stormwater discharges.</p> <p><i>Communications</i> – Impacts would be considered significant if the proposed action or alternatives would require communication systems to meet mission requirements that could not be provided without major modifications to the existing Installation systems.</p>
Hazardous and Toxic Substances	The proposed action would not impact the human or natural environment	Action would not result in an increase in the amount of materials or waste to be handled, stored, used, or disposed; but all hazardous or toxic materials and/or wastes could be safely and adequately managed in accordance with all applicable regulations and policies, with limited exposure or risks.	Action would result in a substantial increase (more than 100%) in the amount of materials or waste to be handled, stored, used, or disposed of, and this could not be safely or adequately handled or managed by the proposed staffing, resulting in unacceptable risks, exceedances of available waste disposal capacity, or probable regulatory violation.

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4.2 LAND USE

4.2.1 Affected Environment

4.2.1.1 Regional Geographic Setting and Location

Fort Meade encompasses approximately 5,067 acres and is a permanent U.S. Army installation located in the northwest corner of Anne Arundel County, Maryland. The installation is located 17 miles southwest of downtown Baltimore, Maryland, and 24 miles northeast of Washington, DC. The city of Annapolis, which is both the Anne Arundel county seat and the Maryland state capital, is 14 miles southeast of the installation. The southeastern part of Howard County extends within 2 miles of Fort Meade. Figure 1-1 depicts the regional location of Fort Meade.

Fort Meade is bounded by the Baltimore-Washington Parkway (MD 295) to the northwest, Annapolis Road (MD 175) to the east, Patuxent Freeway (MD 32) to the south and west, and the MARC Penn Line and AMTRAK Line to the southeast. Other significant nearby transportation arteries include US Route 1 and Interstate 95, which run parallel to and just to the north of the Baltimore-Washington Parkway. Interstate 97, which connects Baltimore and Annapolis is located several miles east of Fort Meade and can be reached by taking MD 175 or MD 32 east.

To the north, west, and east, the installation is predominately surrounded by residential areas, commercial centers, a mix of light industrial uses, and open space and undeveloped areas. Directly to the south of Fort Meade are the Tipton Airport and 12,750-acre Patuxent Research Refuge, part of the U.S. Fish and Wildlife Service's National Wildlife Refuge System. To the southwest of Fort Meade is the 800 acre parcel that houses the District of Columbia (DC) Oak Hill juvenile detention facility.

The Chesapeake Bay is approximately 12 miles to the east and the Little Patuxent River runs along a part of the southwest corner of the installation. Two of the river's tributaries, Midway Branch and Franklin Branch, also flow south through the Fort Meade. Fort Meade is a part of the Chesapeake Bay watershed.

4.2.1.2 Installation Land/Airspace Use

Installation Land – Figure 4-1 shows current Fort Meade land use. Table 4-2 provides the total number of acres by land use category.

Table 4-2: Land Use at Fort Meade

Land Use	Acres	Percent
Operations	458	9%
Tenant Agency	429	8%
Housing	1,119	22%
Community	137	3%
School (County)	156	3%
Open Space	2,768	55%
Total	5,067	100%

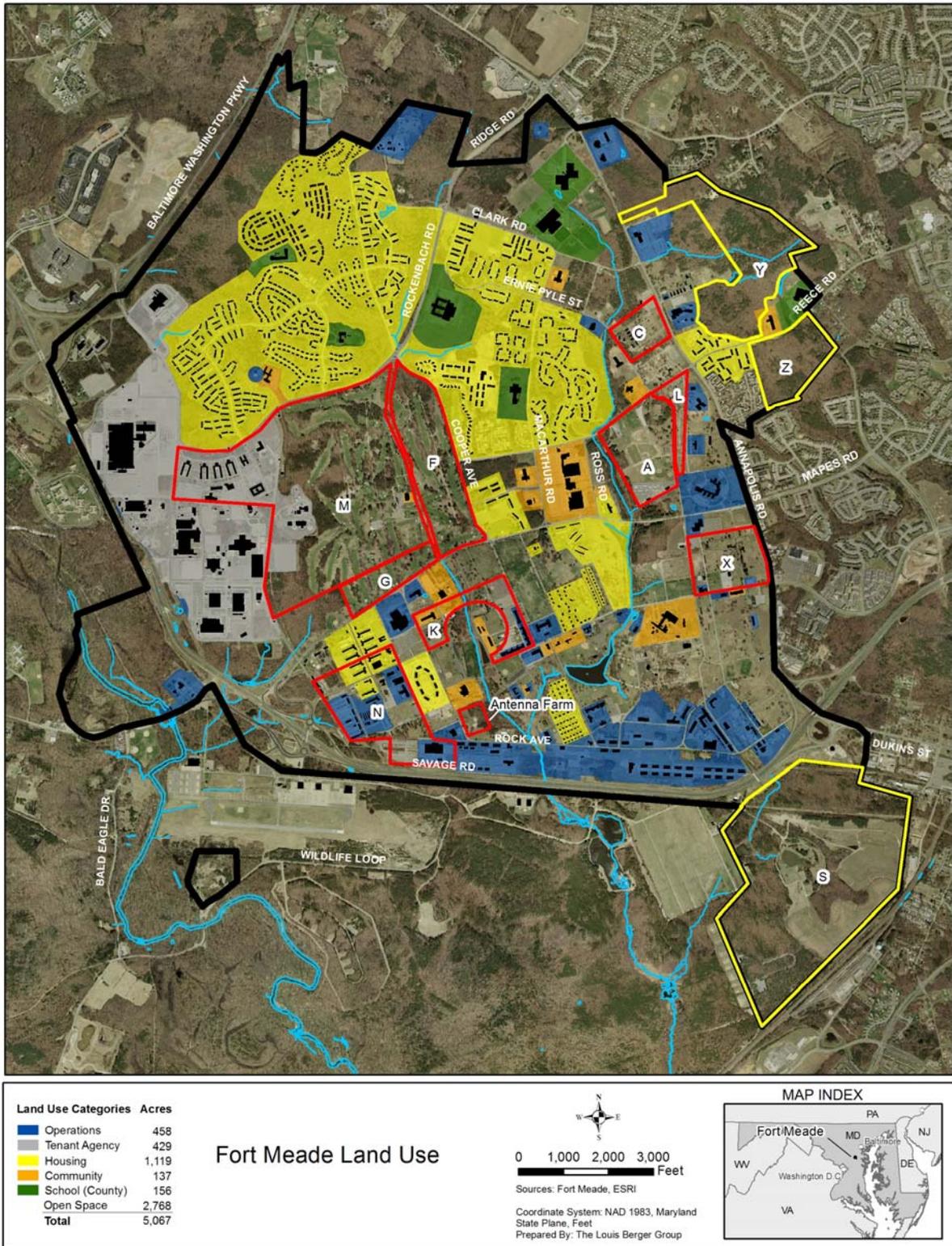
Fort Meade GIS, 2006

Land use categories at Fort Meade include operations, tenant agency, housing, community, school (Anne Arundel County), and open space. The land use categories are summary and further described as follows:

- **Operations** – Land use that facilitates installation and tenant operations including administrative, training and education, and industrial operations. Includes those areas used by the Environmental Protection Agency (U.S.EPA) and Architect of the Capitol.
- **Tenant Agency** – Not available.
- **Housing** – Land use that includes family housing, unaccompanied troop housing, and troop dining, and personnel support.
- **Community** – Land use that accommodates morale, welfare, and recreation (MWR) and related functions such as retail, recreation, fitness, and school age services.
- **School** – Land use that includes Anne Arundel County elementary, middle, and high schools.
- **Open Space** – Land use that includes undeveloped areas, forested areas, the golf courses, and the three EUL sites. Roads, paved areas (including parking), and small structures may be included.

Airspace Use – Fort Meade is located under the Washington DC Air Defense Identification Zone (ADIZ) where special regulatory flight restrictions apply to commercial and non-commercial pilots and aircraft. Pilots must at a minimum file a flight plan with the flight service station, have a working transponder, maintain radio communication with air traffic control (ATC), and receive a unique code from ATC for all flights in, out, or within the ADIZ. There are no military special uses or restricted airspace areas associated with Fort Meade.

Figure 4-1. Land Use Categories



4.2.1.3 Site Specific Land Use

The following provides site specific location and land use details for each of the sites identified in the alternatives and sub-alternatives. Refer to Figure 4-1 for site location and land use.

Sites M, F, and G – Open space and tenant agency land uses occur on Site M. Open space land use occurs on Sites F and G. Site M is 366 acres, Site F is 95 acres, and Site G is 31 acres. Together, the three sites total 492 acres. The sites are largely occupied by two 18-hole golf courses (Applewood and Parks) operated by the U.S. Army. The sites are bounded by O'Brien Road to the west, Mapes Road to the south, Cooper Avenue to the east, and Rockenbach Road to the north. For planning purposes, Fort Meade recently separated Sites F and G from Site M. Site G is located on Mapes Road east of Taylor Avenue. Site F runs the length of Cooper Ave and is separated from Site M by an intermittent stream.

The entire area was acquired by the War Department in 1917 and used for housing, training, and recreational purposes. Several early buildings constructed on the sites were subsequently removed to accommodate golf course operations since the late 1930s/early 1940s. Site M contains tenant agency facilities on the western portion of the site, two golf courses, and wooded areas, mainly to the west and north. (NSA, 2004).

Site A – Open space land use occurs on Site A. The site is 64 acres, and is located in the eastern portion of Fort Meade, west of MD 175 and south of Reece Road. The site is located east of Franklin Branch and extends from Reece Road south to an unnamed tributary of Franklin Branch. Site A is mostly occupied by soccer and baseball fields and parking areas. The wooded Franklin Branch stream valley extends along the entire western border of the site. A recreational vehicle storage yard (RV lot) occupies the southern end of the site. The RV lot is still present, but the only structure on Site A is Building 2724, located in the southeastern portion of the site. Building 2724 had various uses in the past including the preparation of military vehicles for shipment and a vehicle and equipment repair and maintenance shop. Youth Services presently uses it for storage of sports-related equipment (Fort Meade, 2005d).

Site C – Open space land use occurs on site C. The site is 23 acres, and is located near the eastern boundary of Fort Meade, north of Reece Road. The site is bounded on the west by Ernie Pyle Road and extends east almost to MD 175. The northern boundary parallels 20th Street, approximately 200 feet to the north and the southern boundary parallels 19th Street approximately 300 feet south of the street. Site C is mostly disturbed land, with a cluster of wood-framed barracks and offices in the west-central quadrant of the site and an open field with remnant asphalt surfaces in the east central quadrant. The southern 25 percent of the site is a wooded area that is bisected by Chisholm Avenue. Structures remain only on the northwest quadrant of Site C (Fort Meade, 2005d).

Site L – Open space land use occurs on site L. The site is 15 acres, and is adjacent to and east of Site A, extending east to Chisholm Avenue. It is bordered to the north by Reece Road and to the south by 13th Street. The eastern half of Site L is a disturbed area with many remnant asphalt surfaces and a lined drainage channel that runs north to south. The northeastern portion of the site is mostly wooded with abandoned asphalt roads and is distinguished by a topographic high that is known as Division Hill. No structures are present at the site; the only improvements are roadways and infrastructure (underground and aboveground utilities) (Fort Meade, 2005d).

EUL Site S – Open space land use occurs on Site S. The site is located in the southeast corner of the base and encompasses 367 acres of land. The site is shaped as a skewed pentagon. Rock Avenue forms the northern half of the northwestern boundary and the western half of the northern site boundary. Pepper Road and Magazine Road make up the southern half of the northwestern boundary. The eastern half of the northern site boundary is about 400 feet south of Odenton Road. Range Road (also known as Wildlife Loop) forms the western and southwestern boundary. The site is bordered to the southeast by Amtrak rail lines. The eastern boundary is bordered by commercial and undeveloped property. A former 90 acre sanitary landfill at this site ceased operations in 1996. The landfill was constructed as an unlined facility and was managed as two cells. While functioning, this facility was designated the active sanitary landfill. The landfill was used for the disposal of “mixed residential, commercial, and non-hazardous industrial wastes.” The landfill ceased operations in 1996 and the final cell was capped in 1998 (Fort Meade, 2005d). A methane collection and venting system and several groundwater monitoring wells are located on the site.

EUL Site Y – Open space land use occurs on Site Y. The site is an irregularly shaped parcel covering 127 acres of land located east of MD 175 and north of Reece Road. The site is bisected by a tributary of Severn Run and is almost completely undeveloped, wooded land. Several trails and streams/creeks run throughout the site. A small, circular sand clearing (location of a former incinerator) is located near the northern boundary of the site. Small slivers of low to high density residential, as well as institutional zones are located adjacent to the site’s northern and southwestern boundaries.

EUL Site Z – Open space land use occurs on Site Z. The site is 52 acres in size and is east of MD 175 and south of Reece Road. The site consists of undeveloped, wooded land. Three unimproved roads or trails, as well as several drainage ditches (possible intermittent streams) run throughout the site. The site abuts wooded land which eventually leads to a residential area.

Site X – Open space land use occurs on Site X. The site covers approximately 49 acres and is located on the eastern portion of the installation. The site is bounded on the east and west by Chamberlin Avenue

and Ernie Pyle Street and on the north and south by 10th and 8th Streets. The site is undeveloped with several significant trees spread throughout the site. A parking lot is located adjacent to the Office of Personnel Management (OPM) Center on the site.

Site N – Open space, housing, and operations land uses occur on Site N. The site occupies approximately 98 acres and is located on the southwestern portion of the installation between Mapes Road, O’Brien Avenue, Dutt Road, and Zimborski Avenue. Facilities on the site accommodate troop housing and support, training and education, dining, and motor pool lots. The road network within the site is arranged in a grid around existing facilities.

Site K – Open space, operations, and community land uses occur on Site K. The 39 acre site is irregularly shaped and is located east of the post’s headquarters and the parade ground and west of Taylor Street. Facilities with administrative and MWR functions are located on the site, as is parking.

Proposed Antenna Farm Site – Open space land use occurs on the antenna farm site. The site is 7 acres and is located north of Rock Avenue.

4.2.1.4 Surrounding Land/Airspace Use

Surrounding Land – The area around Fort Meade that was once mostly expansive farmland and open space is now characterized as a suburban area supporting Baltimore, Maryland and Washington, DC. Significant commercial, residential, and industrial growth has occurred in the area, and is projected to continue into the near future (Fort Meade, 2005a).

Fort Meade is surrounded to the north, west, and east by residential areas with low-medium density (2 to 5 dwellings per acre), medium density (5 to 10 dwellings per acre), and high density (10 or more dwellings per acre); commercial centers; a mix of industrial uses; and open space and undeveloped areas. Areas along transportation routes such as MD 198, MD 32, and MD 175 are moderately developed with mixed-uses, many of which cater to Fort Meade personnel and dependents. The majority of the Patuxent National Wildlife Refuge remains undeveloped and devoted to wildlife research and protection. To the southwest of Fort Meade adjacent to the western edge of NSA is 800 acres that houses the DC Oak Hill juvenile detention facility, which is characterized by an abundance of open space and undeveloped land surrounding clustered development.

Towns near Fort Meade include Odenton to the east, Jessup to the north, and Laurel to the west. Other significant developments within a few miles of the installation include the Maryland House of Corrections to the north; the Arundel Mills Mall Outlet and surrounding mixed-use developments to the northwest; and the Baltimore/Washington International Thurgood Marshall Airport to the northeast.

Surrounding Airspace Use – Fort Meade is located in Washington/Baltimore metropolitan area airspace, and near the following three major airports: Baltimore/Washington International Thurgood Marshall Airport to the northeast in Maryland, Washington; Dulles International Airport to the southwest in Virginia; and Ronald Reagan Washington National Airport to the southwest in Washington DC. Given the close proximity of these major airports and several National Capital Region military installations with active airfields and ranges, the airspace requires complex pilot/controller and controller/controller coordination and circuitous flight paths.

Tipton Airport, the former Army airfield, is bordered by Fort Meade and the Patuxent National Wildlife Refuge. The airport has a single 3,000 foot runway and is a general aviation facility that is home to several sport, recreational, private, public (Anne Arundel and Howard police departments helicopters), and business aircraft. No scheduled airline, commuter, or cargo services are planned or expected at any time.

4.2.2 Regional Land Use Planning

Anne Arundel, Howard, Montgomery, and Prince George’s Counties are defined as the Region of Influence (ROI) for Fort Meade. All four counties are located within the State of Maryland. This section provides a brief summary of current planning efforts and land use regulations by county, as well as the State of Maryland. Particular focus is given to proposed and on-going development in Anne Arundel County near the installation.

At a state level, Maryland has taken a leadership role in land use management and future development. The state has established a goal of restoring and protecting quality of life in established communities by addressing issues of state investment, economic growth, community revitalization, and resource conversion. Focus is placed on the following areas of smart growth:

- **Community Revitalization.** Protect older communities and direct new investment to these established areas.
- **Brownfields.** Increase efforts to cleanup and redevelop underused industrial sites.
- **Transit-oriented Development.** Build livable communities that provide more transportation choices, reduce congestion, and maximize transit investments.
- **Priority Funding Areas.** Streamline state regulations to make well-designed development easier to build inside the state’s designated growth areas.
- **Local Government Involvement.** Respect the local role of jurisdictions in land-use planning.

All counties within Maryland and the Fort Meade ROI have adopted general plans that guide their land use and zoning policies and ordinances. The Annotated Code of Maryland, Article 25A, provides the authority for counties within the state to plan and zone property.

- **Anne Arundel County Planning.** The county adopted its latest General Development Plan (GDP) in 1997. The 1997 GDP helps guide development, preservation and the location of public facilities in the county. Among the recommendations on how the county might better manage growth, conserve the environment, and meet residents' needs over the next 25 years, the plan suggests that the county direct its efforts on improvements such as sidewalks, roads, and schools within existing neighborhoods before building new facilities elsewhere. It encourages development within three town centers (known as the Glen Burnie Urban Renewal Area, Odenton Growth Management Area, and Parole Growth Management Area), around key MARC and Central Light Rail stations, and near existing commercial and employment centers (Anne Arundel County, 2006a).

Of particular relevance to Fort Meade is the amount and type of development occurring adjacent to the installation perimeter. The 1997 GDP projects that the majority of 55,000 new jobs generated over a 25-year period would be located in the western part of the county near Fort Meade, and Baltimore/Washington International Thurgood Marshall Airport.

Anne Arundel County has also developed localized plans and the county's Odenton Small Area Plan has the most relevance with respect to Fort Meade and is summarized as follows (Fort Meade, 2005a):

Odenton is and would continue to be one of the prime economic development regions of the county. Odenton lies within a strategic transportation corridor southwest of Fort Meade, a factor that has guided its historical development. It has abundant pedestrian, greenway, road, and rail connections.

Odenton has 37,916 residents or 7.74 percent of the total population in Anne Arundel County. From 1990 to 2000, Odenton's population increased by 34 percent. This population growth rate was significantly above the County's overall rate of 14.6 percent. By 2010, Odenton's population is projected to increase to 44,400. Between 1990 and 2000, the area's housing inventory increased by 5,132 units (61 percent). From 2000 through 2010, households in Odenton are projected to grow by another 2,920 units (23 percent).

Most of the employment growth is projected to take place at Fort Meade and the Odenton Town Center Area. Future growth, with a concentration in the Odenton Town Center, Fort Meade, and two Planned Unit Developments (Seven Oaks and Piney Orchard areas), would continue to pose challenges to traffic (both vehicular and pedestrian), adequacy of public services, neighborhood

conservation, and preservation of environmental resources. Highlights of this plan include the following items that would have a direct impact on the installation:

- Preservation of Streams and River
- Hiker/Biker Trail Connection
- Public Transit

Within the Odenton Small Area Plan, several sub-areas have been identified and have a direct impact on Fort Meade with respect to future development and planning.

- The Odenton Town Center is a 1,620 acre area located adjacent to and south of Fort Meade, which has an important economic influence on the area along MD 175. Odenton is one of three designated "Town Centers," in Anne Arundel County. Building heights are up to eight stories in the main area of retail and mixed use spaces southeast of the installation, with three to four story buildings comprising the Town Center along MD 175 across from the installation.
- The North Odenton Development Area immediately adjacent to Fort Meade along MD 175 is targeted for retail and office redevelopment and improvements with buildings limited in height to four stories. The expansion of MD 175 could increase traffic, impacting daily access to Fort Meade. However, additional retail and commercial development would increase the convenience to Fort Meade personnel and for industries that directly support the installation.
- The Village at Odenton Station area, adjacent to the proposed Fort Meade Golf Course south of MD 32, is a transit oriented development (TOD) featuring apartments and condos built over retail and restaurant space.

Other planned developments in or near Odenton include Parkside and Arundel Preserve. Parkside is being planned primarily as a residential community with limited office and retail space. Plans for this 210 acre development call for 80 percent residential development, which equates to approximately 1,000 townhouse, condo and single-family units, with 15 percent office and 5 percent retail. The 270 acre Arundel Preserve adjacent to Arundel Mills Boulevard will feature 1,170 residential units, including single-family homes, town-homes, and apartments. In addition, a 140-room hotel (from a brand to-be-named), a bank, an inline 10,000-square-foot strip retail center with a restaurant and one more pad site "that will probably be a gas station" is also part of the mix (The Business Monthly, 2006).

- **Howard County Planning.** The Howard County General Plan 2000 focuses on the county's transition from a rapidly growing jurisdiction to a "maturing" county. Policies for housing and

employment growth, agricultural preservation, and environmental protection are refined. With the county's land use patterns largely set, the next twenty years will see the build-out of this pattern and a shift toward renovation and redevelopment of older properties (Howard County, 2006).

Howard County's general plan depicts the southeastern portion of county adjacent to Anne Arundel County and closest to Fort Meade as an employment area and a redevelopment corridor along US Route 1. The county seeks to focus development in this area and just to the north, centered around Columbia.

- **Prince George's County Planning.** Approved by the County Council in October 2002, the Prince George's County General Plan provides long-range guidance for the future growth of the county. It identifies centers and corridors where intensive mixed use (residential, commercial and employment development) is to be encouraged. The plan also divides the county into three development tiers (developed, developing, rural) recognizing the different development goals and needs of different parts of the county. The plan also makes recommendations for infrastructure elements: green infrastructure, transportation systems, and public facilities. The plan includes guidance for economic development, revitalization, housing, urban design and historic preservation.

The foundation of general planning in the county for the last three decades was the "Wedges and Corridors" General Plan first developed in 1964 and updated several times since. The Wedges and Corridors name derives from the regional land use pattern it recommends. Planning for Montgomery County is also contained within this document which was created via the Maryland-National Capital Park and Planning Commission (M-NCPPC), a regional planning entity. The Maryland-National Capital Park and Planning Commission is a bi-county agency empowered by the State of Maryland in 1927 to acquire, develop, maintain and administer a regional system of parks within Montgomery and Prince George's Counties, and to prepare and administer a general plan for the physical development of the two counties (M-NCPPC, 2006).

- **Montgomery County Planning.** As with Prince George's County, M-NCCPC worked with Montgomery County to develop an overall vision for the county in the Wedges and Corridors General Plan first developed in 1964. Today, the county focuses on master and sector plans as a more localized tool for implementing planning while working in conjunction with M-NCCPC and under the umbrella of the Wedges and Corridor General Plan (M-NCCPC, 2006).

4.2.3 Environmental Consequences

Table 4-3 presents development area requirements (in acres) for the proposed BRAC projects including DISA; DMA; Adjudication; and the PX, Gym, and UPH. From Table 4-3, the maximum amount of land required for construction of one-story facilities and parking can also be calculated – 38 acres for buildings plus 53 acres for parking for total of 91 acres. Additional land may be required on a short-term basis to accommodate construction related equipment and supplies, as well as excavated material.

Table 4-3: Development Area Requirements

	SF	Acres			Parking Spaces
		1-Story	2-Story	Parking	
DISA	1,070,515	25	13	25	3,048
DMA	203,870	5	3	4	456
ADJ.	151,978	3	2	4	464
PX, GYM, and UPH		5	5	20	2,401
GRAND BRAC TOTAL		38	23	53	6,369

(Sources DD Form 1391s for DISA< Media, and Adjudication and application of Department of Defense Unified Facilities Criteria 2-000-05N, January 2005—Category Code Number 852-10 standards.)

4.2.3.1 No Action Alternative

No adverse effects would be expected to land use. Fort Meade would not implement the proposed BRAC realignment action and on-post land uses would not change. Organizations presently assigned to Fort Meade would continue to train at and operate from the post. No units would be reassigned to Fort Meade, and no new units would be established. Fort Meade 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 not feasible because BRAC actions are congressionally-mandated.

Under the No Action Alternative, the EUL actions would not be implemented. Sites Y and Z would not be leased to a private developer. Development on Sites Y, Z, and S would not occur. No new administration buildings would be construction on Sites Y and Z and no new golf facilities would be constructed on Site S.

4.2.3.2 BRAC Realignment and Enhanced Use Lease Actions Alternative (Preferred Alternative)

The preferred alternative (and its sub-alternatives) includes the implementation of the BRAC realignment actions and the DoD EUL actions.

BRAC Sub-alternative 2A (FGX Arrangement)(Preferred Site Location)

No significant adverse effects to land use would be expected. As many as 91 acres of land use would change from open space to operations, housing, and community use. The installation currently has 2,768 acres considered open space land use, and this action would result in a 3 percent loss in open space. Under this sub-alternative, BRAC realignment actions would occur at Sites F, G, and X; and all support facilities would be placed at Site G. The proposed BRAC (non-EUL) facilities would be constructed on the sites indicated below:

- DISA Administration, Site F
- Media and Publications Administration, Site G
- Adjudication Administration, Site X
- Support Facilities (PX, Gym, and UPH Barracks), Site G
- Vehicle storage (Centralized Parking Lot [specific site to be determined])

At the proposed BRAC sites, land use would be compatible with existing surrounding land use and for the most part consistent with the land use plan as proposed in the Fort Meade CEMP (Fort Meade, 2005a). Sites F, G, and X are previously disturbed and have been traditionally used for housing, training and recreational purposes. The most noticeable adverse impact would be on Sites F and G where several holes of the existing golf course would be developed and as many as 84 total acres of the sites' recreational, undeveloped, and forested land would be needed to accommodate DISA, Media, PX, Gym, and UPH functions. On Site X, as many as seven acres of open space would be developed to accommodate Adjudication Activities.

BRAC Sub-alternative 2B (FGK Arrangement)

No significant adverse effects to land use would be expected. As much as 59 acres of land use would change from open space to operations on Sites F and G, while 32 acres of land use would change from open space to operations, housing, and community use Sites N, K and M. The installation currently has 2,768 acres considered open space land use, and this action would result in a 3 percent loss in open space.

Under this sub-alternative, Adjudication would be located at Site K and the PX, Gym, and UPH would be dispersed between Sites F, N, K, and M. DISA and Media would be located at Sites F and G as described in the previous sub-alternative. Most of Sites F, K, N, and M are previously disturbed and traditionally used for housing, training, support, and recreational purposes. A beneficial effect of locating Adjudication at Site K is that such siting would allow for a clustering of like and compatible operational land use—the post's headquarters and several administrative functions are located in this area. Adverse effects to locating Adjudication Activities at Site K would be related to the site's configuration and existing structures, some of

which may restrict the development potential of the land when considering facility layout and AT/FP requirements. Visitors to Adjudication would also be required to travel further into Fort Meade.

BRAC Sub-alternative 2C (FGC Arrangement)

No significant adverse effects to land use would be expected. As many as 59 acres of land use would change from open space to operations on sites F and G; seven acres of land use would change from open space to operations on Site C; and 25 acres of land use would change from open space to housing and community support on Sites N, K, and M. The installation currently has 2,768 acres considered open space land use, and this action would result in a three percent loss in open space. Under this sub-alternative, Adjudication Activities would be located at Site C and the PX, Gym, and UPH would be dispersed between Sites N, K, and M. DISA and Media would be located at Sites F and G as described in the previous sub-alternatives. Adverse effects to locating Adjudication Activities at Site C would be related to encroachment on the on-post residential neighborhoods that are located adjacent to this more northern site. The Gym and PX would be located a greater distance from the barracks and administrative buildings, and it is preferred not to develop Site K with less mission sensitive uses such as a Gym or PX. On sites N and K, some redevelopment and the loss of the few acres of remaining open space may occur. In addition, a portion of the golf course on Site M would be replaced by UPH. Beneficial effects of locating Adjudication Activities at Site C are that it would be convenient for visitors.

BRAC Sub-alternative 2D (ALC Arrangement)

No significant adverse effects to land use would be expected. As much as 50 acres of land use would change from open space to operations on Site A; nine acres of land use would change from open space to operations on Site L; seven acres of land use would change from open space to operations on Site C; and 25 acres of land use would change from open space to housing and community support on Sites N, K, and M. The installation currently has 2,768 acres considered open space land use, and this action would result in a 3 percent loss in open space. Under this sub-alternative, DISA would be located at Site A, Media at Site L, and Adjudication at Site C. The PX, Gym, and UPH would be dispersed between Sites N, K, and M. Locating DISA at Site A and Media at Site L would work to cluster major development near the Reece Road Gate, and would have the beneficial effect of concentrating vehicles and traffic in this area, as opposed to the middle of the post as proposed in the previous sub-alternatives. This area is also close to INSCOM and has the advantage of close proximity to the main gate for access by external media. Adverse effects related to the locating DISA and Media on these sites is the lack of land build-out potential/developable space and the probability that parking structures may be required. The acreage of Sites A and L is also limited in comparison to the footprints required for facilities, parking, and to accommodate AT/FP.

Furthermore, relocation of the youth playing fields would be required and there are two cemeteries located on the proposed DISA site under this scenario—the Friedhofer and Gary cemeteries.

EUL Sub-alternative 2A

Significant adverse effects to land use would be expected at the EUL Sites Y and Z. Under this sub-alternative, administrative buildings would be constructed for an estimated 10,000 personnel on Sites Y and Z which are currently entirely open space (completely forested) land use and 127 acres and 52 acres, respectively. As many as 45 acres of open space (completely forested) would change to administrative uses at these two sites. There could also be a loss of wetlands and there would be a substantial increase in impervious surfaces on Sites Y and Z. Site S is 367 acres and while overall land use would remain open space, two 18-hole golf courses would be built on some open space areas consisting of forested land. Direct and indirect effects related to loss of trees/land cover and wetlands are addressed discussed in detail in Sections 4.7 (Water Resources) and 4.8 (Biological Resources).

Development would be constrained by requirements of the Fort Meade IDG and INRMP which would work to conserve natural resource areas. Though developing the EUL sites under this sub-alternative would be of least impact of the three EUL alternatives in terms of land use changes, significant loss of forested acres could occur even if Fort Meade development requirements are followed.

EUL Sub-alternative 2B

Significant adverse effects to land use would be expected at the EUL Sites Y and Z. Under this sub-alternative, administrative buildings would be constructed for an estimated 10,000 personnel on Sites Y and Z which are currently entirely open space (completely forested) land use and 127 acres and 52 acres, respectively. As many as 45 acres of open space (completely forested) would change to administrative uses at these two sites. There could also be a loss of wetlands and there would be a substantial increase in impervious surfaces on Sites Y and Z. Site S is 367 acres and while overall land use would remain open space, two 18-hole golf courses would be built on some open space areas consisting of forested land. Direct and indirect effects related to loss of trees/land cover and wetlands are addressed discussed in detail in Sections 4.7 (Water Resources) and 4.8 (Biological Resources).

Under this sub-alternative, development would encroach on natural resources and the Fort Meade IDG and INRMP would not necessarily be followed; however, regulatory and permit requirements would be adhered to.

EUL Sub-alternative 2C

Significant adverse effects to land use would be expected at the EUL Sites Y and Z. Under this sub-alternative, administrative buildings would be constructed for an estimated 10,000 personnel on Sites Y and Z which are currently entirely open space (completely forested) land use and 127 acres and 52 acres, respectively. As much as 45 acres of open space (completely forested) would change to administrative uses at these two sites. There could also be a loss of wetlands and there would be a substantial increase in impervious surfaces on Sites Y and Z. Site S is 367 acres and while overall land use would remain open space, two 18-hole golf courses would be built on some open space areas consisting of forested land. Direct and indirect effects related to loss of trees/land cover and wetlands are addressed discussed in detail in Sections 4.7 (Water Resources) and 4.8 (Biological Resources).

Under this sub-alternative, encroachment related to natural resources as a result of site development would be limited. Guidance in the Fort Meade IDG and INRMP would be followed as closely as possible.

Proposed Antenna Farm Site – Open space land use occurs on the antenna farm site. The site is seven acres and is located north of Rock Avenue. A 50 foot by 50 foot concrete pad and small non-occupied communications related facility is required to accommodate the antennas and related operational equipment. This would not represent a significant change in land use on the site under this or any of the alternatives.

4.2.3.3 BRAC Realignment Action Alternative

No significant adverse impacts would be expected. This is because land use on only as many as 91 acres of the installations total of 2,768 open space acres would change to operations, housing, and community uses. This represents a three percent loss of open space. The BRAC realignment action excludes the implementation EUL actions. On-post land use impacts would remain the same for all of the sub-alternatives presented above; however, this alternative does not include the potential development of EUL sites Y, Z, and S and land use on these sites would remain the same as current.

Impacts Similar for Alternatives 2 and 3

No adverse effects to land use would be expected. Impacts for the following resource areas would be similar regardless of the implementation of Alternative 2 or 3 and their sub-alternatives.

Surrounding Land/Airspace Use

No adverse effects to land use would be expected. All projects would be located within the Fort Meade installation boundary. None of the projects interfere with surrounding lands or airspace use.

Regional Land Use and Planning

All projects would be located within the Fort Meade installation boundary. 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. This demand would increase the demand for the build-out of open space and undeveloped areas.

County and state officials have been planning for the growth and future land use plans and zoning are designed to accommodate the growth. Anne Arundel County projected that most of the county's 55,000 new jobs over a 25-year period would occur in the western part of the county near Fort Meade, NSA, and Baltimore/Washington International Thurgood Marshall Airport. Howard County and Anne Arundel County are also focusing future commercial and residential growth in the area of the county near Fort Meade. Howard County's general plan depicts the southeastern portion of county adjacent to Anne Arundel County and closest to Fort Meade as an employment area and a redevelopment corridor along US Route 1. Maryland transportation planners have also been looking at improving paved surfaces and public transportation accessibility.

4.3 AESTHETICS AND VISUAL RESOURCES

4.3.1 Affected Environment

The installation has six visual zones based on the architectural character and land use patterns. These zones are different from land use categories discussed in the previous section. In addition, there are three overlaying visual themes; the Georgian Revival, community life, and industrial. Following section describes the six visual zones.

- **Administrative Zones:** four predominantly administrative areas comprise the southern, western, central, and eastern administrative zones. The southern administrative zone is one of the most prominent and visible areas of Fort Meade. It is conveniently located and houses important buildings such as the Pershing and Hodges Halls and the McGlachlin Parade field. While a mix of uses and varying building scales exist in this zone, continuity is maintained through frequent use of red brick on building facades and uniform building setbacks. Predominant architectural style in the older parts is Georgian Revival and Colonial Revival. Mature tree lined avenues and formal landscaping and road planning gives this area a historical look. The western administrative zone is located along MD 32, and is characterized by large modern buildings. Overall site planning mirrors a modern industrial park type character. The central administrative zone currently has a variety of support uses and would undergo significant transition under the proposed BRAC actions. The eastern administrative zone is located along MD 175,

and is characterized by relatively new buildings scattered amongst run down older WW II buildings. New buildings follow Georgian and Colonial Revival style of architecture (Fort Meade, 2005c).

- **Unaccompanied Personnel Housing (UPH) Zones:** two areas, first near the current NSA site and second in the 6th Cavalry (CAV) area comprise the UPH zone. This zone is characterized by several uses such as housing, administration, recreation, shops, dining halls, and chapels. With functions dedicated to the mission support of active military personnel, this zone is characterized with similar building layouts, uses and purpose, however, the architectural style is not Georgian or Colonial Revival. Buildings have painted masonry facades and lack adequate landscaping and outdoor site planning (Fort Meade, 2005c).
- **Residential Zone:** Is in three distinct areas; an area in the north of the installation, an area in the central administrative zone area, and an area located to the east of MD 175, comprise the Residential Zone. While the dominant use in this zone is family housing other support uses like schools, the chapel complex, convenience stores, and day care, etc., are also located in this zone. This zone has a very definite image directly related to its function. Architectural styles promoted for new construction are Craftsman, Urban, Seaside and Colonial (Fort Meade, 2005c).
- **Recreational Zones:** are scattered throughout the installation and include the centrally located golf course and its associated buildings, and the Burba Park in the south. These zones are characterized by jogging trails, wooded picnic areas, thick tree cover and green fields (Fort Meade, 2005c).
- **Community Support Zones:** located mainly in the southeast corner of the installation, this zone encompasses the post-exchange mall, the commissary, and Club Meade. With considerable new construction planned in the future, improved site planning, landscaping, and Colonial Revival architectural style can be incorporated (Fort Meade, 2005c).
- **Industrial Zones:** Industrial areas are scattered throughout the installation, however, Rock Avenue comprises the main industrial corridor. Adequate landscaping and comprehensive use of shaded trees along streets is missing in this area. Most buildings are old wooden warehouse type structures with the exception of a few new buildings with burnt red brick facades and green standing seam metal roofs (Fort Meade, 2005c).

As the installation has developed and land use patterns evolved, planning efforts have been to consolidate related uses, thus promoting a cohesive development pattern. Building styles on the installation vary from old WWII type structures and Georgian and Colonial Revival style to post modern brick and concrete buildings and prefabricated metal shed structures. Building styles are dependent upon their age, historical significance, function and location within the installation. The following section describes each proposed project site within the installation to capture separate and distinct surrounding character, context, densities, and viewsheds.

Site A

Site Character: This proposed project site is located in the Eastern Administrative Zone, to the east of the installation near the existing main exchange complex, bowling center and the commissary. The site is bound by Reece Road in the north and Ernie Pyle Road along the east. The new U.S.EPA building is located to the southeast of the site. Architectural style in the vicinity is mainly Georgian and Colonial Revival and the buildings have red brick facades with white bands and exposed concrete elements. All along the west and north is a dense forest cover that buffers the site from the residential area in the north and the commercial complex on the west.

Viewsheds: The main installation gate on Reece Road is located close to the north eastern corner of the site. Currently there are no significant existing structures on the site. The majority of the site is covered with open green areas and baseball and soccer fields. The site offers unobstructed views of the new U.S.EPA building and the youth center. It also offers a backdrop of mature trees all along the north, south and west, shielding a direct view to the OPM building, the bowling center, commissary, and the main exchange complex.



Site C

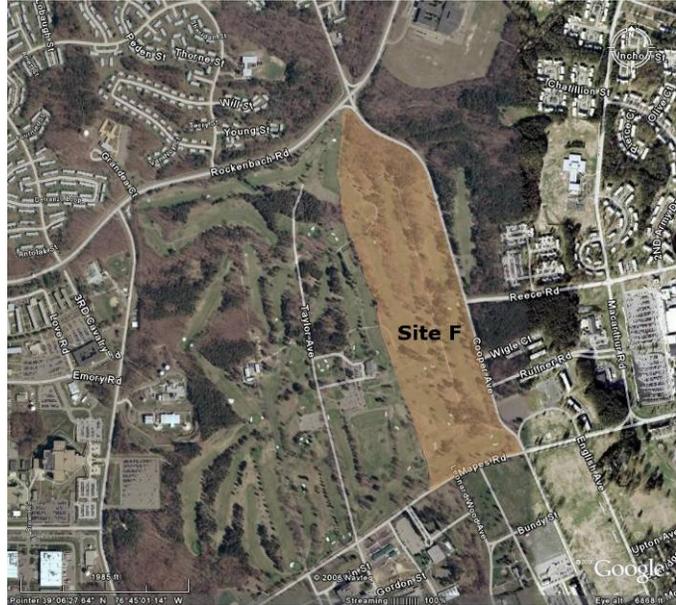
Site Character: This proposed project site is located in the Eastern Administrative Zone, to the east of the installation near the child development center and the youth center. MD 175 runs close to the eastern boundary of the site and Ernie Pyle Road runs along the west. The site is surrounded with trees on three sides, on the north, west, and south. The eastern side is close to the installation boundary and lacks shielding from the busy MD 175. Buildings around the site are scattered and not tied together through formal site planning.



Viewsheds: The main installation gate on Reece Road is located towards the south eastern corner of the site. Currently there are permanent structures along the southwestern edge of the site. Majority of the site is open with few scattered trees and shrubs. The site offers unobstructed views of the child development center in the south-west. It also has a backdrop of thick mature trees all along the north, south, and west.

Site F

Site Character: This proposed project site is located in the Central Administrative Zone and is bound by Cooper Avenue on the east and Mapes Road on the south. It is the preferred site for locating the DISA building. Midway Branch, a tributary of the Little Patuxent River, runs along the north and western edge of the site. A forest conservation area is located in the northern part of the site and extends south along the eastern side. The golf club house is located to the west of the site. Site F is surrounded by institutional buildings like the Pershing Hill elementary school and the MacArthur Middle School in the north, Manor View elementary school on the east and the DINFOS in the south. Consequently, the area offers a strong architectural character and formal site planning, and thus consistency in building materials, architectural style and site setbacks is important to compliment the surroundings.



Viewsheds: Site F sits on part of the existing Fort Meade golf course. There are thus no buildings on the site. Mature trees line the eastern edge of the site all along Cooper Avenue and are also scattered throughout the site. No significant viewsheds exist around the site. All the significant buildings and residential areas are sheltered behind thick tree cover.

Site G

Site Character: This proposed project site is located in the center of the installation, adjoining site F and to the south of site M. It is the preferred site for locating the DMA building. Mapes Road runs along the southern boundary of the site and Taylor Avenue runs through the middle. The site is located to the north of the DINFOS building. Adjacent to the site's western boundary is a thick forest cover forming a buffer between the site and the NSA campus.

Viewsheds: Site G sits towards the southeastern corner of the existing Fort Meade golf course. There are thus no buildings on the site. The site has a direct view of the DINFOS building on the southwest. The east and north have clear views of the proposed project sites F and M.



Site K

Site Character: This proposed project site is located in the Southern Administrative Zone, south of the existing Fort Meade golf course. The site is bound by Cooper Avenue in east, Gordon and Bundy Street in the north, and Taylor Avenue in the west. Leonard Wood Avenue cuts through the middle of the site connecting Mapes Road and Rock Avenue. There are numerous significant buildings on and around the site. Pershing Hall and Hodges Hall are located just outside the south-east corner of the site and are currently located in the Historic District. The Van

Damen, Tallmadge, and Nathan Hale Halls are located in the south-east corner of Site K and are part of the Historic District. Though these buildings are Georgian and Colonial Revival style brick construction classical buildings, years of modifications and additions have affected their appearance. Back facades of the buildings look old and site planning is interrupted with intermingled parking spaces, entry courts, and service areas that have been added over the ages. DINFOS building and Club Meade are located near the



Site M

Site Character: This proposed project site is located in the Western Administrative Zone and is bound by Rockenbach Road in the north, Mapes Road in the south and the Midway Branch, a tributary of the Little Patuxent River, in the east. O'Brien Road cuts through the western part of the site dividing it into two separate parcels, one encompassing all of the Fort Meade golf course and the other encompassing the 9800 area. While the 9800 area is built up, consisting primarily of barracks and administrative buildings, there are no significant structures on the golf course parcel. NSA campus is to the west of the site and the north has residential communities. Majority of the site has gently rolling contours with trees lining the existing golf course holes.



Viewsheds: The majority of the site currently has no significant buildings. Some old barracks (currently under renovation) and administrative buildings however, are located on the western side of the parcel. The site has open views to the proposed project site F and G and to the main NSA building. Mature trees line Rockenbach Road in the north and buffer the residential community from the site.

Site N

Site Character: This proposed project site is located in the southwest corner of the installation and is bound by O'Brien Road in the west, Rock Avenue on the south, and Zimborski Avenue on the east. Site N has existing buildings, mainly the DINFOS barracks, dining hall, McGill recreation center, Murphy field house, and other administrative functions. DINFOS building is located outside the north-east corner of the site and the proposed Antenna Farm is located to the south-east. The site is open on all sides, is close to the installation boundary and is partially shielded in the west from MD 32 by a green buffer.



Viewsheds: The majority of the site currently has no significant buildings or consistent architectural style. The DINFOS building is clearly visible from the site. The proposed Antenna Farm in the south-east corner will also be visible; however, the structure will not be significantly tall or obtrusive. The site is also close to the installation entrance gate at Mapes Road and would be visible to people traveling on Mapes Road.

Site S

Site Character: This proposed project site is an EUL site and is located inside the installation fence line on the perimeter of the property, in the south-west corner. MD 32 and MD 175 bound the north-west and north-east edges of the site, Wildlife Loop Road runs along the west and the MARC Penn transit line runs along the south and south-east boundary of the site. There is a closed landfill site with open monitoring areas in the eastern part of the site. The majority of the site is heavily wooded and buffered from the heavy traffic routes in the north.



Viewsheds: The site has clear views of the Odenton MARC station and the residential community on the south-east. It is not directly visible from the main installation and does not have viewshed to any other significant buildings.

Site X

Site Character: This proposed project site is located in the southeastern part of the installation and is bound by Ernie Pyle Street in the west, Llewellyn Avenue in the south and 10th Street in the north. It is the preferred site for locating the Adjudication Activities building. The eastern boundary of the site abuts against the installation fence line along MD 175. The DSS and U.S.EPA buildings are directly north of the site and the Kimbrough Ambulatory Care Center is located to the south-west. No significant structures exist on the site; however the site has an existing grid roads and mature trees lining the west, north and eastern roads. The campus like architectural character exists with surrounding buildings setback in large



landscaped plots and parking areas. Surrounding buildings incorporate the red brick building facades and a Georgian and Colonial Revival architectural style.

Viewsheds: The site has clear views of the OPM, U.S.EPA and the Kimbrough Ambulatory Care Center. It currently offers an extended campus to the OPM building.

Site Y

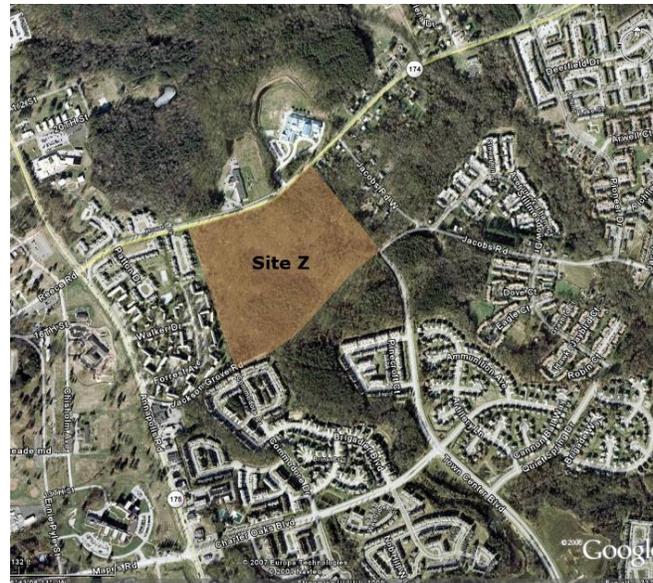
Site Character: This proposed project site is an EUL site and is located just outside the installation fence line towards the north-east. MD 174 and MD 175 run to the south and west of the site. The site is covered with thick vegetation and has no existing structures. Surrounding uses are mainly residential and administrative and the Meade Heights elementary school and School Age Service building are located to the south of the site.

Viewsheds: The site is visible from the MD 174 and MD 175 and is in a residential setting. The site has a clear view of the Meade Heights elementary school and it is close to the main installation residential areas as well.



Site Z

Site Character: This proposed project site is an EUL site and is located just outside the installation fence line towards the east. It is bound by MD 174 on the north and residential areas to the west. MD 175 (Annapolis Road) runs to the west and Jacobs Road runs to the east of the site. The site is covered with thick vegetation and has no existing structures. It is embedded in a residential area with mixed densities. The Meade Heights elementary school is located to the north of the site.



Viewsheds: The site is visible from the MD 174 and MD 175 and is in close proximity to proposed project Sites L and A within the installation fence line. There is a clear view of the Meade Heights elementary school in the north and a residential cluster in the west.

4.3.2 Environmental Consequences

4.3.2.1 No Action Alternative

No effects would be expected to aesthetics and visual resources. Under the No Action Alternative, no construction would occur within the proposed project sites. Consequently, there would be no impacts to the viewsheds encompassing these areas. There would be no large scale renovations and realignments to improve the overall architectural character and site planning of the base and thus similar uses would not be co-located within visual zones.

4.3.2.2 BRAC Realignment and Enhanced Use Lease Actions Alternative

BRAC Sub-alternative 2A

Significant long-term effects on the visual and aesthetics character would be expected. Under this alternative, the DISA building would be built on site F, Media building on site G and Adjudication building on site X. Site G would have support functions like the PX, Gym, and UPH.

The proposed development area is located in the Central and Eastern Administrative Zones. There are no substantial existing structures on the considered sites. Consequently, any new construction in these areas would have a significant effect on the existing character and viewsheds. New construction would be strongly encouraged to be in accordance with the Installation Design Guide (IDG) and architecturally would be encouraged to follow the Georgian Revival and Colonial Revival styles. The IDG¹ provides design standards for site planning (setbacks), buildings (heights, facades, materials, and architectural style), vehicular and pedestrian circulation, landscaping (street furniture), site elements (i.e. signage, utilities), force protection (bollards, berms, and setbacks), and sustainable design for incorporation into each new construction. Red brick facades and exposed concrete elements along with a campus type site planning with huge setbacks and formal landscaping would bring consistency in appearance to the passerby.

¹ In accordance with AR 210-20, Master Planning for Army Installations, the installation Real Property Planning Board (RPPB) is the adjudicating body for the Installation Design Guide at the installation level. Violations and variances from standards will be reviewed and adjudicated by the RPPB. The Design Team IDG Checklist will be completed by the design team to assure the guidelines and standards have been considered in the design process. The Designer of Record or Design Agent shall provide a copy of the completed checklist to the Master Planner, together with a signed certification statement with each design submittal. The checklist along with concept site plans and elevations for each design submittal shall be provided to the Master Planner for review. If the Master Planner or designated representative concurs, the plan and the signed checklist are forwarded to the RPPB for final approval.

Viewsheds would change significantly, however not negatively. Even though the existing golf course area offers exceptional views to the passerby, there are non conforming uses scattered in the landscape that can be improved and tied to the overall visual theme in the area. Mature large-diameter trees along the main roads and substantial vegetation areas would be preserved in accordance with the site development guidelines, thus the panoramic viewshed near these sites would give a campus like institutional feel with pockets of green areas. New construction would not degrade visual resources or block any sensitive public viewsheds. This alternative, however, is expected to add new sources of light in the area, thereby impacting site specific ambience but not the overall larger aesthetics.

BRAC Sub-alternative 2B

Significant long-term effects on the visual and aesthetics character would be expected. Changes to site character and viewsheds due to new construction on sites F and G would be the same as discussed under Sub-alternative 2A. Changes to existing character and viewsheds due to construction of support functions, like the barracks, on site M would also be significant since currently the site houses a golf course and there are no existing structures on it. Proposed UPH, however, could be designed and located to complement and mirror the existing residential land uses to the north of site M. New construction would be strongly encouraged to be in accordance with the Installation Design Guide (IDG) and architecturally would be encouraged to follow the Georgian Revival and Colonial Revival styles. Red brick facades and exposed concrete elements along with tree lined streets would bring consistency in appearance to the passerby. Additionally, the majority of the dense tree patches on the site can be preserved by careful site planning thereby preserving some of the visual character of site M.

Changes to site character and viewsheds due to new construction on sites N and K would not be significant. Sites N and K are currently built out with parts of site K falling in the Historic District. The majority of the existing buildings on these sites are old, dilapidated and in need of renovation and reorganization to improve floor plans and functional relationships. Housing areas lack adequate screening from adjacent high use areas, busy streets, and lack adequate landscaping and tree buffers. The proposed construction on site K might displace or reorganize some existing onsite uses like the arts and crafts center and the Smallwood Hall to accommodate the proposed functions more efficiently given the odd shape of the site. New construction would be encouraged to be in accordance with the IDG and architecturally would be encouraged to follow the Georgian Revival and Colonial Revival styles. Red brick building facades would bring consistency on the base. Viewsheds to the historic district, the museum, and the cultural areas would be preserved and/or framed through site sensitive building massing and blocking. Site planning will tie into the existing circulation patterns and landscaping can be used to

exaggerate the axis and focus in the historic district, thereby completing and enhancing the overall experience for a passerby.

Viewsheds around site N and K would be maintained by retaining the basic building footprints, height and volume; however, the character of the viewsheds might change due to newer and planned construction. Construction on sites N and K would not degrade visual resources or block any sensitive public viewsheds. Additionally, it would not add new sources of light in the area and thus would have no significant impact on the overall ambience and character.

BRAC Sub-alternative 2C

Significant long-term effects on the visual and aesthetics character would be expected. Changes to site character and viewsheds due to new construction, of DISA and DMA facilities on sites F and G, and barracks on site M, would be the same as discussed under Sub-alternatives 2A and 2B. Changes to site character and viewsheds due to new construction on sites K and N would not be significant and would be the same as discussed under Sub-alternatives 2A and 2B. Changes to site character and view sheds due to new construction on sites K and N would not be significant and would be the same as discussed under Sub-alternative 2B. Site C is primarily undeveloped and has a backdrop of trees on three sides, thus any new construction is likely to have a significant effect on the existing character and viewsheds. The current viewshed and site linkages to the child development center in the south-west can be maintained and formalized through adequate site planning and by incorporating consistently used building materials and architectural styles. The view to MD 175, however, can be buffered through setbacks and trees to cutoff traffic noise and to improve AT/FP measures. Site C is secluded and thus new construction would not degrade visual resources or block any sensitive public viewsheds. It would, however, add new sources of light in the area but would not significantly impact the overall ambience and character. There would be no change in the panoramic viewsheds looking onto the site because of significant tree cover on all three sides.

BRAC Sub-alternative 2D

Significant long-term effects on the visual and aesthetics character would be expected. Changes to site character and viewsheds due to new construction on site C would be the same as discussed under Sub-alternatives 2A and 2C. Changes to site character and viewsheds due to new construction on sites K and N would not be significant and would be the same as discussed under Sub-alternative 2B.

Changes to site character and viewsheds due to new construction on sites A and L are discussed below. Site A and L are located in the Eastern Administrative Zone and are primarily un-developed. Putting DISA and Media buildings on these sites would significantly impact the viewsheds in the area. Currently, the existing open play fields on the site share a relationship with the residential neighborhood to the north;

however, new construction would relate more with the institutional and administrative uses located to the south and would be in harmony with the larger theme of this administrative zone. Panoramic viewsheds to the site from north and west would not be affected significantly despite new construction due to the thick tree buffer. The passerby experience along Reece Road would change significantly. New construction incorporating surrounding architectural styles and material and in compliance with the IDG would create a positive experience near the Reece Road entrance gate. Viewsheds to the U.S.EPA building in the south can be maintained and linkages enhanced by appropriate site planning and landscaping. Construction on sites A and L would not degrade visual resources or block any sensitive public viewsheds. Additionally, it would not significantly impact overall ambience and character by adding new sources of light in the area.

EUL Sub-alternative 2A

Significant long-term effects on the visual and aesthetics character would be expected. Sites S, Y, and Z are heavily wooded and undeveloped. The effects of construction on the sites would be significant and would affect character and viewsheds in the area. In addition, new construction would result in significant loss of trees and forest habitat. The proposed buildings on sites Y and Z are administrative as opposed to the surrounding buildings, which are mainly residential with some administrative uses in the west along the installation fence line. In addition, the Meade Heights elementary school and School Age Service building located to the south of site Y would also be affected visually by the new development.

Viewsheds around sites Y and Z would change significantly and thus adequate green buffers would need to be maintained to separate the residential uses. Site S is being developed into golf course facilities, thus while the character of the site would change, there would be no significant impact on the viewsheds. Extensive landscaping in the golf course areas would enhance the overall experience of the passerby.

This alternative would follow the IDG and INRMP guidelines. New construction would not degrade visual resources or block any sensitive public viewsheds; however, this alternative is expected to add new sources of light in the areas around sites Y and Z, thereby impacting the overall ambience and character. Maintenance of a green buffer around the site would reduce this effect.

EUL Sub-alternative 2B

Significant long-term effects on the visual and aesthetics character would be expected. Extensive encroachment would occur and there would be extensive loss of wetlands and tree cover on Sites Y and Z. This alternative would degrade visual resources and would remove sensitive buffers shielding the residential areas. New sources of light would be added around sites Y and Z, thereby impacting the overall ambience and character.

EUL Sub-alternative 2C

Significant long-term effects on the visual and aesthetics character would be expected. Moderate effects to viewsheds would be expected around sites Y and Z. Moderate encroachment would occur and there would be loss of wetlands and tree cover. This alternative would degrade visual resources and would not provide sufficient buffer to shield the residential areas. New sources of light would be added around sites Y and Z, thereby impacting the overall ambience and character.

4.3.2.3 BRAC Realignment Action Alternative

This alternative implements the BRAC realignment actions mandated by the BRAC Commission Report and excludes the DoD EUL actions.

Significant long-term effects on the visual and aesthetics character would be expected. Changes to site character and viewsheds due to new construction under this alternative would be same as discussed under BRAC Sub-alternatives 2A, 2B, 2C and 2D.

4.4 AIR QUALITY

4.4.1 Affected Environment

Ambient air quality is protected by federal and state regulations. The U.S.EPA has developed National Ambient Air Quality Standards (NAAQS) for certain air pollutants, with the NAAQS setting concentration limits that determine the attainment status for designated criteria pollutants. The six criteria pollutants include 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). On the basis of the severity of the pollution problem, U.S.EPA categorizes nonattainment areas as marginal, moderate, serious, severe, or extreme.

Federal actions occurring in non-attainment areas are required to demonstrate compliance with the U.S.EPA general conformity guidelines established in 40 CFR Part 93. In Maryland, the Department of the Environment carries out mandates from the Federal Clean Air Act and administers air pollution monitoring, planning, and control programs to improve and maintain air quality. Maryland's air quality plans, also called State Implementation Plans (SIP), are designed to attain and maintain the NAAQS, and to prevent significant deterioration of air quality in areas cleaner than the standards. Federal agencies are required to ensure that their actions conform to the SIP.

Conformity, as defined in the Clean Air Act (CAA), means reducing the severity and number of violations of the NAAQS to achieve attainment of the standards for nonattainment regions. U.S.EPA has developed two distinctive sets of conformity regulations: one for transportation projects and one for nontransportation projects. The Fort Meade BRAC and EUL project is considered a nontransportation project. Nontransportation projects are governed by general conformity regulations (40 CFR Parts 6, 51, and 93), described in the final rule for *Determining Conformity of General Federal Actions to State or Federal Implementation Plans*, published in the *Federal Register* on November 30, 1993. The general conformity rule became effective January 31, 1994.

The federally designated Baltimore Metropolitan Planning Organization (MPO) is responsible for air and water quality programs, transportation planning, and emergency preparedness and public safety in a six-jurisdiction region, including Anne Arundel, Baltimore, Carroll, Harford, and Howard Counties, and Baltimore City (BMC, 2007). The Baltimore region, which includes the Fort Meade BRAC and EUL project area, does not currently meet federal standards for 8-hour ground-level ozone and fine particulate matter (or fine soot). Ground-level ozone (commonly known as smog) is formed by the combination of nitrogen oxides, volatile organic compounds, and sunlight. Fine particulate matter is a complex mixture of extremely small particles and liquid droplets. It is made up of a number of components, including acids (such as nitrates and sulfates), organic chemicals, metals, and soil or dust particles. Fine particles, such as those found in smoke and haze, are 2.5 micrometers in diameter and smaller (PM_{2.5}). These particles can be directly emitted from sources such as forest fires, or they can form when gases emitted from power plants, industries and automobiles react in the air

The proposed federal action at Fort Meade occurs within a moderate non attainment area for ozone and non-attainment for PM_{2.5}. Fort Meade is located in the Baltimore 8-hour Ozone Nonattainment Area (BNAA). The BNAA is classified as a moderate area under the 8-hour ozone standard and the entire state of Maryland is located within the Ozone Transport Region (Maryland Department of the Environment, 2007). The Ozone Transport Region (OTR) is composed of 11 states in the Northeast, including Pennsylvania, and the Washington, D.C., metropolitan area. According to U.S.EPA's general conformity regulations, the VOC *de minimis* threshold for projects in the OTR is 50 tons per year. The NO_x *de minimis* threshold for projects in the OTR is 100 tons per year. The *de minimis* phrase is applied to describe the estimated emission determinations that are below the U.S.EPA's established thresholds for air emissions caused by federally sponsored approved or funded activities in areas that do not meet the NAAQS. When federal actions are expected to produce emissions greater than the *de minimis* levels, the federal agency is required to show that emissions would not interfere with the goals of the SIP or the state's ability to attain and maintain the NAAQS.

For PM_{2.5}, the final rule established by the U.S.EPA is 100 TPY as the *de minimis* emission levels in areas under nonattainment for directly emitted PM_{2.5}. This 100 TPY emissions level is applicable separately to each of the precursors that form PM_{2.5}, such as sulfur dioxide (SO₂), NO_x, VOC, and ammonia. This means that if an action's direct or indirect emissions of PM_{2.5}, SO₂, NO_x, VOC, or ammonia exceed 100 TPY, a General Conformity determination is required. Neither the U.S.EPA nor State of Maryland, however, has found PM_{2.5} problems in the Baltimore airshed to be caused by VOC or ammonia. Therefore, ammonia is not further addressed by the EIS; while the VOC emissions are addressed (VOC is addressed as an ozone precursor).

Implementation of the proposed action would generate additional emissions at Fort Meade. Because the proposed federal action is located in ozone and PM_{2.5} non-attainment areas, conformity to the State Implementation Plans (SIP) is required.

4.4.1.1 Ambient Air Quality Conditions

The U.S.EPA has designated Anne Arundel County as a moderate non-attainment area for the pollutant ozone and non-attainment for the pollutant PM_{2.5}. The county is in attainment for all other criteria pollutants. Existing monitoring data are presented in Table 4-4.

Table 4-4. Existing Eight-Hour Ozone and PM_{2.5} Monitoring Data within Anne Arundel County

Monitoring Station –Pollutant	Year				
	2001	2002	2003	2004	2005
#240030014 – Queen Anne and Wayson Roads Ozone Particulate Matter 2.5	0.11/0.101 47/37	0.119/0.112 64/44	0.122/0.112 60/36	0.102/0.091 42/37	0.094/0.094 36/34
#240030019 – 9001 Y street, Ft Meade Ozone Particulate Matter 2.5	0.110/0.108 51/47	0.119/0.109 57/45	0.117/0.115 61/37	0.107/0.090 41/35	No Data
#240031003 – 7409 Balto and Annapolis Blvd Particulate Matter	48/41	60/46	61/39	43/38	40/39
#240032002 – 8515 Jenkins Rd Particulate Matter - #1 - #2	54/46 43/38	54/45 55/45	64/39 63/32	43/41 42/35	40/40 46/39

Values are in parts per million (ppm); 1st/2nd highest data
 NAAQS: Ozone – Eight-hour average = 0.08 ppm (0.085 is an exceedance)
 PM – 24 hour average = 65 (µg/m³)
 (Source: U.S.EPA, 2006c)

4.4.1.2 Air Pollutant Emissions at Installation

Fort Meade holds a Minor Synthetic Clean Air Act permit which allows for 25 TPY for each NAAQS pollutant for all installation sources including boilers, generators, underground storage tanks, and aboveground storage tanks. A Minor Synthetic Permit is defined as an industrial facility with an air permit that emits or has potential air emissions of greater than 25 tons per year of a criteria pollutant, yet the facility has elected to accept federally enforceable emissions limitations on their air permit which will limit emissions to less than 25 tons per year (KYDEP, 2006). Table 4-5 presents total emissions from all sources at Fort Meade.

Table 4-5: 2005 Total Emissions from All Sources at Fort Meade

Pollutant	Total Facility Emissions (TPY)
VOC	15.00
NO _x	8.00
CO	6.43
SO ₂	0.126
TSP*	0.585
PM ₁₀	0.585
PB	0.108

*TSP = Total Suspended Particulates

Source: Ft Meade, 2005e. Air Certification Report

4.4.2 Environmental Consequences

The project construction- and operations-related General Conformity analysis was performed for the proposed facilities and infrastructure developments, utility installation, and roadway construction or improvement within the project area. The applicability analysis estimated the level of potential air emissions (VOC, NO_x, SO₂, and PM_{2.5}) for each of the proposed alternatives. A separate analysis was performed for each alternative based on the average level of construction-related activities and for the average level of operations-related activities. It is assumed that the No Action Alternative would have no impact to air quality other than that which currently exists; therefore, it was not included in the analysis. Appendix B contains a detailed description of the assumptions and methodology used to estimate potential emissions for the construction and the operations phases of each alternative for the Proposed Action.

For purposes of analysis of Alternative 2, all EUL-related construction is assumed to occur over a four year period, beginning in mid-2008. All BRAC-related construction is expected to begin in mid-2008 and occur over a three year period, ending by mid-2011.

In Alternative 3, BRAC construction is assumed to occur over a minimum three-year time period, beginning in 2008. Emissions were estimated using square footage for construction and operation and are based on an even distribution of total construction per year for this Alternative. Any given year of construction is expected to be the same as any other year. A construction timeline for both alternatives is displayed in Figure 4-2. Actual construction dates could vary from these dates; these assumptions were chosen to maximize the potential emissions in any given year. Should the construction be delayed, the combined emissions would likely be less.

Figure 4-2: Construction Timeline – Alternatives 2& 3

Construction Action	Year and Quarter																									
	2008		2009				2010				2011				2012				2013				2014			
	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
BRAC	0.33		0.33				0.33																			
EUL Action	0.25		0.25				0.25				0.25															
	= Full Operation																									

Tables 4-6 and 4-8 summarize the total emissions associated with the construction and operation of the proposed facilities at Fort Meade. Construction related emissions would be temporary and only occur during the development period while operations emissions would occur throughout the life of the facility. When compared to the *de minimis* values for this non-attainment area of 100 TPY for PM_{2.5}, SO₂, and NO_x and 50 TPY for VOC, the emissions associated with implementation of the Proposed Action fall below the *de minimis* values. As a result the BRAC actions and EUL development are not subject to the General Conformity Rule requirements.

4.4.2.1 No Action Alternative

No adverse effects would be expected to air quality. Implementation of the No Action Alternative would not affect current air quality conditions.

4.4.2.2 BRAC Realignment and Enhanced Use Lease Actions Alternative

No significant adverse effects would be expected on air quality. Several years were evaluated to determine the peak year for emissions. The emissions for all years evaluated are shown in Table 4-6. The first year evaluated was June 2008 through June 2009, when one third of BRAC construction would occur and one fourth of the EUL construction would be occurring. The years of June 2009 through June 2011 would be identical to the initial peak year, but are also displayed in Table 4-6. No buildings would be operational at this point. The next peak year evaluated was June 2011 through June 2012, when all BRAC buildings would be in operation and one fourth of the EUL construction would still be underway.

The final year evaluated was the year following June 2012, when all of the operational emissions for all proposed buildings were combined to determine the long-term annual emissions.

Table 4-6: Total Annual Emissions for BRAC-Directed and EUL Actions (2008-2012+)

BRAC/EUL Activity	Total Emissions (TPY)			
	NO _x	VOC	PM _{2.5}	SO ₂
<i>de minimis</i> standards with moderate nonattainment for ozone	100	50	100	100
2008-2009 BRAC and EUL Construction	47.06	9.62	31.18	6.56
2009-2010 BRAC and EUL Construction	47.06	9.62	31.18	6.56
2010-2011 BRAC and EUL Construction	47.06	9.62	31.18	6.56
2011-2012 EUL Construction and BRAC Full Operation	25.04	4.498	12.17	3.14
2012- BRAC and EUL Full Operation	6.86	0.408	0.502	0.308

* This Table is comparable to Table 4-8 of the DEIS. For the line with the years 2011-2012, the numbers are comparable to Table 4-9 of the DEIS, describing the peak year emissions for BRAC operations and EUL construction.

Table 4-6 shows that the emissions associated with constructing and operating the proposed buildings at Fort Meade, when compared to the *de minimis* values for this ozone and PM_{2.5} non-attainment area of 100 TPY for NO_x, SO₂ and PM_{2.5}, and 50 TPY for VOC, fall below the *de minimis* values even under the initial conservative assumptions that were employed.

The Metropolitan Planning Organization (MPO) for the Baltimore Region was contacted regarding whether commuter vehicle emissions from BRAC and EUL actions have been included in the 2008-2011 Baltimore Region Transportation Improvement Program (TIP). Based on information received from the MPO, the BRAC-related commuter vehicle emissions have been included in the 2008-2011 Baltimore Region TIP. The EUL related commuter vehicle emissions will be included in the 2012-2015 TIP, which is scheduled for approval in 2008. Because the commuter vehicle emissions from BRAC and EUL operations are included in the Baltimore Region TIP, these emissions are already accounted for and have been removed from the General Conformity Determination Applicability Analysis for the BRAC and EUL operations. As a result, the BRAC related commuter vehicle VOC emissions of 29.50 tons per year (TPY) and the EUL related commuter vehicle VOC emissions of 55.02 TPY that were previously included in the Draft Environmental Impact Statement have been removed from the General Conformity Determination Applicability Analysis. With the removal of BRAC and EUL commuter vehicle emissions from the General Conformity Determination Applicability Analysis, the annual operational VOC emissions are reduced to 0.408 TPY, which does not exceed the 50 TPY *de minimis* level for VOCs.

Air emissions were also evaluated to determine regional significance. The *Baltimore Nonattainment Area 8-Hour Ozone State Implementation Plan (SIP) and Base Year Inventory* (MDE, 2007) sets forth daily target levels of 15.96 tons per day of VOC and 92.36 tons per day (TPD) of NO_x for point sources within the Baltimore ozone non-attainment region for the year 2009. The SIP also sets target levels for non-road emissions from sources such as construction vehicles. Target levels for non-road emissions are set at 51.94 TPD for VOC and 38.59 TPD for NO_x. Assuming 240 workdays per year, the average daily emission rates for each of the emissions sources are displayed in Table 4-7. The increase in annual emissions from the construction and operations activities would not make up ten percent or more of the available regional emission inventory for VOC or NO_x and would not be regionally significant. Air quality impacts are therefore not considered to be significant.

Table 4-7: BRAC and EUL Emissions by Source and Percentage of Baltimore SIP

Source of Emissions	BRAC and EUL Emissions (TPD)		SIP target levels (TPD)		Percentage of SIP (%)	
	NO _x	VOC	NO _x	VOC	NO _x	VOC
Non-Point	0.16	0.039	38.59	51.94	0.41%	0.08%
Point	0.028	0.001	92.36	15.96	0.03%	0.01%

Source: MDE, 2007

Additionally, there is no SIP in place for the newly promulgated PM_{2.5} regulations. The Baltimore, MD region has three years to implement a SIP that will create a regional emission inventory for the pollutant PM_{2.5} (U.S.EPA, 2006). A signed Record of Non-Applicability (RONA), stating that no General Conformity Analysis is needed, is available in Appendix B.

4.4.2.3 BRAC Realignment Action Alternative

No significant adverse effects would be expected on air quality. Construction activities would be spread out evenly for three years, followed by operations. Therefore, construction and operations emissions would not overlap. Emissions from construction activities would therefore be the same for each of the year from 2008-2011. Emissions from operations would peak in 2012, when all buildings would become operational.

Table 4-8: Total Annual Emissions for BRAC-Directed Actions (Alternative C) (2008-2011+)

BRAC Activity	Total Emissions (TPY)			
	NO _x	VOC	PM _{2.5}	SO ₂
<i>de minimis</i> standards with moderate nonattainment for ozone	100	50	100	100
2008-2009 BRAC Construction	26.58	5.41	17.41	3.716
2009-2010 BRAC Construction	26.58	5.41	17.41	3.716
2010-2011 BRAC Construction	26.58	5.41	17.41	3.716
2011- BRAC Full Operation	4.563	0.288	0.332	0.295

* This Table is comparable to Table 4-10 in the DEIS, describing the construction and operations emissions for the BRAC-Directed Actions. As explained in the Table 4-10, BRAC construction and operations emissions would not overlap, as also evidenced in the table above.

Table 4-8 shows that the emissions associated with constructing and operating the proposed buildings at Fort Meade, when compared to the *de minimis* values for this ozone and PM_{2.5} non-attainment area of 100 TPY for NO_x, SO₂ and PM_{2.5}, and 50 TPY for VOC, fall below the *de minimis* values even under the initial conservative assumptions that were employed. The BRAC Realignment Action Alternative is not subject to the General Conformity Rule requirements.

Air emissions were also evaluated to determine regional significance. The *Baltimore Nonattainment Area 8-Hour Ozone State Implementation Plan (SIP) and Base Year Inventory* (MDE, 2007) sets forth daily target levels of 15.96 tons per day of VOC and 92.36 tons per day (TPD) of NO_x for point sources within the Baltimore ozone non-attainment region for the year 2009. The SIP also sets target levels for non-road emissions from sources such as construction vehicles. Target levels for non-road emissions are set at 51.94 TPD for VOC and 38.59 TPD for NO_x. Assuming 240 workdays per year, the average daily emission rates for each of the emissions sources are displayed in Table 4-9. The increase in annual emissions from the construction and operations activities would not make up ten percent or more of the available regional emission inventory for VOC or NO_x and would not be regionally significant. Air quality impacts would therefore not be considered to be significant.

Table 4-9: BRAC Emissions by Source and Percentage of Baltimore SIP

Source of Emissions	BRAC Emissions (TPD)		SIP target levels (TPD)		Percentage of SIP (%)	
	NO _x	VOC	NO _x	VOC	NO _x	VOC
Non-Point	0.11	0.022	38.59	51.94	0.29%	0.04%
Point	0.02	0.001	92.36	15.96	0.02%	0.01%

Source: MDE, 2007

4.5 NOISE

4.5.1 Affected Environment

Background on noise as it relates to Army installations is presented, followed by a description of the affected environment as it relates to noise at and surrounding Fort Meade. This includes a description of regulatory requirements established by the State of Maryland and Anne Arundel County.

Noise and Army Installations

Noise is unwanted sound. Sound is all around; sound becomes noise when it interferes with normal activities such as speech, concentration, or sleep. Noise associated with military operations is of concern in communities surrounding many military installations, and noise is also of concern within installations.

Recognizing that its activities and equipment can generate potentially annoying noise levels, the U.S. Army has implemented an Army-wide operational noise program. The U.S. Army Center for Health Promotion and Preventive Medicine (USACHPPM) serves as the center of excellence for the noise program which seeks to "Provide expertise, studies and consultations, for the unique noise generated in the course of military operations, testing and training, to protect the health and welfare of our soldiers, civilians and surrounding communities."

Noise at and Surrounding Fort Meade

Fort Meade is considered a relatively quiet installation with no notable sources of noise. The post does not have an airfield, heavy industrial operations, or heavy weapons ranges. The main source of noise on Fort Meade is vehicular traffic. Other sources of noise on the installation include the normal operation of HVAC systems; military unit physical training; lawn maintenance; snow removal; and general maintenance of streets and sidewalks. None of these operations or activities produces excessive levels of noise. Short-term noise is also generated by construction activities.

Off-post, the primary outdoor community noise sources are the local airports and highways. According to USACHPPM Environmental Noise Study No. 52-EN-7279-01 (Oct. 2001), because these sources are not under control of Fort Meade, there is no requirement for an installation Environmental Noise Management Plan at this time (Marquardt, 2006). Nevertheless, there is a requirement to protect Army family housing from high noise levels and noise measurements have been captured nearby. The highest noise exposure in family housing was found at quarters located on MD 175, where the exposure was "normally incompatible" with residential use at those quarters located closest to the highway. Noise at the intersection of MD 175 and Reece Road, located just south of the housing area, was measured at 73.7

decibel (dB) for peak and 80.1 for off-peak traffic hours (Source: Final EA of the Implementation of the Army Residential Communities Initiative at Fort Meade, MD, USACE, June 2001. Further off-post, the primary sources of noise in Anne Arundel County are as follows: heavy industry, transportation including vehicular, air, and construction.

4.5.1.1 Noise from Construction and Demolition

The State of Maryland (Code of Maryland [COMAR] 26.02.03.03 A(2)(a)) and Anne Arundel County require that noise levels from construction or demolition activities must not exceed 90 decibels A-weighted (dBA) at the boundaries of the construction/demolition site during daytime hours (i.e., 0700-2200 hours) (COMAR 26.02.03.03 and Anne Arundel County, 2006b).

Additionally, construction activities must not permit prominent discrete tones and periodic noises (e.g., dump truck tailgate banging) that exceed a level that is 5 dBA lower than the noise level standard established in these requirements. Blasting operations associated with construction and demolition activities are exempt from COMAR regulatory requirements for noise during daytime hours. Noise can also affect the health of construction/demolition workers. OSHA standards for occupational noise exposure associated with construction (29 CFR 1926.52) would be applicable.

Contractors at Fort Meade are familiar with these requirements, and Fort Meade requires that they abide by them when constructing or demolishing on-post.

4.5.1.2 Noise from Facility Operations

The State of Maryland (COMAR 26.02.03.02 and 26.02.03.03, 1974) has established environmental noise standards that set maximum allowable noise levels for receivers located in industrial, commercial, and residential districts. The regulatory limits for noise levels for receivers in residential areas are 65 decibels (Type A; dBA) during daytime hours (0700-2200 hours) and 55 dBA at night (i.e., 2200-0700 hours.). The regulatory limit for noise levels for receivers in industrial areas is 75 dBA anytime. Noise levels exceeding maximum standards are not permitted beyond the property line of the source.

Most of the more sensitive noise receivers such as residential areas surrounding Fort Meade are located east of MD 175, and noise from facility operations is not an issue. The closest residential neighborhoods are generally located several hundred feet from any facilities on the installation. Fort Meade reports no issues with respect to surrounding sensitive noise receivers, and the installation would make efforts to abide by the above requirements if it were found in violation of them.

4.5.1.3 Noise from Vehicles and Transportation

Vehicle use at Fort Meade consists of passenger vehicles, delivery trucks (tractor semi-trailers), and military off- and on-road vehicles, with passenger vehicles the most prevalent. Tractor semi-trailers are used for delivery supplies and large cargo. Military on-road vehicles would be similar to those owned/operated by civilians. Military off-road vehicles include some modified on-road vehicles for off-road use, and wheeled troop and supply transport and fighting vehicles; tracked vehicles do not operate at Fort Meade.

4.5.2 Environmental Consequences

4.5.2.1 No Action Alternative

No adverse effects would be expected related to noise. 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 BRAC Realignment and Enhanced Use Lease Actions Alternative

Noise from Construction and Demolition

No significant adverse effects would be expected related to noise from construction and demolition. Contractors would be expected to adhere to State of Maryland and Anne Arundel County requirements. However, short-term adverse effects would be expected during the construction of each of the proposed projects. Sites near sensitive noise receivers, such as on-post and off-post residential communities along MD 175 and Reece Road, would be impacted by construction related noise on EUL Sites Y and Z. There are homes with backyards that abut Sites Y and Z, bringing residents within a few hundred feet of potential construction. Occupants of the Meade Heights Elementary School and Fort Meade School Ages Services Building would also be impacted during construction at these sites, for these facilities are also located adjacent to Site Y and Z and within a few hundred feet of potential construction. On-post residential and troop housing areas near Sites M, F, and G (the exiting golf courses) would be impacted, for development in these areas is located adjacent to Sites M, F, and G.

Noise impacts during the construction and any demolition phases would be mitigated by confining construction activities to normal working hours and employing noise-controlled construction equipment to the greatest extent possible. Furthermore, arrival of heavy equipment and materials could 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 Facility Operations

No significant adverse effects would be expected related to noise from facility operations. Once the facilities are constructed, noise would be generated by facility operations and vehicles traveling to and from the facilities. It is unlikely that noise that exceeds community regulatory levels would emanate from the DISA, DMA, Adjudication, EUL administrative offices and golf courses, and BRAC supporting facilities, once operational. The DISA, DMA, Adjudication, and EUL developments are primarily administrative in nature.

Any impacts related to noise from facility operations could be further mitigated by applying the post's Installation Design Guide which provides guidance on landscaping methods that help buffer or attenuate sound (Fort Meade, 2005c). This guidance could be applied during the planning and design phase of projects.

Noise from Vehicles and Transportation

No significant adverse effects would be expected related to noise from vehicles and transportation. Although facilities such as DISA and DMA which operate 24/7 would serve as continuous nodes of vehicle use, efforts would be made to minimize traffic on local roads that transverse the housing areas to the north. Internally, most on-post traffic would be dispersed throughout the post's main feeder roadways on and south of Reece Road. Also, vehicle noise would be distributed throughout the day (peaking at the beginning and end of the normal working day) and would be minimal compared to noise produced on roads exterior to the post including MD 32, MD 175, and Baltimore-Washington Parkway. At the EUL sites, traffic ingress and egress would likely occur directly from Reece Road. Off-post, the State of Maryland may choose to address vehicle noise while implementing the several proposed upgrades (see transportation section for a list of state roadway improvement projects in the area).

4.5.2.3 BRAC Realignment Action Alternative

No significant adverse effects would be expected related to noise. Noise impacts would remain the same for all of the BRAC realignment actions as presented above.

4.6 GEOLOGY AND SOILS

4.6.1 Affected Environment

4.6.1.1 Geologic and Topographic Conditions

Fort Meade has approximately 210 feet of topographic relief. The highest point, 310 feet mean sea level (msl), occurs at the First Army Radio Station Tower, located in the northern most central portion of the

installation. The lowest elevation, less than 100 feet, occurs in the southwestern corner of Fort Meade, along the Little Patuxent River. Most of the installation slopes gradually to the south and southwest. Slopes exceeding ten percent are rare and occur primarily in pockets in the north-central and central parts of the installation and along stream corridors. These steep slopes usually occur in natural wooded areas, and are ideally suited as vegetated buffer zones for more developed areas. The southern half of Fort Meade contains gradual slopes, generally less than six percent (Fort Meade, 1999). The majority of the land at Fort Meade is suitable for building.

Fort Meade is in the Atlantic Coastal Plain Physiographic Province. It is underlain by a wedge-shaped mass of unconsolidated sediments that thickens to the southeast. The unconsolidated sediments overlie crystalline rock of Precambrian to early Cambrian age. The crystalline bedrock underlying Fort Meade consists of gabbro, diorite, and other igneous and metamorphic rocks. The surface of these rocks dips to the southeast and acts as a lower confining layer for the Potomac Group. The premise that the crystalline basement rock acts as a confining layer is based on the low conductivity of similar crystalline rocks in the Maryland Piedmont (Fort Meade, 1999).

The series of thick, unconsolidated sediments underlying Anne Arundel County are subdivided (from oldest to youngest) into the Potomac Group, Magothy Formation, and Patuxent River terraces and associated alluvium. The Potomac Group contains five geological units, three of which underlie Fort Meade: the Arundel Clay, the Patuxent Aquifer, and the Lower Patapsco Aquifer. The Arundel Clay is a unit with low vertical hydraulic conductivity and is the confining layer between the Patuxent and Lower Patapsco aquifers. It is visible in northern Anne Arundel County and consists of red, brown, and gray clay with some ironstone nodules and plant remains (Fort Meade, 1999).

Above the Lower Potomac Aquifer is an unnamed confining layer composed of tough variegated clay that separates it from the Upper Patapsco Aquifer. Alluvium underlies all of the rivers, streams, and marshes of Fort Meade and consists of interbedded sand, silt, and clay with small gravel inclusions (Fort Meade, 1999).

4.6.1.2 Soils

At Fort Meade there are 39 distinct soil mapping units (Fort Meade 1999). Most of the soil is part of the Evesboro complex. Evesboro soil is a very deep, well-drained to excessively-drained, sandy loam soil on uplands. These soils are easily worked over a wide range of moisture content. These soils are subject to erosion, particularly soil blowing, when their surface becomes dry and is not covered by protective vegetation. These soils make good building sites, but may be unstable on steep cuts or slopes where the sand is not confined (USDA, 1973). Modified soil areas within Fort Meade include loamy and clayey

land, urban land, cut and fill areas, and gravel and borrow pit operations. Loamy and clayey land consists of mantles of various kinds of soil that overlie clay deposits, but which are unrelated to the underlying subsoil. Urban land comprises those areas in the vicinity of pavement and buildings. Cut and fill land consists of severely disturbed areas of miscellaneous soil types that have been altered by earth-moving equipment. (USDA, 1973).

Table 4-10 lists the typical soil units identified at Fort Meade within the proposed project sites and characterizes them by slope percent, soil Erodibility (K factor), and their limitations to development. The percentage of the site covered by each type of soil is also shown. The soil erodibility or K factor refers to the soil's susceptibility to water erosion. A high K factor indicates a greater susceptibility. The Anne Arundel County Code, 5 2-101 (22E), defines soil in highly erodible lands (HEL) as soil with a slope greater than 15 percent and soil with a K value greater than 0.35 and with slopes greater than 5 percent. None of the areas proposed for construction are classified as HEL.

Development limitations on Fort Meade are defined primarily by slope and areas of wetness caused by seasonal high water. Soil having "severe" limitations to development is generally unfavorable for the construction of small commercial buildings. Soil having "moderate" building limitations exhibits few constraints, whereas soil having "slight" building limitations has little or no development constraints. In all cases, sites should be evaluated individually to determine the extent of development limitations specific to that location (Table 4-10).

4.6.1.3 Prime and Unique Farmlands

Within Fort Meade, the only soil type considered to be a prime farmland soil is Woodstown Sandy Loam, which covers approximately 1.8 percent of the Installation (Table 4-10). Prime farmland is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops. The land must also be available for these uses (cropland, pasture land, forestland, or other land, but not water on urban built-up land). Prime farmland has the soil quality, growing season, and moisture supply needed to economically produce sustained high yields of crops when treated and managed, including water management, according to acceptable farming methods (NRCS, 2005). Prime farmland does not include land already in or committed to urban development or water storage; however, land utilized or designated for commercial, industrial or residential purposes is therefore, categorically excluded from consideration. While there are soils within Fort Meade classified as Prime Farmland soils, because no land within the installation is available for agricultural production, it is not regarded as prime farmland.

Unique Farmland is land other than prime farmland that is used for production of specific high value food and fiber crops. It has the special combination of soil quality, location, growing season, and moisture supply needed to economically produce sustained high quality or yields of specific crops (NRCS 2005). Because there is no agricultural production within Fort Meade, no land within the installation is considered Unique Farmland.

Table 4-10. Soil Types and Their Characteristics Found at the Proposed Project Sites

Soil Unit Name	Soils Units Within Project Site	Slope Percent	K Factor	HEL*	Development Limitation for Small Commercial Buildings	Percentage of Entire Installation
Bibb-Iuka Silt Loams	A, S	Nearly level	0.37	N	Severe: flooding, wetness	4.7%
Downer Loamy Sand	Y	2 to 5	0.20	N	Slight	2.1%
Downer Loamy Sand	S, Z	10 to 15	0.20	N	Severe: slope	0.8%
Evesboro Loamy Sand	A, F, G, M, Z	0 to 5	0.20	N	Slight	9.6%
Evesboro and Galestown Loamy Sands	A,	5 to 10	0.20	N	Moderate: slope	7.2%
Evesboro and Galestown Loamy Sands	S	10 to 25	0.20	P	Severe: slope	1.8%
Evesboro-Urban Complex	G, K, L, N, X	0 to 15	0.20	N	Slight to Severe: slope	23.2%
Fallsington Sandy Loam	S	Mostly level	0.24	N	Severe: wetness	4.0%
Hambrook Sandy Loam	Z	2 to 5	0.28	N	Slight	1.4%
Hambrook Sandy Loam	S	5 to 10	0.28	N	Moderate: slope	1.2%
Hammonton-Urban Land Complex	Y	0 to 5	0.32	N	Moderate: wetness	0.2%
Keyport Sandy Loam	Z	5 to 10	0.37	Y	Moderate: wetness, shrink-swell, slope	0.5%
Keyport Silt Loam	C, Z	0 to 2	0.43	N	Moderate: wetness, shrink-swell	0.9%
Keyport Silt Loam	C, Y	0 to 5	0.43	N	Moderate: wetness, shrink-swell	2.7%
Muirkirk-Urban Complex	S	0 to 5	0.17	N	Slight	5.3%
Sassafras Sandy Loam	Y	2 to 5	0.28	N	Slight	0.2%
Sassafras Sandy Loam	Y	5 to 10	0.28	N	Moderate: slope	0.5%
Udorthents	S	0 to 15	0.20	N	Severe: wetness, slope	5.0%
Urban Land	A, K	NA	NA	N	Variable	8.0%
Woodstown Sandy Loam	Y	0 to 2	0.32	N	Moderate: wetness	1.8%

Source: Fort George G. Meade Soil Survey 1999 Integrated Natural Resource Management Plan

*HEL are highly erodible lands as defined in the Anne Arundel County Code § 2-101 (22E).

Key: Y = Yes, soil is HEL
 N = No, soil is not HEL
 P = Potential, soil is potentially HEL
 N/A = Not available

4.6.2 Environmental Consequences

4.6.2.1 No Action Alternative

No adverse effects to geology and soils would be expected. Implementation of the No Action Alternative would result in no changes to the sites being considered under the proposed action. There would be no new construction or demolition, and as a result, there would be no impacts to geology, topography, soils, or Prime and Unique farmlands.

4.6.2.2 BRAC Realignment and Enhanced Use Lease Actions Alternative

Geologic and Topographic Conditions

No significant adverse effects to geological and topographic conditions would be expected. The proposed construction and operation of the proposed BRAC and EUL would not noticeably alter the geologic of the project area. All of the construction sites under the proposed action are, for the most part, currently developed, or previously disturbed or altered and would likely require minor leveling and grading. Development of the golf courses on Site S would result in changes to the overall topography associated with the course designs. The primary effects from construction would include disturbances to the current topography. These disturbances to topography would not be considered significant since they would only affect portions of the proposed 367-acres of golf course.

Soils

No significant adverse effects to soils would be expected. Under the BRAC Realignment and EUL Actions Alternative, it is estimated that up to 91 acres of soils would be adversely impacted from the demolition, construction, and renovation of structures associated with the proposed DISA Administration Buildings, Media Administration Buildings, Adjudication Administration Buildings, and associated buildings and parking facilities. The actual total acreage is dependent upon the design and layout of the different structures, the number of buildings required to meet the need of the project, securing sufficient space for parking facilities, and accounting for the constraints of each of the proposed sites. The total actual area would not be known until the design phase of the project.

During construction, soils found within the footprints of the proposed new construction would likely be affected by activities associated with leveling, grading, and excavating of these sites. Impacts to soils include the removal of vegetative cover, which destabilizes soils and increases their susceptibility to erosion forces, soil compaction, and disturbance. Soil productivity, (i.e., the capacity of the soil to produce vegetative biomass), would decline in disturbed areas and be completely eliminated for those areas within the footprint of parking facility and other new structures. Given, however, that the majority

of soils in the area where these activities are proposed have been previously disturbed or modified and in some areas are already covered by structures, concrete or man-made surfaces, adverse impacts to soils resulting from the demolition, construction, and renovation of building structures would be not significant.

Hardened area (i.e., parking areas, sidewalks) may be designed with either pervious or impervious surfaces. If pervious surfaces such as porous asphalt, paver blocks, lattice blocks, and crushed stone are utilized, runoff would be minimized and groundwater would be replenished faster. Minimizing runoff would reduce the erosion potential as excess stormwater would be absorbed into the soil through these porous materials. Increased groundwater recharge would benefit vegetation by providing a consistent water source, which in turn would benefit soils and soil productivity. As the vegetation increases, soil porosity would increase via root growth which aides in soil aeration and water absorption. Increased vegetation would also provide nutrients through the decomposition of organic material. Vegetation also helps protect the soil from erosion. These benefits would not be realized if impervious surfaces were utilized.

The proposed parking facilities associated with the proposed DISA Administration Buildings, Media Administration Buildings, and Adjudication Administration Buildings would permanently replace up to 53 acres of soils with concrete and other surfaces. Adverse effects would not be considered significant, because the soils within the footprint of the parking area are likely to have been previously disturbed or modified. In addition, the total area devoted to parking would effect a relatively small percentage of the entire installation; approximately 1-percent of the roughly 5,067 total acres of Fort Meade.

Specific details regarding types, numbers, and layout of the proposed structures associated with the EUL (Sites Y and Z) have not yet been determined; it is anticipated, however, that the two sites would accommodate approximately 2 million square feet of office space and associated parking. Depending upon the layout, design, and number of buildings and parking facilities ultimately determined for each site, up to 45 acres would be impacted, with roughly 30 acres for parking. Sites Y and Z are located on the exterior of the installation fence line, and are mostly wooded, undeveloped lands. Adverse effects to soils would be similar to those described for the demolition, construction, and renovation of structures associated with the proposed DISA Administration Buildings, Media Administration Buildings, Adjudication Administration Buildings, and associated parking facilities. There would be up to 45 acres vegetative cover removed in association with the new development occurring on both Sites Y and Z, which would increase erosion potential during construction. Within and immediately adjacent to the construction areas, soils would be compacted, and soil layer structure would be disturbed and modified. Soil productivity would decline in

disturbed areas and would be eliminated in the parking lot areas. While Sites Y and Z are mostly wooded, and the soils within both sites are mostly undeveloped, the adverse effects to soils associated with actions related to EUL in these sites would be considered not significant since less than 1-percent of the installation would be impacted.

The proposed EUL action would also include the development of two new 18-hole golf courses on Site S. Approximately 90-acres of the 367-acre Site S is an old landfill, which is currently under remediation and listed on the U.S.EPA's National Priority List (NPL). The addition of golf courses on the landfill site would likely improve the soils after remediation. Development of the golf courses would reduce erosion potential and increase soil productivity. However, in the areas extending beyond the landfill, some trees and vegetation would be removed, soils would be compacted and the soil layer structure would be disturbed and modified by earth moving activities associated with the design of the golf courses. Soil productivity would temporarily decline in these disturbed areas during construction. These adverse effects to soils however, would be temporary and would not be considered significant. The disturbed areas would be tilled and planted with vegetation associated with golf courses, and the entire site would be managed as a green space, which would help restore soil productivity over time.

Mitigations would be initiated for all of the proposed actions under this alternative.

- Disturbed areas outside of the footprints of buildings, parking facilities and golf courses would be reseeded following construction activities to decrease erosion potential and increase soil productivity, and all trees removed from forested areas would be replaced.
- An approved sediment and erosion control plan would be enacted to minimize soil erosion and sediment production during construction operations.
- 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.
- In the event contaminated soils are discovered during construction, construction activities would temporarily cease and appropriate Fort Meade personnel would be notified. All such encounters would be managed in accordance with installation procedures and regulatory guidelines. For a detailed discussion of potential hazardous wastes occurring within the Installation, please refer to Section 4.13.
- In addition, 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.

Prime and Unique Farmlands

Because there is no agricultural production within Fort Meade, the designation of Prime and Unique farmland within the installation is categorically excluded from consideration.

4.6.2.3 BRAC Realignment Action Alternative

Geologic and Topographic Conditions

No significant adverse effects to geologic or topographic conditions would be expected. The proposed construction and operation of the proposed BRAC would not noticeably alter the geologic of the project area. All of the sites proposed for construction under the proposed action are, for the most part, currently developed or previously disturbed or altered and would likely require only minor leveling and grading. Overall, there would be no considerable alterations of the general geologic or topographic character of the site would occur.

Soils

No significant adverse effects to soils would be expected. Effects to soils would be similar to those described under the BRAC Realignment and EUL Actions Alternative (Preferred Alternative). Under the BRAC Realignment, up to 91 acres of soils would experience adverse impacts from the demolition, construction, and renovation of structures associated with the proposed DISA Administration Buildings, Media Administration Buildings, Adjudication Administration Buildings, and associated buildings and parking facilities. During construction, soils found within the footprints of the proposed new construction would likely be affected by activities associated with leveling, grading, and excavating of the site. There would be some vegetative cover removed associated with the development of the proposed DISA Administration Buildings, Media Administration Buildings, Adjudication Administration Buildings, and associated parking facilities, which destabilizes soils and increases their susceptibility to erosion forces. Soils would also be compacted, and soil layer structure would be disturbed and modified. Soil productivity, (i.e. the capacity of the soil to produce vegetative biomass), would decline in disturbed areas and be completely eliminated for those areas within the footprint of parking facility and building structures. However, these adverse effects to soils would not be considered significant because the soils within the footprint of the parking area are likely to have been previously disturbed or modified, and the total impacted area would be approximately 80 acres, or only about 1.5-percent of the roughly 5,067 total acres of Fort Meade.

Mitigations would be initiated for all of the proposed actions under this alternative in the same manner as described under the BRAC Realignment and EUL Actions Alternative (Preferred Alternative).

- Disturbed areas outside of the footprints of buildings, parking facilities and golf courses would be reseeded following construction activities to decrease erosion potential and increase soil productivity, and all trees removed from forested areas would be replaced.
- An approved sediment and erosion control plan would be enacted to minimize soil erosion and sediment production during construction operations.
- 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.
- In the event contaminated soils are discovered during construction, construction activities would temporarily cease and appropriate Fort Meade personnel would be notified. All such encounters would be managed in accordance with installation procedures and regulatory guidelines. For a detailed discussion of potential hazardous wastes occurring within the Installation, please refer to Section 4.13.
- In addition, 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.

Prime and Unique Farmlands

Under this alternative, no effects would be expected since no lands suitable for Prime and Unique Farm Land consideration were identified.

4.7 WATER RESOURCES

The following section provides a description of the water resources within and in the immediate vicinity of the proposed BRAC/EUL sites. In addition, an assessment follows that addresses the potential for water resources on the post to be impacted by the proposed action. Types of water resources investigated include surface water, groundwater, wetlands, and floodplains (see Figure 4-3). Each topic is discussed briefly in this section.

4.7.1 Affected Environment

4.7.1.1 State Coastal Zone Management

All of Fort Meade falls within Maryland's Coastal Zone Management Program (CZMP). Established by an Executive Order and approved in 1978, CZMP is a network of state laws and policies designated to protect coastal and marine resources. This includes the Chesapeake Bay, into which water from streams and their tributaries on Fort Meade eventually flow ((Fort Meade, 1999)).

The Maryland Department of the Environment (MDE) regulates activities proposed within Maryland’s Coastal Management Zone through federal consistency requirements. Federal agencies are required to determine whether their activities are reasonably likely to affect any coastal use or resource and to conduct such activities in a manner that is consistent to the maximum extent practicable with the goals and objectives of Maryland’s Coastal Zone Management Program (MDE, 2004). In addition, for activities impacting coastal and marine resources including wetlands, the Coastal Zone Consistency determination is issued as part of the State’s environmental permitting process.

4.7.1.2 Surface Water

Watersheds

The BRAC sites exist in the Little Patuxent River sub drainage. The EUL Sites Y and Z exist in the Severn River sub drainage. Site S exists in the Little Patuxent River sub drainage (See Table 4-11 and Figure 4-3).

Table 4-11: Watershed Identification

Maryland Sub Drainag ³	Maryland HUC
Little Patuxent River	021311050948; 021311050949
Severn River	021310021002

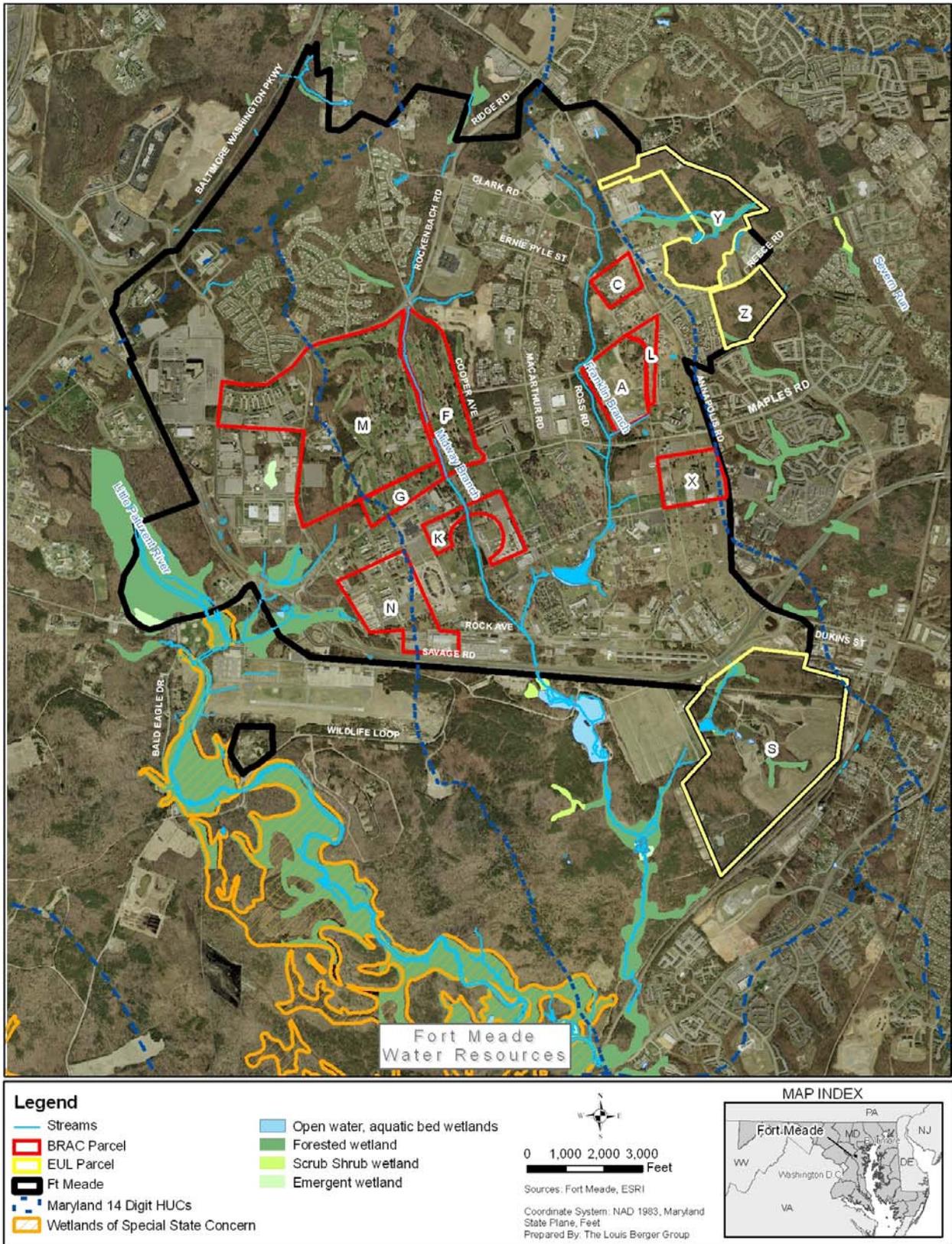
* Hydrologic Unit Code (HUC) (Source: Fort Meade 1999)

Streams/Tributaries/Other Water Bodies

Midway Branch and Franklin Branch are the two primary tributaries that would potentially be effected by the proposed BRAC and EUL actions. With the exception of several stormwater management ponds, Kelly Pool, is the only enclosed water body and is located on Franklin Branch. Kelly Pool is an 8-acre man-made surface water reservoir situated on Franklin Branch. (Figure 4-3), and is used for fishing and other outdoor activities.

Most of the middle and western portions of the installation are drained by Midway Branch. Approximately, 16,302 linear feet of Midway Branch flows north to south through the middle of the post (Figure 4-3). Midway Branch drains the western and eastern portions of Fort Meade (approximately 1,386 acres) respectively. Approximately 15,046 linear feet of Franklin Branch flows through the post in a southerly direction draining most of the eastern portion of the post.

Figure 4-3. Water Resources at Fort Meade



A waterway is listed on the 303(d) list if there is an impairment identified through water quality monitoring that indicates water quality in that waterway does not meet or is not expected to meet water quality standards in the state (Fort Meade, 1999). Section 303(d) of the federal Clean Water Act requires Maryland to identify impaired waters and establish Total Maximum Daily Loads (TMDLs) for the substances causing the impairments. A TMDL is the maximum amount of a substance that can be assimilated by a waterbody such that it still meets water quality standards. Development should take into account consistency with TMDLs developed for the impaired waterbodies.

Midway Branch and Franklin Branch are both listed on the State’s 303(d) list due to excess sediment (see Table 4-12).

Table 4-12: Maryland’s 303(d) Listed Waterbodies within Fort Meade

Tributary Name (Maryland HUC 021311050949)	Length of Stream Passing Through the Installation (linear feet)	Reason for 303(d) Listing
Franklin Branch	15,046.1 (tributaries account for an additional 7, 469.0 linear feet)	Biological/Sediment
Midway Branch	16,301.5 (tributaries account for an additional 2,544.8 linear feet)	Biological/Sediment

Midway Branch and Franklin Branch are both classified as I-P streams by MDE. This designated use includes: use as a public water supply; swimming and other whole-body water contact sports; play and leisure time activities where individuals may come in direct contact with the surface water; fishing; the growth and propagation of fish (other than trout); other aquatic life; and wildlife; agricultural water supply and industrial water supply (Code of Maryland Regulations [COMAR] 26.17.01 and 26.17.02).

4.7.1.3 Groundwater

The primary sources of potable water at Fort Meade are five groundwater wells located on the south side of the installation. There is a sixth well that is inactive, however, a replacement well is under construction. Additional information regarding Fort Meade’s potable water supply is located in the Utilities section of this report. Fort Meade complies with standards in the Safe Drinking Water Act (SDWA) and Code of Maryland Regulations (COMAR). Drinking water is tested according to permit requirements.

4.7.1.4 Floodplains

Executive Order 11988, Floodplain Management, instructs federal agencies to consider the risks, danger, and potential impacts of locating projects within floodplains. Floodplains are typically described as areas likely to be inundated by a particular flood. For example, a flood that has a one percent chance of

occurring in any one year is the 100-year flood. Based on the review of the 1984 FEMA Floodplain Zones, and MDE Storm Surge Inundation Areas Mapping of Fort Meade it was determined that there are no delineated 100-year floodplain areas within boundaries of the BRAC or EUL sites.

4.7.1.5 Wetland Areas

Wetlands are jointly defined by the U.S. EPA and the USACE as “those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include “swamp marshes, bogs and similar areas” (40 CFR 230.3(t) and 33 CFR 328.3(b)). The USACE regulates the discharge of dredged or fill material in waters of the United States, including jurisdictional wetlands pursuant to Section 404 of the Clean Water Act.

BRAC Sites

Potential wetlands on areas proposed for BRAC action were assessed using MDE database mapping and mapping provided by Fort Meade (Figure 4-2). There were no wetlands identified within proposed BRAC site boundaries. Palustrine forested wetlands and inclusive open water areas were identified to the southwest and west of Sites M and N, respectively, adjacent to the Little Patuxent River. These wetlands are outside the BRAC project boundaries on proposed Sites M and N and would not be directly affected by construction and operation of BRAC facilities.

EUL Sites Y, Z and S

There are a total of 57 acres of wetland identified from NWI mapping on EUL sites (See Table 4.13, in Section 4.8.1). The true extent of these wetland areas, or other as yet unidentified wetland areas, at EUL sites would require field surveys, formal wetland delineations implementing the USACE 1987 Wetlands Delineation Manual, and concurrence of findings provided by the USACE. Coordination with MDE during wetland delineation efforts would help identify the potential of non-tidal wetlands meeting MDE’s criteria of Special State Concern. Activities involving any clearing of vegetation, filling excavation, flooding or draining of Special State Concern wetlands are regulated by MDE through the project permitting process.

Fort Meade conducted preliminary wetland delineations on Site Y and Z consistent with the USACE 1987 Wetland Delineation Manual to evaluate whether or not regulated wetlands and/or Waters of the United States existed on Site Y and Z. Preliminary wetland delineation on Sites Y and Z identified 21 nontidal wetland areas present on Site Y. The total amount of regulated wetlands on or near Site Y was reported as 5.67 acres. The Site Z wetland identified have 5 nontidal wetland areas totaling 5.59 acres (Christopher

Consultants, 2007a, b). These preliminary wetland delineations are currently under the review of USACE for concurrence of the report findings.

Wetlands of Special State Concern are discussed in greater detail in the Biological Resources section. One wetland area to the south and southwest of Site S is listed as a Wetland of Special State Concern.

Site S (proposed golf courses) contains the Rock Avenue Swamp Protection Area, which is the only true seasonally saturated/semi-permanent shrub swamp present on Fort Meade (Eco-Science Professionals, Inc., 2001) (Habitat Protection Areas are discussed in greater detail in the *Biological Resources* section). The boundary of this protection area includes a shrub swamp, headwater wetland area, and 100-foot buffer (Eco-Science Professionals, Inc., 2001). This protection area has the potential to be a Wetland of Special State Concern due to its ecological significance and presence of a State Watch-list species, the purple chokeberry (*Aronia prunifolia*) (Marquardt, 2007c; Eco-Science Professionals, Inc., 2001). Further wetland surveys verifying ground conditions and coordination with MDE would be conducted to establish the status of this area as a Wetland of Special State Concern. Delineated non-tidal wetland areas are also noted in, and to the west of Site S.

NWI mapping identified a large palustrine, forested, broad-leaved deciduous, temporarily-flooded wetland system, bisecting Site Y into the northern and southern portion. Several small streams and drainage ways throughout the site flow into the perennial stream in the center of this wetland system, and eventually flow offsite together in a westerly direction. Japanese stilt grass has occurs in most of the wetland system found within Site Y (URS, 2006). NWI mapping also indicates a palustrine, forested, broad-leaved deciduous, temporarily-flooded wetland in the southeastern portion of Site Z. The wetland area identified on site Z is a relatively large wetland system; however, only a portion of the mapped wetlands lies within the property boundaries of Site Z. An intermittent stream is associated with this wetland system, as are numerous ephemeral streams (URS, 2006). This network of stream channels dominates most of the far western portion of Site Z (URS, 2006). Several roads and trails exist within Site Z and through the accumulation of surface water on these roads and trails, potential wet land areas have emerged (URS, 2006). It should be noted that wetland areas identified through NWI mapping should be considered “potential wetland areas” because they are largely identified without field verification of conditions or extent.

4.7.2 Environmental Consequences

BRAC Sites Overview

Principles of sustainable development as set forth in Fort Meade's Green Building Manual would be implemented to meet the USGBC rating criteria of Silver, higher if resources allow, during the construction and operation of BRAC sites. Fort Meade has adopted the USGBC LEED standards and provides guidance for new construction on the Installation through Fort Meade's Green Building Manual (GBM, 2007). The Green Building Manual is intended to supplement the existing Fort Meade Installation Design Guide to ensure that development integrates economic efficiency with minimal impact to the environment, to the extent resources allow.

Fort Meade's recently adopted Green Building Manual established guidelines to be applied during new construction and operation on BRAC sites. These guidelines include but are not limited to:

- Landscape parking lot islands to provide shade, reduce heat island effect and manage stormwater (e.g. bio-retention ponds, tree plantings, etc).
- Restore and protect the site area where practical (excluding the building footprint) with native or adapted vegetation to maintain or improve water quality on and off the Installation and to provide species habitat.
- Where practical, reuse stormwater for non-potable uses in and around buildings to help reduce the quantities of stormwater.
- Preserve a 100-foot buffer landward from tributary waterways to maintain stormwater flow and to reduce adverse impacts from natural runoff, bank erosion and sedimentation.
- Implement where practical; natural, vegetated channels, rain gardens, minor structural facilities, Stormwater management ponds, permanent water aerators (fountains and/or waterfalls), and irrigation of landscapes with collected and stored rainwater on site.

In addition, Fort Meade would restore waterways that flow between BRAC construction sites and Midway Branch to more natural conditions where practical; including improvements to drainage structures, both existing and planned.

In 1999, Fort Meade dredged Kelly Pool to reduce the sediment that had accrued from eroding streams and reservoir shoreline. Subsequently, native vegetation was reintroduced to the shallow waters and shoreline around the lake, which will reduce future erosion and improve natural resources in the Chesapeake Bay watershed (The Army's Chesapeake Review, January/February 2001).

EUL Sites Y, Z and S Overview

An “EUL Site Development Plan” would be implemented on proposed EUL sites to preserve the natural open space and waterway and maximize use of the sites’ natural amenities. For example, preservation of the existing stream valley resources and “best practices” of low impact design would be incorporated into the project where practical. The Plan would use stormwater management best management practices such as the use of low intensity development and other approaches as appropriate credits as included in the Maryland Department of the Environment Water Management Administration 2000 Maryland Stormwater Design Manual. The passive, non-structural best management practices including but not limited to grass channels, rain gardens, and minor structural facilities that would blend into the site and present aesthetically pleasing features would be used. Any further requirements for maintaining water quality would be met for through the use of conventional stormwater management ponds with a permanent water surface elevation that would be integrated into the man-made open space features. These systems could also include water features such as fountains and waterfalls. The Development Plan for the proposed EUL sites anticipates using water refuse systems for irrigation of the landscape by collecting and storing rainwater on site for irrigation uses. This water could be surface runoff from a parking lot that runs through a pretreatment system or from building rooftops and parking garages.

4.7.2.1 No Action Alternative

No adverse effects to water resources would be expected. The No Action Alternative would not alter the existing water resources at either the proposed BRAC or EUL sites being considered.

4.7.2.2 BRAC Realignment and Enhanced Use Lease Actions Alternative

Coastal Zone Management

No significant adverse effects would be expected. New construction and operation of the proposed Federal action meets the goals and objectives of the Maryland Coastal Zone management Program by:

- To the extent feasible, consider low impact development options during the design phase of the projects;
- Avoid construction activities within 100 feet of riparian areas where practical;
- Avoid construction activities within 100 feet of wetland areas, where practical (MDE requires a 25 foot buffer area for wetlands) buffer area of 25 feet;
- Avoid construction activities within 100 feet of wetlands meeting the criteria of MDE’s Special State Concern;
- Development and implementation of a site specific Erosion and Sediment Control Plan; and

- Development and implementation of Stormwater Management Plan including SWPPP measures to control stormwater runoff.

In addition, Fort Meade would adhere to all Federal, and state permit requirements to protect coastal and marine resources and wetland areas. Fort Meade submitted a federal consistency determination request to Maryland's Coastal Management Zone Program which included policies and procedures to protect and preserve wetland areas; control stormwater runoff and reduce erosion and sedimentation in water resources on BRAC and EUL sites. This FEIS will be provided to MDE as the final federal coastal zone consistency determination.

Streams/Tributaries/Other Water Bodies

Environmental Permitting

No significant adverse effects would be expected. Fort Meade is committed to environmental stewardship and would fulfill all mitigation requirements set forth as a part of the Federal and state permitting processes relating to the BRAC and EUL projects. Avoidance and minimization of water resource impacts is a permit requirement for new construction activities at Fort Meade. Fort Meade must be in compliance with Section 404 of the Clean Water Act. Components of the permitting process that Fort Meade would fulfill include:

- Erosion and Sediment Control Plan and Stormwater Management Plans including SWPPP approvals;
- General Permits for construction and stormwater discharges from construction sites;
- NPDES permitting requirements; and
- Clean Water Act Section 401 permitting requirements.

To the extent funding allows, Fort Meade will conduct biennial surveys of aquatic life and water chemistry conditions of streams and share the results with the Department of Interior.

Surface Water

BRAC Sites

No significant adverse effects would be expected. Fort Meade's Stormwater Pollution Prevention Plan (SWPPP) considers major components of stormwater discharge including source identification, and discusses the overall planning and organization of the Fort Meade Pollution Prevention Team and provides information regarding the assessment of the potential for stormwater pollution. Fort Meade's SWPPP is a

living document that is kept up-to-date through annual site compliance evaluations and plan revisions in accordance with General Discharge Permit for Industrial Activities, No. 02-SW-0700.

Based on the provisions of the Code of Maryland Regulations (COMAR 26.17.01 and 26.17.02), all jurisdictions within Maryland must implement a stormwater management program to control the quality and quantity of stormwater runoff resulting from any new development. The regulations require that the release rate from newly developed areas not exceed the rate generated by the site under undeveloped conditions (Fort Meade 1999).

The USFWS expressed concerns over potential water quality degradation to the Patuxent Wildlife Refuge due to potential indirect impacts of stormwater runoff including stream sedimentation and increased impervious surface area within the post. The Patuxent Wildlife Refuge shares a common border south of Fort Meade and is located downstream. Both Midway Branch and Franklin Branch have established TMDL's for sedimentation that must be met to maintain Maryland water quality standards. BRAC and EUL development would be consistent with all established TMDL's including those for sedimentation for Midway Branch and Franklin Branch, thus water quality would not be degraded due to BRAC construction and operation activities. In addition, all BRAC and EUL sites would comply with COMAR 26.17.01 and 26.17.02 and would limit stormwater runoff to that which is already occurring.

Franklin Branch flows into the Patuxent Wildlife Refuge, although areas of Franklin Branch that would potentially be effected by construction and operation activities are approximately 6,420 linear feet upstream from Patuxent Wildlife Refuge land. This large separation between BRAC construction sites and the Patuxent Wildlife Refuge should preclude any adverse impacts to the Refuge.

Potential indirect effects to the Patuxent River watershed and primary tributaries Midway Branch and Franklin Branch are possible but would be minimized to the greatest extent feasible through strict adherence to the following regulations and plans:

- COMAR 26091-26092;
- Fort Meade's Nutrient Management Plan;
- Stormwater management planning including Fort Meade's SWPPP;
- Fort Meade's INRMP;
- Fort Meade's Installation Design Guide;
- Site specific erosions and sedimentation planning;
- Maryland's 2000 Stormwater Design Manual;
- U.S. EPA's Stormwater Best Management Practice Design Guide; and
- Federal and state permitting conditions.

Best Management Practices (BMPs) presented in the INRMP and Fort Meade's Nutrient Management Plan would be strictly adhered to during the construction phase of project development (USACE, 2005). Fort Meade's Installation Design Guide states that erosion control measures should be implemented by Fort Meade to stabilize soil (e.g., seeding and mulching, installing pervious paving) and/or to retain sediment after erosion had occurred (e.g., earth dikes and sediment basins). Fort Meade's Nutrient Management Plan outlines BMP's to be implemented at the Installation including: soil erosion and sediment control; conservation landscaping; low-impact development; vegetated riparian buffer; wetland preservation and protection; street sweeping; and nutrient application rates and the timing for such applications. Analyses conducted under the applicable permits (for example, a section 404 Clean Water Act, Individual Permit or General Permit issued by USACE) would allow for and require a more detailed assessment of potential impacts associated with construction and operation of the new facilities once design plans are prepared. Bridges and /or oversized culverts should be considered to allow for wildlife passage and habitat continuity if any water bodies are to be crossed during the implementation of this project.

More detailed investigation of water resource impacts might be necessary if it is determined that minimal threshold levels for impacts established by the USACE Individual Permit or General Permit are exceeded.

EUL Sites Y, Z and S

Potential indirect adverse effects to the Patuxent River and Severn River watersheds are possible but would be minimized to the greatest extent feasible through strict adherence to the following regulations and plans:

- The EUL Site Development Plan; and
- Federal and state permitting conditions.

Several comments were received from federal agencies regarding the potential watershed impacts to the Patuxent Wildlife Refuge due to the development and operation of the proposed golf courses and support facilities on Site S. Site S is adjacent to the Refuge. Fort Meade's long-term strategy to address nutrient loading is addressed in its Nutrient Management Plan. This Plan was developed in accordance with Section 319 of the Clean Water Act, guidance from the 1995 Presidential Memorandum on Environmentally and Economically Beneficial Landscape Practices on Federal Landscaped Grounds, and Fort Meade's INRMP (USACE, 2005). The EUL developer would comply with Fort Meade's Nutrient Management Plan during construction. Fort Meade would also comply with this Plan during operation activities. To the extent funding allows, Fort Meade will conduct biennial surveys of aquatic life and water chemistry conditions of streams and share the results with the Department of Interior.

Wetlands

Wetlands perform a number of important functions, including water quality improvement, flood and stormwater control, and erosion control. They also provide recreational opportunities and habitat for fish and wildlife. Wetlands help to maintain water quality through the removal and retention of nutrients and the reduction of sediment loads. In their natural undisturbed condition, wetlands serve as a temporary storage area for flood waters, protecting downstream areas from damage. The abundant vegetation associated with wetlands reduce erosion, as root systems bind sediments and reduce wave action and current velocity.

Freshwater wetlands in Maryland are protected by the Non-tidal Wetlands Protection Program, which sets a state goal of no overall net-loss of non-tidal wetlands acreage and functions. Activities in non-tidal wetlands require a non-tidal wetland permit or a letter of exemption, unless the activity is exempt by regulation. Any BRAC or EUL activity that involves excavating, filling, changing drainage patterns, disturbing the water level or water table, grading and removing vegetation in a non-tidal wetland or within a 25-foot buffer requires a permit from the State. (Fort Meade, 1999).

The Final INRMP for Fort Meade guides the management and protection of wetlands at Fort Meade (Fort Meade, 1999). The INRMP states that wetland area management should follow a dual policy of floodplain and riparian area management and in-situ wetland management. This policy should emphasize preservation, enhancement and expansion of wetlands within Fort Meade. For this reason, a wetland survey verifying ground conditions will be conducted at all EUL sites prior to commencing ground disturbance actions associated with construction to verify presence or absence of any small isolated wetlands. The wetland delineation reports for Site Y and Z were in their draft state at the time this document was prepared and had not been concurred with by the USACE.

BRAC Sites

No significant adverse effects on wetlands would be expected. The primary effect of BRAC actions on wetland would be the indirect impacts associated with stormwater runoff. Long-term indirect impacts are anticipated due to an increase in impervious surfaces and stormwater runoff on BRAC sites, but these impacts are anticipated to be minimized to the greatest extent feasible through strict adherence to the following:

- Federal and state permit requirements;
- site specific erosion and sedimentation control plans;
- INRMP Wetland Management;

- stormwater management planning including the implementation of SWPPP and Stormwater Design Criteria in Fort Meade's Green Building manual;
- Fort Meade's Nutrient Management Plan.

EUL Sites Y Z and S

No significant adverse effects would be expected. The primary impact of EUL actions on wetland could be direct and indirect. Indirect impacts may include nutrient loading, sedimentation and modification to hydrologic regimes. Two 18-hole golf courses would be constructed at Site S under the EUL actions. This conversion has the potential to directly impact potential wetland areas of Special State Concern. A EUL Site Development Plan is to be implemented on proposed EUL sites. This Plan would preserve as much of the natural open space and waterway as possible and develop around natural amenities. Preservation of the wetland resources and "best practices" of low impact design would be incorporated into the project where practical. The EUL Site Development Plan would primarily focus on providing stormwater management through the use of low impact development as well as appropriate credits as presented in the Maryland Department of the Environment Water Management Administration 2000 Maryland Stormwater Design Manual. The majority of the water quality requirements would be achieved by the use of passive, non-structural best management practices and minor structural facilities. These would include but are not limited to grass channels, rain gardens, and minor structural facilities that will blend into the site and present aesthetically pleasing features.

Both EUL sites Y and Z wetland delineation reports, (Fort Meade EUL-Site Y, Fort Meade, Maryland, Wetland Delineation Report (April, 2007) – and Fort Meade EUL- Site Z, Fort Meade, Maryland, Wetland Delineation Report (April, 2007)) have been submitted to USACE for concurrence and will be used in the Section 404 permitting process. Formal wetland delineation in accordance with the USACE 1987 Wetland Delineation Manual is required on Site S prior to construction activities.

Groundwater

No significant adverse effects would be expected to groundwater. Spills and leaks would be minimized by adherence to Fort Meade's Spill Contingency Plan (SCP) and Spill Prevention, Control and Countermeasures Plan (SPCCP). The SPCCP presents a list of BMP's to be implemented for drum storage areas, aboveground storage tanks, underground storage tanks, oil/water separators and spill response measures. Fort Meade would comply with the Spill Prevention, Control & Countermeasures Rule (40 CFR 112) and existing groundwater protection protocols as required under the Safe Drinking Water Act (1974, with amendments 1986).

4.7.2.3 BRAC Realignment Action Alternative

Environmental consequences for this alternative are similar in regards to severity and magnitude to BRAC actions discussed above.

4.8 BIOLOGICAL RESOURCES

4.8.1 Affected Environment

This section summarizes the general conditions and characteristics of biological resources found at Fort Meade (Table 4-13), and in the areas adjacent to the proposed project sites.

The following documents were consulted for incorporation of applicable information: Final Integrated Natural Resources Management Plan 1999-2004, Fort George G. Meade, Maryland (Fort Meade, 1999); Integrated Pest Management Plan, Fort George G. Meade, Maryland (Fort Meade, 2005b); DD Form 1391 for proposed projects provided by Department of the Army, Fort Meade, Maryland; Planning charrette reports; Section 7, Endangered Species Act (ESA) consultation with U.S. Fish and Wildlife Service (see Appendix C, Section 7 Consultations); Fort Meade Tree Management Policy; Fort Meade Forest Conservation Act Policy; Fort Meade Geographic Information Systems (GIS) data.

Table 4-13: Description of Biological Resources for Proposed BRAC and EUL Projects

Project Site	Total Acres in Site	Forested Areas (approx. acres)	Forest Conservation Mitigation Area Located in Project Sites (approx. acres)	Habitat Protection Area Located in Project Site (approx. acres)	Wetland Habitat in Project Site (approx. acres)
BRAC Action					
Site A	64	10			0
Site C	23	6			0
Site F	95	25			0
Site G	31	2			0
Site K	39	3			0
Site L	15	1			0
Site M	366	105		2	0
Site N	98				0
Site X	49				0
EUL Action					
Site S	367	202	200	18	45
Site Y	127	125	8		6*
Site Z	52	50			6**
TOTAL	1,326	529	208	20	57

(Sources: Fort Meade GIS data, 2006; Colianni, 2006a,b ; Christopher Consultants, 2007a*, b**)

4.8.1.1 Vegetation

Except for areas along stream corridors, extensive development has stripped most areas at Fort Meade of their native vegetation. Most areas with existing native vegetation are associated with stream corridors. Vegetative cover at Fort Meade consists of forest land, open land/meadow, and developed areas with mowed lawn. Currently about 1,795 acres of Fort Meade’s 5,067 acres are forest lands (Marquardt, 2006; Fort Meade GIS data, 2006). Forestlands located within the project sites for BRAC and EUL actions (approximately 529 acres) represent almost 30 percent of the total forest lands existing on the installation. Fort Meade is seeking funds to inventory its forest stands as no official forest inventory or cover type maps exist for the installation. Field surveys conducted in 2001 by Fort Meade indicate that vegetative cover at the installation has changed little since the previous field survey conducted in 1993-1994 (Eco-Science Professionals, Inc., 2001).

Forest cover within Fort Meade consists mainly of a mixture of softwood Pitch Pine (*Pinus rigida*) and Virginia Pine (*Pinus. virginiana*) and hardwoods consisting of Scarlet Oak (*Quercus coccinea*), White Oak (*Quercus alba*), Southern Red Oak (*Quercus falcata*), Chestnut Oak (*Quercus montana*), Willow Oak (*Quercus phellos*), Black Oak (*Quercus velutina*), and other Oak (*Quercus sp.*) Black Gum/Tupelo (*Nyssa sylvatica*), Tulip Poplar (*Liriodendron tulipifera*), Pignut Hickory (*Carya glabra*), American Beech (*Fagus grandifolia*), Black Walnut (*Juglans nigra*), American Linden/Basswood (*Tilia*

americana), American Holly (*Ilex*), American Hornbeam (*Ostrya virginiana*), Red Bud (*Cercis canadensis*), Flowering Dogwood (*Cornus florida*), Persimmon (*Diospyros virginiana*), Sassafras (*Sassafras albidum*), American sycamore (*Platanus occidentalis*), willow (*Salix* sp.), sweetgum (*Liquidambar styraciflua*), birch (*Betula* sp.), maple (*Acer* sp.), and walnut (*Quercus* sp.). The largest wooded area on the installation is located in the southwestern corner and is associated with the Little Patuxent River. Dominant vegetation in this area consists of red maple (*A. rubrum*), sweetgum, black gum (*Nyssa sylvatica*), northern arrowwood (*Viburnum recognitum*), Japanese honeysuckle (*Lonicera japonica*), greenbriar (*Smilax rotundifolia*), and poison ivy (*Toxicodendron radicans*). Smaller wooded areas also exist in the upland portions of the Installation. These areas are dominated by white, red, black, chestnut and willow oaks (*Quercus alba, falcate, velutina, montana, phellos*), Pignut Hickory (*Carya glabra*), Flowering Dogwood (*Cornus florida*), Pitch Pine (*Pinus rigida*), and Virginia Pine (*Pinus virginiana*) (Fort Meade, 1999).

Developed areas with mowed lawn areas of the installation have been landscaped using a combination of turfgrasses and native and exotic trees and shrubs, including elm (*Ulmus* sp.), maple, cherry (*Prunus* sp.), black willow (*Salix nigra*), flowering dogwood, and assorted holly cultivars (*Ilex* sp.) (Fort Meade, 1999). A complete list of plants found at Fort Meade is found in Appendix C.

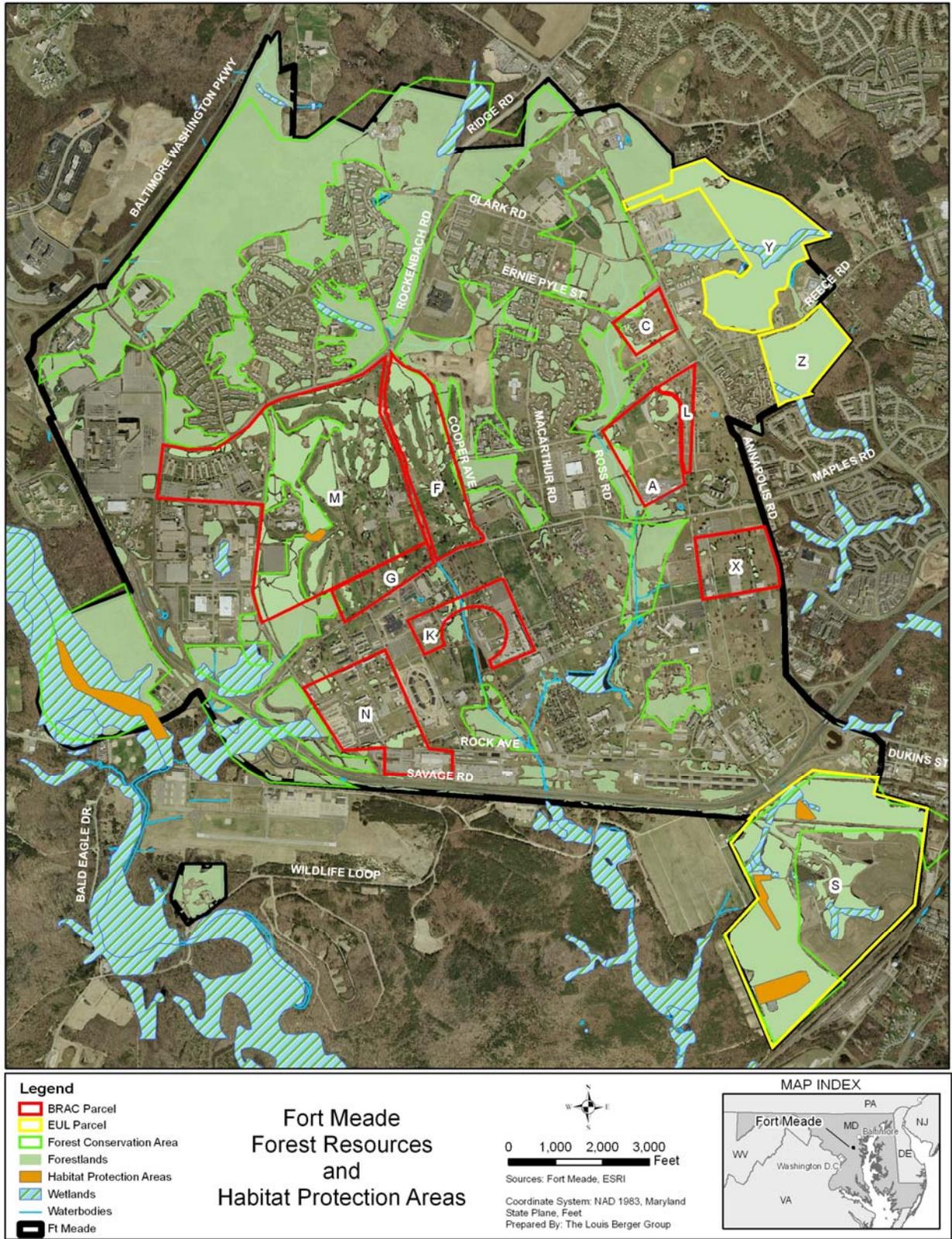
Fort Meade complies with the Maryland Forest Conservation Act (FCA) to the maximum extent practicable and manages its Forest Conservation Program (FCP) in agreement with the Maryland Department of Natural Resources (MDNR); see FGGM Policy in Section 4.8.2.2. The installation supports DA, Federal, State and local laws, regulations, policies, and initiatives to the fullest extent possible.

Forested areas on the installation are designated as Forest Conservation Areas. Under the Maryland FCA, 20 percent of Forest Conservation Areas must be preserved as Forest Conservation Mitigation Areas to mitigate project effects. An 8-acre Forest Conservation Mitigation Area is located in Site Y for the U.S. Army Reserve Center project. The majority of the forest land on Site S (approximately 200 acres) is designated as FCA. Designated Forest Conservation Mitigation Areas in Site S are present along the northern, southern, and western boundaries of the site (URS, 2005).

BRAC Construction Sites: All of the sites for the proposed BRAC facilities, including the proposed DISA Administration Buildings, Media Administration Buildings, Adjudication Administration Buildings, and associated buildings and parking facilities, would be located on Sites A, C, F, G, K, L, M, N, or X, which are situated in developed areas of the installation, or in areas of grassy meadow and lawn with thinly scattered trees and shrubs commonly found within the region. The existing golf course is located on portions of Sites M, F, and G.

EUL Construction Sites: Project areas considered for the EUL actions include large tracts of pine-hardwood forests, containing species commonly found within the region. Approximately 125 acres of forest land is located in Site Y and 50 acres in Site Z. Site S for the proposed EUL action has approximately 202 acres of forest land on the northern, southern, and western portion (Figure 4-4).

Figure 4-4: Forest Resources and Habitat Protection Areas



4.8.1.2 Wildlife

Wildlife species found on Fort Meade are typical of those found in urban-suburban areas. White-tail deer and groundhogs occur on the installation, particularly along the Little Patuxent River. Other mammals include gray squirrel (*Sciurus carolinensis*), raccoon (*Procyon lotor*), opossum (*Didelphis virginiana*), eastern chipmunk (*Tamias striatus*), field mouse and vole (*Microtus* sp.), mole (*Scalopus aquaticus*), and fox (*Vulpes vulpes*).

Birds common to the installation are limited to those species that have adapted to an urban-suburban habitat, such as American robin (*Turdus migratorius*), catbird (*Dumetella carolinensis*), mockingbird (*Mimus polyglottos*), Carolina chickadee (*Poecile carolinensis*), Carolina wren (*Thryothorus ludovicianus*), house wren (*Troglodytes aedon*), downy woodpecker (*Picoides pubescens*), common flicker (*Colaptes auratus*), European starling (*Sturnus vulgaris*), house sparrow (*Passer domesticus*), rock dove (*Columba livia*), mourning dove (*Zenaida macroura*), and song sparrow (*Melospiza melodia*). A complete listing of avian species observed at Fort Meade is presented in Appendix C.

4.8.1.3 Rare, Threatened, and Endangered Species

Plants and animals federally classified as endangered or threatened are protected under the Endangered Species Act (ESA) of 1973, as amended. The U.S. Fish and Wildlife Service (USFWS) is responsible for the listing of endangered species under the ESA. Federally listed species are afforded legal protection under the Act; therefore, sites supporting these species need to be identified. Except for occasional transient individuals, no federally-listed or proposed endangered or threatened species are known to occur on Fort Meade (Fort Meade, 1999; Marquardt, 2006).

States determine the legal status of a species by regulations. In Maryland, species are given protection by inclusion on the State Threatened and Endangered Species List (Code of Maryland Regulations [COMAR] 08.03.08). No state legally protected species are known to occur on any of the BRAC or EUL sites. Areas where state-listed species have been found are mostly in designated habitat protection areas (see Figure 4-4). There are three habitat protection areas on Site S – Rock Avenue Shrub Swamp, Rand Road Obstacle Course, and Range Road Corridor. Areas of habitat protection would be avoided to the extent practicable. As of September 2005, only three plants and one animal are state-listed (Marquardt, 2006).

The Roughish panicgrass, state status uncertain (SU), is found in Site S, along the Range Road obstacle course (URS, 2005), and also in areas other than designated Habitat Protection Areas. In addition, the "Rare, Threatened, and Endangered Species Habitat search, Fort Meade, 2001" states that Roughish panicgrass is present at site just south of 4th Street between Wilson Street and Ernie Pyle Street

(Marquardt, 2007a). No other state-listed rare, threatened, or endangered species occur any of the proposed BRAC or EUL project sites.

Table 4-14 presents the State List of rare, threatened, and endangered species in the vicinity of Fort Meade.

Table 4-14. State List of Rare, Threatened, and Endangered Species Found at Fort Meade, Maryland

Scientific Name	Common Name	Maryland Natural Heritage Program Rank
Flora		
<i>Aronia prunifolia</i>	Purple chokeberry	Watch list
<i>Lespedeza stuevei</i>	Downy bushclover	Watch list
<i>Panicum leucothrix</i>	Roughish panicgrass	Possibly rare, but status uncertain
Fauna		
<i>Etheostoma vitreum</i>	Glassy darter	Threatened

(Source: MDNR, 2004; Frye, 2007)

A Rare, Threatened, and Endangered (RT&E) Species Habitat Search was conducted in 2001 (Eco-Science Professionals, 2001). Field surveys conducted in 2001 by Fort Meade indicate that vegetative cover at the installation has changed little since the previous field survey conducted in 1993-1994. The primary purpose of the field surveys was to verify that RTE flora identified during the 1993-1994 study were still present at Fort Meade. The Army funds RT&E studies every five years. Previous studies determined no federally listed RT&E species occur on Fort Meade.

In accordance with the requirements of the ESA, agency coordination with the USFWS and the MDNR Natural Heritage Program to identify state and federally-list species was conducted.

4.8.1.4 Aquatic Resources

Waterbodies that flow through Fort Meade provide habitat for a number of aquatic organisms. A list of species found in the surface waters on the installation is provided below in Table 4-15.

Table 4-15. Fish Species Found at Fort Meade, Maryland

Scientific Name	Common Name
<i>Alosa aestivalis</i>	Blueback herring
<i>Anguilla rostrata</i>	American eel
<i>Catostomus commersoni</i>	White sucker
<i>Cyprinella analostana</i>	Satinfin shiner
<i>Dorosoma cepedianum</i>	Gizzard shad
<i>Enneacanthus gloriosus</i>	Bluespotted sunfish
<i>Erimyzon oblongus</i>	Creek chubsucker
<i>Etheostoma olmstedi</i>	Tessellated darter
<i>Etheostoma vitreum</i>	Glassy darter
<i>Fundulus heteroclitus</i>	Mummichog
<i>Exoglossum maxillingua</i>	Cutlips minnow
<i>Hypentelium nigricans</i>	Northern hogsucker
<i>Lampetra aepyptera</i>	Least brook lamprey
<i>Lampetra appendix</i>	America brook lamprey
<i>Lepomis auritus</i>	Redbreast sunfish
<i>Lepomis gibbosus</i>	Pumpkinseed
<i>Lepomis macrochirus</i>	Bluegill
<i>Micropterus dolomieu</i>	Smallmouth bass
<i>Micropterus salmoides</i>	Largemouth bass
<i>Notropis amoenus</i>	Comely shiner
<i>Notropis procne</i>	Swallowtail shiner
<i>Percina peltata</i>	Shield darter
<i>Rhinichthys atratulus</i>	Blacknose dace
<i>Rhinichthys cataractae</i>	Longnose dace
<i>Semotilus corporalis</i>	Fallfish
<i>Umbra pygmaea</i>	Eastern mudminnow

(Source: Fort Meade, 1999)

Potential aquatic habitats were identified using MDE database mapping and mapping provided by Fort Meade (Figure 4-4). The proposed project areas for BRAC actions in Sites F and K contain approximately 4,800 feet of Midway Branch, a tributary to the Little Patuxent River. No wetland habitats exist in the BRAC project areas.

The proposed project areas for the EUL action contain habitat that could support populations of aquatic or semi-aquatic organisms. The vegetated areas around these aquatic habitats contain seasonally wet environment that potentially offer habitat to certain macro invertebrates and/or amphibians. It should be noted that wetland habitats identified in Figure 4-4 should be considered “potential habitat areas” because they are largely identified without field verification of conditions or extent. The true extent of these habitats, or other as yet unidentified areas, would require field surveys. Accordingly, a species survey

verifying habitat conditions would be conducted at all proposed EUL construction sites prior to implementation to verify presence or absence of any macro invertebrates and/or amphibians.

4.8.2 Environmental Consequences

4.8.2.1 No Action Alternative

No adverse effects would be expected to biological resources. Under the No Action Alternative, the installation would not implement the proposed BRAC realignment actions or the DoD EUL actions. Proposed facilities would not be constructed on the proposed sites and no adverse impacts to biological resources would occur.

4.8.2.2 BRAC Realignment and Enhanced Use Lease Actions Alternative

This alternative (and its sub-alternatives) includes the implementation of the BRAC realignment actions and the DoD EUL actions. Under this preferred Alternative, it is estimated that at the maximum build-out scenario, up to 230 acres of forest land would be adversely affected by the demolition, construction, and renovation of associated facilities. For the proposed BRAC facilities, up to 25 acres out of 91 total required acres from Sites F, G, and X would be forest land that could be disturbed to construct the proposed DISA Administration Buildings, Media Administration Buildings, Adjudication Administration Buildings, the PX, Gym, UPH, and associated parking facilities. For the EUL actions, up to 45 acres of forest land spread between Sites Y and Z could be disturbed for the development of office administration building for an estimated 10,000 personnel. In addition, under the EUL action, up to 160 acres of forest land on Site S could be disturbed to develop two 18-hole golf courses. Since maximum build-out was used for analysis purpose, actual acres of land disturbed (forested and unforested) could be less.

Vegetation

Significant adverse effects to vegetation would be expected from construction of the proposed BRAC and EUL action facilities. Under the Preferred Alternative, up to 230 acres of forest land could be affected (approximately 13 percent of total forestlands within the Installation and 43 percent of forestlands within the project sites). The actual total acreage of forested lands and vegetation disturbed would depend upon the design and layout of the different structures or facilities, the number of buildings required, the size and layout of parking facilities, and the constraints of each of the proposed sites. The specific location and total area disturbed will not be known until the design phase of the project. Forest lands located within the project sites for BRAC and EUL actions total approximately 529 acres, which represent almost 30 percent of the total forest lands existing on the installation (1,795 acres).

BRAC projects, including the proposed DISA Administration Buildings, Media Administration Buildings, Adjudication Administration Buildings, and associated buildings and parking facilities would convert up to 91 acres of land (of which up to 25 acres would be forest land) into developed facilities and associated landscape vegetation on Sites, F, G, and X, under the preferred alternative. Existing vegetation within the footprint of the proposed BRAC projects would be permanently and completely removed during construction (though historic trees would be preserved to the greatest extent possible), and new vegetation would be planted around the buildings once construction is complete. Impacts to vegetation would be adverse but not significant because the project areas considered for the BRAC actions are located in predominantly developed areas, or in areas of grassy meadow and lawn with thinly scattered trees and shrubs commonly found within the region. Natural plant communities in these areas have rather low vegetative diversity. Twenty (20) percent of the forestlands on these sites (5 acres total) would be preserved to comply with FCA standards.

Proposed EUL project areas include large tracts of pine-hardwood forests, containing species commonly found within the region. Specific details regarding types, numbers, and layout of the proposed structures associated with the EUL (Sites Y and Z) have not yet been determined, however it is anticipated that these two sites would accommodate approximately 2 million square feet of office space and associated parking. Depending upon the layout, design, and number of buildings and parking facilities ultimately determined for each site, up to 45 acres of forest land on Sites Y and/or Z would be impacted, with roughly 30 acres for utilized for parking. Up to 45 acres of forest cover would be permanently removed in association with the new development occurring on both Sites Y and Z. Of the 45 acres, no more than 34 acres can be utilized for development on Site Z as there are only 50 acres of forestlands in Site Z, of which 6 acres of wetlands would be avoided. Twenty (20) percent of the forestlands on the site (10 acres) would also be preserved to comply with FCA standards. Once construction is completed, new vegetation would be planted around the new buildings.

The proposed EUL action would also include the development of two new 18-hole golf courses on Site S. Site S is a 367-acre site at the southeast corner of Fort Meade, of which 90 acres is a capped landfill and 202 acres is forested. The addition of the golf courses on Site S would encompass the landfill and up to 160 acres of forestland. Development would avoid wetlands and preserve 40 acres of forestlands (20 percent of the 202 acres of forestlands) at Site S, thus complying with FCA standards. Areas extending beyond the landfill would have the existing vegetation within the footprint of the golf courses permanently removed during construction. The disturbed areas would then be planted with vegetation associated with the golf course, and the entire site would be managed as a green space. Should future

design plans for the golf course impact more than 160 acres of forests, additional approval and mitigation measures may be necessary and would be evaluated at that time.

Existing vegetation within the footprint of the proposed EUL projects would be permanently and completely removed during construction. Impacts to vegetation would be significant and adverse because of the magnitude of the forestlands losses.

The EUL Action would result in some benefits, however. Native shrub and tree species would be planted where possible to provide a higher quality, albeit reduced amount of habitat. Large or historic trees (those that are preferred dominant natives, such as oaks and American beech) would be preserved to the greatest extent possible and additional trees planted around them. Buffers of a minimum of 50 feet, with a preferred arrangement of 3 rows, would be installed in areas along connection corridors and other sensitive areas. Connection corridors are where forested areas on the installation connects, i.e. Site Z to Site Y to other forested areas on the installation.

Consistent with FCA standards, 20 percent of the project area would be preserved as forested. Alternative sites would be designated for reforestation if the 20 percent requirement could not be met. To the extent possible, all proposed project sites (BRAC and EUL action) would be designed to avoid Forest Conservation Mitigation Areas, which can be found on Site Y. If preexisting Forest Conservation Mitigation Areas are disturbed, then the Installation would replace the disturbed area at a ratio of 1:1 (Colianni, 2006b). FCA requirements that Fort Meade would adhere to are described in the FGGM Policy, (Fort Meade 2006c) and are:

- Proposed projects 40,000 SF or larger would comply with the FCA and submit their proposal through Fort Meade to the MDNR for review and approval. The long term agreement cannot be developed with MDNR, but rather would be incorporated in the Installation's Natural Resources Management Plan to ensure compliance with the FCA plan.
- In lieu of submitting a FCA application to MDNR, smaller development and short-term construction projects, as determined by Fort Meade, may be directly approved by the Installation. Approval requires FCA mitigation at 20% of the project area.
- FCA specifications and standards would be followed. To the fullest extent, all mitigation shall occur within the project area; otherwise on other Fort Meade designated land, such as Forest Conservation Areas (Fort Meade, 2006a; Marquardt, 2006) (see Figure 4-4).
- The Forest Stand Delineation plan would include existing forest, and locations of all 100-year old indigenous dominant trees (considered historic/specimen trees on Fort Meade). The Forest Conservation Plan would be a component of the project development plans, with full retention

priority given to the preservation of the older developing forest areas and individual historic/specimen trees.

- Should existing designated forest conservation mitigation areas require disturbance or development, the project proponent would mitigate the impact as provided for in the FCA standards but not less than an equal mitigation area.
- Landscape tree planting areas may be credited as FCA mitigation areas, but these areas must be a minimum of 35 feet wide (with 3 trees abreast) and cover a minimum 0.25 acre (measured from the tree trunks).
- All afforestation/reforestation (2) plants shall be indigenous dominant native trees, such as oaks, American beech, yellow poplar, and pitch pine, and have a one year replacement warranty. Planting density would be proportional to 120 caliper tree inches per acre (eg. 96 – 1.25”, 160 – 0.75”, 240 – 0.5” caliper trees).

Forestry Best Management Practices (BMPs) and practices to control erosion and sedimentation during clearing and construction activities would also be implemented to minimize potential impacts to adjacent forested habitats and water quality. Timber within areas to be developed could be harvested and revenue collected would go into a DoD forestry account to be used for future forestry programs on Army Installations.

Wildlife

Significant adverse impacts to wildlife on the project sites would be expected. The majority of wildlife species that occupy the project areas are typical of those associated with similar forest habitats occurring in the region. Implementing the proposed BRAC and EUL actions would result in direct loss through construction activities, as well as through loss of habitat.

Under the Preferred Alternative, up 230 acres of forest land could be affected, although the actual total acreage disturbed would be dependent upon the design and layout of the different structures, and the number of buildings, associated infrastructure that would be built, and securing sufficient space for parking facilities.

Vegetation cover provides limited wildlife habitat. The few urbanized birds and small mammals residing on the proposed project sites would be permanently displaced, but would quickly relocate to similar habitat elsewhere on the installation.

² Afforestation is the establishment of a forest in an area on which forest cover has been absent for a long period of time or the planting of open areas that are not presently in forest cover.

Construction and operation of the EUL projects would result in temporary and permanent alteration of wildlife habitat, as well as direct impact on wildlife species including disturbance, displacement, and mortality. The clearing of vegetation would reduce cover, nesting, and foraging habitat for some wildlife. During construction, the more mobile species would be temporarily displaced from the project sites to similar habitats nearby. Some wildlife displaced would return to the newly disturbed area and adjacent, undisturbed habitats soon after completion of construction. Birds would return and use the open areas adjacent to the developed areas. Less mobile species, such as small mammals, reptiles, and amphibians, as well as bird nests located in the trees to be removed, could be destroyed by construction activities.

Direct loss and segmenting of forest habitat for wildlife would occur as a result of clearing for development. Conversion of Site S forest lands to managed greenspace, would diminish its value as wildlife habitat. Loss of Forest interior dwelling species (FIDS) would occur as a result of siting of proposed project on Sites Y and Z that would involve the removal of large tracts of contiguous forests on these Sites. Loss of mast-producing forested areas would result in a reduction in food available for species that depend on the resource. Segmenting of contiguous forests in Sites Y and Z, and particularly S, would result in a reduction of available corridor area for species movement. Mobility of wildlife species in these areas of the development would be affected as a result of habitat segmentation. Construction of the new golf courses on Site S would not impact species movement since Site S is bounded by Route 32 and railroad tracks. The resulting developed clearing could increase the diversity of edge habitat by encouraging native shrubs, grasses, and forbs to establish in these areas. Some wildlife use of landscaped vegetation surrounding developments could occur depending on the type and level of human activity associated with development.

Greenways and open space scattered throughout the installation that are maintained as grassy areas and golf course have limited value as wildlife habitat, due to the lack vegetative cover. Large forested parcels on the Installation (some with 100 acres or more in the northern and western sections) have greater habitat value because they are more likely to sustain a variety of species and provide a closed canopy that is fairly undisturbed. These on-post forested areas combined with forested areas extending off-post create large clusters of forest land habitat.

FIDS require relatively large contiguous forest areas (greater than 100 acres) to sustain viable breeding populations. The conservation of such large tracts of contiguous forest, such as those found on Sites S and Y, which potentially support FIDS is strongly encouraged by the MDNR. Fort Meade, a stakeholder in the Chesapeake Bay Initiative, intends to maintain these large forested areas on-post for wildlife habitat following the mandates of the Maryland Forest Conservation Act in a voluntary manner (Fort Meade, 2001).

Some positive impacts on wildlife habitat would be expected from replanting and landscaping efforts. Native shrub and tree species would be planted where possible to provide a higher quality, although reduced amount of habitat. Large or historic trees (those that are preferred dominant natives, such as oaks and American beech) would be preserved to the greatest extent possible and additional trees planted around them. Buffers of a minimum of 50 feet, with a preferred arrangement of 3 rows, would be installed in areas along connection corridors and other sensitive areas.

Rare, Threatened, and Endangered Species

No adverse impacts to rare, threatened, and endangered species would be expected. The Endangered Species Act (16 USC 1531 et seq.) mandates that all federal agencies consider the potential effects of their actions on species federally listed as threatened or endangered. The 2001 Rare, Threatened, and Endangered Species Habitat Search (Eco-Science Professionals, 2001) identified the RTW flora present at the Installation. No known federally listed species are known to occur at the proposed BRAC and EUL action project sites, or on the Installation.

Habitats for the State status Uncertain, but possibly rare roughish panicgrass can be found within the Habitat Protection Areas in Site S. Proposed construction sites would avoid these areas to the greatest extent practicable to avoid any adverse impacts to these habitats. The MDNR recommends protection measures for this species to be incorporated into the site design for the golf course on Site S. Fort Meade and the site developer would strongly consider the MDNR recommendation to protect this species to the extent possible based on the site constraints of the design. Additional delineation of the extant population on Site S will be considered. Should large extant populations of roughish panicgrass are found within the proposed golf course site, Fort Meade will coordinate with the MDNR to remove and relocate individual specimens to a suitable off-site location, if requested by MDNR. No other state-listed rare, threatened, or endangered species occur any of the proposed BRAC or EUL project sites..

Aquatic Resources

No significant adverse impacts to aquatic resources would be expected. The proposed project areas for BRAC actions in Sites F and K contain approximately 4,800 feet of Midway Branch, a tributary to the Little Patuxent River. A wetland survey verifying ground conditions would be conducted at all BRAC and EUL sites prior to commencing ground disturbance actions associated with construction to verify presence or absence of any small isolated wetlands.

The proposed project areas for the EUL action contain areas of wetland habitat that can support populations of aquatic or semi-aquatic organisms. The vegetated areas within these three sites contain wetland environment that could offer habitat to certain macroinvertebrates and amphibians.

Best management practices, such as installing silt fences and hay bale barriers during construction would minimize toxicant and sediment loadings to adjacent aquatic habitat. For past construction projects Fort Meade has implemented measures such as installing riparian buffers and "no-mow" zones along stream channels.

4.8.2.3 BRAC Realignment Action Alternative

Vegetation

No significant adverse effects would be expected to vegetation. Impacts to vegetation under this alternative would be similar to those described for BRAC actions under the BRAC Directed Realignment and EUL Actions Alternative (Preferred Alternative). The proposed project would convert up to 25 acres of forest land into developed facilities and associated landscape vegetation, however, the project areas considered for the BRAC actions are located in predominantly developed areas, or in areas of grassy meadow and lawn with thinly scattered trees and shrubs commonly found within the region. Natural plant communities in these areas have rather low vegetative diversity. No significant adverse effects would be expected from construction of the proposed BRAC action facilities.

Existing vegetation at the project sites would be completely removed during construction (with historic trees being preserved to the greatest extent possible), and new vegetation would be planted around the new buildings once construction is complete. Impacts to vegetation would be adverse but not significant because the project areas considered for the BRAC actions are located in predominantly developed areas, or in areas of grassy meadow and lawn with thinly scattered trees and shrubs commonly found within the region. Natural plant communities in these areas have rather low vegetative diversity.

Landscaping would benefit vegetation. Native shrub and tree species would be planted where possible to provide a higher quality, albeit reduced amount of habitat. Large or historic (those that are preferred dominant natives, such as oaks and American beech) would be preserved to the greatest extent possible and additional trees planted around them. In keeping with FCA standards, the Installation would preserve 20 percent of the project area as forested. If this is not possible, then alternative sites would be designated for reforestation. Forestry BMPs and practices to control erosion and sedimentation during clearing and construction activities would be implemented to minimize potential impacts to adjacent forested habitats and water quality.

Wildlife

No significant adverse effects would be expected to wildlife. Impacts to wildlife and wildlife habitat under this alternative would be similar to those described for BRAC actions under the BRAC Directed Realignment and EUL Actions Alternative (Preferred Alternative).

The majority of wildlife species that occupy the project areas are typical of those associated with similar forest habitats occurring in the region. Implementing the proposed BRAC actions would result in direct loss through construction activities, as well as through loss of habitat.

Under the Preferred Alternative, up 25 acres of forest land could be affected, with the actual total acreage disturbed dependent upon the design and layout of the different structures, the number of buildings required to meet the need of the mission securing sufficient space for parking facilities, and the constraints each of the proposed sites.

None of the wildlife habitats in the proposed project areas considered for the BRAC actions have important wildlife habitat values. It is expected that the few urbanized birds and small mammals that may be found on these proposed project sites to be permanently displaced but would quickly relocate to similar habitat elsewhere on the Installation.

Construction activities would likely result in the mortality of some less mobile fauna such as reptiles, amphibians, nesting birds, and small mammals. Most wildlife would be expected to relocate from areas within or immediately surrounding construction areas. After construction is completed, it is expected that some of the displaced species, particularly birds, would return and use the open areas adjacent to the developed areas. No significant adverse impacts to wildlife on the project sites are expected under this alternative.

Rare, Threatened, and Endangered Species

No significant adverse effects would be expected to rare, threatened, and endangered species. Impacts to rare, threatened, and endangered species under this alternative would be similar to those described for BRAC actions under the BRAC Directed Realignment and EUL Actions Alternative (Preferred Alternative).

No known federally listed species are known to occur at the proposed BRAC project sites, or on the Installation. Therefore, no adverse effects to rare, threatened, or endangered species would be expected.

Aquatic Resources

No significant adverse effects would be expected to aquatic resources. The proposed project areas for BRAC actions in Sites F contain approximately 4,800 feet of Midway Branch, a tributary to the Little Patuxent River. A wetland survey verifying ground conditions would be conducted at all BRAC and EUL sites prior to commencing ground disturbance actions associated with construction to verify presence or absence of any small isolated wetlands.

4.9 CULTURAL RESOURCES

4.9.1 Affected Environment

This section presents information on buildings, sites, structures, districts, and objects eligible for or included in the National Register of Historic Places (NRHP); cultural items as defined in the Native American Graves Protection and Repatriation Act (NAGPRA) of 1990; American Indian 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 affected environment for cultural resources is potentially the entire 5,067 acre installation plus any adjacent off post resources on or eligible for the NRHP that may be impacted by development or operations at Fort Meade. The identification of significant cultural resources, however, depends upon professional cultural resource surveys carried out with reference to established contexts and the official criteria for NRHP eligibility.

An additional category of cultural resource is cemeteries or burial grounds. They are not normally eligible for the NRHP unless they possess other significant qualities of design or association; however, they constitute resources of evident importance and are protected by other laws.

4.9.1.1 Pre-Contact and Historic Background

The pre-contact and historic background of Fort Meade prior to Army acquisition will be described only briefly as none of the NRHP eligible cultural resources on the fully surveyed installation relate to these periods.

Fort Meade's level to gently rolling terrain is located in the drainage of the Little Patuxent River in the Atlantic Coastal Plain Physiographic Province. Human habitation in the pre-contact period in the Middle Atlantic is conventionally divided into the Paleo-Indian Period (12,000-6,500 B.C.E.), the Archaic Period (6,500-1,000 B.C.E.), and the Woodland Period (1,000 B.C.E.-1600 C.E.) It appears from the

archaeological record that the higher elevations above the Little Patuxent and its tributaries were utilized frequently by American Indians for seasonal camps and sources of quarrying from the middle of the Archaic Period to the Late Woodland. In later years, the evidence of human activity in the area of Fort Meade declines, presumably due to the greater appeal of the floodplains of the lower Patuxent in an era of agriculture.

By the 1660s European settlers had arrived along the banks of the Patuxent River, as with other navigable tributaries of the Chesapeake Bay, and begun subsistence farming and the cultivation of tobacco for export. Quaker settlers came to the area of the future Fort Meade. As the tobacco monoculture declined in the mid-1700s other crops and small scale industry developed. An ironworks was established in 1736 by Richard Snowden, a large local landowner, to exploit deposits of bog iron ore. The Snowdens also operated sawmills and grist mills along the river. The iron industry peaked in the early 19th century and disappeared by 1860. Although the area was economically stagnant, the Meade territory boasted a church, school, general store and post office in addition to houses. During the Civil War the nearby railroad lines that linked Washington, DC with the Northeast were of vital strategic importance and were guarded by Union troops, as was the state of Maryland itself, the secession of which would have isolated the national capital.

Camp Meade was one of 32 cantonments established by the Army during World War I. It was authorized by an Act of Congress in May 1917 and the present Maryland site selected on June 23, 1917. Actual construction began in July and the first contingent of troops arrived in that September. By October, 1918, the full compliment of facilities for its mobilization and training mission was complete. It included barracks, a hospital complex, headquarters, warehouses, and a remount depot.

The post was originally named Camp Meade for Major General George Gordon Meade, whose defensive strategy at the Battle of Gettysburg proved a major factor in turning the tide of the Civil War in favor of the North.

During World War I, more than 100,000 men passed through Camp Meade, a training site for three infantry divisions, three training battalions and one depot brigade.

After serving a demobilization mission following the conclusion of the war, Camp Meade was retained by the Army, which kept the property because of its investment in buildings and other infrastructure. In 1928, when the post was renamed Fort Leonard Wood, Pennsylvanians registered such a large protest that the installation was permanently named Fort George G. Meade on March 5, 1929. The Inter-War years

were not insignificant at Meade as the Army operated a tank school until 1931, training such future leaders as Dwight Eisenhower and George Patton.

Fort Meade's subsequent construction history naturally followed in the wake of international events and the nation's involvement in military conflict. After the Nazi offensives in Europe, Fort Meade prepared for the coming participation of the United States in World War II. A \$15.6 million mobilization construction program began in which 251 permanent brick buildings and 218 temporary wooden buildings were constructed and additional acreage acquired.

Fort Meade was a training center for both the Army and the National Guard during World War II. Its ranges and other facilities were used by more than 200 units and approximately 3.5 million men between 1942 and 1946. The wartime peak-military personnel figure at Fort Meade was reached in March, 1945-70,000. It also served as a Prisoner of War Camp for German and Italian prisoners.

With the conclusion of World War II, Fort Meade reverted to routine peacetime activities, but was later to return to build-up status. Many crises, including Korea, West Berlin and Cuba, along with Vietnam-related problems, were to come.

One key post-World War II event at Fort Meade was the transfer from Baltimore, on June 15, 1947, of the Second U.S. Army Headquarters. This transfer brought an acceleration of post activity, because Second Army Headquarters exercised command over Army units throughout a seven-state area. A second important development occurred on January 1, 1966, when the Second U.S. Army merged with the First U.S. Army. The consolidated headquarters moved from Fort Jay, N.Y. to Fort Meade to administer activities of Army installations in a 15-state area. In August 1990, Fort Meade began processing Army Reserve and National Guard units from several states for the presidential call-up in support of Operation Desert Shield. In addition to processing reserve and guard units, Fort Meade sent two of its own active duty units--the 85th Medical Battalion and the 519th Military Police Battalion--to Saudi Arabia. In all, approximately 2,700 personnel from 42 units deployed from Fort Meade during Operation Desert Shield/Desert Storm. Today, Fort Meade provides support and services for more than 78 tenant units which include the Defense Information School Headquarters, the U.S. Army Field Band, and the National Security Agency.

4.9.1.2 Status of Cultural Resource Inventories and Section 106 Consultations

Fort Meade is in compliance with the mandate of Section 110 of the National Historic Preservation Act (NHPA) to survey, inventory and evaluate National Register of Historic Places eligibility for all cultural resources under its control. This has been accomplished through a series of cultural resources surveys

carried out by professionally qualified consultants, whose conclusions, once endorsed by the Army, have been reviewed and confirmed by the Maryland State Historic Preservation Office (SHPO). Section 106 of NHPA, as set out in the procedures of 36 CFR Part 800, requires that Federal Agencies such as the Army/Fort Meade take into account the effect of any undertaking upon NRHP eligible resources and allow the Advisory Council on Historic Preservation (ACHP) a reasonable opportunity to comment upon the adequacy of that consideration. With recent revisions to ACHP's procedures, this consultation process has become, more than ever, a dialogue delegated to the cognizant SHPO and the public, except in exceptional circumstances of national significance or the setting of new precedents. As with NEPA, the obligation of the Federal agency under NHPA is one of taking into account and incorporating into its project planning certain values, such as historic preservation. The Federal agency, however, retains the final decision in balancing these values with its mission imperatives.

Eligibility for the NRHP is established according to the official Criteria of Evaluation issued by the Department of the Interior. They relate to:

The quality of significance in American history, architecture, archeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and:

- A. That are associated with events that have made a significant contribution to the broad patterns of our history; or
- B. That are associated with the lives of persons significant in our past; or
- C. That embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
- D. That have yielded or may be likely to yield, information important in prehistory or history.

Built Environment – During the preparation of Fort Meade's 1994 Cultural Resources Management Plan (CRMP), all buildings constructed at Fort Meade prior to 1954 were evaluated for their eligibility for the NRHP. (Properties must generally be at least 50 years old to be considered for eligibility unless they are of exceptional significance.) The survey, carried out by the firm of R. Christopher Goodwin & Assoc., evaluated 501 buildings. No World War II temporary buildings were found NRHP eligible. More information was required to determine the NRHP status of 23 World War I and 62 World War II semi-permanent buildings. In 1996, The Goodwin Team carried out a Phase II architectural survey which provided the additional evaluation. (USACE, 2001)

In 2001, in conjunction with the preparation of the current ICRMP by the USACE, Corps architectural historians evaluated pre 1960 buildings at the installation. The reference point was the context of the early Cold War. All of these surveys were submitted to the Maryland SHPO for their review and concurrence in their findings. (Di Giovanni, 2006a)

The results are as follows. Although no buildings or structures at Fort Meade have been formally listed on the National Register, two properties, a historic district and a building have been determined eligible by an Army/ SHPO consensus determination. (Di Giovanni, 2006a) (This affords them the same status under NHPA as formal listing).

The Fort Meade Historic District includes the historic planned core of the post which was constructed in substantial Georgian Revival brick buildings between 1928 and 1940. It includes such major landmark buildings as Hodges Hall at the terminus of a formal vista, the Old Post Hospital, and the Van Deman, Benjamin Tallmadge, and Nathan Hale Hall barracks complex. The district, which also includes a parade ground, has a low-scale campus-like feeling and exemplifies the “cultural landscape” of an Army base of this period. Originally consisting of 132 buildings or structures, the number directly managed by the Army has been reduced to 13, as the housing units, which constituted the bulk of the district’s resources, have now been privatized. (Di Giovanni, 2006a) Nonetheless, the Army retains a residual obligation to ensure that the historic qualities of the privatized housing are maintained.

The only other built resource determined NRHP eligible is the Water Treatment Plant or Bldg. 8868, due to its Art Moderne architectural style. (USACE, 2001)

Not yet fully evaluated but likely to be found NRHP eligible, are the three masonry bridges adjacent to the Fort Meade Historic District which cross Franklin Branch Creek and were constructed by World War II German prisoners of war.

The nine cemeteries present on the Fort Meade property were largely acquired at the post’s founding although the Post Cemetery has been used for Army personnel burials. They have been evaluated and found not to possess the additional characteristics of significant architectural style or association which would qualify them for the NRHP; obviously they are still important cultural resources. The location of all above ground Cultural Resources are shown on Figure 4-5. The names of the cemeteries shown on the figure are: #1 Post.

Archaeological Resources – Prior to the preparation of the 1994 CRMP, limited archaeological investigations were conducted on case by case project driven basis. For the 1994 CRMP, R Christopher Goodwin & Assocs. developed an archaeological sensitivity model to identify low and high probability

areas for archaeological sites as well as disturbed areas with no potential. Survey of 2,719.6 acres was recommended, and no survey for 1,825.9 acres. A testing of the sensitivity model on 407.7 acres by means of a Phase I or Reconnaissance Survey yielded six sites. (USACE, 2001) Additional Phase I testing was done on 2,210 acres in 1995. Additional survey work has been done subsequent to the 2001 ICRMP. The net result has been the identification of a total of 36 archaeological with assigned site numbers (not including four cemeteries which have also been assigned site numbers). (Di Giovanni, 2006a) They represent a mix of pre-contact and historic sites, while some have components of both. Examples include a Late Archaic/Early Woodland base camp with lithic material, a late 19th/early 20th century domestic site with nails and ceramic, and a military training landscape with trenches from World War I.

Archaeological sites are typically evaluated for NRHP eligibility against Criterion D above. They must retain considerable integrity and be a source of important scientific or historical knowledge. In many cases, they can only be evaluated after an additional level of archaeological investigation known as Phase II or Evaluation Testing. At present all identified archaeological sites at Fort Meade have been evaluated for the NRHP. Only one, 18AN1240, has been determined NRHP eligible; all others are not. This finding has been concurred in by the Maryland SHPO. (Di Giovanni 2006b) Therefore, only 18AN1240 is accorded protection under NHPA, protection which would typically require it to be kept undisturbed or, if absolutely necessary, further researched in a Phase III Survey, sometimes called “data recovery” in which all significant information was harvested. Again, cemeteries are subject to other legal mandates, regardless of whether or not they are NRHP eligible. The location of the cemeteries is shown on Figure 4-5, but not that of 18AN1240. It is Army policy to avoid publicizing the location of archaeological sites to protect them from vandalism.

4.9.1.3 Native American Resources and Sacred Sites

To date, no traditional cultural properties or American Indian sacred sites have been recorded at Fort Meade. There are no Federally recognized Indian tribes present in Maryland. Some Federally recognized tribes elsewhere in the United States, however, may have a historical affiliation with the state due to past occupancy by their ancestors. The Cultural Affairs Manager for Fort Meade, with the advice of the Maryland coordinator for Indian affairs, has initiated consultation in accordance with AIRFA and NAGPRA with the seven tribes believed to have a past presence in the state to ascertain their interest in Fort Meade matters. (Di Giovanni, 2006a)

The current Fort Meade ICRMP contains a complete list of laws and procedures relating to American Indian patrimony which would be implemented in the event of an unanticipated discovery.

4.9.2 Environmental Consequences

4.9.2.1 No Action Alternative

No adverse effects would be expected on any architectural or archaeological resources on or eligible for the National Register of Historic Places under Section 106 of the National Historic Preservation Act. No adverse effects would be expected on any American Indian resources or sacred sites. No adverse effects would be expected on any of the nine cemeteries.

4.9.2.2 BRAC Realignment and Enhanced Use Lease Actions Alternative

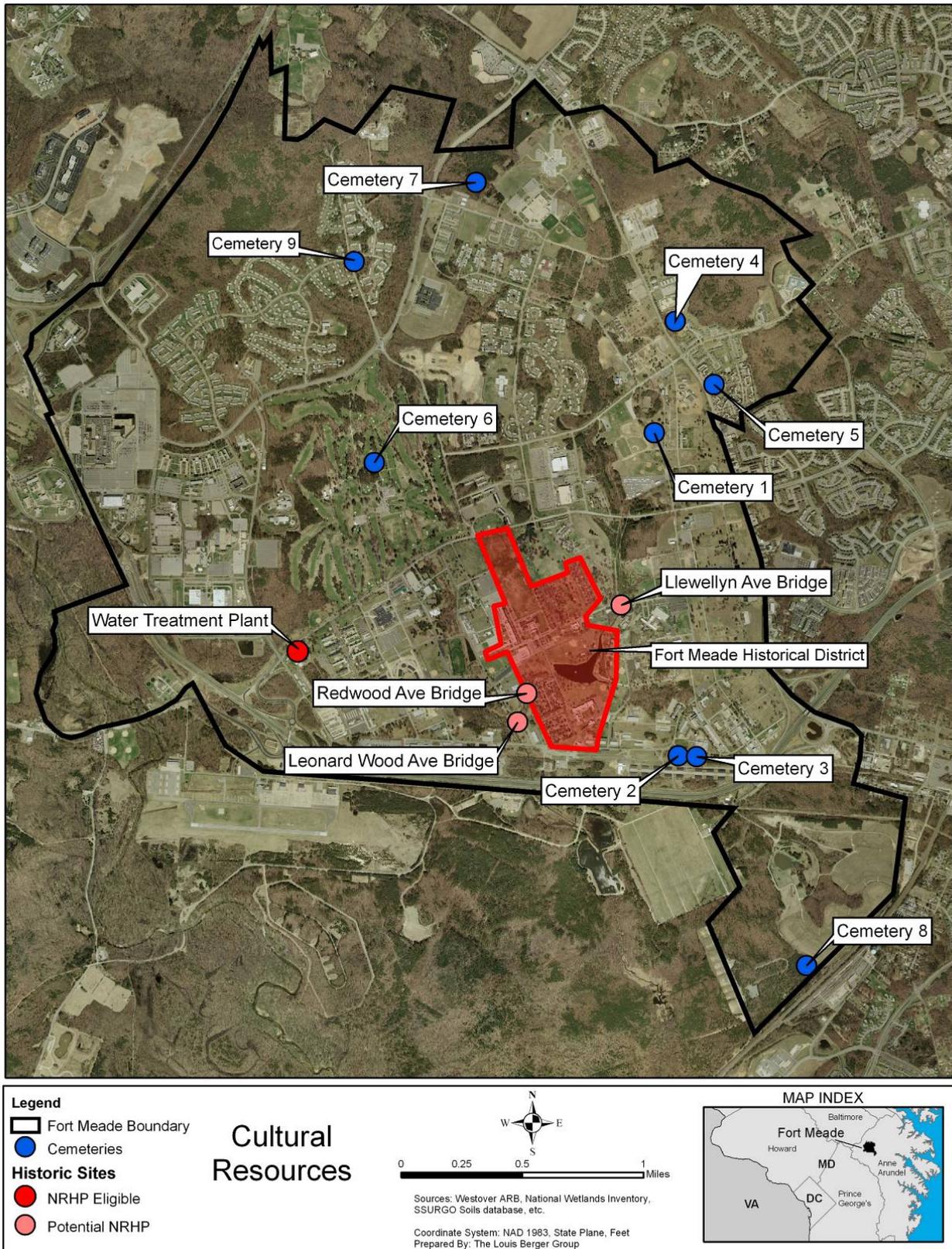
No adverse effects would be expected on the sole NRHP eligible archaeological site at Fort Meade. There would be no adverse effects upon any American Indian resources or sacred sites. There would be no effects to any of the nine cemeteries.

Only construction at Site K would potentially impact any architectural resource eligible for the National Register of Historic Places (NRHP) because the site is adjacent to and overlaps the Fort Meade Historic District. Specifically, Buildings # 4552, 4553, and 4554, all contributing elements of the district, overlap Site K. New construction, however, would not require the demolition of these historic buildings. Under Section 106 of the National Historic Preservation Act, actions which affect the setting of historic buildings can be deemed to have an “adverse effect” within the terms of the implementing regulation. Adjacent new construction, which is compatible in scale, feeling, and design, however, need not have an “adverse effect”. As no design of any new facility to be built on Site K has been prepared, the final effect upon the Fort Meade Historic District cannot yet be determined. Further consultation under Section 106 with the Maryland State Historic Preservation Officer (SHPO) would be required if this site is built upon. This concern applies to BRAC Sub-alternatives 2B, which utilize Site K.

4.9.2.3 BRAC Realignment Action Alternative

No effects would be expected on the sole NRHP eligible archaeological site at Fort Meade. There would be no effects upon any American Indian resources or sacred sites. There would be no effects to any of the nine cemeteries.

Figure 4-5. Fort Meade Cultural Resources



Only construction at Site K would potentially impact any architectural resource eligible for NRHP because the site is adjacent to and overlaps the Fort Meade Historic District. Specifically, Buildings # 4552, 4553, and 4554, all contributing elements of the District, overlap Site K. However, new construction would not require the demolition of these historic buildings. Under Section 106 of the NHPA, actions which affect the setting of historic buildings can be deemed to have an “adverse effect” within the terms of the implementing regulation. On the other hand, adjacent new construction which is compatible in scale, feeling, and design need not have an “adverse effect. As no design of any new facility to be built on Site K has taken place, the ultimate effect upon the Fort Meade Historic District cannot yet be determined. Further consultation under Section 106 with the Maryland SHPO would be required if this site is built upon. This concern applies to BRAC Sub-alternative 2B, which utilize Site K.

4.10 SOCIOECONOMICS

4.10.1 Affected Environment

The socioeconomic ROI for Fort Meade consists of Anne Arundel County, Howard County, Montgomery County, and Prince George’s County in Maryland. These counties comprise the area in which the predominant socioeconomic effects of the Proposed Action would take place. 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 baseline year for the socioeconomic analysis is 2005, although much of the economic and demographic data for the ROI are only available through 2004. The descriptions of the affected environment are based on the most recent data available to most accurately reflect the current economic and social conditions of the ROI.

4.10.1.1 Economic Development

Regional Economic Activity - The ROI’s regional economy is dominated by non-farm industries such as government and government enterprises, retail trade, professional and technical services, and health care. These sectors provide about 44 percent of jobs in the four counties. The agricultural sector contributed only 2,219 out of the 1,545,450 jobs recorded in ROI during 2004 (USBEA, 2004).

With an average annual rate of 3.5 percent in 2005, the unemployment rate for the ROI was below that of the national unemployment rate of 5.1 percent. That rate was also slightly below Maryland’s unemployment rate of 4.1 percent.

Installation Contribution to the Local Economy - Fort Meade employs a total of 30,742 personnel including 5,441 military personnel, 17,256 civilian employees, and 7,775 contractor personnel. The installation workforce accounts for approximately 2 percent of all ROI employment. In 2005, installation expenditures in the ROI totaled \$4,000,000,000 of which \$1,500,000,000 were for payroll expenditures, 2,200,000,000 for contracts, and \$300,000,000 for other expenditures (Hartman, 2006). The average annual salary for civilian workers at Fort Meade is \$80,425. Salaries for permanent military personnel at Fort Meade averaged approximately \$66,000 in 2007. Relative to size of the ROI, Fort Meade’s overall contribution to the regional economy is modest. Fort Meade provides only 2 percent of the ROI total employment, although the Fort’s activities likely generate a substantial number of additional indirect and induced jobs. Given the large size and stability of Fort Meade’s workforce over time, the installation is well-integrated into the local economy.

4.10.1.2 Demographics

The most recent Census Bureau estimates indicate that the ROI’s population reached 2,554,041 inhabitants in 2005. Montgomery County is the most populous county within the ROI as well as the state, but Howard County (the least populated county in the ROI) has experienced the fastest rate of population growth in the ROI since 1980. (Stats Indiana, 2006b). Population data for the ROI counties, Maryland, and the United States are presented in Table 4-16 for comparison purposes.

Table 4-16. ROI Population Growth 1980 -2005

Location	1980	1990	2000	(Estimated) 2005
Montgomery County	579,053	762,875	873,341	927,583
Anne Arundel	370,775	427,239	489,656	510,878
Prince George’s	665,071	722,705	801,515	846,123
Howard County	118,572	187,328	247,842	269,457
Maryland	4,216,975	4,781,468	5,296,486	5,615,727
United States	226,542,250	248,790,925	281,421,906	296,410,404

Source: Stats Indiana, 2006b

4.10.1.3 Housing

Housing characteristics for the ROI are presented in Table 4-17 for the year 2004, as well as median housing values by county for the year 2000. The majority of housing units in the ROI are owner-occupied, although Ann Arundel and Howard Counties have significantly fewer rental units than the other two counties. The housing units identified in the table include all structure types (e.g., single-family homes, apartments, and mobile homes).

Table 4-17. ROI Housing Characteristics (2005 Census estimates)

	Montgomery County	Anne Arundel County	Prince George's County	Howard County
Total Housing Units	356,603	199,398	314,221	101,136
Occupied Housing Units	324,565	178,670	286,610	90,043
Owner-occupied	223,017	143,921	177,177	66,479
Renter-occupied	101,548	43,749	109,433	23,564
Vacant Housing Units	10,067	8,267	15,768	2,775
Vacant for Seasonal, Recreational, or Occasional Use	1,707	325	533	325
Median Home Value (2000, Owner-occupied)	210,600	156,500	143,700	198,600

Source: Stats Indiana, 2006c and US Census, 2000

As shown in Table 4-17, the 2000 median value of owner-occupied housing units in all counties exceeded the national median value of \$119,600, although the median home values for Montgomery County were almost 50 percent greater than for Prince George's County (US Census, 2000). It should be noted that within Anne Arundel County, there are plans to construct an additional 6,600 homes in the near future, which would increase the overall vacancy rate and available housing in that county.

4.10.1.4 Public Services

Law Enforcement and Fire Protection – A mixed team consisting of DA civilians and US Army Military Police offer emergency and law enforcement services on the installation. They also share duties with AACO police units located on State highways MD 32 and MD 175. Off-post, there are police departments in all the counties of the ROI. Prince George's County Police Department has 1,675 full time personnel serving the county, with 871 marked and 534 unmarked vehicles. Anne Arundel County's police department totals 1000 sworn and civilian personnel. Montgomery County's Police Department serves the county out of 6 district stations, and Howard County Police operates patrols in the Northern and Southern Districts of the county.

The Fort Meade fire department is centrally located on the post and consists of 2 engine companies, a truck company and a HAZMAT team. There are more than 115 fire and rescue departments operating within the ROI: 4 county and 7 volunteer stations in Howard County, 30 stations and 4 battalions in Anne Arundel County, 44 stations and 7 battalions in Prince George's County, and 33 stations in Montgomery County. There exists a mutual agreement among the fire departments to respond to calls in neighboring counties.

4.10.1.5 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 - Table 4-18 below summarizes the available housing on Fort Meade for military personnel. There is a waiting list for SGO housing for E-6 and above, and generally, living assignments to bachelor and transient quarters are based the rank of personnel and date of application. For military personnel who are seeking housing outside of the installation, Fort Meade's Off-Post Housing Referral service assists them in finding suitable housing within the Fort Meade area. This office provides listings of homes for sale and rent, as well as agents that assist in finding rental and sale units.

Table 4-18. Distribution of Fort Meade Housing Units by Type

Housing Unit Type	Number of Units	Vacancy Rate (percent)
Family Housing Total	2,985	24*
Enlisted officer family units	402	16
Barracks	1406	10

*There are currently 200 units temporarily unavailable due to remodeling. When those units become available, they will be occupied and the vacancy rate will be reduced to 15 percent.

Data Source: (Stafford, 2006 and Carolan 2006)

Health Care Facilities - The Kimbrough Ambulatory Care Center is located at Fort Meade and offers outpatient and urgent medical care to military personnel on the installation. Emergency rooms are located and in-patient care is offered at the more than 19 hospitals located within the ROI, including 4 military hospitals located throughout the Washington, DC metropolitan area. The closest hospitals to Fort Meade are Laurel Regional Hospital (Laurel, MD.) and North Arundel Hospital (Glen Burnie, MD.).

Other Facilities and Activities - Employees at Fort Meade can find a variety of amenity services on-post. Many of these services and shops are located at or near the shopping complex where the main post-

exchange and commissary are also located. A fitness center, park, two 18-hole golf courses, tennis courts, a movie theater, a field house, and an arts and crafts center are all located on-post.

Educational Services 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-to-year according to congressional appropriations for the program, but in general federal impact aid has ranged from \$250 to \$2,000 per student.

Schools - There are more than 570 primary and secondary public schools within the ROI. During the 2003-2004 school year, more than 389,000 students were enrolled in these schools (NCES 2003-2004).

In addition, Fort Meade has 7 schools on-post including 4 elementary schools, 2 middle schools, and one high school (Table 4-19).

Table 4-19: 2003-2004 School Year Public Education Statistics

School District or County	School Type	Enrollment	Total District Enrollment
Montgomery	Elementary (124)	60,300	136,400
Montgomery	Middle (38)	31,700	
Montgomery	High (25)	43,700	
Montgomery	Other (7)	700	
Anne Arundel	Elementary (76)	24,800	64,000
Anne Arundel	Middle (18)	17,300	
Anne Arundel	High (14)	21,500	
Anne Arundel	Private/Other (6)	500	
Howard	Elementary (37)	21,700	50,800
Howard	Middle (20)	12,900	
Howard	High (2)	15,200	
Howard	Private/Other (2)	1000	
Prince George's	Elementary (137)	69,300	137,800
Prince George's	Middle (34)	24,400	
Prince George's	High (25)	41,300	
Prince George's	Private/Other (12)	2800	

School District or County	School Type	Enrollment	Total District Enrollment
Total /Average			389,000

Data Source: NCES, 2003-2004a; b; c; and d

4.10.1.6 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 EIS to define low-income status, is reported as the number of persons 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.

In 2003, the median household income was \$64,329 for Anne Arundel County residents compared to \$53,659 for Prince George’s County, \$76,546 for Montgomery County and \$79,455 for Howard County. The average poverty rate for the ROI in 2003 was 6.7 percent- less than the national poverty rate of 12.5 percent, and less than Maryland’s poverty rate of 8.8 percent (Stats Indiana, 2006c).

The ROI’s population is very diverse, and there are significant differences in the ethnic make up among the four counties. According to 2005 population estimates, the ROI’s population was approximately comprised of the following ethnic groups: 57 percent white, 32 percent black, 9 percent Hispanic and 8 percent Asian (Stats Indiana, 2006b). Anne Arundel County’s population is primarily non-minority, while Prince George’s County’s population is majority minority. Montgomery County is arguably the most diverse county within the ROI.

4.10.1.7 Protection of Children

On April 21, 1997, President Clinton 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, President Clinton 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 in which children may come into contact with or ingest.

4.10.2 Environmental Consequences

4.10.2.1 No Action Alternative

Demographics

No adverse effects would be expected to demographics. 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 adverse effects would be expected to housing. 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 adverse effects would be expected to public services. Under the No Action Alternative, the installation working population would remain unchanged from baseline levels. Therefore, the demand for public services would be the same as under baseline conditions.

Environmental Justice

No adverse effects would be expected to environmental justice. 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 Action for Fort Meade would not result in any environmental justice impacts.

Protection of Children

No adverse effects to protection of children would be expected. The No Action Alternative would not result in adverse impacts to children.

4.10.2.2 BRAC Realignment and Enhanced Use Lease Actions Alternative

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 construction projects and incoming personnel represent the direct effects of the action. Based on the input data and regional 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 spanning 30 years for the ROI and calculates year-to-year fluctuations in sales volume, income, employment, and population patterns. The deviations from the average historical high percentage increases and high percentage decreases for the ROI become the thresholds of significance (i.e., the RTVs) for social and economic change. For example, if the deviation from the average historical high increase in employment for an ROI is 5 percent, and the estimated increase in employment due to BRAC actions is 6 percent, then the effects would be considered significant. If the BRAC actions create a 4 percent increase in employment, the effect would be positive, but not significant since it falls short of the deviation from the average historical high increase. If the estimated effect of an action falls above the positive RTV or below the negative RTV, the effect is considered to be significant. The inputs and results for BRAC plus EUL actions, and BRAC actions are presented below, and Appendix D discusses this methodology in more detail.

EIFS REPORT: Fort Meade BRAC/EUL Actions

Assumptions: The ROI was selected based on a determination of where the highest impacts would likely occur. Baltimore County, Baltimore City, and Carroll County were not included in this analysis, although it would be expected that those regions would likely experience some effects as well. Expanding the ROI to include these jurisdictions dilute estimated impacts of BRAC/EUL such that it would be difficult to

conduct a meaningful analysis. Incoming personnel total 15,695. Although there would be some new employees commuting from outside the ROI, for a maximum impact scenario it is assumed that all of them would relocate to within the ROI (for example, it is estimated that 75% of DISA employees may commute from Virginia, but the exact number of incoming employees is undetermined at the time of analysis). It is also assumed that all of the incoming military staff would live off of the installation. Approximately \$1,112,720,000 would be spent in construction (Table 4-20). Although the BRAC actions (incoming personnel and construction) would occur over a multiple-year period, based on the information available, it is assumed that all actions would take place during the first year. In sum, this is a maximum impact scenario that is being assessed; and therefore, in reality, socioeconomic, quality of life, and demographic impacts would likely be lower, and would be spread out over the life of BRAC actions.

Table 4-20 EIFS Results for EUL/BRAC

Forecast Input Category	Forecast Input Data	Forecast Output Category	Result	RTV*
Change In Local Expenditures	\$1,112,720,000,	Sales Volume – Direct	\$1,771,331,000	N/A
Change In Civilian Employment	15,035	Sales Volume – Induced	\$4,091,775,000	
Average Income of Affected Civilian	\$80,425	Sales Volume – Total	\$5,863,107,000	4.78%
Percent Expected to Relocate	100%	Income – Direct	\$1,405,339,000	N/A
Change In Military Employment	660	Income – (Induced)	\$790,106,200	
Average Income of Affected Military	\$70,000	Income – Total (place of work)	\$2,195,445,000	2.88%
Percent of Military Living On-post	0%	Employment – Direct	22,968	N/A
Employment Multiplier	3.31	Employment – Induced	16,802	
Income Multiplier	3.31	Employment – Total	39,770	2.96%
		Local Population	39,081	N/A
		Local Off-base Population	39,081	1.69%

*Note: The following are the Rational Threshold Values (RTV) boundaries for the LEAD ROI: Sales Volume (-4.78% to 12.1%), Income (-3.89% to 11.69%), Employment (-3.57 to 3.07%) and Population (-0.88% to 1.59%).

4.10.2.2.1 Economic Development

No significant effects would be expected to economic development. For purposes of this analysis, it is assumed that all new personnel at Fort Meade would migrate from areas outside the ROI. This population influx as well as the construction of the new facilities on the installation would contribute to both short- and long-term increases in economic activity.

The proposed action would generate 22,968 direct and 16,802 induced jobs for a total of 39,770 jobs in the Meade economic ROI over the life of the proposed action. This increase in employment would represent a 2.96 percent increase in the region’s employment levels and would fall slightly short of the positive RTV Value of 3.07. Therefore, employment impacts would not be considered significant. Of the jobs created by BRAC and EUL actions, 29 percent would be generated by construction activities. It should be noted that the increased employment and any other economic benefits associated with construction would only be temporary and would be spread out over the estimated 2-year period of the construction phase. The proposed action would also generate positive changes in the other economic indicators estimated by the EIFS model, including a 4.78 percent increase in sales volume, and a 2.88

percent increase in regional personal income. These increases are minor, and do not exceed the positive RTV values for their respective categories. Furthermore, these positive increase for the ROI may be somewhat diluted by the fact that some increases in these economic indicators would occur in areas outside the ROI such as Baltimore City and County, and Carroll County.

4.10.2.2.2 Socioeconomic Environment

Demographics

Significant adverse effects would be expected on demographics. Under the proposed action, incoming military and civilian personnel and their dependents would increase the ROI population by 39,081, or by about 1.69 percent. This estimate exceeds the upper bound value for the RTV for population (1.59 percent) and therefore would be considered significant. It must be noted, however, that this estimate, assumed that 10,000 personnel working on EUL related activities move to the ROI and commence work in the same year. Furthermore, since so many of the EUL activities have yet to be defined, it is not possible to estimate the proportion of workers migrating to the ROI compared to those already living and working within the ROI. Hence, the analysis assumes a “worse case, or maximum impact scenario.” In reality only a portion of the working population is likely to migrate into the ROI and this influx would likely take place over several years.

Housing

No significant adverse effects would be expected on housing. Under the proposed action, there would be a significant increase in the demand for housing. With a population increase of 39,081, approximately 15,695 families/households would need housing (the EIFS model assumes 2.49 family members per incoming military personnel). There are more than 36,000 vacant housing units available across all ROI counties, and additional housing projects in the pipeline. Given the fast growth in available housing in the ROI counties, the available off-post housing stock is likely to be capable of absorbing the predicted increase in population; however, without additional new housing off-post, the available housing stock could decrease by as much as 44 percent (the demand created by the BRAC plus EUL alternative would be approximately 44 percent of existing supply). It should be noted that some families may chose to relocate outside the ROI in Baltimore, Baltimore County, or Carroll County, for example, and this would further reduce the impact on demand for housing in the ROI. Planned additional on-base housing for military personnel, in the form of barracks, would be able to absorb only a small portion of the demand as most of the incoming military personnel are of higher rank. Higher ranking officers seeking on-post housing would be added to the existing waiting lists, and would receive assistance from the Fort Meade’s off-post Housing Referral Service. The increase in demand for off-post housing is not expected to result in significant increases in local housing costs.

Public Services and Quality of Life

Schools. Significant adverse effects would be expected on public service and quality of life. It must be emphasized that the BRAC plus EUL scenario assumes that all of the civilian personnel would migrate into the ROI, and that all would migrate in one year. Additionally, some of the school age children would likely attend schools outside the ROI in areas such as Baltimore and Carroll County or other counties, and a large unknown percentage of new employees would be from the DC Metro area and would not be expected to relocate. In reality the demographic impacts and associated demand for educational services would likely be much lower. An estimated 7,700 school-age children could accompany the incoming military and civilian personal (the EIFS model assumes that there are 2.49 family members per incoming personnel (one spouse and 1/2 a child). Since under the BRAC plus EUL alternative, the assumption is that there will be 15,695 new incoming civilian and military personnel, multiplying this number by 0.49 will give an estimate of the number of school age children expected to accompany new incoming personnel. (In this case, $15,695 \times 0.49 = 7690$).^{3[1]} Based on conversations with school systems throughout the ROI, many schools are operating close to capacity and the additional students could worsen the student-teacher ratios at certain schools. With 577 schools in the ROI, and assuming that new incoming school age children will be evenly distributed among all of these schools, this would mean that each school would receive approximately 13 new students in one year. In reality, elementary schools in the ROI would potentially have the most difficult time absorbing additional students as many of them are already operating at full capacity.

Law Enforcement, Health Services, and Fire Protection. Significant effects would be expected for public services including health, fire, and law enforcement. The population increases caused by BRAC/EUL actions would exceed historic maximums and therefore it would be expected that the demand for public services would increase. Once again, this analysis assumes “worse case, or maximum impact scenario” since in reality, the incoming of new personnel will be staggered over the life of the actions.

Recreation. No significant effects to recreation would be expected.

¹ Alternatively, the number of school age children can be projected by using the national average number of children per family, and the percentage of households that are families with children. In the U.S., approximately 33 percent of all households have children under the age of 18 and in families; the average number of children is 1.86. Applying this to the number of incoming personnel gives a slightly higher number of school age children (3,473 in the BRAC alternative, and 9,572 in the BRAC/EUL alternative.) Given the stated assumptions above, this would amount to 6 and 17 new students per school respectively. Once again, in reality, the impacts would be lower given that these new incoming students would be spread out over the life of BRAC actions, and given that many of the new incoming personnel with children under 18 in the household will not be relocating to the ROI and would be commuting. A further full analysis can be found in Appendix D.

Environmental Justice

No adverse effects would be expected on environmental justice. 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 populations or low income populations. Hence, the proposed action for Fort Meade would not result in any environmental justice impacts.

Protection of Children

No effects would be expected on protection of children. 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.

4.10.2.3 BRAC Realignment Action Alternative

EIFS REPORT: Fort Meade BRAC Actions

Assumptions: The ROI was selected based on a determination of where the highest impacts would likely occur. Baltimore County, Baltimore City, and Carroll County were not included in this analysis, although it would be expected that those regions would experience some effects as well. Expanding the ROI to include these jurisdictions would likely dilute the estimated impacts of BRAC such that it would be difficult to conduct a meaningful analysis. Incoming personnel would total 5,695. Although there would be some new employees commuting from outside the ROI, for a maximum impact scenario it is assumed that all of them would relocate to within the ROI. It is also assumed that all of the incoming military staff would live off of the installation. Approximately \$518,184,000 would be spent in construction. Although the BRAC actions (incoming personnel and construction) would occur over a multiple-year period, based on the information available, it is assumed that all actions would take place during the first year (Table 4-21). In sum, this is a maximum impact scenario that is assessed and more than likely, socioeconomic, quality of life, and demographic impacts would likely be lower, and would be spread out over the life of BRAC actions.

Table 4-21 EIFS Results for BRAC

Forecast Input Category	Forecast Input Data	Forecast Output Category	Result	RTV*
Change In Local Expenditures	\$518,184,000	Sales Volume – Direct	\$709,796,400	
Change In Civilian Employment	5,035	Sales Volume – Induced	\$1,639,630,000	
Average Income of Affected Civilian	\$80,425	Sales Volume – Total	\$2,349,426,000	1.92%
Percent Expected to Relocate	100%	Income – Direct	\$520,969,900	
Change In Military Employment	660	Income – (Induced)	\$316,606,300	
Average Income of Affected Military	\$70,000	Income – Total (place of work)	\$837,576,100	1.1%
Percent of Military Living On-post	0%	Employment – Direct	8,610	
Employment Multiplier	3.31	Employment – Induced	6,733	
Income Multiplier	3.31	Employment – Total	15,342	1.14%
		Local Population	14,181	
		Local Off-base Population	14,181	0.61%

*Note: The following are the RTV boundaries for the LEAD ROI: Sales Volume (-4.78% to 12.1%), Income (-3.89% to 11.69%), Employment (-3.57 to 3.07%) and Population (-0.88% to 1.59%).

4.10.2.3.1 Economic Development

No significant effects to economic development would be expected. For purposes of this analysis, it is assumed that all new personnel at Fort Meade would migrate from areas outside the ROI. This population influx as well as the construction of the new facilities on the installation would contribute to both short- and long-term increases in economic activity. The proposed action would generate 8,610 direct and 6,733 induced jobs for a total of 15,342 jobs in the Fort Meade economic ROI over the life of the proposed action. This increase in employment would represent a 1.14 percent increase in the region’s employment levels and would fall short of the positive Rational Threshold Value (RTV) of 3.07 percent. Therefore employment impacts would not be considered significant. Even though employment impacts are very close to the threshold of significance, the likely impacts would be lower considering that these effects would occur during the whole life of BRAC actions, and not just during one year. The proposed action would also generate positive changes in the other economic indicators estimated by the EIFS model, including a 1.92 percent increase in sales volume, and a 1.1 percent increase in regional personal income. However, once again, these increases are minor, and do not exceed the positive RTV values for their respective categories.

4.10.2.3.2 Socioeconomic Environment

Demographics

No significant adverse effects to demographics would be expected. Under the proposed action, incoming military and civilian personnel and their dependents would increase the ROI population by 14,181, or by about 0.61 percent. This increase in population does not exceed the upper bound RTV for population (1.59) percent, and therefore the population increase would not be significant.

Housing

No significant adverse effects on housing would be expected. Under the proposed action, there would be a minor increase in the demand for housing. With a population increase of 14,181, approximately 5,695 families would need housing (the EIFS model assumes 2.49 family members per incoming military personnel) and this represents approximately 16 percent of existing supply. There are more than 36,000 vacant housing units available across the four ROI counties, and additional housing projects in the pipeline. Given the fast growth in available housing in the ROI counties, the available off-base housing stock is likely to be capable of absorbing the predicted increase in population. Meanwhile, planned additional on-base housing for military personnel, in the form of barracks, would be able to absorb only a small portion of the demand as most of the incoming military personnel are of higher rank. Higher ranking officers, seeking on-post housing would be added to the existing waiting lists, and would also receive assistance from the Fort Meade's off-post Housing Referral Service. The overall increase in demand for off-post housing would not be expected significantly increase local housing costs.

Public Services and Quality of Life

Schools. Significant adverse effects would be expected on public housing and quality of life. Up to approximately 2,790 school age children could accompany the incoming military and civilian personal (The EIFS model assumes that there are 2.49 family members per incoming personnel (one spouse and 1/2 a child). Since under the BRAC option, the assumption is that there will be 5,695 new incoming civilian and military personnel, multiplying this number by 0.49 will give an estimate of the number of school age children expected to accompany new incoming personnel. (In this case, $5,695 \times 0.49 = 2790$).

¹ Alternatively, the number of school age children can be projected by using the national average number of children per family, and the percentage of households that are families with children. In the U.S., approximately 33 percent of all households have children under the age of 18 and in families, the average number of children is 1.86. Applying this to the number of incoming personnel gives a slightly higher number of school age children (3,473 in the BRAC alternative, and 9,572 in the BRAC/EUL alternative.) Given the stated assumptions above, this would amount to 6 and 17 new students per school respectively. Once again, in reality, the impacts would be lower given that these new incoming students would be spread out over the life of BRAC actions, and given that many of the new incoming personnel with children under 18 in the household will not be relocating to the ROI and would be commuting. A further full analysis can be found in Appendix D.

The current school systems in the ROI are operating close to capacity and the additional students could slightly worsen the student-teacher ratios at certain schools. Elementary schools in the ROI would potentially be the most constrained in absorbing additional students because most are already operating at capacity. Additionally, some of the school age children would likely attend schools outside the ROI in areas such as Baltimore and Carroll County or other counties. This may decrease the effects to the ROI.

Law Enforcement, Health Services, and Fire Protection. No significant effects would be expected for any other of the public services including health, fire, and law enforcement.

Recreation. A portion of the existing golf course would be lost due to BRAC actions, however this loss would not be expected to result in any significant adverse effects.

Environmental Justice No adverse effects on environmental justice would be expected. The proposed action would not result in 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 proposed action for Meade would not result in any environmental justice impacts.

Protection of Children No adverse effects on the protection of children 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.

4.11 TRANSPORTATION

This section describes the existing transportation systems near Fort Meade and the effects associated with area growth (the No-Action Alternative) and with implementing the Preferred Alternative (BRAC plus EUL) or the BRAC-only alternative. Also evaluated are projects that would mitigate the effects of the Preferred Alternative.

4.11.1 Affected Environment

Fort Meade is in western Anne Arundel County, near the eastern border of Howard County and the northwestern boundary of Prince George's County. East of the installation is the community of Odenton. The State of Maryland has been a national leader in "Smart Growth", and the area surrounding Fort Meade is programmed as a Smart Growth area in county and state plans, with existing road, transit, water and sewer, schools, and other infrastructure. In response to the rapid growth, the area counties and the

state have been coordinating planning efforts to manage future growth. The Fort Meade BRAC and EUL alternatives must be considered within the context of the regional growth and the transportation plans underway.

4.11.1.1 Region of Influence

The ROI for transportation encompasses Fort Meade and the roadways within approximately one to two miles of the Post. The study area ROI was established in the DOPAA and is consistent with published State and County Guidelines for Traffic Impact Analysis.⁴ Extensive data collection and in-depth analyses were conducted to assess the transportation effects of the proposed alternatives of the ROI.

Fort Meade's BRAC and EUL related growth is anticipated to have some impact on traffic beyond the immediate confines of the region of influence. The Maryland BRAC Report (December, 2006), developed by the Maryland Department of Planning, analyzed the regional implications of BRAC actions throughout the state, including traffic.⁵ The results of the Maryland BRAC Report (particular to Fort Meade and associated traffic conditions) are summarized in Sections 4.11.2.2 and 4.11.2.3, the No-Action Alternative and the BRAC plus EUL Alternative. A comparable regional analysis by the State of Maryland on the BRAC-only alternative has not been performed.

⁴ The State Highway Administration Guidelines for Traffic Impact Reports/ Studies (Section 6, Appendix E) state that the study area should generally be in accordance with Local Adequate Public Facilities Ordinance (APFO) Guidelines (in this case Anne Arundel County); absent such guidelines "the network should be analyzed to the nearest signalized public street intersection in all directions from each access point; generally not greater than one mile from the access point." Anne Arundel County Guidelines (Section 17-5-403) state that "the impact area of a proposed development includes all County roads and State roads located in the County in all directions from each point of entrance to and exit from the proposed development, through the intersection with the first arterial road, and along that arterial road in both directions, except that the impact area for the Odenton Growth Management Area District does not include roads outside the district or center." Along MD 32, in particular, all signalized and unsignalized intersections located beyond the boundaries of the Post are also located beyond one or more grade-separated high-volume interchanges.

⁵ Future actions that would generate additional Federal employment would be subject to separate NEPA evaluation. Anne Arundel County confirms that the employment data in the Fort Meade area that was used to generate the Maryland BRAC Report includes the EUL in aggregate. Specifically, Anne Arundel County increased the employment in the traffic analysis zone by approximately 17,000 jobs from 2005 to 2015, following discussions with FGM and NSA. The specific location of the jobs within the zone has been modified with the emergence of plans for the EUL and is appropriately reflected in the ROI transportation analysis developed for the EIS. The increase in employment accommodates the 10,000 EUL jobs plus the 5,695 BRAC jobs, and is reflected in the regional traffic projections.

4.11.1.2 Surrounding Road System

Fort Meade is located in the western portion of Anne Arundel County (Figure 4-6), and Fort Meade can be directly accessed (via secured gates) from MD 32, MD 175, Fort Meade Road (MD 198), and the Baltimore-Washington Parkway (which is designated as MD 295 north of MD 175).

MD 32 borders the southern portion of Fort Meade and is classified as a freeway. Within the past five years, improvements to MD 32 in the vicinity of Fort Meade have eliminated traffic signals and provided an overpass and roundabouts connecting MD 198 and MD 32 to Mapes Road and the MD 32 Truck Gate at the eastern end of Fort Meade; a roundabout with flyover ramps to access Samford Road; and a ramp and underpass to connect MD 295 and MD 32 to Canine Road on the west end of the post.

MD 175 borders the north and east boundaries of Fort Meade. MD 175 is essentially a two-lane roadway from Rockenbach Road to Reece Road (with auxiliary lanes for turning and merging near major intersections), but then widens to a minimum four-lane roadway from Reece Road to MD 32. It is classified as a Principal Arterial.

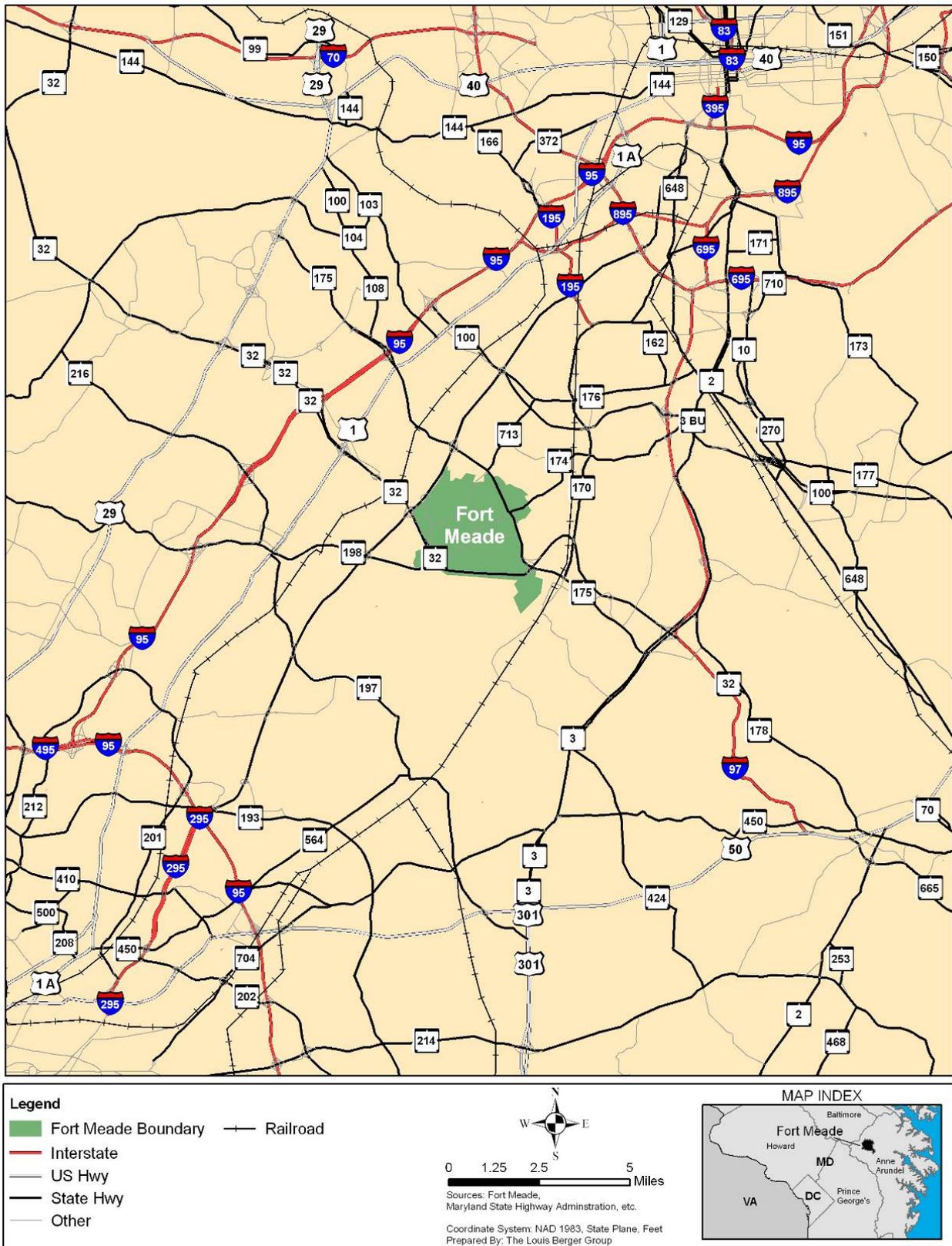
MD 198, which lies south and west of the post, terminates at the roundabout south of MD 32 that leads into Fort Meade at Mapes Road. MD 198 is primarily a two lane undivided highway.

The Baltimore-Washington Parkway, located to the west of Fort Meade, provides north/south access between Baltimore and Washington, DC. No heavy trucks are permitted on the Baltimore-Washington Parkway south of MD 175 as this section is owned and maintained by the National Park Service, and identified as an historic resource. The Parkway is a limited access freeway with two lanes in each direction. North of MD 175 the Parkway is also designated as MD 295.

MD 32 and MD 175 provide access to the major north-south Baltimore/ Washington DC connectors of MD 295, US 1, I-95 and US 29 to the west, as well as providing for east-west travel between Odenton, and Columbia in Howard County. MD 198 directly connects to the community of Laurel as well as to MD 295.

MD 32 and MD 175 intersect on the eastern boundary of Fort Meade; MD 32 connects with MD 3 and with I-97, providing access to the communities of Bowie, Annapolis and Glen Burnie.

Figure 4-6. Major Roadways in the Fort Meade Area



Other Access Roads

MD 100, to the north of Fort Meade, is a major east-west freeway roughly parallel to MD 32. Arundel Mills Mall and rapidly evolving residential and commercial developments in the area, consistent with adopted Anne Arundel County small area plans, generate extensive traffic less than two miles north of the northern-most point of Fort Meade.

Ridge Road (MD 713), a minor arterial, provides direct access to Fort Meade from the north, and also provides a direct link from MD 32 to Arundel Mills and MD 100. Reece Road (MD 174), a minor arterial, provides direct access to Fort Meade from the north, connecting to Telegraph Road, I-97, and MD 100.

Telegraph Road (MD 170), a principal arterial, also connects MD 100 to MD 32 to the east of Fort Meade.

4.11.1.3 Access Control Points (ACP) to Fort Meade

Access to Fort Meade is obtained through ten control points, eight of which are open and staffed on a regular basis. The intersections and interchanges are presented in Table 4-22 and Figure 4-7.

At each control point, security guards check identification and inspect vehicles before allowing access into the installation (except at the closed gate(s)). Guards at MD 175 and Reece Road are authorized to issue one-day visitor permits after reviewing personal identification and vehicle registration, and searching the vehicle.

4.11.1.4 On Post Roadways

Access routes through Fort Meade include Rockenbach Road, which extends from MD 175 south and west through Fort Meade to Canine Road and Samford Road, then to MD 32, and Mapes Road, which extends east from MD 32 through Fort Meade to MD 175. Internal circulation is provided through collector roadways such as Ernie Pyle Street, Mac Arthur Road, Cooper Avenue, Llewellyn Avenue, Reece Road, and Taylor Avenue. Most roads consist of one lane in each direction, with signals or stop signs (two-way, three-way or four-way) at most intersections.

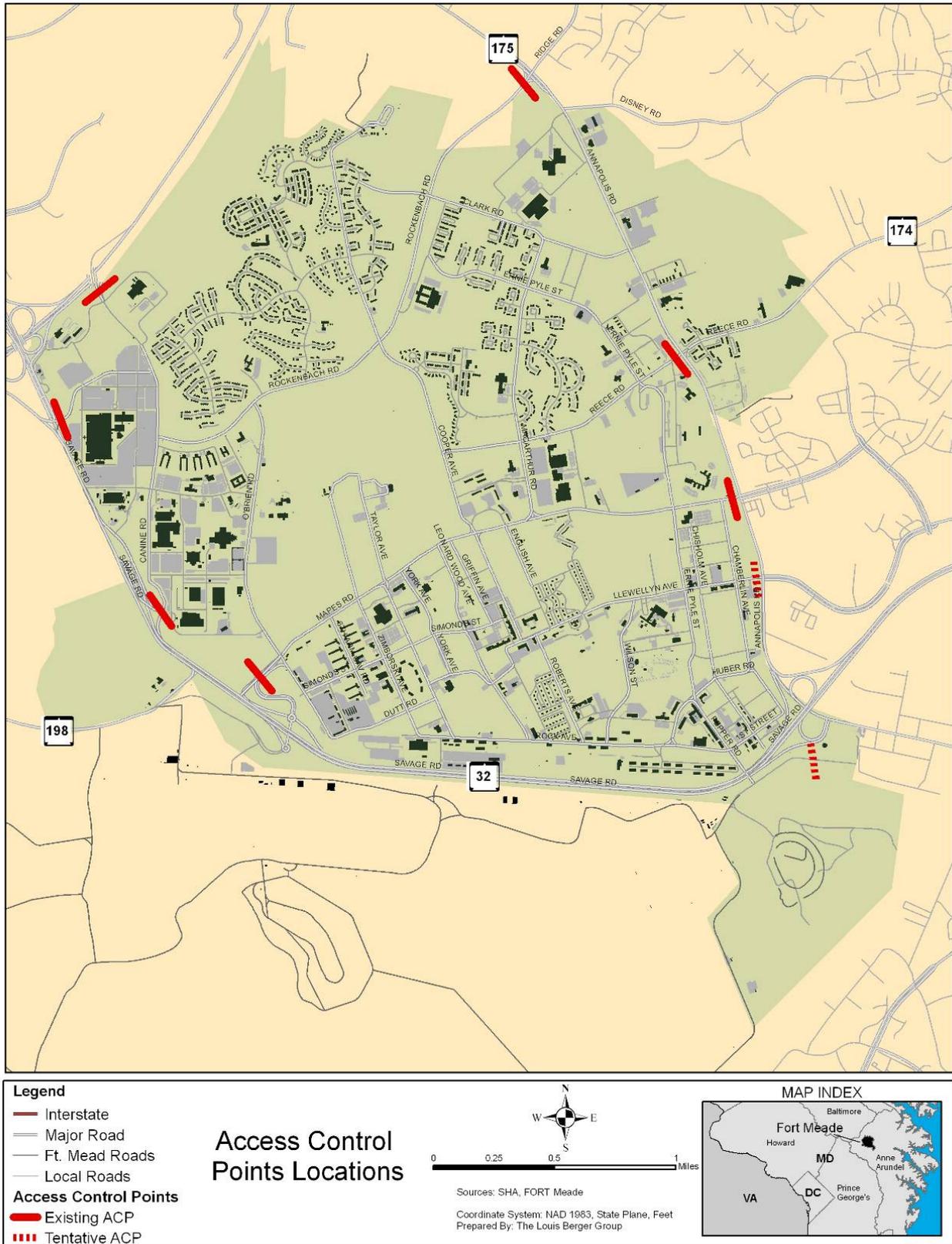
Figure 4-7 identifies the access control points and the roadways on the post.

Table 4-22: Fort Meade Access Control Points

Description	Interchange or Intersection	Comment
BW Parkway – NSA	Interchange with gate	Restricted entry- authorized personnel only
MD 32 & Canine Road – NSA	Interchange with gate	Public access to Cryptologic Museum, visitor access to facility
MD 32 & Samford Road – NSA	Interchange with gate	Restricted entry
MD 32 & Mapes Road	Interchange then intersection and gate	Restricted entry
Truck Gate @ MD 32	Interchange then intersection and gate	Truck entry only
MD 175 & Rockenbach Road	Intersection with gate	Restricted entry
MD 175 & Reece Road	Intersection with gate	Visitor access to facility through control gate with search
MD 175 and Mapes Road	Intersection with gate	Restricted entry
MD 175 and Llewellyn Avenue	Intersection with gate	Restricted entry, temporarily closed at time of study ⁶
Rock Avenue and Baldwin Road – Left of “T” from Pepper near Salt Dome	Intersection with gate	Presently closed but can be opened in case of emergency

⁶ The gate at Llewellyn and MD 175 was closed at the time of the data collection for the study, but was opened in spring, 2007 when the MD 175 and Mapes gate closed for renovation. The Mapes gate will remain closed for approximately one year, with Llewellyn taking its place. When the Mapes gate reopens, Llewellyn will be closed except for special events. In approximately five years it is anticipated that the Llewellyn gate will be used for commercial vehicles serving the relocated PX, as well as for special events.

Figure 4-7. Access Control Points and Roadways



4.11.1.5 Transit

Although it lacks direct access, Fort Meade is relatively close to several major intermodal transportation air and rail hubs including:

- Air: Baltimore Washington International - Thurgood Marshall Airport is approximately 10 miles⁷ from Fort Meade.
- Metro (Baltimore): Maryland Transit Administration's (MTA) Metro heavy rail system provides high-speed transit service in a 15.5 mile corridor from Owings Mills in western Baltimore County through downtown Baltimore to Johns Hopkins Hospital. With the potential to transfer to light rail or MARC service (on the Camden line), additional portions of Baltimore City and Baltimore County may be considered as having potential transit access to Fort Meade.
- Light Rail (Baltimore): MTA's Central Light Rail Line provides high-frequency, medium-speed transit service along a north-south 30-mile corridor from Baltimore County to Anne Arundel County. It intersects with the Metro (less than 1 block separation) and connects with many local bus routes. Near Fort Meade, it can be accessed at either the Cromwell/Glen Burnie station or the BWI Business District station, both less than nine miles from the Fort.
- Intercity and Commuter Rail: MTA's Maryland Commuter Rail (MARC) service provides high-speed, medium-frequency commuter rail service in the Baltimore-Washington region and beyond. In the Baltimore region, MARC trains operate in two existing rail corridors totaling 77 miles, with stations in all jurisdictions except Carroll County. The Penn Line runs between Perryville in Cecil County and Union Station in Washington DC and stops at eight stations in the region. The Camden Line runs from Camden Station in Baltimore to Union Station and stops at six stations in the region. Several MARC stations are near Fort Meade; it is approximately 3.5 miles to the Odenton MARC station (Penn line), (1.5 miles from the nearest access gate), approximately 8 miles to the BWI MARC station (Penn line), less than eight miles to the Laurel MARC station (Camden line), and less than seven miles to the Jessup MARC station, also on the Camden line. Currently MARC service on the Penn Line provides 38 stops per day at the Odenton MARC station. This station records the highest usage of any suburban station on the MARC system with 2,100 average daily boardings.
- Amtrak: With Amtrak stations in Washington, DC, Baltimore and BWI, connections can be made throughout the country.
- Metro (Washington): The Washington Metropolitan Area Transportation Authority (WMATA) Metro system can be accessed at the New Carrollton station, approximately 19 miles from the post,

⁷ All distances measured from the Guest House on base

and at the Greenbelt station –almost 25 miles by road because of the orientation of the access roads to the station. Bus service connections to Metro stations are included in Table 4-23 below.

- Bus Service: MTA, WMATA, and Corridor Transportation Corporation (CTC) Connect-A-Ride (sponsored by Anne Arundel and Howard Counties) provide a variety of bus services in the vicinity of Fort Meade. Only one route, however, (K Route) currently directly serves Fort Meade. Similarly, the F Route is the only route that serves NSA. Table 4-23 summarizes the services currently provided.

Table 4-23: Bus Service Summary

Service Provider	Route Number/ Name	Main or Most Pertinent Origin	Main or Most Pertinent Destination(s)	Weekday Frequency (approx.)	Comment
MTA	17	Patapsco Light Rail Stop	Arundel Mills Mall	22	Also Saturday, Sunday service
CTC	M	Overflow Parking Lot	Odenton MARC Station	Every 10 minutes	Peak hours Monday thru Friday
CTC	Purple	Elkridge	Laurel Mall	12	Mon-Fri
CTC	Red Express	Columbia Mall	Arundel Mills & BWI	16	Hourly service 6:30 am – 9:30 pm weekdays, some Sat / Sun svc.
CTC	Blue	Columbia Mall	Savage MARC Station, National Business Park	3	Mon-Fri
CTC	B	Laurel Mall	MD 198 & Laurel Racetrack	25	Service every 30 minutes from 6 am to 6 pm Mon-Fri
CTC	F	Laurel	NSA Bus Shelters	2	2 am peak (arrive at NSA at 6:46 and 7:46) and 2 pm peak trips weekdays
CTC	J	Laurel	Arundel Mills, Glen Burnie	16	Hourly service 6:00 am - 10:00 pm weekdays, some Sat / Sun svc.
CTC	K	Arundel Mills	Odenton	16	Hourly service 6:30 am – 10:40 pm weekdays, some Sat / Sun svc. Circuitous route, has stop at Reece Road gate
WMATA	B27	Bowie	New Carrollton Metro Station	13	AM peak, PM peak and evening service Mon - Fri
WMATA	B29	Crofton	New Carrollton Metro Station	Approx. 4	AM, PM peak service Mon - Fri
WMATA	B30	Greenbelt Metro Station	BWI Airport, Light Rail Station	25	Approx. every 40 minutes weekday, some Sat / Sun svc.
WMATA	87, 88	Laurel	Greenbelt (87), New Carrollton (88) Stations	15 (87) and 3 (88)	Peak express service; Rt. 89 provides midday service to Greenbelt
WMATA	89, 89M	Laurel	Greenbelt Metro Station	16	Approx. 6:00 am to 7 pm Mon - Fri

4.11.1.6 Existing Installation Transit Services and Pedestrian Facilities

Within Fort Meade, one shuttle bus operates on a regular schedule 364 days per year primarily to serve DINFOS students. Available to anyone with a military ID, it operates from 6:45 am to 8:30 am weekdays between Brett Hall, DINFOS, 6th Cav Student Area and Kimbrough. From 8:30 through 5:45 pm it serves additional sites throughout the post such as Clothing Sales, the Visitors Center, ACS/Navy Family Support and the PX. After 5:45 service is reduced to the 6th Cav Student Area, the PX, Brett Hall and the Theater. The shuttle also operates on Saturdays and Sundays. Headways (time between trips) for specific locations vary from 35 minutes to two hours and twenty minutes.

For pedestrians, Fort Meade offers jogging paths designated for exercise. There are limited sidewalks adjacent to major facilities; however these sidewalks are not interconnected among buildings throughout the installation in a manner to facilitate walking or biking as alternatives to driving around the post.

4.11.1.7 Major Transportation Issues in the Fort Meade Area

The Comprehensive Expansion Master Plan (CEMP) identified the following seven transportation issues:

- Roadway congestion (i.e., MD 175)
- Parking capacity (reliance on surface parking at Fort Meade)
- Transit service (lack of coherent mass transit options at and to Fort Meade)⁴
- Intermodal connections (nonexistent at Fort Meade)⁸
- Pedestrian access (nonexistent at Fort Meade)
- Traveler information (nonexistent at Fort Meade)
- Competing local needs (need for integrated working group)

Where appropriate, these elements are discussed and addressed in this EIS.

4.11.1.8 Existing Conditions: Roadway Capacity and Levels of Service

The State Highway Administration (SHA) has permanent traffic counters throughout the state, and performs periodic traffic counts on other roads. For the purpose of this analysis, major roadways are defined as those providing direct access to Fort Meade, while minor roadways are defined as roads near Fort Meade, not providing direct access. Based on SHA traffic counts on major and minor roadways near Fort Meade, traffic volumes increased by up to four percent from 2001 to 2005. The highest increase in traffic volume occurred on MD 32, west of the intersection of MD 32 and I-95; on MD 170 Telegraph Road, 0.1 mile north of MD 175; on MD 170, 0.1 mile south of MD 174; and on MD 175, 0.2 mile north

⁸ Quoting directly from the CEMP- note that limited transit services are available

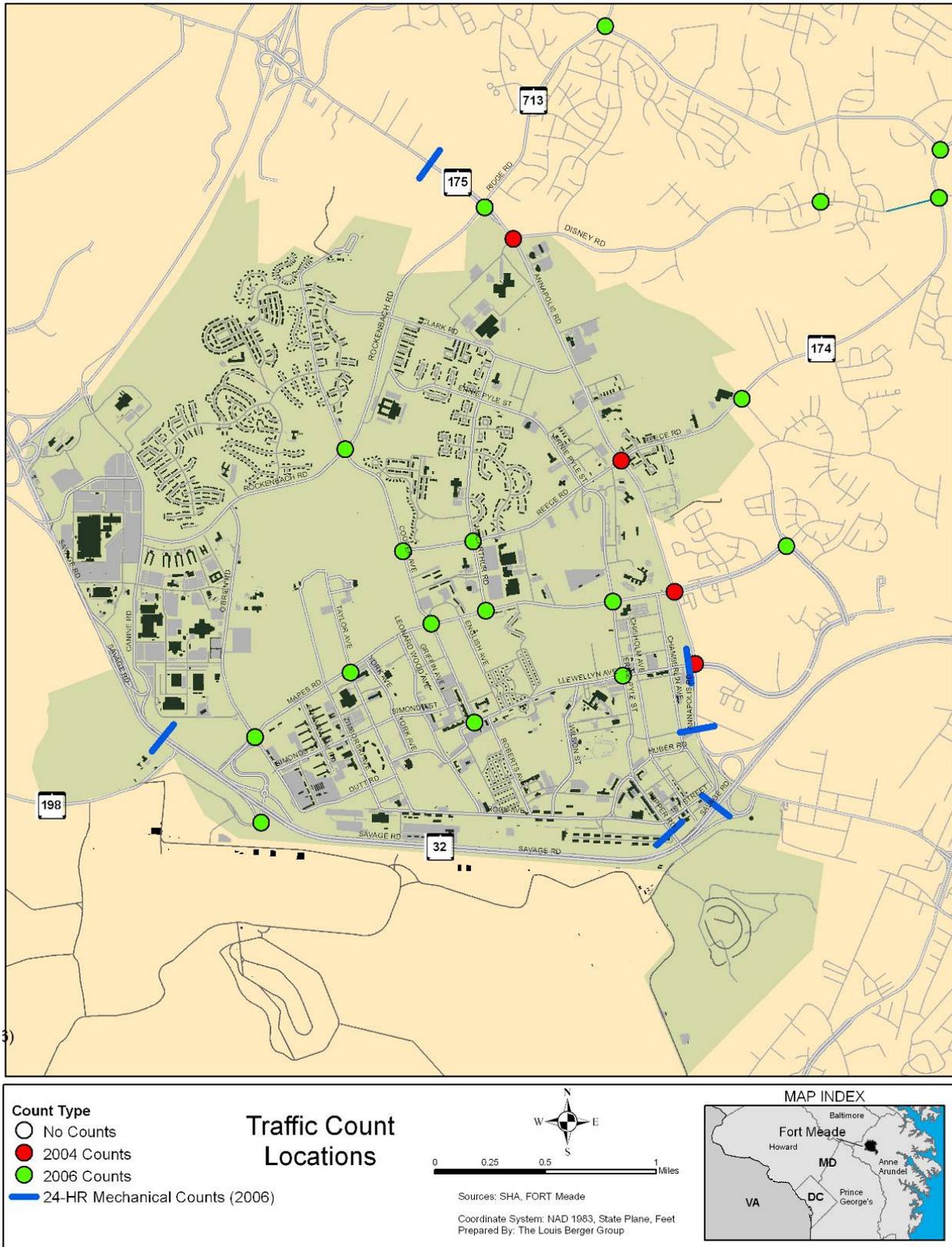
of MD 3. Further details on traffic volumes at specific roadways are provided in Appendix F, Table 1 and Table 2

4.11.1.9 Existing Roadway Volumes

At roadways with intersections, such as MD 175, roadway capacity and traveler movements are greatly affected by intersection performance and turning movement volumes, as well as by the capacity of the roadway for through traffic. Traffic and turning movement counts from 2004 were available for a few intersections in the study area; new counts were commissioned and performed for other intersections along 175, at major intersections on the installation itself, and at selected intersections on Reece Road, Ridge Road, New Disney, and Charter Oaks near the EUL site in order to develop a more accurate baseline.

The 2006 data collection efforts commissioned for this analysis include 24 hour volume and vehicle classification counts at four locations (two on MD 32 and two on MD 175), and turning movement counts at thirteen locations within the installation, six on the perimeter, and seven external locations identified by citizens at the scoping meeting and through professional judgment. Count locations in the traffic ROI are identified in Figure 4-8. The intersections and roadway segments that were studied and the dates of the observations are provided in Appendix F, Table 3 and Table 4. Figure 4-8 summarizes the locations of the data collection with the color coding summarizing the time period for the observations.

Figure 4-8: Turning Movement and Traffic Count Locations in the Traffic Region of Influence



Existing Intersection and Interchange Volumes

Roadway counts indicate the total volume on pertinent roadways. In complementary fashion, counts for traffic in and out of the post demonstrate the “pull” and the peaking characteristics of the installation’s employment, housing, and service facilities. Table 4-24 summarizes the findings of the 2004 cordon count conducted by Anne Arundel County Department of Public Works.

Table 4-24: Existing Traffic Characteristics Into and Out of the Installation

Fort Meade Cordon Count at all Gates									
Code Location	Inbound					Outbound			
	WAT (1)	DAT (2)	AM Peak	PM Peak	AWDT	AADT	AM Peak	PM Peak	
1 BW Parkway- NSA	8,459	6,046	1,398	297	6,393	4,567	140	1,085	
2 Canine Road- NSA	4,401	3,593	793	107	4,533	3,604	97	671	
3 Samford Road- NSA	6,246	3,467	1,565	71	5,749	4,112	73	1,155	
4 Mapes Rd/ MD 32	4,609	4,322	558	304	5,882	5,173	296	824	
5 MD 32 Truck Gate	1,359	1,040	139	38	-	-	-	-	
6 Rockenbach Road	4,722	4,181	601	261	5,647	4,821	259	816	
7 Reece Road	3,430	3,023	489	195	3,105	2,773	102	465	
8 Mapes Rd/ MD175	4,345	3,754	692	188	5,573	4,731	165	879	
	37,571	29,426	6,235	1,461	36,882	29,781	1,132	5,895	
Cordon Count Analysis									
	Peak Hour Recorded		Peak Intensity		Directional Flow		Peak Traffic Percent		
	AM Peak	PM Peak	"K Factor" (3)		"D Factor" (4)		by Gate		
	AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak	
BW Parkway- NSA	0800 h	1700 h	23%	24%	82%	89%	22%	18%	
Canine Road- NSA	0800 h	1700 h	22%	19%	88%	87%	13%	11%	
Samford Road- NSA	0800 h	1700 h	45%	28%	96%	94%	25%	20%	
Mapes Rd/ MD 32	0800 h	1700 h	13%	16%	65%	74%	9%	14%	
MD 32 Truck Gate	0800 h	1700 h	13%	N/A	79%	N/A	2%	0%	
Rockenbach Road	0800 h	1700 h	14%	17%	70%	76%	10%	14%	
Reece Road	0800 h	1700 h	16%	17%	71%	82%	8%	8%	
Mapes Rd/ MD175	0800 h	1700 h	18%	19%	79%	84%	11%	15%	
	0800 h	1700 h	21%	20%	81%	84%	100%	100%	
(1)	Weekday Average Traffic								
(2)	Daily Average Traffic								
(3)	Proportion of Daily Average Traffic Occurring in the Peak Hour								
(4)	Proportion of Peak Traffic in the Peak Direction								
Source: Ft. Meade Cordon Count, November 2004, conducted by Anne Arundel County Department of Public Works									

Turning Movement Counts

To estimate how well the existing infrastructure accommodates the current and would support future traffic demand, a traffic study was conducted to support the transportation section of the EIS. The transportation study included traffic operations evaluation using a simulation model that represented traffic operational characteristics at the intersections, such as number of lanes per approach, striping, lane width, number of pedestrians crossing, signal phases and timing. The software used for signalized

intersections is called Synchro.⁹ It follows the procedures set forth by the Transportation Research Board in the Highway Capacity Manual to estimate the level of service (LOS) at intersections. Highway Capacity Software (HCS) is used to analyze unsignalized intersections. SIDRA¹⁰ is used to analyze the roundabouts on the south side of the installation. Note that this analysis models the performance of the roundabouts; this does not take into account delays that may occur at gates for security checks, or delays due to lane closures leading to the gates for security reasons.¹¹

The Highway Capacity Manual (Transportation Research Board, 2000) also defines the levels of service to represent reasonable ranges in control delays as described in Table 4-25.

Table 4-25. Level of Service Descriptions

LOS	Description of the Levels of Service
A	LOS A describes operations with low control delay, up to 10 seconds/vehicle. This LOS occurs when progression is extremely favorable and most vehicles arrive during the green phase. Many vehicles do not stop at all. Short cycle lengths may tend to contribute to low delay values.
B	LOS B describes operations with control delay greater than 10 and up to 20 seconds/vehicle. This level generally occurs with good progression, short cycle lengths, or both. More vehicles stop than with LOS A, causing higher levels of delay. Cycle failure occurs when a given green phase does not serve queued vehicles, and overflows occur.
C	LOS C describes operations with control delay greater than 20 and up to 35 seconds/vehicle. These higher delays may result from only fair progression, longer cycle lengths, or both. Individual cycle failures may begin to appear at this level. Cycle failure occurs when a given green phase does not serve queued vehicles, and overflows occur. The number of vehicles stopping is significant at this level, though many still pass through the intersection without stopping.
D	LOS D describes operations with control delay greater than 35 and up to 55 seconds/vehicle. At LOS D, the influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, and high vehicle per cycle (v/c) ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.
E	LOS E describes operations with control delay greater than 55 and up to 80 seconds/vehicle. These high delay values generally indicate poor progression, long cycle lengths, and high v/c ratios. Individual cycle failures are frequent.
F	LOS F describes operations with control delay in excess of 80 seconds/vehicle. This level, considered unacceptable to most drivers, often occurs with over saturation, that is, when arrival flow rates exceed the capacity of lane groups. It may also occur at high v/c ratios with many individual cycle failures. Poor progression and long cycle lengths may also contribute significantly to high delay levels.

⁹ The Synchro analysis optimized signal timing, under the assumption that traffic volume and signal performance will be routinely monitored and optimized as volumes increase to enhance system performance.

¹⁰ SIDRA was the original acronym for “Signalized Intersection Design and Research Aid”, then expanded to “Signalized and unsignalized Intersection Design and Research Aid”; the product is now known almost exclusively by the initials SIDRA.

¹¹ The Installation has committed to monitor gate performance and change operations as necessary to mitigate impacts on roadways as discussed in Section 4.15, Mitigation and Best Management Practices Summary.

This analysis assumes that an intersection reaches capacity when it has a LOS E (approaching failure). At LOS F, an intersection is viewed as having failed. At LOS F, the level of significant congestion occurs and drivers typically wait several signal cycles before crossing an intersection. Various data sources were used for this analysis, including overall traffic volumes as described below, 2004 turning movement counts developed by Anne Arundel County for its study of MD 175, and counts specifically commissioned for this study.

4.11.1.10 Existing Level of Service Conditions

The main roads within Fort Meade are Mapes Road, Reece Road and Rockenbach Road in the east-west direction, and O'Brien Road, Cooper Avenue and Ernie Pyle Road in the north-south direction. In addition, MD 175 and MD 32 are important perimeter highways that provide access to the Fort Meade entry/exit gates. The results from the LOS analysis for the existing conditions (2006) in this area are summarized in Table 4-26 and Figures 4-9 and 4-10. The LOS for unsignalized intersections is not shown in the figures because each approach may have a different LOS. As shown in Table 4-26, where two roads intersect, LOS is given first for the eastbound or northbound approach with a stop sign, then for the westbound or southbound approach with a stop sign. LOS is not indicated for the "through" traffic with no stop sign (but may be assumed to be free-flow through the intersection). For "T" intersections the LOS for the approach with the stop sign is provided. The AM Peak hour is from 8:00 AM to 9:00 AM, while the PM Peak hour is from 5 PM to 6 PM.

There are two signalized intersections where the LOS is worse than LOS D during the PM peak hour. These intersections are on MD 175 at Rockenbach Road (LOS E), and the intersection of Ridge Road and Severn Road (LOS F). The Maryland SHA is evaluating area intersections (for existing and future conditions) to identify short-term options for reducing congestion and traffic back-ups (known as queues). Fort Meade and the EUL developer are continuing discussions with SHA and the County and conducting in-depth studies on transportation. In addition, Anne Arundel County is developing plans to expand pedestrian, bicycle and transit service in the area consistent with the Odenton Small Area Plan and Master Plan. These measures are discussed in more detail under "Future Conditions".

Table 4-26: Existing 2006 LOS for FORT MEADE with Optimized Signals

Number	Area	Road A	Road B	Intersection Type*	AM Peak	PM Peak
1	Ft. Meade	Mapes	O'Brien	S	A	A
2	Ft. Meade	Mapes	Taylor	S	A	A
3	Ft. Meade	Mapes	Cooper	S	A	A
4	Ft. Meade	Mapes	MacArthur	S	A	A
5	Ft. Meade	Mapes	Ernie Pyle	S	A	B
6	Ft. Meade	Llewellyn	Cooper	U	A	B
7	Ft. Meade	Llewellyn	Ernie Pyle	U	C/C	C/C
8	Ft. Meade	Reece	Cooper	U	C	C
9	Ft. Meade	Reece	Ernie Pyle	U	C/C	E/C
10	Ft. Meade	Reece	MacArthur	S	A	A
11	Ft. Meade	Rockenbach	Cooper	S	A	A
12	Perimeter	Mapes	MD 175	S	C	B
13	Perimeter	Llewellyn	MD 175	S	B	A
14	Perimeter	Reece	MD 175	S	B	C
15	Perimeter	Rockenbach	MD 175	S	B	E
16	Perimeter	Disney	MD 175	S	A	C
17	Perimeter	Mapes N	MD 32	R	B	A
18	Perimeter	Mapes S	MD 32	R	A	A
19	External	Reece	Jacobs	U	C	D
20	External	Reece	Pioneer	S	A	A
21	External	Reece	Redbridge/ New Disney	U	B/F	D/F
22	External	Reece	Severn	S	B	B
23	External	Ridge	Severn	S	B	F
24	External	New Disney	Carriage	U	B/B	C/C
25	External	Charter Oaks	Town Center	U	B/B	B/B

*S: Signalized intersection U: Unsignalized intersection R: Roundabout

Figure 4-9. LOS Analysis Existing Condition AM Peak

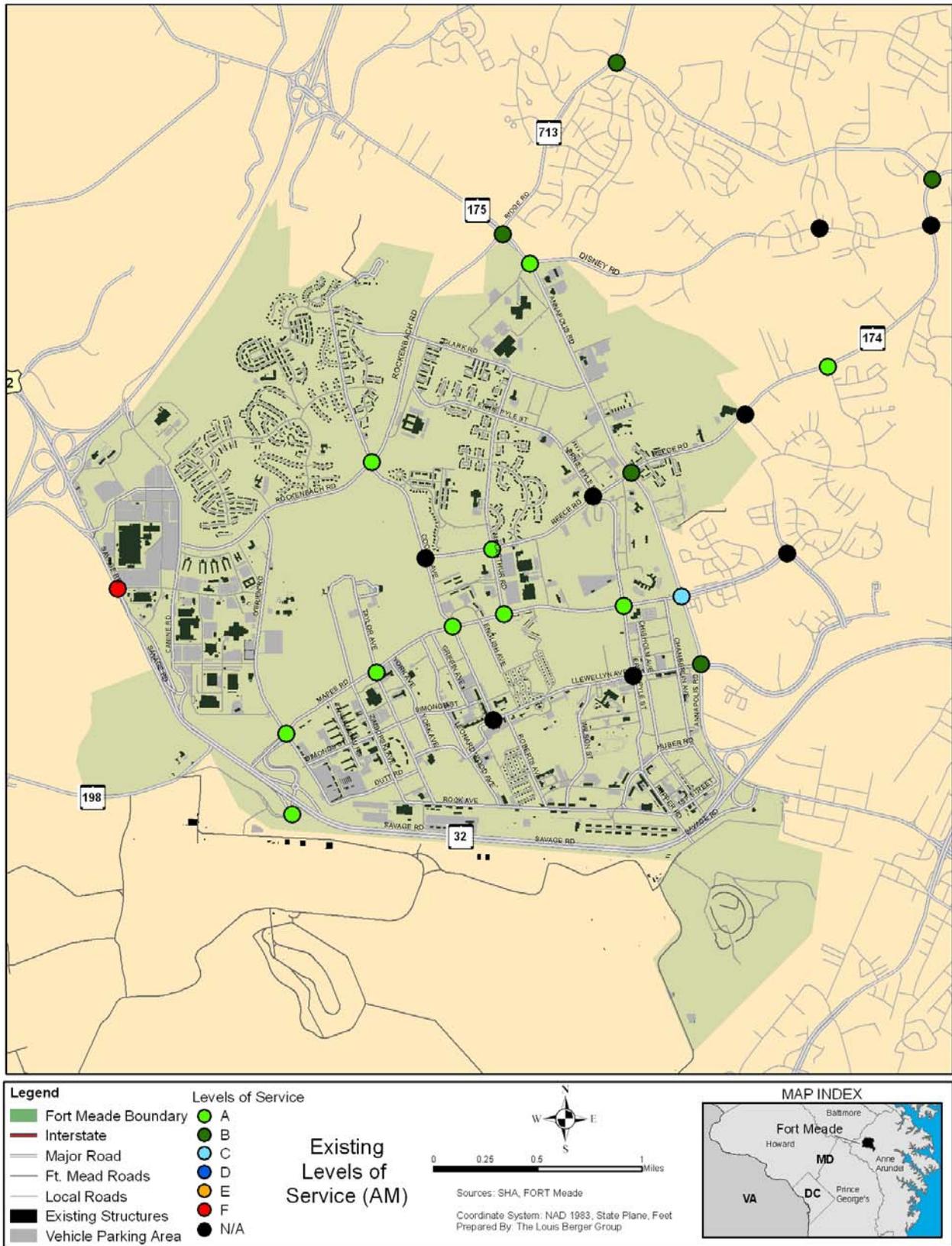
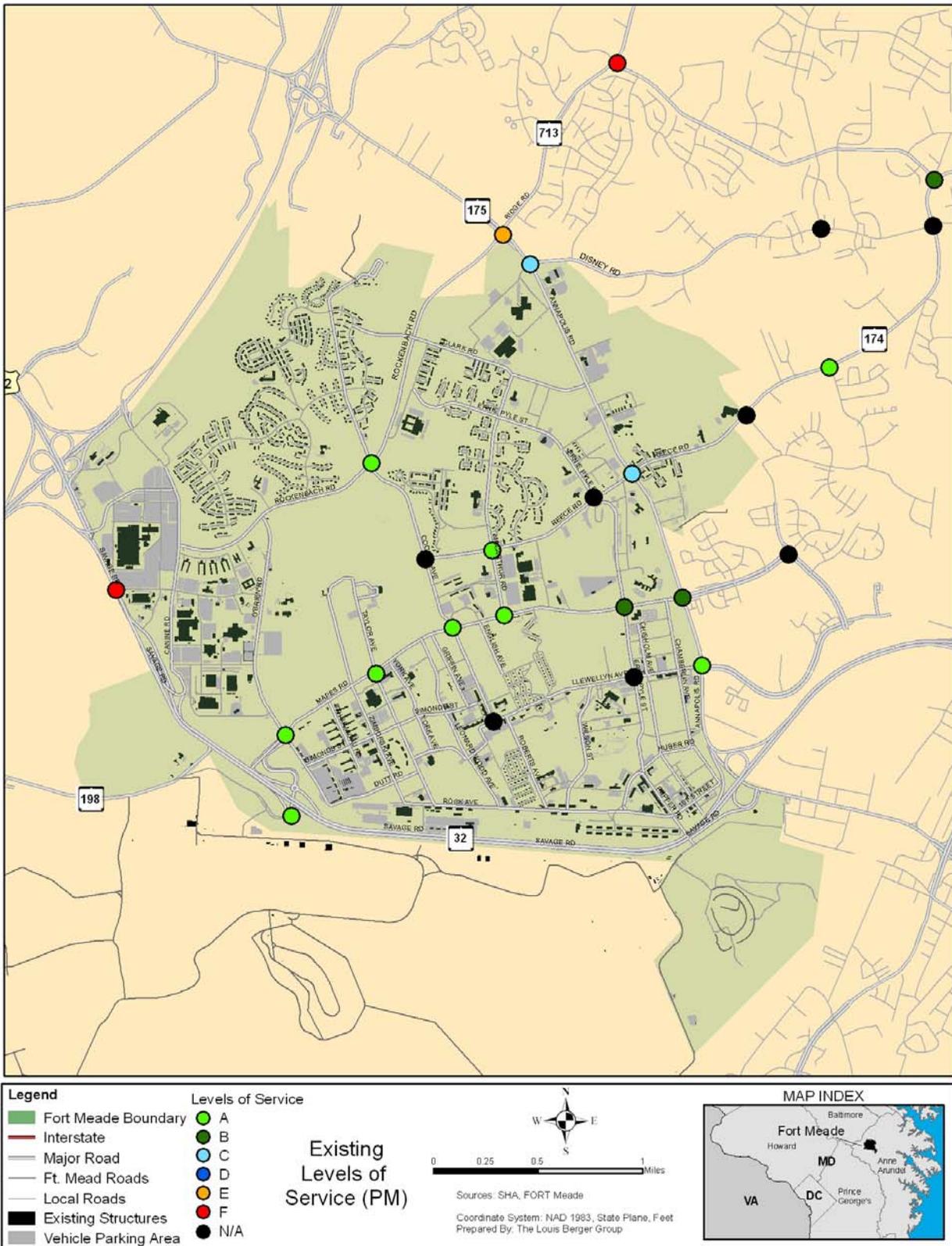


Figure 4-10. LOS Analysis Existing Condition PM Peak



4.11.2 Environmental Consequences

4.11.2.1 Future Conditions

Ongoing development within the Fort Meade ROI and the surrounding area will lead to continued growth in traffic in and around the installation. The projected level of background growth through 2011 serves as the baseline (No Action Alternative) against which traffic conditions under the BRAC plus EUL and BRAC-only alternatives would be measured.

The basis for quantifying the effects of the proposed alternatives is the estimated LOS for 25 intersections. Summary results from the Maryland BRAC Report are presented for the No-Action Alternative and the BRAC plus EUL Alternative, for study years 2010 and 2015, to examine the broader regional context and impacts. Planned and recommended roadway, transit, and other alternative transportation programs for the installation and the surrounding area are also identified. Specifically, this section:

- Estimated LOS for 25 intersections on and near the installation under the No Action Alternative, considering the impact of background traffic growth to the 2011 horizon year
- Estimated LOS for the Preferred Alternative, BRAC plus EUL, comparing LOS to the No-Action Alternative for the 2011 horizon year
- Estimated LOS for the BRAC-only Alternative, comparing LOS to the No-Action Alternative for 2011
- Summarizes the Maryland BRAC Report LOS for 33 road segments in Anne Arundel and Howard Counties that demonstrate changes in LOS in 2010 and 2015, when comparing PM Peak LOS with BRAC (which includes EUL) to PM Peak LOS without BRAC
- Presents State, County, Regional, Installation and EUL developer plans and recommendations to mitigate the anticipated growth in traffic. (Note: State, County and Regional plans are summarized in this section with greater detail in Appendix F.) These plans, except for projects already built, have not been factored into 2011 LOS conditions presented in the EIS intersection LOS analyses. Major projects such as widening MD 175 have been taken into consideration in the Maryland BRAC Report 2015 forecast.

4.11.2.2 No Action Alternative

No significant adverse effects are expected under the No Action Alternative.

Future Conditions: “No-Action” Alternative - Background Traffic Growth

Anne Arundel County and the Maryland State Highway Administration (SHA) held regular meetings with Fort Meade staff regarding BRAC and other anticipated developments, prior to developing traffic forecasts for the area, and in conjunction with planning improvements for MD 175. SHA and Anne

Arundel County¹² believe that the forecasts for 2030 are accurate and include BRAC and EUL build-outs within the general planning area; however, the timing may be sooner rather than later in the staging of development, and the locations for development differ. Establishing a future “no-action” alternative required “backing out” the BRAC, EUL and other Fort Meade-related growth from the MDOT long-range estimates, and developing a base 2011 horizon year, the deadline for completing the BRAC-mandated projects.

Under the No Action Alternative, traffic is projected to increase at a constant annual rate of 2.9 percent that reflects the estimated traffic growth in the surrounding area from 2006-2011. The population and employment growth forecasts (2000-2030) for the region were provided by SHA. The average of the population and employment growth rates in the region (excluding Fort Meade) was estimated as a reasonable value for the traffic growth rate. The traffic volumes estimated by the procedure described above were entered into the traffic model.

The LOS for the 25 intersections during AM Peak and PM peak for the No Action Alternative is shown in Table 4-27 and Figures 4-11 and 4-12. LOS for unsignalized intersections is not shown on the Figures because each approach may have different levels of service. Results are discussed immediately following the Table and Figures.

¹² An extensive phone interview with Anne Arundel County (AACO) was conducted on July 25, 2006. AACO indicated that Round 6C forecasts are more realistic than previous forecasts; in terms of total numbers it was believed that the EUL was accommodated within the overall growth numbers (as well as the BRAC) but the locations would be different and the timing would be sooner rather than later. That forecast estimated 84,997 jobs for Fort Meade/Odenton by 2030, compared with 48,250 in 2006. Communications with AACO and Maryland modelers at SHA form the basis for the analysis. Follow-up conversations with the Baltimore Metropolitan Council and with AACO were held August 23, 2007. AACO confirmed that employment in the Round 7 forecast for Transportation Analysis Zone 334 (that includes Fort Meade) increases by almost 17,000 jobs from 2005 to 2015, from 48,250 to 66,095. AACO states that this increase accommodates both BRAC and EUL, although locations differ as discussed in July, 2006. The Round 7 forecast including this zone was the basis for the Maryland State BRAC Report; therefore BRAC plus EUL is considered in the regional traffic effect.

Table 4-27 Intersection LOS for the No Action Alternative

Number	Area	Road A	Road B	Type*	AM Peak	PM Peak
1	Ft. Meade	Mapes	O'Brien	S	A	A
2	Ft. Meade	Mapes	Taylor	S	A	A
3	Ft. Meade	Mapes	Cooper	S	A	A
4	Ft. Meade	Mapes	MacArthur	S	A	A
5	Ft. Meade	Mapes	Ernie Pyle	S	B	B
6	Ft. Meade	Llewellyn	Cooper	U	B	B
7	Ft. Meade	Llewellyn	Ernie Pyle	U	D/C	C/C
8	Ft. Meade	Reece	Cooper	U	C	C
9	Ft. Meade	Reece	Ernie Pyle	U	C/C	F/C
10	Ft. Meade	Reece	MacArthur	S	A	A
11	Ft. Meade	Rockenbach	Cooper	S	A	A
12	Perimeter	Mapes	MD 175	S	D	D
13	Perimeter	Llewellyn	MD 175	S	B	A
14	Perimeter	Reece	MD 175	S	B	D
15	Perimeter	Rockenbach	MD 175	S	C	F
16	Perimeter	Disney	MD 175	S	A	E
17	Perimeter	Mapes N	MD 32	R	C	B
18	Perimeter	Mapes S	MD 32	R	A	A
19	External	Reece	Jacobs	U	D	F
20	External	Reece	Pioneer	S	A	A
21	External	Reece	New Disney	U	F/C	F/E
22	External	Reece	Severn	S	B	C
23	External	Ridge	Severn	S	B	F
24	External	New Disney	Carriage	U	B/B	C/C
25	External	Charter Oaks	Town Center	U	B/B	C/B

No Action Alternative: Includes an increase of 2.9% per year over 2006 values

*S: Signalized intersection U: Unsignalized intersection R: Roundabout

(Source: LBG Data and Analysis)

Figure 4-11. Intersection LOS Analysis No Action Alternative AM Peak

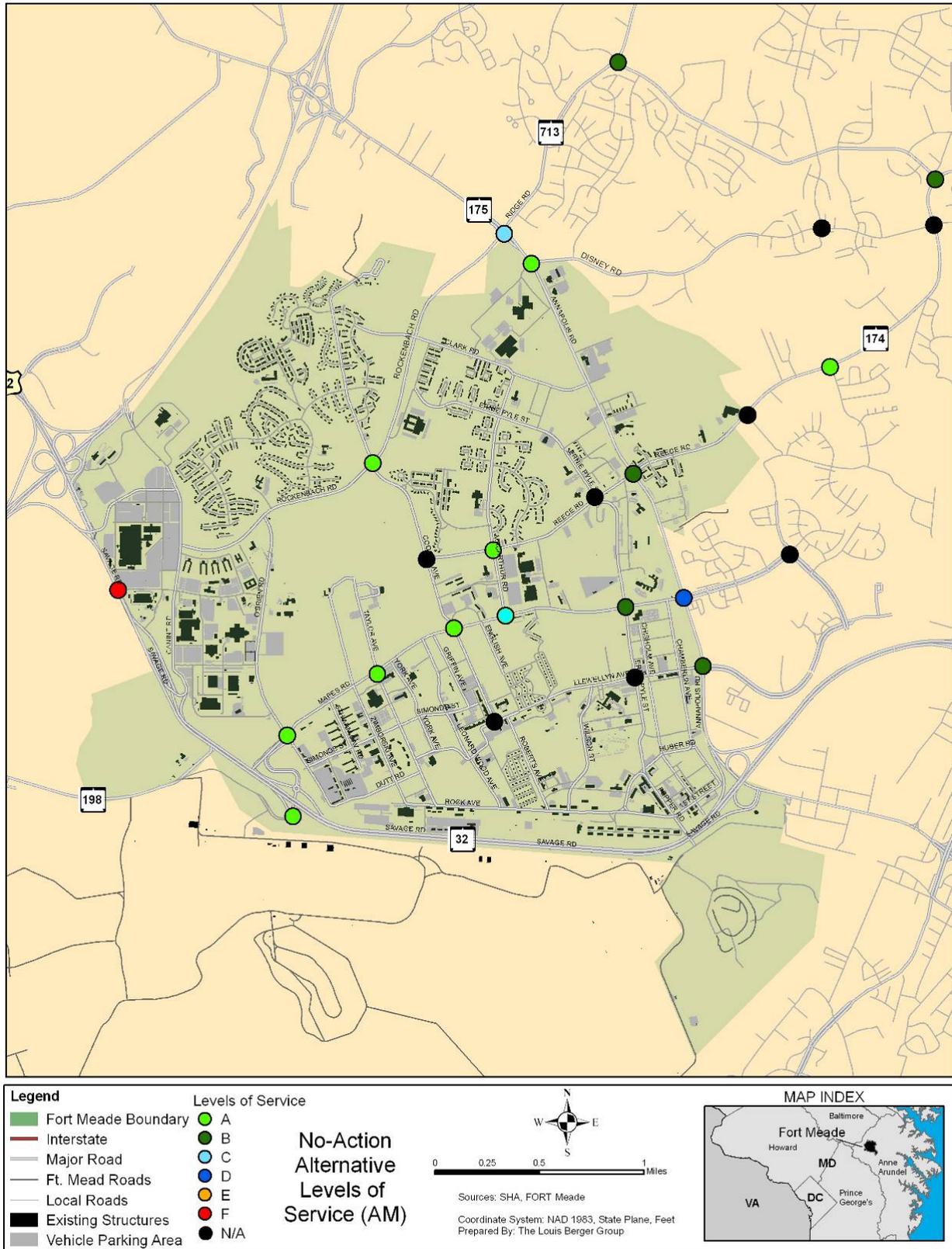
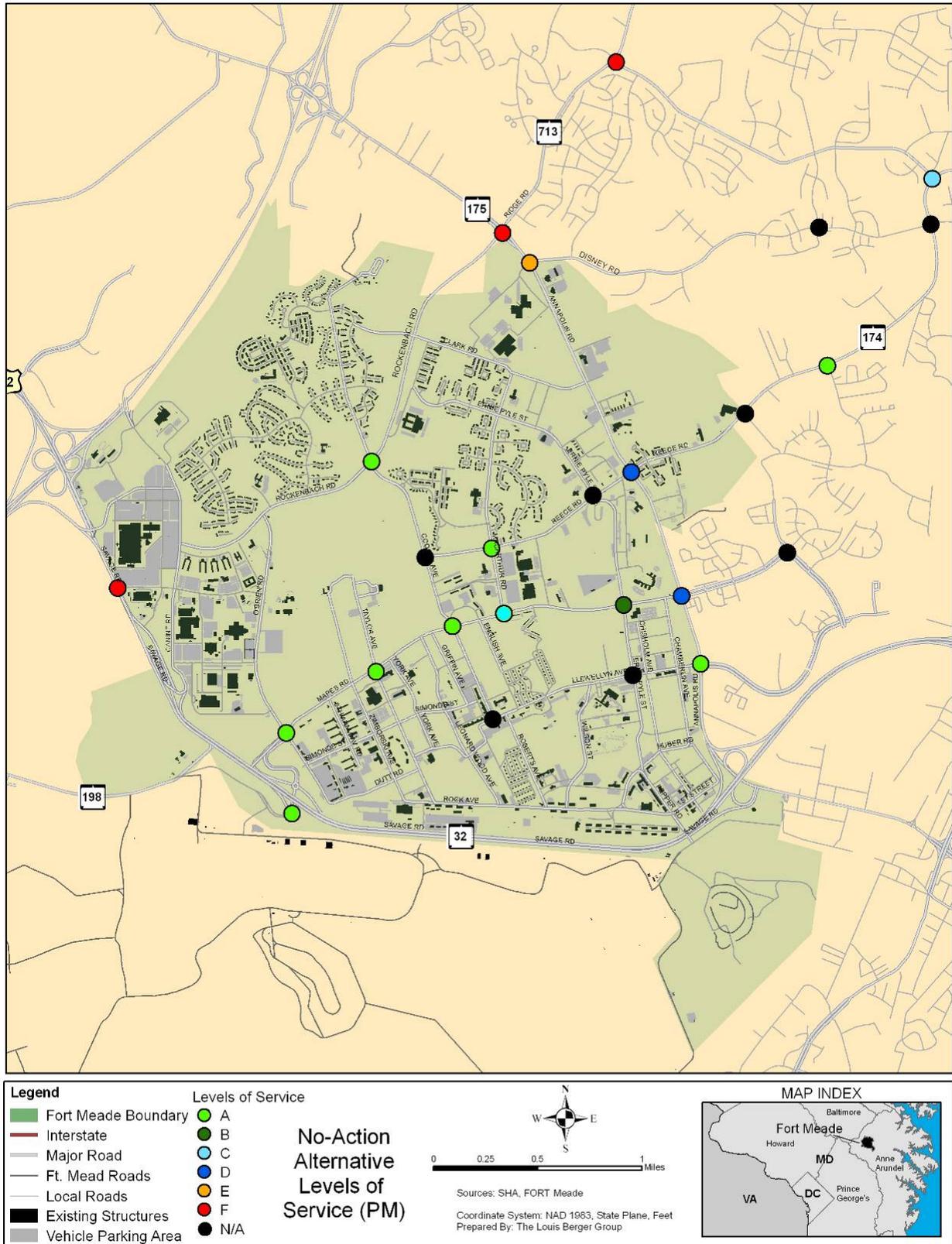


Figure 4-12. Intersection LOS Analysis No Action Alternative PM Peak



Signalized Intersections: For the AM peak hour, none of the signalized intersections drop more than one level, and none drop to LOS E or LOS F. At one signalized intersection, Mapes and MD 175, the LOS would drop from B to D during the PM peak hour due to growth along the corridor. One other signalized intersection, Disney and MD 175, would drop from LOS C to LOS E (approaching failure) during the PM peak hour. MD 175 and Rockenbach Road, which is at LOS E under the existing condition, would drop to LOS F (with an average delay of 104.7 seconds). Ridge and Severn, which is at LOS F under the existing condition (with average delay in the PM peak hour of 149.2 seconds – about two and one-half minutes), remains at LOS F (with delays increasing to 212.8 seconds – about three and one-half minutes, for a 43 percent increase).

Unsignalized Intersections: On the installation, Ernie Pyle’s eastern approach to Reece Road, traffic would experience increased delays, declining from LOS E under existing (average delay 41 seconds at the stop sign) to LOS F (average delay 99 seconds) in the PM Peak in the No-Action Alternative. All installation intersections would continue to perform well.

Off the installation, where Jacobs deadends into Reece Road, the LOS to access Reece Road would drop from LOS D to LOS F during the PM Peak. Residents using New Disney (and to a lesser extent Redbridge) to access Reece Road would experience additional delay, that appears particularly severe during the PM Peak.

Conclusion: No significant adverse effects would be expected because only one out of fifteen signalized intersections would drop from an adequate LOS to a LOS F, while one other remains at LOS F. Other routes and timing of trips may be used to avoid those congested intersections. The above results, however, do not reflect highway improvements that are likely to occur in the near future such as signal optimization, or improvements subsequent to the implementation of BRAC actions, such as the expansion of MD 175. These improvements would result in better LOS, particularly along MD 175.

Maryland BRAC Report for the 2010 and 2015 PM Peak Periods Without BRAC (Analogous to the No-Action Alternative)

The Maryland BRAC Report issued December 28, 2006 by the Maryland Department of Planning evaluates the proposed the BRAC projects throughout the state, including Fort Meade and the Fort Meade EUL action (see ROI, Section 4.11.1.1 on page 4-110 and footnote 11 on page 4-128). The analysis framework is on a different scale from the EIS. As stated on page 89 of the report, “(t)he primary focus of this report is not on micro-scale traffic operational and impact analyses at intersections and roadway segments, or even specific bus line services. Rather the report, based on employment forecasts, housing

projections and housing distributions, focuses on macro-level impacts on major transportation facilities that serve the four installations.” The Report includes the results of the Regional Model up to 2035, in five-year increments, backed by the demographic and model expertise of the Baltimore Metropolitan Council and the underlying demographic and land use forecasts of each jurisdiction. As stated in the introduction to the transportation section of the MD BRAC study, “(m)any of the recommended transportation studies and investments would most likely be needed with or without BRAC.”

Despite its different focus, the Maryland BRAC Report details current and projected LOS for roads throughout the ROI. The summary Table 4-28 is derived from Exhibit F4-30, “Fort Meade Area: 2010 PM Peak Period LOS Without BRAC”, Exhibit F4-32, “Fort Meade Area: 2015 PM Peak Period LOS Without BRAC”, Exhibit F4-39, “South Carroll/Western Howard: 2010 PM Peak Period LOS Without BRAC”, and Exhibit F4-41, “South Carroll/Western Howard: 2015 PM Peak Period LOS Without BRAC”. The roadways presented in the Table include segments that would experience a change in LOS from the 2010 or 2015 Peak Period Without BRAC to the Peak Period With BRAC and/or the Peak Period with BRAC with BMC Recommendations. Comparisons are presented in the “BRAC plus EUL” Alternative, Section 4.11.2.3. Pale yellow shading indicates a change in LOS – either improvement or decline – from study year 2010 to study year 2015.

Table 4-28 Maryland BRAC Report Future Year PM Peak LOS Without BRAC

Ft. Meade Area	Direction	2010 PM Peak w/o BRAC	2015 PM Peak w/o BRAC
MD Rt. 1 b/t 32 and 198	Northbound	E	E
	Southbound	E/F	F
Rt. 198 b/t BW Pkwy and 32	Eastbound	F	F
	Westbound	F	F
BW Pkwy b/t 32 and 175	Northbound	E	E
	Southbound	F	F
295 b/t 100 and I195	Northbound	E	E
	Southbound	F	F
Rt. 713 b/t Severn Rd. and 100	Northbound	E	E
	Southbound	E	E
Ridge Rd. b/t 100 and Stony Run	Northbound	E	D
	Southbound	F	F
WB and A Rd. b/t Donaldson and 100	Northbound	D	E
	Southbound	E	E
Rt. 170 b/t 32 and 100	Northbound	E	E
	Southbound	E	E/F
New Cut Rd. b/t Gambrills and 97	Northbound	D	E
	Southbound	E	E
Gambrills Rd. b/t 32 and New Cut	Northbound	D	D/E
	Southbound	E	E

Ft. Meade Area	Direction	2010 PM Peak w/o BRAC	2015 PM Peak w/o BRAC
Rt. 170 b/t Waugh Chapel and 175	Northbound	D	D
	Southbound	E	E
Waugh Chapel Rd. b/t Dairy Farm and Maytime Dr.	Northbound	E	E
	Southbound	E	F
Rt. 3 b/t 424 and Johns Hopkins Rd.	Northbound	E	E
	Southbound	E	F
Rt. 3 b/t Crawford Blvd. and 424	Northbound	E	E
	Southbound	E	F
Rt. 3 b/t 450 and Crawford Blvd	Northbound	E	E
	Southbound	E	F
Rt. 170 at 175	Northbound	E	E
	Southbound	E	F
Charter Oaks Blvd. at 175	Eastbound	E	F
	Westbound	C	C
Disney Rd. b/t 175 and Citadel Dr	Eastbound	E	E
	Westbound	D	D
Rt. 175 b/t 713 and 295	Eastbound	E	C
	Westbound	E	C
Rt. 175 b/t 174 and 713	Eastbound	D	B
	Westbound	E	B
Rt. 175 b/t 32 and 174	Eastbound	B	B
	Westbound	B	B/C
Whiskey Bottom Rd b/t Brock Bridge and Spring Rd.	Eastbound	E	F
	Westbound	E	F
South Carroll/Western Howard			
Ten Oaks Rd. b/t Brighton Dam Rd. and 108	Eastbound	C	E
	Westbound	E	E
Obrecht Rd. b/t 32 and 97	Eastbound	E	D
	Westbound	E	E
Marriotsville Rd. b/t Ridge Rd. and Wards Chapel Rd.	Northbound	C	B
	Southbound	C	C
Marriotsville Rd. b/t 99 and Ridge Rd.	Northbound	F	E
	Southbound	E	E
Rt. 125 b/t 99 and Granite Rd	Northbound	E	E
	Southbound	E	E
Rt. 32 b/t 99 and Emory Farm Ln	Northbound	E	E
	Southbound	E	E
Rt. 99 b/t 32 and Marriotsville Rd	Eastbound	B	B
	Westbound	B	B
Rt. 99 b/t Marriotsville Rd and 125	Eastbound	C	C
	Westbound	D	D
Triadelphia Rd. b/t Carroll Mill and 144	Northbound	C	C
	Southbound	C	C
Folly Quarter Rd. b/t Sheppard and 32	Eastbound	B	B
	Westbound	B	B
Rt. 108 b/t Eliots Oak and Centennial Ln.	Eastbound	E	E

Ft. Meade Area	Direction	2010 PM Peak w/o BRAC	2015 PM Peak w/o BRAC
	Westbound	E	E

Three main conclusions can be drawn from these projections:

1. Many area roadways are projected to approach capacity (LOS E) or exceed capacity (LOS F) during the evening rush hour by 2010, even without BRAC plus EUL: 27 out of the 33 roadway segments identified in the table are anticipated to be at reaching or exceeding capacity in one or both directions. Many of the roadways near Fort Meade, such as MD 198, MD 3 and MD 170, are anticipated to fall from LOS E to LOS F during the evening rush hour even without BRAC plus EUL.
2. BW Parkway/ MD 295: Many sections of the BW Parkway and MD 295 already exceed capacity; no improvements are expected (with or without BRAC plus EUL). No expansion in the number of lanes is planned in the Parkway sections south of MD 175 in the foreseeable future.
3. MD 175: Targeted infrastructure improvements such as the planned improvements to MD 175 could significantly improve the projected LOS, as shown in the 2010 to 2015 comparison for the three segments of MD 175.

4.11.2.3 BRAC Realignment and Enhanced Use Lease Actions Alternative

Significant adverse effects to transportation would be expected within the ROI, as summarized in the Table 4-29 and Figures 4-12 - 4-14. Incremental adverse effects are also anticipated at various locations throughout the region on roadways that are already nearing capacity. A significant impact within the ROI would occur when an intersection that had not fallen to LOS F under the No-Action Alternative fails under this alternative. If that intersection had already reached LOS F under the No-Action Alternative, and continued at LOS F under this alternative, the level of significance is determined on a case by case basis depending on the magnitude of the additional delay. Experiencing LOS F for multiple intersections on a corridor or in a particular area, or excessive delays along a corridor, would be considered a “significant effect”, because it may be difficult to find an alternative route.

The traffic analysis and estimation of LOS were conducted for the BRAC realignment and DoD EUL actions alternative. The traffic analysis for BRAC Sub-alternative 2A and EUL Sub alternative 2A is summarized below in Table 4-29. The other combinations of BRAC and EUL sub-alternatives are not examined for traffic impacts for the following reasons:

- Total trips and traffic generated by the EUL build-out are the same for each alternative, as the number of personnel is identical for each alternative.

- The traffic impacts external to the installation are the same for each BRAC and EUL sub-alternative, as total trips to and from the installation and the EUL site are the same for each sub-alternative.
- BRAC Sub-alternatives 2A, 2B and 2C are identical in the placements for DISA and Media, and differ primarily in the location for Adjudication. The locations of the PX and Gym are not critical in consideration of traffic impacts, as most activity is generated during non-peak hours. Adjudication activities account for approximately 12 percent of the incoming personnel (excluding EUL personnel). Several roads on the installation experience significant degradations of levels of service based on the increased traffic, although impacts are mostly felt on the perimeter of the installation. It is considered unlikely that relocation of the Adjudication Facility alone would “tip the scale” one way or the other for particular intersections.

SHA is conducting a major project planning study for the widening and improvement of MD 175. The improvements are NOT factored into the detailed ROI study area levels of service in the year 2011 for three reasons.

- 1) MD 175 upgrades are still in the planning phase. Final Design, Right-of-Way and construction dollars are not yet programmed for the project; typically funding for these other phases is allocated once planning is complete.
- 2) The conceptual plans have slightly different rights-of-way and are still being refined in terms of lane widths, lengths of turn lanes and similar factors that affect the traffic simulation.
- 3) It appears that the timing for construction of MD 175, if funding is identified, is likely to coincide with the forecast year (2011). Once construction is complete, likely in 2015, traffic conditions would be much improved, although degradations to LOS in the intervening years would still occur.

The MD 175 upgrades are, however, incorporated into the Maryland BRAC Report 2015 traffic analysis and the summary tables from that regional analysis.

The methodology for estimating LOS is provided in Appendix F.

The LOS for specific intersections is summarized in Table 4-29. Light yellow highlights intersections with a drop of two or more places to D or less in LOS, without going into LOS F. The darker orange highlights intersections that experience significant impacts for the AM Peak, the PM Peak, or both, compared with the No-Build alternative, based on changes in delay. The LOS at peak hours is summarized in Figures 4-13 and 4-14, excluding the unsignalized intersections which may have different levels of service for each approach.

Table 4-29: 2011 Preferred Alternative BRAC Plus EUL Intersection LOS for Fort Meade

Number	Area	Road A	Road B		AM Peak		PM Peak	
					No-Action Alternative	BRAC + EUL	No-Action Alternative	BRAC + EUL
1	Ft. Meade	Mapes	O'Brien	S	A	D	A	D
2	Ft. Meade	Mapes	Taylor	S	A	B	A	B
3	Ft. Meade	Mapes	Cooper	S	A	E	A	C
4	Ft. Meade	Mapes	MacArthur	S	A	A	A	B
5	Ft. Meade	Mapes	Ernie Pyle	S	B	B	B	B
6	Ft. Meade	Llewellyn	Cooper	U	B	B	B	B
7	Ft. Meade	Llewellyn	Ernie Pyle	U	D/C	F/F	C/C	F/F
8	Ft. Meade	Reece	Cooper	U	C	F	C	F
9	Ft. Meade	Reece	Ernie Pyle	U	C/C	D/D	F/C	F/D
10	Ft. Meade	Reece	MacArthur	S	A	A	A	A
11	Ft. Meade	Rockenbach	Cooper	S	A	B	A	A
12	Perimeter	Mapes	MD 175	S	D	F	D	F
13	Perimeter	Llewellyn	MD 175	S	B	D	A	C
14	Perimeter	Reece	MD 175	S	B	F	D	F
15	Perimeter	Rockenbach	MD 175	S	C	E	F	F
16	Perimeter	Disney	MD 175	S	A	E	E	F
17	Perimeter	Mapes N	MD 32	R	C	F	B	B
18	Perimeter	Mapes S	MD 32	R	A	E	A	A
19	External	Reece	Jacobs	U	D	F	F	F
20	External	Reece	Pioneer	S	A	F	A	F
21	External	Reece	Redbridge	U	F/C	F/F	F/E	F/F
22	External	Reece	Severn	S	B	F	C	F
23	External	Ridge	Severn	S	B	E	F	F
24	External	New Disney	Carriage	U	B/B	B/B	C/C	C/C
25	External	Charter Oaks	Town Center	U	B/B	C/C	C/C	C/C

No Action Alternative: Includes an increase of 2.9% per year over 2006 values

*S: Signalized intersection U: Unsignalized intersection R: Roundabout

(Source: LBG Data and Analysis)

Figure 4-13. BRAC and EUL Actions Alternative Levels of Service AM Peak

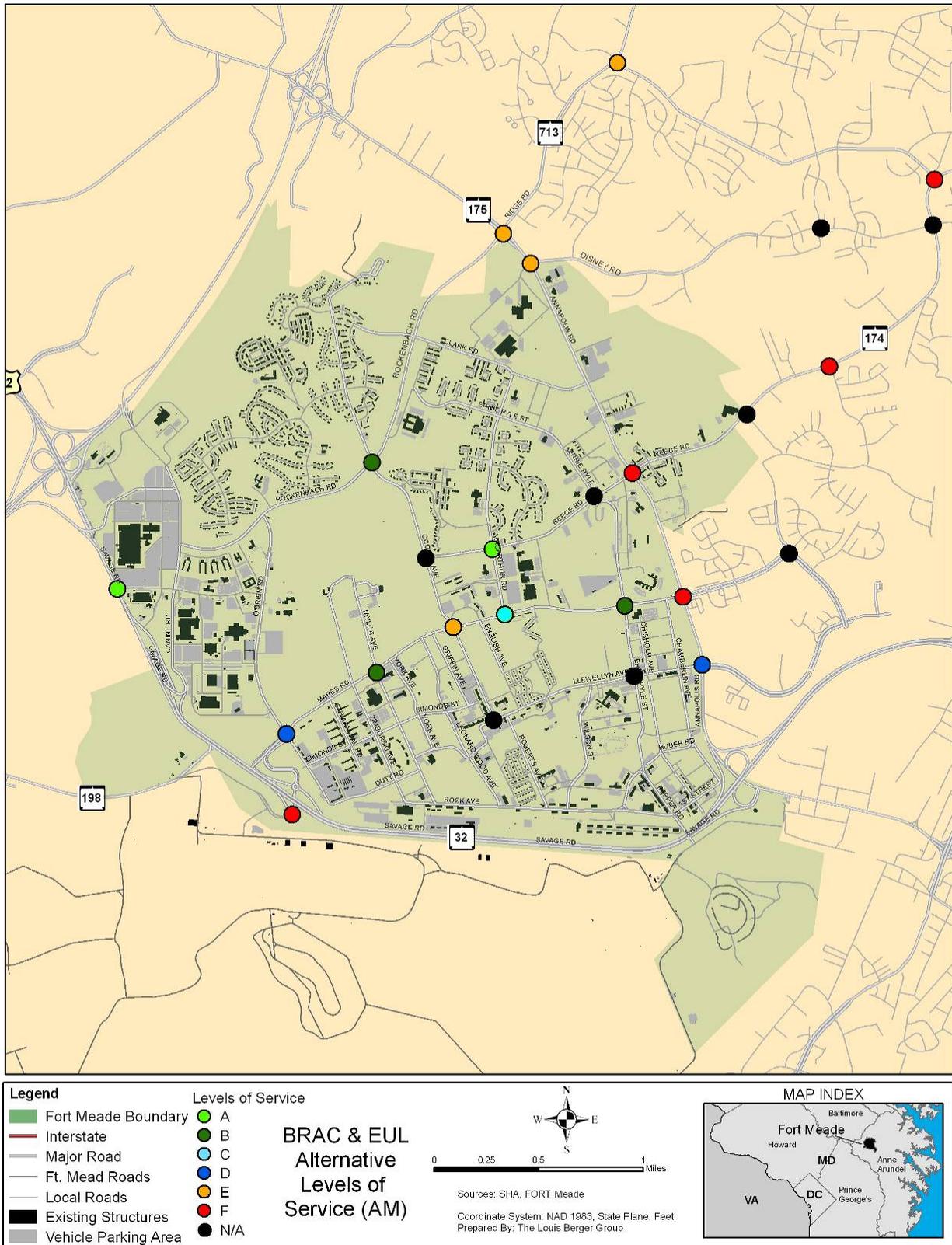
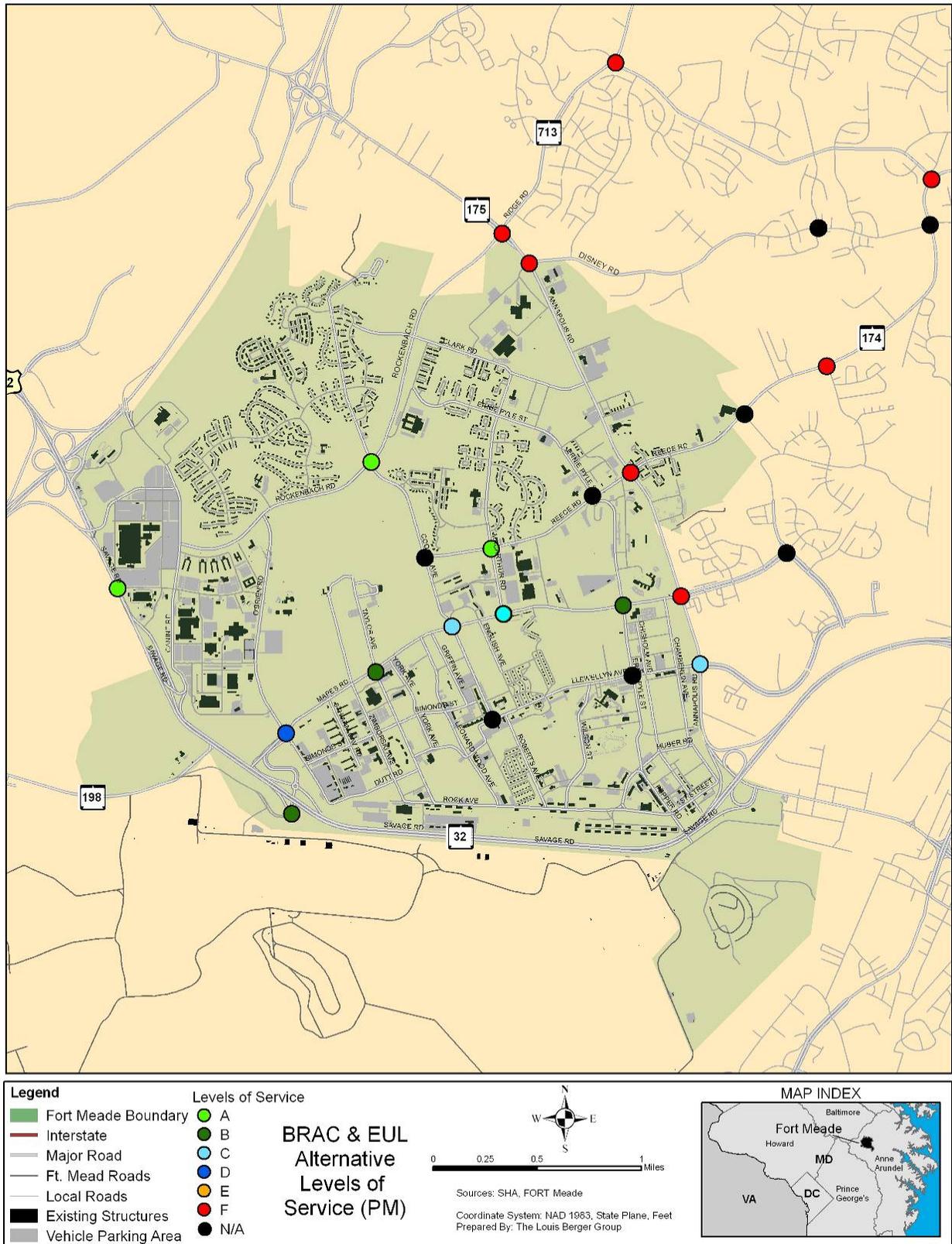


Figure 4-14. BRAC and EUL Actions Alternative Levels of Service PM Peak



MD 175 Arterial LOS. The LOS of the 3.2 mile MD 175 segment adjacent to Fort Meade would decline from the No-Action Alternative. The AM Peak Eastbound Arterial LOS would drop from B to C, with an average speed of 14.6 mph, while the AM Peak Westbound Arterial LOS would decline to LOS D, with an average speed of 13.3 mph. PM Peak Eastbound LOS is estimated to decline from D to F for the BRAC plus EUL Alternative, with an average speed of 5.4 mph, while the Westbound PM Peak is estimated at LOS B, averaging 19.9 mph.

Signalized Intersections. There are four signalized intersections in the AM peak hour and six signalized intersections in the PM peak hour that would have available capacity under the No-Action Alternative but would fall to LOS F under the Preferred Alternative. Two of the five intersections along MD 175 would drop to LOS F in the AM Peak with four of five dropping to LOS F in the PM Peak. The intersections at Reece and Mapes Roads would experience the greatest delays. Without intervention (whether transportation demand management to reduce traffic or geometric/ operational improvements to reduce delay), the average peak hour delays at both Mapes Road and MD 175 and Reece Road and MD 175 are projected to be almost three minutes in the AM Peak. During the PM Peak hour, without intervention, average delays along MD 175 are expected to reach about one and one-half minutes at Disney Road, just over three minutes at Mapes Road, over four minutes at Rockenbach Road, and about five and one-half minutes at Reece Road. North of MD 175, delays are anticipated to increase to more than five minutes at Reece Road and Severn Road in both the AM and PM Peak hours. Delays at Ridge and Severn are anticipated to average just over one minute during the AM Peak, but almost four minutes during the PM Peak. As discussed below in Section 4.15, Mitigation and Best Management Practices, a number of studies are underway to determine actions that can be accomplished in the short term to alleviate the effects, including geometric, operational, and transportation demand management and alternative transportation solutions. In the longer term, (after 2015), the planned improvements to MD 175 would bring additional relief. The MD 175 conceptual planned improvements have been tested against the aggregate projected EUL traffic volumes, but not for the specific EUL locations.

Roundabouts: The northern roundabout to Mapes could drop to LOS F in the AM Peak because of the increased volumes on the one-lane southbound leg. Modifying the one-lane leg to a two-lane leg would eliminate the problem; however, other measures such as improved ridesharing and transit could delay or eliminated the need for widening. The roundabouts appear to perform well in all other time periods and alternatives. As noted, the performance of the roundabout does not take into account delays at gates or other security measures. See Section 4.15, Mitigation and Best Management Practices, for discussion on potential measures to improve gate performance.

Unsignalized Intersections. On the installation, where Ernie Pyle intersects Llewellyn and where Reece Road deadends at Cooper Road, delays would increase to a LOS F, with longer delays in the AM Peak, compared with the No Action Alternative. The eastern approach from Ernie Pyle to Reece Road would remain at LOS F for the PM Peak compared with the No-Action Alternative. Off the installation, where Jacobs deadends at Reece Road and where Redbridge Drive and New Disney intersect Reece Road, drivers are anticipated to experience major delays trying to access Reece Road. In addition, Reece Road would experience LOS F in the PM Peak at anticipated volumes.

Transit Impacts. Traffic congestion could impact on-time performance of transit routes in the vicinity of Fort Meade and require modifications to schedules if not ameliorated. As discussed in Section 4.11.2.4 below, transit improvements are proposed as a major tool in the area to improve conditions.

Conclusion. Significant adverse effects to transportation on non-installation roads would be expected during the 2011 timeframe. LOS F of the eastbound MD 175 segment during the PM Peak and a large number of intersections would degrade from adequate LOS to LOS F during both peaks, due to the increased delays on already failing intersections, and because of the limited roadway alternatives. Traffic studies underway by SHA, the EUL Contractor, and the DoD Office of Economic Adjustment will identify short-term and long-term solutions, as discussed in more detail in Section 4.11.2.6, below.

Within the installation the EUL traffic effect is localized and primarily impacts the unsignalized intersections, where alternative routes are available (although the alternative routes are not the most direct.) No significant effect would be expected, although it would be important to monitor conditions (in particular where Ernie Pyle intersects Reece) to determine if intervention is necessary. Fort Meade is undertaking an installation Traffic study; recommendations would be implemented as funding becomes available.

Maryland BRAC Report PM Peak LOS Comparisons With and Without BRAC plus EUL

The Maryland BRAC Report traffic analysis is described in Section 4.11.2.1 under the No-Action Alternative. BMC, working for the Maryland Department of Planning, examined various alternatives, including traffic conditions with and without BRAC (including EUL), conditions with anticipated major construction programs as described in the Maryland Consolidated Transportation Program, and conditions with additional transportation investments recommended by the BMC to address incremental BRAC (plus EUL) effects. Section 4.11.2.2, Table 4-27, presented the No-Action 2010 and 2015 traffic conditions. Table 4-30 adds the analysis of BRAC plus EUL related traffic impacts to the earlier table for 2010 and 2015, and also summarizes the improvements in LOS that can be achieved through implementation of the

BMC Recommendations. Pale yellow shading indicates a change, either improvement or decline, in LOS from the adjacent column for the same study year.

Table 4-30 Maryland BRAC Report Future Year PM Peak LOS With and Without BRAC

Ft. Meade Area	Direction	2010 PM Peak w/o BRAC	2010 PM Peak w/ BRAC (and EUL)	2015 PM Peak w/o BRAC	2015 PM Peak w/ BRAC (and EUL)	2015 PM Peak w/ BRAC and BMC Recommendations
MD Rt. 1 b/t 32 and 198	Northbound	E	E	E	E/F	E
	Southbound	E/F	E/F	F	F	F
Rt. 198 b/t BW Pkwy and 32	Eastbound	F	F	F	F	D
	Westbound	F	F	F	F	C
BW Pkwy b/t 32 and 175	Northbound	E	E	E	F	F
	Southbound	F	F	F	F	F
295 b/t 100 and I195	Northbound	E	F	E	E	E
	Southbound	F	F	F	F	F
Rt. 713 b/t Severn Rd. and 100	Northbound	E	E	E	E	E
	Southbound	E	E	E	F	F
Ridge Rd. b/t 100 and Stony Run	Northbound	E	E	D	E	E
	Southbound	F	E	F	F	F
WB and A Rd. b/t Donaldson and 100	Northbound	D	E	E	E	E
	Southbound	E	E	E	F	F
Rt. 170 b/t 32 and 100	Northbound	E	E	E	E	E
	Southbound	E	E	E/F	F	F
New Cut Rd. b/t Gambrills and 97	Northbound	D	E	E	E	E
	Southbound	E	E	E	F	F
Gambrills Rd. b/t 32 and New Cut	Northbound	D	E	D/E	E	E
	Southbound	E	E	E	F/E	F/E
Rt. 170 b/t Waugh Chapel and 175	Northbound	D	E	D	E	E
	Southbound	E	E	E	F	F
Waugh Chapel Rd. b/t Dairy Farm and Maytime Dr.	Northbound	E	E	E	F	E
	Southbound	E	F	F	F	F
Rt. 3 b/t 424 and Johns Hopkins Rd.	Northbound	E	E	E	F	E
	Southbound	E	E	F	F	E
Rt. 3 b/t Crawford Blvd. and 424	Northbound	E	E	E	E	E
	Southbound	E	E	F	F	E
Rt. 3 b/t 450 and Crawford Blvd	Northbound	E	E	E	E	D
	Southbound	E	E	F	F	E
Rt. 170 at 175	Northbound	E	E	E	E	E
	Southbound	E	F	F	F	F
Charter Oaks Blvd. at 175	Eastbound	E	F	F	F	C
	Westbound	C	C	C	C	E
Disney Rd. b/t 175 and Citadel Dr	Eastbound	E	F	E	F	F
	Westbound	D	D	D	E	E
Rt. 175 b/t 713 and 295	Eastbound	E	E	C	C	C
	Westbound	E	F	C	C	C
Rt. 175 b/t 174 and 713	Eastbound	D	D	B	B	B

Ft. Meade Area	Direction	2010 PM Peak w/o BRAC	2010 PM Peak w/ BRAC (and EUL)	2015 PM Peak w/o BRAC	2015 PM Peak w/ BRAC (and EUL)	2015 PM Peak w/ BRAC and BMC Recommendations
	Westbound	E	E	B	C	C
Rt. 175 b/t 32 and 174	Eastbound	B	B	B	B	B
	Westbound	B	C	B/C	C	C
Whiskey Bottom Rd b/t Brock Bridge and Spring Rd.	Eastbound	E	F	F	F	F
	Westbound	E	E	F	F	F
South Carroll/Western Howard						
Ten Oaks Rd. b/t Brighton Dam Rd. and 108	Eastbound	C	C	E	E	E
	Westbound	E	F	E	E	E
Obrecht Rd. b/t 32 and 97	Eastbound	E	E	D	E	E
	Westbound	E	E	E	E	E
Marriotsville Rd. b/t Ridge Rd. and Wards Chapel Rd.	Northbound	C	C	B	C	C
	Southbound	C	C	C	C	C
Marriotsville Rd. b/t 99 and Ridge Rd.	Northbound	F	F	E	F	F
	Southbound	E	E	E	E	E
Rt. 125 b/t 99 and Granite Rd	Northbound	E	E	E	F	F
	Southbound	E	E	E	E	E
Rt. 32 b/t 99 and Emory Farm Ln	Northbound	E	E	E	F	F
	Southbound	E	E	E	E	E
Rt. 99 b/t 32 and Marriotsville Rd	Eastbound	B	B	B	B	B
	Westbound	B	B	B	C	C
Rt. 99 b/t Marriotsville Rd and 125	Eastbound	C	C	C	C	C
	Westbound	D	D	D	E	E
Triadelphia Rd. b/t Carroll Mill and 144	Northbound	C	C	C	D	D
	Southbound	C	C	C	D	D
Folly Quarter Rd. b/t Sheppard and 32	Eastbound	B	B	B	B	B
	Westbound	B	B	B	C	C
Rt. 108 b/t Eliots Oak and Centennial Ln.	Eastbound	E	E	E	E	E
	Westbound	E	E	E	F	F
B						
C						
D						
E						
F						
*yellow highlight denotes change						

Three key points can be summarized from the table above, and from the Maryland BRAC report:

1. The BRAC plus EUL action would have an incremental adverse effect on regional roadways. In eight (8) out of 66 cases (two potential cases for each roadway segment), the increased traffic effect would degrade service from LOS E to LOS F, in the 2010 comparison. (One segment goes from LOS F to LOS E, but this may be attributed to an anomaly in the model.) In an additional

four cases for 2010, the incremental BRAC effect shifts four roadway segments from LOS D to LOS E. While, 52 road segments remain unchanged in 2010 (in addition to the remaining hundreds of road segments in the region that were NOT included in the table because they did not show any change across the five cases.) Fourteen segments drop from LOS E to LOS F, five segments drop from LOS D to LOS E, and 36 segments remain unchanged. In no case does the LOS drop more than one LOS.

2. The infrastructure improvements on Maryland 175 as modeled for the year 2015 provide adequate levels of service on MD 175 under the BRAC plus EUL, BRAC-only, and No Action Alternatives. These findings, however, are preliminary because the planning zones of the EUL was not part of the forecast that supported the Maryland BRAC Report. Additional studies are underway to better define specific EUL roadway impacts and potential mitigation required.
3. The additional recommendations introduced by BMC to address BRAC (plus EUL) would provide relief to selected roadways such as MD 198 and Route 3 by the year 2015. Other improvements, such as expansion to MD 295 north of MD 175, are anticipated to require additional time and funding.

4.11.2.4 BRAC Realignment Action Alternative

No significant adverse effects to transportation would be expected.

- The traffic analysis of BRAC Sub-alternative 3A is summarized in Table 4-31, below. The other alternatives are not examined for traffic impacts, consistent with the analysis for the BRAC plus EUL Realignment Action Alternative.
- The LOS for specific intersections are presented in Table 4-31 and Figures 4-15 and 4-16. For the table, light yellow highlights cases with a drop of two or more places in LOS to a LOS D or worse, without going into LOS F. The darker orange highlights cases that experience significant impacts for the AM Peak, the PM Peak, or both, compared with the No-Build alternative, based on changes in delay as discussed above. The Figures do not show LOS for the unsignalized intersections as they may have different levels of service for each approach to the intersection.

Table 4-31: BRAC Actions Alternative Intersection LOS for Fort Meade

Number	Area	Road A	Road B		AM Peak		PM Peak	
					No-Action Alternative	BRAC Only	No-Action Alternative	BRAC Only
1	Ft. Meade	Mapes	O'Brien	S	A	D	A	D
2	Ft. Meade	Mapes	Taylor	S	A	B	A	B
3	Ft. Meade	Mapes	Cooper	S	A	E	A	C
4	Ft. Meade	Mapes	MacArthur	S	A	A	A	B
5	Ft. Meade	Mapes	Ernie Pyle	S	B	B	B	B
6	Ft. Meade	Llewellyn	Cooper	U	B	B	B	B
7	Ft. Meade	Llewellyn	Ernie Pyle	U	D/C	F/F	C/C	F/F
8	Ft. Meade	Reece	Cooper	U	C	F	C	F
9	Ft. Meade	Reece	Ernie Pyle	U	D/C	D/D	F/C	F/C
10	Ft. Meade	Reece	MacArthur	S	A	A	A	A
11	Ft. Meade	Rockenbach	Cooper	S	A	B	A	A
12	Perimeter	Mapes	MD 175	S	D	D	D	E
13	Perimeter	Llewellyn	MD 175	S	B	B	A	A
14	Perimeter	Reece	MD 175	S	B	C	D	D
15	Perimeter	Rockenbach	MD 175	S	C	C	F	F
16	Perimeter	Disney	MD 175	S	A	A	E	E
17	Perimeter	Mapes N	MD 32	R	C	D	B	B
18	Perimeter	Mapes S	MD 32	R	A	A	A	A
19	External	Reece	Jacobs	U	D	D	D	F
20	External	Reece	Pioneer	S	A	A	A	A
21	External	Reece	New Disney/ Redbridge	U	F/C	F/C	F/E	F/E
22	External	Reece	Severn	S	B	B	C	C
23	External	Ridge	Severn	S	C	B	F	F
24	External	New Disney	Carriage	U	B/B	B/B	C/C	C/C
25	External	Charter Oaks	Town Center	U	B/B	B/B	C/B	C/C

No Action Alternative includes an increase of 2.9% per year over 2006 values

*S: Signalized intersection U: Unsignalized intersection R: Roundabout

Figure 4-15. BRAC Action Alternative Intersection Levels of Service AM Peak

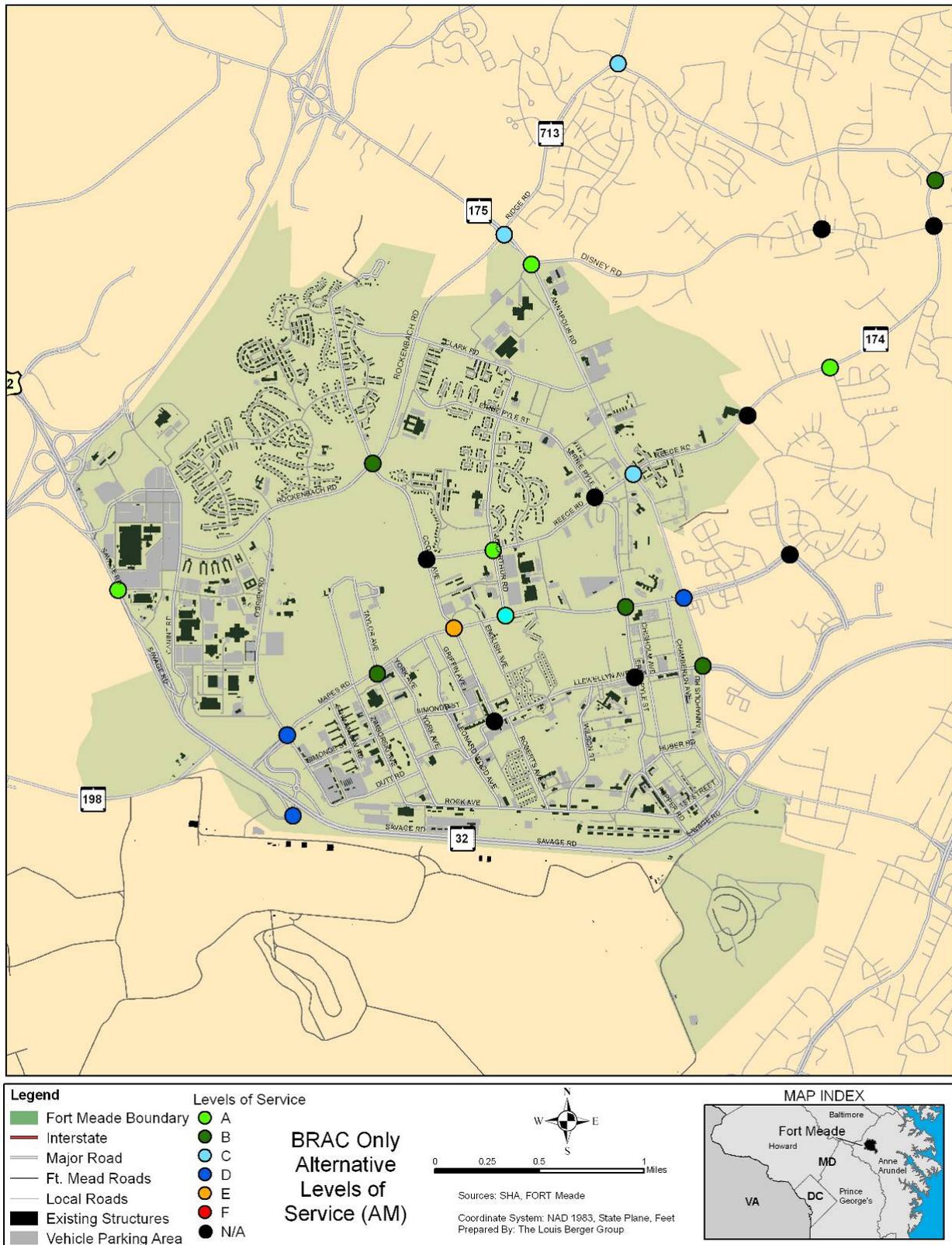
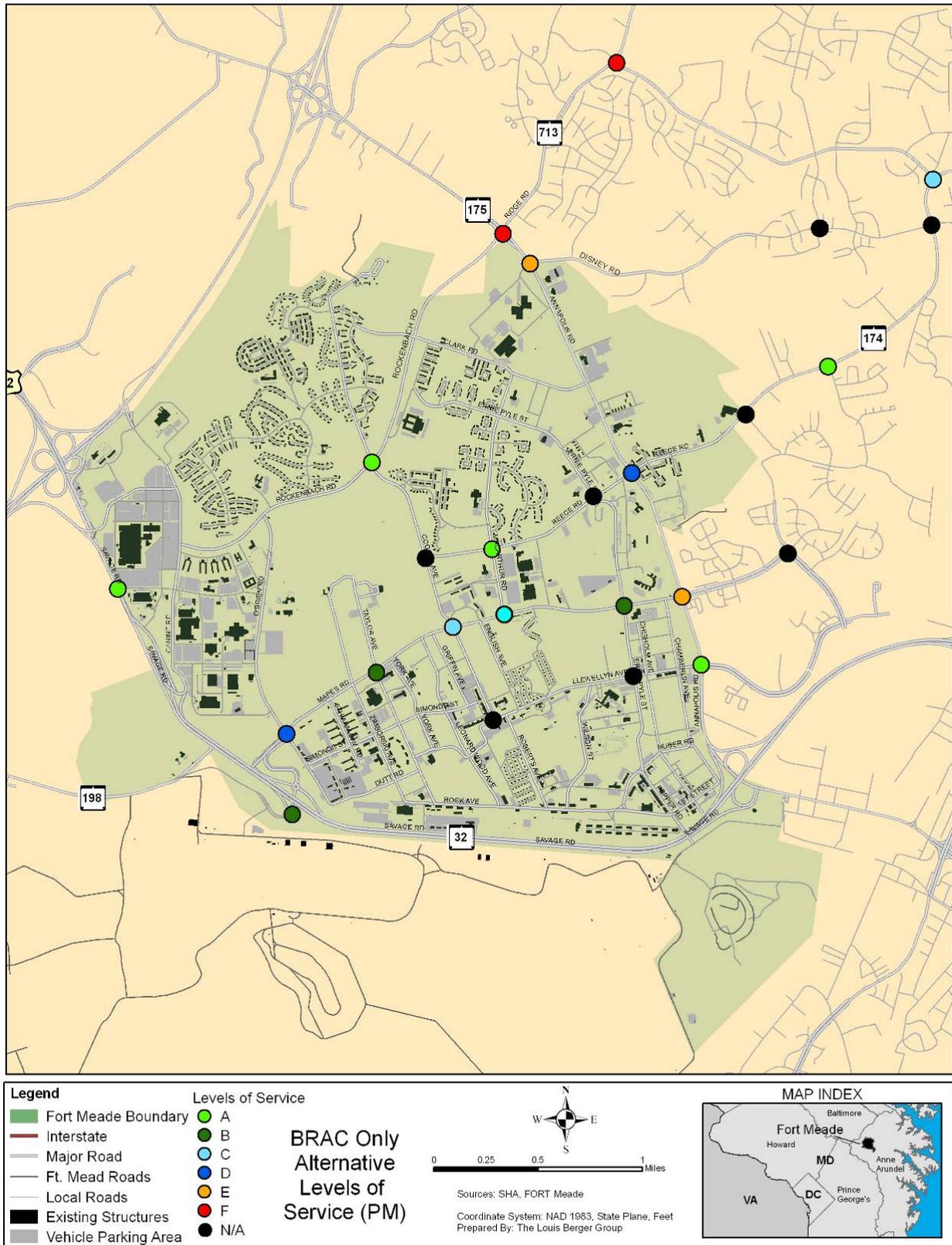


Figure 4-16. BRAC Actions Alternative Intersection Levels of Service PM Peak



MD 175 Arterial LOS: The 3.2 mile MD 175 segment adjacent to Fort Meade would maintain the same LOS as the No-Action Alternative, with slight reductions in average operating speed. The AM Peak Eastbound Arterial LOS is projected to remain at LOS B, with virtually no change in average speed. The AM Peak Westbound Arterial LOS also would remain at LOS B, with average speed declining from 23.8 to 20.8 mph. PM Peak Eastbound LOS is estimated to remain at LOS D for the BRAC Alternative, with an average speed of 12.5 mph, while the Westbound PM Peak is estimated at LOS A, averaging 26.8 mph.

Signalized Intersections. One signalized intersection would drop to LOS E during the AM Peak, compared with five at LOS F under the Preferred Alternative. The intersection of Mapes and Cooper Roads is located on the installation. The installation has more control over the timetable of construction of roadway improvements on the installation than it has over State Highway projects, and alternative routes are available. There are no signalized intersections at LOS F during the AM Peak on MD 175. For the PM Peak, the intersection of Mapes Road and MD 175 declines from LOS D to LOS E, with average delays increasing from 49 seconds to 65 seconds. The intersection of Rockenbach and MD 175 would continue to fail, with delays increasing slightly from 105 seconds to 118 seconds. No change in delay from the “no action” alternative is projected for Disney and MD 175 or for Ridge and Severn Roads.

Unsignalized Intersections. On the installation, where Ernie Pyle intersects Llewellyn and where Reece Road deadends at Cooper Road, delays would increase to a LOS F, with longer delays in the AM Peak, compared with the No Action Alternative. The eastern approach from Ernie Pyle to Reece Road would remain at LOS F for the PM Peak compared with the No-Action Alternative. Off the installation, where Jacobs deadends at Reece Road and where Redbridge Drive intersects Reece Road, drivers would continue to experience delay, comparable to the No-Action Alternative, with greater delays in the PM Peak.

Conclusion. No significant adverse effects would be expected. The number of intersections that fail would be small compared to the total number of intersections in the area, and the average delays, even at the intersections that fail, are moderate, with alternate routes available. For the unsignalized intersections that fail, additional studies may be warranted to determine appropriate mitigation.

The Maryland BRAC report includes the EUL, as discussed in Section 4.11.2.3 above. There is no comparable regional analysis for BRAC-only. The BRAC-only regional traffic impacts will be less than the BRAC plus EUL impacts because of the lower employment.

4.11.2.5 Construction Impact

No significant adverse effects would be expected. Construction of either the Preferred Alternative, BRAC plus EUL, or the BRAC-only Alternative, would have temporary effects on the roadways near Fort Meade, due to movements of supply trucks, construction vehicles, and construction worker's private vehicles. The effects would be mitigated by establishing delivery schedules of materials outside the peak travel hours, and by establishing work schedules that precede the peak hours, and/or requiring work crews to car pool as much as is feasible.

4.11.2.6 Future Conditions: Proposed and Recommended Road, Transit, Ridesharing, Pedestrian, Bicycle and Transportation Demand Improvements

The Maryland Department of Transportation (MDOT) has an active highway and transit development program underway throughout the state. The County assumes responsibility for improving roads under its control. Likewise, the Post and the EUL developer are responsible for their own roadways and transportation programs. Table 4-32 summarizes pertinent initiatives.

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Table 4-32. Future Conditions: Proposed and Recommended Road, Transit, Ridesharing, Pedestrian, Bicycle, and Transportation Demand Improvements

Project	Location	Timing	Comments
ROAD IMPROVEMENTS			
<i>State Level Projects</i>			
Widening MD 295 from 4 to 6 lanes	I-695 to I-195	Construction spring 2007 to 2010	
Widening MD 295 from 4 to 6 lanes	MD 100 to I-195	Construction not yet funded	Includes new interchange at Hanover Rd. and improvements to Hanover from CSX railroad tracks in Ho.Co. to MD 170
MD 32 interchanges	Canine and Samford Rd	Construction complete	
Upgrading of MD 3	US 50 to MD 32	Planning to be complete in 2007	To address safety and capacity concerns
Widening MD 3 from 4 to 6 lanes	PG/Anne Arundel county line to MD 32	Currently exploring feasibility	Will improve congestion in 2015
MD 175 roadway and intersection improvements	MD 295 to MD 170	Planning (D&E) to be complete in 2009	Potential interchange at Reece Rd, widening from 4 to 6 lanes, add'l turning lanes, bike paths, etc.
Reconstruction of MD 198	MD 295 to MD 32	Planning to begin in 2007	
<i>County Level Projects</i>			
Extension and completion of Odenton Town Center Blvd	MD 175 to MD 32		Planned as urban development with sidewalks, parking, bike lanes, and median
*Geometric improvements to MD 175 and to MD 3 consistent with state plans			
<i>FGGM Road Projects and Proposed Impact Mitigation Strategies</i>			
Installation Traffic Study			To develop engineered projects/strategies necessary to improve intersections and roads
<i>EUL Developer Road Project Commitments</i>			
Sizing of internal roadways to meet full development requirements of the campus			Phasing will be implemented to ensure adequate facilities are provided as the project grows

Project	Location	Timing	Comments
SMART GROWTH INITIATIVES (TRANSIT, BICYCLE, PEDESTRIAN AND TRANSPORTATION)			
<i>State Level Projects</i>			
Add'l parking at Odenton MARC station	Anne Arundel County	completion in 2007	Total parking will increase from 2,000 to 4, 745 spaces
Improvement of regional bus and rail services for Ft. Meade commuters	Washington and Baltimore areas		Utilize existing resources
Multi-modal project planning study for I-95 corridor	PG/HoCo line to I-695		Study would examine highway capacity improvements and demand strategies
Study Transportation Demand Management. Fir MD 32	Corridor in Anne Arundel		MD 32 is a gateway to Ft. Meade with potential housing locations for NSA/Ft. Meade employees
<i>County Priority Pedestrian/Bicycle Improvements</i>			
Odenton Small Area Plan	Odenton		
Odenton Town Center Master Plan	in/around Town Center and along MD 175		Identifies Pedestrian and Bicycle Network Functional Plans
<i>County Priority for Add'l Ridesharing and Transit services</i>			
Odenton Small Area Plan			Establish commuter bus system to link to MARC stations
Odenton Town Center Master Plan			Improved access to MARC via pedestrian/bicycle
<i>Ridesharing and Transit Specific to Ft. Meade</i>			
Shuttle transfers to base from MARC/Metrorail stations			
Potential direct transit service via CMTOF			MOU has been signed by AA/HoCo counties and Ft. Meade for construction of the Central Maryland Transit Operations Facility
Study of extension of WMATA Green Line to Ft. Meade and BWI airport			Coordination w/ PG County, WMATA, and the MWCOG Trans. Planning Board should be a priority

Transportation Program Description

A narrative describing the pertinent State, County, and regional transportation, transit, pedestrian, bicycle, and transportation demand programs is included in Appendix F. Installation and EUL plans and programs are included here.

Road Improvements

FGGM Road Projects and Proposed Impact Mitigation Strategies

Fort Meade is initiating an installation Traffic Study to develop engineered projects/ strategies necessary to improve intersections and roads. Projects consistent with the installation Design Guide will be implemented as funds become available. As traffic increases, however, the existing directional flows at all FGGM gates could be altered to improve access and reduce traffic impacts on exterior roadways. Corrective measures could include designating specific gates for one-way entrance or exit at peak volume hours, managing gate volume by assigning specific gates to specific organizations, and limiting gate exit options, i.e., right turn only exits.

EUL Developer Road Project Commitments

The EUL Developer's traffic engineer, Street Traffic Studies (STS), would assist the project team beginning with the initial master plan development stages through the final design process to ensure that transportation improvements are coordinated with the appropriate reviewing agencies, Maryland State Highway Administration (MSHA) and Anne Arundel County, to provide safe and efficient flows both on and off the campus.

Internal roadways would be sized to meet the full development requirements of the campus and phasing would be implemented to ensure adequate facilities are provided. The land made available for development of EUL Site Y is configured such that alternative designs could include entrance and/or exits from the development from MD 175.

Access to each campus would be developed to meet not only the base traffic requirements but also the added security needs. Based upon defined threat requirements, site access, security vetting, and parking would be designed to minimize delay in accessing sites, excessive vehicle queuing, and to provide adequate standoff distance from occupied office space. Parking garage access would also be designed to ensure that efficient vehicle flows both inbound and outbound are provided, again cognizant of defined threat standoff distance requirements.

Because Fort Meade is a secure facility, special design considerations for visitor parking and truck accesses would be addressed as part of the overall project plan. Public involvement would also be

integral to developing final designs in order to minimize adverse transport affects to the surrounding population.

Transit, Bicycle, Pedestrian and Transportation Demand Management Programs and Strategies

Ridesharing and Transit Specific to Fort Meade

- FGGM: Shuttle services are planned to operate from the MARC station to the installation, along with a variety of transit and ridesharing incentives. New legislation, codified at 31 USC 1344(g), allows the government to provide shuttle service from mass transit points free of charge to federal employees.
- Army design standards allow for only 60 percent parking spaces for building occupants, which encourages employees to seek commuter options. See also FGGM Transportation Demand Management, below.
- **In-Kind Service Potential:** Direct transit service and subsidies might be provided as a result of the Central Maryland Transit Operations Facility (CMTOF) agreement with Anne Arundel County and Howard County. The facility is included in the Maryland Transit Administration's Development and Evaluation Program within the MDOT's FY 2007-2012 Consolidated Transportation Program.¹³ A memorandum of understanding (MOU) has been signed by Anne Arundel County, Howard County and Fort Meade with regards to the construction of a bus terminal and maintenance facility. The MOU, however, does not specify the type or quantity of transit services that would be provided, or at what cost, if any, to Fort Meade or to riders.
- Desirable services under the CMTOF MOU and other agreements are consistent with the intentions of the CEMP, Anne Arundel County Odenton Master Plan, the Maryland BRAC Report and the FGGM Green Building Manual.
-

Fort Meade TDM Recommendations

FGGM Commitment

- Shuttle services are planned to operate from the MARC station to the installation, along with a variety of transit and ridesharing incentives. Army new construction design standards allow for only 60 percent parking spaces for building occupants (with an additional ten percent for visitors.) This standard encourages employee participation in commuter programs. As relocation nears, information on numbers of employees coming to the area or commuting would be provided to the

¹³ The estimated program for this facility per Anne Arundel County is 120 plus revenue bus vehicles that would likely equate to a workforce of 150 persons. An environmental assessment document will be prepared to satisfy US Army Corps of Engineers and Federal Transit Administration requirements.

appropriate planning agencies. The EIS in Appendix F includes descriptions of the wide range of transportation mitigation best practices that the Army will be evaluating for implementation. However, employee participation in commuter programs is expected to remain voluntary as it is in the local community.

FGGM Green Building Manual (May, 2007) The Fort George G. Meade Green Building Manual, published in May, 2007 includes commitments to consider and include sustainable transportation measures where practical. Pertinent Sustainable Site (SS) credit items, and the Post's assessment of the applicability of each of the items, follows.

- SS Credit 4.1: Locate project within ½ mile of an existing planned, or funded commuter rail, light rail, or subway system. Or, locate project within ¼ mile of one or more stops for two or more public or campus bus lines useable by building occupants. Post assessment of this credit item is code YELLOW: Conditionally recommended – site conditions and/or policies must be evaluated to determine if requirements for these credits can be met.
- SS Credit 4.2: Alternative Transportation: Bicycle Storage and Changing Rooms. For commercial or institutional buildings, provide secure bicycle racks and/or storage (within 200 yards of a building entrance) for 5% or more of all building users (measured at peak periods), AND, provide shower and changing facilities in the building or within 200 yards of a building entrance, for 0.5% for Full-Time Equivalent (FTE) occupants. Post assessment of this credit item is GREEN: highly recommended, ease of meeting the requirements is high based on the existing conditions and/or program requirements at Fort Meade.
- SS Credit 4.3: Alternative Transportation: Low-Emission and Fuel-Efficient Vehicles: Option 1: Provide low-emitting and fuel-efficient vehicles for 3 percent of FTE occupants AND provide preferred parking for these vehicles. OR Option 2: Provide preferred parking for low-emitting and fuel-efficient vehicles for 5 percent of the total vehicle parking capacity of the site. OR Option 3: Install alternative-fuel refueling stations for 3 percent of the total vehicle parking capacity of the site. Post assessment of this credit item is GREEN.
- SS Credit 4.4: Alternative Transportation: Parking Capacity: Option 1 – Non-residential – Size parking capacity not to exceed minimum local zoning requirements. AND Provide preferred parking for carpools or vanpools for 5 percent of the total provided parking spaces...OR Option 2 – Residential: Size parking capacity to not exceed minimum local zoning requirements. AND Provide infrastructure and support programs to facilitate shared vehicle usage such as carpool drop-off areas, designated parking for vanpools or car-share services, ride boards, and shuttle services to mass transit. “Preferred Parking” refers to the parking spots that are closest to the main entrance of

the project (exclusive of spaces designated for handicapped) or parking passes provided at a discounted price. Post assessment of this credit item is GREEN.

4.12 UTILITIES

4.12.1 Affected Environment

4.12.1.1 Potable Water Supply

The primary sources of potable water at Fort Meade are five groundwater wells located on the south side of the installation. There is a sixth well that is inactive, however, a replacement well is under construction. Individual wells range in capacity from 720 gallons per minute (gpm) to 1,000 gpm (Fort Meade, 2006b).

Water is pumped from the wells to Fort Meade's water treatment plant (WTP), which is located in the southwest quadrant of the cantonment area near the intersection of Mapes and O'Brien Roads. The WTP is a multimedia filtration plant that contains three aboveground clearwell storage tanks with a combined capacity of 2.3 million gallons and seven active water storage tanks with capacities that range from 200,000-600,000 gallons. The WTP was constructed in 1919 and has undergone upgrades in 1942, 1956, 1968, 1984 and 1986 (Fort Meade 2006b). The design capacity is 7.2 million gallons per day (mgd).

Treated water is pumped from the clearwells into the distribution system through two High Lift Pump Stations (HLPS No. 1 and No.2) that have a combined pumping capacity of approximately 17.1 mgd. The distribution system is made up of 4-inches to 20-inches in diameter water mains, 10 pumps, 556 main valves, 634 fire hydrants, and approximately 1,200 building connections.

HLPS No.1 (Building No. 8698) contains six total pumps, of which five serve the distribution system. One pump, Pump No. 1, is a backwash pump used solely to backwash the rapid-flow sand filters in the plant and is the only pump capable of providing backwash water. The remaining five pumps serve the potable water distribution system. Pumps No. 2 and No. 5 each have a capacity of 1,000 gpm (1.44 mgd), while Pumps No. 3 and No. 4 each have a capacity of 700 gpm (1.0 mgd). There is also a diesel powered pump, Pump No. 6, which has a capacity of 2,100 gpm (3.0 mgd) and can be used during power outages to supply water to the distribution system. This pump, however, is currently not operational. The combined capacity of HLPS No. 1 when Pump No. 6 is operational is roughly 5,500 gpm (7.92 mgd) (Berger 2006).

HLPS No. 2 (Building No. 8699) consists of four pumps. Pumps No. 1 and No. 2 each have a capacity of 1,200 gpm (1.73 mgd). One of these pumps can operate either electrically or by diesel fuel. Pump No. 3 has a

capacity of 1,500 gpm (2.16 mgd) and Pump No. 4 has a capacity of 2,500 gpm (3.60 mgd). The combined pump capacity of this station is 6,400 gpm (9.2 mgd). Under normal steady state conditions, HLPS No. 2 pressurizes Pressure Zones 1 and 2 and simultaneously maintains a 70 percent minimum fill level in the Chaffee Hill water storage tanks. A booster station draws water from the Chaffee Hill water storage tanks and pumps it to the higher Pressure Zones 3 and 4 for the Argonne Hills area supply. Overflow from the booster station is contained by the Pershing Hill elevated water storage tank (Berger 2006).

There are seven active water storage tanks on the installation, which range in capacity from 200,000 gallons to 600,000 gallons. The distribution system is made up of approximately 90-miles of water main ranging in size from 4-inches to 20-inches in diameter and 556 main valves, 634 fire hydrants, and approximately 1,200 building connections (Berger 2006).

The WTP provides treated water to the entire installation including the NSA complex. Approximately 3.4 mgd of potable water is pumped to the tenants on the installation (Fort Meade, 2006b).

Fort Meade is permitted for an average annual withdrawal of 2.0 mgd with a 6.0 mgd monthly average (Fort Meade, 2006b).

The water is treated for turbidity, iron, and manganese. Fluoride is added to the water before it is distributed. Fort Meade's water distribution system is divided into four sections, two high level systems (above 190 feet) and two low level systems (below 170 feet). The distribution system dates back to the World War II era and earlier. The existing primary distribution system consists of 16-, 12-, 10-, 8-, 6-, and 4-inch mains looped and cross connected throughout the installation. Water mains are constructed of cast iron, transite and ductile iron (R&K Engineering 1998).

The installation holds two Water Appropriation and Use Permits from the Maryland Department of Natural Resources (MDNR), Water Resources Administration. As noted earlier, one permit allows an average of 2 mgd of water to be withdrawn from the installation's groundwater wells. The other permit allows an average of 5.3 mgd of water to be withdrawn from the Little Patuxent River. However, the two Water Appropriation and Use Permits are issued as supplemental to each other for the determination of total withdrawal capacity. The Maryland Department of the Environment is in receipt of an application to increase the groundwater withdrawal to 6 mgd to address future growth. The installation no longer obtains water from the Little Patuxent River.

Currently no potable water system is located on the EUL sites (Fort Meade GIS 2006). Based on Fort Meade GIS information, potable water lines are located along the eastern side of MD Route 175 north of Reece Road

and near the southwestern boundary of Site Y, and south of Reece Road near the western boundary of Site Z. Water lines are also located near the west central border of Site S (Fort Meade GIS 2006).

4.12.1.2 Sewer and Wastewater

4.12.1.2.1 Wastewater Sewage Treatment Plant

The FGGM wastewater treatment plant is a modified activated sludge wastewater treatment plant. The plant is located adjacent to the Little Patuxent River near the intersection of MD 198 and MD 32 in Anne Arundel County, Maryland. The plant includes a headworks, chemical flocculation, primary clarification, activated sludge process with nitrification/denitrification, tertiary filtration, chlorination/de-chlorination, re-aeration tanks, sludge storage, and surge basins. The plant differs from a traditional activated sludge process in that lime, coagulant, and polymer are added upstream of the clarifiers to increase efficiency in removing biological oxygen demand (BOD) and total suspended solids (TSS). In addition, the modification of the second stage aeration basins to mix, but not aerate, allows for the denitrification of the oxidized nitrogen compounds. Another difference is that filtering the effluent in the tertiary filtration process results in a lower TSS concentration compared to most conventional plants (Fort Meade, 2006. Wastewater Systems Fort George G. Meade Draft Planning Charrette Report December 5, 2006).

The wastewater treatment plant has been operating for about 16 years and has undergone numerous upgrades since its inception.. A capacity analysis conducted in 2002 by URS, indicated that the current flow to the treatment plant is 2.2 million gallons per day (mgd), which is approximately 50 percent of the original design capacity of 4.6 mgd. Similarly, the maximum observed flow was 4.18 mgd compared to the maximum design result flow of 12.3 mgd.

The wastewater treatment plant consists of a number of processes in the treatment train. The major processes are briefly discussed below.

Headworks: Wastewater flows from the pump stations into the treatment plant, are combined and directed into an aerated grit chamber (AGC) and then through a bar screen, an on-line detritor, a communitor, and into the downstream chemical addition and flocculation units. The design hydraulic capacities of the AGC and communitor are 4.6 mgd each. The flume has a peak capacity of 6.0 mgd. AGCs are sized based on detention time for average and maximum flows. The typical detention time in an AGC is two to five minutes. The design detention time for 4.6 mgd is 7.6 minutes with peak flow at 2.9 minutes. Based on ratings by the manufacturer, the existing communitor is rated for a design flow of 4.6 mgd and a peak flow of 12.3 mgd.

With the exception of the surge basin and detritor, the headworks are approximately 21 years old and are in fair condition. The surge basin and detritor are approximately 15 years old and are in good condition

(URS, 2002. Sewage Treatment Plant Capacity Analysis, Wastewater Treatment Facility, Fort George G. Meade, MD, URS, April 10, 2002).

Chemical Flocculation and Primary Clarification: Lime is added to the wastewater in a rapid mix tank. The lime precipitates phosphorus and removes a significant amount of the suspended solids and BOD in the wastewater. Lime also increases alkalinity and facilitates biological nitrification. In addition, ferric chloride and polymer are added to enhance the settling of sludge. Waste sludge is also added from the secondary clarifier between the flocculation tanks and the primary clarifiers. The mixed sludge is pumped out of the primary clarifiers to a sludge storage tank for disposal. Effluent from the primary clarifiers flows to the biological nitrification/denitrification basins.

The capacity of the chemical flocculation and primary clarification processes is 5.3 mgd, including 0.7 mgd of recycle flow. The forward flow capacity of these processes is 4.6 mgd in keeping with the headwork capacity. At design flow, the average detention time in the rapid mix tanks is 4.1 minutes, including recycle flow, which is also in keeping with the headwork capacity. The typical detention time in the rapid mix tanks is one-half to two minutes (URS, 2002).

The flocculation tanks, primary clarifiers and rapid mix tanks are approximately 21 years old and there is evidence of concrete deterioration.

Biological Treatment: The primary effluent flows from the primary clarifiers to the biological treatment process. The activated sludge process oxidizes the BOD and converts the organic nitrogen to nitrate. The process also bio-chemically reduces the nitrate to nitrogen gas thus removing the nitrogen from the process stream. The last step of the process is to settle the nitrified/denitrified wastewater to separate the sludge from the treated wastewater. The sludge is then recycled back to the first activated sludge basin or wasted to the primary clarifiers. Effluent from the activated sludge process flows to the multimedia filters. In the original design, wastewater was configured to flow through three stages of treatment in either one or both treatment trains and was based on combined BOD oxidation and nitrification. The treatment process has been modified to provide for denitrification of the wastewater. Specifically, the two treatment trains have been combined such that the wastewater flows through four basins. The first basin is a combined nitrification/BOD oxidation step, the second and third basins are denitrification basins, and the fourth basin is utilized for reaeration of the wastewater. In essence, the first basin provides the same function as all the basins combined in the original design (URS, 2002). The original capacity of the aeration basins was 5.3 mgd with a total detention time of 6.2 hours assuming the two reactors are in use. In the modified system, the combined nitrification/BOD oxidation takes place in the first stage of one of the reactors or the other, which each has a capacity of only 25 percent of the total capacity of the original

configuration or 1.33 mgd. A 2002 study indicated that capacity could be increased by adding a separate denitrification system and operating the first stage basing for carbon oxidation and nitrification concurrently (USR, 2002).

The State of Maryland requires that activated sludge systems meet certain minimum requirements that directly relate to the capacity of the aeration basin. The State limits the organic loading on the mixed liquor and the BOD5 volumetric loading on the aeration basins. The BOD5 concentration and the aeration basin volume are fixed. Hence, to meet the State requirements, the flow must be limited. To achieve the organic loading limits, the flow must be less than 4.25 mgd. To meet the volumetric loading limit, the flow must be less than 2.17 mgd.

The State of Maryland standard for nitrification is a minimum of eight hours of detention time. Based on this detention time, the existing system has a capacity of 1.0 mgd. The 2002 capacity analysis indicated that based on an evaluation of the BOD5 and nitrification kinetics, the capacity of the treatment plant is limited by its ability to nitrify, rather than oxidation of BOD5; and the projected capacity of the treatment plant is 1.6 mgd.

The second stage of the aeration basins has been converted to denitrification reactors by removing the aerators, installing mixers, and adding methanol as a carbon source. Denitrification was not a goal of the original design and cannot be compared directly to the original design. The capacity of the denitrification process was estimated, based on average values found in literature, to be 5.2 mgd.

The aeration basins are about 21 years old and in fair condition. The methanol feed system is about 15 years old and in good condition.

Secondary Clarification: The biologically treated wastewater flows to two secondary clarifiers. The sludge solids settle to the bottom of the secondary clarifiers and the clear water flows to the filters. A portion of the sludge is pumped from the clarifiers to the primary clarifiers and the remainder is pumped back to the first stage of the biological treatment unit.

The capacity of the secondary clarifier is 5.3 mgd, including 0.7 mgd recycle flow. The detention time at average flow is 5.4 hours and the overflow rate is 420 gpd/sf/day. Typical overflow rates for secondary clarifiers range from 400 gpd/sf/day to 800 gpd/sf/day. The design overflow rate is at the low loading end of the range. The secondary clarifiers are about 21 years old and there is evidence of concrete deterioration.

Effluent Filtration: The settled biologically treated wastewater flows from the secondary clarifiers to six multimedia filters. The filtration loading rate at the design flow of 5.3 mgd is 2.9 gpm/sf. Typical filtration rates range from 2 gpm/sf to 10 gpd/sf. The filters are at the low end of the loading rate range. The filters are about 21 years old and in fair condition.

Disinfection: The disinfection facilities include both chlorination and dechlorination, which consists of two chlorine contact tanks. The detention time at average flow rate is 70 minutes and at peak flow (12.8 gpm) is 29 minutes. There is only one dechlorination structure and the detention time at design flows is 0.6 minutes. The disinfection system is about 21 years old and in fair condition.

Reaeration: The treated wastewater is reaerated before being discharge to the Little Patuxent River in order to increase its dissolved oxygen content. At design flows, the detention time is 26 minutes. The reaeration system is about 21 years old and in fair condition.

Surge Tanks: Excess flows are diverted to the surge tank. The surge tank can hold up to 700,000 gallons and can be pumped back into the treatment system. The surge tank decreases peak flows into the plant by temporarily storing a portion of the flow. The surge tank is about 15 years old and in fair condition.

Sludge Treatment and Disposal: The sludge dewatering system has been off-line since the early 1990s. The method of disposal was changed from land-fill application at FGGM to agriculture land application via contractor sites located throughout various counties in Maryland and Virginia.

4.12.1.2.2 Wastewater Collection and Pumping System Description

Sanitary sewer collection and pumping system at Fort Meade is composed of 58 miles of piping on and around the installation, 55 miles of gravity sewers, three miles of force mains, and nine pumping stations. The pipe diameter of the gravity sewers, installed between 1941 and 1987, range from four inches to 30 inches. The force mains have pipe diameters that range from three inches to 24 inches. Wastewater from the gravity sewers and force mains flow to two major pump stations, the Leonard Wood and the East Side pump stations. Each station has three (3) pumps, each rated at approximately 1500 GPM, at average operating head, thereby providing total station capacity of 4500 GPM (9000 GPM between the two stations.)

4.12.1.2.3 Wastewater System Evaluation

The Chesapeake Bay has experienced a decline in water quality from excessive nutrient enrichment such as phosphorus and nitrogen. The Chesapeake Bay Agreement of 1983, signed by Maryland, Virginia, Pennsylvania, and the District of Columbia, specified a nutrient reduction goal of 40 percent by the year 2000. The Maryland Department of the Environment (MDE) developed a strategy for achieving the

desired reduction by the upgrade of the major 66 wastewater treatment plants to remove nitrogen through a process known as biological nutrient removal (BNR). Using the BNR process, more than 90 percent of pollutants are removed, while achieving nitrogen concentration below 8 mg/l total nitrogen.

The Chesapeake Bay 2000 Agreement requires further reducing nitrogen and phosphorus entering the Bay by about 20 million pounds and 1 million pounds per year, respectively. The MDE may require in the future the use enhanced nutrient removal (ENR) technologies. Wastewater plants using these technologies are expected to reduce nitrogen and phosphorus in the wastewater down to 3.0 mg/l total nitrogen and 0.3 mg/l total phosphorus

The NPDES permit # MD0021717, issued by the State of Maryland on March 1, 2002 and administratively extended beyond the February 28, 2007 expiration dates until a new permit can be issued, requires the installation to operate a biological nitrogen removal process year-round. The NDPDES permit established, as part of Maryland’s Interim Nutrient Cap Strategy, an annual nitrogen load goal of 49,680 lbs/yr to prevent the nitrogen load on the Chesapeake Bay from increasing as the flow to the plant increases. The nitrogen goal was based on the year 2000 flow of 2.04 mgd and a nitrogen concentration of 8 mg/l. The permit further describes the nitrogen goal as a guideline for the operation of the plant and not a cap or allocation. As noted earlier, the treatment modification has reduced the effective capacity of the plant by more than half of the original design capacity. The 2002 wastewater capacity study recommended that an effective treatment capacity rating of 2.2 mgd with capacity treatment limitations as summarized in Table 4-33.

Table 4-33: Biological Treatment Capacity Limitations

Method or Process Limiting Capacity	Capacity Limitations in Million Gallons per Day
Combined Carbenaceous Oxidation and Nitrification Volume Proportion to Original Design	1.3
State of Maryland Organic Loading Requirement	4.3
State of Maryland BOD ₅ Volumetric Loading Requirement	2.2
State of Maryland Combined Carbenaceous Oxidation and Nitrification Detention Time Guideline	1.0
Combined Carbenaceous Oxidation Nitrification Based on Typical Design Parameters	1.4 at 2,200 MLVSS 2.0 at 3,000 MLVSS
Denitrification Capacity Based on Typical Design Parameters	5.2
State of Maryland Detention Time Requirement	4.0
Recommended Capacity Rating	2.2

Source: *Sewage Treatment Plant Capacity Analysis, Wastewater Treatment Facility, FGGM, Maryland* prepared by URS, Bethesda, Maryland, dated April 10, 2002.
MLVSS-Mixed Liquor Volatile Suspended Solids.

In September 2006, a study was initiated to evaluate the existing infrastructure and recommendations on how to meet future needs for wastewater collection, treatment and distribution systems base on projected

additional long-term installation growth. Once the final report on the study is completed, the recommendations will be prioritized and funding will be requested to implement the recommendations.

Currently no Fort Meade sanitary sewer or wastewater system lines are located on the EUL sites (Fort Meade GIS 2006). Based on Fort Meade GIS information, wastewater lines are located near the southwestern and northwestern boundary of Site Y. Fort Meade wastewater lines service the Military Housing Area adjacent to Site Z and Fort Meade facilities along Reece Road between Sites Y and Z. The nearest Fort Meade wastewater line to Site S is west of the site and just south of MD Route 32 (Fort Meade GIS 2006)

4.12.1.3 Energy Sources

Electrical Power

Electrical power is supplied to the installation by Baltimore Gas and Electric (BG&E) company owned transmission lines. The installation has formed a partnership with BG&E to overhaul and modernize Fort Meade's energy infrastructure over the next few years. BG&E electrical power is supplied to four distribution substations. The primary source for Fort Meade (non-NSA) is a 110 kV feeder (3-phase-4 wire) redundant feeder pair from the BG&E Waugh Chapel Power Station along the south and east sides of the installation (along MD Route 32) on steel towers and terminate at substation #3. A second pair of 110 kV feeders originates in the BG&E High Ridge Power Station west of the installation and back feeds the substation utilizing the Waugh Chapel distribution line. Several secondary sources of electrical power consisting of 18 engine-driven emergency standby generators at 15 locations exist on Fort Meade. Transfer from primary sources to backup sources is manual and must be performed by BG&E personnel. Portions of the distribution system were constructed in the 1940s (Fort Meade, 2005a). The electrical system is in the process of being privatized. The installation has two electrical systems, one owned and operated by the government and the other by BG&E. New underground electrical lines are currently being installed in the southeast quadrant of the installation by BG&E (Moyer 2006).

There are no Fort Meade power sources on the EUL sites and none are located in the general vicinity of the sites (Fort Meade GIS 2006). An electrical duct bank exists in the southeast quadrant of the installation north of MD Route 32 (Moyer 2006).

Natural Gas

Natural gas is supplied by BG&E to the Defense Energy Support Center, a DoD agency, which in turn provides it to Fort Meade. Natural gas is supplied via high pressure (100 psig) mains owned by BG&E, which form a loop on the installation. The extensive natural gas distribution system includes BG&E and

government owned systems loop the entire installation. Most buildings are within a few hundred feet of an active supply line (Fort Meade, 2005a).

The natural gas system is in the process of being privatized. Natural gas is constrained by the connected meter limitations. BG&E distribution mains are strategically located throughout the installation (Fort Meade, 2005a).

Currently no natural gas sources exist on the EUL sites.

4.12.1.4 *Solid Waste*

Fort Meade generates approximately 33.14 tons per day (tpd) of household, commercial, and industrial waste. In 1999, approximately 63 percent of solid waste collected was disposed through the Annapolis Junction Transfer facility and approximately 37 percent was recycled (USACE 2001). Solid waste is ultimately transported by licensed contractor to the King George Landfill in King George, Virginia. The King George Landfill has a total capacity of 31.8 million tons. In 2000, the landfill had a remaining capacity of approximately 28 million tons. Fort Meade does not operate a landfill on post (USACE 2001). A closed landfill exists on post in Site S in the southeastern portion of the installation.

Recyclable materials are collected and processed at the Fort Meade Recycle Center under a Qualified Recycling Program. In addition, NSA, DRMO and AAFES have their own recycling programs. Recyclables include cardboard, white paper, newspaper, paper pulp, aluminum cans, yard waste, scrap metal, used tires, and waste oil (USACE 2001).

The EUL sites are currently undeveloped and no solid waste is generated at these sites.

4.12.1.5 *Storm Drainage*

Fort Meade's storm drainage system consists of two major defined watersheds and one minor undefined watershed. These three natural drainage areas are supplemented with an extensive network of storm drain pipes and attendant drainage structures supplemented by swales, ditches, other drains, and retention ponds. These drainage areas are generally north-south (N-S) oriented, emanate in the northern portion of the installation and ultimately discharge into the Little Patuxent River, a tributary of the upper Chesapeake Bay (Fort Meade, 2005a).

The western portion of the installation is drained by several unnamed tributaries while the center area of the installation is drained by Midway Branch and the eastern portion of the installation is drained by the Franklin Branch. The installation storm drainage system is considered generally adequate for existing conditions. Construction of retention ponds has been ongoing for the past several years. These retention

ponds reduce the concentrated flow into the main branch channels and thereby prevent back overflow and flooding. Prior studies have found few problems other than the relatively small localized capacity problems in the existing storm sewer system (Fort Meade, 2005a).

The Fort Meade Real Property Master Plan recommends that a detailed storm drainage study be undertaken before any major future development involving new facilities or road/paving projects are implemented. Fort Meade is currently developing an Institutional Management Plan (IMP) to analyze source identification, physical site evaluation and management program development base wide. The IMP is a compliance alternative for seeking coverage under the Phase II NPDES storm water permit. The IMP will be completed in FY07. This IMP may eliminate the need for the detailed storm drainage study or the IMP may validate the need for additional storm drainage analysis.

No Fort Meade storm drain lines are located on the EUL sites (Fort Meade GIS 2006). Based on Fort Meade GIS information, storm sewer lines exist at the intersection of MD 175 and Reece Road, and north or MD Route 32 near Site S (Fort Meade GIS 2006).

4.12.1.6 Communications

The Directorate of Information Management (DOIM) has oversight for Fort Meade's communication systems, which are in excellent condition. Fiber optics cable is used exclusively on post, and all new buildings have category 5 telephone cable installed (Fort Meade, 2005a). There are 24 authorized Integrated Services Digital Network (ISDN) users. Each Directorate has their own Local Area Network (USACE 2001). An Army wide initiative had been proposed to upgrade the fiber optic cable at most Army installations. Fort Meade had been surveyed for the project known as "Installation, Infrastructure, and Intelligence Modernization Plan (I3MP) but funding was diverted from the project and it may take up to 10 years before the program is reinstated (Fort Meade, 2005a).

A non-tactical radio trunking system that uses hand-held Motorola radios is managed by the DOIM. Cellular service is available, but is strictly controlled, and therefore very limited authorized government users are on post. DOIM also maintains a High Frequency Military Affiliate Radio System (MARS) station on post (R&K Engineering 1998).

Telephone service is provided by Verizon. Fort Meade has provided Comcast Cablevision Of Maryland, Inc., a franchise to operate a Cable TV system. Under this franchise agreement, Comcast agreed to pay 5% of the revenue generated to Fort Meade's Directorate of Community and Family Activities (R&K Engineering 1998).

The Cable TV system must operate in accordance with FCC rules, safety regulations, and industry standards. Free cable service is provided to the Youth Center, on-post schools, and dayrooms in troop housing. Military families and other tenants on post purchase cable service directly from Comcast Cablevision in accordance with the franchise agreement. The franchise contract expires in September 2008 (CH2M Hill 2001).

The Video Teleconferencing Center, Publications Print Shop, and official mail distribution center are located in the 500 area in WWII era structures. These buildings are scheduled to be demolished and new buildings constructed (CH2M Hill 2001).

No fiber optics cables are located on the EUL sites.

4.12.2 Environmental Consequences

4.12.2.1 No Action Alternative

4.12.2.1.1 Potable Water Supply

No adverse effects to potable water supply would be expected. The existing potable water supply and distribution systems meet the capacity needs of current personnel and uses on the installation. The installation would continue to use the existing potable water supply system and no change would be implemented. The existing lines are able to supply water to the various operations on the installation and meet the current needs. The aging lines and equipment would continue to deteriorate and lose efficiency. No adverse effect to the potable water supply would result from implementation of the No Action Alternative.

4.12.2.1.2 Sewer and Wastewater System

No adverse effects would be expected to the sewer and wastewater system. The existing sanitary sewers and wastewater treatment plant would continue operations, however, there would continue to be difficulties with complying with the more stringent 2007 permit requirements for nitrogen in effluent. The aging lines and equipment would continue to deteriorate and lose efficiency.

4.12.2.1.3 Energy Sources

No adverse effects would be expected to energy sources. Electricity and natural gas demand at the installation would continue to be met. The systems are able to support demand adequately. Therefore, no adverse effect to energy sources would result from implementation of the No Action Alternative.

4.12.2.1.4 Solid Waste

No adverse effects to solid waste would be expected. The installation would continue to use the existing solid waste processes under the No Action Alternative and no change would be implemented. Therefore, no adverse effect would occur to solid waste management process from implementation of the No Action Alternative.

4.12.2.1.5 Storm Drainage

No adverse effects to storm drainage would be expected. The installation would continue to use the existing storm water drainage system under the No Action Alternative. Currently, the system adequately supports demand. Therefore, no adverse effect to storm water drainage would result from implementation of the No Action Alternative.

4.12.2.1.6 Communication

No adverse effects to communications would be expected. The installation would continue to use the existing communications infrastructure under the No Action Alternative, and no changes would be implemented. The existing communication system adequately meets current communication needs. Therefore, no adverse effect would occur to communications from implementation of the No Action Alternative.

4.12.2.2 BRAC Realignment and Enhanced Use Lease Actions Alternative

4.12.2.2.1 Potable Water

No significant adverse effects to potable water would be expected. The current design capacity of the WTP is 7.2 mgd. Compared to the current average daily consumption rate of 3.4 mgd or approximately 47 percent of the current treatment capacity. Using an average water consumption rate per capita of 20 gpd and a factor of 3.0 to meet peak water consumption demand, an increase of 15,695 new BRAC and EUL personnel would increase the average daily demand by 0.31 mgd and the peak hourly demand by 0.94 mgd. The water demand requirements related to BRAC and EUL actions are presented in Table 4-34. The increase of 15,695 new BRAC and EUL personnel would result in a long-term increase in demand for potable water, but the existing water supply and water treatment capacity would not exceed the current capacity.

Table 4-34: Water Demand Requirements for BRAC and EUL Actions

Proposed Development	Population	Water Consumption Rate (gpd) ⁽¹⁾	Average Daily Demand (gpd)	Peaking Factor ⁽²⁾	Peak Hourly Demand (gpd)
DMA	663	20	13,260	3.0	39,780
DISA	4,272	20	85,440	3.0	256,320
Adjudication	760	20	15,200	3.0	45,600
EUL	10,000	20	200,000	3.0	600,000
Totals	15,695		313,900		941,700
Totals (mgd)			0.31		0.94

Source: 2006 Water Systems Planning Charrette Report.

- (1) Water demand rates were estimated using wastewater flow estimates from “*Small Decentralized Wastewater Management Systems*”, by Crites and Tchobanoglous, ©1998 and water demand data from the Anne Arundel County, Bureau of Engineering “*Design Manual and Standard Specifications and Details for Construction*” updated July 2006.
- (2) Peaking factors were estimated in accordance with industry standards using population. For office space, the peaking factor of 3.0 was assumed to represent a typical eight hour workday. Where facilities will be manned 24 hours per day, the peaking factor of 3.0 was applied to obtain the average daily flow.

At the EUL sites, water supply lines would need to be installed to support the demand from the additional 10,000 personnel. The combined effects of BRAC and EUL actions on WTP capacity would not be significant.

4.12.2.2.2 Wastewater Collection and Treatment Systems

Significant long-term adverse effects would be expected to wastewater collection and treatment, especially if more stringent effluent limitations for nitrogen and phosphorus are imposed on Fort Meade associated with the Chesapeake Bay Initiative. The increase of 15,695 new BRAC and EUL personnel would result in a long-term increase in demand for wastewater collection and treatment. The anticipated increase in wastewater treatment due to BRAC and EUL actions is estimated to have an average daily flow rate of 0.25 mgd and a peak daily flow rate of 0.75 mgd (Table 4-35).

Table 4-35: Wastewater Requirements

Proposed Development	Population	Wastewater Flow Rate (gpd) ⁽¹⁾	Average Daily Flow (gpd)	Peaking Factor ⁽²⁾	Peak Daily Flow (gpd)
DMA	663	16	10,608	3.0	31,824
DISA	4,272	16	68,352	3.0	205,056
Adjudication	760	16	12,160	3.0	36,480
EUL	10,000	16	160,000	3.0	480,000
Totals	15,695		251,120		753,360
Totals (mgd)			0.25		0.75

Source: Fort Meade 2006 Wastewater Planning Charrette Report

- (1) Flow rate data acquired from “*Small Decentralized Wastewater Management Systems*”, by Crites and Tchobanoglous, ©1998.
- (2) Peaking factors were estimated in accordance with industry standards using population. For office space, the peaking factor of 3.0 was assumed to represent a typical 8-hour work day. Where facilities will be manned 24 hours per day, the peaking factor of 3.0 was applied to obtain the average daily flow.

The current average flow to the wastewater treatment plant is estimated at 2.2 mgd based on the 2002 URS report. The modifications to the biological processes to achieve biological nutrient removal in accordance with NPDES requirements have substantially decreased the capacity of the existing wastewater treatment system. Fort Meade's current NDPEs discharge permit is scheduled for renewal in February 2007. It is anticipated that the discharge limitations for nitrogen would be comparable to the present requirements (49,680 pounds per year or 8.0 mg/l at 2.0 mgd). However, it is possible that the new limitations could be reduced to 3.0 mg/l, or 20,000 pounds per year at present flows. If the current average flow rate of 2.2 mgd is maintained, the new reduced treatment limits for nitrogen would be exceeded and there would be an increase in the amount of nitrogen discharged to the Little Patuxent River. To meet new treatment standards and maintain the current average flow rate, additional treatment processes would be needed. If no new treatment processes are added to the system, the wastewater would require a longer residence time in the existing treatment process equipment to comply with the new standards and that would decrease the average flow to less than the current 2.2 mgd. The additional load from BRAC and EUL actions would increase the flow by 0.75 mgd to 2.95 mgd, which would overload the system and result in treatment system failures. If the wastewater treatment system is restored to its original capacity of 4.6 mgd, then sufficient capacity would be available to handle the additional flow from the BRAC and EUL actions.

The State of Maryland and the DoD signed a Memorandum of Understanding in 2006 in which the DOD agreed to take several measures including upgrades to wastewater treatment plants which would implement nutrient control measures in support of Maryland's Bay Restoration Act.

The existing collection and conveyance system is old and maintenance and repairs are needed. Based on the age and condition of the wastewater collection system, a comprehensive evaluation of the existing system is warranted.

4.12.2.2.3 Energy Sources

Electricity. No adverse effects would be expected. The electrical supply system at Fort Meade is being privatized. Although energy demand has not yet been determined, the required electrical power would be supplied by BG&E and therefore, no adverse effects to power infrastructure would be expected.

Electrical power exists in each of the proposed BRAC action sites. A load analysis and coordination study for each project should assure that electrical components are either adequate or upgraded as needed. Given that modern energy-efficient buildings are replacing older energy-inefficient buildings for a large percent of the projects, impacts to the power grid to provide necessary power are not expected to be

significant. Fort Meade would implement Executive Order 13423 with the guidance of the Fort Meade Green Building Manual (Appendix H).

Natural Gas. No adverse effects would be expected. The current natural gas capacity is 445,000 cubic feet per hour (CFH) supplied by seven BGE meters. Past studies have indicated that system's connected capacity can be exceeded by 25 percent and its current demand by 300 percent. The current demand is approximately 139,060 CFH. The natural gas system at Fort Meade is being privatized with BG&E and the capacity of the existing natural gas system would be adequate to support the proposed actions.

4.12.2.2.4 Solid Waste

BRAC Sub-alternative 2A (Site FGX Arrangement) plus EUL. No significant adverse effects to solid waste management would be expected. The amount of construction generated solid waste generated is expected to be the same regardless of the site that is selected for the BRAC actions and whether the environmental constraints are adhered to at the EUL sites or not. The effects of collection and disposal of solid waste during the construction phase of the new buildings are not expected to be significant and are expected to be short-term. No demolition of significant existing buildings is expected to occur at the preferred Site locations F, G, and X. The addition of 15,695 new BRAC and EUL personnel will result in additional collection and transportation of solid waste, however, no waste will be disposed of on the installation. All solid waste will be transported offsite for disposal. Construction debris and municipal waste would be hauled off post to a licensed landfill. It is anticipated that all solid waste would be taken to King George Landfill, Virginia.

Solid waste generation from construction under the preferred site location has been estimated based on the estimated square footage of the buildings for the proposed actions and the assumption of 4.02 pounds of construction debris per square foot (Franklin and Associates 1998). Construction debris related to building on the preferred Site option (FGX) for BRAC actions (1,426,363 square feet) would be approximately 2,867 tons. Construction debris related to the EUL actions (2,000,000 square feet) would be approximately 4,020 tons. The combined BRAC and EUL construction debris would be 6,887 tons. The generation of this construction debris would take place over five years and consequently disposal would occur over a five year period. Based on this, effects related to the implementation of Sub-alternative 2A would not be significant.

BRAC Sub-alternative 2B (Site FGK Arrangement) plus EUL. No significant adverse effects to solid waste management would be expected. During the construction phase for the new buildings, effects are expected to be short-term. Similar to Sub-alternative 2A, the addition of 15,695 new BRAC and EUL personnel would result in additional waste collection and transportation but, all solid waste would be

transported offsite for disposal. Construction debris and municipal waste would be hauled off post to a licensed landfill. It is anticipated that all solid waste would be taken to King George Landfill, Virginia.

Under this site location alternative no significant buildings would be demolished at Sites F and G. Four buildings totaling 38,000 gross square feet would be demolished on Site K (Fort Meade, 2005a). The amount of demolition debris generated has been estimated based on the estimated square footage of the buildings to be demolished and the assumption of 4.02 pounds of construction debris per square foot (Franklin and Associates 1998). The amount of demolition debris from this alternative would be approximately 76 tons. The amount of demolition debris may be reduced by the use of deconstruction techniques. The amount of construction debris generated under this site location alternative is expected to be the same as under Sub-alternative 2A at 6,887 tons. The combined construction and demolition debris would be approximately 6,963 tons.

BRAC Sub-alternative 2C (Site FGC Arrangement) plus EUL. No significant adverse effects to solid waste management would be expected. Under this alternative no significant buildings would be demolished at Sites F, G or C. The effects of collection and disposal of solid waste during the construction phase of the new buildings are the same as in Sub-alternative 2A. The effects of collection of municipal and other solid waste related to an increase of 15,695 new personnel in the area would be the same as discussed in Sub-alternative 2A. Disposal of construction debris and municipal waste would be handled in the same manner as discussed in Sub-alternative 2A.

BRAC Sub-alternative 2D (Site ALC Arrangement) plus EUL. No significant adverse effects to solid waste management would be expected. Under this alternative no significant buildings would be demolished at Sites A, C and L. The effects of collection and disposal of solid waste during the construction phase of the new buildings are the same as in Sub-alternative 2A. The effects of collection of municipal and other solid waste related to an increase of 15,695 new personnel in the area would be the same as in Sub-alternative 2A. Disposal of construction debris and municipal waste would be handled in the same manner as in Sub-alternative 2A.

4.12.2.2.5 Storm Water Drainage

Significant long-term adverse effects to storm water drainage would be expected. Short-term adverse effects due to construction activities and long-term adverse effects due to operations would be expected. It is anticipated that approximately 53 acres would be used to construct parking facilities to accommodate the BRAC actions. Approximately 31 acres would be used to construct parking facilities to accommodate the EUL actions. The amount of impervious area that would be created by the construction of surface parking facilities to accommodate BRAC and EUL and storm water that would be generated from rain

events would be substantial. The existing storm water collection system would not be capable of handling such a large increase in storm water runoff. According to the Code of Maryland Regulations regarding storm water management, construction projects that disturb more than 5,000 square feet of earth require a storm water management plan. All projects would be required to comply with Maryland storm water management guidelines. A more detailed discussion of storm water runoff management can be found in Section 4.7.2.2. Measures such as construction of parking garages could be implemented to reduce the amount of impervious area and the amount of storm water drainage that would be required, however, this is not included in the BRAC actions.

Fort Meade Environmental Division has developed a Green Building Manual to assist new construction in meeting LEED silver and above ratings at the installation. Low impact development (LID) techniques are strongly recommended in the manual. The Fort Meade approval process for new development will ensure LID techniques are evaluated and implemented, where practical, to reduce the impervious footprint (See Section 4.7.2.2).

4.12.2.2.6 Communications

No significant adverse effects to the communications system are expected. Modern telecommunications fiber optics and cabling infrastructure would be provided to the new facilities. An antenna farm would be constructed to facilitate operations at DMA.

4.12.2.3 BRAC Realignment Action Alternative

4.12.2.3.1 Potable Water

No significant adverse effects to potable water would be expected. The original design capacity of the WTP was 8.2 mgd. The current design capacity is 7.2 mgd. The current average daily consumption rate is 3.4 mgd or approximately 47 percent of the current treatment capacity. Using an average water consumption rate per capita of 20 gpd and a factor of 3.0 to meet peak water consumption demand, an increase of 5,695 new BRAC personnel would increase the average daily demand by 0.11 mgd and the peak hourly demand by 0.34 mgd. The estimated water demand requirements related to BRAC actions are presented in Table 4-36. The increase of 5,695 new BRAC personnel would result in a long-term increase in demand for potable water, but the existing water supply and water treatment capacity would not exceed the current capacity.

Table 4-36: Water Demand Requirements

Proposed Development	Population	Water Consumption Rate (gpd) ⁽¹⁾	Average Daily Demand (gpd)	Peaking Factor ⁽²⁾	Peak Hourly Demand (gpd)
DMA	663	20	13,260	3.0	39,780
DISA	4,272	20	85,440	3.0	256,320
Adjudication	760	20	15,200	3.0	45,600
Totals	5,695		113,900		341,700
Totals (mgd)			0.11		0.34

Source: 2006 Water Systems Planning Chartte Report.

- (1) Water demand rates were estimated using wastewater flow estimates from “*Small Decentralized Wastewater Management Systems*”, by Crites and Tchobanoglous, ©1998 and water demand data from the Anne Arundel County, Bureau of Engineering “*Design Manual and Standard Specifications and Details for Construction*” updated July 2006.
- (2) Peaking factors were estimated in accordance with industry standards using population. For office space, the peaking factor of 3.0 was assumed to represent a typical eight hour workday. Where facilities will be manned 24 hours per day, the peaking factor of 3.0 was applied to obtain the average daily flow.

The effects of BRAC actions on WTP capacity would not be significant.

4.12.2.3.2 Wastewater Collection and Treatment Systems

Significant long-term adverse effects to wastewater treatment would be expected. The increase of 5,695 new personnel on post personnel would result in a long-term increase in demand for wastewater collection and treatment. Under this alternative, capacity reduction shortfalls related to future compliance with more stringent nitrogen effluent concentration limit of 3.0 mg/l would be problematic. The increased flow from BRAC actions, although less than the combined BRAC and EUL actions, would likely result in the inability to operate within permit limits. As with the BRAC and EUL alternative, if the wastewater treatment system is restored to its original capacity of 4.6 mgd, then sufficient capacity would be available to handle the additional flow from the BRAC actions.

4.12.2.3.3 Energy Sources

Electricity. No adverse effects to power infrastructure would be expected. The electrical supply system at Fort Meade is being privatized. Although energy demand has not yet been determined, the requirements electrical power would be supplied by BG&E.

Electrical power exists in each of the proposed BRAC action sites. A load analysis and coordination study for each project should assure that electrical components are either adequate or upgraded as needed. Given that modern energy-efficient buildings are replacing older energy-inefficient buildings for a large percent of the projects, impacts to the power grid to provide necessary power are not expected.

Natural Gas. No adverse effects would be expected. The current natural gas capacity is 445,000 cubic feet per hour (CFH) supplied by seven BGE meters. Past studies have indicated that system's connected capacity can be exceeded by 25 percent and its current demand by 300 percent. The current demand is approximately 139,060 CFH. The natural gas system at Fort Meade is in the process of being privatized with BG&E. The capacity of the existing natural gas system is expected to be adequate to support the proposed actions.

4.12.2.3.4 Solid Waste

BRAC Sub-alternative 2A (Site FGX Arrangement) plus EUL. No significant adverse effects to solid waste management would be expected. Construction generated solid waste generated volumes are expected to be identical for all site alternatives. The effects of collection and disposal of solid waste during the construction phase of the new buildings are not expected to be significant and are expected to be short-term. No demolition of significant existing buildings is expected to occur at the preferred Site locations F, G, and X. The addition of 5,695 new BRAC personnel would increase collection and transportation of solid waste, however, all solid waste would be transported off-site for disposal. Construction debris and municipal waste would be hauled off post to a licensed landfill and all solid waste would be taken to King George Landfill, Virginia.

Projection of solid waste generation from construction under the preferred site location was based on the estimated square footage of the buildings for the proposed actions and the assumption of 4.02 pounds of construction debris per square foot (Franklin and Associates 1998). Construction debris related to building on the preferred site option (FGX) for BRAC actions (1,426,363 square feet) would be approximately 2,867 tons. The BRAC construction debris would be 6,887 tons. Because construction debris would be generated over a five year period, the effects in any given year would not be significant. Any solid waste generated including construction, demolition, and land clearing debris would be properly disposed at a permitted solid waste facility or recycle facility, as appropriate.

BRAC Sub-alternative 2B (Site FGK Arrangement) plus EUL. No significant effects to solid waste management would be expected. During the construction phase for the new buildings, effects are expected to be short-term. Similar to Sub-alternative 2A, the addition of 5,695 new BRAC personnel would increase waste collection and transportation but, all solid waste will be transported offsite for disposal. Construction debris and municipal waste would be hauled off post to a licensed landfill. It is anticipated that all solid waste would be taken to King George Landfill, Virginia.

Under this site location alternative no significant buildings would be demolished at Sites F and G. Four buildings totaling 38,000 gross square feet would be demolished on Site K (Fort Meade, 2005a). The

amount of demolition debris generated has been estimated based on the estimated square footage of the buildings to be demolished and the assumption of 4.02 pounds of construction debris per square foot (Franklin and Associates 1998). The amount of demolition debris from this alternative would be approximately 76 tons. The amount of demolition debris may be reduced by the use of deconstruction techniques. The amount of construction debris generated under this site location alternative is expected to be the same as under Sub-alternative 2A at 6,887 tons. The combined construction and demolition debris would be approximately 6,963 tons.

BRAC Sub-alternative 2C (Site FGC Arrangement) plus EUL. No significant effects to solid waste management are expected. Under this alternative no significant buildings would be demolished at Sites F, G or C. The effects of collection and disposal of solid waste during the construction phase of the new buildings are the same as in sub-alternative 2A. The effects of collection of municipal and other solid waste related to an increase of 5,695 new personnel in the area would be the same as discussed in Sub-alternative 2A. Disposal of construction debris and municipal waste would be handled in the same manner as discussed in Sub-alternative 2A.

BRAC Sub-alternative 2D (Site ALC Arrangement) plus EUL. No significant effects to solid waste management are expected. Under this alternative no significant buildings would be demolished at Sites A, C and L. The effects of collection and disposal of solid waste during the construction phase of the new buildings are the same as in Sub-alternative 2A. The effects of collection of municipal and other solid waste related to an increase of 5,695 new personnel in the area would be the same as in Sub-alternative 2A. Disposal of construction debris and municipal waste would be handled in the same manner as in Sub-alternative 2A.

4.12.2.3.5 Storm Water Drainage

Significant long-term adverse effects to storm water drainage would be expected. Short-term adverse effects due to construction activities and long-term adverse effects due to operations would be expected. It is anticipated that approximately 53 acres would be used to construct parking facilities to accommodate the BRAC actions. The amount of impervious area that would be created by the construction of surface parking facilities to accommodate BRAC actions and storm water that would be generated from rain events would be substantial. The existing storm water collection system would be inadequate to handle such a large increase in storm water runoff. According to the Code of Maryland Regulations regarding storm water management, construction projects that disturb more than 5,000 square feet of earth require a storm water management plan. All projects would be required to comply with Maryland storm water management guidelines. A more detailed discussion of storm water runoff management can be found in

Section 4.7.2.2. Measures such as construction of parking garages could be implemented to reduce the amount of impervious area and the amount of storm water drainage that would be required.

Fort Meade Environmental Division has developed a Green Building Manual to assist new construction in meeting LEED silver and above ratings at the installation. Low impact development (LID) techniques are strongly recommended in the manual. The Fort Meade approval process for new development would ensure LID techniques are evaluated and implemented, where practical, to reduce the impervious footprint (See Section 4.7.2.2).

4.12.2.3.6 Communications

No adverse effects to the communications system are expected. Modern telecommunications fiber optics and cabling infrastructure would be provided to the new facilities. An antenna farm would be constructed to facilitate operations at DMA.

4.13 HAZARDOUS AND TOXIC SUBSTANCES

4.13.1 Affected Environment

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 (including hazardous medical and radiological wastes) associated with the proposed operations; and potential site contamination issues, including the potential presence of hazardous materials or toxic substances in structures to be demolished.

4.13.1.1 Hazardous Materials Use, Handling, and Storage

Hazardous materials are used in most facilities at Fort Meade, 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 sites assessed in this document, based on interviews with Fort Meade, existing environmental studies, 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. A discussion of hazardous material usage, storage and handling at the various sites proposed for BRAC and EUL actions is provided below.

Sites M, F & G – Sites M, F and G, there is minimal use of hazardous materials, such as janitorial products and printing supplies, in the maintenance and clubhouse areas of this facility. The new clubhouse and new maintenance building each have an oil water separator. The maintenance area however, requires the use of several types of hazardous materials, including pesticides for the golf course,

antifreeze; various petroleum products, oils, and lubricants (POL); brake fluid, hydraulic fluid, cleaners, degreasers, solvents, paints, fuels (gasoline and diesel), and batteries. There is no known bulk fuel storage occurring at this location. All hazardous materials (HAZMAT) are stored in appropriate HAZMAT cabinets or containers in accordance with applicable regulations and label precautions.

Site A – At Site A there is minimal use of hazardous materials, such as janitorial products and printing supplies, in the maintenance areas of this facility. The maintenance area however, requires the use of several types of hazardous materials which includes pesticides for the ball parks and recreation areas, antifreeze; various petroleum products, oils, and lubricants (POL); brake fluid, hydraulic fluid, cleaners, degreasers, solvents, paints, fuels (gasoline and diesel), and batteries. There is no known bulk fuel storage occurring at this location.

Site C – At Site C there is no known usage or storage of hazardous materials at this site.

Site L – At Site L there is no known usage and storage of hazardous materials at this site.

Site S – At Site S there is no known usage and storage of hazardous materials at this site.

Site Y – At Site Y there is no known usage or storage of hazardous materials at this site.

Site Z – At Site Z there is no known usage or storage of hazardous materials at this site.

Site X - Proposed Adjudication Site – At Site X, the proposed adjudication site there is no known usage or storage of hazardous materials at this site.

4.13.1.2 Hazardous Waste Generation, Storage, and Disposal

Several activities routinely performed on the installation generate hazardous waste, however, hazardous wastes that are stored for less than 90 days do not require a permit. Typical hazardous wastes that might be generated would include waste paint, thinners, antifreeze, various petroleum products, oils, and lubricants (POL); brake fluid, hydraulic fluid, cleaners, degreasers, solvents, fuels (gasoline and diesel), and batteries. It is expected that no bulk fuel storage would occur at the proposed site locations. All hazardous materials would be handled and stored in appropriate HAZMAT cabinets or containers in accordance with applicable regulations and label precautions. All hazardous wastes are disposed of at permitted treatment, storage, and disposal facilities.

4.13.1.3 Site Contamination

Site M, F, G – Past site investigations have identified soil and groundwater contamination at Sites M, F, and G. Contaminants include pesticides, metals, volatile organic compounds (VOCs), and polychlorinated

biphenyls (PCBs). In addition, based on the past use of the property, the western portion of Site M may potentially contain unexploded ordnance (UXO (Fort Meade 2004, USACE 2004)).

Investigations have determined that contamination, likely associated with golf course operations and possibly past site activities is present in concentrations that exceed the MDE cleanup standard for residential areas in subsurface soil. Metals and pesticides were detected around the golf greens. One pesticide, heptachlor epoxide, also exceeded the non-residential MDE cleanup standard in the golf greens. Similarly, diesel range organics (DRO) in surface soil sample were detected in concentrations that exceeded the non-residential standard, and arsenic was detected in subsurface soil in concentrations that exceeded the non-residential MDE cleanup standard. Site M and the western portion of Site G were used as a former training area and as a mortar range. The mortar range is being evaluated in the Army's Military Munitions Response program. This, in conjunction with reported concentrations of explosives, trinitrotoluene (TNT) and Rapid Detonating Explosive (RDX), indicate that ordnance and explosive related material may be present in these areas.

Site A - Soil and groundwater samples were collected for chemical analysis and contaminants were detected above U.S.EPA Region III Risk-Based Concentrations (RBCs) and MDE cleanup standards. Arsenic was detected at concentrations of 2 mg/kg or greater in eight of the soil samples, including surface and subsurface samples; the highest concentration was 2.7 mg/kg. The U.S.EPA residential value is 0.43 mg/kg, industrial value is 1.9 mg/kg. The MDE residential value is 2.0 mg/kg and the nonresidential value is 3.8 mg/kg. The herbicide MCPA and Total Petroleum Hydrocarbons (TPH)-DRO recorded the highest exceedances in groundwater. Several metals and VOCs (including carbon tetrachloride) also exceeded action levels. The highest concentration of MCPA was 1,400 µg/l, compared to an RBC for tap water of 18 µg/l. The greatest concentration of TPH-DRO was 620 µg/l, compared to an MDE Groundwater Standard of 47 µg/l. Because of the age of the buildings, lead from lead-based paint (LBP) might also be present on the existing building, in the soil around the existing building, and in the soil around the former building location (URS, 2005). The southern portion of Site A contains two buildings associated with a Solid Waste Management Unit study identified by the Fort Meade Environmental Partnership for further environmental action.

Site C - Most of the environmental studies at Site C have assessed the potential asbestos-containing materials (ACM) in buildings. Some of the buildings on-site were determined to contain asbestos. A separate study of the Equipment/Vehicle Storage Yard Wash Rack System (Building 1007). Arsenic was detected in soil at levels up to 17.8 mg/kg. TPH-gasoline range organics (GRO) was detected in groundwater at concentrations up to 6,910 µg/l. Benzene was detected in groundwater at concentrations

up to 9.1 µg/l; the MDE Groundwater Standard is 5 µg/l and the RBC for tap water is 0.34 µg/l. Additionally, motor pools may have been present southeast and northeast of Site C in the past. Since Site C is on a topographic high point, both of these Motor Pools would have been located down gradient of the site. Due to the age of the current and former buildings on Site C, lead from paint may be present on the existing buildings and in site soil. Due to the age of the current and former buildings on site there is the potential for lead to be present in the soil above action levels. At the northeastern of Site C, near where the old motor pool and current Equipment/Vehicle Storage Yard is located, chemical compounds were detected in soil and groundwater above action levels. Although an old Motor Pool was located southeast of the southeastern portion of Site C, it was probably down gradient of Site C and therefore, probably would not have affected groundwater beneath Site C (URS, 2005).

Site L - An environmental study had been conducted of Building 2831, a former building on Site L. Building 2831 held x-ray processing units and a laboratory where chemicals were used and stored. Soil samples were collected for chemical analysis and arsenic was detected in soil above the residential and industrial RBCs. Arsenic was also detected above its expected regional background level. Because of the buildings located on this site in the past, lead may also be present in the soil as a result of LBP being used on the buildings.

Site S - Ammunition Supply Points had been constructed in the central portion of the site but are no longer present. The majority of Site S is designated as Work Zone C in USACE Fort George G. Meade Ordnance Survey Final Report dated June 1994. The report details the survey and removal of UXO to a depth of six inches. The report identifies two small areas with possible UXO remaining below six inches. The railroad embankment for the abandoned Baltimore and Ohio Railroad runs through the northern part of the site and has the potential for contamination by Polynuclear Aromatic Hydrocarbons (PAHs) and other petroleum hydrocarbons, any spills that may have occurred and may have been sprayed with pesticides. Because of the age of the buildings formerly and/or currently on each of the sites, there is a possibility that LBP was used and may be present in the buildings or soil surrounding the buildings. Due to the age of the current and former buildings on site, there is a potential that lead to be present in soil above action levels at portions of Site S around these buildings. The landfill and the associated contamination and potential risks have been studied in a Remedial Investigation required by the U.S.EPA's Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) program. Studies have indicated that the landfill may be affecting the shallow groundwater and surface water. The landfill was constructed as an unlined facility and was managed as two cells. Numerous environmental studies had been conducted at Site S and the surrounding vicinity over the years. Soil, groundwater, and surface water samples had been collected for chemical analysis and some compounds

were detected above certain RBC and MDE cleanup standards. Most studies indicate that separate contaminants affect the upper and lower aquifers underneath Site S, and that the lower aquifer contaminants (including carbon tetrachloride) probably originate from other sources north and/or west of Site S. As part of the landfill closure requirements, periodic monitoring of groundwater quality currently is being conducted at Site S. The landfill is listed in the National Priorities List (NPL), Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS), Resource Conservation and Recovery Act (RCRA) Treatment, Storage, Disposal (RCRA TSD), RCRA Large Quantity Generators (LQG), and Records of Decision (ROD) databases (URS, 2005).

Site Y - Previous studies conducted at Site Y have indicated that potential contamination may exist from previous site activities. Three areas of Site Y, the former incinerator site, the area adjacent to the former trap and skeet range, and the area east of buildings 1976, 1977, 1978, and 2128 have been identified as areas of concern. and require additional evaluation. The contamination resulting from the operation of the adjacent former trap and skeet range and Nike Missile Site are being evaluated and addressed by the Installation Restoration program. There is the potential for dioxin and lead contamination in soil at the former incinerator location. There is also potential lead and arsenic in soil and groundwater in the west-central portion of Site Y (URS, 2006).

Site Z - Previous studies identified discarded household items (e.g., tires, hot water heaters, a lawnmower, trash, papers, bottles, and cans), concrete debris pile, and a rusted, empty 275-gallon capacity above-ground storage tank (AST) on Site Z. According to a historical records review, a former training area, Grenade and Bayonet Range B, once extended onto the southwest corner of Site Z (URS, 2006). The Grenade and Bayonet Range is being evaluated in the Army's Military Munitions Response program.

Site X - Proposed Adjudication Site – Soil and groundwater sampling conducted at Site X indicated only trace levels of three semivolatile organic compounds (SVOCs), including bis(2-ethylhexyl)phthalate (BEHP), a common contaminant introduced by field and laboratory sampling methods. Four volatile organic compounds (VOCs) were detected between the laboratory analytical method detection limits (MDLs) and the compound specific reporting limits (RLs). Two of these compounds, acetone and methylene chloride, were laboratory contaminants. Metals were detected at background levels in all soil samples. Arsenic detections were consistent with previously determined background levels at Fort Meade (Fort Meade 2006).

4.13.2 Environmental Consequences

4.13.2.1 No Action Alternative

No adverse effects would be expected related to hazardous and toxic substances management. Fort Meade would continue to follow its current policies regarding the management of hazardous and toxic materials, and the required activities of the Installation's Restoration Program to address past releases of hazardous materials.

4.13.2.2 BRAC Realignment and Enhanced Use Lease Actions Alternative

4.13.2.2.1 BRAC Sub-alternative 2A (Site FGX Arrangement) and EUL Actions

No significant adverse effects would be expected related to the management of hazardous and toxic substances. No environmental or health effects resulting from the removal, handling, and disposal of hazardous materials would be expected during construction activities. Hazardous materials that could be used on-site during BRAC and EUL construction activities include paints, thinners, cleaners, asphalt, and fuel and motor oils for vehicles and equipment. All materials would be handled in accordance with the installation's established procedures and guideline. A 120,000 square foot Research, Development, Test and Evaluation laboratory is proposed for Site F. In addition to the above potentially hazardous materials, solvents, organic and inorganic liquids and gases may be used. All hazardous materials would be handled and stored in appropriate HAZMAT cabinets or containers according to applicable regulations. Any aboveground or underground petroleum tanks used would be installed and maintained in accordance with applicable state and federal laws and regulations.

No adverse effects would be expected from hazardous waste disposal. Hazardous waste disposal would be handled in accordance with applicable state and federal laws and regulations, Army, and installation procedures and guidelines.

Past studies have identified hazardous conditions that could be encountered during construction activities on some of the proposed site locations. There is a potential that contaminated soils and groundwater could be encountered. A landfill on Site S is listed in the National Priorities List (NPL), Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS), Resource Conservation and Recovery Act (RCRA) Treatment, Storage, Disposal (RCRA TSD), RCRA Large Quantity Generators (LQG), and Records of Decision (ROD) databases. The current periodic monitoring program for the soil and ground water in conjunction with engineering controls and installations for the monitoring of landfill gases will need to occur. Site M and the western portion of Site G have been identified as a former Mortar Range and action under the Military Munitions Response Program would be

completed prior to site development. For Site Y, the contamination resulting from the operation of the adjacent former trap and skeet range and Nike Missile Site are being evaluated and addressed by the Installation Restoration Program. The landfill and the associated contamination and potential risks have been studied in a Remedial Investigation required by the U.S.EPA's CERLCA program.

Two areas of Site S would require UXO issues to be addressed should the final golf course design disturb these areas. Although no demolition of significant buildings on any the proposed sites is anticipated, hazardous materials may be encountered in less significant buildings, such as, asbestos-containing materials, PCB-containing fluorescent light ballasts, and lead-based paints. If contaminated media or UXO are encountered, construction activities would temporarily cease and appropriate Fort Meade personnel would be notified. All such encounters would be managed in accordance with installation procedures and regulatory guideline. Specific instructions and requirements regarding the proper procedures for handling any such encounters would be provided to site workers by the installation before construction begins. For the known areas of contamination, site construction activities would be supplemented with either further assessment or appropriate Health and Safety Plans or both.

Before initiating any demolition activities, the potential of environmental impacts of special hazards such as ACM and LBP would be evaluated and addressed as specified in the appropriate regulatory requirements. Demolition that involves LBP or ACM would be evaluated for compliance with the OSHA standard at 29 CFR Part 1926.62; U.S.EPA and HUD standards; and state, federal, and Army regulations. Any lead paint abatement will comply with COMAR 26.16.01. Measures to control airborne asbestos and lead dust would be implemented.

4.13.2.2.2 BRAC Sub-alternative 2B (FGK Arrangement) and EUL Actions

No significant adverse effects would be expected related to the management of hazardous or toxic substances. No environmental or health effects resulting from the removal, handling, and disposal of hazardous materials would be expected during construction activities. Potentially hazardous materials that could be used on-site during BRAC and EUL construction activities include paints, thinners, cleaners, asphalt, and fuel and motor oils for vehicles and equipment. All materials would be handled in accordance with the installation's established procedures and guideline. No effects would be expected from hazardous waste disposal. Hazardous waste disposal would be handled in accordance with regulatory, Army, and installation procedures and guidelines.

If during the implementation of this alternative, potential hazards identified in past studies are encountered, the same procedures presented under Sub-alternative 2A would be followed.

Four buildings are expected to be demolished on Site K. Before initiating any demolition activities, the potential of environmental impacts of special hazards such as ACM and LBP would be evaluated and addressed as specified in the appropriate regulatory requirements. Demolition that involves LBP or ACM would be evaluated for compliance with the OSHA standard at 29 CFR Part 1926.62; U.S.EPA and HUD standards; and state, federal, and Army regulations. Any lead paint abatement will comply with COMAR 26.16.01. Measures to control airborne asbestos and lead dust would be implemented.

4.13.2.2.3 BRAC Sub-alternative 2C (FGC Arrangement) and EUL Actions

No significant adverse effects would be expected related to the management of hazardous and toxic substances. No environmental or health effects resulting from the removal, handling, and disposal of hazardous materials would be expected during construction activities. Potentially hazardous materials that could be used on-site during BRAC and EUL construction activities include paints, thinners, cleaners, asphalt, and fuel and motor oils for vehicles and equipment. All materials would be handled in accordance with the installation's established procedures and guideline. No effects would be expected from hazardous waste disposal. Hazardous waste disposal would be handled in accordance with regulatory, Army, and installation procedures and guidelines.

If during the implementation of this alternative, potential hazards identified in past studies are encountered, the same procedures presented under Sub-alternative 2A would be followed.

4.13.2.2.4 BRAC Sub-alternative 2D (ALC Arrangement) and EUL Actions

No significant adverse effects would be expected related to the management of hazardous and toxic substances. No environmental or health effects resulting from the removal, handling, and disposal of hazardous materials would be expected during construction activities. Potentially hazardous materials that could be used on-site during BRAC and EUL construction activities include paints, thinners, cleaners, asphalt, and fuel and motor oils for vehicles and equipment. All materials would be handled in accordance with the installation's established procedures and guideline. No effects would be expected from hazardous waste disposal. Hazardous waste disposal would be handled in accordance with regulatory, Army, and installation procedures and guidelines.

If during the implementation of this alternative, potential hazards identified in past studies are encountered, the same procedures presented under Sub-alternative 2A would be followed.

4.13.2.3 BRAC Realignment Action Alternative

4.13.2.3.1 BRAC Sub-alternative 3A (Site FGX Arrangement)

No significant adverse effects would be expected related to the management of hazardous and toxic substances. No environmental or health effects resulting from the removal, handling, and disposal of hazardous materials would be expected during construction activities. Potentially hazardous materials that could be used on-site during BRAC construction activities include paints, thinners, cleaners, asphalt, and fuel and motor oils for vehicles and equipment. All materials would be handled in accordance with the installation's established procedures and guideline. No effects would be expected from hazardous waste disposal. Hazardous waste disposal would be handled in accordance with applicable state and federal laws and regulations, Army, and installation procedures and guidelines.

Past studies have identified hazardous conditions that could be encountered during construction activities on some of the proposed site locations. There is a potential that contaminated soils and groundwater could be encountered. Site M and the western portion of Site G have been identified as a former Mortar Range and action under the Military Munitions Response Program would be completed prior to site development. Although no demolition of significant buildings on any the proposed sites is anticipated, hazardous materials may be encountered in less significant buildings, such as, asbestos-containing materials, PCB-containing fluorescent light ballasts, and lead-based paints. If contaminated media or UXO are encountered, construction activities would temporarily cease and appropriate Fort Meade personnel would be notified. All such encounters would be managed in accordance with installation procedures and regulatory guideline. Specific instructions and requirements regarding the proper procedures for handling any such encounters would be provided to site workers by the installation before construction begins. For the known areas of contamination, site construction activities would be supplemented with either further assessment or appropriate Health and Safety Plans or both.

Before initiating any demolition activities, the potential of environmental impacts of special hazards such as ACM and LBP would be evaluated and addressed as specified in the appropriate regulatory requirements. Demolition that involves LBP or ACM would be evaluated for compliance with the OSHA standard at 29 CFR Part 1926.62; U.S.EPA and HUD standards; and state, federal, and Army regulations. Any lead paint abatement will comply with COMAR 26.16.01. Any lead paint abatement will comply with COMAR 26.16.01. Measures to control airborne asbestos and lead dust would be implemented.

4.13.2.3.2 BRAC Sub-alternative 3B (FGK Arrangement)

No significant adverse effects would be expected related to the management of hazardous and toxic substances. No environmental or health effects resulting from the removal, handling, and disposal of

hazardous materials would be expected during construction activities. Potentially hazardous materials that could be used on-site during BRAC construction activities include paints, thinners, cleaners, asphalt, and fuel and motor oils for vehicles and equipment. All materials would be handled in accordance with the installation's established procedures and guideline. No effects would be expected from hazardous waste disposal. Hazardous waste disposal would be handled in accordance with regulatory, Army, and installation procedures and guidelines.

If during the implementation of this alternative, potential hazards identified in past studies are encountered, the same procedures presented under Sub-alternative 3A would be followed.

Before initiating any demolition activities, the potential of environmental impacts of special hazards such as ACM and LBP would be evaluated and addressed as specified in the appropriate regulatory requirements. Demolition that involves LBP or ACM would be evaluated for compliance with the OSHA standard at 29 CFR Part 1926.62; U.S.EPA and HUD standards; and state, federal, and Army regulations. Measures to control airborne asbestos and lead dust would be implemented.

4.13.2.3.3 BRAC Sub-alternative 3C (FGC Arrangement)

No significant adverse effects would be expected related to the management of hazardous and toxic substances. No environmental or health effects resulting from the removal, handling, and disposal of hazardous materials would be expected during construction activities. Potentially hazardous materials that could be used on-site during BRAC construction activities include paints, thinners, cleaners, asphalt, and fuel and motor oils for vehicles and equipment. All materials would be handled in accordance with the installation's established procedures and guideline. No effects would be expected from hazardous waste disposal. Hazardous waste disposal would be handled in accordance with regulatory, Army, and installation procedures and guidelines.

If during the implementation of this alternative, potential hazards identified in past studies are encountered, the same procedures presented under Sub-alternative 3A would be followed.

Before initiating any demolition activities, the potential of environmental impacts of special hazards such as ACM and LBP would be evaluated and addressed as specified in the appropriate regulatory requirements. Demolition that involves LBP or ACM would be evaluated for compliance with the OSHA standard at 29 CFR Part 1926.62; U.S.EPA and HUD standards; and state, federal, and Army regulations. Measures to control airborne asbestos and lead dust would be implemented.

4.13.2.3.4 BRAC Sub-alternative 3D (ALC Arrangement)

No significant adverse effects would be expected related to the management of hazardous and toxic substances. No environmental or health effects resulting from the removal, handling, and disposal of hazardous materials would be expected during construction activities. Potentially hazardous materials that could be used on-site during BRAC construction activities include paints, thinners, cleaners, asphalt, and fuel and motor oils for vehicles and equipment. All materials would be handled in accordance with the installation's established procedures and guideline. No effects would be expected from hazardous waste disposal. Hazardous waste disposal would be handled in accordance with regulatory, Army, and installation procedures and guidelines.

If during the implementation of this alternative, potential hazards identified in past studies are encountered, the same procedures presented under Sub-alternative 3A would be followed.

Before initiating any demolition activities, the potential of environmental impacts of special hazards such as ACM and LBP would be evaluated and addressed as specified in the appropriate regulatory requirements. Demolition that involves LBP or ACM would be evaluated for compliance with the OSHA standard at 29 CFR Part 1926.62; U.S.EPA and HUD standards; and state, federal, and Army regulations. Any lead paint abatement will comply with COMAR 26.16.01. Measures to control airborne asbestos and lead dust would be implemented.

4.14 CUMULATIVE EFFECTS

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

4.14.1 Land Use

Cumulative effects to land use would be expected related to the overall loss of open space and forested areas both on- and off-post. BRAC and EUL impacts to land use on Fort Meade would be associated with the loss of open space and forested areas and build-out of additional land on-post. More than 80 percent of the 529 forested acres on all of the BRAC and EUL sites could be developed. These impacts would be in addition to non-BRAC and EUL related projects such as the proposed NSA expansion at Site M, Biomass Facility, and the Transit/Bus Maintenance Center which would also require the development of

open space, forested areas, and build-out of additional land on-post. Table 4-37 provides a list of non-BRAC and EUL related projects on-post.

Table 4-37: Non-BRAC and EUL Related Projects at Fort Meade

Project	Description	Location
Centralized PX	A centralized Post Exchange (PX) would be constructed to consolidate PX functions and to accommodate expected soldier population increases due to BRAC 05 mission gains. The centralized PX facility would contain 32,362 square feet.	Just north of Mapes Road and within a portion of the existing golf course. The PX would be located on Site G in the same site location as the proposed centralized Physical Fitness Center and Child Development Center.
Centralized Physical Fitness Center (GYM)	New physical fitness facilities for the military and authorized civilians for Fort Meade designed to accommodate the increase of 5,695 incoming personnel associated with the BRAC 05 mission gains. It would contain 44,347 square feet	Adjacent to the proposed PX on Site G.
Centralized Whole Barracks Complex (Unaccompanied Personnel Housing or UPH)	A standard-design barracks complex is proposed to provide housing for permanent parties of various military service activities stationed at Fort Meade, including the new organizations under BRAC 05 realignment actions. The buildings would contain 110,624 square feet. The facility would provide 288 room spaces, and serve 700 incoming active duty military personnel.	Site M, within a portion of the existing golf course.
National Security Agency	NSA's long range planning includes options to expand its facilities at Site M, on a portion of the existing golf course.	Site M
Integration of the BRAC Action with the Comprehensive Expansion Master Plan	The Real Property Master Plan (RPMP) is a five-year plan covering the years 2000-2004. The Comprehensive Expansion Master Plan (CEMP) is currently in draft form. It addresses the installation's projected development for a 30-year period and projects changes to both the installation and the surrounding communities.	
Proposed Directorate of Information Management (DOIM) Facility	A new 58,048 square foot building near the new DISA location would house the new DOIM, a standard design information systems facility with the following functional divisions: Command Group, Plans and Resource Management, Operations, Logistics, Visual Information, and Records Management.	Site J, near southeast corner of Site F.
Energy Savings Performance Contract (ESPC) Program Project	Construction of a pipeline that will transfer methane from the Anne Arundel County Millersville Landfill, approximately five miles from the installation, to Fort Meade.	
Bus Maintenance and Terminal Facility	Approximately 15 acres is proposed for lease to a Howard and Anne Arundel County Partnership for the construction, operation and maintenance of a bus	In the southwest corner of the installation, bordered by MD 32 and MD 198 and the Tipton Airfield.

Project	Description	Location
	terminal and maintenance facility. Fort Meade will receive compensation in the form of in-kind services.	
Asymmetric Warfare Group (AWG) Compound and Motor Pool Site	The AWG will reconfigure existing and projected personnel in newly constructed and renovated facilities. An approximately 50-acre site would contain an administrative and operational complex and an indoor firing range in a secure compound. In addition, an approximately two-acre site would house a vehicle maintenance facility.	The compound will be relocated in the southwest corner of the installation, bordered by Rock Avenue, Huber Road, Wilson Street, and the Fort Meade Travel Camp.
First Army Division East	The First Army Division East, stationed on Fort Meade Pershing Hall, Building 4550. This command consists of approximately 216 staff (81 Officers, 69 enlisted and 66 civilians). The action displaced existing Garrison staff that were relocated to temporary spaces until permanent space is renovated.	Pershing Hall, Building 4550.

Anne Arundel County and all of the counties surrounding Fort Meade have adopted general plans and zoning that work to steer growth toward predetermined areas. Much of this growth is expected to consist of residential and commercial developments that help meet the demands created by the additional personnel who would work at the BRAC, EUL, and other projects at Fort Meade. Loss of open space and forested areas would result in the counties as well.

4.14.2 Aesthetics and Visual Resources

The proposed BRAC and EUL actions will have significant cumulative effects to aesthetics and visual resources, however while the EUL actions would have significant long-term and short-term adverse effects, the proposed BRAC actions would not have adverse effects in the long-term. The proposed construction and renovation actions under BRAC would have significant adverse effects in the short-term during the construction phase due to added noise and dust, disruption to traffic, excessive cut and fill, and disturbance to natural vegetation. In the long-term, however, construction under BRAC on sites C, K, and L would have no significant effect on the existing viewsheds and site character of the base. Construction around site K, under BRAC actions, might temporarily affect viewsheds to the historic district, mainly the Pershing Hall, Hodges Hall, and the parade ground, however, since site K has existing buildings, new construction would either replace or complement the existing structures thereby minimizing the effect on viewsheds and character in the vicinity. New buildings would be expected to be consistent with the aesthetic quality of the surrounding buildings and would complement the overall site layout. NSA expansion onto site M and BRAC actions on site A, F, G, and X would significantly change the site

character and viewsheds to a passerby on Mapes Road, Cooper Avenue, and Reece Road since new structures have been proposed on the existing golf course and other open areas. While there would be significant adverse effects in the short-term during the construction phase, there would be no adverse long-term effects because the viewsheds and character would change in accordance with the overall master planning vision for the base. BRAC construction would replace the existing non conforming uses with administrative and institutional uses complementing the administrative core envisioned for the areas around sites A, F, G, and X. In addition, the proposed buildings have smaller footprints with adequate site planning that would avoid the heavily wooded areas and maintain large diameter trees around the periphery and parking areas.

Heavily wooded areas in the north-east comprising sites Y and Z would see construction under the proposed EUL actions. New construction in these areas would change the existing open underdeveloped character of the sites. Overall, new buildings and construction would adversely affect the viewsheds and character in the short-term during the construction phase and also in the long-term. Proposed construction will put large footprint administrative uses in areas that currently support thick tree cover buffering the surrounding residential neighborhoods, the Meade Heights elementary school, and the School Age Service building.

Best management practices during the construction phases for BRAC and EUL actions would reduce the adverse effects. Long-term mitigation for BRAC and EUL actions would involve conscious efforts at the site planning and building design stages to:

- incorporate the guidelines in the IDG;
- retain critical habitats, buffers, and thick forest cover to balance the developed and open areas;
- plant large diameter trees in parking lots and incorporate landscaping to reduce the appearance of paved areas;
- plan building uses and finishes to complement the surrounding existing uses; and
- revegetate disturbed and sparsely vegetated areas.

The remaining proposed projects are not expected to interfere with the viewshed of any historic buildings and also would be expected to be consistent with the aesthetic quality of the surrounding buildings. New construction is expected to consolidate tenants from dilapidated WWII structures and off-post leased facilities into efficient facilities that would be consistent with the land use theme of their respective zones and would follow the Georgian Revival and Colonial architectural styles consistent with the rest of the base. Consequently, BRAC projects would not adversely cause significant impacts when added

cumulatively to the effects of other construction as long as the IDG, INRMP, RPMP, and CEMP guidelines are followed for all new construction and renovation projects.

4.14.3 Air Quality

The proposed BRAC Realignment Action Alternative would be expected to have cumulative effects on the surrounding air quality. Construction emissions account for the majority of the potential emissions and would occur short-term during the construction phase. Operational emissions, in combination with regional projects, would effect air quality, mainly related to commuter emissions and vehicle traffic within the Baltimore airshed. Emissions from boilers and generators on-site as well as the operation of new construction in the area would also contribute to a cumulative impact. All new construction and vehicle increases are would be expected to adhere with the region's SIP and TIP, and therefore the effects would not be significant.

The proposed BRAC Realignment and EUL Actions Alternative would have similar cumulative effects, with construction emissions occurring temporarily and operations-related emissions contributing to a cumulative effect. The proposed BRAC and EUL project and other regional projects would be required to adhere to the regional SIP and TIP and therefore cumulative effects would not be significant.

4.14.4 Noise

Cumulative effects would be expected related to noise. BRAC and EUL impacts to noise levels on Fort Meade would be associated with construction activities and increased traffic. Increased noise levels during construction would be temporary, while noise associated with increased traffic would be long term, transient, and distributed throughout the day. Vehicle noise would also extend off-post. Cumulative impacts associated with baseline noise levels would be a result of the additive effect of increased traffic. In addition, non-BRAC and EUL related projects such as the proposed NSA expansion, Biomass Facility, and the Transit/Bus Maintenance Center may involve more industrial-like facilities that may produce noise beyond that of administrative facilities. This noise, when coupled with increased traffic, especially that produced by the proposed NSA expansion, would represent an additional cumulative noise related impact.

4.14.5 Geology and Soils

No cumulative effects to geology and soils would be expected. Impacts to geology, topography, soils, and prime and unique farmlands are site-specific and are not affected by cumulative development in the region. Cumulative impacts would only occur if development were to occur immediately adjacent to the site where the proposed actions were to occur, or if development on the site affected geologic resources of the site where other development may occur. In addition, given that the majority of soils in and around the

proposed DISA Administration Buildings, Media Administration Buildings, Adjudication Administration Buildings, and associated buildings and parking facilities have been previously disturbed or modified, and mitigation measures would be enacted to rehabilitate those soils disturbed during construction activities, no significant effects to soils are expected. As a result, the construction projects proposed within the Installation would not likely have any significant cumulative impacts, to the geology, topography, or soils within or immediately adjacent to the project area.

4.14.6 Water

Cumulative effects would be expected regarding the volume of surface run-off to surface water bodies and water quality when considered with other related actions at Fort Meade. The related actions considered include; National Security Agency's long range planning options to expand its facilities at Site M, projected development at Fort Meade detailed in the Real Property Master Plan and the Comprehensive Expansion Master Plan, the proposed Directorate of Information Management Facility and the proposed Bus Maintenance and Terminal Facility. The increase in surface water runoff would be significant when the proposed action and other projects are implemented in the same time period.

4.14.7 Biological

Cumulative impacts to biological resources would be significant. Some species may be discouraged from the area from dust, erosion, and noise, or displaced permanently from the areas through loss of habitat,. There are no rare, threatened, or endangered species present on Fort Meade, as discussed in Section 4.8.1.3.

Increased human activity in the vicinity of the proposed development would also be likely to result in the movement of species sensitive to human presence out of the area and into less used habitats. Cumulative effects of ongoing projects or future planned development on Fort Meade would, depending on location, increase segmentation of forested habitats, increase potential for wildlife mortality associated with collision, and increase potential for wildlife to move out of the area as a result of direct habitat loss or a reduction in the quality of habitat.

Habitat for native vegetation and terrestrial and aquatic organisms has been greatly altered and/or removed in the region over time as the Greater Washington D.C./Baltimore area, particularly Anne Arundel County, grows and development increases. This is a significant cumulative impact on regional biological diversity. Fort Meade is one of the remaining areas with large tracts of forest habitat. Clearing forestlands would decrease the overall amount of habitat within the Greater Washington D.C./Baltimore area. There remains a good amount of habitat adjacent to Fort Meade, at the Patuxent Wildlife Research Refuge.

4.14.8 Cultural

No cumulative effects to Cultural Resources would be expected. None of the projects identified to occur during the BRAC projects will have an impact on cultural resources. Therefore they do not add to the potential impacts of construction in Zone K the Historic District

4.14.9 Socioeconomics

Cumulative effects to socioeconomics would be expected.

Independent of the proposed BRAC and EUL actions, NSA is planning for expansion of its facilities and associated workforce at Fort Meade. To the extent that the NSA expansion might result in an additional influx of residents to the ROI, there would be a commensurate increase in regional economic activity as well an increase in demand for housing and educational services. Because the size and origin of the expanded NSA workforce is not known, it is not possible to quantify the combined or cumulative impacts of the BRAC and NSA actions. Any additional increase in the total number of incoming school-age children has the potential for straining the physical capacity of the surrounding school districts and requiring additional teachers to maintain the baseline teacher-student ratios. The overall economic impact would be beneficial because the NSA expansion would likely stimulate more spending both by the NSA and its employees within the ROI.

4.14.10 Transportation

The cumulative effect includes currently programmed development projects at Fort Meade in addition to the BRAC and EUL projects, such as NSA Replacement, Service Cryptologic Element (SCE,) Garrison Support and Government Tenant projects on Site M in Fort Meade.¹⁴ The transportation impact of these new projects is assessed through the estimated net new trips they would generate in addition to the Preferred Alternative (BRAC plus EUL). Consistent with the adverse impacts of the BRAC plus EUL alternative, the cumulative transportation effect is anticipated to generate a significant adverse effect, somewhat greater than the BRAC plus EUL alternative.

Trip estimates for each facility were developed and distributed throughout the network using the same procedures as for the BRAC and BRAC plus EUL estimates. The procedures are described in Appendix F. The resulting estimated trips are presented in Table 4-38 summarized by construction project. These trips reflect the net increase in activity as the result of the implementation of each project. Replacement building projects (such as NSA) are not included in the trip generation process as they would not add any new trips. Based on estimates of increased NSA personnel, additional NSA person-trips were added to the

¹⁴ Fort Meade Site “M” Area Development Plan, Real Property Master Plan, Pre-Final Submittal, May 2004.

Cumulative Effect as shown below. As the table shows, the projects that would have the greatest potential impact on neighboring transportation infrastructure are the Government Tenant projects generating 2,652 and 3,420 trips in the AM and PM peak hours respectively.

Table 4-38: Trips Generated by each Additional Project Site, by Peak Hour and Direction of Flow

Project	AM Peak Hour			PM Peak Hour		
	In	Out	Total	In	Out	Total
NSA Personnel (not projects)	1,350	167	1,517	207	1,175	1,382
SCE Projects	487	63	550	90	513	603
Garrison Support Projects	49	22	71	64	61	125
Government Tenant Projects	2,360	292	2,652	1,060	2,360	3,420

The distributed trips are added to the BRAC plus EUL traffic and are then entered into the traffic simulation model to obtain the LOS for the MD 175 roadway segment adjacent to the Post and for specific intersections.

The operation of the 3.2 mile MD 175 segment adjacent to Fort Meade declines markedly from the No-Action Alternative and declines moderately from the BRAC plus EUL Alternative. The AM Peak Eastbound Arterial LOS drops from B to C (compared with the No-Action Alternative), with an average speed of 14.6 mph, while the AM Peak Westbound Arterial LOS declines to LOS E, with an average speed of 10.9 mph for the segment. PM Peak Eastbound LOS is estimated to decline from D to F for the Cumulative effect, with an average speed of 5.3 mph, while the Westbound PM Peak is estimated at LOS C, averaging 18.1 mph.

Intersection analysis results are shown in Table 4-39.

Table 4-39: 2011 Cumulative Intersection LOS for Fort Meade

#	Area	Road A	Road B	*	AM Peak		PM Peak	
					No-Action Alternative	Cumulative	No-Action Alternative	Cumulative
1	Ft. Meade	Mapes	O'Brien	S	A	E	A	F
2	Ft. Meade	Mapes	Taylor	S	A	F	A	F
3	Ft. Meade	Mapes	Cooper	S	A	F	A	F
4	Ft. Meade	Mapes	MacArthur	S	A	E	A	D
5	Ft. Meade	Mapes	Ernie Pyle	S	B	E	B	D
6	Ft. Meade	Llewellyn	Cooper	U	B	B	B	B
7	Ft. Meade	Llewellyn	Ernie Pyle	U	D/C	F/F	C/C	F/F
8	Ft. Meade	Reece	Cooper	U	C	F	C	F/E **
9	Ft. Meade	Reece	Ernie Pyle	U	D/C	E/E	F/C	F/D
10	Ft. Meade	Reece	MacArthur	S	A	B	A	B
11	Ft. Meade	Rockenbach	Cooper	S	A	F	A	F
12	Perimeter	Mapes	MD 175	S	D	F	D	F
13	Perimeter	Llewellyn	MD 175	S	B	D	A	C
14	Perimeter	Reece	MD 175	S	B	F	D	F
15	Perimeter	Rockenbach	MD 175	S	C	F	F	F
16	Perimeter	Disney	MD 175	S	A	E	E	F
17	Perimeter	Mapes N	MD 32	R	C	F	B	B
18	Perimeter	Mapes S	MD 32	R	A	A	A	A
19	External	Reece	Jacobs	U	D	F	F	F/F **
20	External	Reece	Pioneer	S	A	F	A	F
21	External	Reece	Redbridge	U	F/C	F/F	F/E	F/F
22	External	Reece	Severn	S	B	F	C	F
23	External	Ridge	Severn	S	B	F	F	F
24	External	New Disney	Carriage	U	B/B	B/B	C/C	C/C
25	External	Charter Oaks	Town Center	U	B/B	C/D	C/B	C/C

No Action Alternative: Includes an increase of 2.9% per year over 2006 values

*S: Signalized intersection U: Unsignalized intersection R: Roundabout

(Source: LBG Data and Analysis)

** Indicates that the main through road (without a stop sign) is failing due to traffic volumes, in addition to excessive delays on the side street (with the stop sign)

4.14.11 Utilities

Cumulative effects would be expected anticipated related to potable water, wastewater treatment and storm drainage. Several other projects would be implemented during the same time period as the

proposed actions. The demand on these resources from the proposed actions combined with other non-BRAC and EUL projects would be significant.

Potable Water. The demands on potable water supply from other projects such as the UPH Barracks, Physical Fitness Center, NSA expansion, and new Military Housing in combination with the BRAC and EUL actions would be significant.

Wastewater. The demands on wastewater treatment from other projects such as the UPH Barracks, Physical Fitness Center, NSA expansion, and new Military Housing in combination with the BRAC and EUL actions would be significant.

Storm Drainage. Significant, direct, adverse effects to storm drainage would be expected. The volume of storm water that will be generated from the implementation of the proposed action in combination with other projects would be substantial.

4.14.12 Hazardous and Toxic Substances

No cumulative effects would be expected related to the management of hazardous and toxic substances. Multiple projects at Fort Meade that would occur during the same time period as the BRAC and EUL actions were evaluated. No significant environmental effects are anticipated from the implementation of the BRAC and EUL actions in conjunction with other installation projects.

4.15 MITIGATION SUMMARY

Mitigation actions would be expected to reduce, avoid, or compensate for most adverse effects. Table 4-40 summarizes the proposed mitigation measures and possible BMPs that could be taken for each affected resource.

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Table 4-40: Proposed Mitigations and BMPs

Resource	No Action Alternative	Proposed Mitigations	BRAC and EUL Actions Alternative	Proposed Mitigations	BRAC Action Alternative	Proposed Mitigations	Best Management Practices
Land Use							
Installation Land Use	No adverse effects	None	<ul style="list-style-type: none"> No significant adverse effects - BRAC actions Significant long-term adverse effects- EUL actions Cumulative effects would be expected 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> No significant adverse effects - BRAC actions Cumulative effects would be expected 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> Adhere to optimal land use plans outlined in the Fort Meade Installation Design Guide, Integrated Natural Resources Management Plan, Fort Meade Real Property Master Plan when siting new developments
Surrounding Land Use	No adverse effects	None	<ul style="list-style-type: none"> No adverse effects 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> No adverse effects 	<ul style="list-style-type: none"> None 	
Aesthetics and Visual Resources							
Sites A, F, G,X	No adverse effects	None	<ul style="list-style-type: none"> Significant short-term adverse effects during construction phase Significant long-term effects on viewshed and character, not adverse Cumulative effects would be expected 	<ul style="list-style-type: none"> Revegetate disturbed areas with native vegetation. Maintain trees and native vegetation wherever possible. 	<ul style="list-style-type: none"> Significant short-term adverse effects during construction phase Significant long-term effects on viewshed and character, not adverse Cumulative effects would be expected 	<ul style="list-style-type: none"> Revegetate disturbed areas with native vegetation. Maintain trees and native vegetation wherever possible. 	<ul style="list-style-type: none"> Design facilities in accordance with Installation Design Guide (IDG). Design facilities in a complimentary architectural style Use landscaping to reduce construction related impacts
Sites C, K, L	No adverse effects	None	<ul style="list-style-type: none"> Significant short-term adverse effects during construction No significant long-term effects on viewshed and character Cumulative effects would be expected 	<ul style="list-style-type: none"> Revegetate disturbed areas with native vegetation. Maintain trees and native vegetation wherever possible 	<ul style="list-style-type: none"> Significant short-term adverse effects during construction No significant long-term effects on viewshed and character Cumulative effects would be expected 	<ul style="list-style-type: none"> Revegetate disturbed areas with native vegetation. Maintain trees and native vegetation wherever possible 	<ul style="list-style-type: none"> Design facilities in accordance with Installation Design Guide (IDG). Design facilities in a complimentary architectural style.
Sites M, N	No adverse effects	None	<ul style="list-style-type: none"> Significant short-term adverse effects during construction phase Significant long-term adverse effects on viewshed and character Cumulative effects would be expected 	<ul style="list-style-type: none"> Revegetate disturbed areas with native vegetation. Maintain trees and native vegetation wherever possible 	<ul style="list-style-type: none"> Significant short-term adverse effects during construction phase Significant long-term adverse effects on viewshed and character Cumulative effects would be expected 	<ul style="list-style-type: none"> Revegetate disturbed areas with native vegetation. Maintain trees and native vegetation wherever possible 	<ul style="list-style-type: none"> Design facilities in accordance with Installation Design Guide (IDG). Design facilities in a complimentary architectural style.
Site S, Y, Z	No adverse effects	None	<ul style="list-style-type: none"> Significant short-term adverse effects during construction phase Significant long-term adverse effects on viewshed and character Cumulative effects would be expected 	<ul style="list-style-type: none"> Revegetate disturbed areas with native vegetation. Maintain trees and native vegetation wherever possible 	<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> Design facilities in accordance with Installation Design Guide (IDG). Design facilities in a complimentary architectural style.
Air Quality							
	No adverse effects	None	<ul style="list-style-type: none"> No significant adverse effects 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> No significant adverse effects 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> Spray water on construction work sites to reduce fugitive dust emissions. Cover open equipment used to convey materials likely to create air pollutants. Promptly removing spilled or tracked dirt from streets
Noise							
	No adverse effects	None	<ul style="list-style-type: none"> No significant short-term adverse effects during construction phase No significant long-term adverse effects related to operation Cumulative effects would be expected 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> No significant adverse effects Cumulative effects would be expected 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> Limit construction activities to normal work day hours Use sound-dampening construction equipment and materials to attenuate noise.

Resource	No Action Alternative	Proposed Mitigations	BRAC and EUL Actions Alternative	Proposed Mitigations	BRAC Action Alternative	Proposed Mitigations	Best Management Practices
Geology and Soils							
Geologic and Topographic Conditions	No adverse effects	None	• No significant adverse effects	• None	• No significant adverse effects	• None	<ul style="list-style-type: none"> • Use appropriate BMPs (such as silt fences, straw bale dikes, diversion ditches, riprap channels, water bars, and water spreaders) to reduce soil erosion and sedimentation. • Regraded and revegetated (as necessary) all disturbed areas following construction activities • Include soil erosion and sediment control measures in site plans to minimize long term erosion and sediment production at each site. • Use stormwater controls favoring methods that allow for storm water to reenter the groundwater system equal to or better than pre-existing conditions.
Soils	No adverse effects	None	• No significant adverse effects	• None	• No significant adverse effects	• None	<ul style="list-style-type: none"> • Use appropriate BMPs (such as silt fences, straw bale dikes, diversion ditches, riprap channels, water bars, and water spreaders) to reduce soil erosion and sedimentation. • Regraded and revegetated (as necessary) all disturbed areas following construction activities • Include soil erosion and sediment control measures in site plans to minimize long term erosion and sediment production at each site. • Use stormwater controls favoring methods that allow for storm water to reenter the groundwater system equal to or better than pre-existing conditions.
Prime Farmland	No effects	None	• No effects	• None	• No effects	• None	• None
Water Resources							
Surface Water	No adverse effects	None	• Indirect and cumulative impacts to Midway Branch and Franklin Branch are possible. Impacts are not anticipated to be significant in consideration of BMP's aimed at reducing impacts to surface water to the greatest extent feasible	• None	• Indirect and cumulative impacts to Midway Branch and Franklin Branch are possible. Impacts are not anticipated to be significant in consideration of BMP's aimed at reducing impacts to surface water to the greatest extent feasible	• None	<p>BRAC and EUL Sites</p> <ul style="list-style-type: none"> • Avoid impacts to water resources where practical; • CWA 404 (b)(1) & 401, NPDES and construction permit compliance; • Compliance with COMAR; • Restore and protect when feasible the site area (excluding the building footprint) with native or adapted vegetation; • Implementation of BMPs outlines in Nutrient Management Plan, INRMP, SWPPP, Green Building Manual, Installation Design Guide, SPCCP, SPC, and Maryland's 2000 Stormwater Design Manual and U.S. EPA's Stormwater Best Management Practice Design Guide. • Use appropriate erosion and sediment controls as BMPs to minimize surface erosion and runoff of pollutants. • Avoid impacts within 25-feet of wetlands as per MDE regulations; • Avoid impacts within 100-feet of wetland designated as Special State Concern; <p>BRAC Sites Only:</p> <ul style="list-style-type: none"> • New construction to meet LEED Silver rating,

Resource	No Action Alternative	Proposed Mitigations	BRAC and EUL Actions Alternative	Proposed Mitigations	BRAC Action Alternative	Proposed Mitigations	Best Management Practices
							<p>higher if resources allow;</p> <ul style="list-style-type: none"> • Restore waterways that flow between BRAC construction sites and Midway Branch to more natural conditions where practical; including improvements to drainage structures, both existing and planned; • Where practical, landscape parking lot islands to provide shade, reduce heat island effect and manage stormwater; • Where practical, reuse stormwater for non-potable uses in and around buildings to help reduce the quantities of stormwater; • Preserve a 100-foot buffer around riparian buffers and wetlands where practical; • Implement where practical; natural, vegetated channels, rain gardens, minor structural facilities, stormwater management ponds, permanent water aerators and irrigation of landscapes with collected and stored rainwater on site. <p>EUL Sites Only:</p> <ul style="list-style-type: none"> • Implement EUL Site Development Plan for EUL sites
Hydrogeology/Groundwater	No adverse effects	None	• No significant adverse effects	• None	• No significant adverse effects	• None	• Adhere to SPCC Plan and BMPs
Floodplains	No adverse effects	None	• No significant adverse effects related to BRAC or EUL actions	• None	• No significant adverse effects	• None	• Adhere to applicable laws and regulations, and BMPs
Coastal Zone	No adverse effects	None	• No significant adverse effects related to BRAC or EUL actions	• None	• No significant adverse effects	• None	• Adhere to applicable laws and regulations, and BMPs.
Biological Resources							
Vegetation	No adverse effects	None	<ul style="list-style-type: none"> • Significant adverse effects • Cumulative effects would be expected 	<ul style="list-style-type: none"> • To the maximum extent possible, comply with the Maryland Forest Conservation Act. • Ensure contractor coordinates with the Fort Meade forester before implementing tree removal or planting actions. 	<ul style="list-style-type: none"> • No significant adverse effects • Cumulative effects would be expected 	<ul style="list-style-type: none"> • To the maximum extent possible, comply with the Maryland Forest Conservation Act. • Ensure contractor coordinates with the Fort Meade forester before implementing tree removal or planting actions. 	<ul style="list-style-type: none"> • Employ erosion control practices and tree-protection devices at all proposed sites to protect vegetation and habitat not included in the construction footprint. • Limit disturbed areas to the planned footprint areas plus a minimal amount of adjacent construction staging area.
Wildlife	No adverse effects	None	<ul style="list-style-type: none"> • Significant adverse impacts • Cumulative effects would be expected 	<ul style="list-style-type: none"> • Preserve associated roads and blocks of connective native vegetation on each site, where possible, to act as buffers and wildlife corridors. • To the extent feasible, construct bridges or oversized culverts to allow for wildlife passage . 	<ul style="list-style-type: none"> • No significant adverse effects • Cumulative effects would be expected 	<ul style="list-style-type: none"> • Preserve associated roads and blocks of connective native vegetation on each site, where possible, to act as buffers and wildlife corridors. 	<ul style="list-style-type: none"> • Use tree-protection BMPs during construction of new developments to maintain natural habitat areas, as much as possible.
Threatened, Endangered, and Sensitive Species	No adverse effects	None	• No significant adverse effects	• None	• No significant adverse effects	• None	<p>Consider and implement where practical, the following:</p> <ul style="list-style-type: none"> • Incorporate protection measures for <i>Panicum leucothrix</i> into site design for golf course on Site S. • Survey of Site S for extant populations of parcel. <i>Panicum leucothrix</i>. • Coordinate with MDNR to remove and relocated large extant populations of roughish panicgrass if found on Site S.

Resource	No Action Alternative	Proposed Mitigations	BRAC and EUL Actions Alternative	Proposed Mitigations	BRAC Action Alternative	Proposed Mitigations	Best Management Practices
Aquatic Species	No adverse effects	None	<ul style="list-style-type: none"> No significant adverse effects 	<ul style="list-style-type: none"> If necessary following delineation, obtain appropriate Section 404 permits from the Corps of Engineers to dredge and fill wetlands. As appropriate, mitigate for losses of wetland acreage in the footprint with constructed wetlands. Obtain MDE authorization before action is initiated. Follow recommendations in the Fort Meade Green Building Manual. 	<ul style="list-style-type: none"> No significant adverse effects 	<ul style="list-style-type: none"> If necessary following delineation, obtain appropriate Section 404 permits from the Corps of Engineers to dredge and fill wetlands. . Obtain MDE authorization before action is initiated. Follow recommendations in the Fort Meade Green Building Manual. 	<ul style="list-style-type: none"> Follow state and local BMPs to minimize runoff and sedimentation to surface waters and wetlands during site preparation and construction.
Cultural Resources	No adverse effects	None	<ul style="list-style-type: none"> No adverse effects 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> No adverse effects 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> Include clauses in construction contracts with provisions suspending work until a mitigation determination is made in the event that archeological artifacts are unearthed during construction. For known archeological sites ensure avoidance and protection by using a buffer area. Maintain coordination with State Historic Preservation Office. Adherence to the Installation Design Guidelines and submission of the preliminary designs to the MD SHPO when it is available.
Socioeconomics							
Economic Developments	No adverse effects	None	<ul style="list-style-type: none"> No significant effects 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> No adverse effects 	<ul style="list-style-type: none"> None 	
Demographics	No adverse effects	None	<ul style="list-style-type: none"> Significant effects 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> Significant effects 	<ul style="list-style-type: none"> None 	
Housing	No adverse effects	None	<ul style="list-style-type: none"> No significant adverse effects 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> No significant adverse effects 	<ul style="list-style-type: none"> None 	
<i>Quality of Life</i>							
<i>Schools</i>	No adverse effects	None	<ul style="list-style-type: none"> Significant adverse effects 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> Significant adverse effects 	<ul style="list-style-type: none"> None 	
<i>Law Enforcement</i>	No adverse effects	None	<ul style="list-style-type: none"> Significant adverse effects 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> No significant adverse effects 	<ul style="list-style-type: none"> None 	
<i>Recreation</i>	No adverse effects	None	<ul style="list-style-type: none"> No adverse effects 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> No adverse effects 	<ul style="list-style-type: none"> None 	
Environmental Justice	No adverse effects	None	<ul style="list-style-type: none"> No adverse effects 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> No adverse effects 	<ul style="list-style-type: none"> None 	
Protection of Children	No adverse effects	None	<ul style="list-style-type: none"> No adverse effects 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> No adverse effects 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> Secure construction vehicles and equipment when not in use. Place barriers and “No Trespassing” signs around construction sites where practicable.
Transportation							
Roadways and Traffic	No significant adverse effects	None	<ul style="list-style-type: none"> Short-term adverse effects during construction Significant adverse effects Cumulative effects would be expected 	<ul style="list-style-type: none"> During construction the Army will limit the movement of construction vehicles during peak traffic hours where practical Army will coordinate with all appropriate transportation agencies is ongoing and the Army is committed to the process of information sharing and design coordination. FGGM is working with the SHA to develop plans for widening MD 175. Based on the outcome of the planning process, FGGM will negotiate to provide any necessary easement. The federal Department of Defense 	<ul style="list-style-type: none"> Short-term adverse effects during construction No significant adverse effects Cumulative effects would be expected 	<ul style="list-style-type: none"> During construction the Army will limit the movement of construction vehicles during peak traffic hours where feasible The Army will coordinate with all appropriate transportation agencies and the Army is committed to the process of information sharing and design coordination. FGGM is working with the SHA to develop plans for widening MD 175. Based on the outcome of the planning process, FGGM will negotiate to provide any necessary easement. 	<ul style="list-style-type: none"> State, regional and county agency transportation coordination BMPs that are being planned to counter congestion due to regional growth will also ease increased congestion from BRAC plus EUL or BRAC-only. Greater detail on projects and initiatives is found in Appendix F.

Resource	No Action Alternative	Proposed Mitigations	BRAC and EUL Actions Alternative	Proposed Mitigations	BRAC Action Alternative	Proposed Mitigations	Best Management Practices
				<p>Economic Adjustment Program is available to local communities to seek assistance in addressing impacts from DoD actions.</p> <ul style="list-style-type: none"> • FGGM will analyze highway and transit mitigation projects to determine if any would meet the requirements of the Defense Access Roads (DAR) Program (23 USC §210). Those that meet the DAR requirements will be forwarded for certification to the Military Surface Deployment and Distribution Command (SDDC). If the SDDC determines that the road or transit facility is important to national defense under the rules of the program, the projects will be eligible for the use of defense funds. • The Army will require the EUL developer to conduct a traffic study to support SHA planning and to identify possible road improvements and entry/ exit strategies. • The Army will coordinate with SHA on potential gate management strategies to avoid exterior roadway impacts from gate operations. • The Army will continue current planning actions with Anne Arundel County and Howard County to lease the land to develop a coordinated transit operations facility on Fort Meade property, in the expectation of the Fort receiving in-kind transit service (service details not yet determined). • The Army will evaluate and implement local versions of successful rideshare/commuter programs (see Installation mitigation, immediately below). 		<ul style="list-style-type: none"> • The federal Department of Defense Economic Adjustment Program is available to local communities to seek assistance in addressing impacts from DoD actions. • FGGM will analyze highway and transit mitigation projects to determine if any would meet the requirements of the Defense Access Roads (DAR) Program (23 USC §210). Those that meet the DAR requirements will be forwarded for certification to the Military Surface Deployment and Distribution Command (SDDC). If the SDDC determines that the road or transit facility is important to national defense under the rules of the program, the projects will be eligible for the use of defense funds. • The Army will coordinate with SHA on potential gate management strategies to avoid exterior roadway impacts from gate operations. • The Army will continue current planning actions with Anne Arundel County and Howard County to lease the land to develop a coordinated transit operations facility on Fort Meade property, in the expectation of the Fort receiving in-kind transit service (service details not yet determined). • The Army will evaluate and implement local versions of successful rideshare/commuter programs (see Installation mitigation, immediately below). 	
Installation Transportation	No significant adverse effects	None	<ul style="list-style-type: none"> • No significant adverse effects overall, significant delays projected at a few unsignalized intersections • Cumulative effects would be expected 	<ul style="list-style-type: none"> • Fort Meade will initiate an Installation Transportation Study to develop engineered projects/ strategies necessary to improve intersections and roads. These projects will be implemented as funds become available. • The Installation Transportation Study will identify which transportation actions or improvements will be adopted to address identified capacity problems. • Fort Meade will alter existing directional flows at all FGGM gates 	<ul style="list-style-type: none"> • No significant adverse effects • Cumulative effects would be expected 	<ul style="list-style-type: none"> • Fort Meade will initiate an Installation Transportation Study to develop engineered projects/ strategies necessary to improve intersections and roads. These projects will be implemented as funds become available. • The Installation Transportation Study will identify which transportation actions or improvements will be adopted to address identified capacity problems. • Fort Meade will alter existing directional flows at all FGGM gates 	<ul style="list-style-type: none"> • Army new construction design standards allow for only 60% parking spaces for building occupants (plus 10% for visitors). This standard encourages employee participation in commuter programs. The FEIS in Appendix F includes descriptions of the wide range of transportation best management practices that the Army will be evaluating for implementation. For example, there is intent to create shuttle services from the Odenton MARC station to the Installation. New legislation, codified at 31 USC 1344 (g), allows the government to provide shuttle service from mass transit points free of charge to federal

Resource	No Action Alternative	Proposed Mitigations	BRAC and EUL Actions Alternative	Proposed Mitigations	BRAC Action Alternative	Proposed Mitigations	Best Management Practices
				<p>as needed to improve access and reduce traffic impacts on exterior roadways. Corrective measures could include designating specific gates for one-way entrance or exit at peak volume hours, managing gate volumes by assigning specific gates to specific organizations and limiting gate exit options, e.g., right turn only exits.</p> <ul style="list-style-type: none"> • Roadways: Where feasible, FGGM will implement DMA ADG Section 2.4.2 guidance by providing turning lanes and minimizing intersections along primary roads. • Bicycle/ pedestrian: Where feasible, FGGM will develop sidewalks, paths and bicycle trails on the Post consistent with guidance from the CEMP Transportation Plan and DMA ADG Section 2.4.6. • The Army will evaluate and implement expanded transit service on the Post, as warranted, coordinated with off-Post services such as a regular shuttle from the Odenton MARC station. Funding and coordination for such services is under discussion between the Installation and local governments in the context of the Central Maryland Transit Operations Facility agreements. 		<p>as needed to improve access and reduce traffic impacts on exterior roadways. Corrective measures could include designating specific gates for one-way entrance or exit at peak volume hours, managing gate volumes by assigning specific gates to specific organizations and limiting gate exit options, e.g., right turn only exits.</p> <ul style="list-style-type: none"> • Roadways: Where feasible, FGGM will implement DMA ADG Section 2.4.2 guidance by providing turning lanes and minimizing intersections along primary roads. • Bicycle/ pedestrian: Where feasible, FGGM will develop sidewalks, paths and bicycle trails on the Post consistent with guidance from the CEMP Transportation Plan and DMA ADG Section 2.4.6. <p>The Army will evaluate and implement expanded transit service on the Post, as warranted, coordinated with off-Post services such as a regular shuttle from the Odenton MARC station. Funding and coordination for such services is under discussion between the Installation and local governments in the context of the Central Maryland Transit Operations Facility agreements.</p>	<p>employees. Transit and ride-sharing incentives will be evaluated and implemented where feasible. Funding for transit services is currently being discussed between the Post and local government agencies as part of the Central Maryland Transit Operations Facility negotiation.. As relocation nears, information on numbers of employees coming to the area or commuting will be provided to the appropriate planning agencies. Employee participation in commuter programs is expected to remain voluntary as it is in the local community.</p>
Utilities							
Potable Water	No adverse effects	None	<ul style="list-style-type: none"> • No significant adverse effects • Cumulative effects would be expected 	• None.	<ul style="list-style-type: none"> • No significant adverse effects • Cumulative effects would be expected 	• None	<ul style="list-style-type: none"> • Install water-efficient control devices, such as low-flow showerheads, faucets, and toilets, in all new facilities.
Wastewater	No adverse effects	None	<ul style="list-style-type: none"> • Significant long-term adverse effects • Cumulative effects would be expected 	• Restore the WWTP to its original capacity.	<ul style="list-style-type: none"> • Significant permanent adverse effects • Cumulative effects would be expected 	• Restore the WWTP to its original capacity.	
Energy	No adverse effects	None	<ul style="list-style-type: none"> • Short-term adverse effects – construction • No adverse effects-operation 	• None	<ul style="list-style-type: none"> • Short-term adverse effects – construction • No adverse effects-operation 	• None	<ul style="list-style-type: none"> • Install energy-efficient interior and exterior lighting fixtures and controls in all new buildings. Build new units to Energy Star energy efficiency standards
Solid Waste	No adverse effects	None	<ul style="list-style-type: none"> • Short-term adverse effects – construction • No significant adverse effects-operation 	• Minimize landfill disposal by recycling the maximum amounts of materials possible.	<ul style="list-style-type: none"> • Short-term adverse effects – construction • No significant adverse effects-operation 	• Minimize landfill disposal by recycling the maximum amounts of materials possible.	<ul style="list-style-type: none"> • Use BMPs to ensure that maximum amounts of materials are recycled and that landfill disposal is minimized.
Storm Drainage	No adverse effects	None	• Significant long-term adverse	• Use appropriate measures to	• Significant long-term adverse	• Use appropriate measures to	• Use appropriate erosion and sediment controls

Resource	No Action Alternative	Proposed Mitigations	BRAC and EUL Actions Alternative	Proposed Mitigations	BRAC Action Alternative	Proposed Mitigations	Best Management Practices
			effects • Cumulative effects would be expected	minimize surface erosion and runoff of pollutants. • Continue to implement the Storm Water Pollution Prevention Plan (See section 4.7).	effects • Cumulative effects would be expected	minimize surface erosion and runoff of pollutants. • Continue to implement the Storm Water Pollution Prevention Plan (See section 4.7).	as BMPs to minimize surface erosion and runoff of pollutants. • Follow protocols outlined in the storm water NPDES permits and state sediment and erosion control guidelines • Continue to implement the Storm Water Pollution Prevention Plan (See section 4.7).
Communications	No adverse effects	None	• No adverse effects	• None	• No adverse effects	• None	
Hazardous and Toxic Substances							
Uses of Hazardous Materials	No adverse effects	None	• No significant adverse effects	• Use environmentally friendly solvents, greases, and materials during construction.	• No significant adverse effects	• Use environmentally friendly solvents, greases, and materials during construction.	• Fully comply with all provisions of the Fort Meade Pollution Prevention Plan. • Use the Fort Meade hazardous materials management plan in ordering and managing hazardous material on Fort Meade
Storage and Handling Areas	No adverse effects	None	• No significant adverse effects	• None	• No significant adverse effects	• None	• Use environmentally friendly solvents, greases, and materials during construction. • Fully comply with all provisions of the Fort Meade Pollution Prevention Plan. • Use the Fort Meade hazardous materials management plan in ordering and managing hazardous material on Fort Meade
Hazardous Waste Disposal	No adverse effects	None	• No adverse effects	• None	• No significant adverse effects	• None	• Use environmentally friendly solvents, greases, and materials during construction. • Fully comply with all provisions of the Fort Meade Pollution Prevention Plan. • Use the Fort Meade hazardous materials management plan in ordering and managing hazardous material on Fort Meade
Site Contamination and Cleanup	No adverse effects	None	• No significant adverse effects	• Implement Health and Safety Plans for construction activities in areas of known contamination and possible UXOs as appropriate.	• No significant adverse effects	• Implement Health and Safety Plans for construction activities in areas of known contamination.	
Special Hazards	No adverse effects	None	• No significant adverse effects	• None	• No significant adverse effects	• None	• Use the Fort Meade hazardous materials management plan in ordering and managing hazardous material on Fort Meade

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This section identifies local, state and federal agencies that will receive a copy of the EIS. In addition, a copy of the Draft EIS will be sent to persons who participated in the project scoping meeting, and others who formally requested to be added to the EIS mailing distribution list. Other agencies, groups and individuals were informed of availability through the public notice

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Media

The Baltimore Sun

The Annapolis Capital

The Laurel Leader

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9.0 ACRONYMS AND ABBREVIATIONS

AAFES	Army and Air Force Exchange Service
ABSRTV	Army Broadcasting Service, Soldiers Radio, and TV
ACHP	Advisory Council on Historic Preservation
ACP	Access Control Point
AFIS	American Forces Information Service
AFNS	Army/Air Force Hometown News Service
AIRFA	American Indian Religious Freedom Act
APAC	Army Public Affairs Center
AQI	Air Quality Index
AR	Army Regulation
ARPA	Archaeological Resource Protection Act
AT/FP	Anti Terrorism/Force Protection
AZ	Arizona
BAMF	Biomass and Alternative Methane Fuels
BCE	Before the Common Era
BG&E	Baltimore Gas and Electric
BMPs	Best Management Practices
BRAC	Base Closure and Realignment
BW Parkway	Baltimore-Washington Parkway
BWI	Baltimore-Washington Thurgood Marshall International Airport
C4ISR	Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance
CA	California
CAA	Clean Air Act
CAAA	Clean Air Act Amendment
CAV	Cavalry
CCF	Central personnel Security Clearance Facility
CEMP	Comprehensive Expansion Master Plan
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulation
CO	carbon monoxide
COL	Colonel
COMAR	Code of Maryland Regulations
CRMP	Cultural Resources Management Plan
CWA	Clean Water Act
CZM	Coastal Zone Management
D&A	Development and Acquisition
DA	Department of the Army
dBA	decibels on an A-weighted scale
DC	District of Columbia

DD	Department of Defense (forms only)
DEIS	Draft Environmental Impact Statement
DINFOS	Defense Information School
DISA	Defense Information Systems Agency
DJC2	Deployable Joint Command and Control
DoD	Department of Defense
DOIM	Directorate of Information Management
DOPAA	Description of Proposed Action Alternatives
DRMO	Defense Reutilization and Marketing Office
DSS	Defense Security Service
EA	Environmental Assessment
EIFS	Economic Impact Forecast System
EIS	Environmental Impact Statement
EO	Executive Order
EPA	Environmental Protection Agency
ESA	Endangered Species Act
ESRI	Environmental Systems Research Institute
ETV	Educational TV
EUL	Enhanced Use Lease
FCA	Forest Conservation Act
FCP	Forest Conservation Plan
FEIS	Final Environmental Impact Statement
FGGM	Fort George G. Meade
FIDS	forest interior dwelling species
FL	Florida
FNSI	Finding of No Significant Impact
FSP	Facility Safety Plan
ft	foot/feet
FWPCA	Federal Water Pollution Control Act
FY	fiscal year
GCCS	Global Command and Control System
GIG-BE	Global Information Grid – Bandwidth Expansion
GIS	Geographic Information Systems
GPCD	Gallons per capita per day
gpm	gallons per minute
HHRA	Human Health Risk Assessment
HMMO	Hazardous Material Management Office
hp	horse power
HQ	Headquarters
HUC	Hydrologic Unit Codes
HVAC	Heating, ventilating and air-conditioning
ICP	Integrated Contingency Plan
ICRMP	Integrated Cultural Resource Management Plan
IDG	Installation Design Guide
IGPBS	Integrated Global Presence and Basing Strategy
INRMP	Integrated Natural Resource Management Plan
INSCOM	Intelligence and Security Command

IRA	Interim removal action
IRP	Installation Restoration Program
ISDN	Integrated Services Digital Network
ITE	Institute of Transportation Engineers
JNMS	Joint Network Management System
JNMSPO	Joint Network Management System Program Office
JTF-GNO	Joint Task Force-Global Network Operations
JTRS	Joint Tactical Radio System
kV	kilovolt
kW	kilowatt
kWh	kilowatt hours
LA	Louisiana
LEPC	Local Emergency Planning Committee
LOS	Levels of Service
MA	Massachusetts
MAH	Major Administration and Headquarters
MARC	Maryland Commuter Rail
MCL	Maximum Contaminant Level
MD	Maryland
MDE	Maryland Department of the Environment
MDNR	Maryland Department of Natural Resources
mg/kg	milligrams per kilogram
Mg/l	milligram/liter
MGD	Million gallons per day
MILCON	Military Construction
MILDEP	Military Department
MMBtu	Million British Thermal Unit
M-NCCP	Maryland-National Capital Park and Planning
MTA	Maryland Transit Administration
MSL	Mean Sea Level
NAAQS	National Ambient Air Quality Standards
NAGPRA	Native American Graves Protection and Repatriation Act
NCES	Network Centric Enterprise Services
NCR	National Capital Region
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NMC	Naval Media Center
NO ₂	nitrogen dioxide
NOA	Notice of Availability
NOI	Notice of Intent
NO _x	nitrogen oxides
NPDES	National Pollution Discharge Elimination System
NPL	National Priorities List
NRC	Nuclear Regulatory Commission
NRHP	National Register of Historic Places
NSA	National Security Agency

NSABB	National Science Advisory Board for Biosecurity
NSR	New Source Review
O ₃	ozone
OH	Ohio
OSHA	Occupational Safety and Health Administration
PAH	polycyclic aromatic hydrocarbons
Pb	lead
PBC	Performance Based Contract
PCB	Polychlorinated Biphenyl
PCE	perchloroethylene
PCPI	per capita personal income
PDEIS	Preliminary Draft EIS
PFC	Private First Class
PIP	Public Involvement Plan
PL	Public Law
PM ₁₀	particulate matter with a diameter less than or equal to a nominal 10 micrometers
PM _{2.5}	particulate matter with a diameter less than or equal to a nominal 2.5 micrometers
PMO	Provost Marshal Office
POL	Petroleum Oils and Lubricants
PPE	Personal Protective Equipment
ppm	parts per million
PSD	Prevention of Significant Deterioration
psig	Pounds per square inch
PX	Post Exchange
RBC	risk-based concentration
RCRA	Resource Conservation and Recovery Act
RDT&E	Research, Development, Test, and Evaluation
RI	Remedial Investigation
RIP	Remedy in Place
ROD	Record of Decision
ROI	Region of Influence
RPMP	Real Property Master Plan
SAP	satellite accumulation point
SCF	standard cubic foot
SDWA	Safe Drinking Water Act
SF	square foot/feet
SHA	State Highway Administration
SHPO	State Historic Preservation Office
SIP	State Implementation Plan
SM	Soldiers' Magazine
SO ₂	sulfur dioxide
SOP	Standard Operating Procedure
Sq ft	Square Feet
SVOC	semivolatile organic compound
SWMU	Solid Waste Management Unit
T&E	threatened & endangered

TBD	To be determined
TCE	trichloroethylene
TMDL	Total Maximum Daily Load
tpd	tons per day
tpy	tons per year
TSCA	Toxic Substances Control Act
TV	Television
TX	Texas
UFC	Unified Facilities Criteria
UPH	Unaccompanied Personnel Housing
USACE	U.S. Army Corps of Engineers
USACHPPM	U.S. Army Center for Health Promotion and Preventive Medicine
USAEC	United States Army Environmental Center
USAG	U.S. Army Garrison
USC	U.S. Code
USDA	U.S. Department of Agriculture
USEPA	U.S. Environmental Protection Agency
USF	Usable Square Feet
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
UST	underground storage tank
VA	Virginia
VOC	volatile organic compound
WMATA	Washington Metropolitan Area Transportation Authority
WTP	Water Treatment Plant
WWII	World War II
WWTP	Waste Water Treatment Plant

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APPENDIX A

NOTICE OF INTENT TO PREPARE AN EIS

and

SCOPING MEETING COMMENTS

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Notice of Intent to Prepare an EIS

ROUTINE USES OF RECORDS MAINTAINED IN THE SYSTEM, INCLUDING CATEGORIES OF USERS AND THE PURPOSES OF SUCH USES:

In addition to those disclosures generally permitted under 5 U.S.C. 552a(b) of the Privacy Act, these records or information contained therein may specifically be disclosed outside the DoD as a routine use pursuant to 5 U.S.C. 552a(b)(3) as follows: The 'Blanket Routine Uses' published at the beginning of the Air Force's compilation of record system notices apply to this system.

POLICIES AND PRACTICES FOR STORING, RETRIEVING, ACCESSING, RETAINING, AND DISPOSING OF RECORDS IN THE SYSTEM:**STORAGE:**

Maintained in file folders, note books/ binders, in computers and on computer output products.

RETRIEVABILITY:

Retrieved by name, Social Security Number and detachment number.

SAFEGUARDS:

Records are accessed by person(s) responsible for servicing the record system in performance of their official duties and by authorized personnel who are properly screened and cleared for need-to-know. records are stored in locked rooms and cabinets. Those in computer storage devices are protected by computer system software.

RETENTION AND DISPOSAL:

Records at unit of assignment are destroyed one year after acceptance of commission or one year after disenrollment. Records at HQ AFROTC for disenrolled cadets are destroyed after three years. Computer records are destroyed when no longer needed. Records are destroyed by tearing into pieces, shredding, pulping, macerating or burning. Computer records are destroyed by erasing, deleting or overwriting.

SYSTEM MANAGER(S) AND ADDRESS:

Director of Senior Program, Air Force Reserve Officer Training Corps, 551 East Maxwell Boulevard, Maxwell Air Force Base, AL 36112-6110, and Commander of appropriate AFROTC detachment.

Official mailing addresses are published as an appendix to the Air Force's compilation of systems of records notices.

NOTIFICATION PROCEDURE:

Individuals seeking to determine whether this system of records contains information on them should address inquiries to the AFROTC Detachment Commander at location of assignment. Official mailing addresses are published

as an appendix to the Air Force's compilation of system of records notices.

Request for information involving an investigation for disenrollment should be addressed to Commander, Air Force Reserve Officer Training Corps, 551 East Maxwell Boulevard, Maxwell Air Force Base, AL 36112-6110. Requests should include full name and SSN.

RECORD ACCESS PROCEDURES:

Individuals seeking to access records about themselves contained in this system should address requests to the AFROTC Detachment Commander at location of assignment. Official mailing addresses are published as an appendix to the Air Force's compilation of systems of records notices.

Request for information involving an investigation for disenrollment should be addressed to Commander, Air Force Reserve Officer Training Corps, 551 East Maxwell Boulevard, Maxwell Air Force Base, AL 36112-6110. Requests should include full name and SSN.

CONTESTING RECORD PROCEDURES:

The Air Force rules for accessing records, and for contesting contents and appealing initial agency determinations are published in Air Force Instruction 33-332; 32 CFR part 806b; or may be obtained from the system manager.

RECORD SOURCE CATEGORIES:

Sources of records in the system are educational institutions, secondary and higher learning; government agencies; civilian authorities; financial institutions; previous employer; individual recommendations, interviewing officers; and civilian medical authorities.

EXEMPTIONS CLAIMED FOR THE SYSTEM:

Portions of this system may be exempt under the provisions of 5 U.S.C. 552a(k)(5), as applicable, but only to the extent that disclosure would reveal the identity of a confidential source.

Parts of this system may be exempt pursuant to 5 U.S.C. 552a(k)(5), but only to the extent that disclosure would reveal the identity of a confidential source.

[FR Doc. 05-23131 Filed 11-22-05; 8:45 am]

BILLING CODE 5001-06-M

DEPARTMENT OF DEFENSE**Department of the Army****Intent To Prepare Environmental Impact Statements for Realignment Actions Resulting From the 2005 Base Closure and Realignment Commission's Recommendations**

AGENCY: Department of the Army, DoD.
ACTION: Notice of intent.

SUMMARY: The Defense Base Closure and Realignment (BRAC) Commissions were established by Public Law 101-510, the Defense Base Closure and Realignment Act of 1990 (BRAC Law), to recommend military installations for realignment and closure. The 2005 Commission's recommendations were included in a report which was presented to the President on September 8, 2005. The President approved and forwarded this report to Congress on September 16, 2005. Since a joint resolution to disapprove these recommendations did not occur within the statutorily provided time period, these recommendations have become law and must be implemented in accordance with the requirements of the BRAC Law.

The BRAC Law exempts the decision-making process of the Commission from the provisions of the National Environmental Policy Act of 1969 (NEPA). The Law also relieves the Department of Defense from the NEPA requirement to consider the need for closing, realigning, or transferring functions and from looking at alternative installations to close or realign. Nonetheless, the Department of the Army must still prepare environmental impact analyses during the process of property disposal, and 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. These analyses will include consideration of the direct and indirect environmental and socioeconomic effects of these actions and the cumulative impacts of other reasonably foreseeable actions affecting the installations.

The Department of the Army intends to prepare individual Environmental Impact Statements (EIS) pursuant to section 102(2)(C) of NEPA, regulations of the Council on Environmental Quality (40 CFR 1500-1508), and the Army NEPA regulation (32 CFR 651 *et seq.*) for each of the actions listed below.

Opportunities for public participation will be announced in the respective local newspapers. The public will be

invited to participate in scoping activities for each EIS and comments from the public will be considered before any action is taken to implement these actions.

Environmental Impact Statements are planned for each of the following realignment actions:

a. Fort Meade, Maryland. The BRAC realignment action will co-locate and consolidate Department of Defense information and information technology missions at Fort Meade.

(1) EIS alternatives could include evaluating siting locations for structures and related projects within Fort Meade that involve new building construction only or new building construction combined with renovation of existing facilities. The alternatives would evaluate areas to provide for construction of, but not be limited to, six to eight 4-story administration buildings, a full day care child development center, a standard-design Whole Barracks Complex, and a physical fitness center.

(2) The proposed BRAC action may have significant environmental impacts due to the infrastructure and facilities construction that will be required to accommodate an estimated increase of over 5,500 personnel. Significant issues to be analyzed in the EIS may include potential impacts to air quality from increased vehicle emissions, installation and regional traffic increases, land use changes, natural resources, water use, solid waste, cultural resources, and cumulative impacts from increased burdens to the facility based on projected growth.

b. Aberdeen Proving Ground (APG), Maryland. APG will be receiving numerous Army, Navy and Air Force activities to transform it into a full spectrum research, development, acquisition center for Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR) Defense Chemical and Biological Systems. The Army Test and Evaluation Command Headquarters and Civilian Personnel Offices will also be consolidated at APG.

(1) Alternatives to be examined in the EIS could include alternative distribution of new activities between APG and the Edgewood Area for military field training exercises; alternative siting schemes for placement of buildings and related infrastructure to accommodate an increase of about 15,000 Army personnel within the APG and Edgewood Area. These may include siting schemes for new building construction only, or new building

construction combined with renovation of existing facilities.

(2) The proposed BRAC action may have significant environmental impacts due to the large amount of infrastructure and facilities construction that will be required to accommodate an increase of personnel and military training operations. Significant issues to be analyzed in the EIS will include on-post and local air quality conditions, on-post and regional traffic conditions, housing, socioeconomic, noise due to increased vehicle use, threatened and endangered species to include bald eagle habitat, historic buildings and archeological resources, wetlands, biological resources, land use, and community facilities and services.

c. Fort Belvoir, Virginia. Fort Belvoir will be receiving numerous Department of Defense activities from leased space within the National Capital Region (NCR); National Geospatial Intelligence Agency units from various NCR leased locations and Bethesda, Maryland; primary and secondary medical care functions from Walter Reed Medical Center to a new, expanded DeWitt Army Hospital; and inventory control point functions for consumable items to the Defense Logistics Agency from the Naval Support Activist, Mechanisburg and Wright-Patterson Air Force Base, Ohio.

(1) EIS alternatives may consist of moving all activities to the Fort Belvoir Main Post, moving all activities to the Engineer Proving Ground (EPG), or moving a portion of the activities to the Main Post and a portion to the EPG. Other alternatives could include alternative land locations for specific projects within Fort Belvoir, within the EPG, or a combination of both; new construction only; new construction combined with renovation of existing facilities; alternative facility siting schemes, or other modifications of specific projects.

(2) The proposed BRAC action may have significant environmental impacts due to the large amount of infrastructure and facilities construction that will be required to accommodate an estimated increase of over 18,000 personnel. Significant issues to be analyzed in the EIS will include potential impacts to air quality condition in the Northern Virginia region, transportation systems in the Northern Virginia region, traffic conditions with Fort Belvoir, threatened and endangered species, historic buildings and archeological resources, wetlands, biological resources, land use, and community facilities and services.

d. Fort Lee, Virginia. Fort Lee will receive the Transportation Center and School from Fort Eustis, Virginia, and

the Ordnance Center and School from Aberdeen Proving Ground, Maryland. These functions will be consolidated with the Quartermaster Center and School, the Army Logistics Management College, and Combined Arms Support Command to establish a Combat Service Support Center at Fort Lee.

(1) Alternatives to be examined in the EIS may include the usage of only Fort Lee for field training exercises, the usage of other military installations (Fort A.P. Hill) for field training exercises, or a combination of both; alternative land locations for specific projects with Fort Lee and Fort A.P. Hill; new construction only; new construction combined with renovation of existing facilities; alternative facility siting schemes, or other modifications of specific projects.

(2) The proposed BRAC action may have significant environmental impacts due to the large amount of infrastructure and facilities construction that will be required to accommodate an estimated increase of over 7,000 personnel. Significant issues to be analyzed in the EIS will include air quality conditions, traffic conditions, noise due to increased training activities, threatened and endangered species, historic buildings and archeological resources, wetlands, biological resources, land use, and community facilities and services.

e. Fort Benning, Georgia. Fort Benning will receive the Armor Center and School from Fort Knox, Kentucky; 81st Regional Readiness Center from Fort Gillem, Georgia; and the U.S. Army Reserve Center from Columbus, Georgia.

(1) Alternatives to be examined by the EIS may consist of alternative siting locations with Fort Benning for facility construction projects, new construction only, renovation and use of existing facilities, or a combination of both new construction and use of existing facilities, and usage of alternatives land locations within Fort Benning for training activities.

(2) As a result of new construction and training activities associated with moving nearly 10,000 personnel to Fort Benning, the BRAC action has the potential to cause significant environmental impacts to threatened and endangered species such as the red-cockaded woodpecker, archeological sites, wetlands, soil erosion, and increased noise impacts to the surrounding public.

f. Fort Sam Houston, Texas. Navy and Air Force medical training activities from various locations within the U.S. and the 59th Medical Wing from Lackland Air Force Base, Texas, will move to Fort Sam Houston to form a Department of Defense medical training

center. The Army Installation Management Agency (IMA) Headquarters from Virginia, the Northwest IMA Regional office from Illinois, and the Army Environmental Center from Maryland will also move to Fort Sam Houston.

(1) Alternatives to be examined in the EIS could consist of alternative locations within Fort Sam Houston for siting facility construction, new construction only, renovation and use of existing facilities (to include historic buildings), or a combination of both new construction and use of existing facilities, and usage of alternative locations within Camp Bullis, a sub-post of Fort Sam Houston, for training activities.

(2) As a result of moving approximately 9,000 new personnel to Fort Sam Houston and associated new construction, renovation and training activities, implementing the proposed BRAC action could have potential significant impacts to traffic on and off post, air quality and historic properties, to include contributing elements of the Fort Sam Houston National Historic Landmark District.

g. Fort Carson, Colorado. Fort Carson will receive a Heavy Brigade Combat team and a Unit of Employment Headquarters from Fort Hood, Texas, and the inpatient care services from the U.S. Air Force Academy, Colorado. Another Infantry Brigade Combat Team from overseas could also be transferred to Fort Carson as a result of the BRAC recommendation.

(1) Alternatives that may be considered in the Fort Carson EIS could include phasing movement of units to the fort, alternative siting locations within the post of placement of new facilities, construction of only new facilities, utilization and renovation of existing facilities, a combination of new construction and utilization of existing facilities, and utilization of alternative locations within Fort Carson for training activities.

(2) Fort Carson will gain approximately 10,000 Army personnel as a result of the BRAC action. Construction of new facilities, renovation of existing infrastructure and additional training activities could have significant environmental impacts on Fort Carson and its environs. Impacts could concur to local air and water quality, archaeological resources, noise and traffic.

h. Pinion Canyon Maneuver Site, Colorado. Pinion Canyon Maneuver Site (PCMS) is a subpost of Fort Carson and a primary training area for units stationed at Fort Carson and other Army posts. The new combat units stationed

at Fort Carson will increase the training tempo at the PCMS.

(1) The EIS to be prepared for the PCMS will examine a number of implementation alternatives that could include alternative placement of new construction projects, alternative locations within the PCMS for training activities, and alternative timing for units to conduct training activities at the PCMS.

(2) The Fort Carson BRAC action has the potential to significantly impact natural resources at the PCMS since the approximately 10,000 new personnel to be stationed there will now be training at the PCMS on a regular basis. New construction and increased training activities at the PCMS could have an impact on archaeological resources, natural resources, air and water quality, and soil erosion.

FOR FURTHER INFORMATION CONTACT: Public Affairs Office of the affected installations or the appropriate higher headquarters as indicated: (1) Fort Meade, MD—(301) 677-1301; (2) Aberdeen Proving Ground, MD—(410) 278-1147; (3) Fort Belvoir, VA—(703) 805-2583; (4) Fort Lee, VA—(804) 734-6862; (5) Fort Benning, GA—(706) 545-3438; (6) Fort Sam Houston, TX—(210) 221-1099; (7) Fort Carson and Pinion Canyon Maneuver Site, CO—(910) 396-2122/5600.

Dated: November 18, 2005.
Addison D. Davis IV,
Deputy Assistant Secretary of the Army
(Environment, Safety and Occupational
Health), OASA(I&E).
[FR Doc. 05-23162 Filed 11-22-05; 8:45 am]
BILLING CODE 3710-08-M

DEPARTMENT OF DEFENSE

Defense Logistics Agency

Privacy Act of 1974; Systems of Records

AGENCY: Defense Logistics Agency.
ACTION: Notice to add a system of records.

SUMMARY: The Defense Logistics Agency proposes to add a system of records notice to its inventory of record systems subject to the Privacy Act of 1974 (5 U.S.C. 552a), as amended.

DATES: This action will be effective without further notice on December 23, 2005 unless comments are received that would result in a contrary determination.

ADDRESSES: Send comments to the Privacy Act Officer, Headquarters, Defense Logistics Agency, ATTN: DP,

8725 John J. Kingman Road, Stop 2533, Fort Belvoir, VA 22060-6221.

FOR FURTHER INFORMATION CONTACT: Ms. Susan Salus at (703) 767-6183.

SUPPLEMENTARY INFORMATION: The Defense Logistics Agency notices for systems of records subject to the Privacy Act of 1974 (5 U.S.C. 552a), as amended, have been published in the Federal Register and are available from the address above.

The proposed system report, as required by 5 U.S.C. 552a(f) of the Privacy Act of 1974, as amended, was submitted on October 5, 2005, to the House Committee on Government Reform, the Senate Committee on Homeland Security and Governmental Affairs, and the Office of Management and Budget (OMB) pursuant to paragraph 4c of Appendix I to OMB Circular No. A-130, 'Federal Agency Responsibilities for Maintaining Records About Individuals,' dated February 8, 1996 (February 20, 1996, 61 FR 6427).

Dated: November 17, 2005.
L.M. Bynurn,
OSD Federal Register Liaison Officer,
Department of Defense.

SYSTEM NAME:

Information Technology Access and Control Records.

SYSTEM LOCATION:

Director, Information Operations, Headquarters Defense Logistics Agency, ATTN: J-6, 8725 John J. Kingman Road, Stop 6226, Fort Belvoir, VA 22060-6221, and the Defense Logistics Agency field activities. Official mailing addresses are published as an appendix to DLA's compilation of systems of records notices.

CATEGORIES OF INDIVIDUALS COVERED BY THE SYSTEM:

Defense Logistics Agency (DLA) civilian and military personnel, contractor employees, and individuals requiring access to DLA-controlled networks, computer systems, and databases.

CATEGORIES OF RECORDS IN THE SYSTEM:

System contains documents relating to requests for and grants of access to DLA computer networks, systems, or databases. The records contain the individual's name; social security number; citizenship; physical and electronic addresses; work telephone numbers; office symbol; contractor/employee status; computer logon addresses, passwords, and user identification codes; type of access/permissions required; verification of need to know; dates of mandatory

Scoping Meeting Comments

Memo

To: Community Relations/EIS
From: West Anne Arundel County Chamber of Commerce
CC:
Date: 8/31/2007
Re: Fort George G. Meade/BRAC EIS

The West County Chamber of Commerce (WAACCC) gathered input from the local business community. This information received is outlined below. Please feel free to contact us if you need further clarification. We also would be happy to work with you in order to continue to reach out to the business community that surrounds Ft. Meade.

Best,

Bridget Boardman

Executive Director, WAACCC

410-672-3422

Are there any additional issues that you think we should consider in developing the EIS for the BRAC and EUL?

Although the list of issues that could potentially be impacted is comprehensive, more specific topics should be considered in-depth. Top issues that will be of concern: transportation (both infrastructure of roadways and public transit); competitive impact on area businesses, especially in the tertiary services sector; controlling traffic flow in an area with close proximity to public schools and residential housing; and environmental impact of golf course construction and construction in general.

Alternatives you think would meet the purpose, need and objectives of the BRAC and EUL actions?

It was suggested that there be a nominal charge of \$.10 or \$.20 per square foot (to be included in the common area maintenance fees) which could support a shuttle or bus transit system to move employees to and from the MARC

Train, alternative parking areas, and retail/restaurant services such as the Odenton Town Center. Not only would this reduce the daily volume of traffic, but it would also assist employees who rely on public transit to get to work.

We encourage the conscientious efforts of developers, when planning the new golf courses, to be innovative and strive for limited impact on the environment. The area proposed for these golf courses is in close proximity to the Patuxent Research Refuge and we encourage communication with them when studying potential impact.

Comments regarding the scope of the EIS for BRAC and EUL actions:

It is strongly suggested that any EUL development proposal accepted does NOT use the term Town Center in their plans. Odenton has had a Town Center in the works for decades and even casual use of the term for the EUL development could jeopardize years of planning in the community.

Water quality and accessibility is also a concern. As it is, some businesses along MD 175, near the proposed EUL areas, do not have access to public water. Upgrades requests have not been addressed. These business owners are very concerned how the proposed EUL development will be able to be serviced when they are currently not.

There is interest in having a resource or business center with public (non-DoD) access in order to facilitate government contractors and similar vendors.

Thank you for the opportunity to provide input. Not all of these concerns may be applicable; however we appreciate the chance to be involved in a discussion about the changes slated for this community.

Submitted by:

**West Anne Arundel County Chamber of Commerce
8379 Piney Orchard Parkway, Ste. E
Odenton, MD 21113
info@waaccc.org**

Pre-Scoping Meeting – Fort Meade 9/7/06

Senator Grange in attendance.

Senator Grange - Representing the post and the surrounding area

1. Senator stated, it is important that you look at the least amount of impact on natural resources, included wooded sites. Mick explained what amount of wooded area would you need? Sen.
2. Senator asked who would determine the buffer? Mick replied NEPA process will determine the entire dynamic that will be looked at.
3. Senator asked if that would be open to community input. Mick explained that NEPA would set out alternatives and impacts to the public and that they would be able to be read publicly and commented on. Mitigation will occur after the public comments are given. NEPA process was explained in greater detail (number of days for comment periods) to the Senator.
4. Senator expressed concern about size of structure with parking, etc. EUL issue is discussed in terms of commercial versus private use and the fact that Fort Meade has the right of refusal to a business that wants to move in.
5. Senator - Tenants will build the site for Base operation. What will be the cost to use the golf course? Will it be inexpensive to play? The cost needs to be comparable to the current price. Response - Developer may choose to build it and operate it for five years. The business plan, would include the proposed cost and would be agreed upon before construction. The developer will only get Sites Y and Z and will not own the golf course. Golf course development will affect more than just daily traffic, could involve dump trucks hauling in dirt, just another aspect that needs to be looked at and modeled (Kirk).
6. One of the main issues of concern is maintaining appropriate buffer zones.
7. Another main issue is the need to notify the community. Find the name of the local housing developments and determine if they have a community management/group to personally notify.

Public Affair office made a video recording of this meeting.

POC: Harry W. Lockley

Producer, Meade TV

Fort Meade public Affairs office

4550 Parade Field Lane, Room 102

301-677-1109

Harry.lockley@us.army.mil

Comments from Public Scoping Meeting (Flip Chart)

September 7, 2006

1. Worried about roads that already are over packed.
2. Commuters vs. new homes (Transportation and Development)
3. Environmental concerns regarding schools and air quality regarding cars.
4. Affect and wildlife, trees, natural resources
5. Where would the new employees live?
6. Reece road should become 4-6 lane road.
7. New employees- how will this impact school planning and distribution of students?
8. Golf course- leaching off base and methane
9. Site Y – Lead (trap and skeet range)
10. Traffic through Seven Oaks, on Jacobs Road, Reece Road- Traffic flow-residents
 - Ozone – emissions
 - Town center completion/alternate routes
 - Appropriate stop lights – schools (speeding)

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APPENDIX B

AIR QUALITY APPLICABILITY ANALYSIS

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GENERAL CONFORMITY – RECORD OF NON-APPLICABILITY

Project/Action

Name: Implementation of BRAC 05 Realignment in Fort Meade, MD

Project/Action

Point of Contact: Michael P. Butler
Chief, Environmental Division
Directorate of Public Works
Telephone: 301-677-9188

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. Anne Arundel County is designated as moderate ozone non-attainment area and particulate matter (2.5 microns) thus the VOC, NO_x, and PM_{2.5}, and SO₂ thresholds apply.

A General Conformity Analysis of this project/action is not required because:

The maximum annual direct and indirect emissions from the BRAC-Directed project/action have been estimated at:

NO_x: 26.58 tons; VOC: 5.41 tons; PM_{2.5}: 17.41; SO₂: 3.716

Annual direct and indirect emissions from the BRAC-Directed and EUL project/action have been estimated at:

NO_x: 47.06 tons; VOC: 9.62 tons; PM_{2.5}: 31.18; SO₂: 6.56

and are below the *de minimus* levels established in 40 CFR 93.153 (b) of:

NO_x: 100 tons; VOC: 50 tons; PM_{2.5}: 100 tons; SO₂: 100 tons

Furthermore, the project/action is not considered regionally significant under 40 CFR 93.153 (i).

Anne Arundel County is 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 4.4 and Appendix B of the Fort Meade Environmental Impact Statement for Implementation of BRAC 2005 and EUL Actions at Fort George G. Meade, Maryland.

A handwritten signature in black ink that reads "Michael P. Butler". The signature is written in a cursive style and is underlined.

Michael P. Butler
Chief, DPW Environmental Division
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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 buildings for the realignment of Fort Meade in Maryland. 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).

1.0 PROJECT DESCRIPTION

The following describes the BRAC and EUL-related projects assessed in this EIS.

DISA Administration Buildings

Fort Meade would construct four four-story administration buildings to support the DISA, Joint Tactical Radio System Program Office (JTRS), the Deployable Joint Command and Control Program office (DJC2), and the Joint Network Management System Program (JNMS) Office. The proposed new facilities would include office space, administrative support space, and storage space (including general purpose and controlled humidity warehouse space). The facilities would include a general administrative facility (460,300 square feet), a special compartmented information facility (410,300 square feet), a Research, Development, Test, and Evaluation (RDT&E) laboratory (120,000 square feet), a general purpose storage facility (30,000 square feet), and a Joint Network Management System Program Office (JNMSPO) (400 square feet), for a total of 1,021,000 square feet. The preferred location for the administration buildings is Site F, just west of Cooper Avenue, within a portion of the existing golf course. Supporting facilities include utilities, electric service, security lights, fire protection and alarm systems, paving, walks, curbs and gutters, storm drainage, communications systems, intrusion detection system, energy management and control system, signage, and site improvement.

Media Administration Buildings

Fort Meade would construct two four-story administrative buildings to support the Army Broadcasting Service, Soldiers Radio and TV (ABSRTV), (SM), Air Force News Agency-Army/Air Force Hometown News Service (AFNS), and the Naval Media Center (NMC), Anacostia Annex. The new facilities would consist of office space, administrative support space, and storage space (including general purpose and controlled humidity warehouse space). The proposed facilities include a general administrative facility (172,292 square feet), an Army Public Affairs Center (APAC) administrative facility (10,000 square feet), a controlled humidity warehouse (9,050 square feet), a computer center (4,070 square feet), a televideo center (21,565 square feet), and a photo lab (2,522 square feet), for a total of 219,499 square feet. The preferred location for the administration buildings is Site G, just north of Mapes Road, within a portion of the existing golf course. Supporting facilities would include utilities, electric service, security lights, fire protection and alarm systems, paving, walks, curbs and gutters, storm drainage, communications systems, intrusion detection system, energy management and control system, signage, and site improvement.

Adjudication Administration Buildings

Fort Meade would construct two four-story administrative buildings to support the Military Department (MILDEP) and Department of Defense (DoD) security clearance adjudication and appeals activity. The new facilities would consist of office space, administrative support space, and storage space (including general purpose and controlled humidity warehouse space). The facilities would include a main general administrative facility (181,639 square feet) and a special compartmented information facility (14,410 square feet), plus an Army Central Personnel Security Clearance Facility (CCF) (41,000 square feet), an information processing center (750 square feet), and a courtroom (14,450 square feet), for a total of 252,249 square feet. The preferred location for the buildings is Site X, just north of Llewellyn Avenue and west of MD Route 175. Supporting facilities include utilities, electric service, security lights, fire protection and alarm systems, paving, walks, curbs and gutters, storm drainage, communications systems, intrusion detection system, energy management and control system, signage, and site improvement. A few buildings would need to be demolished under this project; all of these are on the existing demolition list.

Centralized Support Facilities

Centralized PX

A centralized Post Exchange (PX) would be constructed to consolidate PX functions and would be designed to accommodate expected soldier population increases due to BRAC 05 mission gains. This facility is proposed for Site M, just north of Mapes Road and within a portion of the existing golf course. The PX would be located in the same site location as the proposed centralized Physical Fitness Center and Child Development Center. The centralized PX facility would contain 32,362 square feet.

Centralized Physical Fitness Center

A new Physical Fitness Center would be constructed to provide physical fitness facilities for the military and authorized civilians for Fort Meade. The facility would be located adjacent to the proposed PX on Site M. The new center would be designed to accommodate the increase of 5,695 incoming personnel associated with the BRAC 05 mission gains. It would contain 44,347 square feet. Supporting facilities would include intrusion detection system, energy monitoring and control systems, utilities, electric service, exterior lighting, fire protection and alarm systems, paving, walks, curbs and gutters, parking, sedimentation and erosion control, storm drainage, storm water management structure, picnic area and bicycle racks, dumpster pads and enclosures, information systems, bus stop, and site improvements.

Centralized Whole Barracks Complex (Unaccompanied Personnel Housing or UPH)

A standard-design barracks complex is proposed to provide housing for permanent parties of various military service activities stationed at Fort Meade, including the military personnel arriving at Fort Meade due to the addition of the new organizations under BRAC 05 realignment actions. The complex would consist of a barracks and a soldier community building that meet current Army standards of adequacy. Barracks would include living/sleeping rooms, semi-private baths, closets, storage, laundry facilities, and service areas. The soldier community building would include office space, kitchen area, day room, and television room. The preferred location for the barracks complex is Site M, within a portion of the existing golf course. The buildings would contain 110,624 square feet. The facility would provide 288 room spaces, and serve 700 incoming active duty military personnel. Supporting infrastructure would include an intrusion detection system, energy monitoring and control systems, utilities, electric service, exterior lighting, fire protection and alarm systems, paving, walks, curbs and gutters, parking, sedimentation and erosion control, storm drainage, storm water management structure, picnic area and bicycle racks, dumpster pads and enclosures, information systems, and site improvements.

Vehicle Storage

Preliminary alternatives considered included construction of parking lots or garages immediately adjacent to the DISA, Media and Adjudication administrative buildings, on the separate site locations. The parking lots for each BRAC facility would be located to provide convenient access to the users of the individual facilities.

ENHANCED USE LEASE ACTIONS

Under Title 10 U.S.C., Section 2667, of the National Defense Authorization Act, DoD installations have the authority and incentive to obtain a broad range of financial and in-kind considerations for leasing opportunities. This EUL program is intended to maximize the utility and value of installation real property and provide additional tools for managing an installation's assets to achieve business efficiencies.

In addition to the BRAC realignments, Fort Meade proposes to use the Army’s EUL program to provide 3 parcels totaling approximately 540 acres located outside of the Fort Meade fence line. Two parcels, Sites Y (125 acres) and Z (48 acres), located along Reece Road and MD Route 175, would be leased to a private developer for 50 years. These parcels would be used for development of office and administrative buildings for an estimated 10,000 personnel. A third parcel, Site S (367 acres), located south of MD Route 32 near MD Route 175 would be reserved for in-kind development of two 18-hole golf courses to replace the existing golf facilities located on the interior of the installation.

1.1 Analysis Methodology

The two alternatives entail new construction in developed and undeveloped areas. There is demolition involved with Alternative B, the BRAC-Action Alternative. The No Action Alternative would maintain the status quo, and for conformity, was not evaluated.

BRAC construction for this project is assumed to occur over a three-year time period, beginning in 2008. Emissions have been estimated based on square footage for construction and operation and are based on an even distribution of total construction per year for this alternative. Any given year of construction is expected to be the same as any other year.

For analysis of the EUL projects, similar assumptions are used. The EUL construction is expected to begin in 2008 and continue for four years. For purposes of this analysis, an even distribution of construction is assumed. A construction timeline for both alternatives is shown in Figure B-1. Actual construction dates could vary from these dates; these assumptions were chosen to maximize the potential emissions in any given year. Should the construction be delayed, the combined emissions would be expected to be less.

Figure B-1 Construction Timeline – BRAC Realignment and EUL Action Alternative

Construction Action	Year and Quarter																											
	2008		2009				2010				2011				2012				2013				2014					
	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4		
BRAC	0.33		0.33				0.33																					
EUL Action	0.25		0.25				0.25				0.25																	
	= Full Operation																											

2.0 METEOROLOGY/CLIMATE

Temperature is a parameter used in calculations of emissions for air quality applicability. Temperature data from the Baltimore-Washington International Airport, approximately 8 miles north of Fort Meade represents the meteorological conditions for the study area. Fort Meade can be characterized as a humid, continental climate with a mean high temperature of 85 °F in July and a mean low temperature of 20 °F in January. Summers are warm with

periods of high humidity and winters are cold, with periods of snow cover. The average temperature is 54° F (World Climate, 2005).

3.0 CURRENT AMBIENT AIR QUALITY CONDITIONS

The U.S.EPA has classified the Baltimore, MD region, including the area of the proposed project (Anne Arundel County, Maryland), as in moderate non-attainment for the criteria pollutant ozone and non-attainment for the criteria pollutant particulate matter (2.5 microns).

4.0 AIR QUALITY REGULATORY REQUIREMENTS

4.1 General Conformity Applicability Analysis

The U.S.EPA defines ambient air in 40 CFR Part 50 as “that portion of the atmosphere, external to buildings, to which the general public has access.” In compliance with the 1970 Clean Air Act (CAA) and the 1977 and 1990 Clean Air Act Amendments (CAAA), the U.S.EPA has promulgated National Ambient Air Quality Standards (NAAQS). The NAAQS were enacted for the protection of the public health and welfare, allowing for an adequate margin of safety. To date, the U.S.EPA has issued NAAQS for 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 nominal 2.5 micrometers (PM_{2.5}), ozone (O₃), nitrogen dioxide (NO₂), and lead (Pb). Federal regulations designate Air-Quality Control Regions (AQCRs) in violation of the NAAQS as nonattainment areas. According to the severity of the pollution problem, nonattainment areas can be categorized as marginal, moderate, serious, severe, or extreme. The U.S.EPA has classified the Baltimore, MD area, which includes Anne Arundel County and Fort Meade, as in moderate nonattainment for the 8-hour ozone NAAQS and in nonattainment for particulate matter of 2.5 microns or smaller (PM_{2.5}). Fort Meade is also in the ozone transport region; it is in attainment for all other criteria pollutants.

In December 2006, a federal appellate court remanded the U.S.EPA’s 8-hour ozone standard. No final decision has been reached on the outcome for this decision.

The NAAQS for ozone and PM_{2.5} are in Table B-1.

Table B-1: National Ambient Air Quality Standards for Ozone and PM_{2.5}

Pollutant	Federal Standard	Maryland Standard
Ozone (O ₃)* 8-Hour Average	0.08 ppm	0.08 ppm
Particulate Matter (PM _{2.5})* 24-Hour Average Annual Geometric Mean	35 µg/m ³ 15 µg/ m ³	35 µg/ m ³ 15 µg/ m ³
* Federal primary and secondary standards for this pollutant are identical. (Sources: U.S.EPA, 2007; MDE, 2002)		

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 project area is located within a non-attainment area; therefore, a General Conformity Rule applicability analysis is warranted.

Section 93.153 of the Rule sets applicability requirements for projects subject to the Rule through establishment of *de minimis* levels for annual criteria pollutant emissions. These *de minimis* levels are set according to criteria pollutant non-attainment area designations. 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 operation phases of the action.

Fort Meade has completed a General Conformity Rule applicability analysis in order to analyze any impact to air quality. Emissions have been estimated for the ozone precursor pollutants NO_x and volatile organic compounds (VOC). Annual emissions for these compounds were estimated for each of the project actions (construction and operation) to determine if they would be below or above the *de minimis* levels established in the Rule. The *de minimis* for moderate ozone areas is 100 tons per year (TPY) for NO_x and 50 TPY for VOC. Sources of NO_x and VOC associated with the proposed project would include emissions from construction equipment, construction crew commuting vehicles, painting of interior building surfaces and parking spaces (VOC only), daily commuters, and stationary units (boilers and generators).

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

In addition to the evaluation of air emissions against *de minimis* levels, emissions are also evaluated for regional significance. A federal action that does not exceed the threshold emission rates of criteria pollutants may still be subject to a general conformity determination if the direct and indirect emissions from the action exceed 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.

5.0 CONFORMITY APPLICABILITY ANALYSIS

This project construction- and operations-related General Conformity analysis needs to be performed for the proposed construction at Fort Meade. 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).

For purposes of analysis of Alternative A, all EUL-related construction is assumed to occur over a four year period, beginning in mid-2008. All BRAC-related construction is expected to begin in mid-2008 and occur over a three year period, ending by mid-2011.

5.1 Construction Phase Emissions

Construction emissions would result from the operation of heavy equipment, delivery trucks, the commuter vehicle traffic from the construction crew, and the painting of the building structures and parking spaces. The project would utilize a mix of heavy equipment for construction, mainly associated with preparing the site for the buildings and utility relocation.

5.1.1 Emissions from Heavy Equipment

Annual emissions were calculated for various types of diesel construction vehicles using model emission rate input for the year 2008 in U.S.EPA's Nonroad2005 Emission Inventory Model: Diesel Construction Equipment, Anne Arundel County, Maryland. Truck emission levels were calculated using U.S.EPA's MOBILE6 model for conditions in July 2008. The total annual emissions in TPY were determined for each vehicle based on the number of vehicles used and the number of operating hours per year. As noted in Section 1.0, it was assumed that construction activities for the buildings and other project features associated with BRAC would require three years, beginning in 2008. For EUL actions, construction would require four years beginning in 2008. Construction personnel were assumed to commute an average of 40 miles per day over the construction period.

For both alternatives, it was assumed that:

- Delivery trucks would travel 20 miles per trip, making three trips a day, for a total of 60 miles a day.
- Pick-up trucks would also travel 20 miles per trip, making five trips a day, for a total of 100 miles a day.
- During trenching activities, dump trucks would accumulate a total of 85 miles/day and 34 miles/day during regular construction.
- Water tankers travel 20 miles per day of operation.

Emissions factors used for construction vehicles, under all alternatives, are shown in Table B-2.

Table B-2: Emissions Factors for Construction Vehicles

Construction Vehicle Type	Emissions Factors lbs/hr-vehicle			
	NO _x	VOC	Exhaust PM _{2.5}	Fugitive PM _{2.5}
Chipping Machine	1.169	0.119	0.091	0.165
Front End Loader	3.402	0.204	0.182	0.496
Chain Saws	0.208	0.029	0.018	0.037
Excavator	2.763	0.204	0.164	0.529
Dozer	2.714	0.199	0.158	0.496
Vibratory Roller	1.466	0.116	0.096	0.240
Grader	1.513	0.121	0.102	0.265
Asphalt Paver	1.284	0.100	0.085	0.215
Steel Wheel Roller	0.927	0.099	0.093	0.156
Pneumatic Tire Roller	0.927	0.099	0.093	0.156
Scraper	5.190	0.280	0.263	0.827
Concrete Pumper Truck	2.941	0.237	0.190	0.331
Concrete Truck	2.941	0.237	0.190	0.331
Crane	1.156	0.116	0.089	0.182
Backhoe	1.470	0.353	0.220	0.213
Water Tanker*	9.984	0.242	0.149	0.0132
Dump Truck*	9.984	0.242	0.149	0.0132
Pick-Up Truck*	1.22	1.304	0.0115	0.0114
Delivery Truck (Medium)*	1.069	0.306	0.0382	0.0056
Delivery Truck (Heavy)*	6.488	0.713	0.0485	0.003

* units are in grams/mile/vehicle

Calculations for Construction Emissions

Using the emissions factors in Table B-2, construction emissions were calculated for the proposed construction at Fort Meade. Using the assumptions described above, the emissions in tons of NO_x, VOC, PM_{2.5}, and SO₂ for construction equipment emissions were calculated for each vehicle type using the appropriate equations displayed in Table B-3.

Table B-3: Equations for Construction Emissions Calculations

Emission Source	Equation	Sample Calculation
Heavy Equipment Emissions, Hourly On-Site Activities	(# of vehicle type) (Emission factor) (Total # of days in operation) (hours/day) (1 ton/2000 lbs) = tons of air emissions	(1 grader) (1.513 lbs/hr/vehicle) (66 days in operation) (8 hours/day) (1 ton/2000 lbs) = 0.402 tons of NO_x of equipment emissions
Construction Truck Emissions with Vehicle-miles	(# vehicle type) (Emission factor) (Total # of days in operation) (miles/day)(1 ton/2000 lbs) = tons of air emissions	(1 dump truck) (9.984 grams/mile/vehicle) (846 days)(34 miles/day)(1 lb/453.59 grams) (1 ton/2000 lb) = 0.324 tons NO_x of vehicle emissions
Construction Crew, Commuting	(# of vehicles) (#miles/day) (#days) (emissions factor grams/mile) (1 lb/453.59 grams) (1 ton/2000 lb) = tons of vehicle emissions	(100 vehicles) (40 miles/day) (240 days) (0.582 grams/mile/vehicle) (1 lb/453.59 grams) (1 ton/2000 lb) = 0.62 tons NO_x of vehicle emissions

Surface Disturbance (Fugitive PM_{2.5})

The quantity of dust emissions of PM_{2.5} from construction operations is assumed proportional to the days of construction activity on unpaved surfaces. The following sources for emission factors, with a capture fraction of 50% and silt and moisture contents of 20%, were used in PM_{2.5} emission calculations for fugitive emissions (AP-42 Section 13.2; U.S.EPA 2006).

- The unpaved road equation 13.2.2.1 equation 1a (AP-42 Chapter 13.2.2) is used to estimate fugitive emissions for the concrete pumper truck, concrete truck, crane, water truck, dump truck pickup truck, and delivery truck. Mileage on unpaved surface for each day of operation by vehicle type is estimated, then multiplied by the number of construction days.
- Front end loader and backhoe emissions combine unpaved road travel from equation 13.2.2.1 equation 1a and the dumping equation from AP-42 Chapter 11, Chapter 11.9-4.
- Dozer, pneumatic tire roller, and vibratory roller emissions are based on the dozer equation from AP-42 Chapter 11, Table 11.9-1.
- Grader emissions are based on the grader equation from AP-42 Chapter 11, Table 11.9-1.
- Scraper emissions are based on the “removing topsoil” equation from AP-42 Chapter 13, Table 13.2.3-1 and dumping equation from Chapter 11, table 11.9-4.2.

Resultant emission rates in lb/day are presented in Table B-4 and resultant tons of PM_{2.5} emissions are provided in Table B-5.

Table B-4: Fugitive PM_{2.5} Emission Factors for Construction Vehicles

Equipment/Vehicle Type	Fugitive PM_{2.5} (lb/day)	Equipment/Vehicle Type	Fugitive PM_{2.5} (lb/day)
Front End Loader	4.49	Concrete Pumper Truck	1.16
Dozer	1.77	Concrete Truck	1.16
Pneumatic Tire Roller	0.89	Water Tanker	13.39
Vibratory Roller	0.89	Dump Truck	11.16
Grader	0.01	Pick-Up Truck	2.64
Scraper	20.62	Delivery Truck (Medium)	5.44
Backhoe	2.25	Delivery Truck (Heavy)	7.44
Crane	1.00		

BRAC Construction

BRAC construction would total 1,680,081 square feet (SF) of interior space with a footprint of approximately 560,000 SF using current concepts and requiring up to 661,500 additional SF of parking. There would be approximately 14,000 linear feet of utility trenching and 3 primary backup generators. Impervious surface would equal approximately 28 acres. Construction is estimated to require 36 months and would be complete by June 2011.

Equipment requirements were estimated for the construction activities associated with site preparation for buildings, parking, and trenching for utilities. Table D-5 provides the equipment assumptions and resultant total equipment emissions for BRAC construction.

Annual emissions are displayed in Table B-5.

Table B-5: Annual Emissions For BRAC Construction

Construction Vehicle Type	Total Days of Operation	Total Emissions - Tons				
		NO _x	VOC	Exhaust PM _{2.5}	Fugitive PM _{2.5}	SO ₂
Chipping Machine	33	0.154	0.016	0.012	0	0.022
Front End Loader	173	2.342	0.136	0.124	0.39	0.342
Chain Saws	66	0.055	0.008	0.005	0.00	0.010
Excavator	36	0.396	0.029	0.023	0.00	0.076
Dozer	308	3.348	0.236	0.194	0.27	0.612
Pneumatic Tire Roller	23	0.085	0.009	0.008	0.01	0.014
Steel Wheel Roller	46	0.171	0.018	0.017	0.00	0.029
Asphalt Paver	23	0.118	0.009	0.008	0.00	0.020
Vibratory Roller	121	0.707	0.056	0.045	0.05	0.116
Grader	66	0.402	0.032	0.026	0.00	0.070
Scraper	226	4.697	0.253	0.231	2.33	0.748
Concrete Pumper Truck	417	4.91	0.40	0.31	0.24	0.55
Concrete Truck	104	1.22	0.10	0.08	0.06	0.14
Crane	334	1.44	0.15	0.11	0.17	0.23
Backhoe	835	4.91	1.18	0.72	0.94	0.73
Water Tanker	19	0.004	0.000	0.000	0.13	0.000
Dump Truck	846	0.324	0.008	0.005	4.72	0.000
Pick-Up Truck	4168	0.560	0.599	0.005	5.50	0.005
Delivery Truck (Medium)	125	0.009	0.003	0.000	0.34	0.000
Delivery Truck (Heavy)	606	0.260	0.029	0.002	2.25	0.000
Total Emissions		25.96	3.27	1.91	17.40	3.71

EUL Construction

Under Alternative A, which includes EUL construction, an additional 1,500,000 SF of Enhanced Use Leasing construction would occur, with a footprint of 500,000 SF. Utility trenching would equal 10,500 linear feet as well as a footprint of 636,000 SF for parking. For this action, overall impervious surface acreage in the sites is also 26 acres, adding to the BRAC acreage of 26 acres, to total 52 acres. The EUL proposed action also include the construction of two 18-hole golf courses, which would equal approximately 340 acres.

Equipment requirements were estimated for the construction activities associated with site preparation for buildings, construction of the parking, and trenching for utilities. Table B-6 provides the equipment assumptions and total resultant equipment emissions for the EUL proposed projects that would be constructed.

Table B-6: Annual Emissions For Construction of EUL Proposed Projects

Construction Vehicle Type	Total Days of Operation	Total Emissions – Tons				
		NO _x	VOC	Exhaust PM _{2.5}	Fugitive PM _{2.5}	SO ₂
Chipping Machine	97	0.45	0.05	0.04	0.00	0.06
Front End Loader	105	1.42	0.09	0.08	0.24	0.21
Chain Saws	195	0.16	0.02	0.01	0.00	0.03
Excavator	102	1.12	0.08	0.07	0.00	0.22
Dozer	32	0.34	0.03	0.02	0.03	0.06
Pneumatic Tire Roller	4	0.02	0.00	0.00	0.00	0.00
Steel Wheel Roller	8	0.03	0.00	0.00	0.00	0.01
Asphalt Paver	4	0.02	0.00	0.00	0.00	0.00
Vibratory Roller	270	1.58	0.13	0.10	0.12	0.26
Grader	242	1.46	0.12	0.10	0.00	0.26
Scraper	152	3.15	0.17	0.16	1.56	0.50
Concrete Pumper Truck	313	3.68	0.30	0.24	0.18	0.41
Concrete Truck	78	0.91	0.07	0.06	0.05	0.10
Crane	234	1.08	0.11	0.08	0.12	0.17
Backhoe	628	3.69	0.89	0.55	0.71	0.54
Water Tanker	4	0.00	0.00	0.00	0.02	0.00
Dump Truck	219	0.09	0.00	0.00	1.22	0.00
Pick-Up Truck	3126	0.42	0.45	0.00	4.12	0.00
Delivery Truck (Medium)	94	0.01	0.00	0.00	0.25	0.00
Delivery Truck (Heavy)	455	0.20	0.02	0.00	1.69	0.00
Total Emissions		19.85	2.52	1.52	10.31	2.83

5.1.2 Emissions from Construction Crew Workers

Emissions from construction personnel traffic were calculated using the U.S.EPA's MOBILE6. For the BRAC action, it is assumed that the construction crew would consist of approximately 72,000 worker-days, which equates to an average of 100 workers per day for 720 days, or 240 days annually. For a conservative analysis, it was assumed each person would drive to the site and that the average number of workers would drive approximately 40 miles each day. Based on MOBILE6, the emission factor for NO_x is 0.59 grams/mile/vehicle, VOC is 0.65 grams/mile/vehicle, PM_{2.5} is 0.013 grams/mile/vehicle, and SO₂ is 0.0068 grams/mile/vehicle for the average fleet in

Anne Arundel County, Maryland. Resultant annual emissions associated with the commuter vehicles from the construction crew, using the commuter equation in Table B-3, are approximately:

- 0.62 tons of NO_x,
- 0.69 tons of VOC,
- 0.01 tons of PM_{2.5}, and
- 0.01 tons of SO₂

For the proposed EUL construction, construction crew estimates are the same, therefore doubling the construction crew commuting emissions during the years when both BRAC and EUL buildings will be under construction.

5.1.3 Emissions from Painting Activities

For painting building structures, it was assumed that water-based latex paint would be used with a VOC content of one pound 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 2,520,100 square feet of interior surfaces in BRAC buildings and an additional 2,250,000 square feet in EUL buildings. These values assume 50-percent of the interior space consists of rooms with drop ceilings and a ratio of walls needing paint to floor space of 3 to 1, with the remainder of the space (50-percent) consisting of open cubicle space not requiring paint. Based on these assumptions, approximately 25,201 gallons of paint are needed for BRAC interior construction and 22,500 gallons are needed for interior construction related to EUL facilities. Annual interior painting for buildings constructed over the course of each three-year or four-year construction period create approximate VOC emissions of:

- BRAC Building Painting VOC = 3.75 tons
- EUL Building Painting VOC = 4.20 tons

Emissions from painting parking spaces were based on four-inch wide stripes. It was assumed that the average parking space is 9 feet wide by 19 feet long and every two parking spaces share a common line. Approximately 9.24 square feet would be painted for every parking space. For parking spaces, it was assumed that alkyd paint would be used with a VOC content of three pounds per gallon and one gallon of paint covers approximately 200 square feet. One coat of paint would be applied to the parking surfaces. Based on the construction of 7,687 spaces, based on proposed acreage for parking spaces under BRAC and an additional 10,000 spaces for EUL purposes, approximate VOC emissions for painting parking spaces would be:

- BRAC Parking Space Painting = 0.19 tons
- EUL Parking Space Painting = 0.25 tons

To summarize, painting generates emissions of:

- BRAC = 4.20 and 0.19 tons of VOC for painting building interiors and parking spaces for a maximum of 4.39 tons total or 1.46 tons annually.
- EUL actions generate an additional 3.75 and 0.25 of VOC for painting building interiors and parking spaces for a maximum total of 4.00 tons, or 1.00 ton annually.

5.1.4 Asphalt Curing

It is assumed that hot mix asphalt will be used. Hot mix and emulsion asphalt cement are estimated to be used 90-percent and 7-percent of the time respectively for paving, and have negligible VOC emissions (Spivey, 2000). Cutback asphalt cement, which is responsible for the VOC emission issues, is only used in 3-percent of paving jobs and assumed not used at Fort Meade.

5.1.5 Summary of Construction Emissions

After emissions analysis was performed for all aspects of construction, the totals were added to determine the combined annual construction emissions. Tables B-7 and B-8 summarize the results for both construction projects. Total construction emissions for EUL-related buildings are provided in Table B-7 and total construction emissions for the BRAC-Directed action construction are provided in Table B-8.

Table B-7: Annual Emissions from Construction –EUL Proposed Action Construction

Construction Activity	Total Annual Emissions (Tons)			
	NO _x	VOC	PM _{2.5}	SO ₂
Use of Heavy Equipment	25.96	2.35	1.52	2.33
Fugitive Emissions	NA	NA	10.31	NA
Construction Crew Workers	0.62	0.69	0.01	0.01
Painting	NA	1.00	NA	NA
Total Emissions from Construction	26.58	4.04	12.56	2.34

Table B-8: Annual Emissions from Construction – BRAC-Directed Alternative

Construction Activity	Total Emissions (Tons)			
	NO _x	VOC	PM _{2.5}	SO ₂
Use of Heavy Equipment	19.85	3.26	1.91	3.71
Fugitive Emissions	NA	NA	17.40	NA
Construction Crew Workers	0.62	0.69	0.01	0.01
Painting	NA	1.46	NA	NA
Total Emissions from Construction	20.48	5.41	18.55	3.72

5.2.1 Heating Source Emissions

Designs for the proposed facilities have not yet been prepared; therefore, actual boiler or furnace types and sizes have not been determined. Operational heating requirements for the EIS analysis are based on the most recent Commercial Buildings Energy Consumption Survey (CBECS) in 2003 conducted by the Department of Energy,

Energy Information Administration. Table C-30 from this document indicates that the average energy intensity for office buildings using natural gas in climate zone 3, which includes Maryland, is 30.1 cubic feet (CF) of gas annually per square foot (SF) of floor space. At 1,000 British Thermal Units (BTUs) per CF of gas, this equates annually to 30,100 BTU annually per SF of office space. Natural gas is provided to the vicinity of the proposed development areas in Fort Meade and could be used to heat the facilities.

Water heating is assumed to either be provided electrically or to be included in the energy intensities from the CBECS.

BRAC-Directed space and water heating for 1,680,081 SF of administrative space requires annually:

- $(1,680,081 \text{ SF})(30.1 \text{ CF/SF}) = 50.57 \text{ million CF natural gas}$

Additional EUL space and water heating, in addition to the above for BRAC, has 1,500,000 SF of administrative space plus an additional 32,800 SF of administrative space for a club house at the proposed golf course. Both will require annually:

- $(1,500,000 \text{ SF})(30.1 \text{ CF/SF}) + (32,800 \text{ SF})(30.1 \text{ CF/SF}) = 46.14 \text{ million CF natural gas}$

The new buildings to be constructed on Fort Meade are assumed to be heated by small boilers that operate at less than 100 million Btu per hour. For the natural gas analysis, operational heating emissions are based on the U.S.EPA's AP-42 Fifth Edition, Compilation of Air Pollution Emission Factors Volume I, Chapter 1: Stationary Sources, Supplement D (U.S.EPA, 1998).

The following natural gas emission rates are assumed:

- $\text{NO}_x = 100 \text{ lb NO}_x / 10^6 \text{ CF natural gas}$
- $\text{VOC} = 5.5 \text{ lb}/10^6 \text{ CF natural gas}$
- $\text{PM}_{2.5} = 7.6 \text{ lb}/10^6 \text{ CF natural gas}$
- $\text{SO}_2 = 0.6 \text{ lb}/10^6 \text{ CF natural gas}$

The resultant annual emissions for BRAC (1.6 million SF) and the additional actions for EUL operation (1.5 million SF) are provided in Table B-9.

Table B-9: TOTAL Annual Emissions from Heating for BRAC and EUL Buildings

Operations Activity	Total Emissions (TPY)			
	NO _x	VOC	PM _{2.5}	SO ₂
BRAC-Only	2.52	0.139	0.192	0.015
EUL-Only	2.30	0.126	0.175	0.013

For the backup generators, which are only required for the BRAC facilities, the emission factors are based on the model year and the horsepower (hp). Two of the generators fall into the engine power category of 300-600 hp and

the third is in the category of 175-300. It is assumed that all generators are Tier 3, with a model year of 2006-2010. According to the U.S.EPA's Nonroad Emissions Model, the emission factors for both engine sizes are as follows:

175-300 hp Engines:

- NO_x = 5.33 g/hp-hr
- PM = 0.409 g/hp-hr (all assumed to be PM_{2.5})
- VOC = 0.402 g/hp-hr
- SO₂ = 0.73 g/hp-hr

300-600 hp Engines:

- NO_x = 5.32 g/hp-hr
- PM = 0.364 g/hp-hr (all assumed to be PM_{2.5})
- VOC = 0.382 g/hp-hr
- SO₂ = 0.73 g/hp-hr

Three generators will be included in the operations. Using an assumption of 300 annual hours, the annual emissions of NO_x, VOC, PM_{2.5}, and SO₂ were calculated as shown in Table B-10.

Table B-10: Total Annual Emissions from Generators – BRAC Only

	Total Emissions (TPY)			
	NO _x	VOC	PM _{2.5}	SO ₂
Three (596, 193, and 372 hp) generators, 300 annual hours total each	2.043	0.158	0.142	0.280

5.2.1 Vehicle Emissions from Daily Commuters

Vehicle emissions from commuter 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 PM_{2.5}, NO_x, VOC, and SO₂ from average vehicles are provided in Table B-11.

Table B-11: Emission Factors for Commuter Vehicles

Pollutant	Emissions Factor - grams/mile/vehicle
NO _x	0.59
VOC	0.65
PM _{2.5}	0.013
SO ₂	0.0068

The annual emissions in tons per year of NO_x, VOC, PM_{2.5} and SO₂ for commuter emissions during operations were calculated using the appropriate equations displayed in Table B-12.

Table B-12: Equations for Operations Emissions Calculations

Emission Source	Equation	Sample Calculation
Operations, Commuters	(# of vehicles) (# of trips/day) (#miles/trip) (#days/year)= #miles/year (#miles/year) (emissions factor grams/mile) (1 lb/453.59 grams) (1 ton/2000 lb) = TPY of Vehicle Emissions	(5,361 vehicles) (2 trips/day) (16 miles/trip) (240 days/year) (0.59 g/mile/vehicle) (1 lb/453.59 grams) (1 ton/2000 lbs) = 26.77 TPY NO_x

Under the EUL proposed action, an additional 10,000 personnel not currently at Fort Meade would add to the number of commuters. Based on these assumptions, the commuter vehicle emissions are shown in Table B-13.

Table B-13: Annual Emissions from Daily Vehicle Traffic

	Total Annual Emissions – TPY			
	NO _x	VOC	PM _{2.5}	SO ₂
BRAC-Only	26.77	29.50	0.590	0.31
EUL-Only	49.94	55.02	1.10	0.57
BRAC and EUL Combined	76.72	84.52	1.69	0.88

According to the Baltimore Region Metropolitan Planning Organization (MPO), the BRAC-related commuter emissions have been included in the most recent Transportation Improvement Plan (TIP) for the Baltimore Region, which includes the project area in Anne Arundel County. The BRAC-related commuter emissions are included in the 2008 – 2011 Baltimore Region TIP, which is slated for October 2007 approval. The remaining emissions would be the EUL-only commuter emissions. These emissions, however, would not begin until after 2012. Based on discussions with the Baltimore Region MPO, the EUL emissions will be included in the 2012-2015 TIP, which is scheduled to be completed by end of July 2008. All commuter emissions from BRAC and EUL will be accounted for in the Baltimore region’s TIP and inclusion in the Conformity Applicability Analysis would be double counting those emissions, therefore the BRAC and EUL commuter emissions are not included in the operational emissions total.

5.2.3 Summary of Annual Operations Emissions

Annual operations emissions include emissions from heating the building space and water, generator emissions, and emissions from daily employee traffic. Tables B-14 and B-15, provide the total annual operations emissions.

Operational emissions from EUL only-related actions are not broken out separately from BRAC-operations because at no point would EUL buildings be in operation while BRAC buildings were not. BRAC construction will be completed first and therefore will be in full operation when EUL operation begins.

Table B-14: Annual Emissions from Operations – BRAC Only

Operational Activity	Total Annual Emissions –TPY			
	NO _x	VOC	PM _{2.5}	SO ₂
Heating	2.52	0.13	0.19	0.015
Generators	2.043	0.158	0.142	0.280
Total Facility Emissions	4.563	0.288	0.332	0.295

Table B-15: Annual Emissions from Operations – BRAC and EUL

Operational Activity	Total Annual Emissions –TPY			
	NO _x	VOC	PM _{2.5}	SO ₂
Heating	2.30	0.12	0.17	0.013
BRAC Operations Emissions	4.563	0.288	0.332	0.295
Total Facility Emissions	6.86	0.408	0.502	0.308

5.3 Combined Construction and Operations Emissions

Each year’s emissions were summed by combining the total emissions for construction and operations under each assumption to determine whether emissions in any year exceed the *de minimis* values. The emissions for years evaluated are displayed in Tables B-16 and B-17, with the *de minimis* values shown at the top of each column for comparison.

- During years 2008 through 2001, both BRAC and EUL construction emissions occur, assumed each year to equal one-third of total BRAC construction and one-fourth of EUL construction emissions annually.
- In June 2011 through June 2012, one-fourth of the EUL construction would occur and all BRAC buildings would be operational.
- After June 2012, all BRAC and EUL buildings would be in operation.

Tables B-16 and B-17 show that emissions associated with constructing and operating the alternatives, when compared to the *de minimis* values for an area that is in moderate nonattainment for ozone and nonattainment for PM_{2.5} fall below the *de minimis* values for NO_x and PM_{2.5}.

Table B-16: Total Annual Emissions for BRAC-Directed and EUL Actions (2008-2012+)

BRAC/EUL Activity	Total Emissions (TPY)			
	NO _x	VOC	PM _{2.5}	SO ₂
de minimis standards with moderate nonattainment for ozone	100	50	100	100
2008-2009 BRAC and EUL Construction	47.06	9.62	31.18	6.56
2009-2010 BRAC and EUL Construction	47.06	9.62	31.18	6.56
2010-2011 BRAC and EUL Construction	47.06	9.62	31.18	6.56
2011-2012 EUL Construction and BRAC Full Operation	25.04	4.498	12.17	3.14
2012- BRAC and EUL Full Operation	6.86	0.408	0.502	0.308

* This Table is comparable to Table 4-8 of the DEIS. For the line with the years 2011-2012, the numbers are comparable to Table 4-9 of the DEIS, describing the peak year emissions for BRAC operations and EUL construction.

Table B-17: Total Annual Emissions for BRAC-Directed Actions (2008-2011+)

BRAC Activity	Total Emissions (TPY)			
	NO _x	VOC	PM _{2.5}	SO ₂
de minimis standards with moderate nonattainment for ozone	100	50	100	100
2008-2009 BRAC Construction	26.58	5.41	17.41	3.716
2009-2010 BRAC Construction	26.58	5.41	17.41	3.716
2010-2011 BRAC Construction	26.58	5.41	17.41	3.716
2011- BRAC Full Operation	4.563	0.288	0.332	0.295

* This Table is comparable to Table 4-10 in the DEIS, describing the construction and operations emissions for the BRAC-Directed Actions. As explained in the Table 4-10, BRAC construction and operations emissions would not overlap, as also evidenced in the table above.

Neither the BRAC or BRAC and EUL Alternatives are subjected to General Conformity Rule requirements.

5.4 Regional Significance

Air emissions were also evaluated to determine regional significance. The *Baltimore Nonattainment Area 8-Hour Ozone State Implementation Plan (SIP) and Base Year Inventory* (MDE, 2007) sets forth daily target levels of 15.96 tons per day of VOC and 92.36 tons per day (TPD) of NO_x for point sources within the Baltimore ozone non-attainment region for the year 2009. The SIP also sets target levels for non-road emissions from sources such as construction vehicles. Target levels for non-road emissions are set at 51.94 TPD for VOC and 38.59 TPD for NO_x. Assuming 240 workdays per year, the average daily emission rates for each of the emissions sources are displayed in Table B-18. The increase in annual emissions from the construction and operations activities would not make up ten

percent or more of the available regional emission inventory for VOC or NO_x and would not be regionally significant. Air quality impacts are therefore not considered to be significant.

Table B-17: Emissions by Source and Percentage of Baltimore SIP

Source of Emissions	Fort Meade Emissions (TPD)		SIP target levels (TPD)		Percentage of SIP (%)	
	NO _x	VOC	NO _x	VOC	NO _x	VOC
BRAC						
Non-Road	0.11	0.022	38.59	51.94	0.29%	0.04%
Point	0.02	0.001	92.36	15.96	0.02%	0.01%
BRAC and EUL						
Non-Road	0.16	0.039	38.59	51.94	0.41%	0.08%
Point	0.028	0.001	92.36	15.96	0.03%	0.01%
Source: MDE, 2007						

Additionally, there is no SIP in place for the newly promulgated PM_{2.5} regulations. The Baltimore, MD region has three years to implement a SIP that will create a regional emission inventory for the pollutant PM_{2.5} (U.S.EPA, 2006).

APPENDIX C

Flora and Fauna Found at Fort Meade, Maryland

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PLANT SPECIES FOUND AT FORT MEADE (Source: Fort Meade, 2001)

Equisetaceae

Equisetum arvense
Equisetum pratense

Lycopodiaceae

Lycopodium obscurum
Lycopodium clavatum

Ophioglossaceae

Botrychium dissectum
Botrychium virginianum

Osmundaceae

Osmunda cinnamomea
Osmunda regalis

Polypodiaceae

Athyrium felix-femina
Dennstaedtia punctilobula
Onoclea sensibilis
Pteridium aquilinum
Thelypteris noveboracensis
Woodwardia areolata
Woodwardia virginica

Aspleniaceae

Asplenium platyneuron

Dryopteridaceae

Dryopteris novaboracensis

Typhaceae

Typha angustifolia
Typha latifolia

Zosteraceae

Potamogeton crispus

Sparganiaceae

Sparganium americanum

Alismataceae

Alisma plantago-aquatica
Sagittaria graminea
Sagittaria latifolia

Hydrocharitaceae

Elodea canadensis

Poaceae

Agrostis hymelis
Agrostis perennans
Aira caryophylla
Andropogon virginicus
Bromus sterilis
Calamagrostis cinnoides
Dactylis glomerata
Danthonia sericea
Dichanthelium sp.
Echinochloa walteri
Echinochloa sp.
Eragrostis capillaris
Elymus virginicus
Eragrostis sp.
Festuca elatior
Festuca myuros
Festuca obtusa
Festuca rubra
Glyceria striata
Glyceria obtusa
Holcus lanatus
Hordeum pusillum
Hordeum vulgare
Leersia oryzoides
Leersia virginica
Microstegium vimineum

Muhlenbergia frondosa

Panicum clandestinum
Panicum colubianum
Panicum depauperatum
Panicum dichotomiflorum
Panicum dichotomum
Panicum sp.(ensifolium?)
Panicum leucothrix
Panicum scoparium
Phragmites australis
Poa bulbosa
Poa compressa
Poa pratensis
Setaria faberii
Triodia flava
Uniola laxa
Vulpia octoflora

Cyperaceae

Bulbostylus capillaris
Carex albolutescens
Carex amphibola
Carex atlantica
Carex blanda
Carex canescens
Carex complanata var. hirsutella
Carex crinita
Carex debilis
Carex emmonsii
Carex sp.(festucacea?)
Carex folliculata
Carex frankii
Carex hirsutella
Carex sp.(intumescens/grayi?)
Carex laevivaginata
Carex leavenworthii
Carex lupulina
Carex lurida
Carex nigromarginata
Carex pensylvanica
Carex rosea
Carex scoparia
Carex seorsa
Carex stipata
Carex straminea
Carex stricta

<u>Cyperaceae</u> cont'd	Juncus sp.(megacephalus?)	<u>Urticaceae</u>
Carex swanii	Juncus sp.(polycephalus?)	Boehmeria cylindrica
Carex tenuifolia	Juncus scirpoides	Pilea pumila
Carex tonsa	Juncus secundus	Urtica dioica
Carex tribuloides	Juncus tenuis	
Carex trisperma	Juncus tenuis var.dichotomus	
Carex trisperma var. billingsii	Juncus sp.	<u>Santalaceae</u>
Carex umbellata	Luzula bulbosa	Comandra umbellata
Carex vulpinoidea	Luzula multiflora	
Carex vulpinoidea var. ambigua		
Carex sp.(Montanae?)	<u>Liliaceae</u>	
Cyperus esculentus	Allium vineale	<u>Aristolochiaceae</u>
Cyperus erythrorhizos	Mediola virginiana	Asarum canadense
Cyperus grayi	Ornithogalum umbellatum	
Cyperus ovularis	Smilacina racemosa	
Cyperus retrorsus	Smilax rotundifolia	<u>Polygonaceae</u>
Cyperus strigosus	Smilax glauca	Polygonum arifolium
Eleocharis ovata		Polygonum cespitosum
Eleocharis quadrangulata	<u>Dioscoreaceae</u>	Polygonum hydropiperoides
Eleocharis tenuis	Dioscorea villosa	Polygonum pensylvanicum
Scirpus atrovirens		Polygonum perfoliatum
Scirpus cyperinus		Polygonum punctatum
Scirpus validus		Polygonum sagittatum
	<u>Amaryllidaceae</u>	Rumex acetosella
<u>Araceae</u>	Hypoxis hirsuta	Rumex crispus
Arisaema triphyllum		Rumex obtusifolia
Peltandra virginica	<u>Iridaceae</u>	Tovara virginiana
Symplocarpus foetidus	Iris versicolor	
	Sisyrinchium graminoides	<u>Phytolaccaceae</u>
<u>Xyridaceae</u>		Phytolacca americana
Xyris caroliniana	<u>Orchidaceae</u>	
	Cypripedium acaule	<u>Caryophyllaceae</u>
<u>Commelinaceae</u>	Isotria verticillata	Arenaria serpyllifolia
Commelina communis		Cerastium arvense
Commelina virginica	<u>Saururaceae</u>	Cerastium semidecandrum
	Saururus cernuus	Cerastium vulgatum
<u>Pontederiaceae</u>		Cerastium viscosum
Pontederia cordata	<u>Cannabaceae</u>	Dianthus armeria
	Humulus japonicus	Dianthus barbatus
<u>Juncaceae</u>		Scleranthus annuus
Juncus acuminatus		Silene stellata
Juncus candensis	<u>Euphorbiaceae</u>	Spergula arvensis
Juncus effusus	Euphorbia corollata	Stellaria graminea
	Euphorbia ipecacuanhae	Stellaria longifolia
Geum canadense		Stellaria media
Geum virginianum		
Fragaria virginiana		Rhexia virginica
Potentilla argentea		

Onograceae

Epilobium sp.
Ludwigia alternifolia
Ludwigia palustris
Oenothera perennis

Haloragaceae

Myriophyllum aquaticum

Umbelliferae

Cicuta maculata
Daucus carota

Pyrolaceae

Chimaphila maculata
Monotropa uniflora

Primulaceae

Anagallis arvensis
Lysimachia quadrifolia
Lysimachia ciliata
Lysimachia nummularia

Apocynaceae

Apocynum cannabinum

Asclepiadaceae

Asclepias incarnata
Asclepias tuberosa
Asclepias syriaca

Convolvulaceae

Cuscuta gronovii

Hydrophyllaceae

Hydrophyllum virginianum

Boraginaceae

Lithospermum arvense
Myosotis arvensis
Myosotis stricta

Verbenaceae

Verbena hastata
Verbena simplex
Verbena stricta
Verbena urticifolia

Lamiaceae

Glechoma herderacea
Lamium amplexicaule
Lamium purpureum
Lycopus americanus
Lycopus virginicus
Mentha spicata
Perilla frutescens
Scutellaria integrifolia
Trichostema dichotomum

Solanaceae

Solanum carolinense

Scrophulariaceae

Linaria canadensis
Lindernia dubia
Melampyrum lineare
Mimulus alatus
Mimulus ringens
Scrophularia marilandica
Verbascum blatteria
Verbascum thapsus
Veronica sp.
Veronica officinalis

Orobanchaceae

Epifagus virginiana

Lentibulariaceae

Utricularia sp.

Plantaginaceae

Plantago lanceolata
Plantago virginica

Rubiaceae

Cephalanthus occidentalis
Diodia teres
Galium aparine
Galium triflorum
Mitchella repens

Dipsacaceae

Dipsacus sylvestris

Campanulaceae

Echinocystis lobata
Lobelia cardinalis
Lobelia siphilitica
Triodanis perfoliata

Asteraceae

Achillea millefolium
Ambrosia trifida
Ambrosia artemisiifolia
Antennaria neglecta
Aster cordifolius
Aster divaricata
Aster ericoides
Aster novae-angliae
Aster patens
Aster pilosus
Aster puniceus
Aster vimineus
Bidens frondosa
Bidens sp.
Centurea maculosa
Chrysanthemum leucanthemum
Cichorium intybus
Cirsium arvense
Cirsium vulgare
Conyza canadensis
Eclipta alba
Erigeron annuus

Asteraceae cont'd

Eupatorium alba
Eupatorium altissimum
Eupatorium purpureum
Eupatorium rotundifolium
Eupatorium serotinum
Eupatorium hyssopifolium
Euthamia graminifolia
Gnaphalium obtusifolium
Helianthus divaricatus
Hieracium gronovii
Hypochaeris radicata
Krigia virginica
Lactuca canadensis
Rudbeckia hirta
Senecio anonymous
Senecio sp.
Solidago altissima
Solidago canadensis
Solidago sp.(crecta?)
Solidago nemoralis
Solidago odora
Solidago sp.(puberula?)
Solidago rugosa
Taraxicum officinale
Tussilago farfara
Vernonia noveboracensis

Pinacea

Juniperus virginiana
Pinus echinata
Pinus resinosa
Pinus strobus
Pinus taeda
Pinus virginiana

Salicaceae

Populus grandidentata
Salix discolor
Salix humilis
Salix nigra

Myricaceae

Myrica pensylvanica

Juglandaceae

Juglans nigra
Carya cordiformis
Carya tomentosa

Betulaceae

Alnus serrulata
Betula nigra
Carpinus caroliniana
Corylus americana

Fagaceae

Castanea dentata
Castanea pumila
Fagus grandiflora
Quercus alba
Quercus bicolor
Quercus coccinea
Quercus falcata
Quercus marilandica
Quercus palustris
Quercus phellos
Quercus rubra
Quercus velutina

Ulmaceae

Ulmus rubra

Moraceae

Morus rubra

Magnoliaceae

Magnolia virginica
Liriodendron tulipifera

Annonaceae

Asimina triloba

Lauraceae

Lindera benzoin
Sassafras albidum

Saxifagaceae

Itea virginica

Hamamelidaceae

Hamamelis virginiana
Liquidambar styracflua

Platanaceae

Platanus occidentalis

Simaroubaceae

Ailanthus altissima

Anacardiaceae

Rhus copallina
Rhus glabra
Rhus typhina
Toxicodendron radicans

Aquifoliaceae

Ilex laevigata
Ilex opaca
Ilex verticillata

Celastraceae

Celastrus scandens
Euonymus americanus

Aceraceae

Acer negundo
Acer platanoides
Acer rubrum
Acer saccharinum

Vitaceae

Parthenocissus quinquefolia
Vitis aestivalis
Vitis vulpina

Caprifoliaceae

Lonicera japonica
Sambucus canadensis
Viburnum dentatum
Viburnum nudum
Viburnum prunifolium

Nyssaceae

Nyssa sylvatica

Araliaceae

Aralia nudicaulis
Aralia spinosa

Cornaceae

Cornus amomum
Cornus florida

Clethraceae

Clethra alnifolia

Ericaceae

Gaylussacia baccata
Gaylussacia frondosa
Kalmia angustifolia
Kalmia latifolia
Leucothoe racemosa
Lyonia ligustrina
Lyonia mariana
Rhododendron atlanticum
Rhododendron periclymenoides
Rhododendron viscosum
Vaccinium angustifolium
Vaccinium corymbosum

Ebenaceae

Diospyros virginiana

Oleaceae

Chionanthus virginicus
Fraxinus pennsylvanica

AVIAN SPECIES FOUND AT FORT MEADE (Source: Fort Meade, 2001)

Butorides striatus - Green heron
Ardea herodias - Great blue heron
Branta canadensis - Canada goose
Anas platyrhynchos - Mallard
Aix sponsa - Wood duck
Cathartes aura - Turkey vulture
Coragyps atratus - Black vulture
Accipiter striatus - Sharp-shinned hawk
Buteo jamaicensis - Red-tailed hawk
Buteo lineatus - Red-shouldered hawk
Buteo platyterus - Broad-winged hawk
Haliaeetus leucocephalus - Bald eagle
Pandion haliaetus - Osprey
Falco sparverius - American kestrel
Charadrius vociferus - Killdeer
Philohela minor - American woodcock
Actitis macularia - Spotted sandpiper
Larus delawarensis - Ring-billed gull
Zenaidura macroura - Mourning dove
Columba livia - Rock dove
Coccyzus americanus - Yellow-billed cuckoo
Bubo virginianus - Great horned owl
Chaetura pelagica - Chimney swift
Megaceryle alcyon - Belted kingfisher
Colaptes auratus - Common flicker
Dryocopus pileatus - Pileated woodpecker
Melanerpes carolinus - Red-bellied woodpecker
Picoides villosus - Hairy woodpecker
Picoides pubescens - Downy woodpecker
Tyrannus tyrannus - Eastern kingbird
Myiarchus crinitus - Great crested flycatcher
Sayornis phoebe - Eastern phoebe
Empidonax virescens - Acadian flycatcher
Contopus virens - Eastern pewee
Hirundo rustica - Barn swallow
Stelgidopteryx ruficollis - Rough-winged swallow
Cyanocitta cristata - Blue jay
Corvus brachyrhynchos - American crow
Parus carolinensis - Carolina chickadee
Parus bicolor - Tufted titmouse
Sitta carolinensis - White breasted nuthatch
Certhia familiaris - Brown creeper
Thryothorus ludovicianus - Carolina wren
Mimus polyglottos - Northern mockingbird
Dumetella carolinensis - Gray catbird
Toxostoma rufum - Brown thrasher
Turdus migratorius - American robin
Hylocichla mustelina - Wood thrush
Sialia sialis - Eastern bluebird
Poliotila caerulea - Blue-gray gnatcatcher
Sturnus vulgaris - European starling
Vireo griseus - White-eyed vireo
Vireo olivaceus - Red-eyed vireo
Mniotilta varia - Black and white warbler
Parula americana - Northern parula warbler
Dendroica petechia - Yellow warbler
Dendroica pinus - Pine warbler
Seiurus aurocapillus - Ovenbird
Geothlypis trichas - Common yellowthroat
Icteria virens - Yellow breasted chat
Passer domesticus - House sparrow
Sturnella magna - Eastern meadowlark
Agelaius phoeniceus - Red-winged blackbird
Icterus spurius - Orchard oriole
Quiscalus quiscula - Common grackle
Molothrus ater - Brown-headed cowbird
Piranga olivacea - Scarlet tanager
Cardinalis cardinalis - Northern cardinal
Passerina cyanea - Indigo bunting
Carduelis flammea - House finch
Carduelis tristis - American goldfinch
Spizella passerina - Chipping sparrow
Melospiza georgiana - Swamp sparrow
Melospiza melodia - Song sparrow
Pipilo erythrophthalmus - Rufous-sided towhee

APPENDIX D

EIFS Report for Fort Meade (BRAC Alternative Only)

and

School Age Children Projections

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EIFS REPORT for Fort Meade

EIFS REPORT for Fort Meade (BRAC ALTERNATIVE ONLY)

FORECAST INPUT

Change In Local Expenditures	\$518,184,000
Change In Civilian Employment	5695
Average Income of Affected Civilian	\$80,425
Percent Expected to Relocate	100
Change In Military Employment	660
Average Income of Affected Military	\$70,000
Percent of Military Living On-post	0

FORECAST OUTPUT

Employment Multiplier	3.31	
Income Multiplier	3.31	
Employment – Direct	8610	
Employment – Induced	6733	
Employment – Total	15,342	0.1.14%
Sales Volume – Direct	\$709,796,400	
Sales Volume – Induced	\$1,639,630,000	
Sales Volume – Total	\$2,349,426,000	1.92%
Income – Direct	\$520,969,900	
Income – (Induced	\$316,606,300	
Income – Total (place of work)	\$837,576,100	1.10%
Local Population	15,824	
Local Off-base Population	15,824	0.68%

RTV SUMMARY

	Sales Volume	Income	Employment	Population
Positive RTV	12.1 %	11.69 %	3.07 %	1.59 %
Negative RTV	-4.78 %	-3.89 %	-3.57 %	-0.88 %

EIFS REPORT for Fort Meade (BRAC + EUL ALTERNATIVE)

FORECAST INPUT

Change In Local Expenditures	\$1,112,720,000
Change In Civilian Employment	15,695
Average Income of Affected Civilian	\$80,425
Percent Expected to Relocate	100
Change In Military Employment	660
Average Income of Affected Military	\$70,000
Percent of Military Living On-post	0

FORECAST OUTPUT

Employment Multiplier	3.31	
Income Multiplier	3.31	
Employment – Direct	22,968	
Employment – Induced	16,802	
Employment – Total	39,770	2.96%
Sales Volume – Direct	\$1,771,331,000	
Sales Volume – Induced	\$4,091,775,000	
Sales Volume – Total	\$5,863,107,000	4.78%
Income – Direct	\$1,405,339,000	
Income – (Induced)	\$790,106,200	
Income – Total (place of work)	\$2,195,445,000	2.88%
Local Population	40,724	
Local Off-base Population	40,724	1.76%

TV SUMMARY

	Sales Volume	Income	Employment	Population
Positive RTV	12.1 %	11.69 %	3.07 %	1.59 %
Negative RTV	-4.78 %	-3.89 %	-3.57 %	-0.88 %

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 Meade 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 would 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

EUL Alternative Construction Spending Calculations

Primary Facility Costs					
	Number Persons (PN)	Gross Square Feet/PN	Total GSF	Cost/GSF	Cost
EUL Administrative Offices	10000	200	2,000,000	\$200	\$400,000,000
					\$400,000,000
Supporting Facility Costs					
Outside 5' Line (includes Surface Parking)					\$80,000,000
Total Primary and Supporting Facility Costs					
Total					\$480,000,000
Contractor Fees (Cumulative Percentages Added to Total Above)					
Contingency (5%)					\$504,000,000
Supervision, Inspection, and Overhead (SIOH) (5%)					\$529,200,000
Design Build (8%)					\$571,536,000
Total					\$571,536,000
36 hole golf course (form 1391)					\$23,000,000
GRAND TOTAL					\$594,536,000

School Age Children Projections

School Age Children Projections

This model was developed in order to evaluate various scenarios that depend on the percentage of incoming employees to Fort Meade that will relocate and live within the ROI. Although the socioeconomics analysis assumes a worst-case scenario with all incoming personnel in both options arriving in one year, and 100 percent of them relocating to the ROI, this alternative analysis was done to show the potential impact on individual schools (the number of additional students per school in one year) for various scenarios.

Assumptions: All new incoming personnel will arrive in one year. Each incoming personnel represents 1 household. According to the U.S. 2000 Census, 32 percent of all households in the U.S. have children under the age of 18. There are an average of 1.86 children per family. There are 577 schools in the ROI, and the school age children will distribute themselves evenly among all schools in the ROI.

	Percent Relocating	New children to the ROI under 18 BRAC (5,695 incoming personnel)	Additional Students Per School	New children to the ROI under 18 BRAC/EUL (15,695 incoming personnel)	Additional Students Per School
High Estimate	100	3473¹⁵	6	9572¹⁶	17
Middle Estimate	50	1,736	3	4786	8
Low Estimate	25	869	1.5	2393	4

¹⁵ Total BRAC incoming =5,695. Approximately 33 percent of these will have children under the age of 18. With an average of 1.86 children per family, the number of incoming school age children would be 3473 (5,695 x .3279 x 1.86 = 3473).

¹⁶ Total BRAC incoming =15,695. Approximately 33 percent of these will have children under the age of 18. With an average of 1.86 children per family, the number of incoming school age children would be 9572 (15,695 x .3279 x 1.86 = 9572).

APPENDIX E

DEIS Public Comments and Agency Coordination

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DEIS Public Comments

Fort George G. Meade, Maryland BRAC and EUL Draft EIS Comment Response Matrix

#	Page No.	Section/ Figure/ Table/ Appendix	Org	Comment	Response
1	4-45	Air Quality	MDE	Table 4-9 (page 4-45) indicates that a total of 60.05 tons per year of VOCs would be the expected annual emissions increase for BRAC and EUL actions. Fort Meade is located in the Baltimore 8-hour Ozone Nonattainment Area (BNAA). The BNAA is classified as a moderate area under the 8-hour ozone standard and the entire state of Maryland is located within the Ozone Transport Region. According to EPA's general conformity regulations, the VOC de minimis threshold for projects located within an OTR is 50 tons per year. The conformity chapter in the draft EIS inaccurately states that the VOC de minimis threshold for the project is 100 tons per year. Please refer to the following Federal Register notices for more information: 40 CFR Parts 6, 51, and 93, November 30, 1993; 40 CFR Part 52, April 19, 1995; and 40 CFR Parts 51 and 93, July 17, 2006. Based on the correct de minimis thresholds, the projected VOC emissions exceed the de minimis thresholds and mitigation is required under the federal general conformity rules.	The de minimis threshold for VOC emissions has been corrected to 50 tons per year. Emissions calculations were re-checked and in doing so an error was found. The error was corrected and all emissions were re-calculated, which resulted in a substantial decrease in the VOC emissions. The re-calculated VOC emissions are below the 50 tons per year de minimis threshold.
2	4-45	Air Quality	MDE	The MDE's preference for mitigation would be on-site emission reduction programs that can be used to offset the increase in VOC emissions. Potential VOC emission reducing projects could include alternative fuel vehicle programs, mandatory change outs of all older portable fuel containers with new low VOC containers, enhanced vapor recovery where applicable, etc. The MDE also invites Fort Meade to become an active participant in the Clean Air Partners program. For more information on Clean Air Partners, please visit cleanairpartners.net and	The VOC calculations in the DEIS were in error. Emissions have been recalculated. Fort Meade has met with the MDE and resolved emissions questions. Section 4.4, Air Quality, and Appendix B have been revised. The Fort Meade Environmental Division is an active participant in the Clean Air Partner Program.

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				contact the Managing Director, Ms. Harriet West at (703) 431-8463.	
3	4-46	Air Quality	MDE	In addition to the above, the MDE requests that Table 4-10 (page 4-46) also include a total annual emissions column for purposes of clarity and consistency.	The BRAC alternative data in Table 4-10 has been presented to clarify and to be consistent with the data presented for the BRAC and EUL alternative.
4		DEIS Overall	MD Dept. of Agriculture	The Draft Environmental Impact Statement for the Implementation of Base Realignment and Closure 2005 and Enhanced Use Lease Actions at Fort George G. Meade, Maryland has been reviewed and is found to be within Maryland Department of Agriculture's plans, programs, and objectives.	The Army appreciates the Maryland Department of Agriculture's efforts in reviewing this EIS and its consistency finding.
5		Transportation	Anne Arundel County and Howard County	<p>Our primary concern is that the current EIS does not adequately address the Region of Influence or the ROI. For those that don't know, the Region of Influence is just that; it's a region that this action is supposed to have an influence on. The ROI, in this EIS, is Anne Arundel County, Howard County, Prince George's County, and Montgomery County. Our specific concern's about the effect of 16,000 new job positions on the roads and traffic in the subject counties.</p> <p>References to number of employees 10,000 should identify if these are contractors associated with Proposed BRAC action or other tenants in the buildings, but not associated with the Proposed BRAC/EUL Action.</p>	The ROI is defined for transportation as the area immediately surrounding the post, consistent with State Highway Administration and Anne Arundel County guidelines for traffic impact analysis. See revised Transportation ROI description in Section 4.11.1.1 (Affected Environment). To assess impacts across the broader region, we have added regional-level analysis for the No-Action Alternative and the BRAC plus EUL Alternative, in Sections 4.11.2.2 and 4.11.2.3, respectively. The analysis is based on the Maryland BRAC Report. The Army also acknowledges that individual workers may choose to relocate to additional counties outside of the ROI. It is the Army's position that the incorporation of the BRAC/EUL growth into county, state, federal, transportation planning will address the likely impacts. Additional transportation studies by the EUL developer and FGM are identified in Section 4.11.2.6 and Table 4.40, Proposed Mitigations and BMPs.
6		No Action Alternative	AACO	Let us first indicate the County's and region's desire is to see this Action advance through the planning and implementation phases. In general, Anne Arundel County and the neighboring jurisdictions of	The Army appreciates the support from Anne Arundel County and neighboring jurisdictions.

#	Page No.	Section/ Figure/ Table/ Appendix	Org	Comment	Response
				<p>Prince George's, Montgomery, and Howard County's, plus the City of Laurel have benefited from prior BRAC actions associated with Fort Meade. We strongly believe that the No Action Alternative will be unacceptable as a means of addressing the Department of Defense's stated goal to economize by arraying like activities and mission requirements in the same installations. We also believe that Fort Meade's location in the growth center of the State of Maryland, near major transportation facilities and within reasonable distance of both the Metropolitan Washington DC area as well as the City of Baltimore is an opportunity for orderly development of the corridor's infrastructure.</p>	
7		Transportation	AACO	<p>Anne Arundel County's adopted General Development Plan (1997), the adopted Severn Small Area Plan (2002), the adopted Odenton Small Area Plan (2003), the adopted Odenton Town Center Master Plan (2004) have all identified the area in and around Fort Meade as a growth location. These plans also identify the roadway and transit improvements that will be necessary to support this growth. Key improvements among these are the extension and completion of Odenton Town Center Boulevard, the Odenton MARC Station Parking Garage, and geometric improvements to Annapolis Road (MD 175).</p>	<p>We concur. The proposed completion of Odenton Town Center Boulevard is now included in the list of transportation projects. See Table 4-32.</p>
8		Transportation impacts	AACO	<p>Regarding general concerns, from both a regional and county perspective, the single greatest concern is the very limited evaluation of the proposed Action's impact on the area highway network. Specifically, the County believes that the DEIS does not provide sufficient information regarding the impact to the area roadways, such as Annapolis Road (MD 175), Telegraph Road (MD 170)-Piney Orchard Boulevard (a County road), Odenton Town Center Boulevard (a County road), Ridge Road (MD 713), Reece Road (MD 174), the Baltimore-Washington Parkway</p>	<p>The EIS provides analysis on the expected impacts to intersections along Annapolis Road (MD 175), the intersection of Reece Road (MD 174) and Ridge Road (MD 713), other intersections along Reece Road, on-post intersections, and other intersections near the post that were identified as concerns in the Scoping Meeting. Traffic counts were conducted on-post and on the post perimeter, with additional counts commissioned following the scoping meeting, primarily to the north of the</p>

#	Page No.	Section/ Figure/ Table/ Appendix	Org	Comment	Response
				<p>((BWP) a Federal Resource owned by the National Park Service) and Laurel-Fort Meade Road (MD 198). The basis of this concern stems from the DEIS text where it is indicated that most of the Defense Information Systems Agency (DISA) employees are presently located in Northern Virginia and the DEIS assumes (and we concur with this assumption) that these employees will not choose to relocate their households in the near term. For those deciding to drive, the natural path to Fort Meade will use either the BWP or I-95 from the Capital Beltway (I-95/495) to the DISA activity located near the Mapes Road/MD 198/MD 32 gate.</p> <p>Considering the distance of these commutes, it is apparent that the DEIS should address impacts at a greater distance away from the Fort where path decisions have to be made. Identifying these impacts will assist State, Regional and local transportation efforts in planning and implementing the needed improvements to address the impacts associated with the proposed Action.</p>	<p>post related to the EUL. Forecasts examine likely traffic impacts as a result of the additional development. Anticipated impacts to MD 198, BWP and other regional roadways are identified in Section 4.11.2.12, Table 4-28 and 4.11.2.4, Table 4-31 and accompanying text, in response to this comment. With regards to Northern Virginia employees, we believe improved MARC service and shuttles will be an attractive alternative; and as relocation nears, information on numbers of employees coming to the area or commuting will be provided to the appropriate planning agencies.</p>
9		Transportation	AAC0	<p>Further, regarding general concerns, the DEIS should address implementable rideshare, car and vanpool, and transit strategies that can be developed quickly and effectively to promote this means of commuting rather than reliance on single-occupant automobiles. Again, the DEIS should provide sufficient information to assist the agencies which must implement strategies to off set the impact of this proposed Action.</p>	<p>Section 4.15, Mitigation Summary of the EIS and Appendix F contain descriptions of the wide range of transportation BMPs that could be implemented by the Army, including rideshare, car and van pool and transit best management practices. Existing and future transit projects are identified in the "Existing" and "Future Condition" sections of the EIS report.</p>
10		Socioeconomics EUL-Loss of revenue	AAC0	<p>Finally, while Anne Arundel County has no obvious permit control over construction of the EUL Action, it is very likely that there could be County services provided to support the estimated 10,000-employee, two million square feet of development. The location of this activity, situated within the boundary of Fort Meade provides a very competitive challenge to general office development within the County, which</p>	<p>The general office development outside the boundaries of the installation should not be affected by office space constructed within the installation boundaries. The 10,000 personnel at the new facility are expected to have an overall positive effect on the local economy which includes creating more opportunities and increasing local sales and revenues for</p>

#	Page No.	Section/ Figure/ Table/ Appendix	Org	Comment	Response
				would be contributing to the County's general revenue stream through ad valorem taxation, impact and other fees. Lost revenue, coupled with a finite demand for general office space can amount to a loss of fiscal opportunity to the County.	businesses in the ROI. This could result in indirect affects which would cause an increased demand for office space and services throughout the ROI.
11	ES-8	EUL personnel breakdown (Table ES-2)	AACO	References to number of employees 10,000 should identify if these are contractors associated with Proposed BRAC action or other tenants in the buildings, but not associated with the Proposed BRAC/EUL Action.	The EUL developer will market to all potential tenants over the 50 year ground lease term and has been given no guarantee of government occupancy.
12	ES-20	Socioeconomics EUL-Loss of revenue (Table ES-4)	AACO	Economic Impacts, Proposed Action does not identify potential loss of revenue to local jurisdictions which can occur by offering competing general office space within the installation's boundaries	The results of the EIFS model for the 2 EIS Alternatives (BRAC and BRAC + EUL) indicate substantial increases in regional economic activity, including increases in local sales volume. Although the EIFS model is static and does not take into account the effects of changes in supply of potential business activities on the installation, an overall increase in demand generated by construction spending, incoming personnel and their families is expected to offset potential decreases in tax revenues generated by sales transactions that would otherwise occur outside the installation's boundaries.
13	ES-21	Transportation	AACO	DEIS should recommend coordination of installation traffic planning and impacts with ongoing studies by State Highway Administration and Anne Arundel County of surrounding roadway network.	An on-post transportation engineering study to aide in roadway and intersection traffic design improvements is underway. The EUL developer is also analyzing transportation to its facilities. The results of the studies will be coordinated with the Federal, State, and local AACO transportation planning agencies, along with continual planning meetings between the Army, EUL Developer, and USACE Baltimore District and Maryland SHA and AACO.
14	1-2	Fort Meade vicinity map (Figure 1-1)	AACO	Mapping incorrectly identifies the Baltimore Washington Parkway as MD 295. Parkway south of MD 175 is owned by National Park Service and is identified as an historic resource.	Appropriate corrections have been made to map.

#	Page No.	Section/ Figure/ Table/ Appendix	Org	Comment	Response
15	1-7	Purpose and Need	AAC0	How does DEIS estimate impacts associated with EUL site planning efforts. Would the Record of Decision address this connection?	The ROD will include impacts related to the implementations of EUL actions and associated mitigations for significant impacts.
16	2-10	Proposed Action	AAC0	DEIS identifies 2 million square feet of development for EUL proposed Action. What assurances will be made that the final or build out of the EUL is limited to no more than 2 million square feet?	There are no identified future plans to allow greater than 2 million sf and/or 10,000 jobs, whichever is less. Development increases greater than that limit would require supplemental analysis under NEPA and other federal environmental law, regulations, Executive Orders, and Executive Memorandum.
17	2-13	Proposed Action	AAC0	Bus Maintenance Facility—Please note that the estimated program for this facility is 120 plus revenue bus vehicles that would likely equate to a workforce of 150 persons. An environmental assessment document will be prepared to satisfy US Army Corps of Engineers and Federal Transit Administration requirements.	This information has been added in the Section 4.11, Transportation and Section 4.14, Cumulative Effects.
18	4-34	EUL	AAC0	Site Y and Z—What assurances will be offered to restrict commercial encroachment impacts into currently residentially zoned areas in the County? Would the Record of Decision provide that level of assurance?	The Army controls the zoning of Federal land. The County controls the zoning of non-Federal land. The ROD will only address the current planned actions on Federal land.
19	4-47	Noise	AAC0	Highway Noise—Reference is made to noise levels on MD 175, but no information is provided about the extent of the noise or any quantification of the impact	The text has been revised to clarify noise impacts in Section 4.5.2.
20	4-63	Water Resources	AAC0	Floodplains—Please check reference to mapping as DEIS identifies Prince William and Stafford Counties, which are in Virginia and associated with the Rappahannock River system.	References to floodplains have been revised.
21	4-95	Socioeconomics	AAC0	Economic Contribution—DEIS indicates that annual average salary of civilian component at Fort Meade is \$80,425 and military component is \$103,686. Is this a correct statement?	The average salary of permanent military personnel at Fort Meade is \$66,000 and the text has been revised.
22	4-97	Socioeconomics	AAC0	Fire Protection—We recommend that the Record of Decision indicate that local fire departments are afforded review and comment of site and building plans for those projects where local service may need	This issue is beyond the scope of the Record of Decision. Local fire department reviews of site and building plans would be conducted at the discretion of applicable department and are not

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				to be provided.	required under NEPA.
23	4-103	Socioeconomics	AAC0	Economic Development—What is the source and method used to develop induced employment as this statistic differs from others previously presented by other agencies?	Indirect or induced employment is estimated using the EIFS (Economic Information Forecasting System) model. The model estimates induced employment using employment multipliers for construction activities and changes in military and civilian employment. The EIFS Model is an economic base model developed by the Army specifically for the BRAC program. The size of the multiplier and hence the number of indirect jobs generated for each direct job created by the BRAC activity depends on the economic characteristics of the region of influence. An ROI that relies more on imported goods and services would have a smaller employment multiplier than an ROI that produces a larger proportion of goods and services for internal consumption.
24	4-105	Socioeconomics	AAC0	Public Services Impact: The report states that “No significant effects would be expected for any other of the public services including health, fire, and law enforcement.” Based on our 2006 analysis we strongly disagree with this statement and conclude that the Actions will have a direct impact on the delivery of police, fire, and EMS services in the study area. The DEIS narrative fails to address public service impacts associated with the proposed action.	The proposed action would have an impact on the public services because of the population increase to the ROI. However, the population would arrive over a multi-year period and the anticipated population increases fall within the historical norms. Hence, as indicated by the EIFS model, the RTV would not be exceeded to meet the threshold of significant impacts. More importantly, the additional workforce associated with the proposed BRAC action would generate tax revenues necessary to expand the police, fire, and EMS services to accommodate the population growth. The degree to which public services are enhanced would depend on the budget priorities of the county government.
25	4-113	Transportation-Table 4-22	AAC0	Bus Transit—Please note in this table that WMATA service B-29 also serves the Crofton area and connects to New Carrollton Metrorail Station via Bowie MD 197 Park and Ride Lot.	This information has been added to Table 4-23.

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26	4-127	Transportation	AAC0	Future Conditions—Several of the projects identified in this narrative are not funded for construction.	We believe that the narrative makes it clear that the projects are not funded. Language proposed in comment 140 has been substituted.
27	4-135	Transportation	AAC0	Roundabouts—What analysis of mainline impacts to MD 32 westbound have been performed following the indication of failure of the roundabout at MD 32/MD 198/Mapes Road gate? This entrance due to relocation of DISA to Site M and current location of DISA workforce (75% residing in Virginia) will have an impact both to gate operations and to mainline travel along MD 32. Please explain the impact.	The analysis of the roundabout showed that the situation could be readily mitigated by adding a second approach lane on the failing leg. There should not be an impact on mainline 32 if this is done. Revision to text added to indicate this potential (Sec. 4.11.2.2. Roundabouts) and other measures that could forestall the need (e.g., rideshare, transit).
28	4-135	Transportation - mitigation	AAC0	Conclusion—The narrative fails to explain what actions will be taken to correct those operational problems on the roadway that are found to be an impact associated with the proposed Action. What geometric corrective measures will be taken to mitigate the proposed Action's impact on the highway network?	An engineering traffic study has been initiated to develop on-post strategies necessary to improve intersections and roads. These projects will be implemented as funds become available. However, as traffic increases, the existing directional flows at all FGGM gates can be altered to improve access and reduce traffic impacts on exterior roadways. Corrective measures could include designating specific gates for one way entrance or exit at peak volume[s] hours, managing gate volume by assigning specific gates to specific organizations and limiting gate exit options, i.e. right turn only exits. In addition, the EUL developer is conducting a traffic study to support SHA planning for the widening of State Route 175 and to identify road improvements and entry/exit strategies. (Revised text per above included in Mitigation and Best Practices - Transportation (both in Roadways and Traffic and in Installation sections.) Discussions are ongoing with SHA and AAC0 on road improvements.
29	F-7	Transportation	AAC0	Trip Generation—DEIS text identifies a total of 10,000 employees at the two (Y & Z) EUL sites. The trip generation table shows 12,556 AM and 11524 PM peak hour (vehicle) trips. Please verify both the number of employees assumed and trip generation	This comment identified a significant overstatement of trips that may result in changes to the levels of service portrayed in the analysis. The square footage estimated for the EUL development was based on an earlier estimate

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				per employee occurring during the peak hour times. The number of vehicle trips seems much greater than typical trip generation estimates for general office development.	of total acreage for the sites. Trips and associated roadway Levels of Service have been revised. See Appendix F, Table 5, for revised trip estimates.
30	F-9	Transportation Mitigation	AACO	DEIS identifies several strategies but does not make any commitments to implement or assist in the implementation of these strategies. At what point will the agencies involved in the BRAC/EUL proposed Action commit to implementing trip reduction strategies? Will these be identified in the Record of Decision?	The ROD will identify which transportation mitigation actions will be adopted at the time the ROD is signed. The DEIS in Appendix F includes descriptions of the wide range of transportation mitigation best management practices that the Army will be evaluating for implementation. Army new construction design standards allows for only 60% parking spaces for building occupants and 10% for visitors. This standard encourages employee participation in commuter programs. As relocation nears, information on numbers of employees coming to the area or commuting will be provided to the appropriate planning agencies. However, employee participation in commuter programs is expected to remain voluntary as it is in the local community.
31	ES-8	Executive Summary - Alternatives	DOI	The Alternatives Analysis of the DEIS attempts to describe proposed actions for a very extensive development action of BRAC and BRAC plus EUL alternatives. In general, we found the DEIS to be inadequate in its examination of true alternatives. The sub-actions examined in the BRAC + EUL actions, Table ES-2, "no environmental constraints, limited encroachment on natural resource lands with mitigation, and following the Installation Design Guide and Integrated Natural Resource Management Plan," are not appropriate choices. Since the Department of the Army and private developers are required to follow the Clean Water Act, Section 404 Guidelines for placement of fill in wetlands and waters of the U.S., there is not a "no environmental constraints" option that exists. The sequential process of mitigation involves the steps of avoidance,	Text added to Table ES-2 and Table 3-2 to clarify. The government will adhere to all Federal laws, regulations, Executive Orders, and Executive Memorandum. The "no environmental constraints" option is not meant to imply non-compliance with existing regulations and permit requirements. The intent was to describe an alternative that would not embrace emerging design/construction approaches such as low impact development techniques, the Leadership in Energy and Environmental Design (LEED) criteria or other design/construction approaches that would minimize the footprint on the environment beyond compliance with the regulations. For example, since the BRAC decision and EUL planning began, Executive Order 13423 - Strengthening Federal

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				minimizing, rectifying impacts, reducing impacts over time, and then, after other options are exhausted, compensatory mitigation. It is a process, not an open array of options.	Environmental, Energy and Transportation Management was issued and identifies many of the types of actions that would not be included under the 'no environmental constraints' alternative. The Army's preferred alternative is not this option.
32		Proposed Action - EUL Alternatives for golf courses	DOI	In addition, there is no range of alternatives examined in the construction of the proposed golf facilities. One sub alternative could have two 18-hole golf courses and the new associated practice facility, while another sub alternative could examine the impacts of having one 18-hole golf course and the associated practice facility, while maintaining forested lands for mission related training, ongoing bivouac operations, physical training with loaded backpacks, etc. The potential loss of 144 acres of existing trees and forest for two golf courses is highly significant for a watershed which is undergoing such large increases in impervious surface and development. Appropriate alternatives for reducing this forest impact should be found and analyzed in the Final Environmental Impact Statement (FEIS).	The EUL project was defined as two 18-hole golf courses, as opposed to "golf facility" or "quality of life maintenance." Although different locations or design approaches for construction of the two 18-hole golf courses might have been possible, other alternatives either were not possible or significantly different from an environmental impacts standpoint. The Army is committed to maintaining the quality of life for soldiers and their families by providing equivalent MWR facilities at the new golf courses, therefore, only two 18-hole golf courses were considered. The layout and design of these two golf courses will preserve the natural resources to the maximum extent practicable.
33		EUL - Coordination with Patuxent Wildlife Refuge	DOI	Lands Bordering Fort Meade. On page 4-9, the DEIS states that, "directly to the south of Fort Meade are the 8,100 acre Patuxent Wildlife Research Center and Tipton Airport." Actually, the land to the south of Ft. Meade is the 12,750-acre Patuxent Research Refuge, part of the U.S. Fish and Wildlife Service's National Wildlife Refuge System. Established in 1936, the Patuxent Research Refuge is the Nation's only National Wildlife Refuge established to support wildlife research. Today most of the research on the refuge is conducted by the US Geological Survey (USGS) through the Patuxent Wildlife Research Center. The Army should be in frequent and cooperative communications with Refuge Manager, Mr. Brad Knudsen, regarding development which may affect or degrade refuge lands and wildlife	It is our position that compliance with MDE/EPA permitting requirements and use of BMP's will minimize and/or eliminate any negative effect or degradation of refuge lands and wildlife populations.

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				populations.	
34	4-9	Aesthetics and Visual Resources	DOI	In addition, the DEIS lacks a map to identify the Patuxent Research Refuge as a bordering landowner and to provide an ecological context for the surrounding area. The small map on page 4-26 simply identifies "natural open space." This deficiency should be corrected in the FEIS with an appropriate map.	The map was intended to show land uses. The map has been deleted. A land use map is shown in Section 4.2.
35	4-26	EUL - Coordination with Patuxent Wildlife Refuge (Golf Courses)	DOI	Golf Course Development. The West Anne Arundel Chamber of Commerce's comment letter, on page A-8 of the DEIS, encourages the Army and the EUL developers "to be innovative and strive for limited impact on the environment" when planning the new golf courses. They emphasize that "the area proposed for these golf courses is in close proximity to the Patuxent Research Refuge and we encourage communication with them when studying potential impact." It is significant when local business advocacy organization is recommending that the Army should minimize its environmental impacts and protect the quality of life at Ft. Meade and the surrounding communities.	We subscribe to the Chamber's call for innovative golf courses that minimized environmental impact.
36		EUL coordination with Patuxent Wildlife Refuge and golf course design	DOI	Golf Course Development. Unfortunately, the Army's communication with the Refuge Manager has been limited. The DEIS does not mention the potential take of Refuge land for the configuration of the second 18-hole golf course. This alternative should be fully examined in the FEIS, or a downsized alternative golf course layout should be examined. Please describe if an arrangement is found acceptable by the Refuge Manager, or if it is not, in the FEIS. Construction of the new golf course should follow current practices with wildlife-friendly design principles. The Audubon Society's Cooperative Sanctuary Program for Golf Courses (ACSP) outlines principles for golf course design and maintenance which reduce the impact of golf courses on the environment. Other organizations, as well, have appropriate design guidelines for less	Fort Meade began coordination with the DOI Patuxent Research Refuge on June 11, 2007 at a meeting at the Patuxent Research Refuge. Construction of the golf courses will occur on Department of Defense lands and not Department of the Interior lands. A boundary line survey has been completed that identify the extent the federal boundary line between Fort Meade and the Patuxent Research Refuge boundary. The developer will be required to coordinate with the USFWS. The Audubon Society's Cooperative Sanctuary Program for Golf Courses (ACSP) will be considered during the design phase, as will other design guidelines for less impacting golf courses.

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				impacting golf courses. The FEIS should detail how the golf course will follow a national certification program to reduce its substantial impact on the environment.	
37		EUL and BRAC - reduction of impervious surfaces and contamination to surface water.	DOI	Increased impervious surface area from new buildings and roadways will cause degradation of the Little Patuxent and Severn River Watersheds. Every effort should be made to reduce the impervious footprint of the new construction, for maintaining water infiltration and managing stormwater. New development on Ft. Meade should not increase the contaminant load to nearby rivers and wetlands, and decrease biotic integrity of the aquatic community, especially on Patuxent Refuge lands.	Fort Meade will implement the following BMPs and design guidelines during the design and construction phases of the proposed project to protect water resources as funding allows: low-impact development; compliance with USACE and MDE permit requirements where applicable; implementation of Fort Meade's existing Erosion and Sediment Control Plan and SWPPP Plan.
38		EUL and BRAC - reduction of impervious surfaces and contamination to surface water.	DOI	Alternatives to reduce impervious surface of parking lots, such as the use of porous pavers, should be used extensively throughout the new construction designs at Ft. Meade.	The Fort Meade Green Building Manual strongly encourages the consideration of design and building options to reduce impervious surfaces. The project approval process for new development will ensure that options to reduce impervious surfaces are considered including the consideration of pervious surfaces. See 4.7.2.2 of the EIS and Appendix H (Green Building Manual).
39		EUL and BRAC - ban on use of coal-tar sealants and contamination to surface water.	DOI	The Department recommends a ban on the use of coal-tar sealants on the installation, since much of the Fort Meade property drains onto Patuxent Research Refuge.	The use of coal-tar sealants are not routinely used during new construction. Alternatives to coal-tar sealants for use across the Installation to minimize additional pollutant loading to the watershed will be evaluated and adopted, where practical.
40		EUL and BRAC construction - reduction of impervious surfaces		The DEIS does not have a map depicting the watershed drainage areas to which Ft. Meade lands drain. This deficiency should be corrected in the FEIS.	Map of the Fort Meade watershed drainage areas has been included.
41		EUL and BRAC construction - maps	DOI	Water and Biological Resources. The Department of the Army should also strongly consider using green roof technology to lessen the impact of its impervious	The Fort Meade Green Building Manual strongly encourages incorporating green roofs along with bioswales and pervious paving. The Fort Meade

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				surfaces, and to cool buildings to save on energy consumption. Fortunately, the Baltimore-Washington area has a strong base of contracting expertise in this field, with many Federal, municipal and private companies installing green roofs in recent years. A listing of area projects is available at www.greenroofs.com . The Washington, DC, area was second in the entire country for most green roof projects in 2006.	approval process for new development will ensure these techniques are considered. See Section 4.7.2.2 of the EIS and Appendix H (Green Building Manual).
42		Socioeconomics	DOI	Socioeconomics. The addition of approximately 5,695 – 15, 695 employees at the installation and associated EUL buildings , raising the total estimated Ft. Meade area personnel level after the proposed action to 36,437 – 46,437, will have consequences for Ft. Meade lands and waters well beyond the construction of buildings. Some of these new personnel will take advantage of consumptive and non-consumptive recreational opportunities outdoors at Ft. Meade. In order to better integrate the workforce to the Ft. Meade environment on which they perform their duties, construction planning should also consider the human scale of daily interactions with the natural world. Walking paths connecting buildings, native gardens and lunch tables, fishing opportunities, and biking and walking trails along the water or forest's edge can all enhance the employees understanding of the lands they are tasked with protecting and using in their mission. These elements are critical in the design and layout of new buildings and not an afterthought to be the sole responsibility of Morale, Welfare and Recreation after all the design plans are completed.	Thank you for the comments. These considerations are part of our planning for construction on both BRAC and EUL sites. There is already an extensive network of such amenities on Fort Meade and we look forward to their extension.
43		Socioeconomics	DOI	Socioeconomics. Experiences in natural environments have been shown to reduce stress and promote better health and creative development in children and adults. The DOI recommends that the Army create additional opportunities for fishing and nature trails accessible to the disabled, as part of the	Thank you for the comment. These are being considered and may be applied where feasible and are subject to sufficient funding.

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				restructuring construction, as many veterans often move into civilian defense contracting positions, such as those being generated at Ft. Meade.	
44		Biological Resources and Water Resources.	DOI	The DEIS does not adequately address potentially significant adverse impacts to natural resources under the administration of the Department's U.S. Fish and Wildlife Service (FWS). The Ft. Meade BRAC-related construction poses a significant threat to the biological and territorial integrity of the Patuxent Research Refuge, a unique national interest in the forefront of scientific research and protection.	The discussion of impacts to the watershed has been expanded in Section 4.7.2.2 of the FEIS. Fort Meade's Green Building Manual provided recommendations of specific mitigations for the design of stormwater controls to minimize impacts to the environment. The Green Building Manual is included in Appendix H.
45		Biological Resources and Water Resources	DOI	Because of our concerns, the Department may, depending on the proposal included in the FEIS, refer this project to the Council on Environmental Quality under section 1504 of the Council's Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act. We request the opportunity to coordinate fully with the Department of the Army at the earliest possible time in order to discuss and resolve these concerns and avoid the necessity for referral.	With additional information, increased coordination and discussions we believe a referral to CEQ would not be necessary. Fort Meade will continue to coordinate with the Patuxent Wildlife Refuge.
46		Biological Resources and Water Resources	EPA	The sections describing natural resources should be expanded. The FEIS should identify the location of the proposed projects and the natural resources (upland habitat, wetlands, surface water, wildlife, etc) that they might impact. The discussion should include species found or expected, acreage, stream length, wetlands functions and values, and other pertinent details.	Sections 4.7 through 4.9 have been revised.
47		Biological Resources and Water Resources	EPA	A map depicting the proposed projects in relation to the natural resources should be provided.	Figure 4-3, Water Resources and Figure 4-4, Forest Resources and Habitat Protection Areas show the relationship to the proposed construction areas.
48		Biological Resources and Water Resources	EPA	A table should be included that contain the size of the impacted area and the total size if it is part of a larger complex. This table should be completed for the alternatives and sub-alternatives analyzed in the	Design information regarding the EUL site is not currently available. BRAC design information indicates that no direct impacts to wetlands or streams are anticipated. Formal delineation of

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				DEIS.	wetlands and their potential to be impacted will be completed prior to the construction phase of the project.
49		EUL - Biological Resources and Water Resources	EPA	Impacts to all natural resources should be avoided, minimized and mitigated. This should be discussed in the FEIS.	The EIS discloses the environmental effects of the proposed federal action and demonstrates that the Army has taken an interdisciplinary look at the environmental consequences of implementing the actions. The process of avoidance, minimization and mitigation are addressed throughout the analysis.
50		EUL - Biological Resources and Water Resources	EPA	If any water bodies are to be crossed, bridges or oversized culverts should be considered to allow for wildlife passage and habitat continuity.	Bridges or oversized culverts to allow for wildlife passage will be considered as mitigation actions within the EIS. Text added to Section 4.7.2.2.
51		EUL - Biological Resources and Water Resources	EPA	In addition, we support the 100 foot buffer around wetlands and water features as described in EUL 2A.	We will incorporate in the project development plans as many 100 ft buffers as possible.
52		Cumulative Impacts-Water Resources/Biological Resources	EPA	The cumulative impacts section should be expanded to address other projects in the area. Additional discussion should be provided for water and wetland resources.	Text detailing which proposed or past projects were considered in assessing cumulative impacts has been added to Section 4.14.6. Regional development includes the expansion of Fort Meade's BRAC activity and EUL development. As the surrounding communities develop, they will also be held accountable to MDE's environmental standards.
53		Utilities/Energy - Construction	EPA	This project provides an excellent opportunity to implement the President's Executive Order 13423: Strengthening Federal Environment, Energy and Transportation Management by incorporating energy efficiency into the renovation and construction efforts for this project. Enclosed with this letter is information that EPA recommends the Army considers when planning the renovation/construction phase of this project.	New BRAC construction on Fort Meade will, although funding constraints are expected, implement E.O. 13423 with the guidance of the Fort Meade Green Building Manual (included as Appendix H in the FEIS). New EUL construction provides the best framework within which successful implementation of LEED and E.O. 12323 may occur.
54		Utilities/Storm Water Drainage - Construction	EPA	We also recommend using low impact development techniques to reduce Storm Water impacts resulting from new construction.	Where applicable, and funding dependent, BRAC and EUL construction will implement the Fort Meade Green Building Manual to assist new construction in meeting LEED Silver, and where

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					possible above, ratings at Fort Meade. This manual integrates, to the extent resource allow, programs and policies that support sustainability and environmental stewardship such as Low Impact Development (LID) techniques to minimize environmental impacts.
55		Utilities/Storm Water Drainage - Studies	EPA	We also recommend that the Army analyze Storm Water issues and controls base-wide and continue with detailed storm drain study recommended by the Master Plan as stated on page 4-150.	An Institutional Management Plan (IMP) is being completed to analyze source identification, physical site evaluation and management program development base wide. The IMP is a compliance alternative for seeking coverage under the Phase II NPDES storm water permit. The IMP will be completed this FY. This IMP may eliminate the need for the detailed storm drainage study or the IMP may validate the need for additional storm drainage analysis. Section 4.12.1.5 has been edited to reflect this.
56		Biological Resources - FWS Coordination	EPA	We recommend that the project team contact the appropriate state and federal agencies annually to coordinate on threatened and endangered species and other species of concern.	The Army supports funding every 5 yrs for RT&E studies. Previous studies determined no RT&E species occur on FGGM. However, FGGM is open to exploring cooperative efforts to conduct studies more frequently.
57		EUL - Site Contamination/C ordination	EPA	The FEIS should include more information on Site S. The army should coordinate with other parties involved in the closure or monitoring of the landfill prior to any activities at this site.	More information on Site S has been included throughout the EIS. Site S will continue to be required to meet the RCRA Permit requirements during and after development. Site S is currently also being studied under the CERCLA program with EPA/MDE oversight.
58		EUL Construction	EPA	The FEIS should include more information about the actual construction plans for the sites. There is little information about the impacts from these construction activities.	Site Y and Site Z have recently been surveyed and land use planning is ongoing. The actual construction and building types will not occur until 2008 at the earliest depending on tenant demand.
59		Transportation Coordination	EPA	The Army should coordinate with the appropriate agencies about transportation issues in the vicinity.	Coordination with appropriate transportation authorities is ongoing and the Army is committed to the process of information sharing and design coordination. The Installation, EUL Developer,

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					and MILCON team at USACE Baltimore District are continuing dialogue and coordination with the MD SHA and Anne Arundel County to discuss transportation issues.
60		DEIS Overall	MD State Clearing house	The Maryland Department of Housing and Community Development, and the Maryland Emergency Management Agency found this project to be consistent with their plans, programs, and objectives.	The Army appreciates the Maryland Department of Housing and Community Development's and the Maryland Emergency Management Agency's efforts in reviewing this EIS and their consistency findings.
61		EUL - Socioeconomics	MD State Clearing house	The Maryland Department of Planning (MDP) stated that the FEIS would be improved with clarification about the methodology used to arrive at the 10,000 personnel being accommodated by the construction of administrative space, as it relates to the Enhanced Use Lease actions.	10,000 office building occupants results from calculations of the available acreage (170), a building density assumption (FAR - Floor to Area Ratio of 25%), and the allocation of 200 square feet of building space per person. Mathematically, its $170 \text{ ac} \times 43,560 \text{ sf} = 7,405,200 \text{ sf}$ of land $\times .25 \text{ FAR} = 1.85 \text{ million sf}$ of building. Rounded to 2 million sf of building divided by 200 sf per person equals 10,000 persons.
62		Transportation	MDOT	The combination of the direct impacts to the transportation system as a result of the mandated job growth by 2011, the EULs, and the indirect impacts associated with this growth will, in many cases, cause a degradation in the quality of the transportation system in terms of delay, congestion, and safety. Therefore, capital and operational improvements to Maryland highways and transit systems will be needed to mitigate the traffic impacts of the preferred alternative. Typically, during the NEPA process, traffic and environmental mitigation actions to lessen the negative impacts of the project are identified and included as a part of the project. These traffic mitigation projects and their timing and impacts should be identified in the document. In addition, funding sources for these highway and transit improvements, including but not limited to Defense	See Section 4.15

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				Access Road (DAR) funds, should be identified in the document.	
63		Transportation	MDOT	The document's evaluation of the transportation impacts to both highway and transit systems and needed mitigation, both within and outside Ft. Meade, remains unfinished.	See Section 4.15
64		EUL - Transportation	MDOT	The DEIS does not adequately attempt to predict the Indirect and Cumulative Effects (ICE) of the changes in demographics on and around the base. The influx of the jobs and development associated with the Enhanced Use Leases will undoubtedly bring about land use and travel changes (and its associated socio-economic and natural environmental impacts) leading to the installation that have not been adequately accounted for. Specific traffic and environmental mitigation must be identified in the Final EIS.	The Section 4.15 of the FEIS has been substantially revised to identify specific mitigative measures.
65	ES-5 line 1	EUL/ Transportation	MDOT	The Enhanced Use Leases (EULs) along Reece Road are expected to add 10,000 jobs. Appendix F on page F-7, shows the trip generation for the EULs exceed 11,000 peak hour trips. This would seem to be inconsistent with a development of 10,000 jobs.	Text revisions and corrections have been made throughout the document.
66	ES-5 lines 26-29	Executive Summary	MDOT	The first sentence is confusing and can be construed as contradictory, is a run-on sentence, and needs to be re-written.	Text in Section ES-6 has been revised to clarify.
67	ES-7 lines 1-4	Executive Summary	MDOT	The first sentence is confusing and can be construed as contradictory, is a run-on sentence, and needs to be re-written.	Text in line 1-4 on page ES-7 has been revised to clarify.
68	ES 7	table ES1	MDOT	It would be beneficial to add additional text or table footnotes that clarify or define the format of the table better, explaining why the PX, GYM, and UPH site locations are overlapped or repeated.	Table revised to clarify.
69	ES 12 line 5	Transportation	MDOT	The BRAC Realignment and EUL Actions Alternative is identified as being developed in accordance to the Fort's Installation Design Guide (IDG) and Integrated Natural Resources Management Plan (INRMP). Does this allow for the mitigation considerations in MD	Fort Meade is coordinating with all appropriate transportation agencies on an ongoing basis. In addition, the EUL developer is conducting a traffic study to support SHA planning. Mitigations for traffic impacts around Fort Meade

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				174?	have been identified in Section 4.15 of the FEIS.
70	ES 14	Table ES 3 and page 3-12 table 3-4: BRAC Sub-Alternative 2A should read BRAC sub-alternative 3A	MDOT	- Site F, G, X for Sub-Alternative 3B should be changed to Site F, G, K - Site F, G, X for Sub-Alternative 3C should be changed to Site F, G, C - Site F, G, X for Sub-Alternative 3D should be changed to Site A, L, C	Table ES-3 and Table 3-4 have been revised.
71	ES 16	Transportation	MDOT	There should be a summarization of the public transit portion of the Odenton Small Area Plan, since there will be direct impacts as a result of BRAC.	See Section 4.11.1.11 Future Conditions - substantial additions made to describe Odenton plans, although plans are not yet very specific.
72	ES 18, 4-39, 4-47 and Appendix B	Air Quality and Noise	MDOT	Beginning on Page ES-18 and continuing in several sections (Page 4-39 - Air Quality, and Page 4-47- Noise) the DEIS asserts there are no significant impacts to Air Quality or adverse Noise impacts resulting from the proposed actions. Please include Air Quality and/or Noise technical reports for the alternatives.	Technical report for Air is in Appendix B. There is no Noise technical report. Additional information on noise has been added to Section 4.5 of the EIS.
73	ES 20 , 4-186	Transportation	MDOT	The conclusion in these Tables ES-4 and 4-37 on pages ES 20 and 4-186, respectively is that there would be "No significant adverse effects" on Roadways and Traffic resulting from the BRAC actions alternative. Based on the Proposal, this seems to be an inaccurate conclusion.	We respectfully disagree with the comment. Further analysis of MD 175 (in response to request for "corridor" performance) demonstrates that BRAC corridor LOS levels are the same as No-Action LOS levels; minor changes in intersections as described. A narrative on the MD 175 corridor segment analysis is included in No Action, BRAC plus EUL, BRAC and Cumulative Effects sections of the EIS.
74	ES 20 , 4-186	Transportation	MDOT	Proposed mitigations- an "easement" for the widening of MD 175 should be changed to "right-of-way" for the widening of MD 175.	Easement is the appropriate term. The text has been revised to state "FGGM is working with SHA to develop plans for widening MD175. Based on the outcome of the planning process, FGGM will negotiate to provide any necessary easement."
75	ES 20 , 4-186	Transportation	MDOT	Major concern with the assumption that the BRAC Actions Alternative is summarized as having "no significant adverse effects". The traffic generated from the 5,695 workforce personnel increase would	The BRAC Actions Alternative has an adverse effect on roadways but it is not considered to be a "significant adverse effect" based on the analysis of nearby intersections, as described in

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				have a significant adverse effect on roadways and traffic.	the report. Trips are distributed across multiple roadways. No major nearby intersections fall to LOS F under this alternative. A new analysis summarizing traffic model findings of the Maryland BRAC Report related to Fort Meade BRAC identifies cases of adverse effects in the greater region, on certain roadways that are already near or exceeding capacity, particularly as background traffic increases to year 2015. Attributing this "tipping point" strictly to BRAC does not seem warranted, based on the scope and pace of other development in the area. In any case, mitigation is now identified for the BRAC Action Alternative.
76	ES 20 , 4-186	Transportation	MDOT	The DEIS recognizes significant adverse effects to roadways and traffic for BRAC and EUL Alt (Alt. 2) but no significant adverse effects for BRAC Alt (Alt. 3). Proposed mitigation for Alt 2 is to continue planning actions to grant Anne Arundel County and SHA an easement for widening MD 175 and to lease the land to Anne Arundel County and Howard County for the bus maintenance facility on Ft. Meade Tipton Airport in the expectation of the Fort receiving in-kind transit service.	See response to comment 76, above. Mitigation is now included for the BRAC-only alternative. In addition, language has been clarified regarding the easement for widening MD 175 and the lease for the Central Maryland Transit Operations Facility.
77	ES 21, 4-187 and F-9	Transportation	MDOT	Under Installation Transportation's Proposed Mitigations, it states "Evaluate and implement (if warranted) expanded transit service on the Post, coordinated with off-Post services." Please note that the Final EIS must identify specific impacts and mitigation to the transit service in the document.	Sections 4.11, 4.14.10. and 4.15 discuss transportation impacts and proposed mitigations, if necessary. The Record of Decision will identify significant adverse impacts and associated selected mitigations.
78	ES 21, 4-187 and F-9	Transportation	MDOT	Under Installation Transportation's Proposed Mitigations, it states" "Evaluate and implement (if warranted) expanded transit service on the Post, coordinated with Off-Post services". The document needs to address more detail on specific transit impacts and corresponding mitigation recommendations. This should include an estimation of additional trans ridership demand as a result of	Additional transit ridership is speculative at this point as discussions on operations, financing and coordination are just now beginning. Mitigation section has been expanded to include FGGM commitments.

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				BRAC expansion and proposed expansion to transit services and operations.	
79	ES 21, 4-187 and F-9	Utilities	MDOT	Under Stormwater Drainage Erosion & Sediment Control or Stormwater Management, plans for the parking lots/ new impervious surfaces should be considered and quantified. It should have greater detail for Proposed Mitigation other than simply stating: "Follow protocols outlined in the storm water NPDES permits and state sediment and erosion control guidelines. Implement a Storm Water Pollution Prevention Plan Follow protocols outlined in the storm water NPDES permits and state Sediment and Erosion control guidelines."	In addition to compliance with applicable laws, regulations, polices, and permit requirements for stormwater management. We will follow E.O. 13423 and the Green Building Manual, to the extent practical which outlines specific mitigations for storm water management and reductions of impervious surfaces (See Appendix H).
80	1-3	Transportation	MDOT	With the relocation of the golf course, were trips and their distribution assigned at MD 170? Are there any proposals for a gate entrance and how it will be designed?	Trip distribution focused on peak periods, not on the golf course. Gate entrance designs have not been determined at this stage of the process.
81	1-4, Line 22	Purpose and Need	MDOT	Rationalizing the presence of DoD activities within the NCR sounds contradictory to the sentence on lines 28-30	Text on Line 22, page 1-4 has been revised to clarify.
82	1-5, Line 11	Purpose and Need	MDOT	Line sounds contradictory to the sentence on lines 19-21 page 2-3, table 2-1: Lists number of incoming personnel (BRAC).	Text on Line 11, page 1-5 has been revised to clarify.
83	2-4	Table 2-2	MDOT	Should clarify that the listed Total Required Space does not include PX, Gym, and UPH.	Table has been revised to clarify.
84	2-8, Line 30	Description of Proposed Action	MDOT	(building would contain 110,624 square feet) is inconsistent with Table 2-2, which indicated 76,357 square feet for UPH.	Text on Line 30, page 2-8 has been revised to clarify.
85	2-12, line 20	Transportation	MDOT	The DEIS states, "The comprehensive Expansion Master Plan (CEMP) is currently in draft form." It addresses the installation's projected development for a 30-year period and projects changes to both the installation and the surrounding communities. Will the draft CEMP Transportation Plan include information about transportation impacts and potential cumulative effects of the EUL projects, beyond what is not clearly specified in the Cumulative Effects Section of the	The EIS does not have information regarding the content of the next version of the CEMP. The transportation section of the EIS has been expanded to provide more discussion of impacts and mitigations associated with BRAC and EUL actions.

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				DEIS?	
86	2-13 & F-9	Transportation	MDOT	Proposed Mitigation for Alt 2.:to continue planning actions to lease land to Anne Arundel County and Howard County for a regional bus maintenance facility adjacent to Ft. Meade Tipton Airport in the expectation of the Fort receiving in-kind service. This needs to be discussed further. There is no mention of financial impacts to local and State funding sources.	See the revised Section 4.11.2.1 "Future Conditions" and Appendix F describing the Odenton plan for transit, pedestrian and bicycle improvements and related regional initiatives from MD BRAC Report.
87	3-4	Alternatives	MDOT	The write up is missing the BRAC Sub-Alternative	BRAC sub-alternative has been added to Section 3.0.
88	3-4, line 5	Alternatives	MDOT	In the last sentence of the first paragraph, please change to "construction" to constructed.	Word has been corrected.
89	3-4, line 5	Transportation	MDOT	The BRAC realignment and EUL Actions Alternative is identified as being developed in accordance to the Fort's Installation Guide (IDG) and Integrated Natural Resources Management Plan (INRMP). Does this allow for mitigation considerations on MD-174	Fort Meade is coordinating with all appropriate transportation agencies on an ongoing basis. In addition, the EUL developer is conducting a traffic study to support SHA planning. Mitigations for traffic impacts around Fort Meade have been identified in Section 4.15 of the FEIS.
90	3-12, line 11	Alternatives	MDOT	BRAC- Directed Project Descriptions, Section 2.2.6) does not match the actual title of the Section used in the DEIS.	Section title has been corrected.
91	chapter 4- general comments	Transportation	MDOT	No identification is made of the necessary on-off-Post gate improvements, entrance/exit roadway widening, security check-point methods or expansions, intersection improvements, or accommodations for transit connections to/from the base, which would also require security check point adjustments or expansions needed to support the substantial increase in trips onto and off of Ft. Meade property in the peak hour.	Access Control Points on and off Fort Meade are described in Section 4.11.1.3. Section 4.15, Mitigation and Best Management Practices, outlines potential measures to improve gate performance.
92	chapter 4- general comments	Transportation	MDOT	It is stated several times through the DEIS that the Preferred Alternative will have an effect on the off-Post transportation network for the 2011 timeframe due to anticipated failing LOS on the surrounding roadway network, but there is no mention on whether transit will be affected. There is also no mention of whether the EUL components will have significant	Transit is presented as having major potential to reduce peak period congestion; this is addressed under Mitigation by the Army as well as Best Management Practices by local and state entities in Appendix F. It is also acknowledged that transit can be operationally affected by congestion. If the projected "worst case" traffic

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				adverse effects on transit, as is mentioned for roadways and traffic.	congestion does occur, without intervention it is likely to affect transit routes operating during the peak periods along those congested corridors; systems may adjust routes or timetables or both to accommodate conditions.
93	chapter 4-general comments	Transportation	MDOT	Security gate processing is not considered in the transportation impacts. It needs to identify how the off-Post will be able to process all of the incoming trips while keeping queuing from impacting the arterial roadway system.	See Section 4.15, Mitigation and Best Management Practices, for discussion on potential measures to improve gate performance.
94	chapter 4-general comments	Transportation	MDOT	The determination of no significant "effect" for BRAC only is subjective. Some poor functioning intersections remain. The poor performance of the intersections in the No-Action is not support enough to claim no impact.	"No significant effect" is not the same as "no effect". The determination is subjective, but is based on the analysis, as discussed in the report and in response to comments 76 and 77 above. Intersections that perform poorly prior to BRAC continue to perform poorly after BRAC for the period in question.
95	chapter 4-general comments	Transportation	MDOT	The DEIS considers only intersection performance. In the interim year, there are corridor level capacity issues, specifically with the two-lane section of MD 175	The analysis has been expanded to examine Arterial level of service for the 3.2 mile segment of MD 175. In addition, new tables and narrative have been added to the "No Action" and "BRAC plus EUL" alternative, reporting on the broader regional implications of traffic growth in 2010 and 2015, with and without BRAC (plus EUL), and with and without additional BMC recommendations. As noted in the new analysis of the Maryland BRAC Report, the planned improvements to MD 175 appear to substantially clear up problems in that corridor by 2015, both with and without the BRAC plus EUL alternative, although other problems remain throughout the region.
96	chapter 4-general comments	Transportation	MDOT	The DEIS does not include a consideration of the impact of growth on the MD 295 interchanges, specifically at MD 175, where little reserve capacity exists.	The Maryland BRAC Report, which includes BRAC and EUL, provides a regional perspective on the traffic impact of BRAC growth in combination with other concurrent development in the region. The FEIS summarizes findings

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					from the Maryland BRAC Report pertaining to MD 295 and other roadways in the area that are impacted by BRAC plus EUL and by regional growth. The analysis is provided in Section 4.11.2.2, Table 4-28 and Section 4.11.2.3, Table 4-30 and accompanying text. The EUL developer study and the corridor study funded by the DoD Economic Analysis Program will provide additional information.
97	chapter 4-general comments	Transportation	MDOT	Access points to large facilities, such as the Defense Information Systems Agency and EUL sites that have access to State Highways need to be identified and coordinated through the Maryland State Highway Administration's Engineering Access Permits Division.	We agree, and have been and will continue to be in regular coordination with the MD SHA.
98	chapter 4-general comments	Transportation	MDOT	There is no discussion regarding transit within any of the three BRAC alternatives analyzed. An estimated range of additional transit ridership demand as a result of the BRAC expansion needs to be discussed.	Transit is discussed as a key factor in potential mitigation and in best practices for state and local jurisdictions, not as part of the alternative.
99	4-19	Land Use/ Table 4-3	MDOT	Streams and open space with quantifications of impacts. The natural environmental impacts should be quantified and added to the BRAC/EUL action. This information is necessary for an adequate indirect and cumulative effects assessment in the MD 175 environmental document.	Specific details of the design and layout of the proposed action is not available at this time and natural resources including streams, wetlands, and woodlands will be delineated, mapped and quantified before any actions are taken. Natural resources will be protected to the fullest extent possible. This information will be made available when Development Plans have been completed.
100	4-34	Aesthetics and Visual	MDOT	Providing mapping that shows where Fort Meade plans to build within each site for each sub-alternative. There is likely a tentative plan for Sites Y and Z.	The siteplans for the sites are in the process of being developed. Even though a planning charrette has been completed for the preferred BRAC sites, the design charrettes are ongoing. Plans for EUL sites are not expected to be developed until 2008.
101	4-40, line 21	Air Quality	MDOT	It should be Alternative 2 (not 3)	Text edited to correct.
102	4-41	Air Quality/ Table	MDOT	The table only shows ozone and PM, but the text	Table 4-6 edited to correct.

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		4-6		above it says the table shows that the County is in attainment for all other criteria pollutants.	
103	4-43, line 29	Air Quality	MDOT	Stafford and Prince William Counties are identified- is that correct? They are in Virginia.	Text edited to delete.
104	4-45, lines 20-25	Air Quality	MDOT	Do you plan to do a wetland survey/ jurisdictional determination prior to the FEIS? Otherwise, how will you know your wetland impacts are accurate?	Draft wetlands surveys have been completed for Sites Y and Z. No wetlands survey has been done for Site S. All wetlands will be delineated and mapped and appropriate documentation developed before any project is implemented.
105	4-47	Noise	MDOT	Will the Fort be performing Air Quality and/or Noise technical reports?	See Appendix B for Air Quality. No new technical report for noise will be produced. Previous studies have been referenced.
106	4-86	Cultural Resources	MDOT	When mentioning the impacts to the potential cemeteries/ Burial grounds, please add a clause about how these may be protected resources (later in the document it is stated that there may be resources the Fort is unaware of, such as cemeteries, burial grounds, etc.)	Text has been revised to include that they may be protected resources.
107	4-100	Socioeconomics	MDOT	The Environmental Justice discussion is missing information about the elderly and the languages spoken in the Region of Influence.	The Environmental Justice section addresses actions that could disproportionately affect ethnic minorities and lower income populations, regardless of age. Languages spoken and the elderly are interesting demographic facts that could be mentioned elsewhere in the document, but have little relation to environmental justice.
108	4-108	Transportation	MDOT	The transportation section opens with a brief outline of topics such as traveler information, pedestrian access, etc. but does not address these in the text. A discussion of TDM/TSM strategies available to the off-Post would be appropriate.	The opening is from the CEMP. Revised text discusses pedestrian access; traveler information is primarily discussed in Appendix F.
109	4-108, line 30	Transportation	MDOT	Clarify competing local needs.	These will primarily be financial constraints; again, this is a quote from the CEMP.
110	4-109, line 16	Transportation	MDOT	Delete SR designation for MD 32 and MD 175	Text revised per comment.
111	4-109	Transportation	MDOT	The discussion on macro-level impacts from MDP's BRAC report should not suffice, as the base should conduct its own micro-level transportation impacts	Micro-level impacts have been described as extensively discussed in the report. See also revised text in Transportation Section 4.11.2.6

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				analysis.	on new studies underway and proposed.
112	4-111-general	Transportation	MDOT	Please note that the transit will be a key factor in reducing the amount of trips coming from the Fort and EUL sites. Consider identifying potential for traffic volume reduction from this section through proposing specific transit improvement on and off site.	The mitigation section has been expanded to include transit.
113	4-111, line 2	Transportation	MDOT	Remove the dash between MD 295	Text revised per comment.
114	4-111, line 9	Transportation	MDOT	Should read "... and commercial developments, consistent with adopted Anne Arundel County small area plans, in the area generate..."	Text revised per comment.
115	4-111, line 21	Transportation	MDOT	Change Subway (Baltimore) to Metro (Baltimore). Replace "subway" with "Heavy Rail"	Text revised per comment.
116	4-111, line 27	Transportation	MDOT	Replace "in a" with "along a north-south"	Text revised per comment.
117	4-111, line 28	Transportation	MDOT	Adjust the sentence as follows: "and connects with many local bus routes. Near Fort Meade, it..."	Text revised per comment.
118	4-112, line 18	Transportation	MDOT	Replace "Subway" with "Metro", line 22 , move (CTC) to between "Corporation" and "Connect"	Text revised per comment.
119	4-112, line 24-25	Transportation	MDOT	Should be re-written as follows "...vicinity of Fort Meade. However, only one route (K route) currently serves Fort Meade directly. Similarly, the F Route is the only route that serves NSA."	Text revised per comment.
120	4-113, line 4	Transportation	MDOT	Change "US 32" to "MD 32"	Text revised per comment.
121	4-115, general	Transportation	MDOT	When will the transit/ shuttle service discussions begin regarding the EUL?	This may occur as part of the Transportation Study being conducted by the EUL developer, however, the scope of that study is not part of this EIS, due primarily to timing.
122	4-115	Transportation/ Figure 4-6	MDOT	Call out Ft. Meade property in the Legend	This was not addressed, as we believe Fort Meade property is clear from previous maps and making the change might have added confusion to the current exhibit.
123	4-116, 117,119	Transportation	MDOT	The text in Sections 4.11.1.7, 4.11.1.8, and 4.11.1.9 appears to have been shuffled between these sections as compared to the previously reviewed DEIS, and is currently not located under the correct	The text was moved from the previously reviewed DEIS in order to keep major affected environment sections together as much as possible and to maintain consistency among

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				section heading.	sections of the report.
124	4-119, line 14	Transportation	MDOT	The DEIS states that Synchro was used to represent traffic operational characteristics at intersections, such as number of lanes per approach, striping, lane width, number of pedestrians crossing, signal phases and timing. Synchro is typically used for traffic simulation in a stage of project development that includes more detailed design. Synchro applied at this level of project development tends to yield unrealistically positive results and may mask the real intersection/ corridor capacity needs. We recommend that Critical Lane Volume Analysis be performed to augment the Synchro model.	Data has been provided to SHA so that they may choose their own methods of analysis. Synchro is widely used; we are using it on the existing network, not the new network, and it is showing failures with future volumes.
125	4-119	Transportation	MDOT	Were existing signal timings used for the Synchro model or were the signals optimized? There is a concern that if the signals were optimized, it may create better roadway conditions as opposed to how roads will realistically operate under future conditions.	Optimized signal timings are used, see footnote in section 4.11.1.9 - SHA is assumed to continue monitoring and improving operations where possible.
126	4-124	Transportation	MDOT	Please indicate discussions of pedestrian roadway or transit service safety, as related to increased traffic volumes, in the sections related to transportation.	Sections have been added to Table 4-40 (Mitigation Summary) on FGGM initiatives to improve pedestrian and bicycle facilities and access, and to Appendix F, Best Management Practices on Pedestrian and Bicycle initiatives off the Post. The study did not directly address pedestrian safety related to traffic volumes, but safety will be increased with dedicated, well-designed facilities.
127	4-124	Transportation	MDOT	The improvements to all of the roadway system, collectively, are substantial. Is another environmental document planned to cover all of these improvements, which will, collectively, be substantial?	The Army is responsible for the NEPA requirement for Army actions only.
128	4-124	Transportation	MDOT	For the roadways identified at level of service (LOS) 'E' or 'F', this section should include discussion of steps the base will take to mitigate traffic to bring them to an acceptable LOS. Have any interim plans been determined or are there any projected mitigation studies underway?	Text has been revised/expanded in Section 4.11.2.6 (describing studies and other measures) and in Mitigation Table 4-40.

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129	4-124	Transportation	MDOT	Facilities for pedestrian and bicycle modes along MD 175 are mentioned. Please note the types of measures are being considered?	Pedestrian and bicycle modes of transportation are considered to be mitigations (when initiated by the post) and best management practices by other agencies. Additional detail is provided. Mitigations are presented in Section 4.15. Best management practices are presented in Appendix F. See revised text.
130	4-125, lines 15-21	Transportation	MDOT	The third bullet should make mention that the official title of this study is the Central Maryland Maintenance Facility, as listed in the Maryland Transit Administration's Development and Evaluation Program within the MDOT's FY 2007-2012 Consolidated Transportation Program.	Text has been revised.
131	4-126	Transportation	MDOT	Footnote 5 reads, " AACO indicated that Round 6C forecasts are more realistic than the previous forecasts; in terms of total numbers the EUL is included (as well as the BRAC) but the location will be different and the timing will be sooner rather than later. That forecast estimated 84,997 jobs for Fort Meade/Odenton by 2030, compared with the 48,250 in 2006. The differences in timing, 2030 versus 2011 horizon years, and locations could have a significant change in the traffic assignments throughout the roadway system.	Comment noted.
132	4-132	Transportation/ Table 4-28	MDOT	The #19 intersection (Reece Road and Jacob's Road) shows no change in LOS between the No-Action alternative and the BRAC Realignment and Enhanced Use Lease Actions Alternative in the AM peak period and the PM peak period. Table 4-29 (page 4-137) shows a declining LOS as a result of the BRAC Actions Alternative, from LOS D to LOS F during both the AM and PM peak periods. - What is the origin of the additional traffic volumes for the BRAC Actions Alternative that would not occur under the BRAC Realignment and enhanced Use Lease Actions Alternative? Is a traffic technical report available? - Please explain why no change in LOS occurs between the No-Action Alternative and the	The model output was extensively re-reviewed subsequent to the DEIS. Changes and corrections were made to input assumptions (such as trip generation for EUL) and to trip distribution, including cases such as the #19 intersection noted in the example where trip distribution was improperly coded. The corrected data and underlying models were provided to SHA. The revised Tables and Figures demonstrate the impact of BRAC plus EUL throughout the ROI.

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				Preferred Alternative BRAC Plus EUL at Reece Road/Jacobs Road, as well as Reece Road at Severn Road and Ridge Road at Severn Road?	
133	4-177, line 10	Transportation	MDOT	The preparers of the DEIS cite the inability to evaluate a planned expansion at the National Security Agency because, "the size and origin of the expanded NSA workforce is not known, it is not possible to quantify the combined or cumulative impacts of the BRAC and NSA actions." If details become available they should be incorporated into the assessment.	Initial updated forecasts on NSA were provided to SHA and shared with the study team. The updated values (see Table 4-38) were included in the cumulative effects shown in Table 39 in Section 4.14.10.
134	4-177	Transportation	MDOT	Unlike the other sections in the Cumulative Effects chapter (4.14), the Transportation section does not state whether cumulative effects would or would not occur. Does Baltimore Metropolitan Council's Round 6C incorporate an estimate on projected NSA workforce growth?	The Cumulative Effects Section has been revised to add cumulative effect for Transportation. Also see Comment 134. It does not appear that Round 6C has the most recent NSA estimates of current growth. These incremental increases have been added to the cumulative forecast.
135	4-177	Transportation	MDOT	Is the total number of the NSA workforce included in the Baltimore Metropolitan Council's Round 6C forecast?	See Comment 134. It does not appear that Round 6C has the most recent NSA estimates of current growth.
136	4-177	Transportation	MDOT	Should the Cumulative Effects section address such effects if the anticipated growth and schedule are known about the NSA expansion?	See Comment 134. The Cumulative Effect includes all available information. The contemplated NSA expansion into Area M will not be included in the BRAC and EUL ROD. Only the potential for cumulative impacts from that contemplated expansion is mentioned in the EIS. To the Army's knowledge, the NSA expansion has not reached the NEPA analysis phase, which may be required in accordance with applicable NSA regulations.
137	4-177	Transportation	MDOT	The BRAC Realignment Action Alternative shows deteriorated operations along MD 175. Many intersections along MD 175 will experience a LOS e or F as a result of the BRAC Realignment Action Alternative. SHA believes these changes in LOS are significant and that the BRAC Realignment Action	Sections 4.11 and 4.15 have been revised. Impacts are presented in Sections 4.11.2 and 4.15 (Mitigation Summary).

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				Alternative will have a significant effect on transportation along MD 175 corridor.	
138	4-177	Transportation	MDOT	Unlike the other sections in the Cumulative Effects chapter (4.14), the Transportation section does not state whether cumulative effects would or would not occur.	Section 4.14.10 has been revised.
139	4-131, line 29	Transportation	MDOT	Sentence should read "MD 175 upgrades are still in the planning phase. Final Design, Right-of-Way, and construction dollars are not yet programmed for the project; typically funding for these other phases is allocated once planning is complete."	Text revised per comment.
140	4-178	Transportation/ Table 4-36	MDOT	2011 Cumulative LOS for Fort Meade: the column alignment is shifted by one row, after the #2 intersection, so that the LOS for No-Action Alternative actually appears under the Cumulative LOS, making it very difficult to discern that changes in LOS will occur between the No-Action Alternative and the Cumulative condition. In addition, the text states that the results are shown in the table, but the results are not discussed elsewhere, this making it appear incorrectly there are no cumulative effects.	Text revised to correct.
141	4-186	table 4-37	MDOT	Proposed Mitigation and Best Management Practices: Transit is not mentioned under proposed mitigation, and is only briefly mentioned under the Best Management Practices column with regard to needed coordination between jurisdictions to expand transit services. This discussion needs to be strengthened in the table by the incorporating more text from the Appendix F, pp. F12-13.	Text in table on transit has been revised.
142	F-7	Transportation :Table 6	MDOT	The table shows that over 11,000 trips will use Reece Road to access EUL sites X and Y during the AM peak hour. The anticipated traffic volume shown for the two EUL sites appears to be excessive for a projected employment base of 10,000 jobs. How were these volumes generated? What was the methodology used to assign trips on Reece Road to the EUL facility and did it consider access points	Text revised to correct.

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				other than Reece Road?	
143	F-8	EUL/ Transportation	MDOT	What was the trip distribution methodology used for the EUL and what was it based on? What directional split was assumed?	See Appendix F for methodology. Detailed data and models have been provided to MD SHA per request.
144	F-9	DEIS Overall	MDOT	Replace "Mass Transit Administration" with "Maryland transit Administration", and do a search, find and replace throughout the entire DEIS for this.	Text revised per comment.
145	F-11	Transportation	MDOT	Will employees have the option to work shifts during non-peak hour periods?	Work schedules, and flexi-time, will be determined later in the planning process.
146	F-12-13	Transportation	MDOT	Transit Best management Practice: Overall- this write-up is good. Regarding the last bullet, it would be very helpful to provide more information on either here or earlier in the document regarding the proposed adjustments or expansion to the on-Post transit shuttles, so that the MTA and the locally operated transit services can start to develop a plan for connections. MTA is also interested in more detail, if available, regarding the suggested shuttle service between MARC and the Post.	The details of the proposed shuttle are still under discussion. Significant modifications have been made to the text, including the Appendix. FGGM commitments and references to new enabling legislation are now included in the mitigation section.
147		Water Quality	MDE- Water Management Administration	This project is generally consistent with our plans, programs and objective contingent upon certain actions being taken as noted - Any above ground or underground petroleum storage tanks that may be utilized must be installed and maintained in accordance with applicable State and federal laws and regulations. Contact the Oil Control Program at (410) 537-3442 for additional information.	Thank you for the comment. Fort Meade will comply with applicable federal and state laws and regulations.
148		Water Quality	MDE- Water Management Administration	This project is generally consistent with our plans, programs and objective contingent upon certain actions being taken as noted - Planning and construction of the proposed golf courses on the sites, the location of the former sanitary landfill at the base, must be coordinated with the Solid Waste Program Contact Ed Dexter at (410) 537-3376. Any solid waste including construction, demolition and land clearing debris, generated from the subject	Thank you for the comment. Fort Meade will comply with applicable federal and state laws and regulations.

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				project, must be properly disposed of at a permitted solid waste acceptance facility, or recycled if possible. Contact the Solid Waste Program at (410) 537-3318 for additional information	
149		Hazardous	MDE- Water Manage ment Adminis tration	This project is generally consistent with our plans, programs and objective contingent upon certain actions being taken as noted - The Hazardous Waste Program should be contacted at (410) 537-3343 prior to construction activities to ensure that the treatment, storage or disposal of hazardous wastes and low-level radioactive wastes at the facility will be conducted in compliance with applicable State and federal laws and regulations.	Thank you for the comment. Fort Meade will comply with applicable federal and state laws and regulations.
150		Hazardous	MDE- Water Manage ment Adminis tration	This project is generally consistent with our plans, programs and objective contingent upon certain actions being taken as noted - Any contract specifying "lead paint abatement" must comply with Code of Maryland Regulations (COMAR) 26.16.01- Accreditation and Training for Lead Paint Abatement Services. If a property was built before 1950 and will be used as rental housing, then compliance with COMAR 26.16.02- Reduction of Lead Risk in Housing; and Environmental Article Title 6, Subtitle 8, is required. Additional guidance regarding projects where lead paint may be encountered can be obtained by contacting the Environmental Lead Division at (410) 537-3825.	Thank you for the comment. Fort Meade will comply with applicable federal and state laws and regulations.
151		Water Quality	MDE- Water Manage ment Adminis tration	This project is generally consistent with our plans, programs and objective contingent upon certain actions being taken as noted - MDE requests that efforts be made to prevent contamination of the surface and ground water of the State of Maryland during the construction and renovation activities. In the event that spills or other releases of petroleum or hazardous materials occur from the proposed operations which may potentially impact State waters, MDE requests prompt notification at 866-633-4686 (toll free).	Thank you for the comment. Fort Meade will comply with applicable federal and state laws and regulations.

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152			MDE-Water Management Administration	The Draft EIS: BRAC 2005- Ft. Meade 2006 (ES2007 03828-0007) is found to be R1: Consistent with Qualifying Comments.	The Army appreciates the Water Management Administration's efforts in reviewing this EIS and its consistency finding.
153		Water Quality	MDE-Water Management Administration	<p>Section 303(d) of the federal Clean Water Act requires the State to identify impaired waters and establish Total Maximum Daily Loads (TMDL's) for the substances causing the impairments. A TMDL is the maximum amount of a substance that can be assimilated by a water body such that it still meets water quality standards.</p> <p>The Department of the Army (Department) should be aware of existing water quality impairments identified on Maryland's 303(d) list. Ft. Meade is situated in two watersheds, identified by the 8-digit codes 02131105 (Little Patuxent River), and 02131002 (Severn River).</p> <p>We note that Section 4.7.1.2 of the EIS identifies watersheds and surface water impairments. Department planners may find nearby impaired waters via the on-line 2006 303(d) list at the following URL http://www.mde.state.md.us/assets/document/Revised%20Final%202006%20IR%20Part%20E6_Cat5.pdf Maryland's 303(d) list is updated every even calendar year. Department planners should review this list periodically to help ensure that local decisions consider water quality protection and restoration needs. Briefly, the current impairments that are relevant to Ft. Meade include the following: 02131105 (Little Patuxent River) - Nutrients: Non-tidal Portion. - Sediments: Non-tidal Portion. - Cadmium: Non-tidal Portion. - Biological (aquatic life is degraded): Non-tidal Portion. Several locations in subwatershed 021311050949,</p>	Section 4.7.1.2 revised to add additional information. Fort Meade will comply with all applicable state and federal laws and regulations and permit requirements.

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				and the adjacent downstream watershed 021311050946. - Bacteria: Tidal Portion in shellfish waters near the mouth of the Nanticoke River. A TMDL is pending 02131002 (Severn River) - Nutrients: Tidal Portion - Sediments: Tidal Portion - PCBs: Tidal Portion - Biological (aquatic life is degraded): Non-tidal Portion. Several locations in impaired watershed 021310021002, and the adjacent downstream watershed 021310021002.	
154		Water Quality	MDE-Water Management Administration	Development should take into account consistency with TMDLs developed for the impaired waterbodies referenced above. Government decisions made prior to the development of a TMDL should strive to ensure no net increase of impairing substances. TMDLs are made available on an updated basis at the following website: http://www.mde.state.md.us/Programs/WaterPrograms/TMDL/Summittals/index.asp	Fort Meade will comply with all applicable state and federal laws.
155		Water Quality	MDE-Water Management Administration	Anti-degradation of Water Quality: Maryland requires special protections for waters of very high quality (Tier II waters). The policies and procedures that govern these special protections are commonly called "anti-degradation policies." This comprehensive plan amendment does not involve any Tier II waters. However, Tier II waters could be added to State regulations in the future.	Comment noted.
156		Water Quality	MDE-Water Management Administration	Presently, no Tier II waters have been identified in Ft. Meade's vicinity. Planners should check for Tier II waters in the Code of Maryland Regulations 26.08.02.04 during future plan use plan updates: http://www.dsd.state.md.us/comar/26/26.08.02.04%2D1.htm	Comment noted.
157		Water Quality	MDE-Water Management Administration	General Guidance: Land use planning should reflect the necessary limits on pollutant loads. Techniques now exist to support land development that minimizes the generation of the pollutants that are impairing our waters. It will be in the interest of local jurisdictions to	Fort Meade will comply with all federal and state permit requirements as applicable to protect water quality and will implement BMPs during the construction phase of all proposed projects.

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			tration	adopt these techniques to optimize growth in a manner that is consistent with TMDLs and the Tributary Strategies for nutrient reduction developed under the 2000 Chesapeake Bay Agreement.	
158		Water Quality	MDE- Water Manage ment Adminis tration	Examples of planning techniques that consider TMDL's: - Consider alternatives to surface water discharges, where applicable. For example, consider identifying land for future spray irrigation of treated municipal waste if the direct discharge of effluent to a stream could become limited by a TMDL or the Bay Agreement nutrients allocations.	Streams that must meet assigned TMDL levels are not expected to be impacted by the proposed project. Fort Meade will consider alternatives to surface water discharges where applicable.
159		Water Quality	MDE- Water Manage ment Adminis tration	- Consider land use planning that will maximize the preservation of forested land, which contributes the least amount of nutrient loading per acre.	Fort Meade will implement a Forest Management Plan for each project site in accordance with Fort Meade policy. Stormwater management will be achieved through the use of Low Impact Development (LID) techniques, as funding permits, and through credits as presented in the MDE Water Management Administration 2000 Maryland Stormwater Design Manual.
160		Water Quality	MDE- Water Manage ment Adminis tration	- Consider giving priority to site designs that minimize impervious area and nutrient loads per unit of development.	Minimizing impervious area and increased nutrient loads is considered in the analysis. To minimize the potential for increases, design will follow, to the extent practical and funding constrained, Fort Meade's Green Building Manual, which assists new construction in meeting LEED Silver, and where possible above, ratings at Fort Meade. The manual integrates programs and policies that support sustainability and environmental stewardship, such as Low Impact Development techniques. The Fort Meade approval process for new development will ensure LID techniques are implemented to reduce the impervious footprint.
161		Water Quality	MDE- Water Manage ment	For more general guidance: Maps and Water Resources Aid to Local Planning (Also see Implications Link) http://www.mde.state.md.us/Water/HB1141/Water	Comment noted and guidance will be considered.

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			Administration	Quality Maps.asp	
162		Water Quality	MDE-Water Management Administration	"Protecting Water Resources with Smart Growth": https://www.epa.gov/smartgrowth/water_resource.htm	Comment noted and guidance will be considered.
163		Water Quality	MDE-Water Management Administration	"Best Development Primer": http://www.epa.gov/smartgrowth/pdf/BestDevprimer.pdf	Comment noted and guidance will be considered.
164		Water Quality	MDE-Water Management Administration	"Maryland's 2006 TMDL Implementation Guidance for Local Governments": http://www.mde.state.me.us/Programs/WaterPrograms/TMDL/TMDL_implementation_2006_guidance_document.asp	Comment noted and guidance will be considered.
165	ES-19	Table ES -4 Biological	MDE-Science Services Administration	The potential for aquatic life effects in Table ES-4 should indicate "potential" adverse effects in the BRAC Actions Alternative column. The use of the phrase, "No adverse effects" is probably incorrect or at least inconsistent with the indicated effects under "Stormwater Drainage" on page ES-21. Loss of aquatic life, especially diversity, typically occurs in receiving streams when the percent imperviousness of the watershed exceeds 5%. Losses continue as the percent imperviousness rises to 20% when the aquatic life in the stream will probably be significantly damaged.	Text has been revised to state no significant adverse effect. Fort Meade will follow its Green Building Manual and other applicable guidance, laws, regulations and policies to manage its stormwater, reduce impervious surfaces, and employ methodologies to protect natural resources.
166		Water Quality	MDE-Science Services Administration	Since the document does not appear to have established existing biological or impervious conditions, and does not indicate the extent of the projected development or the extent of the controls that will be employed to infiltrate stormwater into the	For BRAC-related construction on-post, there have been no identified direct impacts to wetlands or water bodies and minimal potential for indirect impacts. Final design will avoid and minimize potential impacts to these resources to

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			tration	ground, it must be assumed that there will be some aquatic life losses. It is suggested that the facility document existing conditions and imperviousness and then document in a cumulative manner future impervious cover. Documentation of infiltration should be included in the process as a means of crediting those measures in the abatement of pollution.	the fullest extent possible. For EUL development, the Developer has outlined efforts to avoid, minimize, and compensate for unavoidable impacts to wetlands and waterbodies. Any wetlands, wetlands buffers, streams, and floodplains impacted will be reviewed under regulatory requirements of Corps of Engineers and the MDE. Stormwater systems are being designed to minimize potential impacts.
167		Water Quality	MDE- Science Service s Adminis tration	MDE is charged with assessing state waters and it would be helpful to have existing conditions documented to use as a benchmark in assessing the Department of Defense's development of Ft. Meade relating to the antidegradation portion of the Clean Water Act. Biennial reports of aquatic life and water chemistry conditions in streams affected by the construction activity should be provided MDE's Science Services Administration for use in reporting under sections 303(d) and 305(b) of the Clean Water Act.	To the extent funding supports the testing of aquatic life and water chemistry conditions of streams, Fort Meade will report available results.
168		Biological Resources	MDNR	There is a known occurrence of Panicum leucothrix in the 367 acre EUL area identified as "S" in this plan. This is a state rare plant that we recommend protecting. The development of two additional large golf courses at that location could be detrimental to this species. As a result, we feel that protection measures should be incorporated into the site design considerations for that project. To do so would first require the full delineation of the extant populations on that parcel. Field protocol utilized for this particular species in 2000 for Building T-04 would be appropriate (Eco-Science Professionals Inc.)	Fort Meade and the site developer will strongly consider the MDNR recommendation to protect State rare species to the extent possible based on site constraints of the design. Additional delineation of the extant population on Site S will be considered.
169		Biological Resources	MDNR	Our analysis indicates that the remaining two EUL locations "Y and Z" currently provide Forest Interior Dwelling Species (FIDS) habitat. We strongly	These guidelines will be considered in the design and development phase of the projects. The Development Plan will evaluate the woodlands

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				<p>encourage the protection of this habitat and offer the following guidelines to help minimize the project's impacts on FIDS and other native forest plants and wildlife: 1. Concentrate development to non-forested areas. 2. If forest loss of disturbance is absolutely unavoidable, concentrate or restrict development to the perimeter of the forest (i.e., within 300 feet of the existing forest edge) particularly in narrow peninsulas of upland forest less than 300 feet wide. 3. Limit forest removal to the "footprint" of houses and to that which is absolutely necessary for the placement of roads and driveways. 4. Wherever possible, minimize the number and length of driveways and roads. 5. Roads and driveways should be as narrow and short as possible; preferably less than 25 feet and 15 feet, respectively. 6. Maintain forest canopy closure over roads and driveways; do not create or maintain mowed grassy berms. 7. Maintain forest habitat up to edges of roads and driveways; do not create or maintain mowed grassy berms. 8. Maintain or create wildlife corridors. 9. Do not remove or disturb forest habitat during May-August, the breeding seas for most FIDS. This seasonal restriction may be expanded to February- August if certain early nesting FIDS (e.g., Barred Owl) are present. 10. Afforestation efforts should target (1) riparian or streamside areas that lack woody vegetation (2) forested riparian areas less than 300 feet, and (3) gaps or peninsulas of non-forested habitat within or adjacent to existing FIDS habitat.</p>	<p>on the sites and a Forest Conservation Plan will be implemented, which provides preservation, reforestation, and afforestation to meet the Forest Conservation Act goal of 20 percent.</p>
170		Biological Resources	MDNR	<p>There are known occurrences of the glassy darter (<i>Etheostoma vitreum</i>) in the Little Patuxent River in close proximity to this site. This is a State Threatened species (Title 08 COMAR). In order to help protect this species we recommend the utilization the strongest erosion related BMP's possible during construction activities to avoid siltation and general degradation of water quality in this area, particularly</p>	<p>For the BRAC construction there will be no direct impacts to waterbodies, and no indirect impacts from run off are expected. For the EUL construction in areas with construction near wetlands or waterbodies, in addition to the review and approved setback/buffer areas, the installation of erosion controls would occur immediately after initial disturbance of the soil,</p>

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				in areas "G, M, and F" since they are headwater areas that encompass a series of un-named tributaries which directly flow into the Little Patuxent.	will be properly maintained throughout construction (on a daily basis) and reinstalled as necessary until restoration is complete.
171		Utilities/ Water Resources	MDNR	The DEIS describes several inadequacies in the Fort Meade wastewater treatment plant system, warns of treatment system failures due to the increase of 15,695 new BRAC and EUL personnel, and recommends a "comprehensive evaluation" of the existing system. System failures will result in increased nitrogen and phosphorous pollution of the Little Patuxent River, which is the receiving stream. In August 2006, the State of Maryland and the DoD signed a Memorandum of Understanding agreeing to implement watershed improvement projects (stabilizing eroding shorelines, enhancing stream buffers and wetlands) and upgrading wastewater treatment plants to achieve enhanced nutrient removal. The final EIS should describe how Fort Meade's wastewater treatment plant and sewerage system will be upgraded to meet the needs of personnel increases and how enhanced nutrient removal (ENR) will be implemented to further reduce nitrogen pollution.	A comprehensive evaluation will be completed and system upgrades will be identified. Fort Meade intends to fully comply with NPDES permit requirements and the terms of the MOU between the State of Maryland and the DoD. Details of systems upgrades will be provided when the plans have completed.
172		Water Resources	MDNR	Fort Meade is located in the Patuxent River and the Severn River watersheds. The Little Patuxent River, which runs along part of the southwest corner of Fort Meade, joins the Patuxent River near Crofton, Maryland. The tidal portions of both the Patuxent River and the Severn River are currently on the Federal 303(d) list of impaired water for failing to meet the goals of the Federal Clean Water Act due to excess nutrient and sediment levels. The Little Patuxent River is on the Federal 303(d) list due to excess nutrient and sediment levels and because it fails to support a full biological community. The non-tidal portion of the Severn River is on the 303 (d) list because it fails to support a full biological community.	Thank you for the comment. BRAC and EUL construction and operation efforts are being designed to minimize adverse impacts to the watersheds from increases in nutrient and sediment level from stormwater runoff. Section 4.7.2, Appendices G and H outline the proposed protection for this resource.
173		Water Resources	MDNR	Based on modeling studies performed by the	Thank you for the comment. See also response

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				Maryland Department of Natural Resources for the Patuxent River tributary strategy basin there have been substantial reductions in phosphorus, nitrogen, and sediments since 1985; however, to meet the goals of the tributary strategy program continued annual reductions of these pollutants still need to be made.	to Comment #175.
174		Water Resources	MDNR	DNR operates a monitoring site in conjunction with the U.S. Geological Survey (USGS) on the Patuxent River near Bowie, MD as part of the Chesapeake Bay River Input Monitoring Program. Trend analyses performed by USGS indicate that nitrogen, phosphorous, and sediment have decreased since 1985, but recently have been increasing. A report by the USGS links these increases to increased urbanization. DNR is concerned that the rise in the population associated with the BRAC and EUL activities at Fort Meade will have an adverse effect on the concentrations of nitrogen, phosphorous, and sediment that reach the Patuxent and Severn Rivers.	Fort Meade will comply with E.O. 13423 and follow its Green Building Manual to ensure new development integrates programs and policies that support sustainability and environmental stewardship. Techniques such as low impact design will be considered to reduce the footprint of impervious surfaces and storm water management methodologies will be used. Please see section 4.7.2.2.
175		Water Resources	MDNR	The DEIS describes a number of road improvements that will take place in the immediate vicinity of Fort Meade, as well as parking lot and building construction that will take place within Fort Meade as a result of BRAC activities. Construction work will contribute to sediment loads directly and indirectly by generating additional impervious surface. The final EIS should provide an assessment of the direct and indirect short-term and long-term sediment impacts and how they will be controlled.	Fort Meade will follow its Green Building Manual to ensure new development integrates programs and policies that support sustainability and environmental stewardship. Techniques such as low impact design will be considered to reduce the footprint of impervious surfaces and storm water management methodologies will be used to reduce sedimentation impacts. Please see section 4.7.2.2.
176		Water Resources	MDNR	The DEIS states that "Significant long-term adverse effects to storm water drainage would be expected" as a result of BRAC activities. Much of this would result from the construction of approximately 60 acres of surface parking lots. The DEIS further states that existing stormwater collection systems would not be capable of handling the runoff generated by the increase in stormwater associated with parking lot	These concerns are our concerns too. Please see Section 4.7.2.2. New development will integrate programs and policies that support sustainability and environmental stewardship. Techniques such as low impact design will be considered to reduce the footprint of impervious surfaces and storm water management methodologies will be used.

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				<p>construction. The three existing drainage areas on Fort Meade discharge into the Little Patuxent River. DNR has the following concerns regarding stormwater: 1) temperature spikes in receiving stream due to runoff from hot parking lots, 2) stream pollution resulting from contamination of runoff by petroleum products, salt, and heavy metals from parking lots, 3) an increase in flood frequency and spikes in water flow that may cause physical degradation of streams through increased sedimentation rates, stream incision, bank loss, and loss of cover in the riparian zone, and 4) localized decreases in dissolved oxygen.</p>	
177		Water Resources	MDNR	<p>Standard stormwater control projects work effectively on single projects, but the cumulative impacts of many individual systems in a small area result in high flows over periods longer than natural floods would occur in streams. Engineers should take the opportunity that BRAC- related construction presents to redesign Fort Meade's stormwater management system to include more low impact development practices that are more protective of streams than current design guidelines. The new system should treat all stormwater "on-site" and in a manner that uses the landscape to filter runoff and simulate natural flow patterns. Stormwater management mitigation measures could include using pervious asphalt in parking lots, constructing living roofs on new and renovated buildings, and constructing "rain gardens" that would promote infiltration as opposed to the traditional approach to stormwater management that merely conveys stormwater to a receiving stream.</p>	<p>The FEIS has been revised to state that several methodologies will be used to manage stormwater including, but not limited to, low impact development, grass channels, rain gardens, and bio-retention facilities. These techniques will be evaluated and implemented to the extent resources allow. Please see Section 4.7.2.2.</p>
178		Water Resources	MDNR	<p>The final EIS should also describe measures that the Army Corps of Engineers can implement throughout the Patuxent and Severn River watersheds that will offset all direct and indirect short-term and long-term pollution impacts related to BRAC activities. These</p>	<p>Section 4.7.2.2 has been revised to discuss measures that would be taken to control stormwater. Section 4.11 and 4.15 contains measures that may be taken to address potential impacts.</p>

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				impacts may result from, but not be limited to the influx of workers and their families, road and building construction, and increased flow from wastewater treatment plans. Nutrient and sediment reduction goals are not currently being met in either the Patuxent or Severn River watersheds. Increased pollution from BRAC activities in these watersheds will only make meeting these goals less likely.	
179		Socioeconomics	Restoration Advisory Board	The full impact on the local community has not been explored nor accounted for as required in NEPA specifically: This project included 10k possible jobs outside the BRAC influx. The impact on local schools has infrastructure has not been adequately addressed.	The socioeconomics analysis assumes a worst-case scenario with all incoming personnel arriving in one year, and 100 percent of them relocating to the ROI. There are over 570 schools in the ROI, and the school age children will distribute themselves evenly among all schools in the ROI. In reality the incoming personnel and school-aged children would more likely arrive over several years. The potential impact on individual schools in the ROI (the number of additional students per school in one year) is shown in Appendix D.
180		General	Restoration Advisory Board	This new project has been cleverly included in the BRAC project; however it is in fact not BRAC and does not enjoy the same finality of BRAC this is Ft. Meade attempting to expand and piggy back on a horrific drain that has already been put on local resources.	The EIS states that 2 proposed federal actions will be implemented.
181		Air	Restoration Advisory Board	We are in a no ozone area, the air studies were for the base and the new assignees they do NOT include an additional 10k workers.	Air quality impacts have been coordinated and reviewed with the State of Maryland. Appendix B provides the data used to calculate air impacts from the proposed federal action.
182		Socioeconomics	Restoration Advisory Board	The county would have to pay millions of dollars for improvements to nearby roads, schools, and water and sewer lines to support the developer, which would not have to pay local property taxes because the project would rise on federal land.	Fort Meade acknowledges that the developer of an EUL project will be required to pay for any services it receives from the county, including fees applicable to hook up for water or sewer services from sources not located on federal property. Fort Meade also acknowledges that it

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					and the developer bear responsibility for holding discussions with the county on how best to contribute to solutions to mitigate the impacts of development on the transportation infrastructure. These discussions will begin as soon as the Lease and Management Plan and the Master Development Agreement are finalized.
183		Socioeconomics	Restoration Advisory Board	That amounts to a savings to the developer of about \$2 million a year or more in real estate taxes when fully built out, officials estimate.	Thank you for the comment.
184		Transportation	Restoration Advisory Board	County officials estimate that the BRAC expansion will require \$5 billion in transportation improvements, including extending the Metrorail Green Line from Greenbelt to BWI-Marshall Airport and overhauling Routes 175, 198 and 3.	Section 4.11 provides data on potential impacts related to BRAC and EUL projects and mitigations. The Installation has been and continues to be in coordination with the MD SHA.
185		Socioeconomics	Restoration Advisory Board	There is nothing in this study about where these workers would live and what impact they would have on the residential infrastructure of the area.	Section 4.10.2.2 discusses housing availability. Employees and their families relocating will use personal preference to decide where to live. The latest available data shows adequate housing supply to absorb any additional demand.
186		Transportation/ Socioeconomics	Restoration Advisory Board	While the state has indicated that they would work on 175 that work will not begin until 2013 well after this project, in the meantime this creates huge drains on the water, roads, sewage, air quality, police man power, not to mention the affect on the additional traffic on three area public schools (Meade Elementary, Seven Oaks Elementary, and Severn Elementary) the additional road hazards for children in the area who walk to school.	The Transportation section outlines actions the Army can take to improve traffic flow through the access control points until planned road projects are completed. The EIS states that the impacts on public services in the BRAC/EUL alternative would be significant.
187		Transportation	Restoration Advisory Board	Town center drive is not complete and the county has not blessed its completion therefore this influx of 10k additional civilian workers in excess of the 20k begin brought in for BRAC will cause even more strain on the current road systems. That will not be able to support the 10 k that is coming in now.	Section 4.11 provides data on potential impacts related to BRAC and EUL projects and mitigations. The Installation has been and continues to be in coordination with the MD SHA.
188		Socioeconomics	Restorat	THIS PROJECT DOES NOT ADDRESS THE ISSUE	The EIS does not analyze impacts/inclusion to

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			Restoration Advisory Board	OF MINORITY BUSINESS THAT IS A REQUIRED PART OF ANY PROJECT SUCH AS THIS. The federal government is not exempt from this and neither are Trammell and Crow. Please be advised that the NAACP objects to this project as it stands as the affected parties have refused to discuss the inclusion of minority business in the plan.	businesses based on ethnicity; however, overall economic effects to the ROI will be beneficial to local businesses as indicated by the results from EIFS model. Sales volume, income, and employment will increase within the ROI. Local businesses are included as beneficiaries of these economic impacts and there is no reason to believe that minority businesses would be excluded from these benefits. In addition, government contracting opportunities will enable minority businesses to have an advantage in the bidding process, all other factors being equal.
189		Hazardous and Toxic	Restoration Advisory Board	There are significant historical problems in the areas of the new buildings. The Army with the PICERNE issue has seen what happens when you decide to push projects. All sites need to be adequately reviewed so we are not pumping methane out of another site on the base.	The Army's Military Munitions Response Program (MMRP) will continue to address the potential impact of the past Mortar Range located on the existing golf course. Through the already completed MMRP studies, the site locations of the BRAC buildings avoided the area of study of the Mortar Range. In addition, other environmental studies listed in the EIS identified areas of buried waste on the existing golf course that have been avoided. One study identified a buried magnetic anomaly on the proposed DISA parcel on the existing golf course that will be investigated and removed prior to site construction.
190		Hazardous and Toxic	Restoration Advisory Board	Previous EPA representatives who have sat on the RAB have stated on the record their conviction that there is significant areas of concern in and around the golf course and any building project should be approached cautiously.	The existence of the past Mortar Range located on the existing golf course and the isolated areas of buried waste are likely the reasons for the stated concerns. The maintenance facility on the existing golf course although not included in the BRAC construction area would also likely be a cause of concern. Additional environmental investigation is planned for the existing golf course slated for future Non-BRAC development.
191		General	Restoration Advisory Board	Historical data does NOT support the beginning of construction at this accelerated rate. We have done the "because we said so" and it has cost the Army	The schedule for BRAC actions is Congressionally mandated. Fort Meade's goal is to adhere to the Congressional mandate. In

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			y Board	MILLIONS of dollars in repairs, and housing that is unusable.	addition to the description of the MMRP activities on the existing golf course, the area of the new golf course development, Site S, must maintain the requirements of the RCRA permit for the closed landfill cap and methane collection system. The CERCLA Remedial Investigation is a comprehensive document that identifies the risks present at Site S and will be part of the site safety planning for the construction and operation of the new golf course.
192		General	Restoration Advisory Board	There are no controls for reporting to the base and we will have the same problems we have had with Picerne if there are not institutional controls in place to make sure the builders are responsive and answerable to the army ESPECIALLY if they are going to insist on building on land with this many problems.	The BRAC Construction on the existing golf course and Site X remain part of the Army's Military Construction Program and will follow an establish quality assurance and quality control plan as well as adherence to approved USACE site safety plans. The new golf course on Site S will not be leased but will remain under direct Army control. For the leased Sites Y & Z, the Development Plan will require a comparable QA/QC plan. Unanticipated site conditions are always possible regardless of the degree of environmental investigation and all discoveries will be subject to environmental coordination and response.

Agency Coordination

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MARYLAND DEPARTMENT OF THE ENVIRONMENT

MDE

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Lieutenant Governor

Shari T. Wilson
Secretary

Robert M. Summers, Ph.D.
Deputy Secretary

APR 4 2007

Mr. Mick Butler
Chief
Environmental Division
Fort Meade, MD 20755

Re: Draft Environmental Impact Statement for Implementation of Base Realignment and Closure 2005 and Enhanced Use Lease Actions at Fort George G. Meade, Maryland.

Dear Mr. Butler:

Thank you for the opportunity to review the Draft Environmental Impact Statement for the Base Realignment and Closure (BRAC) 2005 and Enhanced Use Lease (EUL) Actions at Fort Meade. The Maryland Department of the Environment (MDE) Air and Radiation Management Administration (ARMA) received the draft document and reviewed the sections of the document related to air quality and general conformity.

Table 4-9 (page 4-45) indicates that a total of 60.05 ton per year of VOC would be the expected annual emissions increase for BRAC and EUL actions. Fort Meade is located in the Baltimore 8-hour Ozone Nonattainment Area (BNAA). The BNAA is classified as a moderate area under the 8-hour ozone standard and the entire state of Maryland is located within the Ozone Transport Region. According to EPA's general conformity regulations, the VOC *de minimus* thresholds for projects located within an Ozone Transport Region (OTR) is 50 tons per year. The conformity chapter in the draft EIS inaccurately states that the VOC *de minimus* threshold for the project is 100 tons per year. Please refer to the following Federal Register notices for more information: 40 CFR Parts 6, 51, and 93, November 30, 1993; 40 CFR Part 52, April 19, 1995; and 40 CFR Parts 51 and 93, July 17, 2006. Based on the correct *de minimus* thresholds, the projected VOC emissions exceed the *de minimus* thresholds and mitigation is required under the federal general conformity rules.

The MDE's preference for mitigation would be on-site emission reduction programs that can be used to offset the increase in VOC emissions. Potential VOC emission reducing projects could include alternative fuel vehicle programs, mandatory change-outs of all older portable fuel containers with new low VOC containers, enhanced vapor recovery where applicable, etc. The MDE also invites Fort Meade to become an active participant in the Clean Air Partners program. For more information on Clean Air Partners, please visit cleanairpartners.net and contact the Managing Director, Ms. Harriet West at (703) 431-8463.



Mr. Mick Butler
Page 2

In addition to the above, the MDE requests that Table 4-10 (page 4-46) also include a total annual emissions column for purposes of clarity and consistency. Again, thank you for the opportunity to review this draft document. If you have any questions or need further information, please do not hesitate to contact me or a member of my staff at (410) 537- 3245.

Sincerely,



Brian J. Hug
Acting Deputy Program Manager
Air Quality Planning Program
Air and Radiation Management Administration

cc: Mr. Craig A. Wells, LTC, Corps of Engineers, Deputy Commander
Colonel Kenneth O. McCreedy, Military Intelligence, Installation Commander
Diane L. Franks, Program Manager, Air Quality Planning Program, Maryland
Department of the Environment



**Maryland
Department of Agriculture**

Office of the Secretary

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April 9, 2007

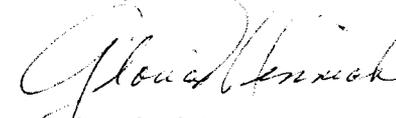
Mr. Mick Butler
Chief
Environmental Division
Fort Meade, MD 20755

Dear Chief Butler:

The Draft Environmental Impact Statement for Implementation of Base Realignment and Closure 2005 and Enhanced Use Lease Actions at Fort George G. Meade, Maryland has been reviewed and is found to be within the Maryland Department of Agriculture's plans, programs, and objectives.

If you have any questions, please contact me at 410.841.5880 or via email: MinnicGC@mda.state.md.us.

Sincerely,


Gloria Minnick
Executive Associate

APR 13 2007

Fort Meade BRAC and EUL Environmental Impact Statement
Public Meeting and Hearing
April 18, 2007

Oral Comment from Ken Menser representing Anne Arundel County and Howard County

Comment #1

Our primary concern is that the current EIS does not adequately address the Region of Influence or the ROI. For those that don't know, the Region of Influence is just that; it's a region that this action is supposed to have an influence on. The ROI, in this EIS, is Anne Arundel County, Howard County, Prince George's County, and Montgomery County. Our specific concerns about the effect of 16,000 new job positions on the roads and traffic in the subject counties.

Comment #2

The current EIS only addresses the interior of the installation-interior road network of the installation. And then there's an area of about two miles out from the installation. And again, our concern is that it didn't address the remainder of those four counties. These and other concerns will be addressed in our formal regional submission.

August 1, 2007

Draft Environmental Impact Statement Comments
Public Affairs Office ATTN: Ms. Melanie Moore
4550 Pershing Hall, Room 102
Fort George G. Meade, Maryland 20755

Dear Ms. Moore:

Thank you for the opportunity to review the Draft Environmental Impact Statement (DEIS) for the proposed Base Realignment and Closure (BRAC) and Enhanced Use Lease (EUL) actions at Fort George G. Meade, Maryland. While the 5000-plus acre installation is located completely within Anne Arundel County, Maryland, the impact of this proposed Federal action extends well beyond the County's borders into neighboring jurisdictions. We believe that the environmental assessment process is the method by which those regional impacts should be identified and addressed.

The Fort George G. Meade Region and Anne Arundel County welcomes the anticipated increase in employment and population associated with this Action. However, we do wish to note some concerns formed in evaluating the information provided by the DEIS. It is our hope that the US Army Corps of Engineers, the installation, and the neighboring jurisdictions can collaboratively identify the issues confronting the participants and resolve those issues so that the impact associated with the Action can be minimized.

To this end, both general and specific comments are provided regarding the analysis, findings and recommendations of the DEIS. General comments are presented in this letter response and specific comments are included as an enclosure.

Let us first indicate the County's and region's desire is to see this Action advance through the planning and implementation phases. In general, Anne Arundel County and the neighboring jurisdictions of Prince George's, Montgomery, and Howard County's, plus the City of Laurel have benefited from prior BRAC actions associated with Fort Meade. We strongly believe that the No Action Alternative will be unacceptable as a means of addressing the Department of Defense's stated goal to economize by arraying like activities and mission requirements in the same installations. We also believe that Fort Meade's location in the growth center of the State of Maryland, near major transportation facilities and within reasonable distance of both the Metropolitan

Washington DC area as well as the City of Baltimore is an opportunity for orderly development of the corridor's infrastructure.

Anne Arundel County's adopted *General Development Plan* (1997), the adopted *Severn Small Area Plan* (2002), the adopted *Odenton Small Area Plan* (2003), the adopted *Odenton Town Center Master Plan* (2004) have all identified the area in and around Fort Meade as a growth location. These plans also identify the roadway and transit improvements that will be necessary to support this growth. Key improvements among these are the extension and completion of Odenton Town Center Boulevard, the Odenton MARC Station Parking Garage, and geometric improvements to Annapolis Road (MD 175).

Regarding general concerns, from both a regional and county perspective, the single greatest concern is the very limited evaluation of the proposed Action's impact on the area highway network. Specifically, the County believes that the DEIS does not provide sufficient information regarding the impact to the area roadways, such as Annapolis Road (MD 175), Telegraph Road (MD 170)-Piney Orchard Boulevard (a County road), Odenton Town Center Boulevard (a County road), Ridge Road (MD 713), Reece Road (MD 174), the Baltimore-Washington Parkway ((BWP) a Federal Resource owned by the National Park Service) and Laurel-Fort Meade Road (MD 198). The basis of this concern stems from the DEIS text where it is indicated that most of the Defense Information Systems Agency (DISA) employees are presently located in Northern Virginia and the DEIS assumes (and we concur with this assumption) that these employees will not choose to relocate their households in the near term. For those deciding to drive, the natural path to Fort Meade will use either the BWP or I-95 from the Capital Beltway (I-95/495) to the DISA activity located near the Mapes Road/MD 198/MD 32 gate. Considering the distance of these commutes, it is apparent that the DEIS should address impacts at a greater distance away from the Fort where path decisions have to be made. Identifying these impacts will assist State, Regional and local transportation efforts in planning and implementing the needed improvements to address the impacts associated with the proposed Action.

Further, regarding general concerns, the DEIS should address implementable rideshare, car and vanpool, and transit strategies that can be developed quickly and effectively to promote this means of commuting rather than reliance on single-occupant automobiles. Again, the DEIS should provide sufficient information to assist the agencies which must implement strategies to off set the impact of this proposed Action.

Finally, while Anne Arundel County has no obvious permit control over construction of the EUL Action, it is very likely that there could be County services provided to support the estimated 10,000-employee, two million square feet of development. The location of this activity, situated within the boundary of Fort Meade provides a very competitive challenge to general office development within the County, which would be contributing to the County's general revenue stream through ad valorem

taxation, impact and other fees. Lost revenue, coupled with a finite demand for general office space can amount to a loss of fiscal opportunity to the County.

With the completion of the review of the March 2007 DEIS, the following specific comments are offered in support of improving the environmental document so that the information provided will assist decision makers in recommending an alternative that meets the Fort's needs and mitigates the impacts of the proposed Action. We further hope that our concerns will be fully addressed in the Record of Decision.

Thank you for the opportunity to review the DEIS document. We hope these comments are helpful in assisting your team's effort in developing the Final Environmental Impact Statement document and the Record of Decision. Specific comments are enclosed. Additionally, a "Watershed Analysis for Sub-watersheds within the Fort Meade Boundaries" is also provided for your review and reference regarding the DEIS document. Should there be any additional questions regarding the comments, please feel free to contact me at 410.222.1227 or George Cardwell, the Planning Administrator in the Office of Planning and Zoning, at (410) 222-7432, or via email at gcardwel@aacounty.org.

Sincerely,

Robert C. Leib, Special Assistant for
BRAC/Education
Fort George G. Meade Regional BRAC
Coordinator

cc: Dennis Callahan, Chief Administrative Officer
Lois Villemaire, OPZ
Ronald Bowen, DPW
Ginger Ellis, DPW
George Cardwell, OPZ

Enclosures

Specific Comments
 Draft Environmental Impact Statement, Fort Meade March 2007
 Base Realignment and Closure-Enhanced Use Lease

Page	Section	Comment
ES-8	Table ES-2	References to number of employees 10,000 should identify if these are contractors associated with Proposed BRAC action or other tenants in the buildings, but not associated with the Proposed BRAC/EUL Action
ES-20	Table ES-4	Economic Impacts, Proposed Action does not identify potential loss of revenue to local jurisdictions which can occur by offering competing general office space within the installation's boundaries
ES-21	Table ES-4	Installation Transportation—DEIS should recommend coordination of installation traffic planning and impacts with ongoing studies by State Highway Administration and Anne Arundel County of surrounding roadway network
1-2	Figure 1-1	Mapping incorrectly identifies the Baltimore Washington Parkway as MD 295. Parkway south of MD 175 is owned by National Park Service and is identified as an historic resource.
1-7	Section 1.2.2	How does DEIS estimate impacts associated with EUL site planning efforts. Would the Record of Decision address this connection?
2-10	Section 2.3.1	DEIS identifies 2 million square feet of development for EUL proposed Action. What assurances will be made that the final or build out of the EUL is limited to no more than 2 million square feet?
2-13	Section 2.6.5	Bus Maintenance Facility—Please note that the estimated program for this facility is 120 plus revenue bus vehicles that would likely equate to a workforce of 150 persons. An environmental assessment document will be prepared to satisfy US Army Corps of Engineers and Federal Transit Administration requirements.
4-34	Section 4.3.1	Site Y and Z—What assurances will be offered to restrict commercial encroachment impacts into currently residentially zoned areas in the County? Would the Record of Decision provide that level of assurance?
4-47	Section 4.5.1	Highway Noise—Reference is made to noise levels on MD 175, but no information is provided about the extent of the noise or any quantification of the impact.
4-63	Section 4.7.1.4	Floodplains—Please check reference to mapping as DEIS identifies Prince William and Stafford Counties, which are in Virginia and associated with the Rappahannock River system.
4-95	Section 4.10.1.1	Economic Contribution—DEIS indicates that annual average salary of civilian component at Fort Meade is \$80,425 and military component is \$103,686. Is this a correct statement?

Specific Comments

Draft Environmental Impact Statement, Fort Meade March 2007

Base Realignment and Closure-Enhanced Use Lease

- 4-97 Section 4.10.1.4 Fire Protection—We recommend that the Record of Decision indicate that local fire departments are afforded review and comment of site and building plans for those projects where local service may need to be provided.
- 4-103 Section 4.10.2.2.1 Economic Development—What is the source and method used to develop induced employment as this statistic differs from others previously presented by other agencies?
- 4-105 Public Services Impact: The report states that “No significant effects would be expected for any other of the public services including health, fire, and law enforcement.” Based on our 2006 analysis we strongly disagree with this statement and conclude that the Actions will have a direct impact on the delivery of police, fire, and EMS services in the study area. The DEIS narrative fails to address public service impacts associated with the proposed action.
- 4-113 Table 4-22 Bus Transit—Please note in this table that WMATA service B-29 also serves the Crofton area and connects to New Carrollton Metrorail Station via Bowie MD 197 Park and Ride Lot.
- 4-127 Section 4.11.1.11 Future Conditions—Several of the projects identified in this narrative are not funded for construction.
- 4-135 Section 4.11.2.2 Roundabouts—What analysis of mainline impacts to MD 32 westbound have been performed following the indication of failure of the roundabout at MD 32/MD 198/Mapes Road gate? This entrance due to relocation of DISA to Site M and current location of DISA workforce (75% residing in Virginia) will have an impact both to gate operations and to mainline travel along MD 32. Please explain the impact.
- 4-135 Section 4.11.2.2 Conclusion—The narrative fails to explain what actions will be taken to correct those operational problems on the roadway that are found to be an impact associated with the proposed Action. What geometric corrective measures will be taken to mitigate the proposed Action’s impact on the highway network?
- F-7 Table 6 Trip Generation—DEIS text identifies a total of 10,000 employees at the two (Y & Z) EUL sites. The trip generation table shows 12,556 AM and 11524 PM peak hour (vehicle) trips. Please verify both the number of employees assumed and trip generation per employee occurring during the peak hour times. The number of vehicle trips seems much greater than typical trip generation estimates for general office development.

Specific Comments
Draft Environmental Impact Statement, Fort Meade March 2007
Base Realignment and Closure-Enhanced Use Lease

- F-9 Mitigation DEIS identifies several strategies but does not make any commitments to implement or assist in the implementation of these strategies. At what point will the agencies involved in the BRAC/EUL proposed Action commit to implementing trip reduction strategies? Will these be identified in the Record of Decision?



OFFICE OF ENVIRONMENTAL & CULTURAL RESOURCES WATERSHED MANAGEMENT PROGRAM

Technical Memorandum

To: Ms. Laura Lokey-Flippo, Environmental Engineer, Surface Water and Wastewater Program, U.S. Army Center for Health Promotion and Preventive Medicine

From: Mary Searing, P.E., Watershed Management Program Administrator
Hala Flores, P.E., Watershed Model Administrator
Richard Fisher, Watershed Model Analyst

Date: December 4, 2006

Re: Watershed Analysis for Subwatersheds within the Fort Meade Boundaries (WMT database, Water quality, and hydrologic modeling feedback)

This correspondence is in response to your Watershed Management Tool (WMT) analysis request dated October 25, 2006 to perform water quality and hydrologic analysis for forty-seven subwatersheds within the Fort Meade area. Additionally, you have requested available environmental inventory within the Stream Assessment Tool. A CD-ROM containing various GIS layers to serve as an input to the requested Watershed modeling was provided for the analysis.

This memo includes documentation, maps, and tabulated results for the requested watershed modeling. Digital files including calculation sheets and GIS output files may be furnished upon request. The information in this memo is courtesy in nature and is a product of information contained within the Severn River Watershed Management Master Plan, Current Conditions Report, December 2002, as well as results from model analysis performed within the Watershed Management Tool (WMT), which resides in the Office of Environmental and Cultural Resources, Watershed Management Program. The assessment and modeling request has been entered in the WMT and assigned a project number 424. Please refer to that number in future inquiries on the subject report.

To best provide you with the requested information along with technical documentation, the memo has been divided into the following main categories:

- Basin Geometry
- Landcover and Soils
- Hydrologic Analysis
- Estimates for Pollutant Loadings
- Stream Assessment Inventory

All hydrologic and water quality modeling performed and presented in this memo were done for the current condition development scenario captured by the year 2004 or later GIS data coverage. Assumptions made in general or due to missing data layers are documented for each assessment. Other specialized technical Watershed modeling or alternative development scenario condition modeling for the future, restoration, or preservation may be provided upon request. In addition, the WMP subwatershed prioritization for restoration scheme may be performed to guide the U.S. Army in prioritizing funding for their watershed mitigation and environmental enhancement efforts.

Basin Geometry

The Fort Meade site is entirely located within Anne Arundel County and occupies an area of approximately 11,133 acres. The northeastern portion of the site, occupying an area of approximately 2,123 acres, drains to the Severn River Watershed. The remainder of the site occupies an area of approximately 9,010 acres and drains to the Little Patuxent River Watershed. Refer to Figure 1 for a location of the Fort Meade site relative to the Anne Arundel County Major Watersheds.

The Fort Meade Site is comprised of forty-seven subwatersheds. The boundaries for these subwatersheds were provided to the WMP in the form of a GIS shapefile by the U.S. Army Center for Health Promotion and Preventive Medicine. Based on a phone conversation with Ms. Lockey-Fillipo on October 27, 2006, the boundaries were delineated from the MDDNR 2004 LIDAR dataset and clipped against the Fort Meade site boundary. Upon examination of the submitted data, three issues were noted. First, the boundaries do not appear to be delineated to pre-identified points of interest, rather the catchments appear to be delineated automatically in GIS from the preprocessed terrain grids. This resulted in catchments ranging in size between 2 acres and 1257 acres. Second, it was noticed that the US Army delineation did not take into account the stormdrain conveyance system by conditioning the DEM to allow for flow conveyance within the stormdrain system. Third, the sinks in the DEM do not appear to have been filled when preparing the delineation. These issues resulted in notable differences between the delineation within the WMT model and the submitted delineation. Ms. Lockey-Fillipo was made aware of these possible differences during the phone conversation and a determination was made to work with the drainage boundary as

submitted. In the future, the U.S. Army office may opt to submit to WMP a separate request for delineating the drainage areas to pre-defined points of investigation

For analysis and reporting purposes, these forty-seven subwatersheds were identified using an eight-digit code depicted on Figure 2. The last two digits of the subwatershed identification code is either “SV” reserved for subwatersheds that drain to the Severn River, or “LP” for subwatersheds that drain to the Little Patuxent River. It should be noted at this time that the U.S. Army provided subwatershed layer does not include contributory drainage area that falls outside the Fort Meade boundary. Due to this, modeling results pertaining to discharges and pollutant loadings should not be viewed as absolute design values; rather they are the Fort Meade land contribution results. A map showing the aerial photography of the site based on the Anne Arundel County 2005 coverage is depicted on Figure 3. Refer to the hydrologic analysis result table for a listing, an area, and contributory upstream drainage area for the subwatersheds.

Landcover and Soils

The Severn River Watershed occupies an area of 44,170 acres, of which 9,017 acres or approximately 20% is considered impervious. The Little Patuxent Watershed occupies an area of 27,681 acres, of which 5,673 acres or 21% is considered impervious cover. The impervious cover for the Fort Meade site is 2,629 acres or roughly 24% imperviousness.

Landcover classifications for the Severn River, the Little Patuxent River, and the Fort Meade site are summarized in Table 1. Refer to Figure 4 for a landcover map for the Fort Meade site. In addition to calculating the percent imperviousness for the entire Fort Meade Site, the percent imperviousness for each of the 46 subwatersheds was calculated as part of the water quality modeling efforts and is reported in Table 6.

Land Code	Type	Severn River		Little Patuxent River		Fort Meade	
		Acres	%	Acres	%	Acres	%
COM	Commercial	2500	5.64	2140	7.67	1406	12.63
IND	Industrial	854	1.93	1038	3.72	204	1.83
OPS	Open Space	2447	5.52	2918	10.46	1676	15.06
R11	Residential 1 Acre lots	1352	3.05	350	1.26	45	0.40
R12	Residential 1/2 Acre lots	8074	18.20	523	1.87	163	1.47

Watershed Analysis for subwatersheds within the Fort Meade boundaries
(WMT database, Water quality, and hydrologic modeling feedback)
December 4, 2006

Land Code	Type	Severn River		Little Patuxent River		Fort Meade	
		Acres	%	Acres	%	Acres	%
R14	Residential 1/4 Acre lots	7297	16.45	2556	9.16	604	5.42
R18	Residential 1/8 Acre lots	1468	3.31	1828	6.55	964	8.66
R21	Residential 2 Acre lots	196	0.44	39	0.14	4	0.03
SRC	Single Row Crop	764	1.72	529	1.90	0	0.00
PAS	Pasture/Hay	511	1.15	409	1.47	119	1.07
TRN	Transportation	1834	4.14	1190	4.27	604	5.43
WAT	Water	182	0.41	141	0.51	35	0.32
WDS	Woods	16668	37.58	13585	48.70	5167	46.41
FRW	Forested Wetlands	13	0.03	54	0.19	18	0.16
UTL	Utility	131	0.30	386	1.38	34	0.31
AIR	Airport	0	0.00	66	0.24	66	0.59
OPW	Open Wetlands	61	0.14	148	0.53	23	0.21
Impervious		9289	21	5674	20	2629	24
Total Area		44353	100	27898	100	11133	100

Table 1: Landcover of the Severn River, Little Patuxent River, and Fort Meade Sites, Anne Arundel County WMP 2004 Landcover Dataset.

The predominant soil types and hydrologic soil groups found on the Fort Meade Site and utilized in the hydrologic analysis are summarized in Table 2. The soil mapping information were obtained from the NRCS website and were downloaded in July 2006. The hydrologic soil group was estimated using a weighted average value based on the reported soil complex percent presence in the formation. Refer to Figure 5 for a soil delineation map for the Fort Meade site.

NAME	Map Unit Symbol	Hydro Group	Hydric	Farm Land	Erosion	Drainage
Alloway-Sassafras complex, 2 to 5 percent slopes	AfB	B	Not Hydric	Prime Farmland	Highly Erodible	Moderately Well Drained
Alloway-Sassafras complex, 5 to 10 percent slopes	AfC	B	Not Hydric	Farmland of Statewide Importance	Highly Erodible	Moderately Well Drained

Watershed Analysis for subwatersheds within the Fort Meade boundaries
(WMT database, Water quality, and hydrologic modeling feedback)
December 4, 2006

NAME	Map Unit Symbol	Hydro Group	Hydric	Farm Land	Erosion	Drainage
Chillum loam, 2 to 5 percent slopes	CaB	B	Not Hydric	Prime Farmland	Potentially Highly Erodible	Well Drained
Chillum loam, 5 to 10 percent slopes	CaC	B	Not Hydric	Farmland of Statewide Importance	Highly Erodible	Well Drained
Codorus and Hatboro soils, 0 to 2 percent slopes, frequently flooded	CHA	C	Partially Hydric	Not Prime Farmland	Not Highly Erodible	Moderately Well Drained
Downer-Hammonton complex, 10 to 15 percent slopes	DvD	B	Not Hydric	Not Prime Farmland	Highly Erodible	Well Drained
Downer-Hammonton complex, 2 to 5 percent slopes	DvB	B	Not Hydric	Prime Farmland	Potentially Highly Erodible	Well Drained
Downer-Hammonton complex, 5 to 10 percent slopes	DvC	B	Not Hydric	Farmland of Statewide Importance	Highly Erodible	Well Drained
Downer-Hammonton-Urban land complex, 0 to 5 percent slopes	DwB	B	Not Hydric	Not Prime Farmland	Potentially Highly Erodible	Well Drained
Downer-Hammonton-Urban land complex, 5 to 15 percent slopes	DwD	B	Not Hydric	Not Prime Farmland	Highly Erodible	Well Drained
Downer-phalanx complex, 10 to 15 percent slopes	DxD	B	Not Hydric	Not Prime Farmland	Highly Erodible	Well Drained
Evesboro and Galestown soils, 5 to 10 percent slopes	EVC	A	Not Hydric	Not Prime Farmland	Potentially Highly Erodible	Excessively Drained
Fallsington sandy loam, 0 to 2 percent slopes	FaA	B	All Hydric	Prime Farmland if Drained	Not Highly Erodible	Poorly Drained
Mattapex-Butlertown complex, 5 to 10 percent slopes	MxC	C	Not Hydric	Farmland of Statewide Importance	Highly Erodible	Moderately Well Drained
Patapsco-Evesboro-Fort Mott complex, 0 to 5 percent slopes	PeB	A	Not Hydric	Farmland of Statewide Importance	Potentially Highly Erodible	Somewhat Excessively Drained
Patapsco-Fort Mott complex, 0 to 5 percent slopes	PfB	A	Not hydric	Farmland of Statewide Importance	Highly Erodible	Somewhat Excessively Drained
Patapsco-Fort Mott complex, 10 to 15 percent slopes	PfD	A	Not hydric	Not Prime Farmland	Potentially Highly Erodible	Excessively Drained
Patapsco-Fort Mott complex, 5 to 10 percent slopes	PfC	A	Not Hydric	Farmland of Statewide Importance	Potentially Highly Erodible	Somewhat Excessively Drained
Patapsco-Fort Mott-Urban land complex, 0 to 5 percent slopes	PgB	A	Not Hydric	Not Prime Farmland	Potentially Highly Erodible	Somewhat Excessively Drained

Watershed Analysis for subwatersheds within the Fort Meade boundaries
(WMT database, Water quality, and hydrologic modeling feedback)
December 4, 2006

NAME	Map Unit Symbol	Hydro Group	Hydric	Farm Land	Erosion	Drainage
Patapsco-Fort Mott-Urban land complex, 5 to 15 percent slopes	PgD	A	Not Hydric	Not Prime Farmland	Highly Erodible	Excessively Drained
Russett fine sandy loam, 2 to 5 percent slopes	RfB	C	Not Hydric	Prime Farmland	Potentially Highly Erodible	Moderately Well Drained
Russett-Alloway-Hambrook complex, 0 to 5 percent slopes	RhB	B	Not Hydric	Not Prime Farmland	Potentially Highly Erodible	Moderately Well Drained
Russett-Alloway-Hambrook complex, 10 to 15 percent slopes	RhD	B	Not Hydric	Not Prime Farmland	Highly Erodible	Moderately Well Drained
Russett-Alloway-Hambrook complex, 5 to 10 percent slopes	RhC	B	Not Hydric	Not Prime Farmland	Highly Erodible	Moderately Well Drained
Russett-Alloway-Urban land complex, 0 to 5 percent slopes	RkB	C	Not Hydric	Not Prime Farmland	Potentially Highly Erodible	Moderately Well Drained
Russett-Urban land complex, 0 to 5 percent slopes	RyB	C	Not Hydric	Not Prime Farmland	Potentially Highly Erodible	Moderately Well Drained
Sassafras and Croom soils, 15 to 25 percent slopes	SME	B	Not Hydric	Not Prime Farmland	Highly Erodible	Well Drained
Sassafras fine sandy loam, 2 to 5 percent slopes	SaB	B	Not Hydric	Prime Farmland	Potentially Highly Erodible	Well Drained
Sassafras loam, 2 to 5 percent slopes	SfB	B	Not Hydric	Prime Farmland	Potentially Highly Erodible	Well Drained
Sassafras-Hambrook complex, 0 to 2 percent slopes	ShA	B	Not Hydric	Prime Farmland	Not Highly Erodible	Well Drained
Sassafras-Urban land complex, 0 to 5 percent slopes	SnB	B	Not Hydric	Not Prime Farmland	Potentially Highly Erodible	Well Drained
Sassafras-Urban land complex, 5 to 15 percent slopes	SnD	B	Not Hydric	Not Prime Farmland	Highly Erodible	Well Drained
Udorthents, loamy, 0 to 5 percent slopes	UoB	C	Not Hydric	Not Prime Farmland	Potentially Highly Erodible	Well Drained
Udorthents, loamy, 5 to 15 percent slopes	UoD	C	Not Hydric	Not Prime Farmland	Highly Erodible	Well Drained
Udorthents, reclaimed gravel pits, 0 to 5 percent slopes	UpB	C	Not Hydric	Not Prime Farmland	Potentially Highly Erodible	Well Drained
Udorthents, refuse substratum, 0 to 50 percent slopes	UfG	D	Not Hydric	Not Prime Farmland	Highly Erodible	Well Drained
Woodstown sandy loam, 0 to 2 percent slopes	WdA	C	Not Hydric	Prime Farmland	Potentially Highly Erodible	Moderately Well Drained
Woodstown sandy loam, 2 to 5 percent slopes	WdB	C	Not Hydric	Prime Farmland	Potentially Highly Erodible	Moderately Well Drained
Zekiah and Issue soils, 0 to 2 percent slopes, frequently flooded	ZBA	D	Partially Hydric	Not Prime Farmland	Not Highly Erodible Land	Poorly Drained

Table 2: Soils data for Ft. Meade.

Hydrologic Analysis

A hydrologic analysis was requested for the submitted forty-seven subwatersheds. Specifically, the peak discharges for the 1, 2, 10, 25, 50, and 100-year storms. For this study, the peak discharges and runoff volumes were estimated using the NRCS TR20 model. The required input for the TR-20 model was prepared using the WMT TR20 interface. The Curve Number (RCN) was calculated using an intersection of the drainage area boundary, soil, and landcover layers. The hydrologic soil groups within Table 2 were utilized to calculate the composite RCN for each subwatershed. The composite RCN results for all 46 subwatersheds are shown in Table 3.

Subwatershed	Curve Number (RCN)	Time of Concentration (hrs.)	Longest Flow Path (ft.)	Subshed Slope (ft./ft.)
FTMD00SV	66.04	3.20	14,000	0.0104
FTMD01LP	65.42	1.94	5,042	0.0153
FTMD02LP	78.68	2.17	7,909	0.0060
FTMD03LP	69.49	3.17	8,078	0.0066
FTMD04LP	69.78	1.14	3,995	0.0149
FTMD05LP	70.89	0.11	123	0.0080
FTMD06SV	66.50	2.26	6,617	0.0135
FTMD07LP	76.14	1.32	6,987	0.0116
FTMD08LP	70.19	0.98	5,979	0.0121
FTMD09SV	66.87	1.24	4,898	0.0069
FTMD10LP	64.83	2.51	9,262	0.0115
FTMD11LP	69.37	0.93	5,973	0.0153
FTMD12LP	55.26	0.10	170	0.0375
FTMD13LP	56.59	12.44	20,965	0.0041
FTMD14LP	79.28	0.78	6,026	0.0124
FTMD15LP	72.33	0.72	3018	0.0169
FTMD16SV	65.15	1.87	6166	0.0121
FTMD17SV	68.70	1.24	4560	0.0063
FTMD18LP	71.97	1.20	5915	0.0127
FTMD19SV	70.76	1.19	5883	0.0075
FTMD20LP	61.23	1.93	5448	0.0120
FTMD21LP	74.38	3.57	10397	0.0067
FTMD22LP	68.46	1.30	3816	0.0079
FTMD23LP	84.49	1.08	8389	0.0092
FTMD24LP	67.78	1.23	3942	0.0076
FTMD25LP	62.76	2.03	6508	0.0139

Watershed Analysis for subwatersheds within the Fort Meade boundaries
(WMT database, Water quality, and hydrologic modeling feedback)
December 4, 2006

Subwatershed	Curve Number (RCN)	Time of Concentration (hrs.)	Longest Flow Path (ft.)	Subshed Slope (ft./ft.)
FTMD26SV	62.14	2.70	3699	0.0065
FTMD27LP	76.01	0.57	2611	0.0105
FTMD28LP	73.88	1.86	5651	0.0058
FTMD29LP	74.24	1.08	3372	0.0108
FTMD30LP	72.97	1.39	4444	0.0044
FTMD31LP	78.03	1.58	6034	0.0051
FTMD32LP	71.46	13.91	17177	0.0017
FTMD33LP	59.00	2.77	5476	0.0082
FTMD34LP	66.22	0.48	2412	0.0150
FTMD35LP	67.78	2.26	6319	0.0113
FTMD36LP	57.38	1.65	3880	0.0210
FTMD37LP	57.64	4.69	5752	0.0054
FTMD38LP	73.13	1.71	8386	0.0076
FTMD39LP	48.11	2.50	3977	0.0187
FTMD40LP	53.71	1.90	3752	0.0250
FTMD41LP	70.18	3.32	7811	0.0100
FTMD42LP	62.02	1.59	5541	0.0139
FTMD43LP	64.87	1.86	4580	0.0201
FTMD44LP	69.37	2.64	2198	0.0023
FTMD45LP	62.46	1.67	4057	0.0220
FTMD46LP	42.07	0.99	1332	0.0328

Table 3: Subwatershed Curve Numbers.

The time of concentration was estimated using the SCS lag time method. The time of concentration estimated through this method takes into consideration the hydrologic longest flow path, watershed slope, and RCN.

$$T_c = 1.67 \times \frac{L^{0.8} \times \left(\frac{1000}{CN} - 9\right)^{0.7}}{1900 \times Y^{0.2}} \quad \text{Where,}$$

- T_c = Time of concentration in hours
- L = Hydrologic longest flow path in feet
- CN = Composite Runoff Curve Number
- Y = Subwatershed slope in percent

The time of concentration equation was adjusted to account for urbanization following suggestion from TR55 manuals. This adjustment includes the incorporation of the percent impervious for each landcover classification to an adjustment factor to account for travel time through urbanized stormdrain/gutter systems. The longest flow path, subcatchment slope, and results for the computed time of concentration for all subwatersheds are shown in Table 3.

Modeling the discharge attenuation relating to stormwater management ponds may be performed using the WMT TR20 model. In order to model the effects of these ponds, the stage storage discharge relationship for the pond must be known and entered as an input into the model. Based on the phone conversation with Ms. Lockey-Fillipo, this information does not exist in a digital format and thus will not be included in this study. Due to this, the results modeled are expected to be more conservative or higher than actual ground conditions. The incorporation of the BMP existing or future scenario quantity management ponds to the hydrologic study may be requested in the future when the attenuation performance relationships for the ponds are known.

Tables 4 and 5 show the individual and cumulative ranges for flow and runoff volumes varying in frequency from the 1-year to the 100-year discharge at the downstream limits of each subwatershed. Refer to Figures 6a and 6b for a GIS mapping of the cumulative 100-year peak discharge and runoff volume. GIS maps for other modeled storm event discharges or runoff volumes maybe provided upon request.

Individual Subwatershed Runoff Volume (inches):

Subwatershed	1-Yr Volume Runoff	2-Yr Volume Runoff	10-Yr Volume Runoff	25-Yr Volume Runoff	50-Yr Volume Runoff	100-Yr Volume Runoff
FTMD00SV	0.41	0.70	1.87	2.37	2.82	3.52
FTMD01LP	0.39	0.67	1.82	2.32	2.76	3.46
FTMD02LP	0.96	1.39	2.94	3.55	4.08	4.88
FTMD03LP	0.53	0.86	2.14	2.68	3.15	3.89
FTMD04LP	0.55	0.88	2.17	2.71	3.18	3.93
FTMD05LP	0.59	0.93	2.26	2.80	3.29	4.04
FTMD06SV	0.43	0.72	1.90	2.41	2.86	3.57
FTMD07LP	0.83	1.23	2.71	3.31	3.83	4.63
FTMD08LP	0.56	0.90	2.20	2.74	3.23	3.97
FTMD09SV	0.44	0.73	1.93	2.44	2.90	3.61
FTMD10LP	0.37	0.64	1.77	2.26	2.70	3.40
FTMD11LP	0.53	0.85	2.13	2.67	3.14	3.88
FTMD12LP	0.00	0.29	1.10	1.48	1.83	2.41
FTMD13LP	0.13	0.28	1.04	1.39	1.71	2.20
FTMD14LP	0.99	1.43	3.00	3.62	4.16	4.98
FTMD15LP	0.65	1.01	2.38	2.94	3.44	4.21

Watershed Analysis for subwatersheds within the Fort Meade boundaries
(WMT database, Water quality, and hydrologic modeling feedback)
December 4, 2006

Subwatershed	1-Yr Volume Runoff	2-Yr Volume Runoff	10-Yr Volume Runoff	25-Yr Volume Runoff	50-Yr Volume Runoff	100-Yr Volume Runoff
FTMD16SV	0.38	0.66	1.80	2.29	2.74	3.43
FTMD17SV	0.50	0.82	2.08	2.61	3.08	3.81
FTMD18LP	0.63	0.99	2.35	2.91	3.40	4.17
FTMD19SV	0.58	0.93	2.25	2.80	3.28	4.04
FTMD20LP	0.26	0.49	1.51	1.96	2.37	3.02
FTMD21LP	0.74	1.13	2.55	3.12	3.62	4.39
FTMD22LP	0.50	0.81	2.06	2.59	3.05	3.79
FTMD23LP	1.31	1.80	3.50	4.14	4.69	5.51
FTMD24LP	0.47	0.78	2.01	2.52	2.99	3.71
FTMD25LP	0.31	0.55	1.62	2.09	2.51	3.18
FTMD26SV	0.29	0.53	1.57	2.03	2.45	3.11
FTMD27LP	0.82	1.22	2.70	3.29	3.81	4.62
FTMD28LP	0.72	1.10	2.51	3.09	3.60	4.38
FTMD29LP	0.73	1.12	2.54	3.12	3.63	4.42
FTMD30LP	0.68	1.05	2.44	3.00	3.50	4.28
FTMD31LP	0.92	1.35	2.88	3.49	4.02	4.83
FTMD32LP	0.51	0.80	1.81	2.20	2.53	2.99
FTMD33LP	0.21	0.41	1.35	1.77	2.17	2.79
FTMD34LP	0.42	0.70	1.88	2.38	2.83	3.54
FTMD35LP	0.47	0.78	2.01	2.52	2.99	3.71
FTMD36LP	0.17	0.36	1.24	1.65	2.02	2.62
FTMD37LP	0.18	0.36	1.25	1.66	2.04	2.64
FTMD38LP	0.68	1.05	2.45	3.02	3.52	4.29
FTMD39LP	0.00	0.11	0.67	0.96	1.25	1.71
FTMD40LP	0.10	0.24	1.00	1.36	1.70	2.25
FTMD41LP	0.56	0.90	2.20	2.74	3.22	3.96
FTMD42LP	0.29	0.53	1.56	2.02	2.44	3.10
FTMD43LP	0.37	0.64	1.78	2.27	2.71	3.40
FTMD44LP	0.53	0.85	2.13	2.67	3.14	3.88
FTMD45LP	0.30	0.54	1.60	2.06	2.48	3.15
FTMD46LP	0.00	0.00	0.37	0.58	0.80	1.17

Table 4a: Individual Subwatershed Runoff Volume (inches).

Cumulative Subwatershed Runoff Volume (Inches):

Subwatershed	1-Yr Volume Runoff	2-Yr Volume Runoff	10-Yr Volume Runoff	25-Yr Volume Runoff	50-Yr Volume Runoff	100-Yr Volume Runoff
FTMD00SV	0.41	0.7	1.87	2.37	2.82	3.52
FTMD01LP	0.39	0.67	1.82	2.32	2.76	3.46
FTMD02LP	1.9	2.94	6.93	8.58	10.02	12.27
FTMD03LP	0.53	0.86	2.14	2.68	3.15	3.89
FTMD04LP	0.55	0.88	2.17	2.71	3.18	3.93
FTMD05LP	0.59	0.93	2.26	2.8	3.29	4.04

Watershed Analysis for subwatersheds within the Fort Meade boundaries
(WMT database, Water quality, and hydrologic modeling feedback)
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Subwatershed	1-Yr Volume Runoff	2-Yr Volume Runoff	10-Yr Volume Runoff	25-Yr Volume Runoff	50-Yr Volume Runoff	100-Yr Volume Runoff
FTMD06SV	0.43	0.72	1.9	2.41	2.86	3.57
FTMD07LP	1.82	2.66	5.71	6.93	7.99	9.61
FTMD08LP	0.56	0.9	2.2	2.74	3.23	3.97
FTMD09SV	1.28	2.15	5.7	7.22	8.58	10.7
FTMD10LP	0.37	0.64	1.77	2.26	2.7	3.4
FTMD11LP	0.53	0.85	2.13	2.67	3.14	3.88
FTMD12LP	1.09	2.05	5.44	6.9	8.21	10.27
FTMD13LP	6.61	10.92	27.64	34.72	41.02	50.89
FTMD14LP	0.99	1.43	3	3.62	4.16	4.98
FTMD15LP	2.47	3.67	8.09	9.87	11.43	13.82
FTMD16SV	0.38	0.66	1.8	2.29	2.74	3.43
FTMD17SV	1.46	2.41	6.13	7.7	9.1	11.28
FTMD18LP	0.63	0.99	2.35	2.91	3.4	4.17
FTMD19SV	0.58	0.93	2.25	2.8	3.28	4.04
FTMD20LP	1.26	2.12	5.63	7.13	8.47	10.59
FTMD21LP	3.21	4.8	10.64	12.99	15.05	18.21
FTMD22LP	0.5	0.81	2.06	2.59	3.05	3.79
FTMD23LP	1.62	2.35	5.12	6.23	7.2	8.69
FTMD24LP	2.23	3.71	9.7	12.24	14.51	18.09
FTMD25LP	0.31	0.55	1.62	2.09	2.51	3.18
FTMD26SV	0.29	0.53	1.57	2.03	2.45	3.11
FTMD27LP	3.77	6.03	14.91	18.62	21.92	27.09
FTMD28LP	0.72	1.1	2.51	3.09	3.6	4.38
FTMD29LP	3.03	4.52	10.1	12.35	14.33	17.39
FTMD30LP	0.68	1.05	2.44	3	3.5	4.28
FTMD31LP	0.92	1.35	2.88	3.49	4.02	4.83
FTMD32LP	7.78	11.91	27.43	33.76	39.37	47.97
FTMD33LP	0.21	0.41	1.35	1.77	2.17	2.79
FTMD34LP	0.42	0.7	1.88	2.38	2.83	3.54
FTMD35LP	0.47	0.78	2.01	2.52	2.99	3.71
FTMD36LP	0.17	0.36	1.24	1.65	2.02	2.62
FTMD37LP	1.07	1.82	5.05	6.45	7.73	9.72
FTMD38LP	0.68	1.05	2.45	3.02	3.52	4.29
FTMD39LP	0	0.11	0.67	0.96	1.25	1.71
FTMD40LP	7.78	12.98	33.69	42.53	50.45	62.86
FTMD41LP	0.56	0.9	2.2	2.74	3.22	3.96
FTMD42LP	0.29	0.53	1.56	2.02	2.44	3.1
FTMD43LP	0.37	0.64	1.78	2.27	2.71	3.4
FTMD44LP	8.31	12.76	29.56	36.43	42.51	51.85
FTMD45LP	0.3	0.54	1.6	2.06	2.48	3.15
FTMD46LP	0	0	0.37	0.58	0.8	1.17

Table 4b: Cumulative Subwatershed Runoff Volume (inches).

Watershed Analysis for subwatersheds within the Fort Meade boundaries
(WMT database, Water quality, and hydrologic modeling feedback)
December 4, 2006

Individual Peak Discharge Rates (cfs):

Subwatershed	1-Yr Discharge	2-Yr Discharge	10-Yr Discharge	25-Yr Discharge	50-Yr Discharge	100-Yr Discharge
FTMD00SV	54.0	101.0	311.0	403.0	486.0	616.0
FTMD01LP	22.0	43.0	138.0	180.0	218.0	277.0
FTMD02LP	84.0	126.0	275.0	334.0	385.0	462.0
FTMD03LP	54.0	94.0	260.0	330.0	392.0	489.0
FTMD04LP	31.0	56.0	154.0	195.0	232.0	288.0
FTMD05LP	2	3	7.0	9.0	11.0	13.0
FTMD06SV	32.0	61.0	188.0	243.0	293.0	370.0
FTMD07LP	155.0	243.0	562.0	690.0	801.0	969.0
FTMD08LP	55.0	96.0	264.0	333.0	395.0	489.0
FTMD09SV	40.0	77.0	239.0	308.0	370.0	466.0
FTMD10LP	26.0	52.0	170.0	222.0	270.0	344.0
FTMD11LP	35.0	64.0	179.0	228.0	271.0	337.0
FTMD12LP	0.0	1	5.0	7.0	9.0	11.0
FTMD13LP	13	29	112	152	189	250
FTMD14LP	109.0	162.0	349.0	421.0	484.0	581.0
FTMD15LP	42.0	71.0	183.0	227.0	266.0	328.0
FTMD16SV	14.0	28.0	91.0	119.0	145.0	184.0
FTMD17SV	27.0	49.0	142.0	180.0	215.0	269.0
FTMD18LP	44.0	74.0	191.0	239.0	282.0	347.0
FTMD19SV	79.0	138.0	371.0	467.0	552.0	685.0
FTMD20LP	8.0	18.0	70.0	95.0	117.0	153.0
FTMD21LP	72.0	115.0	279.0	345.0	403.0	492.0
FTMD22LP	21.0	38.0	110.0	140.0	167.0	209.0
FTMD23LP	127.0	178.0	346.0	410.0	465.0	546.0
FTMD24LP	22.0	41.0	121.0	155.0	186.0	233.0
FTMD25LP	13.0	27.0	98.0	130.0	159.0	205.0
FTMD26SV	6.0	12.0	43.0	58.0	71.0	92.0
FTMD27LP	26.0	41.0	95.0	116.0	134.0	163.0
FTMD28LP	37.0	60.0	148.0	184.0	215.0	263.0
FTMD29LP	31.0	50.0	121.0	150.0	175.0	213.0
FTMD30LP	32.0	54.0	135.0	168.0	197.0	242.0
FTMD31LP	75.0	113.0	252.0	306.0	353.0	425.0
FTMD32LP	34	54	135	168	198	244
FTMD33LP	7.0	16.0	67.0	92.0	115.0	152.0
FTMD34LP	24.0	47.0	149.0	193.0	230.0	293.0
FTMD35LP	25.0	46.0	134.0	172.0	206.0	259.0
FTMD36LP	5	13.0	65.0	91.0	115.0	155.0
FTMD37LP	5	12.0	49.0	67.0	84.0	112.0
FTMD38LP	70.0	115.0	288.0	358.0	419.0	514.0
FTMD39LP	0.0	1	12.0	20.0	27.0	39.0
FTMD40LP	2	6.0	40.0	58.0	76.0	105.0
FTMD41LP	18.0	31.0	83.0	105.0	124.0	155.0
FTMD42LP	10.0	23.0	86.0	115.0	141.0	183.0
FTMD43LP	13.0	26.0	87.0	114.0	138.0	177.0

Watershed Analysis for subwatersheds within the Fort Meade boundaries
(WMT database, Water quality, and hydrologic modeling feedback)
December 4, 2006

Subwatershed	1-Yr Discharge	2-Yr Discharge	10-Yr Discharge	25-Yr Discharge	50-Yr Discharge	100-Yr Discharge
FTMD44LP	7.0	12.0	34.0	43.0	51.0	64.0
FTMD45LP	6.0	14.0	51.0	68.0	83.0	107.0
FTMD46LP	0.0	0.0	1	3	4	8.0

Table 5a: Individual Subwatershed Peak Discharge (cfs).

Cumulative Peak Discharge Rates (cfs):

Subwatershed	1-Yr Discharge	2-Yr Discharge	10-Yr Discharge	25-Yr Discharge	50-Yr Discharge	100-Yr Discharge
FTMD00SV	54	101	311	403	486	616
FTMD01LP	22	43	138	180	218	277
FTMD02LP	137	225	567	709	835	1027
FTMD03LP	54	94	260	330	392	489
FTMD04LP	31	56	154	195	232	288
FTMD05LP	2	3	7	9	11	13
FTMD06SV	32	61	188	243	293	370
FTMD07LP	264	405	911	1111	1285	1550
FTMD08LP	55	96	264	333	395	489
FTMD09SV	126	239	738	954	1149	1452
FTMD10LP	26	52	170	222	270	344
FTMD11LP	35	64	179	228	271	337
FTMD12LP	109	191	529	670	796	989
FTMD13LP	421	734	2042	2598	3095	3868
FTMD14LP	109	162	349	421	484	581
FTMD15LP	306	476	1094	1338	1551	1878
FTMD16SV	14	28	91	119	145	184
FTMD17SV	120	215	604	766	912	1138
FTMD18LP	44	74	191	239	282	347
FTMD19SV	79	138	371	467	552	685
FTMD20LP	78	144	431	556	669	844
FTMD21LP	378	591	1373	1683	1954	2370
FTMD22LP	21	38	110	140	167	209
FTMD23LP	140	205	444	540	624	751
FTMD24LP	121	223	662	851	1022	1286
FTMD25LP	13	27	98	130	159	205
FTMD26SV	6	12	43	58	71	92
FTMD27LP	184	324	905	1151	1371	1712
FTMD28LP	37	60	148	184	215	263
FTMD29LP	203	309	700	858	996	1206
FTMD30LP	32	54	135	168	197	242
FTMD31LP	75	113	252	306	353	425
FTMD32LP	658	1032	2437	3006	3505	4273
FTMD33LP	7	16	67	92	115	152
FTMD34LP	24	47	149	193	230	293
FTMD35LP	25	46	134	172	206	259
FTMD36LP	5	13	65	91	115	155

Watershed Analysis for subwatersheds within the Fort Meade boundaries
(WMT database, Water quality, and hydrologic modeling feedback)
December 4, 2006

Subwatershed	1-Yr Discharge	2-Yr Discharge	10-Yr Discharge	25-Yr Discharge	50-Yr Discharge	100-Yr Discharge
FTMD37LP	82	143	404	517	618	778
FTMD38LP	70	115	288	358	419	514
FTMD39LP	0	1	12	20	27	39
FTMD40LP	505	883	2486	3173	3789	4751
FTMD41LP	18	31	83	105	124	155
FTMD42LP	10	23	86	115	141	183
FTMD43LP	13	26	87	114	138	177
FTMD44LP	665	1044	2471	3049	3556	4337
FTMD45LP	6	14	51	68	83	107
FTMD46LP	0	0	1	3	4	8

Table 5b: Cumulative Subwatershed Peak Discharge (cfs).

Estimates for Pollutant Loadings

Although actual pollutant loadings should ideally be determined through a comprehensive water quality monitoring effort, this correspondence provides a reasonable method and results for estimating the current loadings for each individual subwatershed. The results were also routed to include the contributory upstream loadings. The estimates are based on the Schueler (1987) Simple Method for estimating pollutant export from urban watersheds. Using this method, storm pollutant export (L, in pounds) can be determined for a given storm event (or on an annual basis as done for this study) by solving the following equation:

$$Pollutant\ Loading\ lbs / Acre / Year = \sum_u \left[\frac{P \times P_j \times R_{vu} \times C_u \times A_u \times 2.72}{12} \right]$$

L = Pollutant load, lb

P = Precipitation, 42.9 in./yr

R_{vu} = Runoff Coefficient for land use u, in runoff/in rain

C_u = Event Mean Concentration (EMC) for land use u, mg/L

A_u = Area of land use u, Acres

P_j = Ratio of storms producing runoff (0.9)

R_v = 0.05 + 0.009 x Percent Imperviousness, Used 0% Imperviousness
for Forested Conditions

The input data layers for estimating the pollutant loadings were the subwatershed boundary, the impervious cover, the landcover, and EMC value lookup table. The drainage area and landcover were intersected and the resulting layer was used in a “union” GIS process with the impervious layer. The annual pollutant loading was calculated for each landcover polygon and the results were aggregated for each subwatershed. Pollutant loading results for Total Nitrogen (TN), Total Phosphorous (TP), Fecal Coliform (FC), and Total Suspended Solids (TSS) are shown in Table 6.

Modeling the effect of existing or future scenario BMP in terms of its effectiveness in pollutant reduction/removal may be performed in the future upon request. This will require an accurate BMP and stormdrain structure and contributory drainage area spatial inventory populated with the structure type and the functional performance for the BMP. The GIS data CD-ROM that was provided to us only included a spatial point inventory of the BMPs. Information pertaining to BMP type was not provided. Therefore, the percent imperviousness shown in Table 6 does not account for treated impervious areas, nor do the pollutant loadings reported in Table 6 account for reductions in loadings due to BMP treatment.

Watershed Analysis for subwatersheds within the Fort Meade boundaries
(WMT database, Water quality, and hydrologic modeling feedback)
December 4, 2006

ShedCode	Total Area (Acres)	Impervious Area (Acres)	% Impervious	EPA Simple Method Pollutant Loadings			
				Total Phosph. (lbs/year)	Total Nitrogen (lbs/year)	Fecal Coliform (mpn/year)	Total Suspended Solids (Tons/year)
FTMD0SV	751	200	27%	595	4823	1.7E+14	299
FTMD1LP	236	28	12%	89	680	2.1E+13	40
FTMD2LP	294	93	32%	252	1856	4.7E+13	158
FTMD3LP	529	109	21%	328	2418	7.1E+13	172
FTMD4LP	145	39	27%	112	860	2.6E+13	59
FTMD5LP	2	0	12%	1	6	1.6E+11	1
FTMD6SV	340	43	13%	135	995	2.6E+13	72
FTMD7LP	454	178	39%	490	3576	9.7E+13	283
FTMD8LP	219	102	47%	286	2401	8.9E+13	139
FTMD9SV	273	75	27%	224	1851	6.7E+13	116
FTMD10LP	363	102	28%	285	2130	6.1E+13	157
FTMD11LP	149	61	41%	173	1424	5.1E+13	94
FTMD12LP	3	1	17%	2	11	2.7E+11	1
FTMD13LP	1258	244	19%	698	5290	1.6E+14	399
FTMD14LP	175	99	56%	263	1959	5.5E+13	158
FTMD15LP	113	41	37%	111	767	1.9E+13	59
FTMD16SV	154	34	22%	104	821	2.8E+13	52
FTMD17SV	148	60	40%	172	1430	5.3E+13	84
FTMD18LP	170	74	43%	190	1355	3.3E+13	110
FTMD19SV	343	168	49%	476	3821	1.3E+14	250
FTMD20LP	152	41	27%	115	834	2.2E+13	66
FTMD21LP	508	104	21%	298	2142	5.5E+13	169
FTMD22LP	120	38	32%	113	775	1.9E+13	63
FTMD23LP	187	112	60%	297	2149	5.4E+13	185

Watershed Analysis for subwatersheds within the Fort Meade boundaries
(WMT database, Water quality, and hydrologic modeling feedback)
December 4, 2006

ShedCode	Total Area (Acres)	Impervious Area (Acres)	% Impervious	EPA Simple Method Pollutant Loadings			
				Total Phosph. (lbs/year)	Total Nitrogen (lbs/year)	Fecal Coliform (mpn/year)	Total Suspended Solids (Tons/year)
FTMD24LP	131	35	27%	102	762	2.2E+13	58
FTMD25LP	199	48	24%	137	977	2.4E+13	79
FTMD26SV	114	6	5%	27	180	4.3E+12	10
FTMD27LP	44	17	38%	47	353	1.0E+13	25
FTMD28LP	168	49	29%	139	1003	2.6E+13	80
FTMD29LP	91	17	19%	59	381	9.2E+12	27
FTMD30LP	128	59	46%	161	1160	3.2E+13	97
FTMD31LP	217	85	39%	243	1717	4.5E+13	139
FTMD32LP	797	44	6%	173	1237	3.0E+13	82
FTMD33LP	218	33	15%	109	747	1.9E+13	54
FTMD34LP	95	36	38%	92	772	3.0E+13	57
FTMD35LP	228	34	15%	104	746	1.9E+13	58
FTMD36LP	162	13	8%	46	333	1.0E+13	22
FTMD37LP	257	14	6%	107	401	8.5E+12	26
FTMD38LP	315	54	17%	173	1349	4.7E+13	90
FTMD39LP	96	0	0%	7	52	1.1E+12	2
FTMD40LP	147	0	0%	10	78	1.6E+12	2
FTMD41LP	170	3	2%	22	153	3.4E+12	8
FTMD42LP	153	35	23%	109	804	2.6E+13	59
FTMD43LP	149	0	0%	10	75	1.5E+12	2
FTMD44LP	60	0	0%	4	31	6.2E+11	1
FTMD45LP	91	0	0%	6	47	9.4E+11	1
FTMD46LP	17	0	0%	1	8	1.7E+11	0

Table 6: Pollutant Loading Estimates.

Stream Assessment Inventory

The Stream Assessment Tool (SAT), a component of the WMT, houses an intensive data collection effort conducted as part of a comprehensive perennial stream walk. At this time, all perennial non-tidal streams within the Severn and South River have been walked and assessed, with the exception to areas where the property owner did not grant right-of-way access. Currently, efforts are underway to complete the stream assessment inventory for the Upper Patuxent Watershed. A full investigation of the Little Patuxent Watershed is not available at this time. The data within the SAT comprises a full-scale stream survey and makes for an accurate catalog of infrastructure, stream habitat, biological assessment, and environmental features. The stream assessment data provides Anne Arundel County with information that allows the identification of areas of high environmental quality that may need protection and areas of degradation that may be candidates for restoration.

While the Stream Assessment Tool includes a vast amount of information, only a select inventory was included with this report. Additional information, mapping, or photographs of the inventory may be provided upon request.

The Fort Meade area drains to five individual subwatersheds within the Severn River as follows:

- Picture Spring Branch
- Severn Run Tributary 9
- Severn Run Tributary 1
- Severn Mainstem 1
- Severn Mainstem 2

These subwatersheds have been evaluated to determine their priority for both restoration and preservation during the Severn River watershed study. The criteria for evaluation to determine subwatersheds in need of restoration include stream habitat, modeled water quantity, modeled water quality, and landscape features. The criteria for evaluation to determine watersheds in need of preservation include stream habitat, landscape features, and aquatic living resources. The majority of the subwatersheds within the Ft. Meade area were scored in very poor condition (needing restoration) as compared to the other subwatersheds within the Severn River Watershed. Refer to Figures 7a and 7b for the overall subwatershed priority for restoration and preservation for the Severn River.

During the stream assessment portion of the watershed study, habitat assessments were conducted for 352 reaches throughout the Severn River Watershed. The assessment used

was the 1999 Maryland Physical Habitat Index (MPHI), which was developed by the Maryland Department of Natural Resources (MDNR) for use in assessing freshwater streams in conjunction with the Maryland Biological Stream Survey. The MPHI is based on a series of parameters for assessment and comparison of streams across physiological regions. A listing of the parameters found to have the most discriminatory power for Coastal Plain streams includes: instream habitat, velocity/depth diversity, pool/glide/eddy quality, embeddedness, maximum depth, and trash rating. Each Habitat Assessment reach was given a Raw Score and a scaled MPHI score (0-100) and ranking. This allows for a score that can be compared to the habitat assessments done statewide and within the Severn by MDNR or other agencies. The relationship between the DNR MPHI scores and ranks is as follows.

Very Poor	0 – 11.9
Poor	12 – 41.9
Fair	42 – 71.9
Good	72 – 100

The following is a summary of the MPHI score for the 40 reaches within the Ft. Meade study area:

Very Poor	5
Poor	14
Fair	10
Good	11

Thus, these 40 stream reaches show a diversity of physical conditions, ranging from very poor to good.

In addition to the MPHI assessment, data points were also collected to create an inventory of infrastructure and environmental features. Data was collected to describe each feature. For example data collected for erosion points included height, length, right or left bank, restoration potential and an impact score. Higher scores indicate more impact or impairment.

A relative score incorporating the MPHI and the feature's Impact Score was developed for each Habitat Assessment reach. A total Impact Score was then tabulated by summation of all the impact scores for each reach. A fraction of the Total Impact Score was subtracted from the MPHI score to give a Final Habitat Score, which indicates habitat quality for each Habitat Assessment Reach relative to each other.

Watershed Analysis for subwatersheds within the Fort Meade boundaries
(WMT database, Water quality, and hydrologic modeling feedback)
December 4, 2006

The following is a summary of the Habitat score for the 40 reaches within the Ft. Meade study area:

Very Poor	9
Poor	12
Fair	12
Good	7

Again, these 40 stream reaches show a diversity of habitat conditions, ranging from very poor to good. Note that the stream reaches do appear to be impacted by infrastructure and other environmental conditions, as the number of good reaches declined, while the number of very poor stream reaches increased.

The stream reaches and their associated habitat scores and categories are shown in Table 7 below. This is followed by additional tabulation for the dumpsites, deficient stream buffer, stream bank erosion, and channel obstruction.

Reach ID	Length (ft)	Total Impact Score	Maryland Physical Habitat Index	Category	Final Habitat Score	Category
Picture Spring Branch Reaches						
PSB001	3881.00	20	97.60	Good	87.6	Good
PSB002	1757.00	5	25.90	Poor	23.40	Poor
PSB003	656.00	7	8.30	Very Poor	4.80	Very Poor
PSB005	928.00	15	89.00	Good	81.50	Good
PSB006	883.00	18	70.90	Fair	61.90	Fair
PSB007	1088.00	10	93.00	Good	88.00	Good
PSB008	499.00	12	65.90	Fair	59.90	Fair
PSB009	189.00	2	67.10	Fair	66.10	Fair
PSB010	2213.00	25	14.60	Poor	2.1	Very Poor
PSB012	491.00	7	9.90	Very Poor	6.40	Very Poor
PSB013	1347.00	10	47.20	Fair	42.2	Fair
PSB014	1040.00		35.20	Poor	35.20	Poor
PSB018	832.00	1	16.00	Poor	15.50	Poor
PSB019	467.00	10	8.10	Very Poor	3.10	Very Poor
PSB021	340.00	0	76.00	Good	76.00	Good
PSB022	1088.00	0	36.50	Poor	36.50	Poor
PSB023	3986.00	13	29.20	Poor	22.70	Poor
PSB024	260.00	2	18.40	Poor	17.40	Poor
PSB025	1270.00	16	13.90	Poor	5.90	Very Poor
PSB027	428.00		56.80	Fair	56.8	Fair
Sewern Mainstem 1 Reaches						

Watershed Analysis for subwatersheds within the Fort Meade boundaries
(WMT database, Water quality, and hydrologic modeling feedback)
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Reach ID	Length (ft)	Total Impact Score	Maryland Physical Habitat Index	Category	Final Habitat Score	Category
SM1001	969.00	14	14.30	Poor	7.3	Very Poor
SM1002	2693.00	50	47.20	Fair	22.2	Poor
SM1003	741.00	4	10.40	Very Poor	8.4	Very Poor
SM1004	3587.00	44	64.10	Fair	42.1	Fair
SM1005	764.00	25	42.50	Fair	30.0	Poor
Severn Mainstem 2						
SM2001	1802.00	47	72.90	Good	49.4	Fair
SM2003	719.00	2	91.40	Good	90.4	Good
SM2004	1060.00	39	12.10	Poor	-7.4	Very Poor
SM2005	950.00	26	82.30	Good	69.3	Fair
SM2006	535.00	11	48.50	Fair	43.0	Fair
SM2007	1207.00	11	77.00	Good	71.5	Fair
SM2008	1217.00	4	95.80	Good	93.8	Good
SM2009	1064.00	7	73.10	Good	69.6	Fair
SM2010	1556.00	14	35.70	Poor	28.7	Poor
SM2011	1746.00	17	9.40	Very Poor	0.9	Very Poor
Severn Run Tributary 1						
ST1002	1053.00	2	45.8	Fair	44.8	Fair
Severn Run Tributary 9						
ST9002	785.00	7	16.00	Poor	12.5	Poor
ST9004	616.00		76.00	Good	76.0	Good
ST9005	569.00	0	29.20	Poor	29.2	Poor
ST9006	783.00		18.40	Poor	18.4	Poor

Table 7: Stream Reaches and Associated Habitat Scores and Categories.

Dumpsites Data by Impact Score

Subwatershed	Date	Reach ID	Inventory	Bank	Location	Materials	Score
PSB	02/25/2002	PSB025	M001	right	floodplain	trash	10
	02/25/2002	PSB023	M001	left	floodplain	appliances	1
	02/21/2002	PSB018	M001	right	instream	trash	1
	02/21/2002	PSB013	M001	left	floodplain	trash	1
	02/20/2002	PSB006	M001	right	floodplain	trash	1
	02/19/2002	PSB004	M001	left	floodplain	trash	1
SM1	01/29/2002	SM1001	M001	right	floodplain	tires	5

Impact Scoring: Extreme (10) – Active and/or threatening. Material may be considered threatening to environment. Site is >2,500-ft²
Moderate (5) – Dumpsite <2,500-ft² non-toxic materials, does not appear to be used often.
Minor (1) – Dumpsite appears small <100-ft² Material is stable. Not high priority.

Buffers Data by Impact Score

Watershed Subwatershed	Date	Reach ID	Inventory	Bank	Linear Feet	Buffer Type	Restore Potential	Impact	
Severn River PSB	02/21/2002	PSB015	B001	left	200	forbs	Moderate	5	
	02/19/2002	PSB003	B001	left	300	pavement	Low	5	
	02/19/2002	PSB005	B001	left	75	other	Low	5	
	02/20/2002	PSB007	B001	left	60	other	Low	5	
	02/20/2002	PSB008	B001	right	60	other	Low	5	
	02/20/2002	PSB008	B002	left	300	forbs	Low	5	
	02/20/2002	PSB010	B001	right	30	other	Low	5	
	02/20/2002	PSB010	B002	right	200	forbs	Moderate	5	
	02/20/2002	PSB010	B003	left	100	other	Low	5	
	02/19/2002	PSB001	B001	left	120	other	Low	5	
	02/21/2002	PSB013	B001	left	60	pavement	Low	5	
	02/21/2002	PSB015	B002	left	40	other	Low	5	
	02/20/2002	PSB012	B001	left	100	lawn	High	5	
	SM1	01/30/2002	SM1004	B001	left	300	lawn	High	7
		01/29/2002	SM1001	B001	left	50	lawn	Low	5
01/29/2002		SM1002	B001	left	150	lawn	Moderate	5	
SM2	02/01/2002	SM2001	B001	left	350	pavement	Low	10	
	02/01/2002	SM2004	B001	right	200	pavement	Low	7	
	02/01/2002	SM2004	B002	right	60	lawn	Low	5	
	02/06/2002	SM2010	B001	right	100	lawn	Low	5	
ST9	01/31/2002	ST9002	B001	left	700	lawn	High	5	

Impact Scoring: Extreme (10) - Impervious/commercial area in close proximity to stream banks may be modified or engineered. Stream character is degraded.
Severe (7) – Some impervious and /or just turf up to bank, very little vegetation aside from turf within 25 ft. Stream character is probably degraded.
Moderate (5) - Encroachment mostly from residential uses and yard; some vegetation within 25 ft. Stream character may be changed slightly.
Minor (1) – Vegetated buffer primarily intact within 100ft. of stream.

Erosion Data by Impact Score

Watershed Subwatershed	Date	Reach ID	Inventory	Bank	Length	Restore Potential	Impact	
Severn River PSB	02/21/2002	PSB016	E004	left	200	Moderate	10	
	02/21/2002	PSB016	E001	right	200	Moderate	10	
	02/21/2002	PSB016	E002	left	200	Moderate	10	
	02/21/2002	PSB016	E003	right	200	Moderate	10	
	02/21/2002	PSB015	E003	right	200	High	7	
	02/21/2002	PSB015	E002	left	200	High	7	
	02/19/2002	PSB001	E001	left	80	Low	5	
	02/20/2002	PSB006	E001	right	60	Low	5	
	02/20/2002	PSB006	E002	left	80	Low	5	
	02/21/2002	PSB015	E001	left	30	Low	5	
	SM1	01/30/2002	SM1005	E001	right	100	Low	5
		01/30/2002	SM1004	E001	left	45	Moderate	5
		01/29/2002	SM1002	E001	right	60	Moderate	5
	SM2	02/01/2002	SM2004	E001	left	25	High	10
02/01/2002		SM2001	E001	left	20	High	10	
01/22/2002		SM2006	E001	right	80	Low	7	
01/22/2002		SM2005	E002	right	120	Low	5	
02/01/2002		SM2004	E002	right	20	Low	5	
01/22/2002		SM2005	E001	left	30	Low	5	
01/22/2002		SM2005	E003	right	100	Low	5	

Impact Scoring: Extreme (10) - Impending threat to structures or infrastructure.
Severe (7) - Large area of erosion that is damaging property and causing obvious instream degradation. Eroding bank is generally 5 ft. or greater in height.
Moderate (5) - Moderate area of erosion that may be damaging property and causing some instream degradation. Eroding bank is generally 2-3 ft. or greater.
Minor (1) - Minor area of erosion, low threat to property, and no noticeable instream degradation.

Obstructions Data by Impact Score

Subwatershed	Date	Reach ID	Inventory	Obstruction Type	impact
PSB	02/19/2002	PSB002	T001	concrete	5
	02/19/2002	PSB004	T001	beaver dam	5
	02/20/2002	PSB006	T001	concrete	5
	02/25/2002	PSB023	T001	other	2
	02/25/2002	PSB023	T002	trees	2
	02/19/2002	PSB001	T001	beaver dam	2
SM1	01/29/2002	SM1002	T002	debris	5
	01/30/2002	SM1004	T002	debris	2
	01/29/2002	SM1002	T001	trees	2
	01/29/2002	SM1002	T003	trees	2
	01/29/2002	SM1002	T004	trees	2
	01/30/2002	SM1003	T001	debris	2
	01/30/2002	SM1003	T002	debris	2
SM2	01/30/2002	SM1004	T001	trees	2
	02/01/2002	SM2001	T002	trees	5
	01/22/2002	SM2005	T001	trees	5
	02/06/2002	SM2009	T002	Riprap	5
	02/06/2002	SM2010	T001	debris	5
	02/06/2002	SM2011	T001	trees	2
	02/01/2002	SM2001	T003	trees	2
	01/22/2002	SM2005	T002	trees	2
	01/22/2002	SM2006	T001	trees	2
	01/22/2002	SM2007	T001	trees	2
	02/06/2002	SM2008	T001	trees	2
	02/06/2002	SM2008	T002	trees	2

Impact Scoring: Extreme (10) - Blockage causing significant erosion problem and/or potential for flooding. Stream usually almost totally blocked.
Moderate (5) - Blockage is causing moderate erosion and could cause flooding. Stream partially blocked.
Minor (1) - Blockage is causing some erosion problems, but does have potential to worsen and probably should be monitored.

Watershed Analysis for subwatersheds within the Fort Meade boundaries
(WMT database, Water quality, and hydrologic modeling feedback)
December 4, 2006

For additional information regarding this technical memorandum, please contact the
Watershed Program Administrator, Mary Searing, at (410) 222-7441 ext. 3206.

Thank you for the opportunity to provide you with this information. We hope that you will
find it useful.

Cc: Ginger Ellis, OECR Administrator
Lois Villemaire, OPZ Acting Director
Chris Soldano, OPZ Deputy Director

Watershed Analysis for subwatersheds within the Fort Meade boundaries
(WMT database, Water quality, and hydrologic modeling feedback)
December 4, 2006

Appendix

Fig. 1: Ft. Meade Location Map

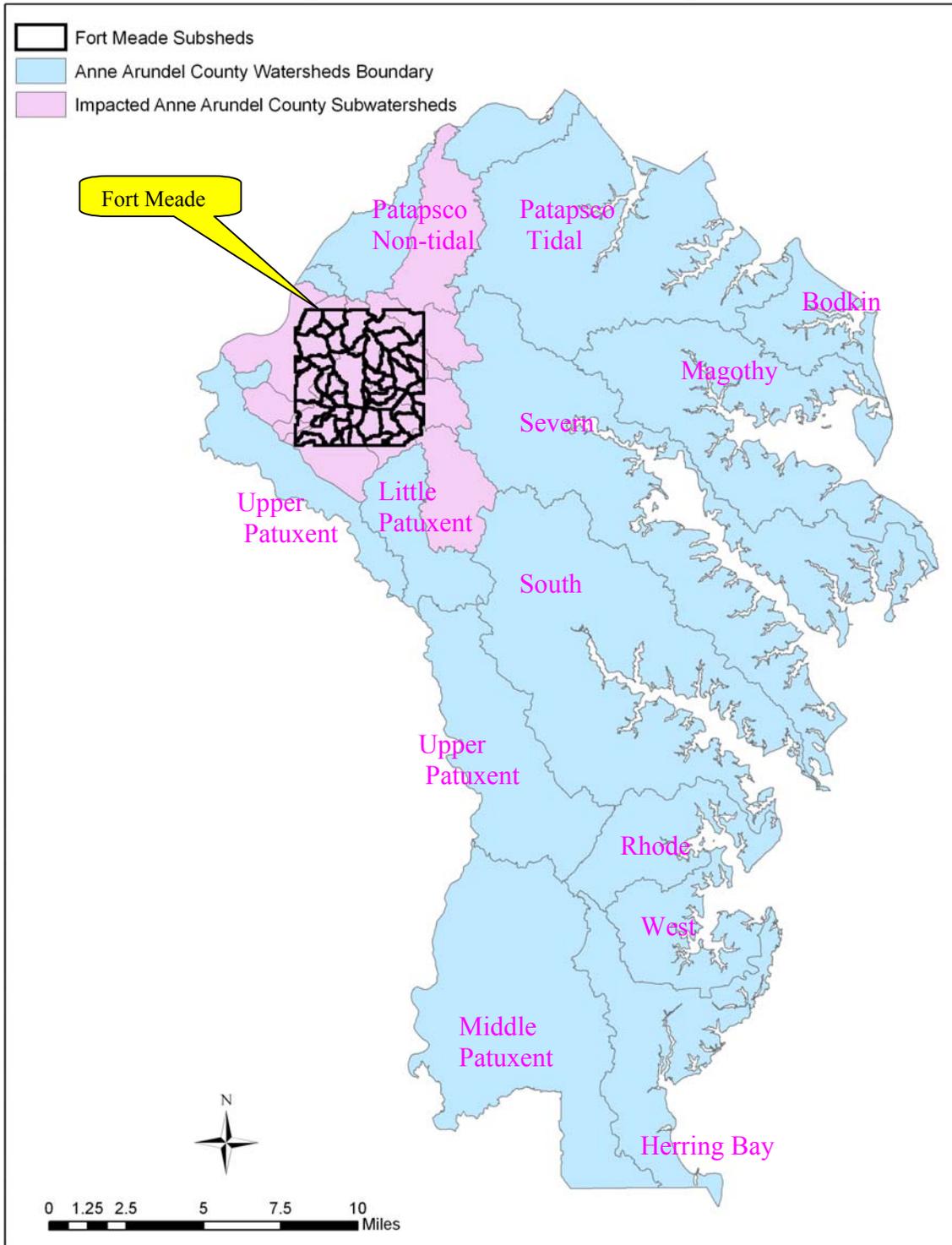
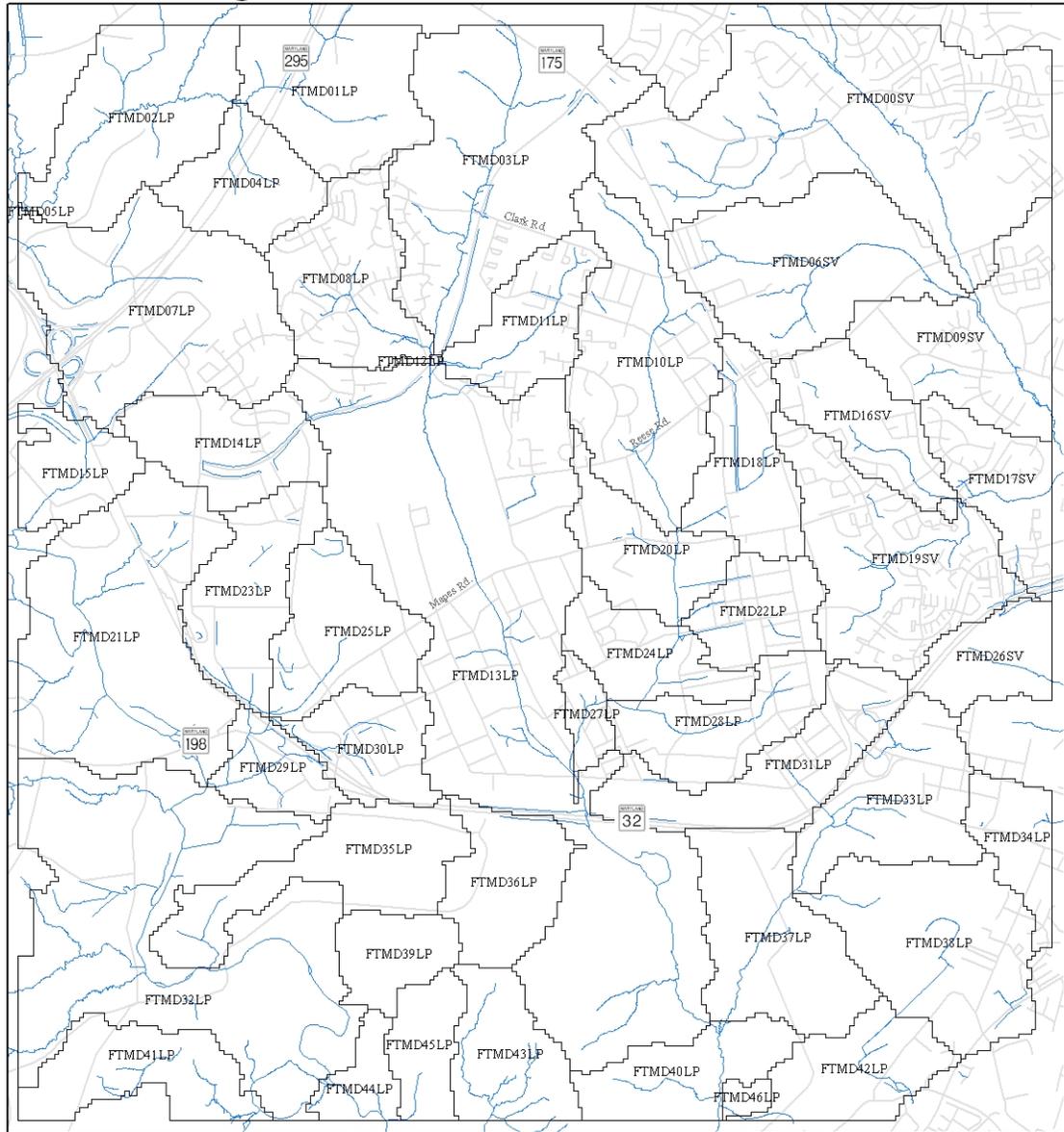


Fig. 2: Ft. Meade Subwatershed Codes



Legend
 — Streets
 — Streams
 □ Ft. Meade Subshed

0 1000 2000 4000 Feet



Anne Arundel County
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 Watershed Management Program



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Fig. 3: Ft. Meade Ortho-Photography



Legend
[Red outline] Ft. Meade Subshed

0 1,000 2,000 4,000
Feet



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Watershed Analysis for subwatersheds within the Fort Meade boundaries
(WMT database, Water quality, and hydrologic modeling feedback)

Fig. 4: Ft. Meade Landuse



Legend

Land Cover	Open Wetland	Row Crops
Airport	Pasture/Hay	Transportation
Commercial	Residential 1-acre	Utility
Forested Wetland	Residential 1/2-acre	Water
Industrial	Residential 1/4-acre	Woods
Open Space	Residential 1/8-acre	

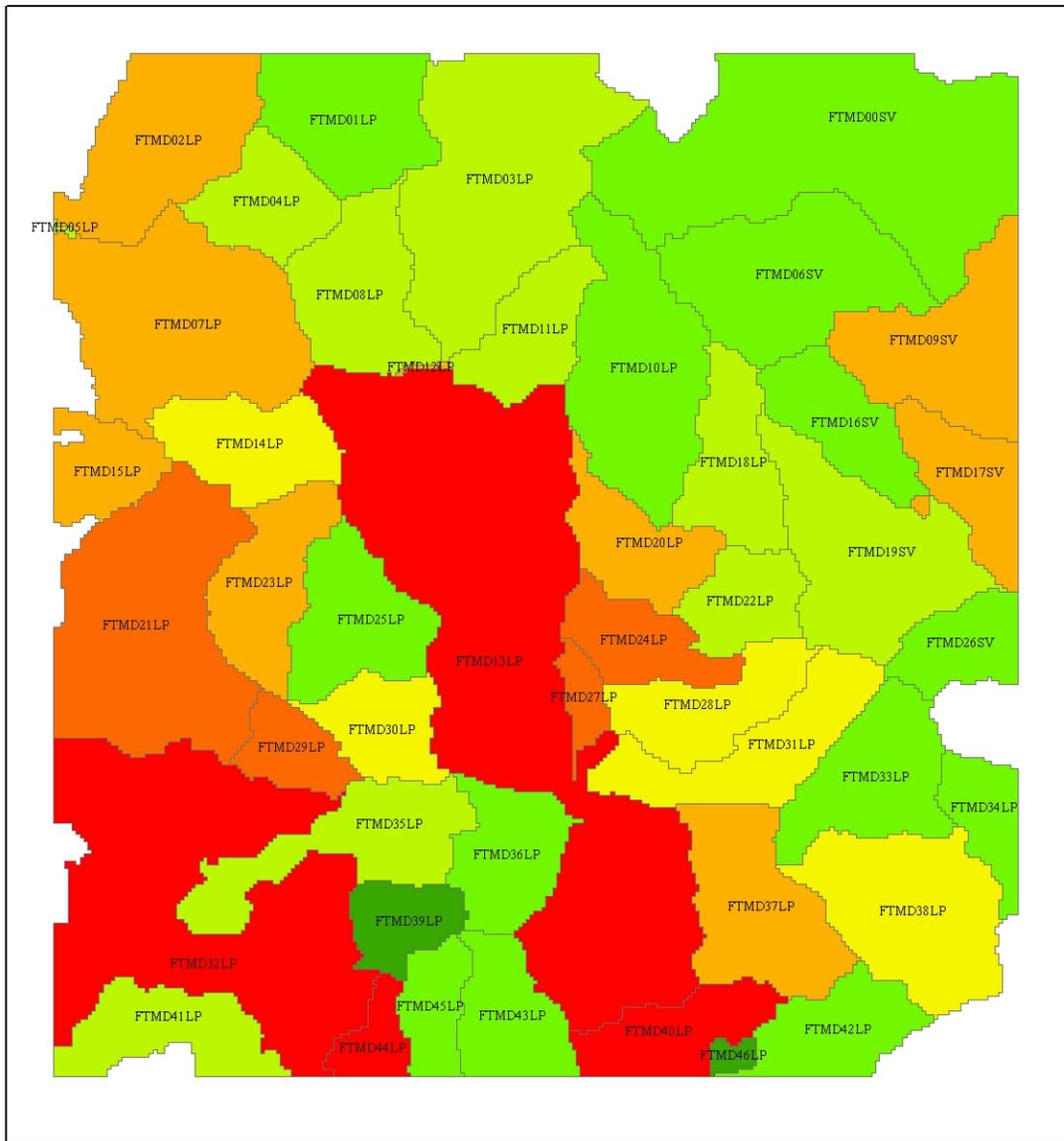


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Fig. 6a: Ft. Meade Subshed Cummulative 100-Year Volume Runoff



Legend

Cumulative 100-Yr Volume Runoff (inches)	
Light Green	3.58 - 4.17
Yellow	4.18 - 4.98
Orange	4.99 - 13.82
Light Green	1.72 - 3.57
Dark Green	1.17 - 1.71
Red	13.83 - 27.09
Dark Red	27.10 - 62.86

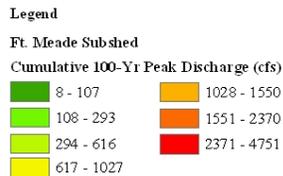
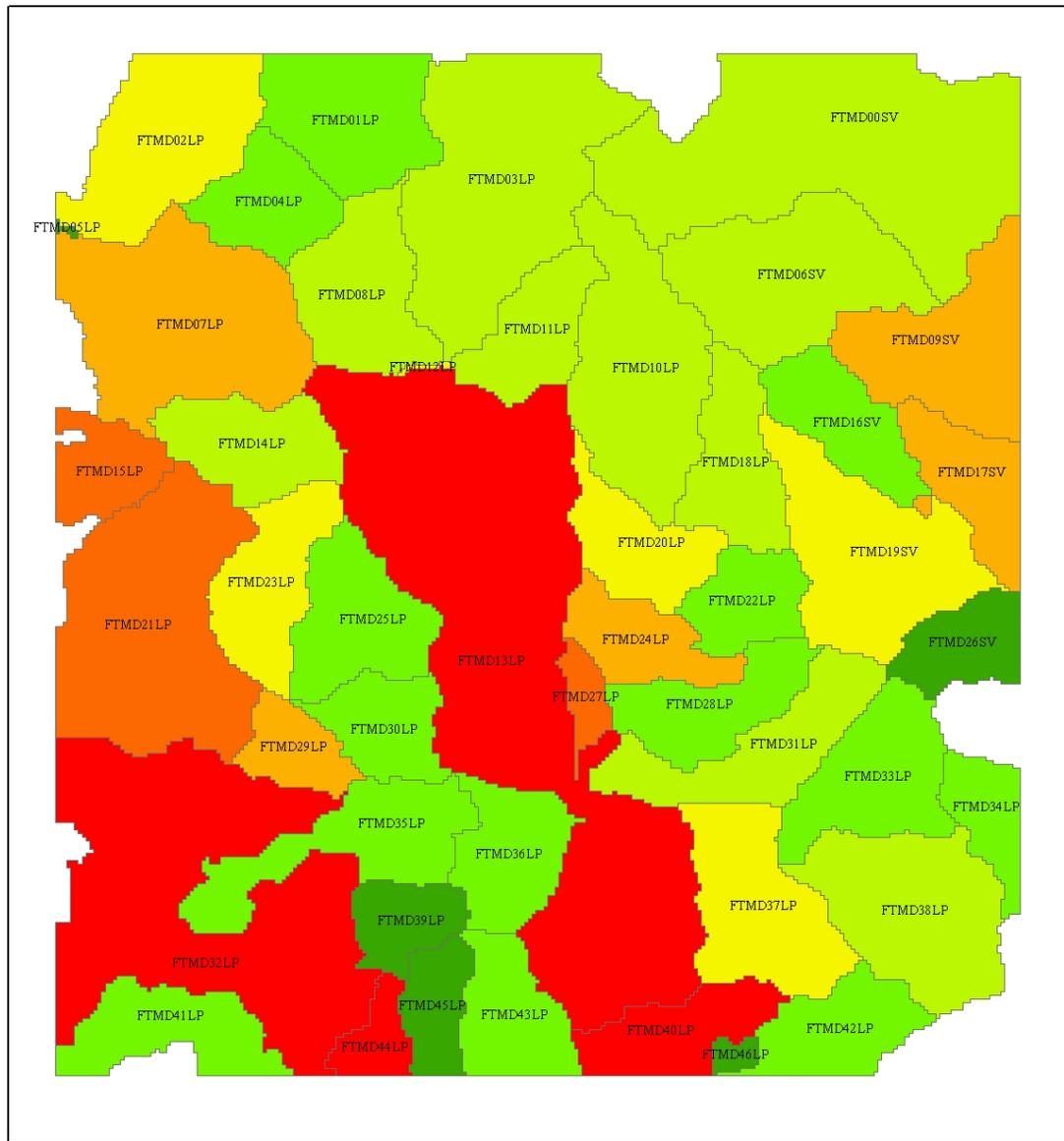


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Fig. 6b: Ft. Meade Subshed Cummulative 100-Year Peak Discharge



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Fort Meade Area

Fig. 7a: Analysis of Subwatersheds Needing Restoration

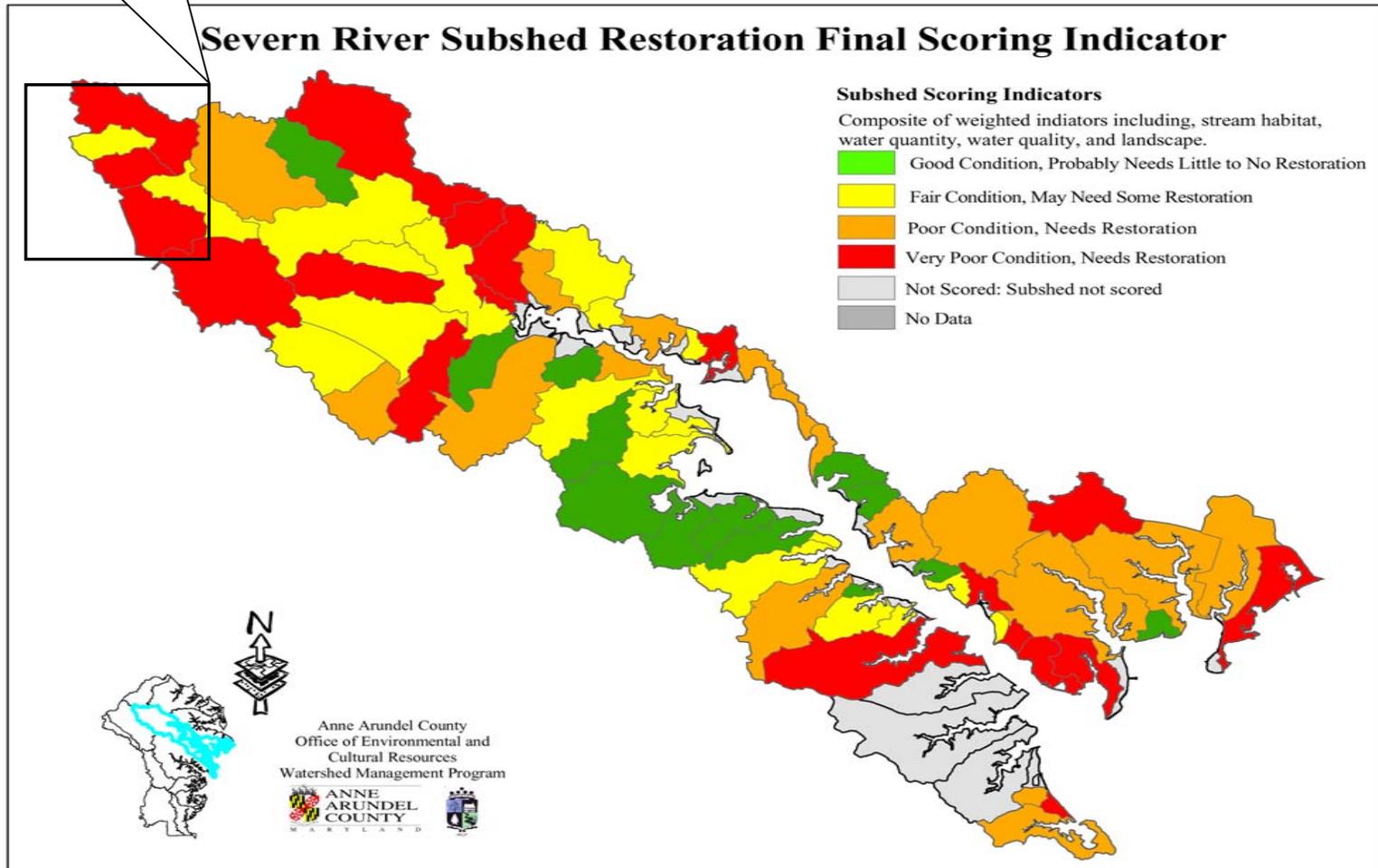
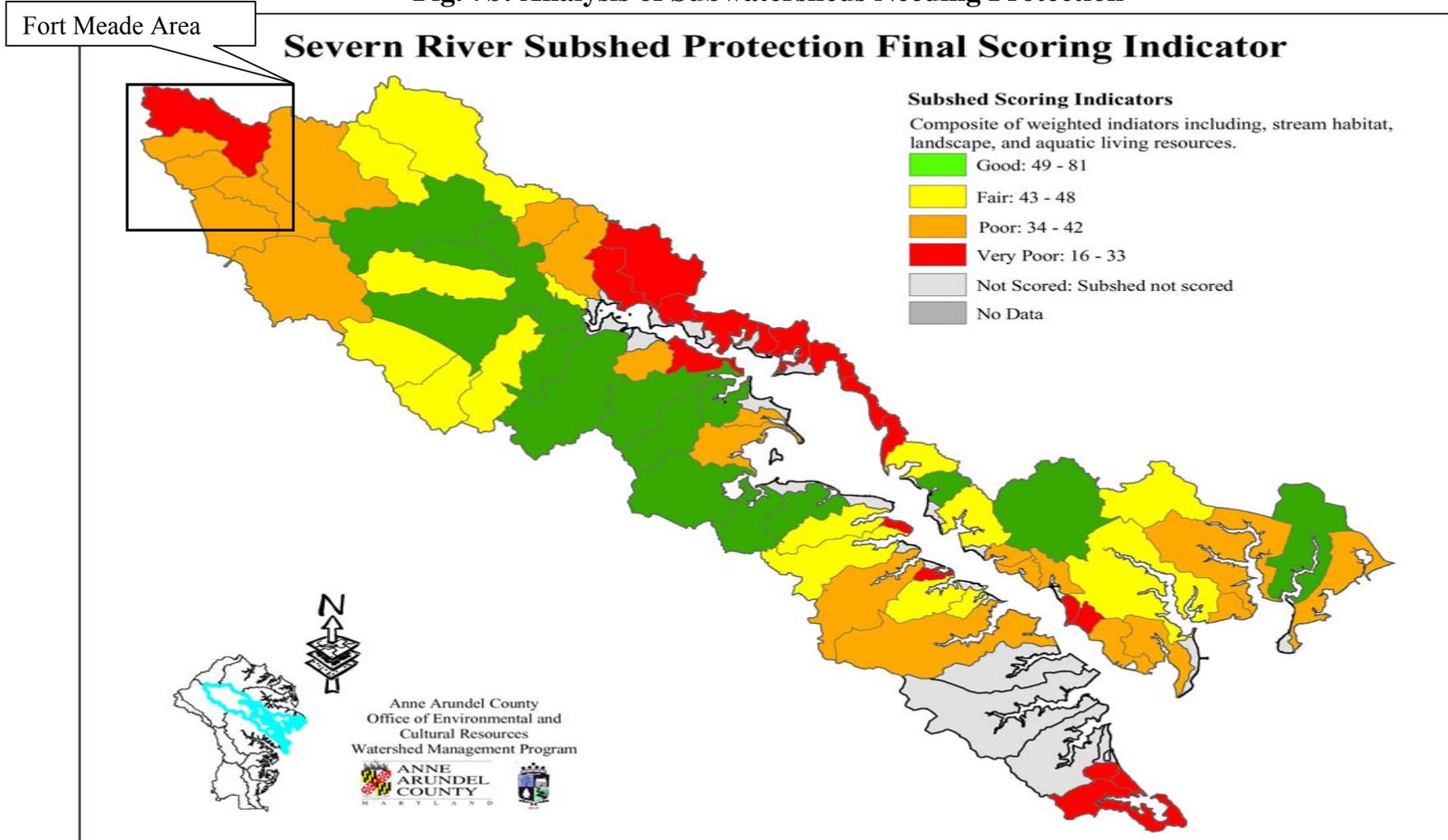


Fig. 7b: Analysis of Subwatersheds Needing Protection





IN REPLY REFER TO:

United States Department of the Interior

OFFICE OF THE SECRETARY
Office of Environmental Policy and Compliance
Custom House, Room 244
200 Chestnut Street
Philadelphia, Pennsylvania 19106-2904



May 7, 2007

ER 07/251

Ms. Melanie Moore
Fort Meade, Public Affairs Office,
4550 Pershing Hall, Room 102,
Fort Meade, MD 20755

Re: DEIS for BRAC and Enhanced Use Leasing at Ft. Meade, Maryland

Dear Ms. Moore:

The U.S. Department of the Interior (Department) has reviewed the Draft Environmental Impact Statement (DEIS) for Implementation of Base Realignment and Closure (BRAC) and Enhanced Use Lease (EUL) Actions at Fort George G. Meade, Maryland, dated March, 2007. Please carefully consider the following comments submitted pursuant to our jurisdiction and special expertise under the the National Environmental Policy Act and the Endangered Species Act.

General Comments

The Alternatives Analysis of the DEIS attempts to describe proposed actions for a very extensive development action of BRAC and BRAC plus EUL alternatives. In general, we found the DEIS to be inadequate in its examination of true alternatives. The subactions examined in the BRAC + EUL actions, Table ES-2, “no environmental constraints, limited encroachment on natural resource lands with mitigation, and following the Installation Design Guide and Integrated Natural Resource Management Plan,” are not appropriate choices. Since the Department of the Army and private developers are required to follow the Clean Water Act, Section 404 Guidelines for placement of fill in wetlands and waters of the U.S., there is not a “no environmental constraints” option that exists. The sequential process of mitigation involves the steps of avoidance, minimizing, rectifying impacts, reducing impacts over time, and then, after other options are exhausted, compensatory mitigation. It is a process, not an open array of options.

In addition, there is no range of alternatives examined in the construction of the proposed golf facilities. One subalternative could have two 18 hole golf courses and the new associated practice facility, while another subalternative could examine the impacts of having one 18-hole golf course and the associated practice facility, while maintaining forested lands for mission related training, ongoing bivouac operations, physical training with loaded backpacks, etc. The potential loss of 144 acres of existing trees and forest for two golf courses is highly significant

for a watershed which is undergoing such large increases in impervious surface and development. Appropriate alternatives for reducing this forest impact should be found and analyzed in the Final Environmental Impact Statement (FEIS).

Detailed Comments

Lands Bordering Fort Meade

On page 4-9, the DEIS states that, “directly to the south of Fort Meade are the 8,100 acre Patuxent Wildlife Research Center and Tipton Airport.” Actually, the land to the south of Ft. Meade is the 12,750-acre Patuxent Research Refuge, part of the U.S. Fish and Wildlife Service's National Wildlife Refuge System. Established in 1936, the Patuxent Research Refuge is the Nation's only National Wildlife Refuge established to support wildlife research. Today most of the research on the refuge is conducted by the US Geological Survey (USGS) through the [Patuxent Wildlife Research Center](#). The Army should be in frequent and cooperative communications with Refuge Manager, Mr. Brad Knudsen, regarding development which may affect or degrade refuge lands and wildlife populations.

In addition, the DEIS lacks a map to identify the Patuxent Research Refuge as a bordering landowner and to provide an ecological context for the surrounding area. The small map on page 4-26 simply identifies “natural open space.” This deficiency should be corrected in the FEIS with an appropriate map.

Golf Course Development

The West Anne Arundel Chamber of Commerce's comment letter, on page A-8 of the DEIS, encourages the Army and the EUL developers “to be innovative and strive for limited impact on the environment” when planning the new golf courses. They emphasize that “the area proposed for these golf courses is in close proximity to the Patuxent Research Refuge and we encourage communication with them when studying potential impact.” It is significant when local business advocacy organization is recommending that the Army should minimize its environmental impacts and protect the quality of life at Ft. Meade and the surrounding communities.

Unfortunately, the Army's communication with the Refuge Manager has been limited. The DEIS does not mention the potential take of Refuge land for the configuration of the second 18-hole golf course. This alternative should be fully examined in the FEIS, or a downsized alternative golf course layout should be examined. Please describe if an arrangement is found acceptable by the Refuge Manager, or if it is not, in the FEIS. Construction of the new golf course should follow current practices with wildlife-friendly design principles. The Audubon Society's Cooperative Sanctuary Program for Golf Courses (ACSP) outlines principles for golf course design and maintenance which reduce the impact of golf courses on the environment. Other organizations, as well, have appropriate design guidelines for less impacting golf courses. The FEIS should detail how the golf course will follow a national certification program to reduce its substantial impact on the environment.

Water and Biological Resources

Increased impervious surface area from new buildings and roadways will cause degradation of the Little Patuxent and Severn River Watersheds. Every effort should be made to reduce the impervious footprint of the new construction, for maintaining water infiltration and managing stormwater. New development on Ft. Meade should not increase the contaminant load to nearby rivers and wetlands, and decrease biotic integrity of the aquatic community, especially on Patuxent Refuge lands. A recent study of parking lot sealants (Mahler et al. 2005) found that a previously unidentified source of urban polycyclic aromatic hydrocarbons (PAHs), parking lot sealcoat, may dominate loading of PAHs to urbanized water bodies in the United States. One type of sealant tested, coal-tar based seal coat, was found to have the greatest runoff loads of PAHs. Alternatives to reduce impervious surface of parking lots, such as the use of porous pavers, should be used extensively throughout the new construction designs at Ft. Meade. In addition, the Department recommends a ban on the use of coal-tar sealants on the installation, since much of the Fort Meade property drains onto Patuxent Research Refuge. The DEIS does not have a map depicting the watershed drainage areas to which Ft. Meade lands drain. This deficiency should be corrected in the FEIS.

The Department of the Army should also strongly consider using green roof technology to lessen the impact of its impervious surfaces, and to cool buildings to save on energy consumption. Fortunately, the Baltimore-Washington area has a strong base of contracting expertise in this field, with many Federal, municipal and private companies installing green roofs in recent years. A listing of area projects is available at www.greenroofs.com. The Washington, DC, area was second in the entire country for most green roof projects in 2006.

Socioeconomics

The addition of approximately 5,695 – 15, 695 employees at the installation and associated EUL buildings , raising the total estimated Ft. Meade area personnel level after the proposed action to 36,437 – 46,437, will have consequences for Ft. Meade lands and waters well beyond the construction of buildings. Some of these new personnel will take advantage of consumptive and non-consumptive recreational opportunities outdoors at Ft. Meade. In order to better integrate the workforce to the Ft. Meade environment on which they perform their duties, construction planning should also consider the human scale of daily interactions with the natural world. Walking paths connecting buildings, native gardens and lunch tables, fishing opportunities, and biking and walking trails along the water or forest's edge can all enhance the employees understanding of the lands they are tasked with protecting and using in their mission. These elements are critical in the design and layout of new buildings, and not an afterthought to be the sole responsibility of Morale, Welfare and Recreation after all the design plans are completed.

Experiences in natural environments have been shown to reduce stress and promote better health and creative development in children and adults. The DOI recommends that the Army create additional opportunities for fishing and nature trails accessible to the disabled, as part of the restructuring construction, as many veterans often move into civilian defense contracting positions, such as those being generated at Ft. Meade.

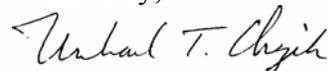
Summary Comments

The DEIS does not adequately address potentially significant adverse impacts to natural resources under the administration of the Department's U.S. Fish and Wildlife Service (FWS). The Ft. Meade BRAC-related construction poses a significant threat to the biological and territorial integrity of the Patuxent Research Refuge, a unique national interest in the forefront of scientific research and protection. Because of our concerns, the Department may, depending on the proposal included in the FEIS, refer this project to the Council on Environmental Quality under section 1504 of the Council's Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act. We request the opportunity to coordinate fully with the Department of the Army at the earliest possible time in order to discuss and resolve these concerns and avoid the necessity for referral.

For questions or further coordination concerning these comments, please contact Mr. Brad Knudsen of Patuxent Research Refuge at 301-497-5582 or Ms. Janet Norman of the FWS Chesapeake Bay Field Office at 410-573-4533.

Thank you for the opportunity to review the DEIS.

Sincerely,



Michael T. Chezik
Regional Environmental Officer

cc:

B. Knudsen, FWS, Laurel, MD

J. Norman, FWS, Annapolis, MD.

Literature Cited

Mahler, B.A., P.C. Van Metre, T.J. Bashara, J.T. Wilson, and D.A. Johns. 2005. Parking Lot Sealcoat: An Unrecognized Source of Urban Polycyclic Aromatic Hydrocarbons. *Environ. Sci. Technol.* 39: 5560-5566.

(Draft) Russell, Z. and B. Slattery. 2000. *Conservation Landscaping for Federal Facilities: A Guide to Beneficial Landscaping in the Chesapeake Bay Watershed*. Chesapeake Bay Program. Annapolis, Maryland.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
1650 Arch Street
Philadelphia, Pennsylvania 19103-2029

May 7, 2007

Ms. Melanie Moore
4550 Pershing Hall
Room 102
Fort Meade, MD 20756

Re: Draft Environmental Impact Statement for Implementation of 2005 Base Realignment and Closure (BRAC) and Enhanced Use Lease Actions (EUL) at Fort George G. Meade, Maryland (CEQ#20070105)

Dear Ms. Moore:

In accordance with the National Environmental Policy Act of 1969 and Section 309 of the Clean Air Act, the U.S. Environmental Protection Agency (EPA) has reviewed the Draft Environmental Impact Statement for Implementation of the 2005 Base Realignment and Closure (BRAC) and Enhanced Use Lease Actions (EUL) at Fort George G. Meade, Maryland. As a result of this review, EPA has assigned this Draft Environmental Impact Statement (DEIS) a rating of EC-2 (Environmental Concerns/Insufficient Information), which indicates that we have environmental concerns regarding the proposal and that there is insufficient information in the document to fully assess the environmental impacts of the project. A copy of EPA's ranking system is enclosed for your information.

The BRAC Commission recommended the realignment of three main federal agencies/activities to Fort Meade: the Defense Information Systems Agency (DISA), the Defense Media Activity (DMA), and the Adjudication Activities co-location offices. All BRAC realignment activities are to relocate to Fort Meade by 2011.

In addition to the BRAC realignment actions, Fort Meade proposes to use the Army's EUL program to implement actions that would involve leasing two parcels of non-excess Army land (Sites Y and Z) to a private developer for 50 years. These parcels would be used for development of office and administrative buildings for an estimated 10,000 personnel. The developer would in turn develop and construct two 18-hole golf courses on Site S to replace existing golf course facilities which will be the site for BRAC construction.

The DEIS evaluates three alternatives: No Action, Alternative 2- BRAC Realignment plus EUL actions, Alternative 3- BRAC Realignment. The BRAC Realignment alternatives also include sub alternatives which consider site locations for the activities. EUL Sub-alternatives 2A, 2B, and 2C are also evaluated. Alternative 2, BRAC Sub-Alternative 2A is the preferred alternative. No preferred EUL Sub-alternative is specified.



The combined population change associated with implementing the preferred federal action is approximately a 15, 695 personnel gain, of which 5, 695 are related to BRAC.

Natural Resources

The sections describing the natural resources should be expanded. The FEIS should identify the location of the proposed projects and the natural resources (upland habitat, wetlands, surface water, wildlife, etc) that they might impact. The discussion should include species found, or expected, acreage, stream length, wetland functions and values, and other pertinent details. A map depicting the proposed projects in relation to the natural resources should also be provided. A table should be included that contains the size of the impacted area and the total size if it is part of a larger complex. This table should be completed for the alternatives and sub-alternatives analyzed in the DEIS.

Impacts to all natural resources should be avoided, minimized and mitigated. This should be discussed in the FEIS. If any water bodies are to be crossed, bridges or oversized culverts should be considered to allow for wildlife passage and habitat continuity. In addition, we support the 100 foot buffer around wetlands and water features as described in EUL 2A.

The Army should follow Executive Order 13112 regarding Invasive Species.

Cummulative Impacts

The cumulative impacts section should be expanded to address other projects in the area. Additional discussion should be provided for water and wetland resources.

Energy Efficiency and other Measures

This project presents an excellent opportunity to implement the President's Executive Order 13423: Strengthening Federal Environment, Energy and Transportation Management by incorporating energy efficiency into the renovation and construction efforts for this project. Enclosed with this letter is information that EPA recommends the Army consider when planning the renovation/construction phase of this project.

We also recommend using low impact development techniques to reduce Storm Water impacts resulting from new construction. We also recommend that the Army analyze storm water issues and controls base-wide and continue with the detailed storm drain study recommended by the Master Plan as stated on page 4-150.

Other Coordination

We recommend that the project team contact the appropriate state and federal agencies annually to coordinate on threatened and endangered species and other species of concern.

The FEIS should include more information on Site S. The Army should coordinate with other parties involved in the closure or monitoring of the landfill prior to any activities at this site.



The FEIS should include more information about the actual construction plans for the sites. There is little information about the impacts from these construction activities.

The Army should coordinate with the appropriate agencies about transportation issues in the vicinity.

Thank you for providing EPA the opportunity to review this project. If you have questions regarding these comments, the staff contact for this project is Barbara Okorn; she can be reached at 215-814-3330.

Sincerely,



William Arguto
NEPA Team Leader
Office of Environmental Programs

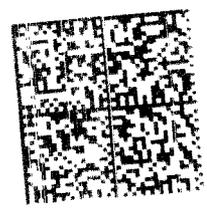
Enclosures (2)



UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY
REGION III
1650 ARCH STREET
MAIL CODE 35030
PHILADELPHIA, PA 19103-2029
OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE \$300

Ms. Melanie Moore
4550 Pershing Hall
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Fort Meade, MD 20756

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Environmental Impact Statement (EIS) Rating System Criteria

[National Environmental Policy Act Home](#)

EPA has developed a set of criteria for rating draft EISs. The rating system provides a basis upon which EPA makes recommendations to the lead agency for improving the draft EIS.

[Basic Information](#)

- [Rating the Environmental Impact of the Action](#)

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RATING THE ENVIRONMENTAL IMPACT OF THE ACTION

[Environmental Impact Statement Database](#)

- **LO (Lack of Objections)** The review has not identified any potential environmental impacts requiring substantive changes to the preferred alternative. The review may have disclosed opportunities for application of mitigation measures that could be accomplished with no more than minor changes to the proposed action.
- **EC (Environmental Concerns)** The review has identified environmental impacts that should be avoided in order to fully protect the environment. Corrective measures may require changes to the preferred alternative or application of mitigation measures that can reduce the environmental impact.

[Submitting Environmental Impact Statements](#)

[Obtaining Environmental Impact Statements](#)

- **EO (Environmental Objections)** The review has identified significant environmental impacts that should be avoided in order to adequately protect the environment. Corrective measures may require substantial changes to the preferred alternative or consideration of some other project alternative (including the no action alternative or a new alternative). The basis for environmental Objections can include situations:
 1. *Where an action might violate or be inconsistent with achievement or maintenance of a national environmental standard;*
 2. *Where the Federal agency violates its own substantive environmental requirements that relate to EPA's areas of jurisdiction or expertise;*
 3. *Where there is a violation of an EPA policy declaration;*
 4. *Where there are no applicable standards or where applicable standards will not be violated but there is potential for significant environmental degradation that could be corrected by project modification or other feasible alternatives; or*
 5. *Where proceeding with the proposed action would set a precedent for future actions that collectively could result in significant environmental impacts.*

[EPA Compliance with NEPA](#)

- **EU (Environmentally Unsatisfactory)** The review has identified adverse environmental impacts that are of sufficient magnitude that EPA believes the proposed action must not proceed as proposed. The basis for an environmentally unsatisfactory determination consists of identification of environmentally objectionable impacts as defined above and one or more of the following conditions:
 1. *The potential violation of or inconsistency with a national environmental standard is substantive and/or will occur on a long-term basis;*

2. *There are no applicable standards but the severity, duration, or geographical scope of the impacts associated with the proposed action warrant special attention; or*
3. *The potential environmental impacts resulting from the proposed action are of national importance because of the threat to national environmental resources or to environmental policies.*

Top of Page

RATING THE ADEQUACY OF THE DRAFT ENVIRONMENTAL IMPACT STATEMENT (EIS)

- **1 (Adequate)** The draft EIS adequately sets forth the environmental impact(s) of the preferred alternative and those of the alternatives reasonably available to the project or action. No further analysis or data collection is necessary, but the reviewer may suggest the addition of clarifying language or information.
- **2 (Insufficient Information)** The draft EIS does not contain sufficient information to fully assess environmental impacts that should be avoided in order to fully protect the environment, or the reviewer has identified new reasonably available alternatives that are within the spectrum of alternatives analyzed in the draft EIS, which could reduce the environmental impacts of the proposal. The identified additional information, data, analyses, or discussion should be included in the final EIS.
- **3 (Inadequate)** The draft EIS does not adequately assess the potentially significant environmental impacts of the proposal, or the reviewer has identified new, reasonably available, alternatives, that are outside of the spectrum of alternatives analyzed in the draft EIS, which should be analyzed in order to reduce the potentially significant environmental impacts. The identified additional information, data, analyses, or discussions are of such a magnitude that they should have full public review at a draft stage. This rating indicates EPA's belief that the draft EIS does not meet the purposes of NEPA and/or the Section 309 review, and thus should be formally revised and made available for public comment in a supplemental or revised draft EIS.

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Last updated on Thursday, April 12th, 2007
URL: <http://www.epa.gov/compliance/nepa/comments/ratings.html>

ENERGY EFFICIENCY

The Federal government has made significant progress in improving environmental and energy performance through a series of executive orders, Memoranda of Understanding, and other guidance. Executive Order (EO) 13423: Strengthening Federal Environmental, Energy, and Transportation Management, intends to build on that body of work and success by integrating and updating prior practices and requirements into a cohesive, strategic approach to further ensure enhanced performance and compliance with statutory and other legal requirements. Section 2 of the EO directs Federal agencies to implement sustainable practices for:

- Energy efficiency and reductions in greenhouse gas emissions.
- Use of renewable energy.
- Reduction in water consumption intensity.
- Acquisition of green products and services.
- Pollution prevention, including reduction or elimination of the use of toxic and hazardous chemicals and materials.
- Cost-effective waste prevention and recycling programs.
- Increased diversion of solid waste.
- Sustainable design/high performance buildings.
- Vehicle fleet management, including the use of alternative fuel vehicles and alternative fuels and the further reduction of petroleum consumption.
- Electronics stewardship.

Each agency shall use a variety of energy and water management strategies and tools to meet the goals of EO 13423. These strategies and tools include, but are not limited to, the following:

Distributed Generation

Where life-cycle cost effective, each agency shall implement distributed generation systems in new construction or retrofit projects, including renewable systems such as solar electric, solar lighting, geo (or ground-coupled) thermal, small wind turbines, as well as other generation systems such as fuel cell, cogeneration, or highly efficient alternatives. In addition, agencies are encouraged to use distributed generation systems when a substantial contribution is made toward enhancing energy reliability or security.

Metering

To the maximum extent practicable, agencies should install metering devices that measure consumption of potable water, electricity, and thermal energy in Federal buildings and other facilities and grounds. Data collected shall be incorporated into Federal tracking systems and be made available to Federal facility managers. Agencies should consider inclusion of metering requirements in all Energy Savings Performance Contracts (ESPC) and Utility Energy Services Contracts (UESC), as appropriate.



Auditing

Agencies should conduct energy and water audits of at least 10 percent of facility square footage annually and conduct new audits at least every 10 years, thereafter. This audit requirement can be met by audits done in conjunction with ESPC or UESC projects.

Energy Star® Tools

For applicable facilities, agencies should meet Energy Star® Building criteria, and score the energy performance of buildings using the Energy Star® Portfolio Manager rating tool as part of comprehensive facility audits. Agencies may use the Energy Star Portfolio Manager rating tool to track energy and water use in all facilities.

Energy Purchasing

Agencies should purchase electricity and thermal energy from sources that use high efficiency and low-carbon generating technologies in order to reduce greenhouse gas intensity to the extent possible.

Water Efficient Products

Where applicable, agencies should purchase WaterSense (SM) labeled products and choose irrigation contractors who are certified through a WaterSense labeled program. EPA's WaterSense program is a voluntary public-private partnership that identifies and promotes high performance products and programs that help preserve the nation's water supply.

Procurement

Each agency shall give preference in their procurement and acquisition programs to the purchase of:

- Recycled content products designated in EPA's Comprehensive Procurement Guidelines.
- Energy Star® products identified by DOE and EPA, as well as Federal Energy Management Program (FEMP) designated energy-efficient products.
- Water-efficient products, including those meeting EPA's WaterSense standards.
- Energy from renewable sources.
- Biobased products designated by the U.S. Department of Agriculture in the BioPreferred Program.
- Environmentally preferable products and services, including Electronic Product Environmental Assessment Tool (EPEAT) registered electronic products.
- Alternative fuel vehicles and alternative fuels required by Energy Policy Act (EPAct).
- Products with low or no toxic or hazardous constituents, consistent with Section 7(a) of the EO.
- Non-ozone depleting substances, as identified in EPA's Significant New Alternatives Program.



Energy Efficient Standby Power Devices

When purchasing commercially available, off-the-shelf energy-consuming products, agencies shall purchase products that use no more than one watt of standby power as defined and measured by International Electrotechnical Commission (IEC) code 62301, or otherwise meet FEMP specifications for low standby power consumption. If FEMP has not specified a standby power level for a product category, agencies shall purchase products with the lowest standby power consumption available. Agencies shall adhere to these requirements, when life-cycle cost effective and practicable, and where the relevant product's utility and performance are not compromised as a result.

Recycling Programs

Each agency shall maintain waste prevention and recycling programs in all of its facilities in the most cost-effective manner possible, and where appropriate, leased facilities and facilities managed by the General Services Administration (GSA). In GSA managed facilities, GSA shall manage the recycling program, but agencies shall work with GSA to ensure that there is a recycling program that meets the agencies' needs.

Sustainability

Building construction and operation have an enormous direct and indirect impact on the environment. Buildings not only use resources such as energy and raw materials, they also generate waste and potentially harmful atmospheric emissions. As economy and population continue to expand, designers and builders face a unique challenge to meet demands for new and renovated facilities that are accessible, secure, healthy, and productive while minimizing their impact on the environment.

The main objectives of sustainable design are to avoid resource depletion of energy, water, and raw materials; prevent environmental degradation caused by facilities and infrastructure throughout their life cycle; and create built environments that are livable, comfortable, safe, and productive.

While the definition of what constitutes sustainable *building* design is constantly changing, there are six fundamental principles generally agreed on.

- **Optimize Site Potential**

Creating sustainable buildings starts with proper site selection, including consideration of the reuse or rehabilitation of existing buildings. The location, orientation, and landscaping of a building affect the local ecosystems, transportation methods, and energy use. Siting for physical security has become a critical issue in optimizing site design. The location of access roads, parking, vehicle barriers, and perimeter lighting must be integrated into the design along with sustainable site considerations. Site design for security cannot be an afterthought. Along with site design for sustainability, it must be addressed in the preliminary design phase to achieve a successful project. See WBDG Balancing Security/Safety and Sustainability Objectives.



- **Optimize Energy Use**

With America's supply of fossil fuel dwindling, concerns for energy security increasing, and the impact of greenhouse gases on world climate rising, it is essential to find ways to reduce load, increase efficiency, and utilize renewable energy resources in federal facilities.

- **Protect and Conserve Water**

In many parts of the country, fresh water is an increasingly scarce resource. A sustainable building should reduce, control, or treat site-runoff, use water efficiently, and reuse or recycle water for on-site use when feasible.

- **Use Environmentally Preferable Products**

A sustainable building should be constructed of materials that minimize life-cycle environmental impacts such as global warming, resource depletion, and human toxicity. These environmentally preferable materials are defined by Executive Order 13101 to be "products or services that have a lesser or reduced effect on human health and the environment when compared with competing products or services that serve the same purpose." As such, they contribute to improved worker safety and health, reduced liabilities, reduced disposal costs, and achievement of environmental goals.

- **Enhance Indoor Environmental Quality (IEQ)**

The indoor environmental quality (IEQ) of a building has a significant impact on occupant health, comfort, and productivity. Among other attributes, a sustainable building should maximize daylighting; have appropriate ventilation and moisture control; and avoid the use of materials with high-VOC emissions. Additional consideration must now be given to ventilation and filtration to mitigate chemical, biological, and radiological attack.

- **Optimize Operational and Maintenance Practices**

Incorporate operating and maintenance considerations into the design of a facility will greatly contribute to improved working environments, higher productivity, and reduced energy and resource costs. Designers are encouraged to specify materials and systems that simplify and reduce maintenance requirements; require less water, energy, and toxic chemicals and cleaners to maintain; and are cost-effective and reduce life-cycle costs.

We realize that all of the recommendations listed above may not be applicable to this specific project but please consider these issues as you proceed through project design



May 7, 2007

Ms. Melanie Moore
Community Relations Director
U.S. Army
Public Affairs Office
4550 Pershing Hall
Room 102
Fort George G. Meade, MD 20755-5025

STATE CLEARINGHOUSE RECOMMENDATION

State Application Identifier: MD20070418-0348

Applicant: U.S. Army

Project Description: Draft Environmental Impact Statement: for Implementation of BRAC and Enhanced Use Lease Actions at Fort George G. Meade: consider three (3) alternatives including "no action"

Project Location: Anne Arundel County

Approving Authority: U.S. Department of Defense

Recommendation: **Consistent Contingent Upon Certain Actions**

Dear Ms. Moore:

In accordance with Presidential Executive Order 12372 and Code of Maryland Regulation 14.24.04, the State Clearinghouse has coordinated the intergovernmental review of the referenced project. This letter constitutes the State process review and recommendation based upon comments received to date. This recommendation is valid for a period of three years from the date of this letter.

Review comments were requested from the Maryland Departments of Housing and Community Development, the Maryland Emergency Management Agency, the Environment, Transportation, State Police, Agriculture, Business and Economic Development, Natural Resources, Anne Arundel County, and the Maryland Department of Planning, including the Maryland Historical Trust. As of this date, the Maryland Departments of Natural Resources, the Environment, Transportation, State Police, Agriculture, Business and Economic Development, Anne Arundel County, and the Maryland Historical Trust have not submitted comments. **This recommendation is contingent upon the applicant considering and addressing any problems or conditions that may be identified by their review. Any comments received will be forwarded.**

The Maryland Department of Housing and Community Development, and the Maryland Emergency Management Agency found this project to be consistent with their plans, programs, and objectives.

The Maryland Department of Planning stated that the Final Environmental Impact Statement would be improved with a clarification about the methodology used to arrive at "10,000 personnel being accommodated by the construction of administration space" as it relates to the Enhanced Use lease actions.

Ms. Melanie Moore
Page 2
May 7, 2007

Any statement of consideration given to the comments should be submitted to the approving authority, with a copy to the State Clearinghouse. The State Application Identifier Number must be placed on any correspondence pertaining to this project. The State Clearinghouse must be kept informed if the approving authority cannot accommodate the recommendation.

Please remember, you must comply with all applicable state and local laws and regulations. If you need assistance or have questions, contact the State Clearinghouse staff person noted above at 410-767-4490 or through e-mail at brosenbush@mdp.state.MD.us. **Also please complete the attached form and return it to the State Clearinghouse as soon as the status of the project is known. Any substitutions of this form must include the State Application Identifier Number. This will ensure that our files are complete.**

Thank you for your cooperation with the MIRC process.

Sincerely,

Linda C. Janey, J.D.,
Assistant Secretary for Clearinghouse and Communications

LCJ:BR

cc: Beth Cole - MHT
Luisa Fernandez - DHCD
Ruth Mascari - MEMA
Joane Mueller - MDE
Cindy Johnson - MDOT
William Ebare - MDSP
Gloria Minnick - MDA
Tammy Edwards - DBED
Ray Dintaman - DNR
John Dodds - ANAR
Mike Paone - MDPLS



Maryland Department of Planning

Martin O'Malley
Governor
Anthony G. Brown
Lt. Governor

Richard Eberhart Hall
Secretary
Matthew J. Power
Deputy Secretary

May 22, 2007

Post-It® Fax Note 7671
Date 5-23-07 # of pages 15
To Ms. Heather Carolan From Bob Rosenbush/MDP
Co./Dept. Environment Office Co. Ft. Meade
Phone # Phone # 410-767-4487
Fax # 301-677-9001 Fax #

Ms. Melanie Moore
Community Relations Director
U.S. Army
Public Affairs Office
4550 Pershing Hall
Room 102
Fort George G. Meade, MD 2075 5025

STATE CLEARINGHOUSE REVIEW - ADDITIONAL REVIEWER COMMENTS RECEIVED

State Application Identifier: MD20070418-0348

Project Description: Draft Environmental Impact Statement: for Implementation of BRAC and Enhanced Use Lease Actions at Fort George G. Meade: consider three (3) alternatives including "no action"

Project Location: Anne Arundel County

Clearinghouse Contact: Bob Rosenbush

Dear Ms. Moore:

For your information, we are forwarding the comments made by Maryland Department of Transportation regarding the referenced project. Although the deadline for submitting review comments has past, the Maryland Department of Transportation has requested additional information in the pages enclosed here.

For your information, we are forwarding the enclosed to the State Clearinghouse staff person noted above at 410-767-4490 or through e-mail at brosenbush@mdj.state.md.us. Your cooperation and attention to the review process is appreciated

Sincerely,

Linda C. Janey, J.D., Assistant Secretary
for Clearinghouse and Communications

LCJ:BR

Enclosure (Comments Received)

- cc: Densie Lynch - HRFD
Rich Hall - MDPL
Cindy Johnson - MDOT
Mike Paone - MDPLS

Please Complete Your Review & Recommendation Before May 4, 2007

Return Completed Form To: Linda C. Janey, J.D., Assistant Secretary for Clearinghouse and Communications, Maryland Department of Planning, 301 West Preston Street, Room 1104, Baltimore, MD 21201-2305
 Phone: 410-767-4490 Fax: 410-767-4490

State Application Identifier: MD20070418-0348		Clearinghouse Contact: Bob Rosenbush, 410-767-4490 brosenbush@mdp.state.md.us	
Location: ANAR			
Applicant: U.S. Army			
Description: Draft Environmental Impact Statement: for Implementation of BRAC and Enhanced Use Lease Actions at Fort George G. Meade: consider three alternatives including "no action"			
Based on a Review of the Information Provided, We Have Checked (☑) the Appropriate Determination Below			
CONSISTENT RESPONSES (For Use By STATE AGENCIES Only)			
C1	It is Consistent with our plans, programs, and objectives		
C2	It is Consistent with the policies contained in Executive Order 01.01.1992.27 (Maryland Economic Growth, Resource Protection, and Planning Act of 1992), Executive Order 01.01.1998.04 (Smart Growth and Neighborhood Conservation Policy), and our plans, programs, and objectives.		
C3	(MHT ONLY) It has been determined that the project will have "no effect" on historic properties and that the federal and/or State historic preservation requirements have been met.		
C4	(DNR ONLY) It has been determined that this project is in the Coastal Zone and is not Inconsistent with the Maryland Coastal Zone Management Program.		
C7	(MDP ONLY) It is consistent with the requirements of State Finance and Procurement Article 5-7B-02; 03; 04 and 05 Smart Growth and Neighborhood Conservation (Priority Funding Areas).		
CONSISTENT RESPONSES (For Use By COUNTY & LOCAL AGENCIES Only)			
C5	It is Consistent with our plans, programs, and objectives.		
C6	It is Consistent with the Economic Growth, Resource Protection, and Planning Visions (Planning Act of 1992), State Finance and Procurement Article 5-7B - Smart Growth and Neighborhood Conservation (Priority Funding Areas), and our plans, programs, and objectives.		
OTHER RESPONSES (For Use By ALL)			
R1	GENERALLY CONSISTENT WITH QUALIFYING COMMENTS: It is generally Consistent with our plans, programs and objectives, but the attached qualifying comment is submitted for consideration.		
R2	CONTINGENT UPON CERTAIN ACTIONS: It is generally Consistent with our plans, programs and objectives contingent upon certain actions being taken as noted in the attached comment(s).		
R3	NOT CONSISTENT: It raises problems concerning compatibility with our plans, programs, objectives, or Planning Act visions/policies; or it may duplicate existing program activities, as indicated in the attached comment(s). If a meeting with the applicant is requested, please check here: <input type="checkbox"/>		
<input checked="" type="checkbox"/> R4	ADDITIONAL INFORMATION REQUESTED: Additional information is required to complete the review. The information needed is identified below. If an extension of the review period is requested, please check here: <input type="checkbox"/>		
R5	FURTHER INTEREST: Due to further interest/questions concerning this project, we request that the Clearinghouse set up a conference with the applicant.		
R6	SUPPORTS: Supports "Smart Growth" and Federal Executive Order 12072 (Federal Space Management), which directs federal agencies to locate facilities in urban areas.		

Attach additional comments if necessary OR use these spaces:

Name: Jamie Lake
 Organization: MDOT
 Address: 7201 Corporate Center Dr.
Hanover MD 21076

Signature: Jamie Lake
 Phone: 410 865-1284
 Date Completed: May 22, 2007
 Check here if comments are attached.



Maryland Department of Transportation
The Secretary's Office

Martin O'Malley
Governor
Anthony G. Brown
Lt. Governor
John D. Porcari
Secretary
Beverley K. Swaim-Staley
Deputy Secretary

MEMORANDUM

TO: Mr. Richard Eberhart Hall, Secretary
Maryland Department of Planning

ATTENTION: Ms. Linda C. Janey, J.D., Assistant Secretary
Maryland State Clearinghouse for
Intergovernmental Assistance
Maryland Department of Planning

FROM: John D. Porcari, Secretary
Maryland Department of Transportation

DATE: May 18, 2007

SUBJECT: Maryland Department of Transportation Comments on the March 2007 Draft
Environmental Impact Statement (DEIS) for BRAC Actions at Fort George G. Meade -
Maryland State Clearinghouse State Application Identifier number:
MD20070418-0348

Thank you for providing the Maryland Department of Transportation (MDOT) with the opportunity to comment on the March 2007 DEIS for BRAC Actions at Fort George G. Meade - Maryland State Clearinghouse State Application Identifier number: MD20070418-0348. This memorandum along with the attached Maryland State Clearinghouse Response Form provides our comments and indicates that **additional information is required on behalf of the applicant before MDOT determines its position on the proposed actions.**

General Comments

- The combination of the direct impacts to the transportation system as a result of the mandated job growth by 2011, the EUL's, and the indirect impacts associated with this growth will, in many cases, cause a degradation in the quality of the transportation system in terms of delay, congestion, and safety. Therefore, capital and operational improvements to Maryland highways and transit systems will be needed to mitigate the traffic impacts of the preferred alternative. Typically, during the NEPA process, traffic and environmental mitigating actions to lessen the negative impacts of the project are identified and included as a part of the project. These traffic mitigation projects and their timing and impacts should be identified in the document. In addition, funding sources for these highway and transit improvements, including but not limited to Defense Access Road (DAR) funds, should be identified in the document.

Ms. Linda C. Janey, M.D.
Page Two

- The document's evaluation of the transportation impacts to both highway and transit systems and needed mitigation, both within and outside Ft. Meade, remains unfinished.
- The DEIS does not adequately attempt to predict the Indirect and Cumulative Effects (ICE) of the changes in demographics on and around the base. The influx of the jobs and development associated with the Enhanced Use Leases will undoubtedly bring about land use and travel changes (and its associated socio-economic and natural environmental impacts) leading to the installation that have not been adequately accounted for. Specific traffic and environmental mitigation must be identified in the Final EIS.

EXECUTIVE SUMMARY

Specific Comments

Page ES-5

- Line 1: The Enhanced Use Leases (EUL's) along Reece Road are expected to add 10,000 jobs. Appendix F on page F-7, shows the trip generation for the EUL's exceed 11,000 peak hour trips. This would seem to be inconsistent with a development of 10,000 jobs.
- Lines 26-29: The first sentence is confusing and can be construed as contradictory, is a run-on sentence, and needs to be rewritten.

Page ES-7

- Lines 1-4: The first sentence is confusing and can be construed as contradictory, is a run-on sentence, and needs to be rewritten.
- Table ES-1: It would be beneficial to add additional text or table footnotes that clarify or define the format of the table better, explaining why the PX, GYM and UPH site locations are overlapped and repeated.

Page ES-12

- Line 5: The BRAC Realignment and EUL Actions Alternative is identified as being developed in accordance to the Fort's Installation Design Guide (IDG) and Integrated Natural Resources Management Plan (INRMP). Does this allow for mitigation considerations in MD 174?

Page ES-14

- Table ES-3 and Page 3-12 Table 3-4: BRAC Sub-Alternative 2A should read BRAC Sub-Alternative 3A
 - Site F, C, X for Sub-Alternative 3B should be changed to Site F, G, K
 - Site F, C, X for Sub-Alternative 3C should be changed to Site F, G, C
 - Site F, C, X for Sub-Alternative 3D should be changed to Site A, L, C

Ms. Linda C. Janey, J.D.
Page Three

Page ES-16

- There should be a summarization of the public transit portion of the Odenton Small Area Plan, since there will be direct impacts as a result of BRAC.

Page ES-18, Page 4-39, Page 4-47 and Appendix B

- Beginning on Page ES-18 and continuing in several sections (Page 4-39 – Air Quality, and Page 4-47 – Noise) the DEIS asserts there are no significant impacts to Air Quality or adverse Noise impacts resulting from the proposed actions. Please include Air Quality and/or Noise technical reports for the alternatives.

Page ES-20, Page 4-186

- The conclusion in these Tables ES-4 and 4-37 on pages ES-20 and 4-186, respectively is that there would be "No significant adverse effects" on Roadways and Traffic resulting from the BRAC actions alternative. Based on the proposal, this seems to be an inaccurate conclusion.
- Proposed Mitigations – an "easement" for the widening of MD 175 should be changed to "right-of-way" for the widening of MD 175.
- Major concern with the assumption that the BRAC Actions Alternative is summarized as having "no significant adverse effects". The traffic generated from the 5,695 workforce personnel increase would have a significant adverse effect on roadways and traffic.
- The DEIS recognizes significant adverse effects to roadways and traffic for BRAC and EUL Alt. (Alt. 2) but no significant adverse effects for BRAC Alt. (Alt. 3). Proposed mitigation for Alt. 2 is to continue planning actions to grant Anne Arundel County and SHA an easement for widening MD 175 and to lease land to Anne Arundel County and Howard County for the bus maintenance facility on Ft. Meade Tipton Airport in the expectation of the Fort receiving in-kind transit service.

Page ES-21, Page 4-187 and Page F-9

- Under Installation Transportation's *Proposed Mitigations*, it states: "Evaluate and implement (if warranted) expanded transit service on the Post, coordinated with off-Post services." Please note that the Final EIS must identify specific impacts and mitigation to the transit service in the document.
- Under *Installation Transportation's Proposed Mitigations*, it states: "Evaluate and implement (if warranted) expanded transit service on the Post, coordinated with off-Post services." The document needs to address more detail on specific transit impacts and corresponding mitigation recommendations. This should include an estimation of additional transit ridership demand as a result of BRAC expansion and proposed expansion to transit services and operations.

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Page Four

- Under *Stormwater Drainage Erosion & Sediment Control* or *Stormwater Management*, plans for the parking lots/new impervious surfaces should be considered and quantified. It should have greater detail for *Proposed Mitigation* other than simply stating: "Follow protocols outlined in the storm water NPDES permits and state sediment and erosion control guidelines. Implement a Storm Water Pollution Prevention Plan Follow protocols outlined in the storm water NPDES permits and state Sediment and Erosion control guidelines."

Page 1-3

- With the relocation of the golf course, were trips and their distribution assigned at MD 170? Are there any proposals for a gate entrance and how it will be designed?

Page 1-4

- Line 22: (rationalizing the presence of DoD activities within the NCR) sounds contradictory to the sentence on lines 28-30.

Page 1-5

- Line 11 sounds contradictory to the sentence on lines 19-21 Page 2-3, Table 2-1: Lists number of incoming personnel (BRAC).

CHAPTER 2.0 DESCRIPTION OF THE PROPOSED ACTION

Specific Comments

Page 2-4

- Table 2-2: Should clarify that the listed Total Required Space does not include PX, Gym and UPH.

Page 2-8

- Line 30: (buildings would contain 110,624 square feet) is inconsistent with Table 2-2, which indicates 76,357 square feet for UPH.

Page 2-12

- Line 20: The DEIS states, "The Comprehensive Expansion Master Plan (CEMP) is currently in draft form." It addresses the installation's projected development for a 30-year period and projects changes to both the installation and the surrounding communities. Will the draft CEMP Transportation Plan include information about transportation impacts and potential cumulative effects of the EUL projects, beyond what is not clearly specified in the Cumulative Effects Section of the DEIS?

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Page Five

Page 2-13 and Page 2-9

Proposed mitigation for Alt. 2 is to continue planning actions to lease land to Anne Arundel County and Howard County for a regional bus maintenance facility adjacent to Ft. Meade - Tipton Airport in the expectation of the Fort receiving in-kind transit service. This needs to be discussed further. There is no mention of financial impacts to local and State funding sources.

CHAPTER 3.0 ALTERNATIVES

Page 3-4

- The write-up is missing the BRAC Sub-Alternative 2A discussion.
- Line 5, in the first sentence of the first paragraph, please change "construction" to "constructed".

Page 3-7

- Line 5: The BRAC Realignment and EUL Actions Alternative is identified as being developed in accordance to the Fort's Installation Design Guide (IDG) and Integrated Natural Resources Management Plan (INRMP). Does this allow for mitigation considerations on MD 174?

Page 3-12

- Line 11: (BRAC – Directed Project Descriptions, Section 2.2.6) does not match the actual title of the Section used in the DEIS.

CHAPTER 4.0 AFFECTED ENVIRONMENT AND CONSEQUENCES

General Comments

- No identification is made of the necessary on- off-Post gate improvements, entrance/exit roadway widening, security check-point methods or expansions, intersection improvements, or accommodations for transit connections to/from the base, which would also require security check point adjustments or expansions needed to support the substantial increase in trips onto and off of Ft. Meade property in the peak hour.
- It is stated several times throughout the DEIS that the Preferred Alternative will have an effect on the off-Post transportation network for the 2011 timeframe due to anticipated failing LOS on the surrounding roadway network, but there is no mention on whether transit will be affected. There is also no mention of whether the EUL components will have significant adverse effects on transit, as is mentioned for roadways and traffic.

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Page Six

- Security gate processing is not considered in the transportation impacts. It needs to identify how the off-Post will be able to process all of the incoming trips while keeping queuing from impacting the arterial roadway system.
- The determination of no significant "effect" for BRAC only is subjective. Some poor functioning intersections remain. The poor performance of the intersections in the No-Action is not support enough to claim no impact.
- The DEIS considers only intersection performance. In the interim year, there are corridor level capacity issues, specifically with the two-lane section of MD 175.
- The DEIS does not include a consideration of the impact of the growth on the MD 295 interchanges, specifically at MD 175, where little reserve capacity exists.
- Access points to large facilities, such as the Defense Information Systems Agency and the EUL sites that have access to State highways need to be identified and coordinated through the Maryland State Highway Administration's Engineering Access Permits Division.
- There is no discussion regarding transit within any of the three BRAC alternatives analyzed. An estimated range of additional transit ridership demand as a result of the BRAC expansion needs to be discussed.

Specific Comments

Page 4-19

- Table 4-3: Streams and open space with quantifications of impacts. The natural environmental impacts should be quantified and added to the BRAC/EUL action. This information is necessary for an adequate indirect and cumulative effects assessment in the MD 175 environmental document.

Page 4-34

- Provide mapping that shows where Fort Meade plans to build within each site for each sub-alternative. There is likely a tentative plan for Sites Y and Z.

Page 4-40

- Line 21: It should be Alternative 2 (not 3).

Page 4-41

- Table 4-6: The table only shows ozone and PM, but the text above it says the table shows that the County is in attainment for all other criteria pollutants.

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Page Seven

Page 4-43

- Line 29: Stafford and Prince William Counties are identified—is that correct? They are in Virginia.

Page 4-45

- Lines 20-25: Do you plan to do a wetland survey/jurisdictional determination prior to the FEIS? Otherwise, how will you know your wetland impacts are accurate?

Page 4-47

- Will the Fort be performing Air Quality and/or Noise technical reports?

Page 4-86

- When mentioning the impacts to potential cemeteries/burial grounds, please add a clause about how these may be protected resources (later in the document it is stated that there may be resources the Fort is unaware of, such as cemeteries, burial grounds, etc.).

Page 4-100

- The Environmental Justice discussion is missing information about the elderly and the languages spoken in the Region of Influence.

Page 4-108

- The transportation section opens with a brief outline of topics such as traveler information, pedestrian access, etc., but does not address these in the text. A discussion of TDM / TSM strategies available to the off-Post would be appropriate.
- Line 30: Clarify competing local needs.

Page 4-109

- Line 16: Delete SR designation for MD 32 and MD 175.
- The discussion on macro-level impacts from MDP's BRAC report should not suffice, as the base should conduct it's own micro-level transportation impacts analysis.

Page 4-111

- General: Please note that transit will be a key factor in reducing the amount of trips coming from the Fort and EUL sites. Consider identifying potential for traffic volume reduction in this section through proposing specific transit improvement on and off site.
- Line 2: Remove the dash between MD 295.
- Line 9: Should read "...and commercial developments, consistent with adopted Anne Arundel County small area plans, in the area generate..."

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Page Eight

- Line 21: Change Subway (Baltimore) to Metro (Baltimore). Replace "subway" with "Heavy Rail".
- Line 27: Replace "in a" with "along a north-south".
- Line 28: Adjust the sentence as follows: "and connects with many local bus routes. Near Fort Meade, it ...".

Page 4-112:

- Line 18: Replace "Subway" with "Metro"; line 22, move (CTC) to between "Corporation" and "Connect".
- Lines 24-25: Should be re-written as follows: "...vicinity of Fort Meade. However, only one route (K Route) currently serves Fort Meade directly. Similarly, the F Route is the only route that serves NSA."

Page 4-113

- Line 4: Change "US 32" to "MD 32".

Page 4-115

- General: When will the transit/ shuttle service discussions begin regarding the EUL?
- Figure 4-6: Call out Ft. Meade property in the Legend.

Page 4-116, 117, 119

- Page 4-116, 117, 119: The text in Sections 4.11.1.7, 4.11.1.8 and 4.11.1.9 appears to have been shuffled between these sections as compared to the previously reviewed DEIS, and is currently not located under the correct section heading.

Page 4-119

- Line 14: The DEIS states that Synchro was used to represent traffic operational characteristics at intersections, such as number of lanes per approach, striping, lane width, number of pedestrians crossing, signal phases and timing. Synchro is typically used for traffic simulation in a stage of project development that includes more detailed design. Synchro applied at this level of project development tends to yield unrealistically positive results and may mask the real intersection/corridor capacity needs. We recommend that Critical Lane Volume Analysis be performed to augment the Synchro model.
- Were existing signal timings used for the Synchro model or were the signals optimized? There is concern that if the signals were optimized, it may create better roadway conditions as opposed to how roads will realistically operate under future conditions.

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Page Nine

Page 4-124

- Please include discussions of pedestrian roadway or transit service safety, as related to increased traffic volumes, in the sections related to transportation.
- The improvements to all of the roadway system, collectively, are substantial. Is another environmental document planned to cover all of these improvements, which will, collectively, be substantial?
- For the roadways identified at level of service (LOS) 'E' or 'F', this section should include discussion of steps the base will take to mitigate traffic to bring them to an acceptable LOS. Have any interim plans been determined or are there any projected mitigation studies underway?
- Facilities for pedestrian and bicycle modes along MD 175 are mentioned. Please note the types of measures are being considered?

Page 4-125

- Lines 15-21: The third bullet should make mention that the official title of this study is the Central Maryland Maintenance Facility, as listed in the Maryland Transit Administration's Development and Evaluation Program within the MDOT's FY 2007-2012 Consolidated Transportation Program.

Page 4-126

- Footnote 5 reads, "AAO indicated that Round 6C forecasts are more realistic than previous forecasts; in terms of total numbers the EUL is included (as well as the BRAC) but the locations will be different and the timing will be sooner rather than later. That forecast estimated 84,997 jobs for Fort Meade/Odenton by 2030, compared with 48,250 in 2006. The differences in timing, 2030 versus 2011 horizon years, and locations could have a significant change in the traffic assignments throughout the roadway system.

Page 4-132

- Table 4-28: The # 19 intersection (Reece Road and Jacobs Road) shows no change in LOS between the No-Action alternative and the BRAC Realignment and Enhanced Use Lease Actions Alternative in the AM peak period and PM peak period. Table 4-29 (page 4-137) shows a declining LOS as a result of the BRAC Actions Alternative, from LOS D to LOS F during both the AM and PM peak periods.
 - What is the origin of additional traffic volumes for the BRAC Actions Alternative that would not occur under the BRAC Realignment and Enhanced Use Lease Actions Alternative? Is a traffic technical report available?

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Page Ten

- Please explain why no change in LOS occurs between the No-Action Alternative and the Preferred Alternative BRAC Plus EUL at Reece Road/Jacobs Road, as well as Reece Road at Severn Road and Ridge Road at Severn Road?

Page 4-177

- Line 10: The preparers of the DEIS cite the inability to evaluate a planned expansion at the National Security Agency because, "the size and origin of the expanded NSA workforce is not known, it is not possible to quantify the combined or cumulative impacts of the BRAC and NSA actions." If details become available they should be incorporated into the assessment.
- Unlike the other sections in the Cumulative Effects chapter (4.14), the Transportation section (4.14.10) does not state whether cumulative effects would or would not occur. Does Baltimore Metropolitan Council's Round 6C incorporate an estimate on projected NSA workforce growth?
- Is the total number of the NSA workforce included in the Baltimore Metropolitan Council's Round 6C forecast?
- Should the Cumulative Effects section address such effects if the anticipated growth and schedule are known about the NSA expansion?
- The BRAC Realignment Action Alternative shows deteriorated operations along MD 175. Many intersections along MD 175 will experience a LOS E or F as a result of the BRAC Realignment Action Alternative. SHA believes these changes in LOS are significant and that the BRAC Realignment Action Alternative will have a significant effect on transportation along MD 175 corridor.
- Unlike the other sections in the Cumulative Effects chapter (4.14), the Transportation section (4.14.10) does not state whether cumulative effects would or would not occur.

Page 4-131

- Line 29: Sentence should read, "MD 175 upgrades are still in the planning phase. Final Design, Right-of-way, and construction dollars are not yet programmed for the project; typically, funding for these other phases is allocated once planning is complete."

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Page Eleven

Page 4-178

- Table 4-36: *2011 Cumulative LOS for Fort Meade*: the column alignment is shifted by one row, after the #2 intersection, so that the LOS for No-Action Alternative actually appears under the Cumulative LOS, making it very difficult to discern that changes in LOS will occur between the No-Action Alternative and the Cumulative condition. In addition, the text states that the results are shown in the table, but the results are not discussed elsewhere, thus making it appear incorrectly there are no cumulative effects.

Page 4-186

- Table 4-37 - *Proposed Mitigation and Best Management Practices*: Transit is not mentioned under proposed mitigation, and is only briefly mentioned under the Best Management Practices column with regard to needed coordination between jurisdictions to expand transit services. This discussion needs to be strengthened in the table by incorporating more text from Appendix F, pp. F12-13.

APPENDIX F – TRANSPORTATION DATA

Page F-7

- Table 6: the table shows that over 11,000 trips will use Reece Road to access EUL sites X and Y during the AM peak hour. The anticipated traffic volume shown for the two EUL sites appears to be excessive for a projected employment base of 10,000 jobs. How were these volumes generated? What was the methodology used to assign trips on Reece Road to the EUL facility and did it consider access points other than Reece Road?

Page F-8

What was the trip distribution methodology used for the EUL and what was it based on?
What directional split was assumed?

Page F-9

- Replace “Mass Transit Administration” with “Maryland Transit Administration”, and do a search, find and replace throughout the entire DEIS for this.

Page F-11

- Will employees have the option to work shifts during non-peak hour periods?

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Page Twelve

- Page F-12-13, Transit Best Management Practices: Overall- this write-up is good. Regarding the last bullet, it would be very helpful to provide more information either here or earlier in the document regarding the proposed adjustments or expansion to the on-Post transit shuttles, so that the MTA and the locally operated transit services can start to develop a plan for connections. MTA is also interested in more detail, if available, regarding the suggested shuttle service between MARC and the Post.

Once again, thank you for providing us this opportunity to review and comment on the March 2007 Draft Environmental Impact Statement (DEIS) for BRAC Actions at Fort George G. Meade. If you have any questions regarding this review please contact Mr. Samuel Minnitte, MDOT's Director of Planning, by telephone at 410-865-1275, toll-free at 888-713-1414, or by e-mail at sminnitte@mdot.state.md.us. Of course you should never hesitate to contact me directly, if you prefer.

Attachment

cc: Mr. Samuel Minnitte, Director of Planning, MDOT
Mr. Neil J. Pedersen, Administrator, State Highway Administration
Mr. Paul Wiedefeld, Administrator, Maryland Transit Administration
Mr. Ronald L. Dreeland, Executive Secretary, Maryland Transportation Administration

Ms. Linda C. Janey, D.
Page Thirteen

bcc: Ms. Mary Dietz, Assistant Chief, SHA
Ms. Kellie Gaver, Deputy Director of Planning, MDOT
Mr. Michael J. Haley, Chief, SHA
Mr. Jamie M. Lake, Regional Planner, MDOT
Mr. Paul Oberle, Manager of Multi-Modal Studies, MDOT
Ms. Diane Radcliff, Acting Director, Maryland Transit Administration
Mr. Robert Rosenbush, Maryland Department of Planning
Mr. Michael Nixon, Manager of Regional Planning, MDOT
Mr. Raja Veeramachaneni, Director, Planning and Preliminary Engineering, SHA
Mr. Douglas H. Simmons, Deputy Administrator, SHA
Mr. Dennis Simpson, Deputy Director, MdTA
Ms. Melissa Williams, Planning Manager, MdTA



Maryland Department of Planning

Martin O'Malley
Governor
Anthony G. Brown
Lt. Governor

Richard Eberhart Hall
Secretary
Matthew J. Power
Deputy Secretary

May 17, 2007

Ms. Melanie Moore
Community Relations Director
U.S. Army
Public Affairs Office
4550 Pershing Hall
Room 102
Fort George G. Meade, MD. 20755-5025

STATE CLEARINGHOUSE REVIEW – ADDITIONAL REVIEWER COMMENTS RECEIVED

State Application Identifier: MD20070418-0348

Project Description: Draft Environmental Impact Statement: for Implementation of BRAC and Enhanced Use Lease Actions at Fort George G. Meade: consider three (3) alternatives including "no action"

Project Location: Anne Arundel County

Clearinghouse Contact: Bob Rosenbush

Dear Ms. Moore:

For your information, we are forwarding the enclosed comments made by the Maryland Department of the Environment regarding the referenced project.

Should you have any questions, contact the State Clearinghouse staff person noted above at 410-767-4490 or through e-mail at brosenbush@mdp.state.md.us. Your cooperation and attention to the review process is appreciated

Sincerely,

Linda C. Janey, J.D., Assistant Secretary
for Clearinghouse and Communications

LCJ:BR
Enclosures (Comments Received)

cc: Joane Mueller - MDE

07-0348_OLRR.OTH@.doc

=== COVER PAGE ===

TO: _____

FROM: MD DEPT ENVIRONMENTO

FAX: 4105373998

TEL: 4105373939

COMMENT:

MARYLAND DEPARTMENT OF THE ENVIRONMENT

TECHNICAL & REGULATORY SERVICES
ADMINISTRATION

FACSIMILE TRANSMITTAL SHEET

TO: Bob Rosenbush	FROM: Joane Mueller
COMPANY: MDP	DATE: 5/11/2007
FAX NUMBER:	TOTAL NO. OF PAGES INCLUDING COVER: 11
PHONE NUMBER:	SENDER'S REFERENCE NUMBER: Telephone Number (410) 537-4120
RE: MDP# 0348 - Ft Meade	YOUR REFERENCE NUMBER: Facsimile Number (410) 537-3998

URGENT FOR REVIEW PLEASE COMMENT PLEASE REPLY PLEASE RECYCLE

NOTES/COMMENTS:

Bob - Here are MDE's comments on Ft. Meade.

Page 1 - Fax Cover

Page 2, 3 - MDP cover sheet

Page 4 - WMA's comments (R1)

Page 5, 6 - ARMA's comments (R1) (original sent to applicant 4/4/07)

* Page 7 - WAS' comments (R2)

* Page 8, 9, 10 - SSA's comments re. TMDL (R1)

* Page 11 - SSA comments (other than TMDL) (R1)

* Available electronically.



Maryland Department of Planning

Martin O'Malley
Governor
Anthony G. Brown
Lt. Governor

Richard Eberhart Hall
Secretary
Matthew J. Power
Deputy Secretary

MARYLAND STATE CLEARINGHOUSE - AGENCY REVIEW REQUEST

RESPONSE TO THE CLEARINGHOUSE
YOUR RESPONSE IS REQUIRED BEFORE May 4, 2007

TO: REVIEW COORDINATORS

FROM: Linda C. Janey, J.D., Assistant Secretary for
Clearinghouse and Communications

DATE 04/18/2007

A COMPLETED RESPONSE FORM IS REQUIRED FOR CLEARINGHOUSE RECORDS

State Application Identifier:	MD20070418-0348		
Description:	Draft Environmental Impact Statement: for Implementation of BRAC and Enhanced Use Lease Actions at Fort George G. Meade: consider three (3) alternatives including "no action"		
Applicant:	U.S. Army		
Location:	County of Anne Arundel		
Contact Person:	Bob Rosenbush		
Approving Authority:	U.S. Department of Defense		
CFDA Number:	None		
Funds Requested:	Federal:	\$ 0.00	State: \$ 0.00
	Local:	\$ 0.00	Other: \$ 0.00

Please complete and return the enclosed review response form to the State Clearinghouse before the response due date listed above. Always place the referenced State Application Identifier on all documents and correspondence regarding the project.

As you review the attached project, please formulate comments and recommendations that reflect the views of elected officials and the adopted plans and policies of your agency or local jurisdiction. **Please provide an early alert to the Clearinghouse staff contact (410-767-4490) if there is disagreement with or concern regarding the project, if you need additional information, and/or if you cannot complete the review by May 4, 2007.** Otherwise we may assume that you choose not to comment. Thank you for your cooperation with the intergovernmental review process.

NOTE TO THE REVIEW COORDINATORS:

You may access the review document on the Internet.

Go to <http://www.ftmeade.army.mil>

Click on BRAC Draft Environmental Impact Statement Released

Click on Fort Meade Draft Environmental Impact Statement (DEIS)

LCJ:BR

Review Coordinators:

* Indicates review document sent directly by the Army to the named official

Luisa Fernandez - DHCD

Ray Dintaman-DNR* Lori Byrne

Tammy Edwards - DBED

Beth Cole - MHT* you

Joane Mueller - MDE* you

William Ebare - MDSP

Mike Fox - ANAR

Cindy Johnson - MDOT

Gloria Minnick-MDA* Lew Riley

Mike Paone - MDPLS

301 West Preston Street • Suite 1101 • Baltimore, Maryland 21201-2305

Telephone: 410.767.4500 • Fax: 410.767.4480 • Toll Free: 1.877.767.6272 • TTY Users: Maryland Relay

Internet: www.MDP.state.md.us

Please Complete Your Review & Recommendation Before May 4, 2007

Return Completed Form To: Linda C. Janey, J.D., Assistant Secretary for Clearinghouse and Communications, Maryland Department of Planning, 301 West Preston Street, Room 1104, Baltimore, MD 21201-2305 Phone: 410-767-4490 Fax: 410-767-4480

Application Identifier: MD20070418-0348 Clearinghouse Contact: Bob Rosenbush, 410-767-4490 brosenbush@mdp.state.md.us

Category: ANAR

Applicant: U.S. Army

Description: Draft Environmental Impact Statement: for Implementation of BRAC and Enhanced Use Lease Actions at Fort George G. Meade: consider three (3) alternatives including "no action"

Based on a Review of the Information Provided, We Have Checked (X) the Appropriate Determination Below

CONSISTENT RESPONSES - (For Use By STATE AGENCIES Only)

- C1 It is Consistent with our plans, programs, and objectives
C2 It is Consistent with the policies contained in Executive Order 01.01.1992.27 (Maryland Economic Growth, Resource Protection, and Planning Act of 1992), Executive Order 01.01.1998.04 (Smart Growth and Neighborhood Conservation Policy), and our plans, programs, and objectives.
C3 (MHT ONLY) It has been determined that the project will have "no effect" on historic properties and that the federal and/or State historic preservation requirements have been met.
C4 (DNR ONLY) It has been determined that this project is in the Coastal Zone and is not inconsistent with the Maryland Coastal Zone Management Program.
C7 (MDP ONLY) It is consistent with the requirements of State Finance and Procurement Article 5-7B-02; 03; 04 and 05 Smart Growth and Neighborhood Conservation (Priority Funding Areas).

CONSISTENT RESPONSES - (For Use By COUNTY & LOCAL AGENCIES ONLY)

- C5 It is Consistent with our plans, programs, and objectives.
C6 It is Consistent with the Economic Growth, Resource Protection, and Planning Visions (Planning Act of 1992), State Finance and Procurement Article 5-7B - Smart Growth and Neighborhood Conservation (Priority Funding Areas), and our plans, programs, and objectives.

OTHER RESPONSES - (For Use By ALL)

- R1 GENERALLY CONSISTENT WITH QUALIFYING COMMENTS: It is generally Consistent with our plans, programs and objectives, but the attached qualifying comment is submitted for consideration.
R2 CONTINGENT UPON CERTAIN ACTIONS: It is generally Consistent with our plans, programs and objectives contingent upon certain actions being taken as noted in the attached comment(s).
R3 NOT CONSISTENT: It raises problems concerning compatibility with our plans, programs, objectives, or Planning Act visions/policies; or it may duplicate existing program activities, as indicated in the attached comment(s). If a meeting with the applicant is requested, please check here: []
R4 ADDITIONAL INFORMATION REQUESTED: Additional information is required to complete the review. The information needed is identified below. If an extension of the review period is requested, please check here: []
R5 FURTHER INTEREST: Due to further interest/questions concerning this project, we request that the Clearinghouse set up a conference with the applicant.
R6 SUPPORTS: Supports "Smart Growth" and Federal Executive Order 12072 (Federal Space Management), which directs federal agencies to locate facilities in urban areas.

Check additional comments if necessary OR use these spaces:

Name: Joane D. Mueller
Organization: SSA/MDE, Suite 540
Address: 1800 Washington Boulevard, Baltimore, MD 21230-1718, (410) 537-4120

Signature: [Handwritten Signature]
Phone: []
Date Completed: 05/11/07
Check here if comments are attached.



**Maryland Department of the Environment's Water Management Administration:
Comments – Clearinghouse MD 20070418-0340 [Ft. Meade BRAC] [5-10-07]**

This project is consistent with our plans, programs, and objectives.

Depending on the exact nature of the project/activity, various environmental permits may be required from the Maryland Department of the Environment's Water Management Administration (WMA). These permits include but are not limited to the following:

- ✓ Water Appropriation and Use Permit
 - ✓ Well Construction Permit
 - ✓ Surface Water Discharge Permit (Industrial or Municipal Wastewater)
 - ✓ Ground Water Discharge Permit (Industrial or Municipal Wastewater)
 - ✓ Water and Sewerage Construction Permit
 - ✓ Tidal Wetland License/Permit
 - ✓ Nontidal Wetlands (Nontidal Wetlands and Waterways Permit)
 - ✓ Construction in Waterway and 100-year Floodplain (Nontidal Wetlands and Waterways Permit)
 - ✓ Erosion/Sediment Control and Stormwater Management Plan Approvals
 - ✓ General Permit for Construction Activity
-

For more information, contact Ray Anderson at (410) 537-3726

**MARYLAND DEPARTMENT OF THE ENVIRONMENT**

1800 Washington Boulevard • Baltimore MD 21230

410-537-3000 • 1-800-633-6101

Martin O'Malley
GovernorShari T. Wilson
SecretaryAnthony G. Brown
Lieutenant GovernorRobert M. Summers, Ph.D.
Deputy Secretary**APR 4 2007**Mr. Mick Butler
Chief
Environmental Division
Fort Meade, MD 20755

Re: Draft Environmental Impact Statement for Implementation of Base Realignment and Closure 2005 and Enhanced Use Lease Actions at Fort George G. Meade, Maryland.

Dear Mr. Butler:

Thank you for the opportunity to review the Draft Environmental Impact Statement for the Base Realignment and Closure (BRAC) 2005 and Enhanced Use Lease (EUL) Actions at Fort Meade. The Maryland Department of the Environment (MDE) Air and Radiation Management Administration (ARMA) received the draft document and reviewed the sections of the document related to air quality and general conformity.

Table 4-9 (page 4-45) indicates that a total of 60.05 ton per year of VOC would be the expected annual emissions increase for BRAC and EUL actions. Fort Meade is located in the Baltimore 8-hour Ozone Nonattainment Area (BNAA). The BNAA is classified as a moderate area under the 8-hour ozone standard and the entire state of Maryland is located within the Ozone Transport Region. According to EPA's general conformity regulations, the VOC *de minimus* thresholds for projects located within an Ozone Transport Region (OTR) is 50 tons per year. The conformity chapter in the draft EIS inaccurately states that the VOC *de minimus* threshold for the project is 100 tons per year. Please refer to the following Federal Register notices for more information: 40 CFR Parts 6, 51, and 93, November 30, 1993; 40 CFR Part 52, April 19, 1995; and 40 CFR Parts 51 and 93, July 17, 2006. Based on the correct *de minimus* thresholds, the projected VOC emissions exceed the *de minimus* thresholds and mitigation is required under the federal general conformity rules.

The MDE's preference for mitigation would be on-site emission reduction programs that can be used to offset the increase in VOC emissions. Potential VOC emission reducing projects could include alternative fuel vehicle programs, mandatory change-outs of all older portable fuel containers with new low VOC containers, enhanced vapor recovery where applicable, etc. The MDE also invites Fort Meade to become an active participant in the Clean Air Partners program. For more information on Clean Air Partners, please visit cleanairpartners.net and contact the Managing Director, Ms. Harriet West at (703) 431-8463.

Mr. Mick Butler
Page 2

In addition to the above, the MDE requests that Table 4-10 (page 4-46) also include a total annual emissions column for purposes of clarity and consistency. Again, thank you for the opportunity to review this draft document. If you have any questions or need further information, please do not hesitate to contact me or a member of my staff at (410) 537- 3245.

Sincerely,



Brian J. Hug
Acting Deputy Program Manager
Air Quality Planning Program
Air and Radiation Management Administration

cc: Mr. Craig A. Wells, LTC, Corps of Engineers, Deputy Commander
Colonel Kenneth O. McCreedy, Military Intelligence, Installation Commander
Diane L. Franks, Program Manager, Air Quality Planning Program, Maryland
Department of the Environment

State Application Identifier: MD20070418-0348

Comments from the Maryland Department of the Environment's Waste Management Administration:

This project is generally consistent with our plans, programs and objective contingent upon certain actions being taken as noted below:

1. Any above ground or underground petroleum storage tanks that may be utilized must be installed and maintained in accordance with applicable State and federal laws and regulations. Contact the Oil Control Program at (410) 537-3442 for additional information.
2. Planning and construction of the proposed golf courses on the sites, the location of the former sanitary landfill at the base, must be coordinated with the Solid Waste Program Contact Ed Dexter at (410) 5377-3376. Any solid waste including construction, demolition and land clearing debris, generated from the subject project, must be properly disposed of at a permitted solid waste acceptance facility, or recycled if possible. Contact the Solid Waste Program at (410) 537-3318 for additional information.
3. The Hazardous Waste Program should be contacted at (410) 537-3343 prior to construction activities to ensure that the treatment, storage or disposal of hazardous wastes and low-level radioactive wastes at the facility will be conducted in compliance with applicable State and federal laws and regulations.
4. Any contract specifying "lead paint abatement" must comply with Code of Maryland Regulations (COMAR) 26.16.01 – Accreditation and Training for Lead Paint Abatement Services. If a property was built before 1950 and will be used as rental housing, then compliance with COMAR 26.16.02 – Reduction of Lead Risk in Housing; and Environment Article Title 6, Subtitle 8, is required. Additional guidance regarding projects where lead paint may be encountered can be obtained by contacting the Environmental Lead Division at (410) 537-3825.
5. MDE requests that efforts be made to prevent contamination of the surface and ground water of the State of Maryland during the construction and renovation activities. In the event that spills or other releases of petroleum or hazardous materials occur from the proposed operations which may potentially impact State waters, MDE requests prompt notification at 866-633-4686 (toll free).

**Comments from the Maryland Department of Environment's Science Services
Administration: Consistency with Total Maximum Daily Loads (TMDLs)**

Review Finding: The Draft EIS: BRAC 2005 - Ft. Meade 2006 (ES2007 03828-0007) is found to be R1: Consistent with Qualifying Comments.

The qualifying comments are intended to alert interested parties to the need for this plan to be consistent with water quality standards. The comments address 1) Impaired waters in the vicinity, which are identified on Maryland's 303(d) List, 2) TMDLs in the vicinity, which have been established for impaired waters, 3) Special protections for high-quality waters in the vicinity, which are identified pursuant to Maryland's anti-degradation policy, and 4) General guidance.

1) Water Quality Impairments: Section 303(d) of the federal Clean Water Act requires the State to identify impaired waters and establish Total Maximum Daily Loads (TMDLs) for the substances causing the impairments. A TMDL is the maximum amount of a substance that can be assimilated by a waterbody such that it still meets water quality standards.

The Department of the Army (Department) should be aware of existing water quality impairments identified on Maryland's 303(d) list. Ft. Meade is situated in two watersheds, identified by the 8-digit codes 02131105 (Little Patuxent River), and 02131002 (Severn River).

We note that Section 4.7.1.2 of the EIS identifies watersheds and surface water impairments. Department planners may find nearby impaired waters via the on-line 2006 303(d) list at the following URL:

http://www.mde.state.md.us/assets/document/Revised%20Final%202006%20IR%20Part%20E6_Cat5.pdf

Maryland's 303(d) list is updated every even calendar year. Department planners should review this list periodically to help ensure that local decisions consider water quality protection and restoration needs. Briefly, the current impairments that are relevant to Ft. Meade include the following*:

02131105 (Little Patuxent River)

- Nutrients: Non-tidal Portion.
- Sediments: Non-tidal Portion.
- Cadmium: Non-tidal Portion.
- Biological (aquatic life is degraded): Non-tidal Portion. Several locations in subwatershed 021311050949, and the adjacent downstream watershed 021311050946.
- Bacteria: Tidal Portion in shellfish waters near the mouth of the Nanticoke River. A TMDL is pending

02131002 (Severn River)

- Nutrients: Tidal Portion.
- Sediments: Tidal Portion.
- PCBs: Tidal Portion.

- **Biological (aquatic life is degraded): Non-tidal Portion.** Several locations in subwatershed 021310021002, and the adjacent downstream watershed 021310021002.

* Note that upstream jurisdictions also share in the responsibility for addressing downstream impairments, which might not be identified in the summary above. In addition, jurisdictions that eventually drain to the Chesapeake Bay have a general responsibility to the control nutrients as part of the Chesapeake Bay Agreement Tributary Strategies.

2) TMDLs: Development should take into account consistency with TMDLs developed for the impaired waterbodies referenced above. Government decisions made prior to the development of a TMDL should strive to ensure no net increase of impairing substances. TMDLs are made available on an updated basis at the following web site:

www.mde.state.md.us/Programs/WaterPrograms/TMDL/Surnittals/index.asp

3) Anti-degradation of Water Quality: Maryland requires special protections for waters of very high quality (Tier II waters). The policies and procedures that govern these special protections are commonly called "anti-degradation policies." This comprehensive plan amendment does not involve any Tier II waters. However, Tier II waters could be added to State regulations in the future.

Presently, no Tier II waters have been identified in Ft. Meade's vicinity. Planners should check for Tier II waters in the Code of Maryland Regulations 26.08.02.04 during future land use plan updates:

<http://www.dsd.state.md.us/comar/26/26.08.02.04%2D1.htm>

4) General Guidance: Land use planning should reflect the necessary limits on pollutant loads. Techniques now exist to support land development that minimizes the generation of the pollutants that are impairing our waters. It will be in the interest of local jurisdictions to adopt these techniques to optimize growth in a manner that is consistent with TMDLs and the Tributary Strategies for nutrient reduction developed under the 2000 Chesapeake Bay Agreement.

Examples of planning techniques that consider TMDLs:

- Consider alternatives to surface water discharges, where applicable. For example, consider identifying land for future spray irrigation of treated municipal waste if the direct discharge of effluent to a stream could become limited by a TMDL or the Bay Agreement nutrient allocations.
- Consider land use planning that will maximize the preservation of forested land, which contributes the least amount of nutrient loading per acre.
- Consider giving priority to site designs that minimize impervious area and nutrient loads per unit of development.

For more general guidance:

Maps and Water Resources Aid to Local Planning (Also see Implications Link):

http://www.mde.state.md.us/Water/HB1141/Water_Quality_Maps.asp

"Protecting Water Resources with Smart Growth":

http://www.epa.gov/smartgrowth/water_resource.htm

"Best Development Primer":

<http://www.epa.gov/smartgrowth/pdf/BestDevprimer.pdf>

"Maryland's 2006 TMDL Implementation Guidance for Local Governments"

http://www.mde.state.md.us/Programs/WaterPrograms/TMDL/TMDL_implementation_2006_guidance_document.asp

For more MDE guidance, contact Jim George (410) 537-3902

Comments from MDE's Science Services Administration

The potential for aquatic life effects in Table ES-4 (page ES-19) should indicate "potential" adverse effects in the BRAC Actions Alternative column. The use of the phrase, "No adverse effects" is probably incorrect or at least inconsistent with the indicated effects under "Stormwater drainage" on page ES-21.

Loss of aquatic life, especially diversity, typically occurs in receiving streams when the percent imperviousness of the watershed exceeds 5%. Losses continue as the percent imperviousness rises to 20% when the aquatic life in the stream will probably be significantly damaged.

Since the document does not appear to have established existing biological or impervious conditions, and does not indicate the extent of the projected development or the extent of the controls that will be employed to infiltrate stormwater into the ground, it must be assumed that there will be some aquatic life losses. It is suggested that the facility document existing conditions and imperviousness and then document in a cumulative manner future impervious cover. Documentation of infiltration should be included in the process as a means of crediting those measures in the abatement of pollution.

MDE is charged with assessing state waters and it would be helpful to have existing conditions documented to use as a benchmark in assessing the Department of Defense's development of Ft. Meade relating to the antidegradation portion of the Clean Water Act. Biennial reports of aquatic life and water chemistry conditions in streams affected by construction activity should be provided MDE's Science Services Administration for use in reporting under sections 303(d) and 305(b) of the Clean Water Act.

For more information contact George Harman at (410) 537-3856.



Maryland Department of Planning

Martin O'Malley
Governor
Antony G. Brown
Lt. Governor

Richard Eberhart Hall
Secretary
Matthew J. Power
Deputy Secretary

May 30, 2007

Ms. Melanie Moore
Community Relations Director
U.S. Army
Public Affairs Office
4550 Pershing Hall
Room 102
Fort George G. Meade, MD 20755-5025

Post-It® Fax Note 7671
Date 5-30-07 # of pages 6
To Ms Heather Carolan From Bob Rosenbush MDP
Co/Dept. Environmental Office Ft Meade
Phone # Phone # 410-767-4489
Fax # 301-677-9001 Fax # /

STATE CLEARINGHOUSE REVIEW - ADDITIONAL REVIEWER COMMENTS RECEIVED

State Application Identifier: MD20070418-0348

Project Description: Draft Environmental Impact Statement: for Implementation of BRAC and Enhanced Use Lease Actions at Fort George G. Meade: consider three (3) alternatives including "no action"

Project Location: Anne Arundel County

Clearinghouse Contact: Bob Rosenbush

Dear Ms. Moore:

We are forwarding the enclosed comments made by the Maryland Department of Natural Resources regarding the referenced project for your information. See the attached response form, and memorandum.

Should you have any questions, contact the State Clearinghouse staff person noted above at 410-767-4490 or through e-mail at brosenbush@mdp.state.md.us. Your cooperation and attention to the review process is appreciated.

Sincerely,

Linda C. Janey, J.D., Assistant Secretary
for Clearinghouse and Communications

LCJ:BR

Enclosures

cc: Mike Paone - MDPLS*
John Dodds - ANAR*

Patuxent River in close proximity to this site. This is a State Threatened species (Title 08 COMAR). In order to help protect this species we recommended the utilization the strongest erosion related BMP's possible during construction activities to avoid siltation and general degradation of water quality in this area, particularly in areas "G, M, and G" since they are headwater areas that encompass a series of un-named tributaries which directly flow into the Little Patuxent.

Please note also that we would be happy to provide further technical assistance relating to the incorporation of specific protection measures for this proposed work as the build-out progresses. Thank you.

The final Environmental Impact Statement should also describe measures that the Army Corps of Engineers can implement throughout the Patuxent and Severn River watersheds that will offset all direct and indirect short-term and long-term pollution impacts related to BRAC activities. These impacts may result from, but not be limited to the influx of workers and their families, road and building construction, and increased flow from wastewater treatment plants. Nutrient and sediment reduction goals are not currently being met in either the Patuxent or Severn River watersheds. Increased pollution from BRAC activities in these watersheds will only make meeting these goals less likely.

There is a known occurrence of *Panicum leucothrix* in the 367 acre EUL area identified as "S" in this plan. This is a state rare plant that we recommend protecting. The development of two additional large golf courses at that location could be detrimental to this species. As a result, we feel that protection measure should be incorporated into the site design considerations for that project. To do so would first require the full delineation of the extant populations on that parcel. Field protocol utilized for this particular species in 2000 for Building T-04 would be appropriate (Eco-Science Professionals Inc.).

Our analysis indicates that the remaining two EUL locations "Y and Z" currently provide Forest Interior Dwelling Species (FIDS) habitat. We strongly encourage the protection of this habitat and offer the following guidelines to help minimize the project's impacts on FIDS and other native forest plants and wildlife:

1. Concentrate development to non-forested areas.
2. If forest loss or disturbance is absolutely unavoidable, concentrate or restrict development to the perimeter of the forest (i.e., within 300 feet of the existing forest edge), particularly in narrow peninsulas of upland forest less than 300 feet wide.
3. Limit forest removal to the "footprint" of houses and to that which is absolutely necessary for the placement of roads and driveways.
4. Wherever possible, minimize the number and length of driveways and roads.
5. Roads and driveways should be as narrow and short as possible; preferably less than 25 feet and 15 feet, respectively.
6. Maintain forest canopy closure over roads and driveways.
7. Maintain forest habitat up to the edges of roads and driveways; do not create or maintain mowed grassy berms.
8. Maintain or create wildlife corridors.
9. Do not remove or disturb forest habitat during May-August, the breeding season for most FIDS. This seasonal restriction may be expanded to February-August if certain early nesting FIDS (e.g., Barred Owl) are present.
10. Afforestation efforts should target (1) riparian or streamside areas that lack woody vegetation, (2) forested riparian areas less than 300 feet, and (3) gaps or peninsulas of non-forested habitat within or adjacent to existing FIDS habitat.

There are known occurrences of the glassy darter (*Etheostoma vitreum*) in the Little

The Draft Environmental Impact Statement (DEIS) describes a number of road improvements that will take place in the immediate vicinity of Fort Meade, as well as parking lot and building construction that will take place within Fort Meade as a result of BRAC activities. Construction work will contribute to sediment loads directly and indirectly by generating additional impervious surface. The final Environmental Impact Statement should provide an assessment of the direct and indirect short-term and long-term sediment impacts and how they will be controlled.

The DEIS states that "Significant long-term adverse effects to storm water drainage would be expected" as a result of BRAC activities. Much of this would result from the construction of approximately 60 acres of surface parking lots. The DEIS further states that existing storm water collection systems would not be capable of handling the runoff generated by the increase in storm water associated with parking lot construction. The three existing drainage areas on Fort Meade discharge into the Little Patuxent River. DNR has the following concerns regarding storm-water: 1) temperature spikes in receiving streams due to runoff from hot parking lots, 2) stream pollution resulting from contamination of runoff by petroleum products, salt, and heavy metals from parking lots, 3) an increase in flood frequency and spikes in water flow that may cause physical degradation of streams through increased sedimentation rates, stream incision, bank loss, and loss of cover in the riparian zone, and 4) localized decreases in dissolved oxygen.

Standard storm-water control projects work effectively on single projects, but the cumulative impact of many individual systems in a small area result in high flows over periods longer than natural floods would occur in streams. Engineers should take the opportunity that BRAC-related construction presents to redesign Fort Meade's storm-water management system to include more low impact development practices that are more protective of streams than current design guidelines. The new system should treat all storm-water "on-site" and in a manner that uses the landscape to filter runoff and simulate natural flow patterns. Storm-water management mitigation measures could include using pervious asphalt in parking lots, constructing living roofs on new and renovated buildings, and constructing "rain gardens" that would promote infiltration as opposed to the traditional approach to storm-water management that merely conveys storm-water to a receiving stream.

The DEIS describes several inadequacies in the Fort Meade wastewater treatment plant system, warns of treatment system failures due to the increase of 15,695 new BRAC and EUL personnel, and recommends a "comprehensive evaluation" of the existing system. System failures will result in increased nitrogen and phosphorus pollution of the Little Patuxent River, which is the receiving stream. In August 2006, the State of Maryland and the U.S. Department of Defense signed a Memorandum of Understanding agreeing to implement watershed improvement projects (stabilizing eroding shorelines, enhancing stream buffers and wetlands) and upgrading wastewater treatment plants to achieve enhanced nutrient removal. The final Environmental Impact Statement should describe how Fort Meade's wastewater treatment plant and sewerage system will be upgraded to meet the needs of personnel increases and how enhanced nutrient removal (ENR) will be implemented to further reduce nitrogen pollution.



Martin O'Malley, Governor
Anthony G. Brown, Lt. Governor
John R. Griffin, Secretary
Eric Schwaab, Deputy Secretary

May 23, 2007

Memorandum

TO: Ms. Linda C. Janey, MDP Clearinghouse and Communications

FROM:  R. Dintaman, DNR Environmental Review Unit

SUBJECT: **MD 20070418-0348 - Draft Environmental Impact Statement for Implementation of BRAC and Enhanced Use Lease Actions at Fort George G. Meade**

The Department of Natural Resources (DNR) has reviewed the subject State Clearinghouse project and offer the following comments for your consideration in the State's review of this proposal:

Fort Meade is located in the Patuxent River and the Severn River watersheds. The Little Patuxent River, which runs along part of the southwest corner of Fort Meade, joins the Patuxent River near Crofton, Maryland. The tidal portions of both the Patuxent River and the Severn River are currently on the Federal 303(d) list of impaired waters for failing to meet the goals of the Federal Clean Water Act due to excess nutrient and sediment levels. The Little Patuxent River is on the Federal 303(d) list due to excess nutrient and sediment levels and because it fails to support a full biological community. The non-tidal portion of the Severn River is on the 303(d) list because it fails to support a full biological community.

Based on modeling studies performed by the Maryland Department of Natural Resources for the Patuxent River tributary strategy basin there have been substantial reductions in phosphorus, nitrogen, and sediments since 1985; however, to meet the goals of the tributary strategy program continued annual reductions of these pollutants still need to be made.

DNR operates a monitoring site in conjunction with the U.S. Geological Survey (USGS) on the Patuxent River near Bowie, MD as part of the Chesapeake Bay River Input Monitoring Program. Trend analyses performed by USGS indicate that nitrogen, phosphorus, and sediment have decreased since 1985, but recently have been increasing. A report by the USGS links these increases to increased urbanization. DNR is concerned that the rise in the population associated with the BRAC and EUL activities at Fort Meade will have an adverse effect on the concentrations of nitrogen, phosphorus, and sediment that reach the Patuxent and Severn Rivers.

Towers State Office Building • 580 Taylor Avenue • Annapolis, Maryland 21401

410.260.8DNR or toll free in Maryland 877.620.8DNR • www.dnr.maryland.gov • TTY users call via Maryland Relay

Please Complete Your Review & Recommendation Before May 4, 2007

Return Completed Form To: **Linda C. Janey, J.D., Assistant Secretary for Clearinghouse and Communications, Maryland Department of Planning, 301 West Preston Street, Room 1104, Baltimore, MD 21201-2305**
 Phone: 410-767-4490 Fax: 410-767-4480

State Application Identifier: MD20070418-0348		Clearinghouse Contact: Bob Rosenbush, 410-767-4490 broosenbush@mdp.state.md.us
Location: ANAR		
Applicant: U.S. Army		
Description: Draft Environmental Impact Statement: for Implementation of BRAC and Enhanced Use Lease Actions at Fort George G. Meade: consider three (3) alternatives including "no action"		
Based on a Review of the Information Provided, We Have Checked (☑) the Appropriate Determination Below		
CONSISTENT RESPONSES - (For Use By STATE AGENCIES Only)		
C1	It is Consistent with our plans, programs, and objectives	
C2	It is Consistent with the policies contained in Executive Order 01.01.1992.27 (Maryland Economic Growth, Resource Protection, and Planning Act of 1992), Executive Order 01.01.1998.04 (Smart Growth and Neighborhood Conservation Policy), and our plans, programs, and objectives.	
C3	(MHT ONLY) It has been determined that the project will have "no effect" on historic properties and that the federal and/or State historic preservation requirements have been met.	
C4	(DNR ONLY) It has been determined that this project is in the Coastal Zone and is not inconsistent with the Maryland Coastal Zone Management Program.	
C7	(MDP ONLY) It is consistent with the requirements of State Finance and Procurement Article 5-7B-02; 03; 04 and 05 Smart Growth and Neighborhood Conservation (Priority Funding Areas).	
CONSISTENT RESPONSES - (For Use By COUNTY & LOCAL AGENCIES Only)		
C5	It is Consistent with our plans, programs, and objectives.	
C6	It is Consistent with the Economic Growth, Resource Protection, and Planning Visions (Planning Act of 1992), State Finance and Procurement Article 5-7B - Smart Growth and Neighborhood Conservation (Priority Funding Areas), and our plans, programs, and objectives.	
OTHER RESPONSES - (For Use By ALL)		
<input checked="" type="checkbox"/> R1	GENERALLY CONSISTENT WITH QUALIFYING COMMENTS: It is generally Consistent with our plans, programs and objectives, but the attached qualifying comment is submitted for consideration.	
R2	CONTINGENT UPON CERTAIN ACTIONS: It is generally Consistent with our plans, programs and objectives contingent upon certain actions being taken as noted in the attached comment(s).	
R3	NOT CONSISTENT: It raises problems concerning compatibility with our plans, programs, objectives, or Planning Act visions/policies; or it may duplicate existing program activities, as indicated in the attached comment(s). If a meeting with the applicant is requested, please check here: <input type="checkbox"/>	
R4	ADDITIONAL INFORMATION REQUESTED: Additional information is required to complete the review. The information needed is identified below. If an extension of the review period is requested, please check here: <input type="checkbox"/>	
R5	FURTHER INTEREST: Due to further interest/questions concerning this project, we request that the Clearinghouse set up a conference with the applicant.	
R6	SUPPORTS: Supports "Smart Growth" and Federal Executive Order 12072 (Federal Space Management), which directs federal agencies to locate facilities in urban areas.	

Attach additional comments if necessary OR use these spaces: _____

Name: Ray Dintaman
 Organization: DNR
 Address: _____

Signature: Ray Dintaman
 Phone: (410) 260-8331
 Date Completed: 5-23-07

RECEIVED Check here if comments are attached.

ENTERED

RECEIVED
 MAY 29 2007

MDPCH-1A

From: Zoe Draughon [mailto:Zoe.Draughon@SKMLaw.com]
Sent: Friday, June 08, 2007 10:59 AM
To: Moore, Melanie CIV USA IMCOM
Cc: Butler, Mick CIV USA
Subject: here is another copy of my comments, the first ones went to an email with PAO.... they handed it out at the hearing

Comments

April 18, 2 007

Zoe B. Draughon

Co-Chair Restoration Advisory Board

1. The full impact on the local community has not been explored nor accounted for as required in NEPA specifically

1. This project included 10k possible jobs outside the BRAC influx. The impact on local schools has infrastructure has not been adequately addressed.

2. This new project has been cleverly included in the BRAC project; however it is in fact not Brac and does not enjoy the same finality of BRAC this is Ft. Meade attempting to expand and piggy back on a horrific drain that has already been put on local resources.

3. We are in a no ozone area, the air studies were for the base and the new assignees they do NOT include an additional 10k workers.

4. The county would have to pay millions of dollars for improvements to nearby roads, schools, and water and sewer lines to support the developer, which would not have to pay local property taxes because the project would rise on federal land.

5. That amounts to a savings to the developer of about \$2 million a year or more in real estate taxes when fully built out, officials estimate.

6. County officials estimate that the BRAC expansion will require \$5 billion in transportation improvements, including extending the Metrorail Green Line from Greenbelt to BWI-Marshall Airport and overhauling Routes 175, 198 and 3.

7. There is nothing in this study about where these workers would live and what impact they would have on the residential infrastructure of the area.

8. while the state has indicated that they would work on 175 that work will not begin until 2013 well after this project, in the meantime this creates huge drains on the water, roads, sewage, air quality, police man power, not to mention the affect on the additional traffic on three area public schools (Meade Elementary, Seven Oaks Elementary, and Severn Elementary) the additional road hazards for children in the area who walk to school.

9. Town center drive is not complete and the county has not blessed its completion therefore this influx of 10k additional civilian workers in excess of the 20k begin brought in for Brac will cause even more strain on the current road systems. That will not be able to support the 10 k that is coming in now.

10 THIS PROJECT DOES NOT ADDRESS THE ISSUE OF MINORITY BUSINESS THAT IS A REQUIRED PART OF ANY PROJECT SUCH AS THIS. The federal government is not exempt from this and neither are Trammell and Crow. Please be advised that the NAACP objects to this project as it stands as the affected parties have refused to discuss the inclusion of minority business in the plan.

As to the EIS ..

1. There are significant historical problems in the areas of the new buildings. The army with the PISCERNE issue has seen what happens when you decide to push projects

All sites need to be adequately reviews so we are not pumping methane out of another site on the base.

2. Previous EPA representatives who have sat on the RAB have stated on the record their conviction that there is significant areas of concern in and around the golf course and any building project should be approached cautiously.

3. Historical data does NOT support the beginning of construction at this accelerated rate. We have done the "because we said so" and it has cost the arm MILLIONS of dollars in repairs, and housing that is unusable.

4. There are no controls for reporting to the base and we will have the same problems we have had with Piscerne if there are not institutional controls in place to make sure the builders are responsive and answerable to the army ESPECIALLY if they are going to insist on building on land with this many problems.

Zoe B. Draughon

Litigation Paralegal

Saiontz, Kirk & Miles

3 South Frederick Street, Suite 900

Baltimore, MD 21202

Telephone: 410-223-3260

Fax: 410-539-8444

zoe.draughon@skmlaw.com <<mailto:zoe.draughon@skmlaw.com>>

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DEPARTMENT OF THE ARMY
HEADQUARTERS, U.S. ARMY GARRISON, FORT GEORGE G. MEADE
PUBLIC AFFAIRS OFFICE
4550 PARADE FIELD LANE
FORT GEORGE G. MEADE, MARYLAND 20755-5025

REPLY TO
ATTENTION OF

April 17, 2006

Dear Community Leader,

Fort George G. Meade will conduct a Public Scoping Meeting Open House April 27, 2006 regarding the development of an Environmental Impact Statement (EIS) that is being prepared under the National Environmental Policy Act. You are invited to attend the pre-Public Scoping Meeting before the public open house where community leaders will receive information and give their feedback.

The proposed Base Realignment and Closure (BRAC) actions may have environmental impacts because of the infrastructure and facilities construction and follow-on operations that will be required to accommodate an estimated increase of approximately 5,300 personnel.

Issues to be analyzed in the EIS may include potential impacts to air quality from increased vehicle emissions, installation and immediate area traffic increases, land use changes, natural resources, water use, socio-economics, solid waste, cultural resources, and cumulative impacts to resources based on projected installation growth.

To ensure that the full range of issues related to this proposed action will be addressed, representatives from Fort Meade will be available to answer questions and solicit public comments from all interested parties during the Open House. A court reporter will be available to record individual comments.

The scoping meetings will be held April 27, 2006 at the School Age Services Building, 1900 Reece Road, Ft. Meade, MD. The pre-scoping meeting will be from 4:30 p.m. to 5:30 p.m. with the public scoping meeting at 7 p.m. to 9 pm. Please RSVP to the undersigned if you plan to attend the pre-meeting.

Please direct inquiries or written comments regarding the BRAC actions, the environmental impact statement process, or the public meeting to:

Public Affairs Office
Attn: Community Relations/EIS
4550 Pershing Hall, Room 102
Fort Meade, MD 20755

The point of contact for this action is the undersigned can be reached at (301) 677-1465 and by email at travis.edwards@emh1.fmeade.army.mil.

Sincerely,

Travis Edwards

Travis D. Edwards
Community Relations Director
Department of the Army, Fort Meade

Mailing List

<p>Maryland Dept. of Natural Resources Tawes State Office Building ATTN: Lori Byrne 580 Taylor Avenue Annapolis, MD 21401</p>	<p>Maryland Dept. of Environment Clearinghouse Coordinator ATTN: Joane Mueller 1800 Washington Blvd Baltimore, MD 21230</p>	<p>U.S. Dept. of the Interior Fish & Wildlife Services Chesapeake Bay Field Office ATTN: Mary Ratnaswamy 177 Admiral Cochrane Drive Annapolis, MD 21401</p>
<p>USEPA Region III ATTN: William Arguto 1650 Arch Street Philadelphia, PA 19103 Mail Code EA30</p>	<p>Maryland Dept. of Agriculture Attn: Secretary Lewis R. Riley 50 Harry S. Truman Parkway Annapolis, MD 21401</p>	<p>Maryland Dept. of Housing & Community Development Maryland Historical Trust Division of Historical and Cultural Programs ATTN: Elizabeth J. Cole 100 Community Place Crownsville, MD 21032-2023</p>
<p>Rep. Benjamin Cardin Attn: Heather Campbell 600 Wyndhurst Avenue Baltimore, MD 21210</p>	<p>Rep. Chris Van Hollen 51 Monroe Street Suite #507 Rockville, MD 20850</p>	<p>Rep. Steny Hoyer Attn: Terrance Taylor 6500 Cherrywood Ln #310 Greenbelt, MD 20770</p>
<p>Rep. C.A. Dutch Ruppersberger Attn: Melody McEntee 375 W. Padonia Road, Ste 200 Timonium MD 21093</p>	<p>Sen. Paul Sarbanes Attn: Brigid Smith Tower 1, Suite 1710 100 South Charles Street Baltimore, MD 21201</p>	<p>Rep. Wayne Gilchrest Attn: Kathy Abey 112 W. Pennsylvania Ave., Suite 102 Bel Air, MD 21014</p>
<p>Sen. Barbara Mikulski Attn: Denise Nooe 60 West Street, Suite 202 Annapolis, MD 21401</p>	<p>State Senator John Gianetti 122 James Senate Office Bldg. Annapolis, MD 21401-1991</p>	<p>State Senator James DeGrange 120 James Senate Office Bldg. Annapolis, MD 21401-1991</p>
<p>Anne Arundel County Maryland Office of Environmental & Cultural Resources ATTN: Ginger Ellis 2664 Riva Rd Annapolis, MD 21401</p>	<p>Howard County Maryland Attn: Public Affairs 3430 Courthouse Dr. Ellicott City, MD 21043</p>	<p>West Anne Arundel County Chamber of Commerce 8379 Piney Orchard Pkwy, Suite E Odenton, MD 21113</p>
<p>Baltimore/Washington Corridor Chamber of Commerce 312 Marshall Avenue, Suite 104 Laurel, MD 20707-4824</p>	<p>Prince Georges County Attn: Public Affairs 14741 Governor Oden Bowie Drive Upper Marlboro, MD 20772</p>	<p>AACPS Board of Education Attn: Molly Connolly 2644 Riva Road Annapolis, MD 21401</p>
<p>Annapolis & Anne Arundel County Chamber of Commerce 49 Old Solomons Island Rd, Suite 204 Annapolis, MD 21401</p>	<p>Office of the County Executive Attn: Pamela Rau 44 Calvert Street Annapolis, MD 21401</p>	<p>Economic Alliance of Gtr Balt 111 South Calvert St, Suite 2220 Baltimore, MD 21202-6180</p>
<p>Picerne Military Housing PO Box 530 Fort Meade, MD 20755</p>	<p>Residential Communities Initiative 4463 Lenardwood Ave Bldg. 4463 Fort Meade, MD 20755</p>	<p>Office of Military & Fed Affairs State of Maryland DBED 217 E Redwood Street Baltimore, MD 21202</p>

<p>Fort Meade Alliance 2660 Riva Road, Suite 200 Annapolis, MD 21401</p>	<p>Restoration Advisory Board Zoe Draughon 2108 Brink Court Odenton, MD 21113</p>	<p>BWI Business Partnership 1344 Ashton Road, Suite 101 Hanover, MD 21076</p>
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DEPARTMENT OF THE ARMY
HEADQUARTERS, U.S. ARMY GARRISON, FORT GEORGE G. MEADE
PUBLIC AFFAIRS OFFICE
4550 PARADE FIELD LANE
FORT GEORGE G. MEADE, MARYLAND 20755-5025

REPLY TO
ATTENTION OF

August 21, 2006

Dear Community Leader,

Fort George G. Meade will conduct a Public Scoping Meeting Open House Sept. 7, 2006 regarding the development of an Environmental Impact Statement (EIS) that is being prepared under the National Environmental Policy Act. You are invited to attend the pre-Public Scoping Meeting before the public open house where community leaders will receive information and given an opportunity to provide their feedback.

A scoping meeting was held in April 2006 regarding the proposed Base Realignment and Closure (BRAC) actions. This second scoping meeting is being held to address the development of Enhanced Use Lease (EUL) sites that will occur in addition to the BRAC actions. The EUL site development will occur on Fort Meade property located outside the Fort Meade fence line near the intersection of Reece Road and Route 175. This EUL action was not included in the previous scoping meeting.

The EUL site development and BRAC actions may have significant environmental impacts due to construction of additional infrastructure and facilities as well as future considerations. The EUL sites will bring an increase of approximately 10,000 people outside the Fort Meade fence line. This is in addition to the BRAC related growth of approximately 5,300 personnel within the fence line.

Issues to be analyzed in the EIS may include potential impacts to air quality from increased vehicle emissions, installation and immediate area traffic increases, land use changes, natural resources, water use, socio-economics, solid waste, cultural resources and cumulative impacts to resources based on the projected growth to the installation and neighboring community.

To ensure that the full range of issues related to this proposed action will be addressed, representatives from Fort Meade will be available to answer questions and solicit public comments from all interested parties during the open house. A court reporter will be available to record individual comments.

The pre-scoping meeting will be held Sept. 7, 2006 from 1:30 to 3:00 p.m. in the Environmental Training Room (Building # 2250) at the Recycle Center, 2250 Rock Avenue, Fort Meade. The Public Scoping Meeting will be held Sept. 7, 2006 from 6:00 to 8:00 p.m. at the School Age Services Building, 1900 Reece Road, Fort Meade. Please RSVP to the undersigned if you plan to attend the pre-scoping meeting.

Please direct inquiries or written comments regarding the EUL site development and BRAC actions that will occur inside and outside the fence line, the environmental impact statement process, or the public meeting to:

Attn: Community Relations Director
Fort Meade Public Affairs Office
4550 Pershing Hall, Room 102
Fort Meade, MD 20755

The point of contact for this action is the undersigned can be reached at (301) 677-1465 and by email at travis.edwards@emh1.ftmeade.army.mil.

Sincerely,

Travis Edwards

Travis D. Edwards
Community Relations Director
Fort George G. Meade

Mailing List

BALTIMORE/WASHINGTON CORRIDOR CHAMBER OF COMMERCE 312 MARSHALL AVENUE, SUITE 104 LAUREL, MD 20707-4824	WEST ANNE ARUNDEL COUNTY CHAMBER OF COMMERCE 8379 PINEY ORCHARD PKWY, STE E ODENTON, MARYLAND 21113
ANNAPOLIS & ANNE ARUNDEL COUNTY CHAMBER OF COMMERCE 49 OLD SOLOMONS ISLAND RD, STE 204 ANNAPOLIS, MD 21401	AACPS BOARD OF EDUCATION ATTN: MOLLY CONNOLLY 2644 RIVA ROAD ANNAPOLIS, MD 21401
PICERNE MILITARY HOUSING PO BOX 530 FORT MEADE, MD 20755	ECONOMIC ALLIANCE OF GTR BALT 111 SOUTH CALVERT ST, SUITE 2220 BALTIMORE, MD 21202-6180
FORT MEADE ALLIANCE 2660 RIVA ROAD, SUITE 200 ANNAPOLIS, MD 21401	OFFICE OF THE COUNTY EXECUTIVE ATTN: PAMELA RAU 44 CALVERT STREET ANNAPOLIS, MARYLAND 21401
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DOREEN STROTHMAN ODENTON OVERSIGHT COMMITTEE 8522 PINE MEADOWS DRIVE ODENTON, MD 21113	HOWARD COUNTY ATTN: PUBLIC AFFAIRS 3430 COURTHOUSE DR. ELLCOTT CITY, MD 21043
RESTORATION ADVISORY BOARD ZOE DRAUGHON 2108 BRINK COURT ODENTON, MD 21113	REP. CHRIS VAN HOLLEN 51 MONROE STREET SUITE #507 ROCKVILLE, MD 20850
REP. BENJAMIN CARDIN ATTN: HEATHER CAMPBELL 600 WYNDHURST AVENUE BALTIMORE, MD 21210	SEN. PAUL SARBANES ATTN: BRIGID SMITH TOWER 1, SUITE 1710 100 SOUTH CHARLES STREET BALTIMORE, MARYLAND 21201
REP. C.A. DUTCH RUPPERSBERGER ATTN: MELODY MCENTEE 375 W. PADONIA ROAD, STE 200 TIMONIUM MD 21093	STATE SENATOR JOHN GIANETTI 122 JAMES SENATE OFFICE BUILDING ANNAPOLIS, MD 21401-1991
SEN. BARBARA MIKULSKI ATTN: DENISE NOOE 60 WEST STREET, SUITE 202 ANNAPOLIS, MD 21401	Maryland Dept. of Natural Resources Tawes State Office Building ATTN: Lori Byrne 580 Taylor Avenue Annapolis, MD 21401
REP. STENY HOYER ATTN: TERRANCE TAYLOR 6500 CHERRYWOOD LN #310 GREENBELT, MD 20770	Anne Arundel County Maryland Office of Environmental & Cultural Resources ATTN: Ginger Ellis 2664 Riva Rd Annapolis, MD 21401

<p>REP. WAYNE GILCHREST ATTN: KATHY ABEY 112 W. PENNSYLVANIA AVE., STE 102 BEL AIR, MD 21014</p>	<p>Maryland Dept. of Environment Clearinghouse Coordinator ATTN: Joane Mueller 1800 Washington Blvd Baltimore, MD 21230</p>
<p>STATE SENATOR JAMES DEGRANGE 120 JAMES SENATE OFFICE BUILDING ANNAPOLIS, MD 21401</p>	<p>U.S. Dept. of the Interior Fish & Wildlife Services Chesapeake Bay Field Office ATTN: Mary Ratnaswamy 177 Admiral Cochrane Drive Annapolis, MD 21401</p>
<p>Maryland Dept. of Housing & Community Development Maryland Historical Trust Division of Historical and Cultural Programs ATTN: Elizabeth J. Cole 100 Community Place Crownsville, MD 21032-2023</p>	<p>MARYLAND DEPARTMENT OF AGRICULTURE Attn: SECRETARY LEWIS R. RILEY 50 Harry S. Truman Parkway Annapolis, MD 21401</p>
<p>USEPA Region III ATTN: William Arguto 1650 Arch Street Philadelphia, PA 19103 Mail Code EA30</p>	

APPENDIX F

Transportation Data

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AFFECTED ENVIRONMENT EXISTING CONDITION: ROADWAY VOLUMES AND DATA COLLECTION

Table 1. Roadway Traffic Volumes and Trends: Major Roadways

County	ID #	Description	Annual Average Daily Traffic					Average Annual Change
			2001	2002	2003	2004	2005	2005-2001
Howard	ATR#69	MD 32 west of intersection with I-95	85,348	87,081	93,111	91,486	102,875	4%
Howard	B2580	MD 32 between I-95 and Route 1	69,175	71,350	72,125	75,675	74,250	1%
Howard	B2586	MD 32 between Route 1 and BW Parkway .10 M E US 1	63,675	65,650	66,325	65,475	64,250	0%
Anne Arundel	B0807	MD 32 between Route 1 and BW Parkway	58,775	60,550	61,225	63,375	62,150	1%
Anne Arundel	B0797	MD 32 between BW Parkway and Mapes Road	51,675	53,250	53,825	49,775	48,850	-1%
Anne Arundel	B0798	MD 32 between Mapes Road and intersection with MD 175	45,575	46,950	47,425	51,675	50,650	2%
Anne Arundel	B0844	MD 32 between MD 175 and Telegraph Road	38,975	40,150	40,625	42,075	41,250	1%
Anne Arundel	B0845	MD 32 between Telegraph Road and	37,675	38,850	39,225	40,575	39,850	1%
Anne Arundel	B20013	MD 32 between and merge with I-97	39,475	40,750	41,225	41,375	40,550	1%
Howard	B2593	MD 175 west of intersection with I-95	61,925	58,575	59,250	59,825	61,075	0%
Howard	B2562	MD 175 between I-95 and Route 1	48,900	44,275	44,750	45,225	43,875	-2%
Howard	B2561	MD 175 between Route 1 and BW Parkway .5 M S of US1	20,100	16,675	16,850	17,025	19,975	0%
Anne Arundel	BO 813	MD 175 between Route 1 and BW Parkway .1 M S How Co line	21,275	21,950	22,225	19,375	19,050	-2%
Anne Arundel	BO 677	MD 175 between BW Parkway and Mapes Road - .2 M S of 295	28,775	2,950	29,925	26,475	25,950	-2%
Anne Arundel	BO 676	MD 175 between Ridge Road and Reece Road - .3 M N of 174	21,375	22,050	22,325	22,775	22,350	1%
Anne Arundel	BO 674	MD175- .2 M N of MD 3	8,875	9,150	9,225	10,275	10,150	3%
Anne Arundel	ATR #25	I-295 South of MD 100	83,955	89,675	92,275	92,575	91,975	2%
Anne Arundel	BO 716	I-295 South of MD 175	80,575	83,050	83,925	82,975	81,350	0%
Anne Arundel	BO 715	I-295 South of MD 32	82,175	84,650	85,525	86,075	84,450	1%
Anne Arundel	B020010	MD100 E of MD295	77,875	80,250	81,125	77,275	75,750	-1%
Anne Arundel	B020011	MD100 E of Harmans RD	66,775	68,850	69,525	72,975	71,550	1%

Table 2. Roadway Traffic Volumes and Trends: Minor Roadways

County	ID #	Description	Annual Average Daily Traffic					
			2001	2002	2003	2004	2005	
Minor Roads								
Anne Arundel	BO 747	Reece Road MD 174 .10 M E of Jacobs Rd W	8,950	9,225	10,075	10,250	10,025	2%
Anne Arundel	BO 748	Reece Road MD 174 .10 M W of MD 170	16,250	16,725	16,675	16,850	16,525	0%
Anne Arundel	BO 785	Ridge Road MD 713 .10 M S of MD 176	15,450	15,925	15,775	15,950	15,625	0%
Anne Arundel	BO 784	Ridge Road N of 175	14,750	15,225	15,975	16,150	15,835	1%
Anne Arundel	BO 783	Ridge Road S of 175	11,750	12,125	8,575	8,750	8,625	-5%
Anne Arundel	BO 697	Route 198 .30 M E of BW Parkway - I 295	27,475	28,350	28,625	26,175	25,750	-1%
Anne Arundel	BO 815	Route 198 W of BW Parkway .10 M E of Pr. Georges Co Line	41,475	42,750	43,225	43,375	42,550	1%
Anne Arundel	BO 656	MD 170 Telegraph Road .1 M N of MD 175	12,300	14,875	15,050	15,225	14,775	4%
Anne Arundel	BO 811	MD 170 Telegraph Road .1 M S of MD 174	20,500	21,375	21,650	21,925	24,575	4%

Source: Maryland Department of Transportation, State Highway Administration, Highway Information Services Division's AADTS Report by Station, 2001-2005

Table 3. Data Collection Locations and Dates

Intersections on the installation		Intersections on the Perimeter of the installation	
Intersection	Observed	Intersection	Observed
Rockenbach Rd. & Clark Rd.	2006	Mapes Rd. & US 32 (roundabout north side)	2006
Rockenbach Rd. & Cooper Ave.	2006	Mapes Rd. & US 32 (roundabout south side)	2006
Reece Rd. & Ernie Pyle St.	2006	Annapolis Rd. (175) & Rockenbach Rd	2006
Reece Rd. & MacArthur Rd.	2006	Annapolis Rd. (175) & Reece Rd *	2004
Reece Rd. & Cooper Ave.	2006	Annapolis Rd. (175) & Mapes Rd	2004 & 10/ 2006
Mapes Rd. & MacArthur Rd.	2006	Annapolis Rd. (175) & Llewellyn Rd	2004
Mapes Rd. & Cooper Ave.	2006	Annapolis Rd. (175) & Disney Rd	2004
Mapes Rd. & Taylor Ave.	2006	Reece Rd & Jacobs	10/2006
Mapes Rd. & Zimborski Ave.	2006	Reece Rd & Telegraph	10/2006
Mapes Rd. & O'Brien Rd.	2006	Reece Rd & Pioneer	10/2006
Mapes Rd. & Ernie Pyle St.	2006	Reece Rd & Redbridge	10/2006
Llewellyn Ave. & Ernie Pyle St.	2006	Reece Rd & Severn	10/2006
Llewellyn Ave & Cooper Ave.	2006	Ridge Rd & Severn	10/2006
		New Disney & Carriage	10/2006
		Charter Oaks & Town Center	10/2006

Table 4. 24-Hour Mechanical Counts with Vehicle Classification

Location	Date
MD 32 just north of the Mapes Road/ Rt. 198/ Rt. 32 Interchange	2006
MD 32 just south of the 175- Rt. 32 Interchange	2006
MD 175 just north of the 175- Rt. 32 Interchange	2006
MD 175 between the Rockenbach/ Ridge Road Intersection and the I-295 interchange	2006

ENVIRONMENTAL CONSEQUENCES FUTURE CONDITIONS: METHODOLOGY FOR DETERMINING THE LEVEL OF SERVICE

Sites F, M, G, X, Y, Z are identified as part of the BRAC and EUL actions being evaluated as preferred site options. Estimated impacts on the transportation infrastructure was determined by the number of trips that would be generated above the current traffic volumes.

Estimated number of the trips that would be 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 were associated with 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 procedure outlined by the ITE, the number of trips generated by each of the proposed sites were estimated (See Table 5). These trips reflect the net increase in activity as the result of the implementation of each project. As the table shows, the projects that would have the greatest potential impact on neighboring transportation infrastructure are the EULs for site Y and Z. These EULs are 125 and 48 acres in size respectively and are expected to be developed as office buildings by private developers with a maximum of 10,000 employees¹⁷ generating approximately 5,033 trips in the AM peak hour and 4,565 trips in the PM peak hour. Among the BRAC projects, the new administrative facility and the special compartmented information facility in site F would generate 787 and 704 trips respectively in the AM peak hours and generate 734 and 658 trips respectively in the PM peak hour.

¹⁷ The Installation has stated that 10,000 employees and 2 million square feet of development for the EUL is the maximum envisioned under this EIS; an increase above that level will require a separate environmental assessment and potential EIS.

**Table 5: Trips Generated by the Proposed Sites
by Peak Hour and Direction of Flow**

Site	Project	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
F	DISA	1542	230	1772	251	1408	1659
M	Housing, Recreation	267	266	533	305	305	610
X	MILDEP	514	63	577	89	506	595
Y	EUL	3230	399	3629	493	2791	3284
Z	EUL	1250	154	1404	192	1089	1281
G	Media & Publications	383	61	445	67	381	450

The resulting traffic volumes under this scenario are the sum of the background traffic (existing volumes plus historic growth) calculated in the analysis of the No-Action Alternative plus the above traffic volumes that result from the implementation of the preferred alternative.

Before adding the traffic volumes generated by the new projects, the trips need to be distributed through the transportation network. This was accomplished in the distribution process, first by determining the directional flow of traffic which takes into account directional splits of the traffic flowing on the streets adjacent to the new buildings. The number of trips generated by a new building is hence split into north-south or east-west directional trips. Secondly, traffic flow is distributed among the different intersections according to the peak hour turning movements observed at each intersection.

Because access to the Fort Meade area is through designated gates, one must assume that the traffic would move towards or from these gates to their respective buildings. Traffic is also assumed to take the shortest (or the only available) route to the gate from the building. The distribution of traffic at the intersections along their route is made according to the intersection splits based on the 2006 traffic counts. These distributed trips are added to the background traffic and then entered into the traffic simulation model.

ENVIRONMENTAL CONSEQUENCES FUTURE CONDITIONS: PLANNED

TRANSPORTATION SYSTEM IMPROVEMENTS

The projects with the greatest direct impact to traffic conditions in the immediate vicinity of Fort Meade that will be implemented during the analysis timeframe are indicated in **bold**. Section 4.11.2.5 provides a narrative description of the proposed FGGM and EUL Developer roadway, transit, and transportation demand initiatives. Following Table 6 is the narrative description of State, Regional and County initiatives, first describing roadway projects, then Smart Growth Initiatives including Transit, Pedestrian, Bicycle and Transportation Demand Management.

Table 6. Planned Roadway Improvements

Project Description	Project Value	Project Status	Comment	Source
MD 32 Interchanges at Canine and Samford Roads	\$26.4 M	Complete		Lewis, 2006, CTP
MD 174 Bridge over I-97	\$13.3 M	Complete		Lewis, 2006, CTP
MD 3 from US 50 to MD 32	\$640-\$660 M	Planning \$ in plan	Design \$ not programmed	Lewis, 2006, CTP
Odenton Town Center Boulevard extension and completion			In adopted plans	R. Leib, AACo
Odenton MARC Station Parking Expansion – 700-750 space surface parking lot	\$8.1 M	Under construction	Permanent underpass & spaces in 06	Polkiewicz, 2006, CTP
Odenton MARC Station Parking Expansion – 2,500 – 3,500 space structured parking garage	2500: \$45-49M 3500: \$63-80M	Not funded- unsolicited proposal rec'd to build as part of major TOD project, now in competition- 2 yrs?		Polkiewicz, 2006, CTP
MD 175 from MD 170 to MD 295- concept plans from AA Co to MDOT for 6 lanes plus intersection improvements, merge lanes (alternative not selected)	\$2.5 M Planning	Planning underway- complete Spring 2009	Then 2 yrs design; construction poss. 2011	Lewis, 2006, Bagnall, 2006, CTP
MD 198 –BW Parkway to MD 32 – 2.66 miles –reconstruct from two lanes to four lanes	Up to \$4.5 M (county) Planning	Planning begins 2007	Added to D&E program	CTP
Metro Green Line Expansion – Greenbelt to BWI Marshall	\$2,500M- \$3,000 M	Alignment feasibility study begins 07/01/06	No funding identified yet	Polkiewicz, 2006, CTP
Central Maryland Transit Facility, Ft. Meade – MOU w/ AA & Howard Co to provide transit service to Ft Meade in exchange for land	Costs TBD	MTA CTP line item	MOU signed, details being worked out- supports transit expansion	Polkiewicz, 2006, Bagnall, 2006, Butler, 2006, CTP
MD 295, I-695-I-195	\$23.9 M	Design underway	Construct 4 lanes to 6 lanes NTP spring 07	Lewis, 2006, CTP
MD 295, MD 100 to I-195 with new interchange at Hanover Road connecting to 170	\$350- 370 M	Design underway	Construct 4 lanes to 6 lanes NTP spring 07	Lewis, 2006, CTP

Project Description	Project Value	Project Status	Comment	Source
MD 216 Relocation – I-95 to US 29	\$29.6 M	Complete		Lewis, 2006, CTP
MD 32, new interchange at Burntwoods Road	\$31.8 M	Design underway	Construction NTP spring 07	Lewis, 2006, CTP
MD 32, MD 108-I-70 – widening (western Howard County)	\$195- \$205 M	Project plan complete	No \$ in CTP for design or construction	Lewis, 2006, CTP
US 1, PG Co Line to Baltimore Co Line Study	\$1.3 M	Corridor study	Prim. Land use plan	Lewis, 2006, CTP
MD 201 Ext/ US 1, I-95/I-495 to MD 198	\$500-520 M	Project planning reinstated	Was on hold for ICC, poss design in 2 yrs	Shrestha, 2006, Mitchell, 2006, CTP
MD 28/ MD 198, Corridor study between MD 97 and I-95 (Norbeck Road from GA Ave to Layhill, county road to 650, Spencerville Rd - 198 to I-95) 2 lane TSM alt – shoulders, intersections; MP 4 lane	\$240 – 260 M	Project planning recommence on ICC ROD	Public hearing late 2006, add'l yr plng, 1-2 yr design	Shrestha, 2006, Beck, 2006, CTP
US 29 interchange at Randolph/Cherry Hill Roads	\$47.1 M	Complete	Monitoring for flows	Hancock, 2006, CTP
US 29 interchange at Briggs-Chaney Road	\$48.8 M	Under construction	Est. complete 9/07	Hancock, 2006, CTP
US 29 interchange at MD 198	\$47.1 M	Complete	Open	Hancock, 2006, CTP

Key to Sources of Project Information:

FY 2007-2012 Maryland Consolidated Transportation Program Draft

Lewis, 2006: Vaughn Lewis, Project Planner, Anne Arundel Co., SHA, 410-545-5673

Polkiewicz, 2006: MaryAnne Polkiewicz, Maryland Transit Administration, 410-767-3426

Markley: L'kiesha Markley, Travel Forecaster, SHA, 410-545-5641

Shrestha: Shiva Shrestha, Program Manager, PG and Montgomery Counties, SHA, 410-545-5667

Hancock: Terence Hancock, Regional Planner, SHA, 410-545-5666

Mitchell: Wes Mitchell, Project Manager, SHA, 410-545-8542

Burnett: Shawn Burnett, Contract Project Manager, SHA, 410-545-8531

Beck: Jeremy Beck, Project Manager, SHA, 410-545-8518

Bagnall: Andrew Bagnall, Ft. Meade Master Planner, 301-677-9304

Butler: Mick Butler, Ft. Meade Environmental Planner (Title?), 301-677-9188

The Maryland BRAC Report (December, 2006) developed recommendations for highway, transit, and transportation demand management measures for each of the major installations, considering anticipated conditions with and without the BRAC projects in 2010, 2015 and 2020. In many cases the recommendations suggested completing project planning and seeking construction of projects already in the CTP; in some of these cases suggesting planning modifications better to accommodate BRAC impacts. The Report also recommended additional studies and potential projects to improve operations in the area, considering BRAC as well as anticipated conditions in the area. Maryland BRAC Report recommendations, beyond CTP plans, are provided in *italics* for information purposes. The far right column of Table 4-34 (in the EIS text) included the BMC estimates of likely LOS impacts from implementing the BMC recommendations.

Road Improvements

State-Level Road Project Priorities

The Draft FY 2007-2012 Maryland Consolidated Transportation Program (CTP) identified nineteen BRAC initiative projects associated with Fort Meade. This includes nine projects which are already completed or under construction (such as the MD 32 Interchanges at Canine and Samford Roads, various US 29 Interchanges, etc.). Of the ten remaining projects that are in “Development and Evaluation” (D&E), two are highway projects and three are MTA projects within the “two-mile perimeter” Region of Influence.

The State-level projects with the greatest direct impact to traffic conditions in the immediate vicinity of Fort Meade that are complete or under construction; or that may reasonably be expected to be completed within five years of the analysis timeframe¹⁸ include:

- Widening MD 295 from 4 to 6 lanes from I-695 to I-195 (construction to begin spring 2007, anticipate completing construction in 2010)
- Project planning study to widen MD 295 from 4 to 6 lanes from MD 100 to I-195 including a new interchange at Hanover Road and improvements to Hanover Road from the CSX railroad tracks in Howard County to MD 170 (construction not yet funded)
- MD 32 interchanges at Canine and Samford Roads (construction complete),
- Study and right-of-way acquisition to upgrade MD 3 from US 50 to MD 32 to address safety and capacity concerns (planning to be completed in 2007, construction completion not determined).
MD BRAC Report: Explore the feasibility of widening MD 3 from four (4) to six (6) lanes between the Prince George’s County/ Anne Arundel County line and MD 32. This investment will improve congestion in 2015 to an acceptable level for most sections of MD 3. Participate with the Washington region in planning activities to improve MD 3 capacity south of the Prince George’s County/ Anne Arundel County line.
- Project planning is underway for major roadway and intersection improvements for MD 175 from MD 295 to MD 170 including a potential interchange at Reece Road, although no alternative has

¹⁸ Completion of projects currently in planning stages is predicated on successful planning, design, land acquisition, completion of EA or EIS as applicable, and securing funding from Federal, State and other sources as appropriate. Note that Anne Arundel County has been requesting easements from Fort Meade since at least 1991 to widen MD 175, long preceding BRAC. Fort Meade will analyze highway and transit mitigation projects to determine if any would meet the requirements of the Defense Access Roads (DAR) Program(23 USC §210). Those that meet the DAR requirements will be forwarded for certification to the Military Surface Deployment and Distribution Command (SDDC). If the SDDC determines that the road or transit facility is important to national defense under the rules of the program, the projects will be eligible for the use of Defense funds.

been selected. Funding for planning is included in the Anne Arundel County Concept Plan and in the FY2007-2012 Maryland Consolidated Transportation Program Draft. Current planning concepts under discussion for MD 175 include widening to six lanes with median strips, turning lanes, bike paths and pedestrian accommodations provided where appropriate. Project planning is anticipated to be completed in 2009. Final Design, Right-of-Way and construction dollars are not yet programmed for the project; typically funding for these other phases is allocated once planning is complete. As noted in the CTP draft, the significant change from FY 2006 – 2011 CTP is that additional Federal High Priority Project Funds will be programmed as the project progresses. It is anticipated that construction would take place from 2011 through 2015 under normal planning and programming conditions. *Sidewalks and bicycle facilities should be included to accommodate pedestrian and bicycle travel along MD 175. Consider the feasibility of improvements to MD 175 between US 1 and MD 295 as a warrant dictates in the future. BRAC-related traffic is projected to increase congestion levels by 2015.*

- Maryland 198, Laurel Fort Meade Road: Planning is underway to reconstruct MD 198 from MD 295 to MD 32 (2.66 miles). Planning is to begin during 2007. This project was added to the Development and Evaluation Program for the current CTP.

Additional Maryland BRAC Report Recommendations

- *Re-examine the current planning study for US 1 in Howard County in relation to potential BRAC-related residential and non-residential development proximate to Fort Meade.*
- *Consider the feasibility of improvements to MD 170 between MD 175 and MD 100 as a warrant dictates in the future. BRAC-related traffic is projected to increase congestion levels by 2015.*
- *Initiate feasibility or project planning for MD 713 between MD 175 and MD 100 as a warrant dictates. BRAC-related traffic increases are forecasted to increase congestion levels by 2015.*
- *Along with potential highway improvement projects listed above, accommodation of bicycle and pedestrian access should be fully considered.*

County-level Road Project Priorities

- Anne Arundel County's adopted *General Development Plan* (1997), the adopted *Severn Small Area Plan* (2002), the adopted *Odenton Small Area Plan* (2003), and the adopted *Odenton Town Center Master Plan* (2004) identify the area in and around Fort Meade as a growth location. The plans also identify roadway and transit improvements necessary to support this growth. A key roadway improvement priority at the county level is the extension and completion of Odenton Town Center Boulevard, extending from MD 175 across MD 32 to the existing portion of Town Center Boulevard which currently ends at Blue Water Boulevard. It is planned as an urban boulevard with wide sidewalks, parking, bike lanes, and a median.
- Geometric improvements to Annapolis Road (MD 175), consistent with State plans above, are a County priority, as well as improvements to MD 3 and evaluations of other roadways as noted in the Odenton Town Center Master Plan and other documents.

Transit, Bicycle, Pedestrian and Transportation Demand Management Programs and Strategies

State-Level Projects

- Additional parking at the Odenton MARC station (phase 1 with 700 to 750 spaces under construction, with completion in 2007). The State Department of Transportation and Anne Arundel County have joined together in partnership on developing the Odenton MARC station following Transit Oriented Design principles. The Development Program (Concept) for the station provides a mix of commercial, retail and residential uses on the site with minimal impact on surrounding neighborhoods. The relatively high density, pedestrian-friendly development program is consistent with the Odenton Town Center Master Plan. It includes one hotel with 90 to 120 rooms, 74,000 square feet of office space, 572 apartment and condominiums including 60 units dedicated to affordable housing for seniors, 250 townhouses, five single family homes, and two parking garages for MARC commuters with a total of 3,500 parking spaces and 1,245 additional parking spaces for the development. Total parking on the site will increase from 2,000 spaces to 4,745 spaces.¹⁹

Maryland BRAC Recommendations

- *Seek to improve regional bus and rail service to serve commuters to Fort Meade from the Washington and Baltimore areas. Consider improvement of headways to serve commuters from*

¹⁹ <http://www.mdot.state.md.us/Real%20Estate/OdentonTOD> date accessed 2/6/2007

the Washington region utilizing existing services, such as the WMATA Greenbelt/ BWI Express bus line, MARC Penn and/or Camden line service via Odenton and/or Savage MARC Stations. Study the feasibility of expanding MARC service by addressing institutional and operational limitations that are currently preventing increased frequency of service to Odenton. MARC expansion is supported by elected officials and is being studied by the Governor's office.

- Consider the feasibility of a multi-modal project planning study for the I-95 corridor from the Prince George's County/ Howard County line to I-695. Forecasted volumes exceed capacities in multiple sections in 2015 even without BRAC-related loads. In coordination with transportation and planning agencies in the Baltimore and Washington regions, this corridor study would examine highway capacity improvements as well as various Transportation Demand Management strategies including transit and value pricing options as an attempt to mitigate increasing single-occupancy travel demand in the Baltimore-Washington Corridor.*
- Study Transportation Demand Management options for the MD 32 Corridor in Anne Arundel, Howard and Carroll Counties and monitor traffic operations in sections of MD 32 for improvement considerations. MD 32 is considered a gateway to Fort Meade and many areas along the corridor are potential housing locations for NSA/Fort Meade employees. For instance, with BRAC-related traffic increases, the congestion level indicates that the section of MD 32 between MD 198 and I-97 is in need of mitigation.*

County Priority Pedestrian and Bicycle improvements

- The Odenton Small Area Plan includes goals, objectives, and specific recommendations to improve pedestrian and bicycle movements, including the objective of planning and constructing a safe and convenient bikeway and sidewalk network; and recommendations such as installing bike racks, canopies and lockers at the MARC station.
- The Odenton Town Center Master Plan identifies the desired Pedestrian Network Functional Plan (Figure 56) and the desired Bicycle Network Functional Plan (Figure 57). These include pedestrian and bicycle connections between the Odenton MARC station, in and around the town center, and extending east and west along MD 175.²⁰ Pedestrian facilities are shown crossing the MD 32/ MD 175 interchange, proceeding along MD 175 past the Blue Water Boulevard/ Llewellyn Avenue intersection with MD 175 and the Mapes/ Charter Oak Boulevard intersection with MD 175. Both these intersections are identified as Major Pedestrian Intersections. The

²⁰ MD 175 is depicted as an Urban Boulevard throughout the Town Center area including west of MD 32 in Figure 44, Roadway Classifications Functional Plan, implying sidewalks and bike paths, although Figure 52, depicting an Urban Boulevard Streetscape Section, appears to limit the description to MD 175 between Baldwin Road and Town Center Boulevard, east of the junction with MD 32.

Bicycle Plan shows bicycle facilities along MD 175, extending beyond the Town Center Master Plan and the Small Area Plan boundaries.

- Anne Arundel County and the State Highway Administration have been engaged in regular ongoing discussions with the Post regarding potential alignments and design for MD 175 improvements, including accommodations for bicycle and pedestrian access and potential land acquisition tempered with the requirements for Post security. Additional details will be forthcoming and subject to additional public comment as the planning for MD175 proceeds through Final Design and Land Acquisition stages.

County Priority for Additional Ridesharing and Transit service in the area.

- The Odenton Small Area Plan includes objectives to improve transit services in the area, such as “Establish a commuter bus system that links major employment centers with stops at the MARC rail station and major activity centers”, with specific recommendations such as providing financial incentives to operators to run on natural gas to reduce air pollution.
- The Odenton Town Center Master Plan includes information on how people travel to work in the Odenton area based on 2000 Census data, and also includes information on current and proposed transit service improvements, such as improving access to the MARC station by all modes including pedestrian and bicycle.

Ridesharing and Transit Specific to Fort Meade

- *MARYLAND BRAC Report: Coordinate with WMATA, Fort Meade, and other entities to develop proximate and efficient shuttle transfers to base (sic) grounds from the Odenton and Savage MARC Stations, the proposed Central Maryland Transit Operations Center, and the Greenbelt Metrorail Station. Explore a secure shuttle distribution service with and within the base (sic) utilizing coordination and technologies as needed to reduce dwell times.*
- Pertinent **BRAC Report** recommendations are as follows: *Continue to develop local bus service to connect communities and the proposed Central Maryland Transit Operations Center and Fort Meade. Communities such as Glen Burnie, Brooklyn Park and Linthicum in Northern Anne Arundel County, Baltimore City, Columbia in Howard County and the City of Laurel provide a combination of affordable housing stock with connections to transit service. Coordinate Corridor Transportation Corporation (CTC) operated Howard County bus service and Howard Transit’s Connect-A-Ride service to provide transit connections between Columbia and Fort Meade, and Laurel and Fort Meade. Seek to implement the Fort Meade/BWI and Glen Burnie bus routes as proposed in the City of Annapolis / Anne Arundel County Transportation Development Plan, to connect Glen Burnie, Linthicum and Brooklyn Park with Fort Meade via MTA Central Light Rail.*

- **Maryland BRAC Report Recommendation:** *As a long-term horizon transit project, conduct a feasibility study of an extension of the WMATA Green Line to Fort Meade and possibly to BWI-Marshall Airport. Coordination with Prince George’s County, WMATA and the MWCOG Transportation Planning Board should be a priority in conducting planning feasibility studies related to the Green Line.*

Fort Meade TDM Recommendations

Maryland BRAC Report Recommendations

- *A Memorandum of Understanding is recommended at Fort Meade with the overall goal of reducing the rate of vehicular trip generation per employee. Specific goals should include: 1) A reduction of single-occupant auto driver mode split; 2) A reduction of employee parking demand; and 3) An increase in Average Passenger Occupancy (APO) at the installation.*
- *On MD 175, special consideration should be given to extension of sidewalks from Morgan Road/Odenton MARC Station to the Reece Road gate at Fort Meade. This is to encourage local walking trips to the base (sic) by locally residing employees and contractors at Fort Meade.*
- *Establish shuttle bus service at regular intervals to/from the Odenton MARC Station and the proposed Central Maryland Transit Operations Center for the use of employees and contractors at Fort Meade.*
- *Improve and/or provide bicycle and pedestrian access between Fort Meade, the Odenton MARC Station and the proposed Central Maryland Transit Operations Center.*

PROPOSED TRANSPORTATION MITIGATION AND BEST MANAGEMENT PRACTICES (BMPS)

MITIGATION

Off-Post Mitigation Actions:

FGGM is working with the SHA to develop plans for widening MD 175. Based on the outcome of the planning process, FGGM will negotiate to provide any necessary easement.

FGGM will continue with current planning actions with Anne Arundel County and Howard County to lease the land to develop a coordinated transit operations facility near Tipton Airport, in the expectation of the Fort receiving in-kind transit service (service details not yet determined).

On- and Off-Post Mitigation Actions:

FGGM will evaluate and implement local versions of successful rideshare/commuter programs as feasible. New legislation, codified at 31 USC 1344(g), allows the government to provide shuttle service from mass transit points free of charge to federal employees.

On-Post Mitigation Actions:

FGGM is conducting a transportation study of installation roads and intersections with phased implementation of recommendations as funding is available.

As feasible, FGGM will evaluate and implement (if warranted) expanded shuttle service on the Post, coordinated with off-Post services.

BEST MANAGEMENT PRACTICES

Best Management Practices (BMPs) for transportation address the transportation system as a whole, including all modes. Success is measured in the increased efficiency of the system, for example, in finding ways to move more people in the same number of vehicles, as well as in traditional measures of performance such as periods of congestion and intersection levels of service. Maryland DOT, the State Highway Administration, the Maryland Transit Administration, and local jurisdictions are very cognizant of BMPs, and routinely work together with the regional planning organizations (BMC and MWCOG) to coordinate transportation programs. The BMPs identified in Table 4-40 (Mitigation and Best Management Practices) refer to FGGM Actions. For maximum effectiveness, FGGM BMPs are coordinated with local and regional BMPs. The following discussion highlights BMPs that State, regional and county jurisdictions are studying or undertaking to improve travel performance and options in the area, as well as installation-specific BMPs.

BMPs use a full complement of “tools” to reduce congestion and encourage the appropriate use of the full range of transportation modes. Typical tools include bicycle and pedestrian facility improvements, travel demand management (TDM), transit improvements, and enhanced traveler information, as well as roadway improvements ranging from access management along congested corridors, building additional lanes and establishing turning controls or turning restrictions, establishing roundabouts where appropriate, changing intersections to full-fledged interchanges where appropriate, and building and enforcing high occupancy vehicle lanes (HOV).

The CEMP Transportation Plan identified concepts that were not shown in the Concept Plan, but are typical Best Management Practices. These concepts are highly relevant during the anticipated reconstruction of MD 175.

(The following) “should be considered in the development of transit options at Fort Meade:

- Develop an installation-wide transit route with stops at key locations in a basic loop configuration utilizing alternative fuel passenger vehicles.
- Provide interchange facilities at major entry gates, including local bus stops and commuter parking facilities.
- Provide a shuttle service between the MARC station and Fort Meade as well as enhancing the pedestrian/bicycle link between the station and base gate.

All but the last point of the CEMP Concepts (light rail service) could be implemented within the study time frame. (The planning horizon and competition for funding for light rail make it more problematic though not impossible as a potential alternative within the 2011 time frame.)

Because of the likely coincident timing of MD 175 roadway construction (2011 to 2015) and BRAC/EUL final implementation in 2011, concurrent local and regional emphasis on BMPs are anticipated to reduce single-occupant vehicle trips, in order to accommodate many more person-trips with fewer vehicles. These strategies include disincentives for single-occupant vehicles, and incentives for car-pools, van-pools, bicycles, pedestrians and transit.

Pedestrian and Bicycle On-Post Best Management Practices:

As noted in the CEMP Transportation Plan, “as the Development Sites are constructed, a network of interconnected sidewalks, paths and bicycle trails should be constructed as well. This will encourage pedestrian activity between sites and provide an alternative to driving. The typical distance that lies within a five-minute arc that can be walked is approximately ¼ mile, and cycled is approximately one mile.” Such networks are shown to reduce driving and increase walking and bicycling, with attendant health benefits to the individual and reduced air pollution and energy consumption benefiting society at large.

The DMA ADG includes similar recommendations in Section 2.4.6, as “well designed and located pedestrian walkways also provide a desirable alternative to total dependence on motor vehicles. The goal is to encourage the use of walkways as an alternative means of circulation.” The Section includes guidance

for primary, secondary and tertiary walkways. Good pedestrian and bicycle circulation options, in tandem with transit shuttle alternatives to, from and around the post, will reduce traffic flow into and around the post. This in turn will reduce demand for parking facilities, and reduce ongoing noise and air pollution. FGGM will adhere to these standards as feasible during project development.

Pedestrian/ Bicycle Off-Post Best Management Practices:

MTA and SHA are working to improve bicycle and pedestrian access in the areas surrounding rail stations in the region. MTA generally permits bicycles on Metro and Light Rail trains, and is exploring accommodating bicycles on MARC trains. A number of transit stations are equipped with bicycle lockers or racks (not MARC stations, as yet.) By providing a physical link from the Odenton MARC station to the proposed Golf Course or to other gates connecting with an internal shuttle service, as proposed under some alternatives for MD 175, bicycle ridership could be encouraged for commuters.

Carpool/ Vanpool Best Management Practices:

Traffic congestion in the area and onto and within the Post could be significantly reduced through an effective employer carpool/ vanpool program on the Post. This is best accomplished through a Transportation Demand Management Coordinator (TDMC) dedicated at least part-time to developing, monitoring and maintaining the program, to ensure visibility and continued focus. Incentives to encourage carpooling or van pooling can include reserved preferential parking spaces, weekly or monthly prize drawings, discounts at local merchants, free merchandise, etc. It is important to include a “failsafe” option of a “guaranteed ride home” for participants in case of an emergency. If the Post were to initiate a policy of paid parking, then carpools and vanpools should be eligible for free parking. Many resources are available to help initiate and maintain an active rideshare program; “Best Workplaces for Commuters” at www.commuterchoice.gov, sponsored by U.S.EPA and FHWA, includes a variety of employer tools and guides. For example, a succinct guide to carpools is available at www.commuterchoice.gov/pdf/carpool.pdf.

There are extensive resources in the region to support a comprehensive rideshare program. Anne Arundel County, Howard County, Montgomery County, Prince George’s County, and most other jurisdictions in the area have dedicated and coordinated rideshare programs to help match up riders and schedules. Links to each local ridesharing organization can be found at www.mwcog.org/commuter/bdy-TDMRide.html. The amount of mitigation impact such a program will have on traffic will depend to a large extent on the amount of support and visibility it has on the Post.

Transit Best Management Practices:

Fort Meade is approximately one mile from the Odenton MARC train station. There is regular bus service from the station to Arundel Mills Mall and other locations in the area, but most of the current routes do not provide a direct connection between the Odenton station, Fort Meade, and other residential or commercial destinations in the area. Route K has direct service between Arundel Mills and Reece Gate, but then circulates through various neighborhoods, requiring more than thirty minutes to access the Odenton MARC station. The shuttle that runs from the auxiliary parking location to the MARC station does not go to Fort Meade. Route F provides peak express service from Laurel to NSA, not to Fort Meade gates. There is a good foundation of regional transit service, but more needs to be done to specifically serve Fort Meade. Emerging events may increase the feasibility of implementing and expanding on some of the CEMP transit concepts. Conceptual examples include:

- Anne Arundel County, Howard County and Fort Meade have a MOU in place to exchange the Army's lease rights to build a joint transit operations facility for "in-kind" transit services. This could take the form of dedicated service to and from the post, connecting with commuter rail or light rail stations, residential areas, offices, retail, and other service and employment locations, and/or direct subsidies to post personnel to reduce the cost of bus and transit travel. Detailed plans and agreements have not yet been developed. This presents an initial opportunity to develop effective transit service that reduces automobile trips to and from the Post. (Full service details, costs, and cost-sharing, as well as the value of the off-set for the "in-kind" transit services, is being developed through coordinated planning efforts with the counties, MTA and Fort Meade.) Features of such service would include the following:
 - A good shuttle service between the Post and the nearby MARC stations, coordinated with the MARC train schedules, would increase the likelihood of employees choosing to live in Baltimore or near train stations north and south of Fort Meade, and commuting regularly by train. The installation concurs that there is intent to create shuttle services from the station to the Post. New legislation allows the Federal government to provide such service free of charge to federal employees, as noted in Section 4.11.3 of the EIS. This would need to be supplemented by improved, more frequent and coordinated shuttle services within and around the post as noted below. Shuttles and transit vehicles should be equipped to handle bicycles (e.g., on front racks), for effective intermodal operations.
 - Frequent bus transit service (preferably with clean-fuel vehicles) between the Post and nearby residential areas, shopping centers, office complexes, and similar traffic generators would decrease the need for installation service members or civilian employees to own a first or second

private automobile, serving as a quality of life and money saving alternative. These could include extensions or minor route deviations for existing CTC service in the vicinity of Fort Meade (see Existing Bus Service Summary), or new routes altogether. The Odenton Town Center Master Plan and Small Area Plan envision expanded service for the revitalized Odenton; coordinating with the installation should be a cornerstone of planning efforts. Town Center plans recommend financial or other incentives to bus operators for clean-fuel buses.

- As the BRAC workforce residence locations become more defined, Fort Meade will consider appropriate discussions with Odenton, Anne Arundel County, Howard County, and other local jurisdictions as well as MDOT and the MTA regarding the potential for planning for express commuter buses from Columbia, Glen Burnie, Annapolis, Bowie, and other locations where large numbers of Fort Meade employees currently reside or are anticipated to reside, similar to the current F Route between Laurel and NSA.
- The Odenton Small Area Plan recommends establishing a commuter bus system that links major employment centers with stops at the MARC rail station and major activity centers; Fort Meade qualifies as a major employment center, activity center and residential center.
- Army new construction design standards allow for only 60% parking spaces for building occupants (plus 10% for visitors). This standard encourages employee participation in commuter programs.
- It is anticipated that transit service from off the Post would be coordinated with on-Post shuttles, as feasible. The Post would evaluate and if feasible implement more frequent and comprehensive service than that sponsored by DINFOS. Reliable, visible and frequent on-post shuttles, preferably with real-time information systems, would increase transit use, and would also support car pools, van pools, bicyclists and pedestrians who might otherwise be concerned about limited mobility while on the post for longer-distance transactions. This would further reduce the incidence of single-occupant vehicles, reduce the need and competition for parking spaces on the installation, and reduce pollution caused by automobile emissions.

Traveler Information Best Management Practices:

State-of-the-art traveler information (such as when the next bus or train is coming to a particular location), can be made available at bus stops or shelters, and via electronic communications such as pagers, voice mail, or internet. Traveler information, accompanied by reliable, frequent service, increases ridership by decreasing uncertainty.

Roadway On-Post Best Management Practices:

Many recommended actions from the CEMP and the Defense Media Activities Area Development Guide (DMA ADG) reflect best practices and will alleviate the negative impacts of additional personnel associated with BRAC and EUL personnel assignments.

The DMA ADG Section 2.4.2 identifies BMP techniques that will improve traffic flow and safety, such as providing turning lanes at all intersections along primary roads and minimizing intersections along primary roads through the use of frontage roads and similar techniques. Employing these techniques while improving roadways should largely mitigate the intersection conflicts within the Post. Unsignalized intersections that fall to LOS F, for one or both approaches, may be candidates for further analysis, such as a signal warrant study, or evaluation as a potential site for a modern roundabout. This may be undertaken after estimating future traffic volumes net of the trips diverted to transit and carpools/vanpools per the best management practices noted above.

Appendix G

Storm Water Pollution Prevention Plan

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CERTIFICATION OF STORMWATER POLLUTION PREVENTION PLAN

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who managed the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Authorizing Signature

Title

Date

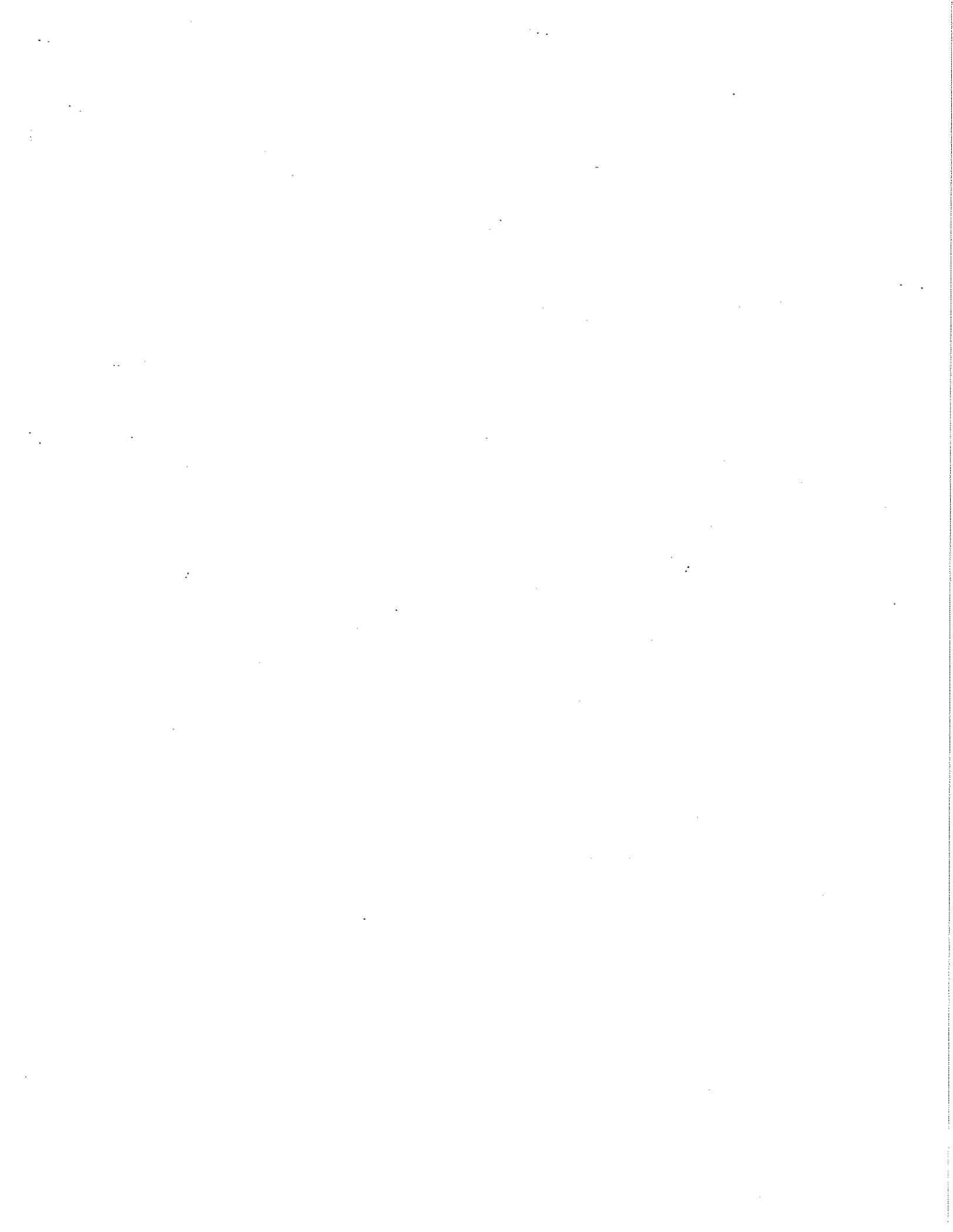


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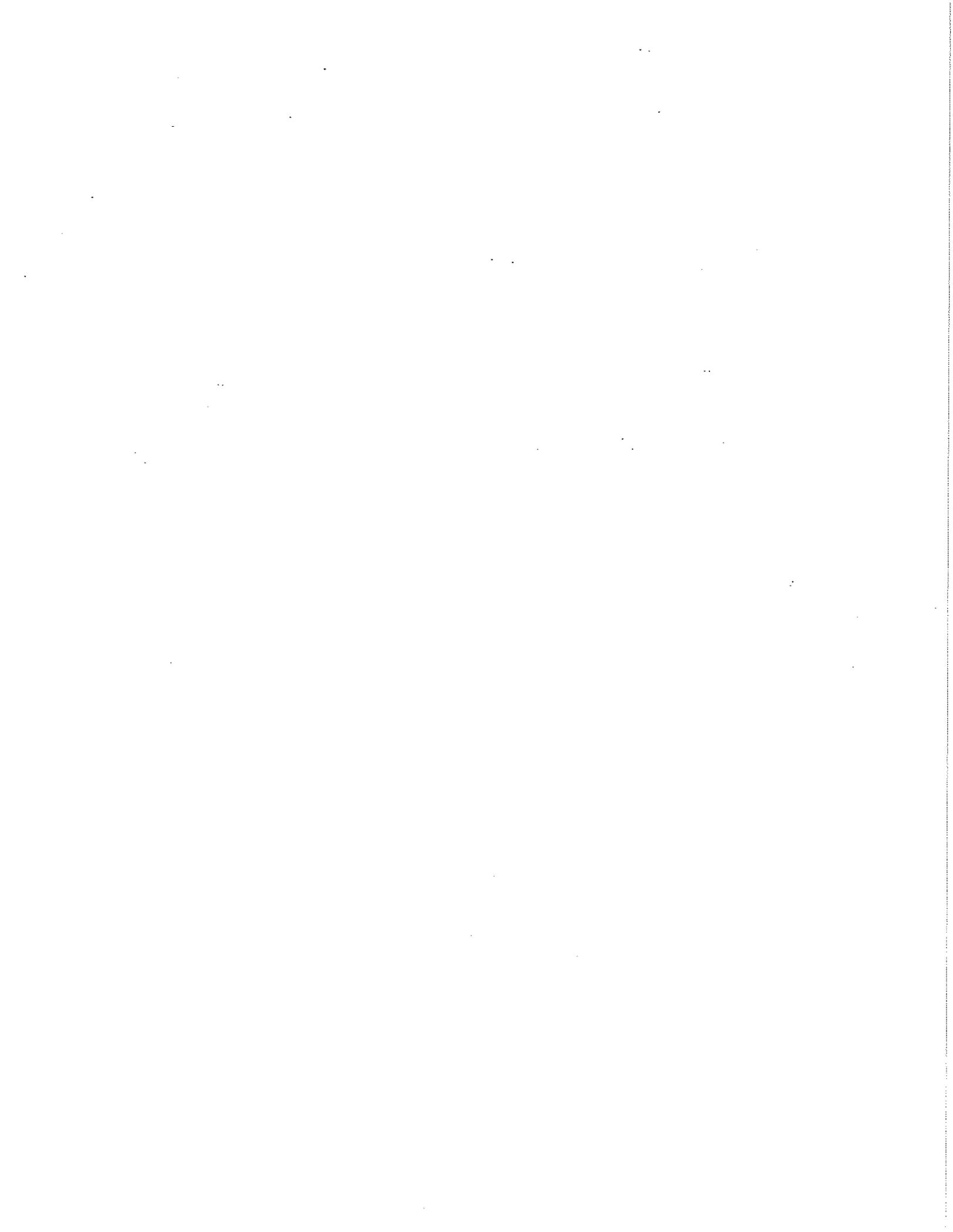
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SECTION 1 INTRODUCTION

1.0 PREPARATION OF THE SWPPP

A Draft Stormwater Pollution Prevention Plan (SWPPP) for Fort Meade, Maryland, was prepared by the United States Army Corps of Engineers (USACE) Baltimore District. Information included in the draft plan was incorporated into this final plan. The SWPPP was prepared by the Fort Meade Department of Public Works Environmental Management Office (DPW-EMO). Section 402(p) of the Water Quality Act of 1987 requires that operators of facilities, including Federal installations, which discharge stormwater associated with industrial activity, obtain permits under the National Pollutant Discharge Elimination System (NPDES) to control the quality of stormwater discharges. In response to these statutes, on November 16, 1990, the United States Environmental Protection Agency (USEPA) promulgated final regulations for permit applications associated with stormwater discharges from industrial activities (USEPA storm water regulations (SWR); 55 CFR 47989, 56 CFR 12097, 56 CFR 56547, 57 CFR 11393, 40 CFR Parts 122 through 124; and additional related regulations promulgated by State and local regulatory agencies; USEPA, 1990, p. 47990). Under these regulations, Federal facilities, including United States Army (ARMY) and United States Army Reserve (USAR) installations, are required to submit on or before October 1, 1992 a permit application (group or individual), or a notice of intent (NOI) for coverage by a general permit. As part of the USEPA and individual States general permit requirements, Army and USAR installations also are required to develop a "Stormwater Pollution Prevention Plan" (SWPPP), including elements of "Best Management Practices" (BMPs) designed to minimize pollution through source control.

Elements of the SWPPP are described in the USEPA "Baseline General Permit" requirements under 40 CFR 122, volume 57, number 175. Detailed guidelines are provided in the EPA Storm Water Management for Industrial Activities (USEPA, 1992).

1.1 SCOPE OF THE SWPPP

The original SWPPP, dated August 1999 addressed fourteen industrial activities. This Updated SWPPP addresses ten industrial activities at Fort Meade as defined in Appendix A. Four motor pool areas, building 8486 and 8487, building 8485, building 2124, and building 1251 and 1252 were removed from the plan as potential for pollution no longer exists at these sites. A "certificate of no exposure" was completed for each of these sites. Certificates of No Exposure can be found in Appendix D. If changes occur in current site operations for the four motor pool areas resulting in a condition of exposure, the sites would be reinstated in the SWPPP, in accordance with General Discharge Permit No. 02-SW-0700. The Hazardous Waste Storage Facility was also removed from the plan. In accordance with CFR 122.26, Non-RCRA permitted facilities no longer meet the definition of an industrial activity. An additional facility,

the recycling center, was originally defined as an industrial facility, but upon investigation it was determined that it did not meet the definition of an industrial facility, since it is enclosed indoors, and the operations are limited to packaging solid goods for shipment offsite. Therefore, no assessment of this facility is included.

Similarly, the AAFES gas station and maintenance building were originally defined as industrial facilities, but upon investigation, were determined to not meet the definition of industrial facilities.

The salt storage yard was originally overlooked during the assessment phase. Since then it has been included in this plan. The DOL Supply Fuel Point was included in this plan update. The draft SWPPP included the "old" DRMO salvage yard and the "old" hazardous waste storage building. Since then, a "new" DRMO facility and a "new" hazardous waste storage facility have been constructed in their place, while the "old" DRMO yard no longer exists and the "old" hazardous waste storage facility is vacant. Site assessments (section 3) were done for the salt storage yard, the new DRMO facility, and the DOL Supply Fuel Point by a non-engineering staff member of the DPW Environmental Management Office. The assessments were carried out similarly to the other original eleven site assessments, completed by certified engineering staff, and are included in this plan.

The SWPPP is a "living" document and will be kept up-to-date through annual site compliance evaluations and plan revisions. The SWPPP was developed based on site-specific features. When there are changes in design, construction, operation, or maintenance, and that change will have a significant effect on the potential for discharging pollutants in storm water, the SWPPP will be modified to reflect the changes and new conditions.

The document includes baseline BMPs and a schedule for implementation. Other management practices (Advanced BMP's) were identified during the development of the Draft SWPPP. These practices are not included in this plan, but may be included and implemented if possible and deemed necessary.

1.2 ORGANIZATION OF THE SWPPP

The introduction to the SWPPP is presented in Section 1. This section defines the regulatory authority and guidance for writing and implementing a SWPPP, and discusses the overall scope and organization of the document.

Section 2 discusses the overall planning and organization of the Fort Meade Pollution Prevention Team, including team member titles, functions, and responsibilities.

Section 3 is an assessment of the potential for stormwater pollution, and begins with a general presentation of the layout, operations, and stormwater drainage pathways for Fort Meade. After this introduction, Section 3 assesses the potential for stormwater pollution at each of the ten specific sites, which were evaluated.

Each site-specific assessment is divided into three parts. The first is a narrative description of the

site layout, stormwater drainage, and potential pollutant sources. This narrative also discusses past spills, sampling data, and non-stormwater discharges from every outfall at each site. Following the narrative description is an individual site map showing the pertinent site features as related to potential stormwater pollution.

Finally, tables are presented which list the site materials inventory, significant exposed materials, significant spills and leaks, existing BMPs, and proposed baseline BMPs. The first table is a materials inventory, which has been based either on information provided by the facility supervisor, by information gathered during the site visit, or both. The information for the second table, the list of significant exposed materials, is based on the site visit assessments. The third table for each site includes spill information provided by the Fort Meade Environmental Management Office, as well as information provided by each facility supervisor. The fourth table is to be used by the facility to certify non-stormwater discharges. Table 5 discusses existing and recommended Best Management Practices. Much of the BMP information is standard, and is repeated for each of the sites. This information is repeated in order to make each site-specific document a stand-alone document for that facility.

Many of the tables have been left blank, because there have been no previous spills, no exposed materials, or because all of the materials are stored within a building with no floor drains and adequate berms. These tables have been included to make the set of tables consistent for each site, and to provide a framework for the installation to add information in these tables as necessary during updates of this plan.

Section 4 presents a generic schedule for the implementation for BMPs, including the responsibilities of Pollution Prevention Team members, and the strategy for overall management of the plan.

SECTION 2
PLANNING AND ORGANIZATION

The "Executive SWPP Team" (hereby referenced as the "Team") has overall responsibility for implementing the provisions of the Storm Water Pollution Prevention Plan at Fort Meade. These responsibilities will include activities such as revising and updating the SWPPP and providing for the implementation of "baseline" Best Management Practices (BMPs). The Team will be responsible for reviewing new construction to ensure that storm water pollution prevention BMPs are incorporated into the design and construction specifications. The Team will report to the Environmental Quality Control Committee (EQCC) created under Army Regulation 200-1 (Sections 12-13).

The persons in the positions identified in Table 2-1-1 will be members of the SWPP Team, with delegated responsibility from the Installation Commander to develop, implement, modify, and provide required reports on the SWPPP and related activities. The specific duties of each of the indicated members of the SWPP Team are also indicated in Table 2-1-1. The supervisor for each specific facility will have responsibility for implementing the plan, and for ensuring that the employees at that facility are aware of their responsibilities under the plan.

TABLE 2-1-1:

SPECIFIC DUTIES AND MEMBERS OF THE SWPP TEAM

POSITION	NAME	DUTIES
Director of Public Works (DPW)		<p>1) Overall responsibility for the implementation of the SWPPP. Signs documents and certificates required in the SWPPP. Reviews and approves the SWPPP, its modifications and updates.</p> <p>2) Delegates responsibility for implementation of the elements of the SWPPP. Coordinates final preparation, review, and approval of the SWPPP.</p>
Chief of Environmental Management		<p>Coordinates implementation of compliance phase. Prepares cost estimates of implementation of SWPPP for BMPs. Maintains updated records of spills as part of the SPCCP and updates files on the SWPPP, reflecting recent spills and measures to prevent them. Coordinates with State and Federal regulators for modifications to the SWPPP. Monitors compliance with scheduled activities in the SWPPP. Prepares annual inspection, review documents and submits to DPW. Conducts or contracts annual inspection and certification of dry-weather discharges from outfalls. Prepares preliminary designs of BMPs and their implementation. Conducts or prepares schedules for contractors, or periodic inspection activities where risk of storm water pollution potential is highest. Updates the Hazardous Materials/Waste Management Standard Operating Procedures to meet requirements of the SWPPP. Conducts inspections of Hazardous Waste sites at the facility to ascertain compliance with the HMWMSOP and the SWPPP. Conducts the annual inventory of primary potential pollutants (PPMs) as required by regulations. Develops and maintains a data base reflecting the inventory of PPMs. Schedules regular and emergency meetings of the SWPP Team.</p>
Safety Office		<p>Performs inspections as specified in the installation's safety manual to ensure compliance with regulatory requirements for management and disposal of PPM's.</p>
Environmental Coordinator		<p>Assists the Environmental Management Office (EMO) in monitoring compliance with scheduled activities in the SWPPP. Provides input for future BMP's necessary for continued stormwater pollution prevention.</p>

TABLE 2-1-1: SPECIFIC DUTIES AND MEMBERS OF THE SWPP TEAM

POSITION	NAME	DUTIES
Hazardous Waste Coordinator		Assists their Environmental Coordinator in monitoring compliance with scheduled activities in the SWPPP. Assists the Environmental Coordinator in providing input for future BMP's necessary for continued stormwater Pollution Prevention.



SECTION 3 ASSESSMENT

3.0.1 GENERAL SETTING AND DRAINAGE OF FORT MEADE

The layout of Fort Meade, including the surface water drainage pathways and the locations of the industrial facilities evaluated (as defined in Appendix A), is shown in Figure 2-1. The industrial facilities evaluated include a wastewater treatment plant, a landfill, the golf course maintenance buildings, the DRMO storage facility, a salt storage yard, the DOL Supply Fuel Point, and four motor pools (equipment maintenance facilities). Most of these facilities are located in the southern portion of the Fort.

The major stormwater drainage routes at Fort Meade are Franklin Branch and Midway Branch, both of which flow from north to south through the Fort, and the Little Patuxent River, which borders the western side of the Fort, and also flows to the south. Franklin Branch and Midway Branch meet in the southern portion of the Fort, and continue to flow south through Allen Lake to the Little Patuxent River. Overland flow from the northeastern corner of the Fort, which includes one site included in this SWPPP, flows to the east to Severn Run, which eventually becomes the Severn River.

Most overland flow of stormwater from the Fort flows through intermittent ditches or into storm drains, which lead to one of the three main drainages. In addition, the facility operates a sewer system, which leads to a wastewater treatment plant and many of the storm drains lead into the treatment plant rather than to the drainage system.

The wastewater treatment plant is located on the Little Patuxent River, and discharges treated wastewater to this river. This outfall is permitted under NPDES permit number 96-DP-2533A. An additional NPDES permit (number 95-DP-2634) regulates the use of wastewater treatment effluent for irrigation purposes at the golf course. The Fort Meade water treatment plant (WTP) is also located on the Little Patuxent River. Reservoirs, tanks and pipes used for the storage and delivery of potable water periodically must be drained for inspection or repair. In addition, these systems are flushed to maintain water quality. NPDES permit (number 95-GP-0005) authorizes these discharges as well as discharges of untreated water.

3.0.2 RELATED PLANS AND STUDIES

Several plans and studies previously produced for Fort Meade cover many of the issues related to stormwater pollution prevention as discussed in this SWPPP. These include a Spill Contingency Plan (SCP), Spill Prevention, Control, and Countermeasures Plan (SPCCP), both of which discuss methods for preventing spills and remediating spills and leaks. The SPCCP also presents a list of BMPs to be implemented for drum storage areas, aboveground storage tanks, underground storage tanks, oil/water separators, and spill response measures.

A Sediment and Erosion Control Plan has been produced for the Midway and Franklin Branch

drainages. This plan proposes BMPs to be implemented to minimize the amount of erosion and transportation of sediment in the two main drainages on the Fort.

Finally, a study of the integrity and discharge location of the oil/water separators on the fort was completed in 1996. As a result of the study, a routine O & M program has been initiated for each active unit. An ongoing project to remove and when necessary upgrade oil/water separators on the Fort to meet current Federal and State regulations is underway and is anticipated to be complete by the end of FY2000.

3.1 DOL Supply & Services Fuel Point Building 60B

A. SITE DESCRIPTION

The Supply & Services Fuel Point is located near the intersection of Remount Road and Rock Avenue on the southern edge of Fort Meade. The general layout of the site is shown in Figure 3-1. The site is used for refueling government vehicles, and includes Building 60B (office and storage facility), two Flammable Materials cabinets, one dry-materials storage conex, one hose locker, one hazardous waste storage shed, four 20,000 gallon, double-walled underground storage tanks (USTs) for gasoline, diesel (2 tanks), and fuel oil #2, and an oil-water separator (1,000 gallons) located on site. Two (2) refueling trucks are parked on the southeast portion of the site. A concrete berm exists around the high-volume diesel and high-volume fuel oil #2 dispensers for filling of refueling trucks. The bermed area drains into the Oil Water Separator.

The Oil Water separator discharges to the sanitary sewer system. The area generally slopes to the west, and stormwater flows to the western end of the site. The western, northern and southern ends of the site are partially curbed, and the runoff is generally diverted either into the grassed areas at the north, south and west side of the site. surrounding the site or a stormwater drainage ditch north of the site. The stormwater drainage ditch flows east to Midway Branch.

B. POTENTIAL POLLUTANT SOURCES

A list of the materials stored onsite is contained in Table 3-1-1, and a list of significant exposed materials is presented in Table 3-1-2.

The potential scenarios for pollution of stormwater from this facility are as follows:

! The possibility of spills of materials during loading or unloading of the storage areas. The Flammables cabinets, and the Hazardous Waste storage shed are located outdoor and are a potential sources of pollution.

! Release of gasoline, diesel, or #2 fuel oil during filling operations of USTs

! Minor equipment refueling spills or leaks washing off of the impervious surface during rainfall. This material could drain over the pavement to the west, and be diverted into storm drains.

As indicated in Table 3-1-3, no spills or leaks from this facility have occurred within the past three years. There is no available sampling or monitoring data for this facility. A visual assessment of the storm drains and ditches surrounding this site did not reveal any flow of non-stormwater discharge. A Non-Storm Water Discharge Assessment and Certification Form is attached as Table 3-1-4, and guidelines for the completion of the certification are included in Appendix B.

C. BEST MANAGEMENT PRACTICES

A summary of current and recommended Baseline BMPs for this facility is contained in Table 3-1-5. This table includes a list of the BMPs, as well as a short narrative description of each. Further BMPs for activities at Fort Meade are discussed in the Fort Meade Spill Prevention, Control, and Countermeasures Plan (SPCCP) (USACE, 1991). A generic sequence for the implementation of BMPs, with the responsibilities of the team members for implementing the plan, is discussed in Section 4.

D. SARA TITLE III, SECTION 313 REQUIREMENTS

No Section 313 water priority chemicals (as defined by the Maryland General Discharge Permit No. 92-GP-0001, Part V.C) were identified at this facility. A blank table is included in Appendix C for listing any such materials that are identified in the future.

INDUSTRIAL FACILITY: DOL Supply & Services Fuel Point	
TABLE 3-1-5: BASELINE BEST MANAGEMENT PRACTICES	DESCRIPTION
BMP	DESCRIPTION
Good housekeeping practices	<p>Good housekeeping (GH) practices are designed to maintain areas which may contribute pollutants to stormwater discharges (such as pump areas, hazardous waste storage shed, flammables cabinets and oil water separator, as well as the paved area) in a clean and orderly manner. In order to ensure a clean and orderly environment, a GH program will be implemented which will include the following elements:</p> <ul style="list-style-type: none"> ! Develop an employee awareness program on GH practices ! Regularly pickup and dispose of garbage and waste material ! Maintain dry and clean floors and ground surfaces ! Store containers, drums, and bags away from direct traffic routes to prevent accidental spills ! Properly label all chemical containers in accordance with OSHA, EPA, DOT, and other applicable Federal, State, or Local requirements o Conduct monthly inspections.
Preventive maintenance practices	<p>Preventive Maintenance (PM) practices involve the regular inspection and testing of facility equipment. A PM Program will be developed which will include the following:</p> <ul style="list-style-type: none"> ! Identify equipment and areas (such as vehicles parked in yard) that upon failure, could result in discharges ! Conduct monthly inspections of these areas ! Document inspections ! Make timely adjustment, repair, or replacement of problem areas
Visual inspections	<p>Visual Inspections (VI) are intended to provide a mechanism for confirming that the measures chosen to prevent the contamination of stormwater runoff are in place and working properly. VIs should be conducted annually, particularly during storm events and should address the following issues:</p> <ul style="list-style-type: none"> ! Leaking vehicles parked in the yard ! Oil Water Separator
Management of Runoff	<p>Management of runoff is being addressed by the presence of vegetated drainage areas.</p>

TABLE 3-1-5: BASELINE BEST MANAGEMENT PRACTICES	INDUSTRIAL FACILITY: DOL Supply & Services Fuel Point
BMP	DESCRIPTION
Spill prevention and response planning	The Fort Meade Spill Prevention Control and Countermeasures Plan (SPCCP) addresses the prevention of accidental spills and releases.
Employee training	<p>An Employee Training Program will be developed to inform personnel of the components and goals of the Storm Water Pollution Prevention Plan.</p> <ul style="list-style-type: none"> ! The employee training program will be integrated into the existing OSHA training program, with a minimum of a one-hour session provided each year. ! Topics for employee training will include spill prevention and response, good housekeeping, and material management practices
Recordkeeping and reporting	<p>A recordkeeping system will be established for documenting spills, leaks, and other discharges as well as inspection reports related to compliance with the Storm Water Pollution Prevention Plan. These records will include:</p> <ul style="list-style-type: none"> ! Date and time of incident ! Duration and cause ! Weather conditions ! Corrective actions ! Parties notified <p>Appropriate DPW-EMO personnel will be notified of spills, leaks, and discharges as specified in the SPCCP.</p>
Inventory of potentially polluting materials	An updated inventory of all potential pollutants stored and handled onsite is kept. This allows the facility supervisor to be continually aware of the materials located onsite, and to manage materials shipments on and offsite in the most efficient manner. The inventory should continue to be updated and submitted to the DPW-EMO annually.
Sediment and Erosion Control	A site wide Sediment and Erosion Control Plan was developed to identify areas that have high potential for significant soil erosion. The plan also identifies structural, vegetative, and/or stabilization measures to be used to limit erosion.

3.2 GOLF COURSE MAINTENANCE BUILDING 8890

A. SITE DESCRIPTION

The Golf Course maintenance and storage area is located near Taylor Avenue, on the northwest side of the golf course. The general layout of the site is shown in Figure 3-2. The facility is used for a variety of purposes related to operation of the golf course, including storage of fertilizers and pesticides, lawn mowing equipment, and trucks, which includes the use of POLs.

The golf course area includes four large buildings (8890, 8891, 8881 and 8880) for the storage and maintenance of equipment and the storage of POLs, pesticides, and fertilizers, a contained pesticide storage area in Building 8890A, three aboveground storage tanks (two for fuel oil, and one for diesel fuel and gasoline), one underground # 2 fuel oil storage tank, an outdoor flammable materials shed, and outdoor storage areas for miscellaneous equipment. Equipment is cleaned at wash rack at maintenance area site. The resulting wash water drains into an oil/water separator (OWS) and discharges into the sanitary sewer system. A grinder pump is located on the sewer line down gradient from the OWS. Golf carts are cleaned at wash pad at Building # 6800 (approximately one-quarter mile east of mntnc. area). The resulting wash water drains into an oil/water separator (OWS) and discharges into the sanitary sewer system. Adjacent to the OWS, there is a gasoline pump station with a 500 gallon aboveground gasoline tank.

There are no stormwater drains located on the property, therefore all stormwater is expected to either infiltrate or flow overland to Midway Branch, which is located over 1,600 feet to the east. However, no conspicuous drainage channels are located on the property. The only building on the property with floor drains is Building 8890, and these drains lead out to the gravel driveway. No part of the facility is paved.

B. POTENTIAL POLLUTANT SOURCES

A list of the materials stored onsite is contained in Table 3-2-1, and a list of significant exposed materials is presented in Table 3-2-2. The inventory is based on a list supplied by the facility, as well as visual observation.

The potential scenarios for pollution of stormwater from this facility are as follows:

- ! Mishaps in the filling of any of the four fuel storage tanks. Though above-ground tanks are double-walled, none of them are protected from being hit by moving vehicles.
- ! Mishaps in fueling at the gasoline pump.
- ! Stormwater leaching of dirt and grease from any of the equipment stored outdoors.
- ! Stormwater transportation of sweepings from the main building. Spilled solid fertilizer and other sweepings from this building are swept out the front, onto the gravel driveway.
- ! Handling of cans and buckets of liquid pesticides. These are stored or handled in

several areas at the site, many of which are indoors, and are poorly lit.

As indicated in Table 3-2-3, no spills or leaks from this facility have occurred within the past three years. There is no available sampling or monitoring data for this facility. A visual assessment of the storm drains and ditches surrounding this site did not reveal any flow of non-stormwater discharge. A Non-Storm Water Discharge Assessment and Certification Form (to be completed by the facility) is attached as Table 3-2-4, and guidelines for the completion of the certification are included in Appendix B.

C. BEST MANAGEMENT PRACTICES

A summary of current and recommended Baseline BMPs for this facility is contained in Table 3-2-5. This table includes a list of the BMPs, as well as a short narrative description of each. Further BMPs for activities at Fort Meade are discussed in the Fort Meade Spill Prevention, Control, and Countermeasures Plan (SPCCP) (USACE, 1991). A generic sequence for the implementation of BMPs, with the responsibilities of the team members for implementing the plan, is discussed in Section 4.

D. SARA TITLE III, SECTION 313 REQUIREMENTS

No Section 313 water priority chemicals (as defined by the Maryland General Discharge Permit No. 92-GP-0001, Part V.C) were identified at this facility. A blank table is included in Appendix C for listing any such materials that are identified in the future.

GOLF COURSE

TABLE 3-2-1: MATERIAL INVENTORY

INDUSTRIAL FACILITY: Golf Course Maintenance
Building 8890

MATERIAL	LOCATION	QUANTITY	QUANTITY EXPOSED IN LAST THREE YEARS	LIKELIHOOD OF CONTACT WITH STORMWATER	PAST SIGNIFICANT SPILL OR LEAK	
					YES	NO
Waste Oil	Adjacent to 8890A	2 55-gallon drums	None known	Low - stored outdoors, but located a long distance from storm drains or surface water		X
Fuel Oil # 2	Behind Bldg. 8890	400 gallon tank	None known	Low - no containment, but located a long distance from storm drains or surface water		X
Fuel Oil	Adjacent to Bldg. 8880	400 gallon tank	None known	Low - no containment, but located a long distance from storm drains or surface water		X
Gasoline	In front of Bldg. 8890	UST	None known	Low - no containment, but located a long distance from storm drains or surface water		X
Diesel	In front of Bldg. 8890	400 gal tank	None known	Low - no containment, but located a long distance from storm drains or surface water		X
Waste Grease & Oil	Adjacent to Bldg. 8860	3 55-gallon drums	None known	Low - stored outdoors, but located a long distance from storm drains or surface water		X
Windshield De-icer Spray	Bldg. 8880	12/13 oz cans	None known	Low - located within building with no floor drains		X
Penetrating Oil Water Displacer	Bldg. 8880	2 20-ounce cans	None known	Low - located within a building with no floor drains		X
Carburetor & Choke Cleaner	Bldg. 8880	15/15 oz cans	None known	Low - located within building with no floor drains		X
Polymeric Rust Converter	Bldg. 8880	1/1 quart can	None known	Low - located within building with no floor drains		X

TABLE 3-2-1: MATERIAL INVENTORY				INDUSTRIAL FACILITY: Golf Course Maintenance Building 8890		PAST SIGNIFICANT SPILL OR LEAK	
MATERIAL	LOCATION	QUANTITY	QUANTITY EXPOSED IN LAST THREE YEARS	LIKELIHOOD OF CONTACT WITH STORMWATER	YES	NO	
Cutting, Lubricating & Cooling Fluid	Bldg. 8880	14?	None known	Low - located within building with no floor drains		X	
Multipurpose Aluminum Grease	Bldg. 8880	4 7-lb cans	None known	Low - located within building with no floor drains		X	
Industrial Strength Degreaser	Bldg. 8880	2?	None known	Low - located within building with no floor drains		X	
Water Soluble Degreasing Solvent	Bldg. 8880	2 2.5 gallon cans	None known	Low - located within building with no floor drains		X	
Marking Paint	Bldg. 8880	41/12 oz cans	None known	Low - located within building with no floor drains		X	
Aerosol Lubrication System	Bldg. 8880	12/16 oz cans	None known	Low - located within building with no floor drains		X	
Gasket Sealer & Adhesive	Bldg. 8880	13/14 oz cans	None known	Low - located within building with no floor drains		X	
Spray White Lithium Grease	Bldg. 8880	6 15-oz cans	None known	Low - located within building with no floor drains		X	
Red-Orange Fluorescent Spray Paint	Bldg. 8880	13/12 oz cans	None known	Low - located within building with no floor drains		X	
Traffic Marking Paint	Bldg. 8880	11 18-oz cans	None known	Low - located within building with no floor drains		X	

TABLE 3-2-1: MATERIAL INVENTORY

INDUSTRIAL FACILITY: Golf Course Maintenance
Building 8890

MATERIAL	LOCATION	QUANTITY	QUANTITY EXPOSED IN LAST THREE YEARS	LIKELIHOOD OF CONTACT WITH STORMWATER	PAST SIGNIFICANT SPILL OR LEAK	
					YES	NO
Denatured Alcohol	Bldg. 8880	1 1-gallon cans	None known	Low - located within building with no floor drains		X
Oil Based Paint	Bldg. 8880	2 1-gallon cans	None known	Low - located within building with no floor drains		X
Dupont 70S Dark Gray Primer	Bldg. 8880	1 1-gallon cans	None known	Low - located within building with no floor drains		X
Liquid Laminate Protective Coating	Bldg. 8880	20 16-oz cans	None known	Low - located within building with no floor drains		X
Aerosol Lacquer Paint	Bldg. 8880, 8890	54 13-oz cans	None known	Low - located within building with no floor drains		X
Spray Chloro-Solvent	Bldg. 8880	59 20-oz cans	None known	Low - located within building with no floor drains		X
Multipurpose Grease	Bldg. 8880	90 14-oz cartridges	None known	Low - located within building with no floor drains		X
Pipe Thread Compound	Bldg. 8880	1 1-pint can	None known	Low - located within building with no floor drains		X
Spray Marking Paint	Bldg. 8880	1 12-oz cans	None known	Low - located within building with no floor drains		X
Multi Purpose Insect Killer	Bldg. 8880	1 16.5-oz can	None known	Low - located within building with no floor drains		X
Water Soluble Safety Solvent (Citrus Cleaner)	Bldg. 8880	3 1-gallon can	None known	Low - located within building with no floor drains		X

TABLE 3-2-1: MATERIAL INVENTORY

INDUSTRIAL FACILITY: Golf Course Maintenance
Building 8890

MATERIAL	LOCATION	QUANTITY	QUANTITY EXPOSED IN LAST THREE YEARS	LIKELIHOOD OF CONTACT WITH STORMWATER	PAST SIGNIFICANT SPILL OR LEAK	
					YES	NO
Paclobutrazol (Fertilizer)	Bldg. 8871	192 tons	None known	Low - contained within building with floor drains, but located a long distance from storm drains or surface water		X
Fenoxaprop-Ethyl	Bldg. 8871	1 lb	None known	Low - contained within building with floor drains, but located a long distance from storm drains or surface water		X
Cyclohexamide	Bldg. 8871	6.3 tons	None known	Low - contained within building with floor drains, but located a long distance from storm drains or surface water		X
Diquat Dibromide	Bldg. 8871	25 lbs	None known	Low - contained within building with floor drains, but located a long distance from storm drains or surface water		X
Turf Dye	Bldg. 8871	2 tons	None known	Low - contained within building with floor drains, but located a long distance from storm drains or surface water		X
Lubricant Sealer & Antifreeze	Bldg. 8880	5 8-oz cans	None known	Low - located within building with no floor drains		X
Cadmium Chloride	Bldg. 8871	10 lbs	None known	Low - contained within building with floor drains, but located a long distance from storm drains or surface water		X

TABLE 3-2-1: MATERIAL INVENTORY

INDUSTRIAL FACILITY: Golf Course Maintenance
Building 8890

MATERIAL	LOCATION	QUANTITY	QUANTITY EXPOSED IN LAST THREE YEARS	LIKELIHOOD OF CONTACT WITH STORMWATER	PAST SIGNIFICANT SPILL OR LEAK	
					YES	NO
Cadmium Succinate	Bldg. 8871	2 tons	None known	Low - contained within building with floor drains, but located a long distance from storm drains or surface water		X
Iron Lignosulfonate	Bldg. 8871	10 lbs	None known	Low - contained within building with floor drains, but located a long distance from storm drains or surface water		X
Crab Kleen	Bldg. 8871	10 lbs	None known	Low - contained within building with floor drains, but located a long distance from storm drains or surface water		X
Chlorothalanil	Bldg. 8871	5 lbs	None known	Low - contained within building with floor drains, but located a long distance from storm drains or surface water		X
Mateic Hydrazide	Bldg. 8871	4 lbs	None known	Low - contained within building with floor drains, but located a long distance from storm drains or surface water		X
Soil & Turf Fungicide	Bldg. 8871	21 tons	None known	Low - contained within building with floor drains, but located a long distance from storm drains or surface water		X
Turf Growth Regulator	Bldg. 8871	3 lbs	None known	Low - contained within building with floor drains, but located a long distance from storm drains or surface water		X

TABLE 3-2-1: MATERIAL INVENTORY				INDUSTRIAL FACILITY: Golf Course Maintenance Building 8890		
MATERIAL	LOCATION	QUANTITY	QUANTITY EXPOSED IN LAST THREE YEARS	LIKELIHOOD OF CONTACT WITH STORMWATER	PAST SIGNIFICANT SPILL OR LEAK	
					YES	NO
Sodium Metharsonate	Bldg. 8871	5 tons	None known	Low - contained within building with floor drains, but located a long distance from storm drains or surface water		X
Glyphosphate	Bldg. 8871	6 lbs	None known	Low - contained within building with floor drains, but located a long distance from storm drains or surface water		X
DCPA	Bldg. 8871	50 tons	None known	Low - contained within building with floor drains, but located a long distance from storm drains or surface water		X
Wetting Agent/ Adjuvant	Bldg. 8871	29 lbs	None known	Low - contained within building with floor drains, but located a long distance from storm drains or surface water		X
Wetting Agent	Bldg. 8871	157.5 tons	None known	Low - contained within building with floor drains, but located a long distance from storm drains or surface water		X
Daconil 2787 WDG	Bldg. 8871	10 tons	None known	Low - contained within building with floor drains, but located a long distance from storm drains or surface water		X
Triclopyr/ Clopralid	Bldg. 8871	3 lbs	None known	Low - contained within building with floor drains, but located a long distance from storm drains or surface water		X

TABLE 3-2-1: MATERIAL INVENTORY				INDUSTRIAL FACILITY: Golf Course Maintenance Building 8890		
MATERIAL	LOCATION	QUANTITY	QUANTITY EXPOSED IN LAST THREE YEARS	LIKELIHOOD OF CONTACT WITH STORMWATER	PAST SIGNIFICANT SPILL OR LEAK	
					YES	NO
Chlorophacinone	Bldg. 8871	25 tons	None known	Low - contained within building with floor drains, but located a long distance from storm drains or surface water		X
Iron Chelate	Bldg. 8871	4 tons	None known	Low - contained within building with floor drains, but located a long distance from storm drains or surface water		X
Siduron	Bldg. 8871	68 tons	None known	Low - contained within building with floor drains, but located a long distance from storm drains or surface water		X
2,4-D, MCPP	Bldg. 8871	20 lbs	None known	Low - contained within building with floor drains; but located a long distance from storm drains or surface water		X
Methyl Bromide	Bldg. 8871	36 tons	None known	Low - contained within building with floor drains, but located a long distance from storm drains or surface water		X
Chloroneb	Bldg. 8890	655 tons	None known	Low - located within a building with no floor drains		X
Carbaryl	Bldg. 8890	350 tons	None known	Low - located within a building with no floor drains		X

TABLE 3-2-1: MATERIAL INVENTORY

INDUSTRIAL FACILITY: Golf Course Maintenance Building 8890

MATERIAL	LOCATION	QUANTITY	QUANTITY EXPOSED IN LAST THREE YEARS	LIKELIHOOD OF CONTACT WITH STORMWATER	PAST SIGNIFICANT SPILL OR LEAK	
					YES	NO
Surfactant/ Aduvant	Bldg. 8871	1 lb	None known	Low - contained within building with floor drains, but located a long distance from storm drains or surface water		X
Benzene- Sulfonamide	Bldg. 8871	5 lbs	None known	Low - contained within building with floor drains, but located a long distance from storm drains or surface water		X
Bensulide/ Oxadiazon	Bldg. 8890	522 tons	None known	Low - located within a building with no floor drains		X
Dryzalin	Bldg. 8871	7 tons	None known	Low - contained within building with floor drains, but located a long distance from storm drains or surface water		X
15-O-29 w/ Paclobutrazol	Bldg. 8871	916.5 tons	None known	Low - contained within building with floor drains, but located a long distance from storm drains or surface water		X
Thiophanate Methyl	Bldg. 8871	238 tons	None known	Low - contained within building with floor drains, but located a long distance from storm drains or surface water		X
Penetrating Oil	Bldg. 8880	12/20 oz cans	None known	Low - located within a building with no floor drains		X
Penetration Oil	Bldg. 8880	10/12 oz cans	None known	Low - located within a building with no floor drains		X

TABLE 3-2-1: MATERIAL INVENTORY

INDUSTRIAL FACILITY: Golf Course Maintenance Building 8890						
MATERIAL	LOCATION	QUANTITY	QUANTITY EXPOSED IN LAST THREE YEARS	LIKELIHOOD OF CONTACT WITH STORMWATER	PAST SIGNIFICANT SPILL OR LEAK	
					YES NO	
Concentrated Cleaner	Bldg. 8880	18/1 quart cans	None known	Low - located within a building with no floor drains		X
Gasoline & Diesel Fuel Additive	Bldg. 8880	18/12 oz cans	None known	Low - located within a building with no floor drains		X
2,4-D, MCPP Dicamba	Bldg. 8871	12 lbs	None known	Low - contained within building with floor drains, but located a long distance from storm drains or surface water		X
Pendimethalin	Bldg. 8890	3274.5 tons	None known	Low - located within a building with no floor drains		X

INDUSTRIAL FACILITY: Golf Course Maintenance Building 8890

TABLE 3-2-4: NON-STORM WATER DISCHARGE ASSESSMENT AND CERTIFICATION

DATE OF TEST OR EVALUATION	OUTFALL DIRECTLY OBSERVED DURING THE TEST	METHOD USED TO TEST OR EVALUATE DISCHARGE	DESCRIBE RESULTS FROM TEST FOR THE PRESENCE OF NON-STORM WATER DISCHARGE	IDENTIFY POTENTIAL SIGNIFICANT SOURCES	NAME OF PERSON CONDUCTING TEST
6/14/2001	No outfalls exist; observed ground around buildings.	VI	No pollutants observed		Don Marquardt
7/10/02	No outfalls exist; observed grounds around buildings.	VI	No pollutants observed		Don Marquardt
2/5/2004	No outfalls exist; observed grounds around building.	VI	No pollutants observed		Don Marquardt

CERTIFICATION

I, _____ (responsible facility official), certify under penalty of law that this document and all attachments were prepared under my supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

A. Name or Official Title (type or print) _____ B. Area Code and Telephone Number _____

C. Signature _____ D. Date Signed _____

TABLE 3-2-5: BASELINE BEST MANAGEMENT PRACTICES	INDUSTRIAL FACILITY: Golf Course Maintenance Building 8890
BMP	DESCRIPTION
Good housekeeping practices	<p>Good housekeeping (GH) practices are designed to maintain areas that may contribute pollutants to stormwater discharges (such as indoor storage areas) in a clean and orderly manner. In order to ensure a clean and orderly environment, a GH program will be implemented which will include the following elements:</p> <ul style="list-style-type: none"> ! Develop an employee awareness program on GH practices ! Regularly pickup and dispose of garbage and waste material ! Maintain dry and clean floors and ground surfaces ! Store containers, drums, and bags away from direct traffic routes to prevent accidental spills ! Properly label all chemical containers in accordance with OSHA, EPA, DOT, and other applicable Federal, State, or Local requirements ! Conduct monthly inspections
Preventive maintenance practices	<p>Preventive Maintenance (PM) practices involve the regular inspection and testing of facility equipment. A PM Program will be developed which will include the following:</p> <ul style="list-style-type: none"> ! Identify equipment and areas (such as the four fuel tanks) that upon failure, could result in discharges ! Conduct monthly inspections of these areas ! Document inspections ! Make timely adjustment, repair, or replacement of identified problems
Visual inspections	<p>Visual inspections (VI) are intended to provide a mechanism for confirming that the measures chosen to prevent the contamination of stormwater runoff are in place and working properly. VIs should be conducted annually, particularly during storm events and should address the following issues:</p> <ul style="list-style-type: none"> ! Corroded or damaged drums, tanks and ancillary equipment, and other storage containers ! Leaking equipment <ul style="list-style-type: none"> ! Rainwater filled containment areas ! Wash pad
Spill prevention and response planning	<p>The Fort Meade Spill Prevention Control and Countermeasures Plan (SPCCP) addresses the prevention of accidental spills and releases.</p>
Management of runoff	<p>Potential pollutant contamination from sources will be addressed by the installation/construction of vegetative swales, inlet controls (such as oil/water separators), snow management activities, infiltration devices, and wet detention/retention.</p>

INDUSTRIAL FACILITY: Golf Course Maintenance Building 8890

TABLE 3-2-5: BASELINE BEST MANAGEMENT PRACTICES

BMP	DESCRIPTION
Employee training	<p>An Employee Training Program will be developed to inform personnel of the components and goals of the Storm Water Pollution Prevention Plan.</p> <ul style="list-style-type: none"> ! The employee training program will be integrated into the existing OSHA training program, with a minimum of a one-hour session provided each year. ! Topics for employee training will include spill prevention and response, good housekeeping, and material management practices
Recordkeeping and reporting	<p>A recordkeeping system will be established for documenting spills, leaks, and other discharges as well as inspection reports related to compliance with the Storm Water Pollution Prevention Plan. These records will include:</p> <ul style="list-style-type: none"> ! Date and time of incident ! Duration and cause ! Weather conditions ! Corrective actions ! Parties notified <p>Appropriate DPW-EMO personnel will be notified of spills, leaks, and discharges as specified in the SPCCP.</p>
Inventory of potentially polluting materials	<p>An updated inventory of all potential pollutants stored and handled onsite is kept. This allows the facility supervisor to be continually aware of the materials located onsite, and to manage materials shipments on and offsite in the most efficient manner.</p>
Sediment & Erosion Control	<p>A site wide Sediment and Erosion Control Plan was developed to identify areas that have high potential for significant soil erosion. The plan also identifies structural, vegetative, and/or stabilization measures to be used to limit erosion.</p>

3.3 MOTOR POOL BUILDING 2120C

A. SITE DESCRIPTION

The Motor Pool, Building 2120C, is located on the corner of Route 175 and 21 1/2 Street on the northeastern side of the Fort. The general layout of the site is shown in Figure 3-3. The main structure on the property is Building 2120C, which has twelve bays for the maintenance of trucks, a floor drain leading to an oil/water separator at its south end, a battery storage room, and a POL storage room for in-use product. Outside, on the south side of the building is a wash rack with another oil/water separator, a large parking area for storage of up to 500 trucks and trailers, and a hazardous waste storage shed; and on the east side of the building is a double-walled, 800-gallon waste oil tank and a POL storage shed for new product.

Sanitary water from the building drains to the Fort Meade sewer system. All materials used for maintenance are contained within the building and its oil/water separator system. Materials generated on the wash rack, as well as stormwater flowing towards the wash rack, also are treated in an oil/water separator. The disposition of the water from these two separators is into the sanitary sewer system.

The entire property outside of the building is paved, and a very small portion of this area is sloped to the wash rack. The rest of the parking lot area is sloped to the east. The downhill (eastern and northern) edges of the parking lot are bounded by a curb designed to channel stormwater flow to either a stormwater drain located in the curb on the southeastern side of the site, or to two riprap channels leading to the east from the lot. The stormwater drain and the riprap channels lead through dry ditches to Severn Run, which flows to the east towards the Chesapeake Bay.

B. POTENTIAL POLLUTANT SOURCES

A list of the materials stored onsite is contained in Table 3-3-1, and a list of significant exposed materials is presented in Table 3-3-2.

The potential scenarios for pollution of stormwater from this facility are as follows:

- The possibility of release of material through the wash rack or indoor drains if the oil/water separators overflow.
- Stormwater washing of pollutants from minor spills and leaks on the parking lot. Up to 500 vehicles of various kinds are stored on the lot, and the lot is designed to funnel stormwater off to the riprap channels.

As indicated in Table 3-3-3, no spills or leaks from this facility have occurred within the past three years. There is no available sampling or monitoring data for this facility. A visual assessment of the storm drains and riprap channels leading from this site did not reveal any flow of non-storm water discharge. A Non-Storm Water Discharge Assessment and Certification Form (to be completed by the facility) is attached as Table 3-3-4, and guidelines for the completion of the certification are included in Appendix B.

C. BEST MANAGEMENT PRACTICES

A summary of current and recommended Baseline BMPs for this facility is contained in Table 3-3-5. This table includes a list of the BMPs, as well as a short narrative description of each. Further BMPs for activities at Fort Meade are discussed in the Fort Meade Spill Prevention, Control, and Countermeasures Plan (SPCCP) (USACE, 1991). A generic sequence for the implementation of BMPs, with the responsibilities of the team members for implementing the plan, is discussed in Section 4.

D. SARA TITLE III, SECTION 313 REQUIREMENTS

No Section 313 water priority chemicals (as defined by the Maryland General Discharge Permit No. 92-GP-0001, Part V.C) were identified at this facility. A blank table is included in Appendix C for listing any such materials that are identified in the future.

INDUSTRIAL FACILITY: Motor Pool Building 2120C

TABLE 3-3-1: MATERIAL INVENTORY

MATERIAL	LOCATION	QUANTITY	QUANTITY EXPOSED IN LAST THREE YEARS	LIKELIHOOD OF CONTACT WITH STORMWATER	PAST SIGNIFICANT SPILL OR LEAK	
					YES	NO
Oil	POL storage	600 gallons	None known	Low - located within contained building		X
Petroleum	POL storage	110 gallons	None known	Low - located within contained building		X
Petroleum	POL storage	25 gallons	None known	Low - located within contained building		X
Solvent (Parts Washer)	Bldg 2120C	50 gallons	None known	Low - located within contained building		X
Solvent (w/Shield Washer)	POL storage	24 pints	None known	Low - located within contained building		X
Perma-Lok Adhesive	POL storage	20 fluid ounces	None known	Low - located within contained building		X
Engine Primer Ether	POL storage	10 pints	None known	Low - located within contained building		X
GAA Grease	POL storage	120 lb	None known	Low - located within contained building		X
Cleaner Lube Petroleum	POL storage	384 fluid ounces	None known	Low - located within contained building		X
Toner Monroe - Propionic Acid	Office supply	975 grams	None known	Low - located within contained building		X
Antifreeze Ethylene Glycol	POL storage	275 gallons	None known	Low - located within contained building		X
Silicone Brake Fluid	POL storage	12 gallons	None known	Low - located within contained building		X

INDUSTRIAL FACILITY: Motor Pool Building 2120C

TABLE 3-3-1: MATERIAL INVENTORY

MATERIAL	LOCATION	QUANTITY	QUANTITY EXPOSED IN LAST THREE YEARS	LIKELIHOOD OF CONTACT WITH STORMWATER	PAST SIGNIFICANT SPILL OR LEAK	
					YES	NO
Battery Acid Sulfuric	Battery Room	220 gallons	None known	Low - located within contained building		X
WD40 Petroleum Propane	POL storage	3456 fluid ounces	None known	Low - located within contained building		X
Permatex Alcohol	POL storage	110 fluid ounces	None known	Low - located within contained building		X
Solvent - Trichloroethane	E&C	192 fluid ounces	None known	Low - located within contained building		X
Aliphatic Hydrocarbons	Office Supply	2 cubic feet	None known	Low - located within contained building		X
OD Paint - Acetone	POL storage	120 fluid ounces	None known	Low - located within contained building		X
Paint Mineral Spirits	POL storage	50 gallons	None known	Low - located within contained building		X
Alcohol - Isopropyl	E&C	120 fluid ounces	None known	Low - located within contained building		X

INDUSTRIAL FACILITY: Motor Pool Building 2120C

TABLE 3-3-4: NON-STORM WATER DISCHARGE ASSESSMENT AND CERTIFICATION

DATE OF TEST OR EVALUATION	OUTFALL DIRECTLY OBSERVED DURING THE TEST	METHOD USED TO TEST OR EVALUATE DISCHARGE	DESCRIBE RESULTS FROM TEST FOR THE PRESENCE OF NON-STORM WATER DISCHARGE	IDENTIFY POTENTIAL SIGNIFICANT SOURCES	NAME OF PERSON CONDUCTING TEST
5/17/2000	Dry ditch east of site	VI	"dry" (no stains visible)		Don Marquardt
7/11/2001	Rip-rap drainages and SW drain	VI	"dry" - no stains visible		Don Marquardt
8/20/02	Rip-rap drainages	VI	Dry - no stains visible		Don Marquardt
9/3/2003	Rip-rap drainages	VI	Dry - no stains visible		Don Marquardt

CERTIFICATION

I, _____ (responsible facility official), certify under penalty of law that this document and all attachments were prepared under my supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

A. Name or Official Title (type or print)	B. Area Code and Telephone Number
C. Signature	D. Date Signed

TABLE 3-3-5: BASELINE BEST MANAGEMENT PRACTICES	INDUSTRIAL FACILITY: Motor Pool Building 2120C
BMP	DESCRIPTION
Good housekeeping practices	<p>Good housekeeping (GH) practices are designed to maintain areas that may contribute pollutants to stormwater discharges (such as, the two oil/water separators) in a clean and orderly manner. In order to ensure a clean and orderly environment, a GH program will be implemented which will include the following elements:</p> <ul style="list-style-type: none"> ! Develop an employee awareness program on GH practices ! Regularly pickup and dispose of garbage and waste material ! Maintain dry and clean floors and ground surfaces ! Store containers, drums, and bags away from direct traffic routes to prevent accidental spills ! Properly label all chemical containers in accordance with OSHA, EPA, DOT, and other applicable Federal, State, or Local requirements ! Conduct monthly inspections
Preventive maintenance practices	<p>Preventive Maintenance (PM) practices involve the regular inspection and testing of facility equipment. A PM Program will be developed which will include the following:</p> <ul style="list-style-type: none"> ! Identify equipment and areas (such as the oil/water separators) that upon failure, could result in discharges ! Conduct monthly inspections of these areas ! Document inspections ! Make timely adjustment, repair, or replacement of identified problems
Visual inspections	<p>Visual inspections (VI) are intended to provide a mechanism for confirming that the measures chosen to prevent the contamination of stormwater runoff are in place and working properly. Vis should be conducted annually, particularly during storm events and should address the following issues:</p> <ul style="list-style-type: none"> ! Storage containers ! Leaking equipment in the parking area ! Rainwater filled containment areas
Spill prevention and response planning	<p>The Fort Meade Spill Prevention Control and Countermeasures Plan (SPCCP) addresses the prevention of accidental spills and releases.</p>
Management of runoff	<p>Potential pollutant contamination from sources has been addressed by the installation of riprap channels and two oil/water separators.</p>

TABLE 3-3-5: BASELINE BEST MANAGEMENT PRACTICES	INDUSTRIAL FACILITY: Motor Pool Building 2120C
BMP	DESCRIPTION
Employee training	<p>An Employee Training Program will be developed to inform personnel of the components and goals of the Storm Water Pollution Prevention Plan.</p> <ul style="list-style-type: none"> ! The employee training program will be integrated into the existing OSHA training program, with a minimum of a one-hour session provided each year. ! Topics for employee training will include spill prevention and response, good housekeeping, and material management practices
Recordkeeping and reporting	<p>A recordkeeping system will be established for documenting spills, leaks, and other discharges as well as inspection reports related to compliance with the Storm Water Pollution Prevention Plan. These records will include:</p> <ul style="list-style-type: none"> ! Date and time of incident ! Duration and cause ! Weather conditions ! Corrective actions ! Parties notified <p>Appropriate DPW-EMO personnel will be notified of spills, leaks, and discharges as specified in the SPCCP.</p>
Inventory of potentially polluting materials	<p>An updated inventory of all potential pollutants stored and handled onsite must be kept. This allows the facility supervisor to be continually aware of the materials located onsite, and to manage materials shipments on and offsite in the most efficient manner.</p>
Sediment and Erosion Control	<p>A site wide Sediment and Erosion Control Plan was developed to identify areas that have high potential for significant soil erosion. The plan also identifies structural, vegetative, and/or stabilization measures to be used to limit erosion.</p>

3.4 MOTOR POOL BUILDING 2246

A. SITE DESCRIPTION

The Motor Pool (Building 2246) is located on the corner of Pepper Road and Huber Road, near the southern border of the Fort. The general layout of the site is shown in Figure 3-4. The building is divided into four wings, of which Wings C and D are active maintenance areas. Wing C is for small vehicle maintenance (such as pickup trucks), and includes two (2) flammable materials cabinets and three (3) parts washers (hot water-biodegradable additive). Wing D is used for heavy equipment maintenance, and includes another two (2) flammable materials cabinets, two (2) parts washers, an oil filter crusher system, and a series of 35-gallon product oil drums stored horizontally on racks.

The outside areas located to the west and east of Wing D are paved, and include a wash rack with an oil/water separator on the West Side. A flammable-materials shed is located outdoors, north of Wing C. Between Wing D and Wing B, there is a POL storage building containing product materials in drums, and two 400-gallon double-walled aboveground waste oil tanks.

Sanitary water from inside the building drains to the Fort Meade sewer system. The wash rack and oil/water separator system is very small, and only captures water falling directly onto the wash rack. The oil water separator discharges to the sanitary sewer system.

There are no floor drains within the buildings. However, there are drains directly outside of the bay openings in Wings C and D. The roof drains also flow into this drain system, which leads to the south to a dry drainage ditch. This ditch flows along the western and southern sides of the parking lot adjacent to Wing D, and receives all runoff from the property, except for wash water that stays on the wash rack. The ditch flows to the south, and eventually meets the flow of Franklin and Midway Branches south of Soldier's Lake.

B. POTENTIAL POLLUTANT SOURCES

A list of the materials used and stored at the facility is maintained at the Hazardous Materials Management Center (Hazmart), and is readily available upon request. In addition, waste oil is stored on site. A list of significant exposed materials is presented in Table 3-4-2.

The potential scenarios for pollution of stormwater from this facility are as follows:

- ! Stormwater transport of minor spills and leaks from the parking lot into the ditch.
- ! The possibility of over wash from the wash rack flowing through the parking lot to the ditch. The wash rack has a very low berm around it, and is very small, so it is unlikely that all wash water is captured by the drain and sent to the oil/water separator.
- ! A release of waste oil from a waste oil storage tank due to either a loading/unloading mishap or by one of the tanks being hit by a vehicle. Material released from these tanks would flow, either overland or through the drains, to the ditch.

! A failure of a drum or associated hosing system from the 35-gallon product drums in Wing D. The containment pan underneath these drums is insufficient to contain the volume of any of the drums. Although these drums are located inside Wing D, they are located at a bay opening, within ten feet of the outside storm drain.

As indicated in Table 3-4-3, no spills or leaks from this facility have occurred within the past three years. There is no available sampling or monitoring data for this facility. A visual assessment of the ditch did not reveal any flow of non-stormwater discharge. A Non-Storm Water Discharge Assessment and Certification Form (to be completed by the facility) is attached as Table 3-4-4, and guidelines for the completion of the certification are included in Appendix B.

C. BEST MANAGEMENT PRACTICES

A summary of current and recommended Baseline BMPs for this facility is contained in Table 3-4-5. This table includes a list of the BMPs, as well as a short narrative description of each. Further BMPs for activities at Fort Meade are discussed in the Fort Meade Spill Prevention, Control, and Countermeasures Plan (SPCCP) (USACE, 1991). A generic sequence for the implementation of BMPs, with the responsibilities of the team members for implementing the plan, is discussed in Section 4.

D. SARA TITLE III, SECTION 313 REQUIREMENTS

No Section 313 water priority chemicals (as defined by the Maryland General Discharge Permit No. 92-GP-0001, Part V.C) were identified at this facility. A blank table is included in Appendix C for listing any such materials that are identified in the future.

INDUSTRIAL FACILITY: Motor Pool Building 2246

TABLE 3-4-1: MATERIAL INVENTORY

MATERIAL	LOCATION	QUANTITY	QUANTITY EXPOSED IN LAST THREE YEARS	LIKELIHOOD OF CONTACT WITH STORMWATER	PAST SIGNIFICANT SPILL OR LEAK	
					YES	NO
Paints	Wing D	See attached inventory, generated by Hazmart	None known	Medium - located within building with no containment, and with storm drains which lead to nearby surface water located just outside the bay doors		X
Product Oil	Wing D	See attached inventory	None known	Medium - located within building with no containment, and with storm drains which lead to nearby surface water located just outside the bay doors		X
Antifreeze	Wing D	See attached inventory	None known	Medium - located within building with no containment, and with storm drains which lead to nearby surface water located just outside the bay doors		X
Waste Oil	Lot between Wing D and Wing B	See attached inventory	None known	Medium - located outdoors on lot with storm drains leading to nearby surface water		X
Gasoline	North to C Wing	See attached inventory	None known	Medium - located outdoors on lot with storm drains leading to nearby surface water		X
Grease	POL storage area	See attached inventory	None known	Low - located within building with adequate containment and no floor drains		X
Antifreeze	POL storage area	See attached inventory	None known	Low - located within building with adequate containment and no floor drains		X
Brake Fluid	POL storage area	See attached inventory	None known	Low - located within building with adequate containment and no floor drains		X

INDUSTRIAL FACILITY: Motor Pool Building 2246

TABLE 3-4-4: NON-STORM WATER DISCHARGE ASSESSMENT AND CERTIFICATION

DATE OF TEST OR EVALUATION	OUTFALL DIRECTLY OBSERVED DURING THE TEST	METHOD USED TO TEST OR EVALUATE DISCHARGE	DESCRIBE RESULTS FROM TEST FOR THE PRESENCE OF NON-STORM WATER DISCHARGE	IDENTIFY POTENTIAL SIGNIFICANT SOURCES	NAME OF PERSON CONDUCTING TEST
2/15/2000	Ditch	VI	No non-stormwater discharge observed		Don Marquardt
1/9/2001	Ditch	VI	No non-stormwater discharge observed		Don Marquardt
5/1/2003	Ditch	VI	No non-stormwater discharge observed		Don Marquardt

CERTIFICATION

I, _____ (responsible facility official), certify under penalty of law that this document and all attachments were prepared under my supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

A. Name or Official Title (type or print)	B. Area Code and Telephone Number
C. Signature	D. Date Signed

INDUSTRIAL FACILITY: Motor Pool Building 2246

TABLE 3-4-5: BASELINE BEST MANAGEMENT PRACTICES

DESCRIPTION

BMP

Good housekeeping practices

Good housekeeping (GH) practices are designed to maintain areas which may contribute pollutants to stormwater discharges (such as the waste oil tanks, the wash rack, and the product oil distribution system) in a clean and orderly manner. In order to ensure a clean and orderly environment, a GH program will be implemented which will include the following elements:

- ! Develop an employee awareness program on GH practices
- ! Regularly pickup and dispose of garbage and waste material
- ! Maintain dry and clean floors and ground surfaces
- ! Store containers, drums, and bags away from direct traffic routes to prevent accidental spills
- ! Properly label all chemical containers in accordance with OSHA, EPA, DOT, and other applicable Federal, State, or Local requirements
- ! Conduct monthly inspections

Preventive maintenance practices

Preventive Maintenance (PM) practices involve the regular inspection and testing of facility equipment. A PM Program will be developed which will include the following:

- ! Identify equipment and areas (such as the waste oil tanks, oil/water separator, and product oil distribution system) that upon failure, could result in discharges
- ! Conduct monthly inspections of these areas
- ! Document inspections
- ! Make timely adjustment, repair, or replacement of identified problems

Visual inspections

Visual Inspections (VI) are intended to provide a mechanism for confirming that the measures chosen to prevent the contamination of stormwater runoff are in place and working properly. VIs should be conducted annually, particularly during storm events and should address the following issues:

- ! Corroded or damaged waste oil tanks, product oil tanks and ancillary equipment, and other storage containers
- ! Leaking equipment
- ! Rainwater filled containment areas

Spill prevention and response planning

The Fort Meade Spill Prevention Control and Countermeasures Plan (SPCCP) addresses the prevention of accidental spills and releases.

Management of runoff

Potential pollutant contamination from sources will be addressed by the installation/construction of vegetative swales, inlet controls (such as oil/water separators), snow management activities, infiltration devices, and wet detention/retention.

TABLE 3-4-5: BASELINE BEST MANAGEMENT PRACTICES	INDUSTRIAL FACILITY: Motor Pool Building 2246
BMP	DESCRIPTION
Employee training	<p>An Employee Training Program will be developed to inform personnel of the components and goals of the Storm Water Pollution Prevention Plan.</p> <ul style="list-style-type: none"> ! The employee training program will be integrated into the existing OSHA training program, with a minimum of a one hour session provided each year. ! Topics for employee training will include spill prevention and response, good housekeeping, and material management practices
Recordkeeping and reporting	<p>A recordkeeping system will be established for documenting spills, leaks, and other discharges as well as inspection reports related to compliance with the Storm Water Pollution Prevention Plan. These records will include:</p> <ul style="list-style-type: none"> ! Date and time of incident ! Duration and cause ! Weather conditions ! Corrective actions ! Parties notified <p>Appropriate DPW-EMO personnel will be notified of spills, leaks, and discharges as specified in the SPPCP.</p>
Inventory of potentially polluting materials	<p>An updated inventory of all potential pollutants stored and handled onsite must be kept. This allows the facility supervisor to be continually aware of the materials located onsite, and to manage materials shipments on and offsite in the most efficient manner. This inventory must be updated and submitted to the DPW-EMO annually.</p>
Sediment and Erosion Control	<p>A site wide Sediment and Erosion Control Plan was developed to identify areas that have high potential for significant soil erosion. The plan also identifies structural, vegetative, and/or stabilization measures to be used to limit erosion.</p>

3.5 MOTOR POOL BUILDING 72-A

A. SITE DESCRIPTION

The Motor Pool (Building 72-A) is located on Rock Avenue along the southern boundary of the Fort. The general layout of the site is shown in Figure 3-5. The facility consists of one building with nineteen bays for the maintenance of heavy equipment and a large parking lot for storing heavy equipment. The bays have floor drains across their openings, which flow to an oil/water separator at the eastern end of the building. Inside the building there is a steam-operated parts washer, and three storage tanks for product POLs, but these are contained in the building. At the eastern end of the building, there is a 800-gallon aboveground waste oil tank (double-walled).

Sanitary water from inside the building drains to the Fort Meade sewer system. The floor drains within the building drain to an oil/water separator. The oil water separator discharges to the sanitary sewer system. Stormwater flowing onto the parking lot flows to a dry ditch, which forms the northern and eastern boundaries of the property. These ditches flow to the east to meet Midway Branch just north of Allen Lake.

B. POTENTIAL POLLUTANT SOURCES

A list of the materials used and stored at the facility is contained in Table 3-5-1, and a list of significant exposed materials is presented in Table 3-5-2.

The potential scenarios for pollution of stormwater from this facility are as follows:

- ! Stormwater transport of minor spills and leaks from the parking lot into the ditch.
- ! The use of a high-pressure hose to clean the floors inside the building may result in pollutants being washed over the drains and into the parking lot. Flow through the parking lot will then continue to flow to the ditch.
- ! The possibility of a release from the waste oil storage tank.

As indicated in Table 3-5-3, no spills or leaks from this facility have occurred within the past three years. There is no available sampling or monitoring data for this facility. A visual assessment of the ditch did not reveal any flow of non-stormwater discharge. A Non-Storm Water Discharge Assessment and Certification Form (to be completed by EMO) is attached as Table 3-5-4, and guidelines for the completion of the certification are included in Appendix B.

C. BEST MANAGEMENT PRACTICES

A summary of current and recommended Baseline BMPs for this facility is contained in Table 3-5-5. This table includes a list of the BMPs, as well as a short narrative description of each. Further

BMPs for activities at Fort Meade are discussed in the Fort Meade Spill Prevention, Control, and Countermeasures Plan (SPCCP) (USACE, 1991). A generic sequence for the implementation of BMPs, with the responsibilities of the team members for implementing the plan, is discussed in Section 4.

D. SARA TITLE III, SECTION 313 REQUIREMENTS

No Section 313 water priority chemicals (as defined by the Maryland General Discharge Permit No. 92-GP-0001, Part V.C) were identified at this facility. A blank table is included in Appendix C for listing any such materials that are identified in the future.

TABLE 3-5-1: MATERIAL INVENTORY

INDUSTRIAL FACILITY: Motor Pool Building 72-A.

MATERIAL	LOCATION	QUANTITY	QUANTITY EXPOSED IN LAST THREE YEARS	LIKELIHOOD OF CONTACT WITH STORMWATER	PAST SIGNIFICANT SPILL OR LEAK	
					YES	NO
Zep Cherry Bomb	Bldg. 72A	4 bottles	None known	Low - located within building with floor drains leading to an oil/water separator		X
Degreaser	Bldg. 72A	1 - 1 1/2 gallons	None known	Low - located within building with floor drains leading to an oil/water separator		X
Lube oil	Bldg. 72A	55 gallons	None known	Low - located within building with floor drains leading to an oil/water separator		X
Penetrating oil	Bldg. 72A	2 cans	None known	Low - located within building with floor drains leading to an oil/water separator		X
RTV Red Sealant	Bldg. 72A	5 bottles	None known	Low - located within building with floor drains leading to an oil/water separator		X
Windex	Bldg. 72A	3 bottles	None known	Low - located within building with floor drains leading to an oil/water separator		X
Urinal Buoy	Bldg. 72A	2	None known	Low - located within building with floor drains leading to an oil/water separator		X
Goo Gone	Bldg. 72A	1 bottle	None known	Low - located within building with floor drains leading to an oil/water separator		X
Round One	Bldg. 72A	1 can	None known	Low - located within building with floor drains leading to an oil/water separator		X
Hand cleaner	Bldg. 72A	1 can	None known	Low - located within building with floor drains leading to an oil/water separator		X
Windshield Cleaner	Bldg. 72A	1 bottle	None known	Low - located within building with floor drains leading to an oil/water separator		X

INDUSTRIAL FACILITY: Motor Pool Building 72-A

TABLE 3-5-1: MATERIAL INVENTORY

MATERIAL	LOCATION	QUANTITY	QUANTITY EXPOSED IN LAST THREE YEARS	LIKELIHOOD OF CONTACT WITH STORMWATER	PAST SIGNIFICANT SPILL OR LEAK	
					YES	NO
Pine Oil	Bldg. 72A	1 gallon	None known	Low - located within building with floor drains leading to an oil/water separator.		X
Waste Oil	East of Bldg. 72A	400-gallon tank	None known	Medium - located within a containment structure which is too small to contain the entire volume of the tank. Parking lot drains to a ditch.		X

INDUSTRIAL FACILITY: Motor Pool Building 72-A

TABLE 3-5-4: NON-STORM WATER DISCHARGE ASSESSMENT AND CERTIFICATION

DATE OF TEST OR EVALUATION	OUTFALL DIRECTLY OBSERVED DURING THE TEST	METHOD USED TO TEST OR EVALUATE DISCHARGE	DESCRIBE RESULTS FROM TEST FOR THE PRESENCE OF NON-STORM WATER DISCHARGE	IDENTIFY POTENTIAL SIGNIFICANT SOURCES	NAME OF PERSON CONDUCTING TEST
4 JAN 2001	Drainage ditch north of site	VI	No non-stormwater discharge observed.		Donald Marquardt
13 Feb 2002	Drainage ditch north of site	VI	No non-stormwater discharge observed.		Donald Marquardt
8 April 2003	Parking Lot	VI	No non-stormwater discharge observed		Don Marquardt

CERTIFICATION

I, _____ (responsible facility official), certify under penalty of law that this document and all attachments were prepared under my supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

A. Name of Official Title (type or print) _____

B. Area Code and Telephone Number _____

C. Signature _____

D. Date Signed _____

TABLE 3-5-5: BASELINE BEST MANAGEMENT PRACTICES	INDUSTRIAL FACILITY: Motor Pool Building 72-A
BMP	DESCRIPTION
Good housekeeping practices	<p>Good housekeeping (GH) practices are designed to maintain areas which may contribute pollutants to stormwater discharges (such as the waste oil tank) in a clean and orderly manner. In order to ensure a clean and orderly environment, a GH program will be implemented which will include the following elements:</p> <ul style="list-style-type: none"> ! Develop an employee awareness program on GH practices ! Regularly pickup and dispose of garbage and waste material ! Maintain dry and clean floors and ground surfaces ! Store containers, drums, and bags away from direct traffic routes to prevent accidental spills ! Properly label all chemical containers in accordance with OSHA, EPA, DOT, and other applicable Federal, State, or Local requirements ! Conduct monthly inspections
Preventive maintenance practices	<p>Preventive Maintenance (PM) practices involve the regular inspection and testing of facility equipment. A PM Program will be developed which will include the following:</p> <ul style="list-style-type: none"> ! Identify equipment and areas (such as the eastern side of the site, with the waste oil tank) that upon failure, could result in discharges ! Conduct monthly inspections of these areas ! Document inspections ! Make timely adjustment, repair, or replacement of identified problems
Visual inspections	<p>Visual Inspections (VI) are intended to provide a mechanism for confirming that the measures chosen to prevent the contamination of stormwater runoff are in place and working properly. VIs should be conducted monthly, particularly during storm events and should address the following issues:</p> <ul style="list-style-type: none"> ! Waste oil tank and ancillary equipment, and other storage containers ! Leaking equipment stored on parking lot ! Rainwater filled containment areas
Spill prevention and response planning	<p>The Fort Meade Spill Prevention Control and Countermeasures Plan (SPCCP) addresses the prevention of accidental spills and releases</p>
Management of runoff	<p>Potential pollutant contamination from sources will be addressed by the installation/construction of vegetative swales, inlet controls (such as oil/water separators), snow management activities, infiltration devices, and wet detention/retention.</p>

INDUSTRIAL FACILITY: Motor Pool Building 72-A

TABLE 3-5-5: BASELINE BEST MANAGEMENT PRACTICES	
BMP	DESCRIPTION
Employee training	<p>An Employee Training Program will be developed to inform personnel of the components and goals of the Storm Water Pollution Prevention Plan.</p> <ul style="list-style-type: none"> ! The employee training program will be integrated into the existing OSHA training program, with a minimum of a one-hour session provided each year. ! Topics for employee training will include spill prevention and response, good housekeeping, and material management practices
Recordkeeping and reporting	<p>A recordkeeping system will be established for documenting spills, leaks, and other discharges as well as inspection reports related to compliance with the Storm Water Pollution Prevention Plan. These records will include:</p> <ul style="list-style-type: none"> ! Date and time of incident ! Duration and cause ! Weather conditions ! Corrective actions ! Parties notified <p>Appropriate DPW-EMO personnel will be notified of spills, leaks, and discharges as specified in the SPCCP.</p>
Inventory of potentially polluting materials	<p>An updated inventory of all potential pollutants stored and handled onsite must be kept. This allows the facility supervisor to be continually aware of the materials located onsite, and to manage materials shipments on and offsite in the most efficient manner. This inventory must be updated and submitted to the DPW-EMO annually.</p>
Sediment and Erosion Control	<p>A site wide Sediment and Erosion Control Plan was developed to identify areas that have high potential for significant soil erosion. The plan also identifies structural, vegetative, and/or stabilization measures to be used to limit erosion.</p>

3.6 MOTOR POOL BUILDING 2253

A. SITE DESCRIPTION

The DCA Vehicle Maintenance Motor Pool (Building 2253) is located on Huber Road near the southeastern border of the Fort. The general layout of the site is shown in Figure 3-6. The facility consists of one building with four bays for the maintenance of trucks and heavy equipment. The building is surrounded by asphalt parking lots on the North, East and West sides and by grass on the South. On the western parking lot, the facility maintains two 400-gallon above ground waste oil tanks (double-walled). On the eastern parking lot, the facility maintains a hazardous waste storage shed and a compressed gas storage shed.

Sanitary water from inside the building drains to the Fort Meade sewer system. Two floor drains within the building also drain to the sewer system. The eastern parking lot is sloped to a dry drainage ditch that flows to the south, and eventually meets the flow of Franklin and Midway Branches south of Allen Lake.

B. POTENTIAL POLLUTANT SOURCES

A list of the materials used and stored at the facility is contained in Table 3-6-1, and a list of significant exposed materials is presented in Table 3-6-2.

The potential scenarios for pollution of stormwater from this facility are as follows:

- ! Stormwater transport of minor spills and leaks from the parking lot into the ditch.
- ! The release of material due to an accident during loading or unloading of the hazardous waste storage shed or above ground tanks.

As indicated in Table 3-6-3, no spills or leaks from this facility have occurred within the past three years. There is no available sampling or monitoring data for this facility. A visual assessment of the floor drains, storm drains, and ditches leading from this site did not reveal any flow of non-storm water discharge. A Non-Storm Water Discharge Assessment and Certification Form is attached as Table 3-6-4, and guidelines for the completion of the certification are included in Appendix B.

C. BEST MANAGEMENT PRACTICES

A summary of current and recommended Baseline BMPs for this facility is contained in Table 3-6-5. This table includes a list of the BMPs, as well as a short narrative description of each. Further BMPs for activities at Fort Meade are discussed in the Fort Meade Spill Prevention, Control, and Countermeasures Plan (SPCCP) (USACE, 1991). A generic sequence for the implementation of BMPs, with the responsibilities of the team members for implementing the plan, is discussed in Section 4.

D. SARA TITLE III, SECTION 313 REQUIREMENTS

No Section 313 water priority chemicals (as defined by the Maryland General Discharge Permit No. 92-GP-0001, Part V.C) were identified at this facility. A blank table is included in Appendix C for listing any such materials that are identified in the future.

TABLE 3-6-1: MATERIAL INVENTORY

INDUSTRIAL FACILITY: Motor Pool Building 2253

MATERIAL	LOCATION	QUANTITY	QUANTITY EXPOSED IN LAST THREE YEARS	LIKELIHOOD OF CONTACT WITH STORMWATER	PAST SIGNIFICANT SPILL OR LEAK	
					YES	NO
Gasoline	Hazardous waste storage shed	11 gallons	None known	Low - located within secondary containment		X
Mixed Fuels	Storage shed	5 gallon cans	None known	Low - located within secondary containment		X
Gasoline	Storage shed	5 gallon cans	None known	Low - located within secondary containment		X
Waste Oil	West side of Parking Lot	2 400-gallon tanks	None known	Low - located within secondary containment		X
Waste Oil	Storage room	3-5 gallon buckets	None known	Low - located within building with no floor drains		X
Fertilizers	Storage room	25 - 50 lb bags	None known	Low - located within building with no floor drains		X
Product Oil	Storage room	110 gallons	None known	Low - located within building with no floor drains		X
Hydraulic Fluid	Storage room	165 gallons	None known	Low - located within building with no floor drains		X
Penetrating Oil	Storage room	24 aerosol cans	None Known	Low - located within building with no floor drains		X
Grease	Storage room	24 aerosol cans & 15 gal can	None Known	Low - located within building with no floor drains		X
Propane	Hazardous Waste Storage Shed	8-30 pound cylinders	None Known	Low - located within secondary containment		X

TABLE 3-6-4: NON-STORM WATER DISCHARGE ASSESSMENT AND CERTIFICATION INDUSTRIAL FACILITY: Motor Pool Building 2253

DATE OF TEST OR EVALUATION	OUTFALL DIRECTLY OBSERVED DURING THE TEST	METHOD USED TO TEST OR EVALUATE DISCHARGE	DESCRIBE RESULTS FROM TEST FOR THE PRESENCE OF NON-STORM WATER DISCHARGE	IDENTIFY POTENTIAL SIGNIFICANT SOURCES	NAME OF PERSON CONDUCTING TEST
2/15/2000	Ditch (North of site)	VI	No non-stormwater discharge observed		Don Marquardt
6 Sep 2000	Ditch	VI	Observed soil in west part of yard was washing toward storm drain, but had'nt reached SD yet.	Stockpiled soil in west yard	Don Marquardt
17 Oct	Storm drain north of site: and ditch	VI	No non-stormwater discharge observed		Don Marquardt
11 March 2003	Storm drain north of site	VI	No non-stormwater discharge observed		Don Marquardt

CERTIFICATION

I, _____ (responsible facility official), certify under penalty of law that this document and all attachments were prepared under my supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

A. Name or Official Title (type or print) _____ B. Area Code and Telephone Number _____

C. Signature _____ D. Date Signed _____

TABLE 3-6-5: BASELINE BEST MANAGEMENT PRACTICES	INDUSTRIAL FACILITY: Motor Pool Building 2253
BMP	DESCRIPTION
Good housekeeping practices	<p>Good housekeeping (GH) practices are designed to maintain areas which may contribute pollutants to stormwater discharges (such as the waste oil) in a clean and orderly manner. In order to ensure a clean and orderly environment, a GH program will be implemented which will include the following elements:</p> <ul style="list-style-type: none"> ! Develop an employee awareness program on GH practices ! Regularly pickup and dispose of garbage and waste material ! Maintain dry and clean floors and ground surfaces ! Store containers, drums, and bags away from direct traffic routes to prevent accidental spills ! Properly label all chemical containers in accordance with OSHA, EPA, DOT, and other applicable Federal, State, or Local requirements ! Conduct monthly inspections
Preventive maintenance practices	<p>Preventive Maintenance (PM) practices involve the regular inspection and testing of facility equipment. A PM Program will be developed which will include the following:</p> <ul style="list-style-type: none"> ! Identify equipment and areas (such as the waste oil tank) that upon failure, could result in discharges ! Conduct monthly inspections of these areas ! Document inspections ! Make timely adjustment, repair, or replacement of identified problems
Visual inspections	<p>Visual inspections (VI) are intended to provide a mechanism for confirming that the measures chosen to prevent the contamination of stormwater runoff are in place and working properly. VIs should be conducted periodically, particularly during storm events and should address the following issues:</p> <ul style="list-style-type: none"> ! Corroded or damaged tanks and ancillary equipment, and other storage containers ! Leaking equipment ! Rainwater filled containment areas
Spill prevention and response planning	<p>The Fort Meade Spill Prevention Control and Countermeasures Plan (SPCCP) addresses the prevention of accidental spills and releases.</p>
Management of runoff	<p>Potential pollutant contamination from sources will be addressed by the installation/construction of vegetative swales, inlet controls (such as oil/water separators, snow management activities, infiltration devices, and wet detention/retention).</p>

INDUSTRIAL FACILITY: Motor Pool Building 2253

TABLE 3-6-5: BASELINE BEST MANAGEMENT PRACTICES

BMP	DESCRIPTION
Employee training	<p>An Employee Training Program will be developed to inform personnel of the components and goals of the Storm Water Pollution Prevention Plan.</p> <ul style="list-style-type: none"> ! The employee training program will be integrated into the existing OSHA training program, with a minimum of a one-hour session provided each year. ! Topics for employee training will include spill prevention and response, good housekeeping, and material management practices
Recordkeeping and reporting	<p>A recordkeeping system will be established for documenting spills, leaks, and other discharges as well as inspection reports related to compliance with the Storm Water Pollution Prevention Plan. These records will include:</p> <ul style="list-style-type: none"> ! Date and time of incident ! Duration and cause ! Weather conditions ! Corrective actions ! Parties notified <p>Appropriate DPW-EMO personnel will be notified of spills, leaks, and discharges as specified in the SPCCP.</p>
Sediment and Erosion Control	<p>A site wide Sediment and Erosion Control Plan was developed to identify areas that have high potential for significant soil erosion. The plan also identifies structural, vegetative, and/or stabilization measures to be used to limit erosion.</p>
Inventory of potentially polluting materials	<p>An updated inventory of all potential pollutants stored and handled onsite must be kept. This allows the facility supervisory to be continually aware of the materials located onsite, and to manage materials shipments on and offsite in the most efficient manner. This inventory must be updated and submitted to the DPW-EMO annually.</p>

3.7 ADVANCED WASTEWATER TREATMENT PLANT BUILDING 9581

A. SITE DESCRIPTION

The Advanced Wastewater Treatment Plant (AWWTP) is located on the Little Patuxent River at the Route 198 bridge. The general layout of the site is shown in Figure 3-7. The facility consists of one main building (Building 9581) and numerous treatment tanks, an aboveground storage tank for methanol, one aboveground storage tank for No. 2 fuel oil located adjacent to the main building, and two aboveground storage tanks for No. 2 fuel oil located at the low-lift pumping station, building 9599. Due to recent conversion to natural gas, one AST at building 9599 will be removed. The AST is currently empty and awaiting removal. Wastewater is treated at the plant through the addition of sulfur dioxide, chlorine, lime, sodium bicarbonate, methanol, ferric chloride, and anion polymers all of which are stored onsite. The facility discharges treated wastewater through a NPDES permitted outfall on the Little Patuxent River. In addition, a small amount of the treated wastewater is pumped to the Fort Meade golf course, and used for irrigation.

The AWWTP is located adjacent to the Little Patuxent River, and there are at least twelve storm drains on the property which discharge into the river through an outfall adjacent and west of the outfall for the treated wastewater. The property is sloped so that all stormwater from the site enters the storm drains.

B. POTENTIAL POLLUTANT SOURCES

A list of bulk and operational materials used and stored at the facility is contained in Table 3-7-1; and an updated list of non-operational materials used and stored at the facility is maintained at the Hazardous Materials Management Center (Hazmart), and is readily available upon request. A list of significant exposed materials is presented in Table 3-7-2.

The potential scenarios for pollution of stormwater from this facility are as follows:

- o A release of methanol from the loading, unloading, or storage of methanol at 5000 gallon storage tank at rear of building. A spill at the tank would flow to the storm drain.
- o A release of lime through either the failure of one of the silos, or from stormwater washing of lime from the driveway west of the main building into a storm drain. Powdered lime is stored in two silos on top of the building, and minor spills from loading and unloading beneath the tanks may occur.

A list of spills or leaks from this facility within the past three years is contained in Table 3-7-3. There is no available sampling or monitoring data for this facility. The permitted outfall on the Little Patuxent River was observed to be discharging non-storm water flow during the latest annual inspection (1 May 2002). A Non-Storm Water Discharge Assessment and Certification Form (to be completed by the facility) is attached as Table 3-7-4, and guidelines for the completion of the certification are included in

Appendix B.

C. BEST MANAGEMENT PRACTICES

A summary of current and recommended Baseline BMPs for this facility is contained in Table 3-7-5. This table includes a list of the BMPs, as well as a short narrative description of each. Further BMPs for activities at Fort Meade are discussed in the Fort Meade Spill Prevention, Control, and Countermeasures Plan (SPCCP) (USACE, 1991). A generic sequence for the implementation of BMPs, with the responsibilities of the team members for implementing the plan, is discussed in Section 4.

Portable containment units have been procured and are utilized during bulk lime deliveries at lime silo fill pipes and bulk methanol deliveries at methanol fill pipe in lieu of fixed secondary containment.

D. SARA TITLE III, SECTION 313 REQUIREMENTS

Table 3-8-6 lists the water priority chemical present at the installation, above the reporting threshold and utilized at the AWWTP. Chlorine is stored and utilized at the AWWTP for disaffection. The chlorine is in a gaseous form contained in cylinders and stored inside a chemical storage facility at the plant. Therefore, no potential for contamination of stormwater exists, and no preventive measures for stormwater contamination are required.

TABLE 3-7-1: MATERIAL INVENTORY

INDUSTRIAL FACILITY: Advanced Wastewater Treatment Plant
Building 9581

MATERIAL	LOCATION	QUANTITY	QUANTITY EXPOSED IN LAST THREE YEARS	LIKELIHOOD OF CONTACT WITH STORMWATER	PAST SIGNIFICANT SPILL OR LEAK	
					YES	NO
Methanol	Bulk Storage Tank	3400 gallons	None known	Low-the tank is a double-walled tank.		X
Quick Lime	In silos on the roof of the main building	127 tons	Minor spills during filling operations.	Med - portable containment is onsite during filling which occurs near storm drain.		X
Sodium Bicarbonate	Main building-basement	3,500 lbs	None known	Low - located inside a building with no floor drains		X
Ferric Chloride	Main building-basement	8,000 gallons	None known	Low - located inside a building with no floor drains		X
Sulfur Dioxide	Building 9580	840 lbs. On line, 12,390 lbs. Standby inventory	None known	Low-gaseous Sulfur Dioxide		
Chlorine	Building 9580	3450 lbs on line, 10,230 lbs standby inventory	None known	Low-gaseous chlorine		X
Anion Polymers (Polymer Naico)	Main building-basement	80 gallons (55-gl drums)	None known	Low - located inside a building with no floor drains		X
Gasoline	Storage area, indoors	10 gallons	None known	Low- located inside a building (bldg 9580) with no floor drains.		X

TABLE 3-7-3: LIST OF SIGNIFICANT SPILLS AND LEAKS

INDUSTRIAL FACILITY: Advanced Wastewater Treatment
Plant Building 9581

DATE	LOCATION	TYPE OF MATERIAL	QUANTITY	SOURCE (IF KNOWN)	RESPONSE
8/4/93	not reported	Grease, water, and scum	200 to 300 gallons		The material was hosed into a clean-up drain, and then lime was applied.
3/19/93	not reported	#2 fuel oil	10 gallons	Occurred while refilling underground storage tank.	not reported
2/26/93	not reported	#2 fuel oil	20 to 25 gallons	Occurred while refilling underground storage tank.	not reported
8/10/02		Chlorine	Unk.	Cylinder	In-house

TABLE 3-7-4; NON-STORM WATER DISCHARGE ASSESSMENT AND CERTIFICATION

INDUSTRIAL FACILITY: Advanced Wastewater Treatment Plant Building 9581

DATE OF TEST OR EVALUATION	OUTFALL DIRECTLY OBSERVED DURING THE TEST	METHOD USED TO TEST OR EVALUATE DISCHARGE	DESCRIBE RESULTS FROM TEST FOR THE PRESENCE OF NON-STORM WATER DISCHARGE	IDENTIFY POTENTIAL SIGNIFICANT SOURCES	NAME OF PERSON CONDUCTING TEST
9/24/2001	River Outfall	VI	No non-stormwater discharge observed		Don Marquardt
11/30/01	River Outfall	VI	No non-stormwater discharge observed		Don Marquardt
2/28/02	River Outfall	VI	No non-stormwater discharge observed		Don Marquardt
5/1/02	River Outfall	VI	No non-stormwater discharge observed		Don Marquardt
6/10/03	Storm Drains	VI	No non-stormwater discharge observed		Don Marquardt

CERTIFICATION

I, _____ (responsible facility official), certify under penalty of law that this document and all attachments were prepared under my supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

A. Name or Official Title (type or print) _____ B. Area Code and Telephone Number _____

C. Signature _____ D. Date Signed _____

TABLE 3-7-5: BASELINE BEST MANAGEMENT PRACTICES	INDUSTRIAL FACILITY: Advanced Wastewater Treatment Plant Building 9581
BMP	DESCRIPTION
Good housekeeping practices	<p>Good housekeeping (GH) practices are designed to maintain areas which may contribute pollutants to stormwater discharges (such as the asphalt area beneath the lime silos, and the methanol drum storage area) in a clean and orderly manner. In order to ensure a clean and orderly environment, a GH program will be implemented which will include the following elements:</p> <ul style="list-style-type: none"> ! Develop an employee awareness program on GH practices ! Regularly pickup and dispose of garbage and waste material ! Maintain dry and clean floors and ground surfaces ! Store containers, drums, and bags away from direct traffic routes to prevent accidental spills ! Properly label all chemical containers in accordance with OSHA, EPA, DOT, and other applicable Federal, State, or Local requirements ! Conduct monthly inspections
Preventive maintenance practices	<p>Preventive Maintenance (PM) practices involve the regular inspection and testing of facility equipment. A PM Program will be developed which will include the following:</p> <ul style="list-style-type: none"> ! Identify equipment and areas (such as the lime silos) that upon failure, could result in discharges ! Conduct monthly inspections of these areas ! Document inspections ! Make timely adjustment, repair, or replacement of identified problems
Visual inspections	<p>Visual Inspections (VI) are intended to provide a mechanism for confirming that the measures chosen to prevent the contamination of stormwater runoff are in place and working properly. Vis should be conducted annually, particularly during storm events and should address the following issues:</p> <ul style="list-style-type: none"> ! Corroded or damaged drums, tanks and ancillary equipment, containment structures, and other storage containers ! Leaking equipment ! Rainwater filled containment areas
Spill prevention and response planning	<p>The Fort Meade Spill Prevention Control and Countermeasures Plan (SPCCP) addresses the prevention of accidental spills and releases.</p>
Management of runoff	<p>Potential pollutant contamination from sources will be addressed by the installation/construction of vegetative swales, inlet controls (such as oil/water separators, snow management activities, infiltration devices, and wet detention/retention).</p>

TABLE 3-7-5: BASELINE BEST MANAGEMENT PRACTICES

INDUSTRIAL FACILITY: Advanced Wastewater Treatment Plant Building 9581

BMP

DESCRIPTION

Employee training

An Employee Training Program will be developed to inform personnel of the components and goals of the Storm Water Pollution Prevention Plan.
 ! The employee training program will be integrated into the existing OSHA training program, with a minimum of a one hour session provided each year.
 ! Topics for employee training will include spill prevention and response, good housekeeping, and material management practices

Recordkeeping and reporting

A recordkeeping system will be established for documenting spills, leaks, and other discharges as well as inspection reports related to compliance with the Storm Water Pollution Prevention Plan. These records will include:
 ! Date and time of incident
 ! Duration and cause
 ! Weather conditions
 ! Corrective actions
 ! Parties notified
 Appropriate DPW-EMO personnel will be notified of spills, leaks, and discharges as specified in the SPCCP.

Inventory of potentially polluting materials

An updated inventory of all potential pollutants stored and handled onsite is kept. This allows the facility supervisor to be continually aware of the materials located onsite, and to manage materials shipments on and offsite in the most efficient manner. This inventory must be updated and submitted to the DPW-EMO annually.

Sediment and Erosion Control

A site Sediment and Erosion Control Plan was developed to identify areas that have high potential for significant soil erosion. The plan also identifies structural, vegetative, and/or stabilization measures to be used to limit erosion.

3.8 LANDFILL

A. SITE DESCRIPTION

The Fort Meade landfill is located on Magazine Road on the southwestern portion of the Fort. The layout of the landfill area is shown in Figure 3-8. The landfill was used for municipal refuse and construction debris generated on the Fort, as well as sludge from the Wastewater Treatment Plant. The landfill consists of two cells. The landfill closed operations in Jan 96. Both cells are closed and covered with vegetation.

Drainage pathways around the landfill have been engineered to channel stormwater runoff around the edges of the cells (and away from the tops of the cells) to join the natural drainage southwest of the landfill. The drainage system passes through one artificial sediment-settling pond west of Cell 2, and through an artificial pond southwest of the landfill area, near the main gate on Magazine Road. From this point, the drainage flows to the Little Patuxent River.

B. POTENTIAL POLLUTANT SOURCES

A list of the materials used and stored at the facility is contained in Table 3-8-1, and a list of significant exposed materials is presented in Table 3-8-2.

The potential scenarios for pollution of stormwater from this facility are as follows:

! The release of leachate from beneath the landfill into the surface water drainage. This could happen either during a rainfall event either through elevation of the water table or through erosion of the sides of the landfill.

! Erosion of soil and waste contents into the surface water drainage.

! A release of fuel or oil from machinery operating on site.

! A release of purge water (generated during groundwater monitoring events) from drums stored on site. Occasionally, a portion of the purge water is designated as "hazardous".

As indicated in Table 3-8-3, no spills or leaks from this facility have occurred within the past three years. There is available sampling or monitoring data for this facility. A groundwater/surface water monitoring program is in-place, with sampling events scheduled twice a year. Monitoring results are kept on file in the DPW, Environmental Management Office. A visual assessment of the ditch between cell 1 and cell 2 and the artificial ponds did not identify any non-stormwater discharges. A Non-Storm Water Discharge Assessment and Certification Form (to be completed by the facility) is attached as Table 3-8-4, and guidelines for the completion of the certification are included in Appendix B.

C. BEST MANAGEMENT PRACTICES

A summary of current and recommended Baseline BMPs for this facility is contained in Table

3-8-5. Most of the standard BMPs regarding the handling and storage of chemicals do not apply to this facility. This table includes a list of the BMPs that do apply, as well as a short narrative description of each. Further BMPs for activities at Fort Meade are discussed in the Fort Meade Spill Prevention, Control, and Countermeasures Plan (SPCCP) (USACE, 1991). A generic sequence for the implementation of BMPs, with the responsibilities of the team members for implementing the plan, is discussed in Section 4.

D. SARA TITLE III, SECTION 313 REQUIREMENTS

No Section 313 water priority chemicals (as defined by the Maryland General Discharge Permit No. 92-GP-0001, Part V.C) were identified at this facility. A blank table is included in Appendix C for listing any such materials that are identified in the future.

TABLE 3-8-4: NON-STORM WATER DISCHARGE ASSESSMENT AND CERTIFICATION		INDUSTRIAL FACILITY: Landfill			
DATE OF TEST OR EVALUATION	OUTFALL DIRECTLY OBSERVED DURING THE TEST	METHOD USED TO TEST OR EVALUATE DISCHARGE	DESCRIBE RESULTS FROM TEST FOR THE PRESENCE OF NON-STORM WATER DISCHARGE	IDENTIFY POTENTIAL SIGNIFICANT SOURCES	NAME OF PERSON CONDUCTING TEST
28 Dec 1999	SW-3 Outfall, SWIM pond	VI	No non-stormwater discharge observed.	Donald Marquardt	
29 Feb 2000	All outfalls	VI	No non-stormwater discharge observed.	Donald Marquardt	
30 March 2000	SW-3	VI	No non-stormwater discharge observed.	Donald Marquardt	
1 August 2000	All outfalls	VI	No non-stormwater discharge observed.	Donald Marquardt	
6 Feb 2001	SW-2, SW-3	VI	No non-stormwater discharge observed.	Donald Marquardt	
29 May 2003	SW -3	VI	No non-stormwater discharge observed	Donald Marquardt	

CERTIFICATION

I, _____ (responsible facility official), certify under penalty of law that this document and all attachments were prepared under my supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

A. Name or Official Title (type or print)

B. Area Code and Telephone Number

C. Signature

D. Date Signed

TABLE 3-8-5: BASELINE BEST MANAGEMENT PRACTICES	INDUSTRIAL FACILITY: Landfill
BMP	DESCRIPTION
Good housekeeping practices	<p>Good housekeeping (GH) practices are designed to maintain areas which may contribute pollutants to stormwater discharges in a clean and orderly manner. In order to ensure a clean and orderly environment, a GH program will be implemented which will include the following elements:</p> <ul style="list-style-type: none"> ! Develop an employee awareness program on GH practices ! Regularly pickup and dispose of garbage and waste material ! Maintain dry and clean floors and ground surfaces ! Store containers, drums, and bags away from direct traffic routes to prevent accidental spills ! Properly label all chemical containers in accordance with OSHA, EPA, DOT, and other applicable Federal, State, or Local requirements ! Conduct monthly inspections. <p>Some of these requirements may not be applicable at the landfill, since no chemicals are stored there.</p>
Preventive maintenance practices	<p>Preventive Maintenance (PM) practices involve the regular inspection and testing of facility equipment. A PM Program will be developed which will include the following:</p> <ul style="list-style-type: none"> ! Identify equipment and areas (such as waste delivery trucks, heavy equipment stored on site) that upon failure, could result in discharges ! Conduct monthly inspections of these areas ! Document inspections ! Make timely adjustment, repair, or replacement of identified problems
Visual inspections	<p>Visual Inspections (VI) are intended to provide a mechanism for confirming that the measures chosen to prevent the contamination of stormwater runoff are in place and working properly. VIs should be conducted monthly, particularly during storm events and should address the following issues:</p> <ul style="list-style-type: none"> ! Erosion of the cover of the landfill ! The production of leachate from the landfill <p>These inspections are in place, and are supplemented by state inspections to verify compliance with the landfill permit.</p>

TABLE 3-8-5: BASELINE BEST MANAGEMENT PRACTICES	INDUSTRIAL FACILITY: Landfill
BMP	DESCRIPTION
Management of runoff	Management of runoff is being addressed by the construction of caps, liners, and drainage systems as part of the State of Maryland permitting process.
Employee training	<p>An Employee Training Program is ongoing to inform personnel of the components and goals of the Storm Water Pollution Prevention Plan.</p> <ul style="list-style-type: none"> ! The employee training program is integrated into the existing OSHA training program, with a minimum of a one-hour session provided each year. ! Topics for employee training include spill prevention and response, good housekeeping, and material management practices
Recordkeeping and reporting	<p>A recordkeeping system is established for documenting spills, leaks, and other discharges as well as inspection reports related to compliance with the Storm Water Pollution Prevention Plan. These records will include:</p> <ul style="list-style-type: none"> ! Date and time of incident ! Duration and cause ! Weather conditions ! Corrective actions ! Parties notified <p>Appropriate DPW-EMO personnel will be notified of spills, leaks, and discharges as specified in the SPCCP.</p>
Sediment and Erosion Control	A site wide Sediment and Erosion Control Plan was developed to identify areas that have high potential for significant soil erosion. The plan also identifies structural, vegetative, and/or stabilization measures to be used to limit erosion.

TABLE 3-8-5: BASELINE BEST MANAGEMENT PRACTICES	INDUSTRIAL FACILITY: Landfill
BMP	DESCRIPTION
Spill prevention and response planning	The Fort Meade Spill Prevention Control and Countermeasure Plan (SPCCP) addresses the prevention of accidental spills and releases.
Inventory of potentially polluting materials	An updated inventory of all potential pollutants stored and handled onsite is kept. The inventory should continue to be updated by DPW-EMO annually.

3.9 THE DEFENSE REUTILIZATION AND MARKETING OFFICE STORAGE FACILITY

A. SITE DESCRIPTION

The Defense Reutilization and Marketing Office (DRMO) Storage Facility is located off Rock Avenue on the southeastern edge of Fort Meade. The general layout of the site is shown in Figure 3-9. The site includes a yard for the storage of scrap metal prior to sale, two storage yards for potential usable property, two buildings (77 and 78), a satellite Hazardous Waste Storage area at the western end of building 78, an above-ground storage tank for #2 fuel oil located within building 77, an above-ground storage tank for diesel fuel at the northwest corner of building 78, and a truck weighing scale. The #2 fuel oil tank in the mechanical room of building 77 is used to operate a fire suppression system. This aboveground tank has secondary containment. During the recent annual inspection, the DRMO Environmental Chief stated that the diesel fuel tank presently located at northwest corner of building #78 would be relocated to an existing secondary-containment area on east side of building # 78. The satellite Hazardous Waste storage area contains a hazardous waste storage conex. The conex provides secondary containment for any materials inside.

Building 77 consists of a main administrative area and a large warehouse for the storage of usable materials and equipment. Materials stored in the warehouse are non-regulated by EPA, DOT and TOSCA and include POL's, priority inks, solvents, latex paints, oils, lubricants, alkaline batteries, copier supplies, and unused adhesives. There are two (2) floor drains within the building, in the vicinity of the battery recharging area. The disposition of these floor drains is unknown. In the event of a spill, requirements as specified in the Installation Spill Contingency Plan must be followed. Building 77 is surrounded by asphalt with a packing lot on the north end of the building, and an additional parking area and truck weighing scale on the east end of the building. Building 78 consists of a small administration area and a holding area for industrial plant equipment; and is located in the southeastern portion of the site next to the scrap metal yard. Two floor drains in the holding area are connected to an oil water separator (OWS) at the northwest corner of the building. The OWS discharges into the sanitary sewer system as determined from site utility plans. Two floor drains, one in the holding area under a hose bib on the north wall and one in the mechanical room were also observed. The disposition of these floor drains is unknown. The scrap metal yard is covered with concrete. The eastern portion of the site is sloped to the east.

The western portion of the site consists of two storage yards for potential usable materials. Items observed during the recent annual inspection included automobiles, buses, boats, and other industrial equipment, in the north yard. Refrigerators, batteries, transformers and other industrial equipment were stored in the south yard. The transformers and batteries are stored on pallets, with no secondary containment. The transformers are tested for PCB's, as they are decommissioned so no PCB transformers are stored here. The yards are covered with asphalt and each yard generally slopes toward

a network of stormwater drains that flow to the same stormwater management pond.

All stormwater from the eastern portion of the site is either funneled into a network of stormwater drains, or flows overland to stormwater management ponds on the eastern end of the site. The stormwater ponds ultimately discharge into ditches, which flow east to Midway Branch. A separate storm drain is located under the scale and flows east to a grassy area on the eastern end of the site. This drain will capture flow from only a small part of the site.

Generally, all stormwater from the western portion of the site flows into a stormwater management pond centrally located between the two storage yards for potential usable materials. The pond drains to the west, and ultimately discharges into a drainage, which flows southwest to the Little Patuxent River.

B. POTENTIAL POLLUTANT SOURCES

A list of the materials stored onsite is shown in Table 3-9-1, and a list of significant exposed materials is presented in Table 3-9-2.

The potential scenarios for pollution of stormwater from this facility are as follows:

- o The possibility of a spill during loading and unloading operations at satellite Hazardous Waste Storage area, buildings 77 and 78, and the loading ramp in the western portion of the site. The spills will be washed off with stormwater into storm drains.
- o Mishaps may occur during aboveground storage tank filling operations. The spills will be washed off with stormwater into the storm drain.
- o Stormwater may runoff from the scrap metal storage areas.
- o There may be spills or leaks from the appliances and industrial equipment stored onsite. This material would drain over asphalt/concrete and would be diverted into storm drains.
- o Stormwater may wash pollutants from minor spills and leaks on the parking lot. The asphalt lot drains stormwater toward the storm drains.
- o There may be spills or leaks from the batteries stored outside on pallets.
- o The possibility of release of material through the floor drain under the hose bib in the garage area of building 78, the floor drain in the mechanical room of building 78, and the two (2) floor drains in building 77 if the drains release water to the stormwater drainage system. If the floor drains are connected to the Fort Meade sewer system then a release to stormwater is less likely.

A list of spills or leaks from this facility within the past three years is contained in Table 3-9-3. There is no available sampling or monitoring data for this facility. A visual assessment of the storm drains and ditches surrounding the outside of the building did not reveal any flow of non-storm water discharge. A Non-Storm Water Discharge Assessment and Certification Form (to be completed by the facility) is attached as Table 3-9-4, and guidelines for the completion of the certification are included in Appendix B.

C. BEST MANAGEMENT PRACTICES

A summary of current and recommended Baseline BMPs for this facility is shown in Table 3-9-5. This table includes a list of the BMPs, as well as a short narrative description of each. Further BMPs for activities at Fort Meade are discussed in the Fort Meade Spill Prevention, Control, and Countermeasures Plan (SPCCP) (USACE, 1991). A generic schedule for the implementation of BMPs, training program requirements, and annual update requirements are discussed in Section 4.

D. SARA TITLE III, SECTION 313 REQUIREMENTS

No Section 313 water priority chemicals (as defined by the Maryland General Discharge Permit No. 92-GP-0001, Part V.C) were identified at this facility. A blank table is included in Appendix C for listing any such materials that are identified in the future.

TABLE 3-9-1: MATERIAL INVENTORY

INDUSTRIAL FACILITY: DRMO Storage Facility

MATERIAL	LOCATION	QUANTITY	QUANTITY EXPOSED IN LAST THREE YEARS	LIKELIHOOD OF CONTACT WITH STORMWATER	PAST SIGNIFICANT SPILL OR LEAK	
					YES	NO
Lubrication Oil	Bldg. T-78A	20 - 1 gal cans	None known	Low - contained within a building with floor drains connected to an oil water separator, which discharges to the sanitary sewer system.		X
Antifreeze	Bldg. T-78A	12 - 1 gal cans	None known	Low - contained within a building with floor drains connected to an oil water separator, which discharges to the sanitary sewer system.		X
Salt	Bldg. T-78A	1 - 55 gal drum	None known	Low - contained within a building with floor drains connected to an oil water separator, which discharges to the sanitary sewer system.		X
Paints	Bldg. T-78A	8 - 1 gal cans	None known	Low - contained within a building with floor drains connected to an oil water separator, which discharges to the sanitary sewer system.		X
Grease	Bldg. T-78A	25 - 1 qt cans	None known	Low - contained within small a building with floor drains connected to an oil water separator, which discharges to the sanitary sewer system.		X
Grease	Flammables cabinet	55 gal	None known	Low - contained within secondary containment.		X
Lubrication Oil	Flammables Cabinet	55 gal.	None known	Low - contained within secondary containment.		X
						X

INDUSTRIAL FACILITY: DRMO Storage Facility

TABLE 3-9-1: MATERIAL INVENTORY

Gasoline	Flammables Cabinet	4 - 5 gal cans	None known	Low - contained within secondary containment. Locker #1, P78	X
Drained Transformers	Outside on pallets	unknown	None known	Low - drained	X
Batteries	Outside on pallets	unknown	None known	Medium - stored on pallets without any secondary containment.	X
Additional chemicals -- see attached Master Chemical Inventory, as of 16 May 2001					

INDUSTRIAL FACILITY: DRMO Storage Facility

TABLE 3-9-4: NON-STORM WATER DISCHARGE ASSESSMENT AND CERTIFICATION

DATE OF TEST OR EVALUATION	OUTFALL DIRECTLY OBSERVED DURING THE TEST	METHOD USED TO TEST OR EVALUATE DISCHARGE	RESULTS FROM TEST FOR THE PRESENCE OF NON-STORM WATER DISCHARGE	IDENTIFY POTENTIAL SIGNIFICANT SOURCES	NAME OF PERSON CONDUCTING TEST
10/18/94		Visual inspection	No non-stormwater discharge observed		Bob Dover, Daniel Zugris, Aparna Udrakonda, Steve Wood Don Marquardt
5/2/2000	All stormwater management ponds on premises	VI	No non-stormwater discharges observed		
5/16/2000	All stormwater management ponds	VI	No non-stormwater discharge observed		Don Marquardt
6/3/02	Stormwater management pond, west lot	VI	No non-stormwater discharge observed		Don Marquardt
6/24/03	Stormwater drains	VI	No non-stormwater discharge observed		Don Marquardt

CERTIFICATION

I, _____ (responsible facility official), certify under penalty of law that this document and all attachments were prepared under my supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

A. Name or Official Title (type or print)

B. Area Code and Telephone Number

C. Signature

D. Date Signed

* No NPDES permitted outfalls are present. Visual inspection of ditches, parking lot, and storm drain discharge pipe did not show any indication of non-stormwater discharges.

TABLE 3-9-5: BASELINE BEST MANAGEMENT PRACTICES	INDUSTRIAL FACILITY: DRMO Storage Facility
BMP	DESCRIPTION
Good housekeeping practices	<p>Good housekeeping (GH) practices are designed to maintain areas that may contribute pollutants to stormwater discharges (such as the open storage areas, material loading/unloading areas) in a clean and orderly manner. In order to ensure a clean and orderly environment, a GH program will be implemented which will include the following elements:</p> <ul style="list-style-type: none"> ! Develop an employee awareness program on GH practices ! Regularly pickup and dispose of garbage and waste material ! Maintain dry and clean floors and ground surfaces ! Store containers, drums, and bags away from direct traffic routes to prevent accidental spills ! Properly label all chemical containers in accordance with OSHA, EPA, DOT, and other applicable Federal, State, or Local requirements ! Conduct monthly inspections
Preventive maintenance practices	<p>Preventive Maintenance (PM) practices involve the regular inspection and testing of facility equipment. A PM Program will be developed which will include the following:</p> <ul style="list-style-type: none"> ! Identify areas that upon failure could result in discharges ! Conduct monthly inspections of these areas ! Document inspections ! Make timely adjustment, repair, or replacement of identified problems
Visual inspections	<p>Visual Inspections (VI) are intended to provide a mechanism for confirming that the measures chosen to prevent the contamination of stormwater runoff are in place and working properly. Vis should be conducted annually, particularly during storm events and should address the following issues:</p> <ul style="list-style-type: none"> ! Corroded or damaged drums, vehicles and ancillary equipment, and other storage areas ! Leaking vehicles on the parking lot
Spill prevention and response planning	<p>The Fort Meade Spill Prevention Control and Countermeasures Plan (SPCCP) addresses the prevention of accidental spills and releases."</p>
Management of runoff	<p>Potential pollutant contamination from sources should be addressed by the construction of an engineered stormwater control structures, diversion ditches etc.</p>

TABLE 3-9-5: BASELINE BEST MANAGEMENT PRACTICES

INDUSTRIAL FACILITY: DRMO Storage Facility

BMP

DESCRIPTION

Employee training

An Employee Training Program will be developed to inform personnel of the components and goals of the Storm Water Pollution Prevention Plan.
 ! The employee training program will be integrated into the existing OSHA training program, with a minimum of a one-hour session provided each year.
 ! Topics for employee training will include spill prevention and response, good housekeeping, and material management practices

Recordkeeping and reporting

A recordkeeping system will be established for documenting spills, leaks, and other discharges as well as inspection reports related to compliance with the Storm Water Pollution Prevention Plan. These records will include:
 ! Date and time of incident
 ! Duration and cause
 ! Weather conditions
 ! Corrective actions
 ! Parties notified
 Appropriate DPW-EMO personnel will be notified of spills, leaks, and discharges as specified in the SPCCP.

Inventory of potentially polluting materials

An updated inventory of all potential pollutants stored and handled onsite must be kept. This allows the facility supervisor to be continually aware of the materials located onsite, and to manage materials shipments on and offsite in the most efficient manner. This inventory must be updated and submitted to the DPW-EMO annually.

Sediment and Erosion Control

A site wide Sediment and Erosion Control Plan was developed to identify areas that have high potential for significant soil erosion. The plan identifies structural, vegetative, and/or stabilization measures to be used to limit erosion.

3.10 SALT STORAGE FACILITY

A. SITE DESCRIPTION

The salt storage yard is located on Magazine Road near the Fort Meade landfill. The layout of the yard area is shown in figure 3-10. The yard is used to store salt used for road deicing operations. The salt is stored indoors and is not exposed to precipitation. Other materials stored within the yard are located outdoors. Stockpiles of sand, stone, wood chips and telephone poles are stored at the site.

Drainage pathways for the salt storage yard naturally channel stormwater runoff into ditches or storm drains around the edges of the yard to join the natural drainage, southwest of the yard. The drainage leads underneath Magazine Road to the southwest and ultimately discharges into a stream, which passes through one natural pond southwest of the salt storage yard. From this point, the drainage flows to the Little Patuxent River. The Little Patuxent River is located approximately one mile southwest of the salt storage yard.

B. POTENTIAL POLLUTANT SOURCES

A list of the materials used and stored at the facility is contained in Table 3-10-1, and a list of significant exposed materials is presented in Table 3-10-2.

The potential scenarios for pollution of stormwater from this facility are as follows:

- o The release of salt or sand into the surface water drainage. This could occur as a result of spillage during loading and unloading operations.
- o A release of fuel or oil from machinery operating on site or trucks loading and unloading materials stored at the site.
- o As a result of storing several telephone poles in the yard, the chemicals used to treat the poles could be released when exposed to precipitation.

As indicated in Table 3-10-3, no spills or leaks from this facility have occurred within the past three years. There is no available sampling or monitoring data for this facility. A visual assessment of the outfall directly southeast of the facility did not identify any non-stormwater discharges. A Non-Stormwater Discharge Assessment and Certification Form (to be completed by the facility) is attached as Table 3-10-4, and guidelines for the completion of the certification are included in Appendix B.

C. BEST MANAGEMENT PRACTICES

A summary of current and recommended Baseline BMPs for this facility is contained in Table 3-10-5. Most of the standard BMPs regarding the handling and storage of chemicals do not apply to this facility. This table includes a list of the BMPs that do apply, as well as a short narrative description of each. Further BMPs for activities at Fort Meade are discussed in the Fort Meade Spill Prevention, Control, and Countermeasures Plan (SPCCP) (USACE, 1991). A generic sequence for the implementation of BMPs with the responsibilities of the team members for implementing the plan, are discussed in Section 4.

D. SARA TITLE III, SECTION 313 REQUIREMENTS

No Section 313 water priority chemicals (as defined by the Maryland General Discharge Permit No. 92-GP-0001, Part V.C) were identified at this facility. A blank table is included in Appendix C for listing any such materials that are identified in the future.

TABLE 3-10-1: MATERIAL INVENTORY				INDUSTRIAL FACILITY: Salt Storage Yard	
MATERIAL	LOCATION	QUANTITY	QUANTITY EXPOSED IN LAST THREE YEARS	LIKELIHOOD OF CONTACT WITH STORMWATER	PAST SIGNIFICANT SPILL OR LEAK
					YES NO
Rock Salt	Indoors	2500 Tons	None known	Low - located within building.	X
Sand	Outside Yard	250 Tons	None known	Low - Though stockpiles of Sand are located outdoors and exposed to precipitation and wind, it is unlikely that sand will be relocated into storm drains system. The sand is located a good distance from any drainage.	X
Wood Chips	Outdoors - North side of yard	20 cu. yds.	None known	Low - the wood chips are exposed to precipitation. Nitrates within the wood chips may be washed away from the yard into the storm drainage system. This is not likely.	X
Telephone Poles	New - 50 poles Old - 1 pole	Outdoors - Northeast side of yd.	None known	Low - The telephone poles are exposed to precipitation and the preservative used to treat the poles may be washed away from the yard into the storm drainage system. This is not likely.	X

TABLE 3-10-2: DESCRIPTION OF EXPOSED SIGNIFICANT MATERIAL		INDUSTRIAL FACILITY: Salt Storage Yard	
EXPOSED SIGNIFICANT MATERIAL	QUANTITY EXPOSED	LOCATION	DESCRIPTION
Stockpiles of sand	20 cu yds	Outside	Sand is stockpiled on site. Likelihood is low that sand will contact stormwater drainages.

INDUSTRIAL FACILITY: Salt Storage Yard

TABLE 3-10-4: NON-STORM WATER DISCHARGE ASSESSMENT AND CERTIFICATION

DATE OF TEST OR EVALUATION	OUTFALL DIRECTLY OBSERVED DURING THE TEST	METHOD USED TO TEST OR EVALUATE DISCHARGE	RESULTS FROM TEST FOR THE PRESENCE OF NON-STORM WATER DISCHARGE	IDENTIFY POTENTIAL SIGNIFICANT SOURCES	NAME OF PERSON CONDUCTING TEST
10/01/02	Stream	VI	No non-stormwater discharge observed		Don Marquardt
5/27/2003	Stream	VI	No non-stormwater discharge observed		Don Marquardt
					Don Marquardt
					Don Marquardt
					Don Marquardt
					Don Marquardt
					Don Marquardt
					Don Marquardt

CERTIFICATION

I, _____ (responsible facility official), certify under penalty of law that this document and all attachments were prepared under my supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

A. Name or Official Title (type or print)	B. Area Code and Telephone Number
C. Signature	D. Date Signed

TABLE 3-10-5: BASELINE BEST MANAGEMENT PRACTICES	INDUSTRIAL FACILITY: Salt Storage Yard
BMP	DESCRIPTION
Good housekeeping practices	<p>Good housekeeping (GH) practices are designed to maintain areas which may contribute pollutants to stormwater discharges in a clean and orderly manner. In order to ensure a clean and orderly environment, a GH program will be implemented which will include the following elements:</p> <ul style="list-style-type: none"> ! Develop an employee awareness program on GH practices ! Regularly pickup and dispose of garbage and waste material ! Maintain dry and clean floors and ground surfaces ! Store containers, drums, and bags away from direct traffic routes to prevent accidental spills ! Properly label all chemical containers in accordance with OSHA, EPA, DOT, and other applicable Federal, State, or Local requirements ! Conduct monthly inspections <p>Some of these requirements may not be applicable at the salt storage yard, since no chemicals are stored there.</p>
Preventive maintenance practices	<p>Preventive Maintenance (PM) practices involve the regular inspection and testing of facility equipment. A PM Program will be developed which will include the following:</p> <ul style="list-style-type: none"> ! Identify equipment and areas (such as haul trucks, heavy equipment for loading/unloading of stockpiled materials, salt loading area) that upon failure, could result in discharges ! Conduct monthly inspections of these areas ! Document inspections ! Make timely adjustment, repair, or replacement of problem areas
Visual inspections	<p>Visual inspections (VI) are intended to provide a mechanism for confirming that the measures chosen to prevent the contamination of stormwater runoff are in place and working properly. VIs should be conducted monthly, particularly during storm events and should address the following issues:</p> <ul style="list-style-type: none"> ! Leaking heavy equipment used in the yard ! Salt and sand spillage occurring during loading and unloading operations
Management of Runoff Employee training	<p>Management of runoff is being addressed by the presence of vegetated drainage areas</p> <p>An Employee Training Program will be developed to inform personnel of the components and goals of the Storm Water Pollution Prevention Plan.</p> <ul style="list-style-type: none"> ! The employee training program will be integrated into the existing OSHA training program, with a minimum of a one hour session provided each year. ! Topics for employee training will include spill prevention and response, good housekeeping, and material management practices

TABLE 3-10-5: BASELINE BEST MANAGEMENT PRACTICES	INDUSTRIAL FACILITY: Salt Storage Yard
BMP	DESCRIPTION
Recordkeeping and reporting	<p>A recordkeeping system will be established for documenting spills, leaks, and other discharges as well as inspection reports related to compliance with the Storm Water Pollution Prevention Plan. These records will include:</p> <ul style="list-style-type: none"> ! Date and time of incident ! Duration and cause ! Weather conditions ! Corrective actions ! Parties notified <p>Appropriate DPW-EMO personnel will be notified of spills, leaks, and discharges as specified in the SPCCP.</p>
Sediment and Erosion Control	<p>A site wide Sediment and erosion control Plan was developed to identify areas that have high potential for significant soil erosion. The plan identifies structural, vegetative, and/or stabilization measures to be used to limit erosion.</p>
Spill prevention and response planning	<p>The Fort Meade Spill Prevention Control and Countermeasures Plan (SPCCP) addresses the prevention of accidental spills and releases.</p>
Inventory of potentially polluting materials	<p>An updated inventory of all potential pollutants stored and handled onsite must be kept. The inventory should continue to be updated by DPW-EMO annually.</p>

SECTION 4
"BASELINE" BMP IMPLEMENTATION

4.1 Description and Implementation of BMPs

The key elements of stormwater pollution prevention implementation include:

- ! Enforcement and/or installation of BMPs.
- ! Scheduling of annual inspections and reviews.
- ! Scheduling of required compliance monitoring.
- ! Preparation of progress and annual reports.
- ! Development and management of the training program.

Table 4-1-1 lists the required action for each identified baseline BMP, the schedule to meet the implementation requirements, and responsibilities of Army staff at the installation and facility level.

In addition, progress and annual reports for the status of baseline BMPs at the facility will be completed and provided to the Commanding ARCOM Engineer and the SWPP Team. The progress reports will be designed to provide brief summaries of the status of BMPs at the facility. The annual report will include an analysis of the results of the inspection programs and will document goals, achievements, and future plans.

TABLE 4-1-1: BASELINE BMP IMPLEMENTATION SCHEDULE

BMP	REQUIRED ACTION	IMPLEMENTATION		PERSON(S) RESPONSIBLE FOR ACTION
		STATUS	SCHEDULE *	
Good Housekeeping practices	Designate a Hazardous Waste Coordinator	In Place	Continuous	Facility Manager
	Develop employee awareness program	To be implemented	1st Quarter	Facility Manager
	Ensure chemical container labeling compliance	In Place	Continuous	HW Coordinator
	Maintain clean and orderly work environment	In Place	Continuous	Facility Manager
	Regularly pick up and dispose of garbage and waste material	In Place	Continuous	All Facility Employees
	Conduct periodic inspection	In Place	Continuous	HW Coordinator
Preventive maintenance practices	Identify equipment, systems, and areas that upon failure, could result in discharges	In Place	Continuous	HW Coordinator
	Conduct periodic inspections of these equipment and systems	In Place	Continuous	HW Coordinator
	Document actions, make timely adjustment, repair, or replacement of equipment and systems	In Place	Continuous	HW Coordinator
Visual Inspections	Conduct periodic inspections	In Place	Continuous	HW Coordinator
	Conduct site compliance evaluation for stormwater discharges	In Place	Once per year	Environmental Management Office (EMO)

TABLE 4-1-1: BASELINE BMP IMPLEMENTATION SCHEDULE

BMP	REQUIRED ACTION	IMPLEMENTATION		PERSON(S) RESPONSIBLE FOR ACTION
		STATUS	SCHEDULE *	
Employee training	Develop and implement employee training program utilizing elements described in Section 4.2	In place	Once per year	Environmental Management Office (EMO)
Recordkeeping and reporting	Maintain a recordkeeping and reporting system for spills, leaks, and other discharges	In place - Reports are made to EMO, who will notify the appropriate state/and or federal agency	Continuous	HW Coordinator
Inventory of potentially polluting materials	Maintain an updated inventory of all potential pollutants stored and handled onsite.	In place	Annual updates	HW Coordinator

*Schedules are referenced from the date an NOI is filled.

4.2 Elements of Training Program

Employee training programs will be implemented at the facility to inform personnel at all levels of responsibility of the components and goals of SWPP. Training will address each component of the SWPPP, including how and why tasks are to be implemented. Each element of the baseline BMP plans identifies key training components that must be accomplished prior to implementing many phases of the plans. The training plans will be documented in the form of manuals and checklists that will have continued application at the installation. A list of training topics and who should attend is included in Table 4-2-1.

The employee training program will be integrated into the existing Defense Hazardous Waste/Material Handling training program, with a minimum of one session provided each year. At a minimum the training program will include a review of spill prevention and response procedures, good housekeeping practices, and material management practices. Elements of the training program will include:

Spill Prevention and Response

- ! Identify potential spill areas and drainage routes, including information on past spills and causes
- ! Follow reporting requirements
- ! Specify material handling procedures and storage requirements
- ! Implement spill response procedures

Good Housekeeping

- ! Follow routine housekeeping requirements
- ! Promptly clean up spilled materials to prevent polluted runoff
- ! Locate and properly use spill clean up materials
- ! Instruct employees about securing drums and containers and checking for leaks and spills
- ! Display signs to remind employees of the importance of GH practices
- ! Outline a regular schedule for GH activities

Materials Management Practices

- ! Organize storage areas
- ! Identify toxic and hazardous substances stored, handled, and produced at each facility

! Specify handling procedures for toxic and hazardous substances

! Identify installation waste disposal procedures, including who must be contacted, when contact must be made, and what records must be kept.

Stormwater Pollution Prevention Plan Elements

! Inform employees of the members of the SWPP Team and their duties

! Inform employees of the location of the plan at the facility, and its purpose

! Inform employees of the contents of the plan, and how it relates to the implementation of BMPs

! Discuss the annual revision requirements, including update of the plan, outfall inspections, and annual site compliance evaluations

EPCRA, Section 313 Facility Requirements

! Train employees in EPCRA regulated substances and reporting requirements

! Identify preventive measures for storage and handling

As appropriate, additional training materials will be purchased and/or developed for stormwater pollution prevention awareness including employee handbooks, posters, and newsletters. Drills and employee meetings will be held, as necessary, for updating employee training and awareness.

TABLE 4-2-1: EMPLOYEE TRAINING PROGRAM		
TRAINING TOPICS		ATTENDEES
Good Housekeeping		All employees
Material Management		All employees
Spill Control		All employees
Laws and Regulations		All employees
Stormwater Pollution Prevention Plan Elements		All employees
EPCRA requirements		Employees at those activities which store EPCRA chemicals, Environmental office personnel
Conducting annual compliance inspections and outfall certifications		Environmental office personnel, SWPPP Team members

4.3 Annual Compliance Inspection

As required by the stormwater permit, the SWPPP will be updated and revised regularly. The updates will occur at least annually, but may be more frequent as determined by annual site-compliance evaluations. The EO will be responsible for conducting or coordinating the update internally or through qualified consultants. The annual compliance inspection will be conducted to determine if any pollutants are entering the stormwater drainage system. The first inspection will be completed not later than 12 months after installation of the plan. The inspection will include the following elements:

- ! Physical inspections of each outfall where stormwater discharges occur.
- ! Identification of any non-stormwater discharges not noted in the original certification.
- ! Sampling of any non-stormwater discharges and analyzing the samples for analytes dictated by the potential pollutants at the industrial facility.
- ! Identification and review of the performance of existing BMPs at each industrial facility to determine the feasibility of reducing discharges of pollutants.
- ! Observing structural features used as BMPs to ensure proper maintenance and operation.
- ! Identification of any additional BMPs required to reduce discharges of pollutants at individual outfalls.
- ! Reinspect the industrial facilities (listed in Appendix A) for use of SARA Title III, Section 313 toxic chemicals that are water priority chemicals. The water priority chemicals to be included in the inspection are defined in Part V.C of the Maryland General Discharge Permit.

Within two weeks following completion of the annual field inspection, the plan will be revised to document potential stormwater pollution sources and descriptions of any control measures. Within six weeks following the field inspection, the EO will prepare a report summarizing the results of the inspection, including the names of the inspectors, the dates of the inspection, the results of the inspection, and any follow-up action. The report will be signed by the Installation GCO, and copies will be kept in the DPW and EO offices. Within twelve weeks following the inspection, the EO will implement any changes in BMPs or other necessary changes identified as a result of the inspection.

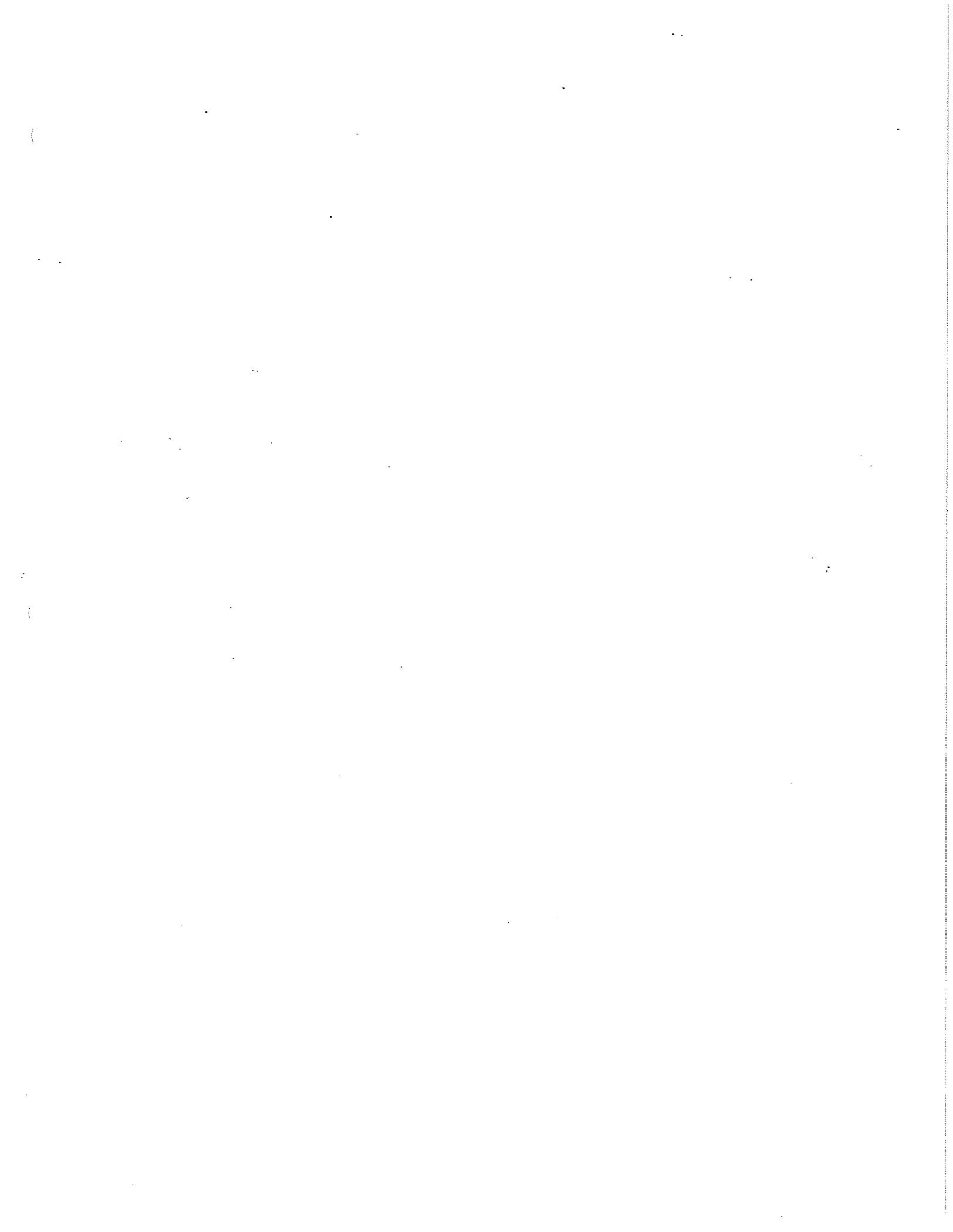


TABLE 4-3-1: REQUIREMENTS FOR ANNUAL COMPLIANCE INSPECTIONS

ITEM	RESPONSIBLE PERSONNEL
List materials handling, storage, and transfer areas at the industrial activity in the SWPPP. Compare inventory list from SWPPP with current materials onsite.	EMO
List stormwater containment facilities and structures in the SWPPP.	EMO
Review the SWPPP and facility operations to determine if any more areas where pollutants discharge to outfalls need to be added.	EMO
Review the SWPPP to determine if any areas previously included in the plan have been modified to allow discharges of pollutants to an outfall.	EMO
Conduct field inspection of outfalls to verify the presence or absence of non-stormwater discharges.	EMO
Conduct field inspection of outfalls to determine if SWPPP identifies all necessary pollution prevention measures.	EMO
Determine if pollution prevention measures are in place and working properly.	EMO
If required by state, develop sampling program, including choosing sampling sites, choosing analytes, and developing appropriate QA/QC procedures. This is not a requirement for the General Stormwater Permit in Maryland. Perform sampling and analysis of stormwater flow at outfalls.	EMO
Document findings and submit results to DPW.	EMO
Modify the SWPPP as needed.	EMO
File results of the inspection until one year after the permit expires.	EMO
Prepare a report of findings and a compliance certificate for signature by the DPW.	EMO

ANNUAL COMPLIANCE EVALUATION CHECKLIST

<u>Program Management</u>	<u>YES</u>	<u>NO</u>	<u>N/A</u>
1) Do the ECO, HWT, and all other employees requiring training have their training certificates on file?	_____	_____	_____
2) Are weekly hazardous waste and material inspections conducted and documented?	_____	_____	_____
3) Are inventories of hazardous material recorded and up-to-date?	_____	_____	_____
4) Is a hazardous waste accumulation log available and current?	_____	_____	_____
5) Does the unit have current MSDSs on file, both for hazardous materials and waste?	_____	_____	_____
6) Is the use of solvents, such as MEK, 1.1.1 trichloroethane, and toluene justified by a technical manual or authorized documentation?	_____	_____	_____
7) Are materials being used on a "first-in, first-used" basis?	_____	_____	_____
8) Does the unit have a waste minimization program in the SOP?	_____	_____	_____
9) Is there a record indicating when workers last received unit level training concerning the Hazard communication Program and hazardous waste management, to include spill clean-up procedures?	_____	_____	_____
10) Does the unit have a written spill contingency plan?	_____	_____	_____
11) Is there a "Hazard Communication" station with current MSDSs?	_____	_____	_____
12) Are there SARA Title III, Section 313 toxic chemicals used (that are water priority chemicals).	_____	_____	_____

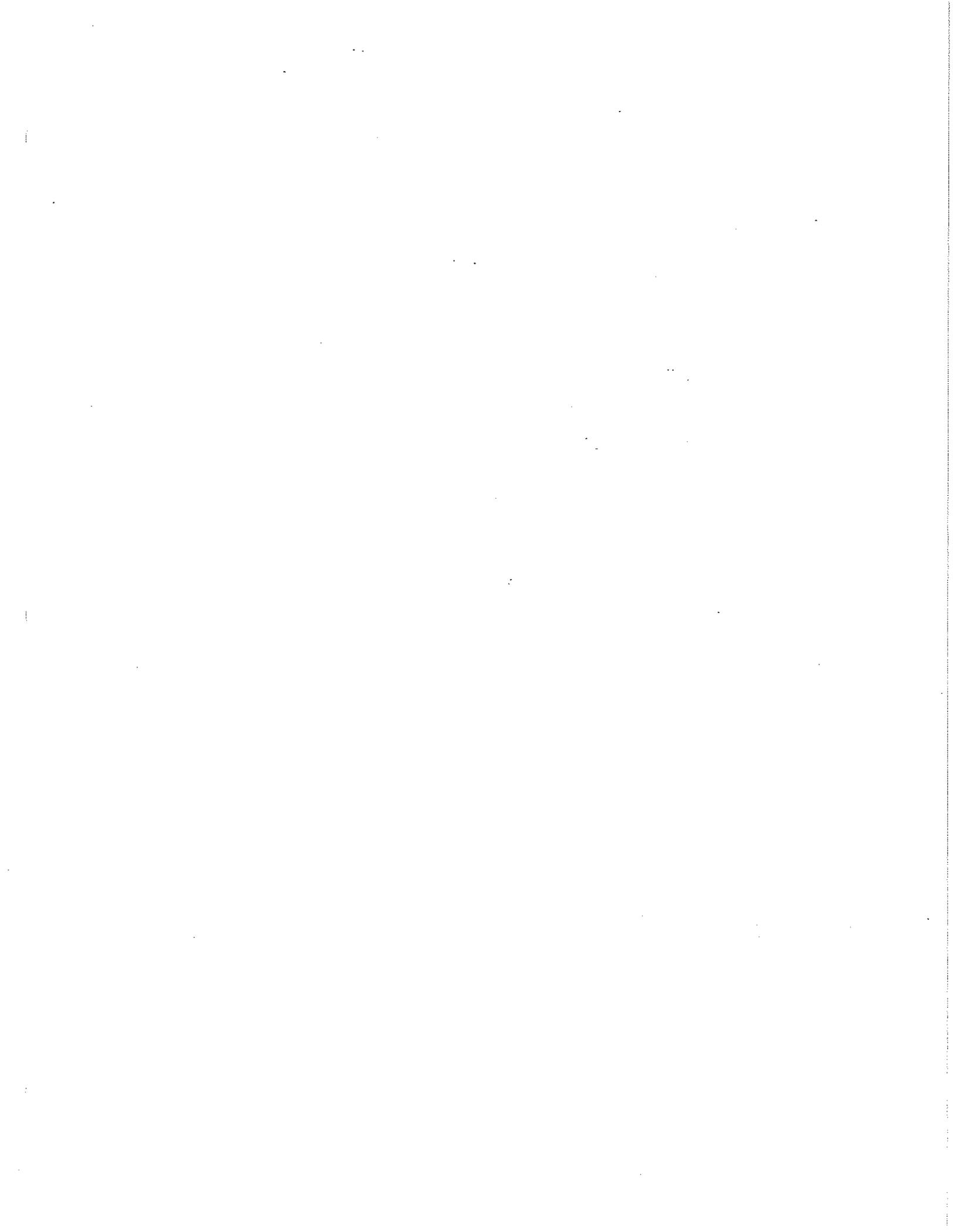
Comments

Maintenance Bays at Motor Pools

YES NO N/A

- | | | | |
|---|-------|-------|-------|
| 1) Are the maintenance bay floors free of POL build-up? | _____ | _____ | _____ |
| 2) Are containers for new and used dry sweep in place and properly marked? | _____ | _____ | _____ |
| 3) Are all personnel aware of the proper procedures for disposing of contaminated dry sweep? | _____ | _____ | _____ |
| 4) If parts washers are available, are lids secured when not in use? | _____ | _____ | _____ |
| 5) Are dry sweep, rags, and other foreign matter kept out of parts washer? | _____ | _____ | _____ |
| 6. Is parts washer used for cleaning parts only? | _____ | _____ | _____ |
| 7) Are parts washing machines approved and complete (i.e., not missing any control devices)? | _____ | _____ | _____ |
| 8) Is there a process for collecting and disposing of waste solvent (contract recycling, waste disposal container)? | _____ | _____ | _____ |
| 9) Are spills and leaks properly cleaned? | _____ | _____ | _____ |
| 10) Are workers using proper protection equipment when required? | _____ | _____ | _____ |
| 11) Is vehicle parking area free of oil spills? | _____ | _____ | _____ |
| 12) Is the container used to collect residue from oil filters and oil cans adequately secured and safeguarded with secondary containment? | _____ | _____ | _____ |

Comments



Wash Racks

YES NO N/A

- | | | | |
|---|-------|-------|-------|
| 1) Is the wash rack area clean and concrete free of POL build-up? | _____ | _____ | _____ |
| 2) Does the unit ensure solvents and/or soaps or unauthorized cleaners are not used on the washrack? | _____ | _____ | _____ |
| 3) Are all grates in place and secured? | _____ | _____ | _____ |
| 4) Are dumpsites free of hazardous materials/waste? | _____ | _____ | _____ |
| 5) Are the drains in the wash rack free of obstructions, so that all wash water enters the oil/water separator? | _____ | _____ | _____ |

Comments

POL Product Storage Areas (fill out separate sheet for each storage area)

YES NO N/A

- | | | | |
|--|-------|-------|-------|
| 1) Are new products segregated from partially used containers? | _____ | _____ | _____ |
| 2) Is waste kept separate from product? | _____ | _____ | _____ |
| 3) Is new product shipping seals left in place until the product is needed? | _____ | _____ | _____ |
| 4) Are corrosives and oxidizers segregated from flammable products and stored on ground level? | _____ | _____ | _____ |
| 5) Are product containers serviceable? | _____ | _____ | _____ |
| 6) Is area secured with restricted access or locked doors? | _____ | _____ | _____ |
| 7) Are in-use containers inside a secondary containment area? | _____ | _____ | _____ |
| 8) Are drip pans utilized for drums in-use? | _____ | _____ | _____ |
| 9) Are drip pans inspected or emptied on a daily basis? | _____ | _____ | _____ |
| 10) Are containers that are stored outside covered in a manner to prevent accumulation of rainwater? | _____ | _____ | _____ |
| 11) Are spill control supplies readily available? | _____ | _____ | _____ |

Comments

Hazardous Waste Accumulation Areas

YES NO N/A

- | | | | |
|--|-------|-------|-------|
| 1) Is the waste oil tank cover secured except when adding material? | _____ | _____ | _____ |
| 2) Is the hazardous waste segregated from new material? | _____ | _____ | _____ |
| 3) Does the drum accumulation area have adequate secondary | _____ | _____ | _____ |
| 4) Are the drums stored in a covered area? | _____ | _____ | _____ |
| 5) Are drums that are stored outside within secondary containment? | _____ | _____ | _____ |
| 6) Are drums free from damage? | _____ | _____ | _____ |
| 7) Are drums properly labeled? | _____ | _____ | _____ |
| 8) Are drums positioned so labels can be easily read? | _____ | _____ | _____ |
| 9) Are drums of flammable material properly grounded? | _____ | _____ | _____ |
| 10) Are Chemicals compatible with their containers? | _____ | _____ | _____ |
| 11) Is there at least thirty inches of separation between rows of drums? | _____ | _____ | _____ |

Comments

Paint and Flammable Materials Cabinets

YES NO N/A

- | | | | |
|---|-------|-------|-------|
| 1) Is flammable paint stored in a flammable materials cabinet? | _____ | _____ | _____ |
| 2) Is the paint cabinet stored inside a heated building? | _____ | _____ | _____ |
| 3) Is unused paint consolidated at the activity? | _____ | _____ | _____ |
| 4) Are all containers in good condition? | _____ | _____ | _____ |
| 5) Is only usable paint and product being stored? | _____ | _____ | _____ |
| 6) Are MSDS's located within close proximity of flammable materials cabinets? | _____ | _____ | _____ |

Comments

REFERENCES

Logistics Management Institute, Preparing Storm Water Pollution Prevention Plans: Guidance and Interpretation for Army Installations, July 1993.

U.S. Army Corps of Engineers, Spill Prevention, Control, and Countermeasures Plan, Fort George G. Meade, Maryland, May 1991.

U.S. Army Corps of Engineers, Installation Spill Contingency Plan, Fort George G. Meade, Maryland, May 1991.

U.S. Environmental Protection Agency, Storm Water Management for Industrial Activities - Developing Pollution Prevention Plans and Best Management Practices, September 1992.

U.S. Geological Survey, U.S. Army Storm Water Pollution Prevention Model Plan, May 1993.

U.S. Geological Survey, U.S. Army Stormwater Pollution Prevention Plan Implementation Training Seminar, August 1993.

APPENDIX A

LIST OF INDUSTRIAL ACTIVITIES

Golf Course Maintenance Building 8890

Motor Pool Building 2120C

Motor Pool Building 2246

Motor Pool Building 72-A

Motor Pool Building 2253

Advanced Wastewater Treatment Plant Building 9581

Landfill

DOL Supply Fuel Point (Rock Avenue)

DRMO Storage Facility

SALT Storage Yard

APPENDIX B

B

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APPENDIX C

SARA Title III, Section 313 Water Priority Chemical Reporting Form

UPDATES

- The DOL Supply Fuel Point was not included in the original SWPPP. It will formally be included in the 5 year update scheduled for June 2004. It operates as a service station providing gasoline, diesel, and # 2 fuel oil to government customers.

The site includes a small building, an oil/water separator (1000 gallons capacity), and 4 USTs, each 20,000 gallons in capacity. Two tanks are for storage of diesel fuel, one tank for gasoline, and one tank for # 2 fuel oil. Two large fuel trucks are parked on site and are generally empty of fuel. A concrete berm, 2000 gallon holding capacity, is located between pump islands used for high volume (HV) pumping operations. The berm is plumbed to a 1000 gallon oil/water separator which discharges to the sanitary sewer system.

- The following sites were excluded from the SWPPP: Motor Pool (bidgs 8486,8487); Hazardous Waste Storage Facility (bidg 2250); Motor Pool (bidg 8485); Motor Pool (bidg 2124); Motor Pool (bidgs 1251,1252). Motor Pools were excluded as they no longer have potential stormwater pollution sources. The Hazardous Waste Storage Facility was excluded as it is no longer classified as an industrial facility.

- SWPPP update, 21 May 2004.

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Appendix H
Green Building Manual

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**US Army Corps
of Engineers**
Baltimore District

GREEN BUILDING MANUAL

**Fort George G. Meade,
Anne Arundel County, Maryland**

May 2007

Prepared for: **Fort George G. Meade
Directorate of Public Works
Anne Arundel County, Maryland 20755-5115**

Prepared by: **U.S. Army Corps of Engineers, Baltimore District
P.O. Box 1715
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FORT GEORGE G. MEADE GREEN BUILDING MANUAL

Reviewed and
Recommended for Approval By:



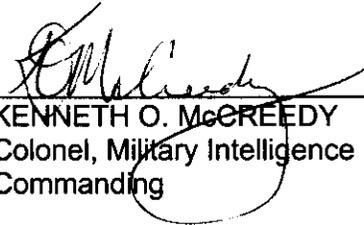
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EXECUTIVE SUMMARY

The U.S. Army Strategy for the Environment directs that all new military construction as of FY08 will meet Green Building standards set forth by the U.S. Green Building Council (USGBC) Leadership in Energy and Environmental Design (LEED). Fort Meade has adopted the USGBC LEED standards and provides guidance for the design and construction of Green Buildings on the installation through this Green Building Manual. The Green Building Manual is intended to supplement the existing Fort Meade Installation Design Guide and Comprehensive Expansion Master Plan to ensure that development integrates economic efficiency with minimal impact to the environment and maximal benefits to those who use the building. Buildings will meet requirements in six areas: sustainable sites, water efficiency, energy and atmosphere, materials and resources, indoor environmental quality, and innovation and design process. Water efficiency, energy efficiency and materials and resources are identified as three target areas in Fort Meade's Environmental Management System. The LEED credits and strategies must be incorporated at the beginning of project design and carried through the construction process for maximum efficiency and benefits. These credits work in conjunction with each other, making integration of several "green" strategies easily achievable. Although Fort Meade is not requiring all buildings to be certified by the USGBC at this time, Fort Meade strives to meet the standards required to meet a LEED Gold or Platinum rating on all new construction.

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APPENDIX B – LEED AND ANTI-TERRORISM/FORCE PROTECTION STANDARDS

APPENDIX C – LEED DOCUMENTATION CHECKLIST

APPENDIX D – FACILITY TYPE GUIDANCE

APPENDIX E – GREEN BUILDINGS AT FORT MEADE

SECTION 1. INTRODUCTION

1.1 Fort Meade's Green Building Manual

All new vertical military construction with climate control as well as major renovation and repair projects, as of FY08, are required to meet Green Building standards set forth by the U.S. Green Building Council. Green Building is the siting, design, construction and maintenance of buildings (including associated lands, hardened and un-hardened, on the parcel) that are water and energy efficient, use materials and resources that have minimal impact on the environment and human health throughout their complete life cycle. Fort Meade's Green Building Manual is a guide to the sustainable design of all new vertical construction and major renovation projects on the installation to meet the Green Building standards and enhance sustainability at the Fort Meade installation, Anne Arundel County, Maryland. The Green Building Manual is intended to supplement the existing Fort Meade Installation Design Guide and Comprehensive Expansion Master Plan to ensure that new development on Ft. Meade integrates economic efficiency with minimal impact to the environment and maximal benefits to those who use the building.

This manual references the U.S. Green Building Council (USGBC) Leadership in Energy and Environmental Design Green Building Rating System for New Construction and Major Renovations (LEED-NC), version 2.2 (2005) and incorporates U.S. Army and Fort Meade policy. LEED is a voluntary, consensus-based national standard that sets criteria for high-performance buildings in terms of sustainable siting, water efficiency, energy and atmosphere, materials and resources, indoor and environmental quality and innovation and design process. Fort Meade has adopted a policy modeled after the LEED design principles and credit system. All new vertical construction and renovations at Fort Meade, beginning FY08, will be designed to meet a level of Gold or higher LEED rating; however, Ft. Meade will not be certifying all buildings through the USGBC at this time.

1.2 U.S. Army Strategy for the Environment

The U.S. Army strives to create sustainable installations to strengthen the Army today and into the future. The U.S. Army Strategy for the Environment outlines the mission, goals and tools to achieve sustainability, which includes Green Building. A sustainable Army "simultaneously meets current as well as future mission requirements worldwide, safeguards human health, improves quality of life, and enhances the natural environment." (U.S. Army, 2007)

A Memo from the Department of the Army, Office of the Assistant Secretary of the Army (Installations and Environment) (Jan 2006) directed installations to achieve sustainable design and development using the USGBC LEED rating system in lieu of the Sustainable Project Rating Tool (SPiRiT) system (see Appendix A). All new vertical construction and major renovations are required to incorporate sustainable design of Green Buildings as defined by the U.S. Army and the LEED system. LEED is nationally accepted as the benchmark for the design, construction, and operation of high performance green buildings.

1.3 Sustainability at Fort Meade

Fort Meade realizes that safety, health and environmental protection are essential to the execution of their mission. As the environmental policy of the installation, Fort Meade has made a commitment to:

- Maintain compliance with all applicable requirements to Fort Meade operations.
- Identify potential sources of pollution and meet or exceed the Army's goal for Pollution Prevention.
- Assess the current and future effect of our operations on the natural and human environment, taking into account Life Cycle Planning.
- Set objectives to avoid or minimize the adverse impacts on the environment that result from Fort Meade's operating activities; and promote health and safety.
- Implement and monitor programs to achieve established environmental goals, objectives and targets.
- Actively pursue continual improvement in the Environmental Management System to move towards a sustainable Fort Meade.

Fort Meade has already taken steps towards a sustainable installation through the Environmental Management System (EMS). This Green Building Manual acknowledges the above policy and the goals set forth in the Fort Meade EMS. Fort Meade extends an additional goal to accomplish the requirements necessary to meet a Gold or Platinum LEED rating for all new development and major renovations at the installation. Sustainability at Fort Meade will be achieved through the integration of the installation environmental policy, EMS, Installation Design Guide (IDG), this Green Building Manual and other environmental documentation in consistency with U.S. Army and Department of Defense policy and regulation.

SECTION 2. GREEN BUILDING MANUAL GUIDANCE

2.1 Why this Manual was Developed

This manual was developed using the LEED-NC version 2.2, and DoD, Army and Fort Meade policies to customize a Green Building strategy to meet the needs of Fort Meade. This manual is intended to guide Green Building through all parts of the design process and into the construction, ownership and maintenance phases. In an effort to support Sustainable Design at Fort Meade, this manual identifies and discusses each possible LEED credit and recommends credit requirements that should be easily achieved at Fort Meade (See Table 3.2). Also included are examples of sustainable building features and examples of buildings that have earned a LEED Gold rating. This manual makes the Sustainable Design process progress smoothly and efficiently by incorporating all relevant information into a user-friendly format that is specific to Fort Meade.

2.2 Manual Format

This manual is divided into eight sections. Section 1 introduces the Green Building Manual and policies that have contributed to its conception. Section 2 describes the Manual as it pertains to Fort Meade, including Fort Meade's principles, programs and goals. Section 3 defines Green Building and Sustainable Design with an overview of the LEED system. A matrix of the LEED credits is presented with information about each credit and how they relate to conditions at Fort Meade (Table 3.2). Section 4 lays out how Green Building will be incorporated into the design process with a description of the review and approval process as well as foreseeable new construction and the demolition policy. This section includes a table of examples and resources to help integrate "green" features in building design. Section 5 highlights three Green Buildings. Section 6, 7 and 8 provide references to find further information such as related policies, guidance, websites, and references cited in the Manual.

2.3 How to Use this Manual

The following recommended steps are guidance for approaching and undertaking Green Building in new construction and renovation at Fort Meade:

- Step 1: Review Fort Meade's Installation Design Guide, Comprehensive Expansion Master Plan and the contents of this manual to become familiar with policies and development at Fort Meade. Understand the needs of Fort Meade for the new construction or renovation project.
- Step 2: Consult the matrix (Table 3.2) to determine which LEED credits are required and their designated achievability level (highly recommended, recommended, conditionally recommended, low recommendation). Focus on those credits that are recommended for Fort Meade for each new construction and renovation project. Use resources identified in Table 4.1 for additional guidance and information.

- Step 3: Select a site (if site is not previously designated in the Comprehensive Expansion Master Plan) that will meet the needs and policies of Fort Meade and maximize the amount of LEED credits achieved. Coordinate Anti-Terrorism/Force Protection Standards with LEED credits to ensure maximum security and sustainability (see Table 2.1 and Appendix B).
- Step 4: Design the new construction or renovation project in accordance with Fort Meade needs and policy while incorporating the maximum amount of LEED credits.
- Step 5: Submit all required documentation, as indicated in the matrix (Table 3.2) and in the LEED Documentation Checklist (Appendix C), to the Review and Approval Team for approval and confirmation of achieved LEED credits. The LEED Documentation Checklist will be maintained during the entire span of the project by the appropriate representatives on the design team with oversight from the Fort Meade Department of Public Works and the Environmental Division.

2.4 Fort Meade Principles, Programs and Policies

A sustainable installation simultaneously meets mission requirements, safeguards human health, improves quality of life, and enhances the natural environment. Fort Meade recognizes the interdependence of mission, community and environment and integrates this principle into sustainable design and development. The fundamental sustainable principles, as described in the Fort Meade Comprehensive Expansion Master Plan, that Fort Meade will adopt in Green Building are:

- **Optimize Site Potential.** Creating sustainable buildings starts with proper site selection, including consideration of the reuse or rehabilitation of existing buildings. The location, orientation, and landscaping of a building affects the local ecosystems, transportation methods, and energy use. Siting for physical security has become a critical issue in optimizing site design. The location of access roads, parking, vehicle barriers, and perimeter lighting must be integrated into the design along with sustainable site considerations. Site design for security cannot be an afterthought.
- **Minimize Energy Consumption.** A building should rely on conservation and passive design measures rather than fossil fuels for its operation. It should meet or exceed applicable energy performance standards.
- **Protect and Conserve Water.** In many parts of the country, fresh water is an increasingly scarce resource. A sustainable building

should reduce, control, or treat site-runoff, use water efficiently, and reuse or recycle water for on-site use when feasible.

- **Use Environmentally Preferable Products.** A sustainable building should be constructed of materials that minimize life-cycle environmental impacts such as global warming, resource depletion, and human toxicity. In a materials context, life cycle includes raw materials acquisition, product manufacturing, packaging, transportation, installation, use, and reuse/recycling/disposal.
- **Enhance Indoor Environmental Quality.** The indoor environmental quality (IEQ) of a building has a significant impact on occupant health, comfort, productivity, and morale. Among other attributes, a sustainable building should maximize day-lighting; have appropriate ventilation and moisture control; and avoid the use of materials with high-VOC emissions. Additional consideration must now be given to ventilation and filtration to mitigate chemical, biological, and radiological attack.
- **Optimize Operational and Maintenance Practices.** Incorporating operating and maintenance considerations into the design of a facility will greatly contribute to improved working environments, higher productivity, and reduced energy and resource costs. Designers are encouraged to specify materials and systems that simplify and reduce maintenance requirements; require less water, energy, and toxic chemicals and cleaners to maintain; and are cost-effective and reduce life-cycle costs.
- **Low Impact Development.** Low Impact Development is a stormwater management strategy concerned with maintaining or restoring the natural hydrologic functions of a site to achieve natural resource protection objectives and fulfill environmental regulatory requirements. LID employs a variety of natural and built features that reduce the rate of runoff, filter out its pollutants, and facilitate the infiltration of water into the ground. By reducing water pollution and increasing groundwater recharge, LID helps to improve the quality of receiving surface waters and stabilize the flow rates of nearby streams. (U.S. Department of Defense, 2004)

Fort Meade has several programs and policies in place to guide environmental stewardship on the installation. The following Fort Meade programs and policies should be consulted when beginning a development project and are listed in Table 3.2 as they relate to each LEED credit:

- **Installation Design Guide (IDG).** Provides design guidance for standardizing and improving the quality of the total environment of the installation. Includes standards and general guidelines for the design

issues of site planning; architectural character, colors and materials; vehicular and pedestrian circulation; and landscape elements, including plant material, seating, signage, lighting, and utilities. The design guidelines incorporate sustainable design, quality of design, anti-terrorism, low maintenance, historical and cultural considerations, durability, safety, and compatibility.

- **Comprehensive Expansion Master Plan (CEMP).** Provides a total build-out concept plan for the long-term (30+ years) development of the Fort Meade Installation that incorporates regional planning, sustainable design and development, and Anti-Terrorism/Force Protection.
- **Environmental Management System (EMS).** Streamlines the FGGM environmental management program. Current objectives of the FGGM EMS include reducing water and energy usage, reducing solid waste generation through recycling, and increasing purchases of environmentally preferable products.
- **Integrated Natural Resource Management Plan (INRMP).** Provides information on the natural resources on the Installation and outlines management programs to meet the mission of Fort Meade with minimal environmental impact.
- **Forest Conservation Act Policy (FCAP).** Policy complies with Maryland Forest Conservation Act. Asserts that for individual development projects the equivalent of 20 percent of the project area be forested either through tree preservation or planting.
- **FGGM Tree Management Policy (FGGM-TMP).** Complement to the Forest Conservation Act Policy that provides guidance on tree preservation and plantings.
- **Integrated Cultural Resources Management Plan (ICRMP).** Outlines U.S. Department of Army policies, procedures, and responsibilities for meeting cultural resources compliance and management requirements at Fort Meade to ensure that Fort Meade makes informed decisions regarding the cultural resources under its control, is in compliance with public laws, supports the military mission, and operates using sound principles of cultural resources management.
- **Coastal Zone Management (CZM).** FGGM must show consistency with the Maryland Coastal Zone Management Program for all Federal activities and strive to protect Maryland's coastal resources.

These principles, programs and policies serve as a baseline and background from which to begin planning and designing Green Buildings. The Fort Meade Environmental Division website

(<http://www.fortmeade-ems.org/>) has links to the above plans and policies as well as further information regarding environmental management at Fort Meade.

Another important issue to incorporate in the initial phases of planning and design is Anti-Terrorism/Force Protection (AT/FP). While Green Building and AT/FP requirements oppose each other in certain areas of design, there are methods to overcome these challenges to develop a safe and sustainable building. For example, landscaping can provide both physical and visual barriers to control access while improving the quality of the site, provide shade to reduce heat island effect and manage stormwater (e.g., retention pond). Table 2.1 outlines methods to balance security and sustainability as described in detail in the IDG (Chapter 12) and CEMP (Section 4). In the matrix, there is a column that lists the AT/FP standard, if any, that relates to each credit specifically. Appendix B also includes issues and strategies that can be applied to Green Building design.

Table 2.1 Balancing Security and Sustainability

AT/FP STRATEGIES	SUSTAINABLE DESIGN CONSIDERATIONS/OPPORTUNITIES
Access Control	
Secure site perimeter	Integrate with sustainable landscaping scheme
Use barriers to prevent passage of vehicles	Use natural and/or environmentally friendly barriers (e.g., trees, retention ponds, recycled-content planters, etc.)
Minimize public entrances into the building	Integrate with day-lighting scheme
Secure vulnerable openings (e.g. doors, first floor windows)	Integrate with day-lighting scheme
Surveillance	
Place windows and doors to allow for good visibility	Integrate with day-lighting scheme
Avoid spaces that permit concealment	Integrate with day-lighting scheme
Avoid blocking lines of sight with fencing and landscaping	Integrate with landscaping and day-lighting scheme
Blast Protection	
Design structural systems to prevent or delay building collapse	Integrate with passive solar design (Trombe walls). Use sustainable materials
Use building configurations to better resist blast shock waves	Integrate with passive solar design and day-lighting scheme
Maximize distances between parking and buildings	Integrate with alternative transportation plans
Reduce need for utilities	Consider renewable and/or distributed energy resources
Apply external air filtration and overpressurization techniques	Integrate with building automation and control systems
Use internal air filtration technologies	Integrate with building automation and control systems

Source and further information: http://www.wbdg.org/tools/leed_atfp.php?u=8

2.5 Fort Meade's Goals

Fort Meade's goal is to meet the requirements outlined by the USGBC for the number of credits that would result in a Gold or Platinum LEED rating for all new construction and renovations. Fort Meade will not be certifying all buildings through USGBC at this time. Three credit areas that stand out as highly important to Fort Meade: Water Efficiency, Energy and Atmosphere, and Materials and Resources. The following objectives are outlined in the Fort Meade Environmental Management System as future targets in these areas:

Objective #1: Reduce water usage (and associated wastewater discharge).

Target 1a: At least 50 percent of all new construction (excluding housing development privatization projects) will meet a 3-point Leadership in Energy & Environmental Design (LEED) standard requirement for water efficiency from the following available point areas: 2 points in water efficient landscaping; 1 point in innovative wastewater technologies; and 2 points in water use reduction – by the end of Fiscal Year (FY) 2010.

Target 1b: At least 50 percent of all new renovation projects (excluding housing development privatization projects) will meet a 1-point Leadership in Energy & Environmental Design (LEED) standard requirement for water efficiency from among the above-listed available point areas, *for all renovations that include any kind of modifications to landscaping, wastewater system, and/or water delivery systems* – by the end of FY 2010.

Objective #2: Reduce electricity usage.

Target 2a: At least 25 percent of all new construction (excluding housing development privatization projects) will meet a 10-point Leadership in Energy & Environmental Design (LEED) standard requirement for Energy & Atmosphere (EA) – including meeting the LEED EA prerequisites – by the end of FY 2010.

Target 2b: At least 25 percent of all new renovation projects (excluding housing development privatization projects) will meet a 5-point Leadership in Energy & Environmental Design (LEED) standard requirement for Energy & Atmosphere (EA) – including meeting the LEED EA prerequisites – *for all renovations that include any kind of modifications to or additions of electrical systems, HVAC systems, and/or building design (walls/windows/floors)* – by the end of FY 2010.

Objective #3: Reduce solid waste generation through increased recycling.

Target 3a: Improve the Fort Meade Recycling Program by incorporating recyclables from all Fort Meade schools in Fort Meade recycling pickups, by the end of FY 2007.

Target 3b: Increase the number of recycling bins in public places so that all administrative buildings, recreational areas, and barracks have at least one conveniently located

bin available for recyclable drop-offs (for each recycled product type: aluminum, plastic, paper, and cardboard) by the end of FY 2007.

Target 3c: Through outreach/training activities, and using FY 2005 recycling data as a baseline, increase the cumulative amount of aluminum, plastic, paper, and cardboard recyclables collected at Fort Meade by 10 percent by the end of FY 2008.

Objective #4: Increase Recycled-Content, Bio-based, Energy & Water Efficient and Environmentally Preferred Purchases

Target 4a: Ensure all acquisition personnel and Contracting Officer's Representatives for construction, renovation, maintenance, and service contracts receive Green Procurement Awareness Training by the end of FY 2008. By incorporating Green Procurement Awareness Training into established training programs for installation management and staff such as new employee orientation, environmental awareness training, COR and other procurement training, and office staff training.

Target 4b: Promote Green Procurement

- i. Send post-wide email outlining the policies and procedures on FGGM Green Procurement Program by the end of FY 2007.
- ii. Update the Environmental Division's website to highlight success stories and publicize FGGM Green Procurement Program. Provide links/resources for additional information by the end of FY 2007.
- iii. Provide articles on FGGM Green Procurement Program to the Soundoff and Military Housing Newsletter by the end of FY 2007.
- iv. Develop an incentive program to organizations that demonstrates commitment to buying green by the end of FY 2007.

Target 4c: Incorporate specific language into construction, renovation, maintenance, and service contracts to include green procurement purchases by the end of FY 2008

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SECTION 3. GREEN BUILDING BACKGROUND

3.1 Green Building and Sustainable Design

Green Building involves the siting, design, construction and maintenance of buildings (including associated lands, hardened and un-hardened, on the parcel) that are water and energy efficient, use materials and resources that have minimal impact on the environment and maximize indoor environmental air quality. These buildings have minimal impact on the environment and human health throughout their complete life cycle, from the siting phase through the design, construction and operational phases and even extending to reuse and removal. Green Building is accomplished through employing the concept of sustainable design.

Sustainable Design is the design of facilities in a manner that meets the needs of today without compromising the ability of future generations to meet their needs. Sustainable Design includes not only efficient use of natural resources, but it can also translate into better performance, desirability, and affordability. (U.S. Army, 2001) Sustainable design requires systematic considerations of environmental impact, energy use, natural resources, economy, and quality of life. Such issues as emissions of greenhouse gases and ozone depleting chemicals; use of limited material resources; management of water resources; reductions in waste; indoor environmental quality and occupant/worker health, productivity and satisfaction are important components of design. Sustainable design maintains economic growth while addressing all of the above issues, though is most effective only when addressed at the inception of a project, and throughout the entire life cycle of a project – from concept to planning, to programming, design, construction and ownership. (U.S. Army, 2007).

3.2 LEED

The LEED Green Building Rating System® is a voluntary, consensus-based national standard for developing high-performance, sustainable buildings. Members of the U.S. Green Building Council (USGBC), representing all segments of the building industry, developed LEED and continue to contribute to its evolution.

LEED was created to:

- define “green building” by establishing a common standard of measurement
- promote integrated, whole-building design practices
- recognize environmental leadership in the building industry
- stimulate green competition
- raise consumer awareness of green building benefits
- transform the building market

LEED provides a complete framework for assessing building performance and meeting sustainability goals. Based on well-founded scientific standards, LEED emphasizes state of the art strategies for sustainable site development, water savings, energy efficiency, materials selection and indoor environmental quality. LEED recognized achievements and promotes

expertise in green building through a comprehensive system offering project certification, professional accreditation, training and practical resources.

The LEED for New Construction & Major Renovations (LEED-NC version 2.2, October 2005) is utilized in this manual. Under this category of development, there are six criteria areas, each having a set of required items and credit points that can be achieved when employed in new construction and renovation projects.

- Sustainable Sites – 14 possible points
- Water Efficiency – 5 possible points
- Energy and Atmosphere – 17 possible points
- Materials and Resources – 13 possible points
- Indoor Environmental Quality – 15 possible points
- Innovation and Design Process – 5 possible points

The points received for each credit are added to determine the LEED rating for the project. There is a total of 69 points that can potentially be achieved for any one project. The rating system is broken into four categories:

- Certified rating = 26 to 32 points
- Silver rating = 33 to 38 points
- Gold rating = 39 to 51 points
- Platinum rating = 52 to 69 points

As of FY08, all new vertical military construction projects with climate control funded by the U.S. Army must meet the minimum number of credits that would be required to achieve a Silver rating. Major renovation and repair projects exceeding \$7.5 million shall incorporate sustainable design features to achieve a minimum number of credits for a Certified rating.

3.3 Green Building Costs and Benefits

A common misconception of Green Building is the escalated costs as opposed to conventional designs. The average premium for Green Buildings is slightly less than 2 percent, or \$3-5/ft², though with more and more buildings incorporating sustainable design, the cost is decreasing as we gain experience (Kats, 2003). The higher costs are typically associated with increased architectural and engineering (A&E) design time, modeling costs and incorporating sustainable measures to a conventionally designed building. These costs can be alleviated by incorporating sustainable design at the very beginning of the design process. Robin Suttel (2006) notes “the only effective way to budget for sustainable features in buildings is to identify sustainability goals and build an appropriate cost model for them upfront, at the start of the planning and design process.”

While cost of Green Building may be slightly higher upfront than that of conventional buildings, the several benefits will save money during the lifetime of the building. Benefits includes energy and water savings, reduced pollution and wastes, reduced operations and maintenance costs,

improved indoor environmental quality, increased employee comfort and productivity and reduced employee health costs and absenteeism.

In terms of energy savings alone, Green Buildings rated Certified or Silver are on average 25-30 percent more energy efficient (USGBC, Capital E Analysis). Energy savings are primarily a result of reduced electricity purchases and secondarily the ability to generate renewable energy on-site or the purchase of green power. Over 20 years, this savings can be over \$5/ft², which is greater than the average premium for building green (Kats, 2003).

Several studies indicate an increase in occupant productivity and improved occupant health associated with Green Buildings. This is correlated with increased daylighting, better ventilation, improved indoor air quality, and occupant control of lighting, heating and air conditioning. Reports show anywhere from a 1 percent to 16 percent increase in productivity, which amounts to substantial savings (Freed, 2006). Kats (2003) indicates that even a 1 percent increase in productivity, the average benefit of a Certified or Silver level building, can be equal to about \$600 to \$700 per employee per year, or \$3/ft² / per year.

The following table (Table 3.1) illustrates the potential financial benefits of Green Buildings, which exceeds the average premiums. Costs and benefits must be looked at over the lifetime of the building, with Green strategies being incorporated at the earliest stages of design.

Table 3.1 Financial Benefits of Green Buildings

Summary of Findings (per ft²)	
Category	20-year Net Present Value
Energy Savings	\$5.80
Emissions Savings	\$1.20
Water Savings	\$0.50
Operations and Maintenance Savings	\$8.50
Productivity and Health Benefits	\$36.90 to \$55.30
<i>Subtotal</i>	<i>\$52.90 to \$71.30</i>
Average Extra Cost of Building Green	(-3.00 to -\$5.00)
Total 20- year Net Benefit	\$50 to \$65

Source: USGBC Capital E Analysis

3.4 LEED-NC Matrix

The LEED-NC Matrix, presented in Table 3.2, provides a detailed explanation and information on each LEED credit. The Matrix has seven columns:

Intent	Describes the intent of each LEED credit.
Requirement	Breaks down the criteria that must be met to achieve each individual credit.
Points	Shows required for all required credits, and maximum point value for optional credits.

Army Policy	List of Army Policies that are relevant to each credit.
Ft Meade Policy	List of Fort Meade Policies that are relevant to each credit.
Required Documentation	List of documentation required to prove that the credit has been achieved.
Related AT/FP Standards	List of AT/FP Standards by number that are relevant to each credit. Further information in Appendix B.

The LEED-NC Matrix also breaks down each LEED credit to its achievability level and importance. The achievability levels were determined based on site and operational conditions of Fort Meade, significance of the credit and ease of achieving the credit. These levels were designated by a LEED Certified Professional and are as follows:

Green	Highly Recommended. Ease of meeting the requirements for these credits is high based on the existing conditions and/or program requirements at Ft Meade. Some of these credits are required per LEED, Army and Fort Meade policy.
Blue	Recommended. The requirements for these credits can be met with relative ease based on the existing conditions and/or program requirements at Ft Meade.
Yellow	Conditionally Recommended. Existing site conditions and/or Ft Meade policies must be properly evaluated to determine if the requirements for these credits may be met. Some locations at Ft. Meade do not allow for these requirements to be met.
Red	Low Recommendation. Existing site conditions and/or Ft Meade policies make it difficult to achieve the requirements for these credits.

Table 3.2: LEED Credit Matrix

INTENT	REQUIREMENT	POINTS	ARMY POLICY	FT MEADE POLICY	REQUIRED DOCUMENTATION	RELATED AT/FP STANDARDS
SUSTAINABLE SITES						
SS Prerequisite 1: Construction Activity Pollution Prevention						
<p>Reduce pollution from construction activities by controlling soil erosion, waterway sedimentation and airborne dust generation.</p>	<p>Create and implement an Erosion and Sedimentation Control (ESC) Plan for all construction activities associated with the project. The ESC Plan shall conform to the erosion and sedimentation requirements of the 2003 EPA Construction General Permit OR local erosion and sedimentation control standards and codes, whichever is more stringent. The Plan shall describe the measures implemented to accomplish the following objectives: (1) Prevent loss of soil during construction by stormwater runoff and/or wind erosion, including protecting topsoil by stockpiling for reuse. (2) Prevent sedimentation of storm sewer or receiving streams. (3) Prevent polluting the air with dust and particulate matter. The Construction General Permit (CGP) outlines the provisions necessary to comply with Phase I and Phase II of the National Pollutant Discharge Elimination System (NPDES) program. While the CGP only applies to construction sites greater than 1 acre, the requirements are applied to all projects for the purpose of this prerequisite. Information on the EPA CGP is available at http://cfpub.epa.gov/npdes/stormwater/cgp.cfm.</p>	<p>REQ'D</p>	<p>Executive Memorandum "Environmentally and Economically Beneficial Practices on Federal Landscaped Grounds" April 26, 1994.</p>	<p>FGGM-INRMP CZM Program</p>	<p>Provide copies of the project drawings to document the erosion and sedimentation control measures implemented on the site. Provide confirmation regarding the compliance path taken by the project (NPDES Compliance or Local Erosion Control Standards). Provide a narrative to describe the Erosion and Sedimentation control measures implemented on the project. If a local standard has been followed, please provide specific information to demonstrate that the local standard is equal to or more stringent than the referenced NPDES program.</p>	<p>AT Std 1 AT Std 3 AT Rec 2 AT Rec 3 AT Rec 8</p>

Table 3.2: LEED Credit Matrix

INTENT	REQUIREMENT	POINTS	ARMY POLICY	FT MEADE POLICY	REQUIRED DOCUMENTATION	RELATED AT/FP STANDARDS
SS Credit 1: Site Selection						
<p>Avoid development of inappropriate sites and reduce the environmental impact from the locations of a building site.</p>	<p>Do not develop buildings, roads, or parking areas on portions of sites that meet any one of the following criteria: (1) Prime farmland as defined by the United States Department of Agriculture in the United States Code of federal Regulations, Title 7, Volume 6, Parts 400 to 699, Section 657.5 (citation 7CFR657.5). (2) Previously undeveloped land whose elevation is lower than 5 feet above the elevation of the 100-year flood as defined by the Federal Emergency Management Agency (FEMA). (3) Land which is specifically identified as habitat for any species on Federal or State threatened or endangered lists. (4) Within 100 feet of any water including wetlands as defined by United States Code of Federal Regulations 40 CFR, Parts 230-233 and Part 22, and isolated wetlands or areas of special concern identified by state or local regulations as defined by local or state rule or law, whichever is more stringent. (5) Previously undeveloped land that is within 50 feet of a water body, defined as seas, lakes, rivers, streams, and tributaries which support or could support fish, recreation or industrial use, consistent with the terminology of the Clean Water Act. (6) Land which prior to acquisition for the project was public parkland, unless land of equal or greater value as parkland is accepted in trade by the public landowner (Park Authority projects are exempt).</p>	<p>1</p>	<p>EO 13148 Greening the Government through Leadership in Environmental Management Sec 207 Environmentally and Economically Beneficial Landscaping</p>	<p>CZM Program FGGM- INRMP IDG</p>	<p>Provide confirmation that the project site does not meet any of the prohibited criteria. Special circumstances for individual projects and site compliance should be noted. AND (for projects with special circumstances) Provide a narrative to describe any special circumstances or non-standard compliance paths taken by the project.</p>	<p>AT Std 1 AT Std 2 AT Rec2 AT Rec 3 AT Rec 5 AT Rec 6 AT Rec 7 AT Rec 8 AT Rec10</p>

Table 3.2: LEED Credit Matrix

INTENT	REQUIREMENT	POINTS	ARMY POLICY	FT MEADE POLICY	REQUIRED DOCUMENTATION	RELATED AT/FP STANDARDS
SS Credit 2: Development Density and Community Connectivity						
<p>Channel development to urban areas with existing infrastructure, protect greenfields and preserve habitat and natural resources.</p>	<p>OPTION 1- DEVELOPMENT DENSITY Construct or renovate building on a previously developed site AND in a community with a minimum density of 60,000 sq. ft. per acre net. (Note: Density calculation must include the area of the project being built and is based on a typical two-story downtown development.) OR OPTION 2 - COMMUNITY CONNECTIVITY Construct or renovate building on a previously developed site AND within 1/2 mile of a residential zone or neighborhood with an average density of 10 units per acre net AND within 1/2 mile of at least 10 Basic Services AND with pedestrian access between the building and the services. Basic services include, but are not limited to: (1) Bank (2) Place of Worship (3) Convenience Grocery (4) Day Care (5) Cleaners (6) Fire Station (7) Beauty (8) Hardware (9) Laundry (10) Medical/Dental (11) Library (12) Senior Care Facility (13) Park (14) Pharmacy (15) Post Office (16) Restaurant (17) School (18) Supermarket (19) Theatre (20) Community Center (21) Fitness Center (22) Museum. Proximity is determined by drawing a 1/2 mile radius around the main building entrance on a site map and counting the services within that radius.</p>	1		CEMP IDG ICRMP	<p>Option 1- Development Density- Provide a site vicinity plan showing the project site and the surrounding sites and buildings. Sketches, block diagrams, maps, and aerial photos are all acceptable for this purpose. Draw the density boundary on the drawing or note the drawing scale. Provide project site and building area (sq ft). Submit a listing of site and building areas for all surrounding sites within the density radius. Option 2 - -Community Connectivity - Provide a site vicinity drawing showing the project site, the 1/2 mile community radius, and the locations of the community services surrounding the project. Sketches, block diagrams, maps, and aerial photos are all acceptable for this purpose. Either draw the 1/2 mile radius on the drawing or note the drawing scale. Provide Project site and building area (sq ft). Submit a listing (including business name and type) of all community services within the 1/2 mile radius. AND (For projects with special circumstances - either compliance path) Provide an optional narrative to describe any special circumstances or non-standard compliance paths taken by the project.</p>	<p>AT Std 1 AT Std 2 AT Rec 2 AT Rec 3 AT Rec 5 AT Rec 6 AT Rec 7 AT Rec 8 AT Rec 10</p>

Table 3.2: LEED Credit Matrix

INTENT	REQUIREMENT	POINTS	ARMY POLICY	FT MEADE POLICY	REQUIRED DOCUMENTATION	RELATED AT/FP STANDARDS
SS Credit 3: Brownfield Redevelopment						
Rehabilitate damaged sites where development is complicated by environmental contamination, reducing pressure on undeveloped land.	Develop on a site documented as contaminated (by means of an ASTM E1903-97 Phase II Environmental Site Assessment or a local Voluntary Cleanup Program) OR on as site defined as a Brownfield by a local, state, or federal government agency.	1		INRMP FCAP/FGGM-TMP	Provide confirmation whether the project site was determined contaminated by means of an ASTM E 1903-97 Phase II Environmental Site Assessment or the site was defined as a Brownfield by a local, state, or federal government agency. Provide a detailed narrative describing the site contamination and remediation efforts undertaken by the project.	AT Std 1 AT Std 2 AT Rec 2 AT Rec 3 AT Rec 5 AT Rec 6 AT Rec 7 AT Rec 8 AT Rec 10
SS Credit 4.1: Alternative Transportation: Public Transportation Access						
Reduce pollution and land development impacts from automobile use.	Locate project within 1/2 mile of an existing - or planned and funded - commuter rail, light rail, or subway system. OR Locate project within 1/4 mile of one or more stops for two or more public or campus bus lines useable by building occupants.	1		IDG	Commuter Rail Service: Provide a site vicinity drawing showing the project site and the location of all (existing/proposed) fixed rail stations within 1/2 mile of the site. A listing of each fixed rail station and the distance from the station to the project site (miles). OR Bus Service: Provide a site vicinity drawing showing the project site and the location of all existing bus stops within 1/4 mile of the site. A listing of each bus line that serves the site vicinity and the distance from the bus stop to the project site (miles). AND (For projects with special circumstances - either compliance path) Provide an optional narrative to describe any special circumstances or non-standard compliance paths taken by the project.	AT Std 1 AT Rec 1 AT Rec 6 AT Rec 8

Table 3.2: LEED Credit Matrix

INTENT	REQUIREMENT	POINTS	ARMY POLICY	FT MEADE POLICY	REQUIRED DOCUMENTATION	RELATED AT/FP STANDARDS
SS Credit 4.2: Alternative Transportation: Bicycle Storage & Changing Rooms						
<p>Reduce pollution and land development impacts from automobile use.</p>	<p>For commercial or institutional buildings, provide secure bicycle racks and /or storage (within 200 yards of a building entrance) for 5% or more of all building users (measured at peak periods), AND, provide shower and changing facilities in the building or within 200 yards of a building entrance, for 0.5% for Full-Time Equivalent (FTE) occupants. OR For residential buildings, provide covered storage facilities for securing bicycles for 15% or more of building occupants in lieu of changing/shower facilities.</p>	1		IDG	<p>Provide the FTE occupancy and transient occupancy for the project. Provide project drawings to show the location(s) of the secure bicycle storage areas and shower/changing facilities. In addition, please provide the following project data and calculation information based on project type: Non-residential Buildings - Confirm the quantity of shower/changing facilities provided and their distance from the building entry. Residential Buildings - No additional documentation is required. Mixed Non-residential and Residential Buildings - Confirm the number of residential units and residential FTE occupants for the project. Confirm the quantity of shower/changing facilities provided for the non-residential portion of the project and their distance from the building entry. AND (for projects with special circumstances-any compliance path) Provide an optional narrative to describe any special circumstances or non-standard compliance paths taken by the project.</p>	<p>AT Std 1 AT Std 2 AT Rec 8 AT Rec 9 AT Rec 12 AT Rec 13 AT Rec 14 AT Rec 15</p>

Table 3.2: LEED Credit Matrix

INTENT	REQUIREMENT	POINTS	ARMY POLICY	FT MEADE POLICY	REQUIRED DOCUMENTATION	RELATED AT/FP STANDARDS
SS Credit 4.3: Alternative Transportation: Low-Emission & Fuel-Efficient Vehicles						
<p>Reduce pollution and land development impacts from automobile use.</p>	<p>OPTION 1 Provide low-emitting and fuel-efficient vehicles for 3% of Full-Time Equivalent (FTE) occupants AND provide preferred parking for these vehicles. OR OPTION 2 Provide preferred parking for low-emitting and fuel-efficient vehicles for 5% of the total vehicle parking capacity of the site. OR OPTION 3 Install alternative-fuel refueling stations for 3% of the total vehicle parking capacity of the site (liquid or gaseous fueling facilities must be separately ventilated or located outdoors). <i>For the purposes of this credit, low-emitting and fuel-efficient vehicles are defined as vehicles that are either classified as Zero Emission Vehicles (ZEV) by the California Air Resources Board or have achieved a minimum green score of 40 on the American Council for an Energy Efficient Economy (ACEEE) annual vehicle rating guide.</i> <i>"Preferred Parking" refers to the parking spots that are closest to the main entrance of the project (exclusive of spaces designated for handicapped) or parking passes provided at a discounted price.</i></p>	<p>1</p>	<p>EO 13031 Federal Alternative Fueled Vehicle Leadership commits the Federal Government to exercise leadership in the use and buying of energy-efficient alternative fueled vehicles.</p>	<p>IDG</p>	<p>Provide the FTE occupancy for the project. Provide the total parking capacity of the site. OPTION 1-Low-emitting/Fuel Efficient Vehicles Provide project drawings to show the location(s) of the preferred parking spaces for low-emitting/fuel-efficient vehicles. Confirm the quantity of low-emitting/fuel-efficient vehicles provided and their make, model, and manufacturer. Confirm whether each vehicle is a zero-emission vehicle or enter each vehicle's ACEEE vehicle score. OPTION 2-Preferred Parking for Low-emitting/Fuel Efficient Vehicles Provide project drawings to show the location(s) of the preferred parking spaces for low-emitting/fuel-efficient vehicles. Confirm the number of preferred parking spaces provided. OPTION 3-Alternative Fuel Refueling Stations Provide project drawings to show the location(s) of the alternative fuel refueling stations. Confirm the fuel type, number of stations, and fueling capacity for each station for an 8-hour period. AND (For projects with special circumstances-any compliance path) Provide an optional narrative to describe any special circumstances or non-standard compliance paths taken by the project.</p>	<p>AT Std 1 AT Std 3 AT Std 4 AT Std 5 AT Std 16 AT Rec 4 AT Rec 8</p>

Table 3.2: LEED Credit Matrix

INTENT	REQUIREMENT	POINTS	ARMY POLICY	FT MEADE POLICY	REQUIRED DOCUMENTATION	RELATED AT/FP STANDARDS
SS Credit 4.4: Alternative Transportation: Parking Capacity						
Reduce pollution and land development impacts from automobile use.	<p>OPTION 1 - NON-RESIDENTIAL Size parking capacity to not exceed minimum local zoning requirements. AND Provide preferred parking for carpools or vanpools for 5% of the total provided parking spaces. OR OPTION 2 - NON-RESIDENTIAL For projects that provide parking for less than 5% of the FTE building occupants: Provide preferred parking for carpools or van pools, marked as such, for 5% of total provided parking spaces. OR OPTION 3 - RESIDENTIAL Size parking capacity to not exceed minimum local zoning requirements, AND, provide infrastructure and support programs to facilitate shared vehicle usage such as carpool drop-off areas, designated parking for vanpools, or car-share services, ride boards, and shuttle services to mass transit. OR OPTION 4 - ALL Provide no new parking. "Preferred Parking" refers to the parking spots that are closest to the main entrance of the project (exclusive of spaces designated for handicapped) or parking passes provided at a discounted price.</p>	1		IDG	<p>Provide the FTE occupancy for the project. Provide the total parking capacity of the site. Confirm the appropriate project compliance path. In addition, provide the following project data and calculation information based on the appropriate compliance path: OPTION 1 - NON-RESIDENTIAL Provide the number of parking spaces required for the project per local code or ordinance. Provide the number of carpool/vanpool spaces that are on-site. OPTION 2 - NON-RESIDENTIAL Provide the number of carpool/vanpool spaces that are on-site. OPTION 3 - RESIDENTIAL Provide a description of the infrastructure/programs that are in place to support and promote ridesharing. OPTION 4 - ALL There are no additional items required for this compliance path. AND (For projects with special circumstances - any compliance path) Provide an optional narrative to describe any special circumstances or non-standard compliance paths taken by the project.</p>	<p>AT Std 1 AT Std 3 AT Std 4 AT Std 5 AT Rec 4 AT Rec 8</p>

Table 3.2: LEED Credit Matrix

INTENT	REQUIREMENT	POINTS	ARMY POLICY	FT MEADE POLICY	REQUIRED DOCUMENTATION	RELATED AT/FP STANDARDS
SS Credit 5.1: Site Development: Protect or Restore Habitat						
<p>Conserve existing natural areas and restore damaged areas to provide habitat and promote biodiversity.</p>	<p>On greenfield sites, limit all site disturbance to 40 feet beyond the building perimeter; 10 feet beyond surface walkways, patios, surface parking and utilities less than 12 inches in diameter; 15 feet beyond primary roadway curbs and main utility branch trenches; and 25 feet beyond constructed areas with permeable surfaces (such as pervious paving areas, stormwater detention facilities and playing fields) that require additional staging areas in order to limit compaction in the constructed area. OR On previously developed or graded sites, restore or protect a minimum of 50% of the site area (excluding the building footprint) with native or adapted vegetation. Native/adapted plants are plants indigenous to a locality or cultivars of native plants that are adapted to the local climate and are not considered invasive species or noxious weeds. Projects earning SS Credit 2 and using vegetated roof surfaces may apply the vegetated roof surface to this calculation if the plants meet the definition of native/adapted. <i>Greenfield sites are those that are not previously developed or graded and remain in a natural state. Previously developed sites are those that previously contained buildings, roadways, parking lots, or were graded or altered by direct human activities.</i></p>	<p>1</p>	<p>EO 13148 Greening the Government through Leadership in Environmental Management Sec 207 Environmentally and Economically Beneficial Landscaping</p>	<p>CZM Program FGGM-INRMP FCAP/FGGM-TMP</p>	<p>Provide the project site area. Provide the project building footprint area. Provide a narrative describing the project's approach to this credit. Include information regarding any special circumstances or considerations regarding the project. In addition provide the following project data and calculation information based on the appropriate compliance path: GREENFIELD SITES Provide a copy of the projects site/grading drawings highlighting the designated site disturbance boundaries. PREVIOUSLY DEVELOPED/GRADED SITES Provide the area (sq ft) of the site that has been restored using native and/or adaptive planting. Provide a copy of the project's site/landscape plan that provides information regarding the restored site area and the planting materials.</p>	<p>AT Std 1 AT Std 2 AT Std 4 AT Std 19 AT Rec 1 AT Rec 3 AT Rec 5 AT Rec 7 AT Rec 8 AT Rec 10</p>

Table 3.2: LEED Credit Matrix

INTENT	REQUIREMENT	POINTS	ARMY POLICY	FT MEADE POLICY	REQUIRED DOCUMENTATION	RELATED AT/FP STANDARDS
SS Credit 5.2: Site Development: Maximize Open Space						
<p>Provide a high ration of open space to development footprint to promote biodiversity,</p>	<p>OPTION 1: Reduce the development footprint (defined as the total area of the building footprint, hardscape, access roads and parking) and/or provide vegetated open space within the project boundary to exceed the local zoning's open space requirement for the site by 25%. OR OPTION 2: For areas with no local zoning requirements (e.g., some university campuses, military bases), provide vegetated open space area adjacent to the building that is equal to the building footprint. OR OPTION 3: Where a zoning ordinance exists, but there is no requirement for open space (zero), provide vegetated open space equal to 20% of the project's site area. ALL OPTIONS: -For projects located in urban areas that earn SS Credit 2, vegetated roof areas can contribute to credit compliance. -For projects located in urban areas that earn SS Credit 2, pedestrian oriented hardscape areas can contribute to credit compliance. For such projects, a minimum of 25% of the open space counted must be vegetated. -Wetlands or naturally designed ponds may count as open space if the side slope gradients average 1:4 (vertical: horizontal) or less and are vegetated.</p>	<p>1</p>		<p>FCAP/FGGM-TMP</p>	<p>Provide the project site area and project building footprint area. Provide a copy of the project's site/landscape drawings highlighting the dedicated vegetated open space. Provide an optional narrative describing any special circumstances or considerations regarding the project's credit approach. OPTION 1: Provide the area (sq ft) of open space required by local zoning codes/ordinances. Provide the area (sq ft) of the vegetated dedicated open space provided by the project. OPTION 2: Provide the area (sq ft) of the vegetated dedicated open space provided by the project. OPTION 3: Provide the area (sq ft) of the vegetated dedicated open space provided by the project.</p>	<p>AT Std 1 AT Std 2 AT Std 3 AT Std 5 AT Std 8 AT Std 19 AT Rec 4 AT Rec 7 AT Rec 8 AT Rec 10</p>

Table 3.2: LEED Credit Matrix

INTENT	REQUIREMENT	POINTS	ARMY POLICY	FT MEADE POLICY	REQUIRED DOCUMENTATION	RELATED AT/FP STANDARDS
SS Credit 6.1: Stormwater Design: Quantity Control						
Limit disruption of natural hydrology by reducing impervious cover, increasing on-site infiltration, and managing stormwater runoff.	<p>OPTION 1-EXISTING IMPERVIOUSNESS IS LESS THAN OR EQUAL TO 50% Implement a stormwater management plan that prevents the post-development peak discharge rate and quantity from exceeding the pre-development peak discharge rate and quantity for the one- and two-year, 24-hour design storms. OR Implement a stormwater management plan that protects receiving stream channels from excessive erosion by implementing a stream channel protection strategy and quantity control strategies. OR OPTION 2-EXISTING IMPERVIOUSNESS IS GREATER THAN 50% Implement a stormwater management plan that results in a 25% decrease in the volume of stormwater runoff from the two-year, 24-hour design storm.</p>	1		FGGM- INRMP CZM Program	<p>OPTION 1: Provide the pre-development site runoff rate (cfs) and the pre-development site runoff quantity (cf). Provide the post-development site runoff rate (cfs), and the post development site runoff quantity (cf). OR Provide a narrative describing the project site conditions, measures taken, and controls implemented to prevent excessive stream velocities and associated erosion. OPTION 2: Provide the pre-development site runoff rate (cfs) and the pre-development site runoff quantity (cf). Provide the post-development site runoff rate (cfs), and the post development site runoff quantity (cf).</p>	AT Std 1 AT Std 2 AT Std 3 AT Std 5 AT Std 8 AT Std 14 AT Rec 1 AT Rec 2 AT Rec 3 AT Rec 4 AT Rec 5 AT Rec 7 AT Rec 8 AT Rec 10
SS Credit 6.2: Stormwater Design: Quality Control						
Reduce or eliminate water pollution by reducing impervious cover, increasing onsite infiltration, eliminating sources of contaminants, and removing pollutants from stormwater runoff.	<p>Implement a stormwater management plan that reduces impervious cover, promotes infiltration, and captures and treats the stormwater runoff from 90% of the average annual rainfall using acceptable best management practices (BMPs). BMPs used to treat runoff must be capable of removing 80% of the average annual post development total suspended solids (TSS) load based on existing monitoring reports. BMPs are considered to meet these criteria if (1) they are designed in accordance with standards and specifications from a state or local program that has adopted these performance standards, or (2) there exists in-field performance monitoring data demonstrating compliance with the criteria. Data must conform to accepted protocol (e.g. Technology Acceptance Reciprocity Partnership [TARP], Washington State Department of Ecology) for BMP monitoring.</p>	1	<p>Executive Memorandum "Environmentally and Economically Beneficial Practices on Federal Landscaped Grounds" April 26, 1994.</p>	FGGM- INRMP CZM Program	<p>NON-STRUCTURAL CONTROLS Provide list of Best Management Practices (BMPs), including a description of the function of each BMP and the percent annual rainfall treated. STRUCTURAL CONTROLS Provide list of structural controls including a description of the pollutant removal of each control and the percent annual rainfall treated. AND Provide an optional narrative describing any special circumstances or considerations regarding the approach to the credit.</p>	AT Std 1 AT Rec 1 AT Rec 2 AT Rec 3 AT Rec 7 AT Rec 8 AT Rec 10

Table 3.2: LEED Credit Matrix

INTENT	REQUIREMENT	POINTS	ARMY POLICY	FT MEADE POLICY	REQUIRED DOCUMENTATION	RELATED AT/FP STANDARDS
SS Credit 7.1: Heat Island Effect: Non-Roof						
<p>Reduce heat islands (thermal gradient differences between developed and undeveloped areas) to minimize impact on microclimate and human and wildlife habitat.</p>	<p>OPTION 1: Provide any combination of the following strategies for 50% of the site hardscape (including roads, sidewalks, courtyards, and parking lots): -Shade (within 5 years of occupancy) -Paving materials with a Solar Reflectance Index (SRI) of at least 29 -Open grid pavement system OR OPTION 2: Place a minimum of 50% of parking spaces under cover (defined as underground, under deck, under roof, or under a building). Any roof used to shade or cover parking must have an SRI of at least 29.</p>	<p>1</p>			<p>Provide project site drawings, highlighting the location of specific paving materials, landscape shading, and/or underground or covered parking. AND OPTION 1: Provide the following data in the submittal template: The measured reflectance and emittance of each paving material installed on-site (to Calculate the SRI -OR- the actual SRI for each paving material installed on site. Total area of site hardscape, total area of hardscape to be shaded within 5 years, total area of installed SRI compliant hardscape materials, and total area of open grid pavement. OR OPTION 2: Total number of parking spaces provided on-sits, and total number of covered parking spaces on-site. AND (for either compliance option) Provide an optional narrative to describe any special circumstances or non-standard compliance paths taken by the project.</p>	<p>AT Std 1 AT Std 2 AT Std 3 AT Std 4 AT Std 5 AT Rec 1 AT Rec 2 AT Rec 3 AT Rec 4 AT Rec 8 AT Rec 10</p>

Table 3.2: LEED Credit Matrix

INTENT	REQUIREMENT	POINTS	ARMY POLICY	FT MEADE POLICY	REQUIRED DOCUMENTATION	RELATED AT/FP STANDARDS
SS Credit 7.2: Heat Island Effect: Roof						
<p>Reduce heat islands (thermal gradient differences between developed and undeveloped areas) to minimize impact on microclimate and human and wildlife habitat.</p>	<p>OPTION 1: Use roofing materials having a Solar Reflectance Index (SRI) equal to or greater than the values in the table below for a minimum of 75% of the roof surface. OR OPTION 2: Install a vegetated roof for at least 50% of the roof area. OR OPTION 3: Install high albedo and vegetated roof surfaces that, in combination, meet the following criteria: (area of SRI roof / 0.75) + (area of vegetated roof / 0.5) >= Total Roof Area Low-sloped Roof < 2:12 SRI=78 Steep Sloped Roof > 2:12 SRI=29</p>	<p>1</p>			<p>Provide copies of the project's roof drawings to highlight the location of specific roof materials and/or green roof systems. AND OPTION 1: Total area of installed SRI compliant roofing materials. Provide a listing of installed roofing materials and their SRI values. OR OPTION 2: Total area of installed green roof systems. OR OPTION 3: Total area of installed green roof systems, total area of installed SRI compliant roofing materials, and provide a listing of installed roofing materials and their SRI values. AND Provide an optional narrative to describe any special circumstances or non-standard compliance paths taken by the project.</p>	<p>AT Std 5 AT Std 14</p>

Table 3.2: LEED Credit Matrix

INTENT	REQUIREMENT	POINTS	ARMY POLICY	FT MEADE POLICY	REQUIRED DOCUMENTATION	RELATED AT/FP STANDARDS
SS Credit 8: Light Pollution Reduction						
<p>Minimize light trespass from the building and site, reduce sky-glow to increase night sky access, improve nighttime visibility through glare reduction, and reduce development impact on nocturnal environments.</p>	<p>FOR INTERIOR LIGHTING The angle of maximum candela from each interior luminary as located in the building shall intersect opaque building interior surfaces and not exit out through the windows. OR All non-emergency interior lighting shall be automatically controlled to turn off during non-business hours. Provide manual override capability for after hours use. AND FOR EXTERIOR LIGHTING Only light areas as required for safety and comfort. Do not exceed 80% of the lighting power densities for exterior areas and 50% for building façades and landscape features as defined in ASHRAE.IESNA Standard 90.1-2004, Exterior Lighting Section, without amendments. All Projects shall be classified under one of the following zones, as defined in IESNA RP-33, and shall follow all of the requirements for that specific zone: Z1-DARK (Park and Rural Settings) Design exterior lighting so that all site and building mounted luminaries produce maximum initial luminance value no greater than 0.01 horizontal and vertical foot-candles at the site boundary and beyond. Document that 0% of the total initial designed fixture lumens are emitted at an angle of 90 degrees or higher from nadir (straight down.) LZ2-LOW (Residential Areas) Design exterior lighting so that all site and building mounted luminaries produce a maximum initial luminance value no greater than 0.10 horizontal and vertical footcandles at the site boundary. Document that no more than 2% of the total initial designed fixture lumens are emitted at an angle of 90 degrees or higher from nadir (straight down). For site boundaries that abut public rights-of-way, light trespass requirements may be met relative to the curb line instead of the site boundary.</p>	<p>1</p>			<p>Provide copies of the project lighting drawings (interior and site) to document the location and type of fixtures installed. Interior drawings should clearly show exterior building surfaces to confirm that the maximum candela from interior fixtures does not intersect transparent or translucent building surfaces. Provide confirmation that the interior lighting design has been evaluated to ensure that the maximum candela from each interior luminary intersects opaque interior surfaces and does not exit through windows, OR, that automatic controls have been installed to turn off interior lighting during non-occupied hours. AND</p>	<p>AT Std 1 AT Std 3 AT Std 5 AT Std 15 AT Rec 4 AT Rec 8 AT Rec 9 AT Rec 17</p>

Table 3.2: LEED Credit Matrix

INTENT	REQUIREMENT	POINTS	ARMY POLICY	FT MEADE POLICY	REQUIRED DOCUMENTATION	RELATED AT/FP STANDARDS
SS Credit 8: Light Pollution Reduction (cont'd)						
	<p>LZ3-MEDIUM (Commercial/Industrial, High-Density Residential) Design exterior lighting so that all site and building mounted luminaries produce a maximum initial illuminance value no greater than 0.20 horizontal and vertical footcandles at the site boundary and no greater than 0.01 horizontal footcandles 15 feet beyond the site. Document that no more than 5% of the total initial designed fixture lumens are emitted at an angle of 90 degrees or higher from nadir (straight down). For site boundaries that abut public rights-of-way, light trespass requirements may be met relative to the curb line instead of the site boundary.</p> <p>LZ4-HIGH (Major City Centers, Entertainment Districts) design exterior lighting so that all site and building mounted luminaries produce a maximum initial illuminance value no greater than 0.60 horizontal and vertical footcandles at the site boundary and no greater than 0.01 horizontal footcandles 15 feet beyond the site. Document that no more than 10% of the total initial designed site lumens are emitted at an angle of 90 degrees or higher from nadir (straight down). For site boundaries that abut public rights-of-way, light trespass requirements may be met relative to the curb line instead of the site boundary.</p>				<p>For Projects With No Exterior Lighting Confirm that no exterior lighting has been installed.</p> <p>For Projects with Exterior Lighting Complete the Lighting Power Density tables on the Submittal Template for both exterior site lighting and façade/landscape lighting. The following data will be requires to complete the template: location and ID of each installed exterior luminaries; site area (sq ft) to be illuminated by the luminaries(s); installed LPD; and ASHRAE-allowable LPD. Confirm the site zone classification for the project. Complete the Site Lumen Calculation on the submittal template. The following data will be required to complete the template: luminaries type/ID; quantity installed; initial lamp lumens per luminaries; initial lamp lumens above 90 degrees from nadir.</p> <p>AND</p> <p>Provide a narrative that includes specific information regarding the light trespass analysis conducted to determine compliance. Please provide any additional comments or notes regarding special circumstances or considerations regarding the project's credit approach.</p>	

Table 3.2: LEED Credit Matrix

INTENT	REQUIREMENT	POINTS	ARMY POLICY	FT MEADE POLICY	REQUIRED DOCUMENTATION	RELATED AT/FP STANDARDS
WATER EFFICIENCY						
WE Credit 1.1: Water Efficient Landscaping: Reduce by 50%						
Limit or eliminate the use of potable water, or other natural surface or subsurface water resources available on or near the project site, for landscape irrigation.	Reduce potable water consumption for irrigation by 50% from a calculated mid-summer baseline case. Reductions shall be attributed to any combination of the following items: -Plant species factor -Irrigation efficiency -Use of captured rainwater -Use of recycled wastewater -Use of water treated and conveyed by a public agency specifically for non-potable uses	1	EO 12902 Energy Efficiency and Water Conservation at Federal Facilities	EMS	Provide the projects calculated baseline Total Water Applied (TWA) (gal). Provide the projects calculated design case Total Water Applied (TWA) (gal). Provide the total non-potable water supply (gal) available for irrigation purposes. Provide a narrative describing the landscaping and irrigation design strategies employed by the project; description of the water use calculation methodology used to determine savings; and for projects using non-potable water, specific information regarding source and available quantity of non-potable supplies.	AT Std 1 AT Std 2 AT Rec 3 AT Rec 8 AT Rec 9 AT Rec 10
WE Credit 1.2: Water Efficient Landscaping: No Potable Water Use or No Irrigation						
Eliminate the use of potable water, or other natural surface or subsurface water resources available on or near the project site, for landscape irrigation.	Achieve WE Credit 1.1 AND: Use only captured rainwater, recycled wastewater, recycled graywater, or water treated and conveyed by a public agency specifically for non-potable uses for irrigation. OR Install landscaping that does not require permanent irrigation systems. Temporary irrigations systems used for plant establishment are allowed only if removed within one year of installation.	1 point in addition to WE Credit 1.1	Executive Memorandum "Environmentally and Economically Beneficial Practices on Federal Landscaped Grounds" April 26, 1994.	EMS	Provide the projects calculated baseline Total Water Applied (TWA) (gal). Provide the projects calculated design case Total Water Applied (TWA) (gal). Provide the total non-potable water supply (gal) available for irrigation purposes. Provide a narrative describing the landscaping and irrigation design strategies employed by the project; description of the water use calculation methodology used to determine savings; and for projects using non-potable water, specific information regarding source and available quantity of non-potable supplies.	AT Std 1 AT Std 2 AT Rec 8 AT Rec 9 AT Rec 10

Table 3.2: LEED Credit Matrix

INTENT	REQUIREMENT	POINTS	ARMY POLICY	FT MEADE POLICY	REQUIRED DOCUMENTATION	RELATED AT/FP STANDARDS
WE Credit 2: Innovative Wastewater Technologies						
<p>Reduce generation of wastewater and potable water demand, while increasing the local aquifer recharge.</p>	<p>OPTION 1: Reduce potable water use for building sewage conveyance by 50% through the use of water-conserving fixtures (water closets, urinals) or non-potable water (captured rainwater, recycled graywater, and on-site or municipally treated wastewater). OR OPTION 2: Treat 50% of wastewater on-site to tertiary standards. Treated water must be infiltrated or used on-site.</p>	<p>1</p>	<p>EO 12902 Energy Efficiency and Water Conservation at Federal Facilities ECB 2006-7 Army Standard for Urinals</p>	<p>EMS</p>	<p>Provide the applicable plumbing drawings from the construction documents that provide data regarding any on-site wastewater treatment facilities. Provide the project's calculated occupants; use a default one-to-one men to women ratio. Projects with special occupancy situations that result in an unbalanced ratio may enter project specific data for this credit. Provide the project's calculated baseline water usage for sewer conveyance. This data is calculated using typical fixture types and the project's mix of occupants. Provide the project's calculated design case water usage for sewage conveyance. This data is calculated using typical fixture types and the project's mix of occupants. Note: project teams must provide the following fixture information for each typical installed flush fixture type: fixture manufacturer, fixture model, flush rate in gallons per flush. For projects using non-potable water for sewage conveyance, provide the total non-potable water supply (gal) available for sewage conveyance purposes. For projects treating wastewater onsite, provide the annual quantity of water treated, the annual quantity (gal) of treated water that is infiltrated, and the annual quantity (gal) of treated water that is re-used on-site. Provide a narrative describing the potable water reduction strategies employed by the project. For projects using non-potable water, include specific information regarding any reclaimed water usage (graywater re-use/rainwater reuse/on-site or municipally treated wastewater). If the project is treating wastewater on-site to tertiary standards, include specific information regarding the use of the treated water.</p>	<p>AT Std 1 AT Std 2 AT Rec 3 AT Rec 8 AT Rec 9 AT Rec 10</p>

Table 3.2: LEED Credit Matrix

INTENT	REQUIREMENT	POINTS	ARMY POLICY	FT MEADE POLICY	REQUIRED DOCUMENTATION	RELATED AT/FP STANDARDS
WE Credit 3.1: Water Use Reduction: 20% Reduction						
Maximize water efficiency within building to reduce the burden on municipal water supply and wastewater systems.	Employ strategies that in aggregate use 20% less water than the water use baseline calculated for the building (not including irrigation) after meeting the Energy Policy Act of 1992 fixture performance requirements. Calculations are based on estimated occupant usage and shall include only the following fixtures (as applicable to the building): water closets, urinals, lavatory faucets, showers and kitchen sinks.	1	EO 12902 Energy Efficiency and Water Conservation at Federal Facilities	EMS	Provide the following documentation: The project's calculated occupant(s). Use a default one-to-one men to women ratio. Projects with special occupancy situations that result in an unbalanced ratio may enter project specific data for this credit. The project's calculated design case water usage (flush and flow fixtures) This data is calculated using project specified fixture types and the project's mix on occupants. Note: project teams must provide the following fixture information for each typical installed flush fixture type: fixture manufacturer, fixture model, flush rate in gallons per flush, or flow rate in gallons per minute. The project's calculated baseline water usage (flush and flow fixtures) this data is calculated using typical fixture types and project's mix of occupants. For projects using non-potable water for sewage conveyance, provide the total non-potable water supply available for sewage conveyance purposes. Narrative describing the potable water reduction strategies employed by the project. For projects using non-potable water, include specific information regarding reclaimed water usage (graywater reuse/rainwater reuse/on-site treated wastewater).	AT Std 19 AT Rec 15 AT Rec 16 AT Rec 17
WE Credit 3.2: Water Use Reduction: 30% Reduction						
Maximize water efficiency within building to reduce burden on municipal water supply and wastewater systems.	Employ strategies that in aggregate use 20% less water than the water use baseline calculated for the building (not including irrigation) after meeting the Energy Policy Act of 1992 fixture performance requirements. Calculations are based on estimated occupancy usage and shall include only the following fixtures (as applicable to the building): water closets, urinals, lavatory faucets, showers, and kitchen sinks.	1 point in addition to WE Credit 3,1	EO 12902 Energy Efficiency and Water Conservation at Federal Facilities	EMS	Same as WE Credit 3.1	AT Std 19 AT Rec 15 AT Rec 16 AT Rec 17

Table 3.2: LEED Credit Matrix

INTENT	REQUIREMENT	POINTS	ARMY POLICY	FT MEADE POLICY	REQUIRED DOCUMENTATION	RELATED AT/FP STANDARDS
ENERGY AND ATMOSPHERE						
EA Prerequisite 1: Fundamental Commissioning of the Building Energy Systems						
<p>Verify that the building's energy related systems are installed, calibrated and perform according to the owner's project requirements, basis of design, and construction documents.</p>	<p>The following commissioning process activities shall be completed by the commissioning team.</p> <ol style="list-style-type: none"> 1) Designate an individual as the Commissioning Authority (CxA) to lead, review, and oversee the completion of the commissioning process activities. <ol style="list-style-type: none"> a) The CxA shall have documented commissioning authority experience in at least two building projects. b) The individual serving as the CxA shall be independent of the project's design and construction management, though they may be employees of the firms providing those services. The CxA may be a qualified employee or consultant of the Owner. c) The CxA shall report results, findings and recommendations directly to the Owner. d) For projects smaller than 50,000 sq ft, the CxA may include qualified persons on the design or construction teams who have the required experience. 2) The owner shall document the Owner's Project Requirements (OPR). The design team shall develop the Basis of Design (BOD). The CxA shall review these documents for clarity and completeness. The Owner and design team shall be responsible for updates to their respective documents. 3) Develop and incorporated commissioning requirements into the construction documents. 4) Develop and implement a commissioning plan. 5) Verify the installation and performance of the systems to be commissioned. 6) Complete a summary commissioning report. <p>COMMISSIONED SYSTEMS</p> <p>Commissioning process activities shall be completed for the following energy-related systems at a minimum:</p> <ul style="list-style-type: none"> -Heating, ventilating, air conditioning and refrigeration (HVAC&R) systems (mechanical and passive) and associated controls. -Lighting and daylighting controls. -Domestic hot water systems. -Renewable energy systems (wind, solar, etc.) 	REQ'D		EMS IDG	<p>Provide the name and company information for the CxA. Confirm that the 6 required tasks have been completed. Provide a narrative description of the systems that were commissioned and the results of the commissioning process.</p>	AT Std 1-22 AT Rec 1-17

Table 3.2: LEED Credit Matrix

INTENT	REQUIREMENT	POINTS	ARMY POLICY	FT MEADE POLICY	REQUIRED DOCUMENTATION	RELATED AT/FP STANDARDS
EA Prerequisite 2: Minimum Energy Performance						
<p>Establish the minimum level of energy efficiency for the proposed building and systems.</p>	<p>Design the building project to comply with both- -the mandatory provisions (Sections 5.4, 6.4, 7.4, 8.4, 9.4, and 10.4) of ASHRAE/IESNA Standard 90.1-2004 (without amendments); and -the prescriptive requirements (Sections 5.5, 6.5, 7.5, and 9.5) or performance requirements (Section 11) of ASHRAE/IESNA Standard 90.-2004 (without amendments).</p>	<p>REQ'D</p>		<p>EMS</p>	<p>Confirm that the project meets the requirements of ASHRAE Std 90.1-2004. Provide an optional narrative regarding special circumstances or considerations regarding the project's prerequisite approach.</p>	<p>AT Std 9 AT Std 10 AT Std 11 AT Std 12 AT Std 13 AT Std 16 AT Std 17 AT Std 18 AT Std 19 AT Std 22 AT Rec 10 AT Rec 15 AT Rec 16 AT Rec 17</p>
EA Prerequisite 3: Fundamental Refrigerant Management						
<p>Reduce ozone depletion.</p>	<p>Zero use of CFC-based refrigerants in new base building HVAC&R systems. When reusing existing base building HVAC equipment, complete a comprehensive CFC phase-out conversion prior to project completion. Phase-out plans extending beyond the project completion date will be considered on their merits.</p>	<p>REQ'D</p>	<p>EO 12843 Procurement Requirements and Policies for Federal Agencies for Ozone Depleting Substances</p>		<p>Confirm that the project does not use CFC refrigerants. OR Confirm that the project has a phase-out plan for any existing CFC-based equipment. Provide a narrative description of the phase-out plan, including dates and refrigerant quantities as a percentage of the overall project equipment.</p>	<p>AT Std 17</p>

Table 3.2: LEED Credit Matrix

INTENT	REQUIREMENT	POINTS	ARMY POLICY	FT MEADE POLICY	REQUIRED DOCUMENTATION	RELATED AT/FP STANDARDS																																	
EA Credit 1: Optimize Energy Performance																																							
<p>Achieve increasing levels of energy performance above the baseline in the prerequisite standard to reduce environmental and economic impacts associated with excessive energy use.</p>	<p>Select one of the three compliance path options described below. Project teams documenting achievement using any of the three options are assumed to be in compliance with EA Prerequisite 2.</p> <p>OPTION 1-WHOLE BUILDING ENERGY SIMULATION (1-10 Points)</p> <p>Demonstrate a percentage improvement in the proposed building performance rating compared to the baseline building performance rating per ASHRAE/IESNA Standard 90.1-2004 (without amendments) by a whole building project simulation using the Building Performance Rating Method in Appendix G of the Standard. the minimum energy cost savings percentage for each point threshold is as follows:</p> <table border="1"> <thead> <tr> <th>New Buildings</th> <th>Existing Building Renovations</th> <th>Points</th> </tr> </thead> <tbody> <tr><td>10.5%</td><td>3.5%</td><td>1</td></tr> <tr><td>14%</td><td>7%</td><td>2</td></tr> <tr><td>17.5%</td><td>10.5%</td><td>3</td></tr> <tr><td>21%</td><td>14%</td><td>4</td></tr> <tr><td>24.5%</td><td>17.5%</td><td>5</td></tr> <tr><td>28%</td><td>21%</td><td>6</td></tr> <tr><td>31.5%</td><td>24.5%</td><td>7</td></tr> <tr><td>35%</td><td>28%</td><td>8</td></tr> <tr><td>38.5%</td><td>31.5%</td><td>9</td></tr> <tr><td>42%</td><td>35%</td><td>10</td></tr> </tbody> </table> <p>Appendix G of Standard 90.1-2004 requires that the energy analysis done for the Building Performance rating Method include ALL of the energy costs within and associated with the building project. To achieve points using this credit, the proposed design--</p> <ul style="list-style-type: none"> --must comply with the mandatory provisions (Sections 5.4, 6.4, 7.4, 8.4, 9.4, and 10.4) in standard 90.1-2004 (without amendments); --must include all the energy costs within and associated with the building project; and --must be compared against a baseline building that complies with Appendix G to Standard 90.1-2004 (without amendments). The default process energy cost is 25% of the total energy cost for the baseline building. For buildings where the process energy cost is less than 25% of the baseline building energy cost, the LEED submittal must include supporting documentation substantiating that process energy inputs are appropriate. <p>Continued on next page.</p>	New Buildings	Existing Building Renovations	Points	10.5%	3.5%	1	14%	7%	2	17.5%	10.5%	3	21%	14%	4	24.5%	17.5%	5	28%	21%	6	31.5%	24.5%	7	35%	28%	8	38.5%	31.5%	9	42%	35%	10	<p>1-10 Points</p>	<p>On June 3, 1999 the President issued EO13123, Greening the Government Through Efficient Energy Management. In EO 13123, the Federal Government has set a goal to reduce greenhouse gas emissions attributed to Federal energy consumption by 30% by 2010 and to reduce energy consumption in Federal facilities by 30% by 2005.</p>	<p>EMS (GPP)</p>	<p>Use and submit the EA Credit 1 Submittal Template provided by the US Green Building Council for LEED-NC Version 2.2 (www.usgbc.org)</p>	<p>AT Std 9 AT Std 10 AT Std 11 AT Std 12 AT Std 13 AT Std 16 AT Std 17 AT Std 18 AT Std 19 AT Std 22 AT Rec 10 AT Rec 15 AT Rec 16 AT Rec 17</p>
New Buildings	Existing Building Renovations	Points																																					
10.5%	3.5%	1																																					
14%	7%	2																																					
17.5%	10.5%	3																																					
21%	14%	4																																					
24.5%	17.5%	5																																					
28%	21%	6																																					
31.5%	24.5%	7																																					
35%	28%	8																																					
38.5%	31.5%	9																																					
42%	35%	10																																					

Table 3.2: LEED Credit Matrix

INTENT	REQUIREMENT	POINTS	ARMY POLICY	FT MEADE POLICY	REQUIRED DOCUMENTATION	RELATED AT/FP STANDARDS
EA Credit 1: Optimize Energy Performance (cont'd)						
	<p>For the purpose of this analysis, process energy is considered to include, but is not limited to, office and general miscellaneous equipment, computers, elevators, and escalators, kitchen cooking and refrigeration, laundry washing and drying, lighting exempt from the lighting power allowance (e.g. lighting integral to medical equipment) and other (e.g. waterfall pumps). Regulated (non-process) energy includes lighting (such as for the interior, parking garage, surface parking, facade, or building grounds, except as noted above), HVAC (such as for space heating, space cooling, fans, pumps, toilet exhaust, parking garage ventilation, kitchen hood exhaust, etc), and service water heating for domestic or space heating purposes. For EA Credit 1, process loads shall be identical for both the baseline building performance rating and for the proposed building performance rating. However, project teams may follow the Exception Calculation Method (ASHRAE 90.1-2004 G2.5) to document measures that reduce process loads. Documentation of process load energy savings shall include a list of the assumptions made for both the base and proposed design, and theoretical or empirical information supporting these assumptions. OR OPTION 2- PRESCRIPTIVE COMPLIANCE PATH (4 Points) Comply with the prescriptive measures of the ASHRAE Advanced Energy Design Guide for Small Office Buildings 2004. The following restrictions apply: --Buildings must be under 20,000 square feet --Buildings must be office occupancy --Project teams must fully comply with all applicable criteria as established in the Advanced Energy Design Guide for the climate zone in which the building is located OR OPTION 3- PRESCRIPTIVE COMPLIANCE PATH (1 Point) Comply with the Basic Criteria and Prescriptive Measures of the Advanced Buildings Benchmark Version 1.1 with the exception of the following sections: 1.7 Monitoring and Trend-logging, 1.11 Indoor Air Quality, and 1.14 Networked Computer Monitor Control. The following restrictions apply: --Project teams must fully comply with all applicable criteria as established in Advanced Buildings Benchmark for the climate zone in which the building is located.</p>					

Table 3.2: LEED Credit Matrix

INTENT	REQUIREMENT	POINTS	ARMY POLICY	FT MEADE POLICY	REQUIRED DOCUMENTATION	RELATED AT/FP STANDARDS								
EA Credit 2: On-Site Renewable Energy														
<p>Encourage and recognize increasing levels of on-site renewable energy self-supply in order to reduce environmental and economic impacts associated with fossil fuel energy use.</p>	<p>Use on-site renewable energy systems to offset building energy cost. Calculate project performance expressing the energy produced by the renewable systems as a percentage of the building annual energy cost and using the table below to determine the number of points achieved.</p> <p>Use the building annual energy cost calculated in EA Credit 1 or use the Department of Energy (DOE) Commercial Buildings Energy Consumption Survey (CBECS) database to determine the estimated electricity use.</p> <table border="0"> <tr> <td>% Renewable Energy</td> <td>Points</td> </tr> <tr> <td>2.5%</td> <td>1</td> </tr> <tr> <td>7.5%</td> <td>2</td> </tr> <tr> <td>12.5%</td> <td>3</td> </tr> </table>	% Renewable Energy	Points	2.5%	1	7.5%	2	12.5%	3	<p>1-3 Points</p>		<p>EMS</p>	<p>Provide the On-Site Renewable Energy Source (s) used, the annual energy generated from each source, and the backup fuel for each source (i.e., the fuel that is used when the renewable energy source is unavailable). Describe the source of the annual energy cost information (energy model or industry database), and provide the appropriate energy values and costs.</p>	<p>AT Std 19 AT Rec 9</p>
% Renewable Energy	Points													
2.5%	1													
7.5%	2													
12.5%	3													

Table 3.2: LEED Credit Matrix

INTENT	REQUIREMENT	POINTS	ARMY POLICY	FT MEADE POLICY	REQUIRED DOCUMENTATION	RELATED AT/FP STANDARDS
EA Credit 3: Enhanced Commissioning						
<p>Begin the commissioning process early during the design process and execute additional activities after systems performance verification is completed.</p>	<p>Implement, or have a contract in place to implement, the following additional commissioning process activities in addition to the requirements of EA Prerequisite 1 and in accordance with this LEED-NC 2.2 Reference Guide:</p> <ol style="list-style-type: none"> 1. Prior to the start of the construction documents phase, designate an independent Commissioning Authority (CxA to lead, review, and oversee the completion of all commissioning process activities. The CxA shall, at a minimum, perform Tasks 2, 3 and 6. Other team members may perform Tasks 4 and 5. <ol style="list-style-type: none"> a. The CxA shall have documented commissioning authority experience in at least two building projects. b. The individual serving as the CxA shall be-- <ol style="list-style-type: none"> i. independent of the work of design and construction ii. not an employee of the design firm, though they may be contracted through them; iii. not an employee of, or contracted through, a contractor or construction manager holding construction contracts; and iv. (can be) a qualified employee or consultant of the Owner c. The CxA shall report results, findings and recommendations directly to the Owner. d. This requirement has no deviation for project size 2. The CxA shall conduct, at a minimum, one commissioning design review of the Owner's Project Requirements (OPR), Basis of Design (BOD), and design documents prior to mid-construction documents phase and back-check the review comments in the subsequent design submission. 3. The CxA shall review contractor submittals applicable to systems being commissioned for compliance with the OPR and BOD. This review shall be concurrent with A/E reviews and submitted to the design team and Owner. 4. Develop a system manual that provides future operating staff the information needed to understand and optimally operate the commissioned systems. 5. Verify that the requirements for training operating personnel and building occupants are completed. 6. Assure the involvement by the CxA in reviewing building operation within 10 months after substantial completion with O&M staff and occupants. Include a plan for resolution of outstanding commissioning-related issues. 	1		IDG	<p>Provide the name, firm and experience information for the CxA. Confirm that the 6 required tasks have been completed. Provide a narrative description of the results of the commissioning design review, implementation of the systems manual and training, and the plan for the review of building operation at 8 to 10 months.</p>	<p>AT Std 1-22 AT Rec 1-17</p>

Table 3.2: LEED Credit Matrix

INTENT	REQUIREMENT	POINTS	ARMY POLICY	FT MEADE POLICY	REQUIRED DOCUMENTATION	RELATED AT/FP STANDARDS
EA Credit 4: Enhanced Refrigerant Management						
<p>Reduce ozone depletion and support early compliance with the Montreal Protocol while minimizing direct contributions to global warming.</p>	<p>OPTION 1: Do not use refrigerants OR OPTION 2: Select refrigerants and HVAC&R that minimize or eliminate the emissions of compounds that contribute to ozone depletion and global warming. The base building HVAC&R equipment shall comply with the following formula, which sets a maximum threshold for the combined contributions to ozone depletion and global warming potential: $LCGWP + LCODP \times 10^5 \leq 100$ Where: $LCODP = [ODP_r \times (Lr \times Life + Mr) \times Rc] / Life$ $LCGWP = [GWPr \times (Lr \times Life + Mr) \times Rc] / Life$ LCODP: Lifecycle Ozone Depletion Potential (lbCFC11/Ton-Year) LCGWP: Lifecycle Direct Global Warming Potential (lbCO₂/Ton-Year) GWPr: Global Warming Potential of Refrigerant (0 to 12,000 lbCO₂/lbr) ODPr: Ozone Depletion Potential of Refrigerant (0 to 0.2 lbCFC11/lbr) Lr: Refrigerant Leakage Rate (0.5% to 2.0%; default of 2% unless otherwise demonstrated) Mr: End-of-life Refrigerant Loss (2% to 10%; default of 10% unless otherwise demonstrated) Rc: Refrigerant Charge (0.5 to 5.0 lbs of refrigerant per ton of cooling capacity) Life: Equipment Life (10 years; default based on equipment type, unless otherwise demonstrated) For multiple types of equipment, a weighted average of all base building level HVAC&R equipment shall be applied using the following formula: $[S (LCGWP + LCODP \times 105) \times Qunit] / Qtotal \leq 100$ Where: Qunit=Cooling capacity of an individual HVAC or refrigeration unit (tons) Qtotal=Total cooling capacity of all HVAC or refrigeration Small HVAC units (defined as containing less than 0.5 lbs of refrigerant), and other equipment such as standard refrigerators, small water coolers, and any other cooling equipment that contains less than 0.5 lbs of refrigerant, are not considered part of the "base building" system and are not subject to the requirements of this credit. AND Do not install fire suppression systems that contain ozone-depleting substances (CFC's, HCFC's or Halons)</p>	<p>1</p>	<p>EO 12843 Procurement Requirements and Policies for Federal Agencies for Ozone Depleting Substances</p>		<p>Enter into the template the HVAC&R equipment types, including number, size (tons), refrigerant, and refrigerant charge. Provide a narrative describing any special circumstances or calculation explanations.</p>	<p>AT Std 17</p>

Table 3.2: LEED Credit Matrix

INTENT	REQUIREMENT	POINTS	ARMY POLICY	FT MEADE POLICY	REQUIRED DOCUMENTATION	RELATED AT/FP STANDARDS
EA Credit 5: Measurement & Verification						
Provide for the ongoing accountability of building energy consumption over time.	Develop and implement a Measurement & verification (M&V) Plan consistent with Option D: Calibrated Simulation (Savings Estimation Method 2) , or Option B: Energy Conservation Measure Isolation, as specified in the <i>International Performance Measurement & verification Protocol (IPMVP) Volume III: Concepts and Options for Determining Energy Savings in New Construction, April 2003</i> . <i>The M&V period shall cover a period of no less than one year of post-construction occupancy.</i>	1			Confirm the IPMVP Option pursued by the project. Upload a copy of the M&V Plan. Provide a narrative describing any special circumstances or calculation explanations.	AT Std 13 AT Std 17 AT Std 18 AT Std 22
EA Credit 6: Green Power						
Encourage the development and use of grid-source, renewable energy technologies on a net zero pollution basis.	Provide at least 35% of the building's electricity from renewable sources by engaging in at least a two-year renewable energy contract. Renewable sources are as defined by the Center for Resource Solutions (CRS) Green-e products certification requirements. DETERMINE THE BASELINE ELECTRICITY USE Use the annual electricity consumption from the results of EA Credit 1. OR Use the Department of Energy (DOE) Commercial Buildings Energy Consumption Survey (CBECS) database to determine the estimated electricity use.	1	EO 13123 Section 403 Greening the Government Through Efficient Energy Management	EMS	OPTION 1: Provide the name of the green power provider and contract term. Enter total annual electricity consumption (kWh) and total annual green power purchase (kWh). OPTION 2: Provide the name of the renewable energy certificate vendor. Enter total annual electricity consumption (kWh). Enter the value of the green tags purchased (kWh).	AT Std 19

Table 3.2: LEED Credit Matrix

INTENT	REQUIREMENT	POINTS	ARMY POLICY	FT MEADE POLICY	REQUIRED DOCUMENTATION	RELATED AT/FP STANDARDS
MATERIALS AND RESOURCES						
MR Prerequisite 1: Storage & Collection of Recyclables						
Facilitate the reduction of waste generated by building occupants that is hauled to and disposed of in landfills	Provide an easily accessible area that serves the entire building and is dedicated to the collection and storage of non-hazardous materials for recycling, including (at a minimum) paper, corrugated cardboard, glass, plastics, and metals.	REQ'D	EO 13101 Greening the Government Sec 705 Recycling Programs	EMS	Confirm that recycling collection areas have been provided, per requirements, to meet the needs of the project. Confirm the types of materials that are being collected for recycling. Provide an optional narrative describing any special circumstances or considerations regarding the project's prerequisite approach.	AT Std 1 AT Rec 9
MR Credit 1.1: Building Reuse : Maintain 75% of Existing Walls, Floors & Roof						
Extend the life cycle of existing building stock, conserve resources, retain cultural resources, reduce waste and reduce environmental impacts of new buildings as they relate to materials manufacturing and transport.	Maintain at least 75% (based on surface area) of existing building structure (including structural floor and roof decking) and envelope (exterior skin and framing, excluding window assemblies and non-structural roofing material). Hazardous materials that are remediated as a part of the project scope shall be excluded from the calculation of the percentage maintained. If the project includes an addition to an existing building, this credit is not applicable if the square footage of the addition is more than 2 times the square footage of the existing building.	1		EMS	Confirm whether the project is strictly a renovation of an existing building or a renovation with an addition. For projects with additions, confirm the square footage of the new addition(s). Provide a tabulation of the existing and reused areas (sq ft) of each structural/envelope element. Provide an optional narrative describing any special circumstances or considerations regarding the project's approach.	AT Std 1 AT Std 2 AT Std 6 AT Std 7 AT Std 8 AT Std 9 AT Rec 5 AT Rec 6 AT Rec 7 AT Rec 8 AT Rec 10 AT Rec 11 AT Rec 17

Table 3.2: LEED Credit Matrix

INTENT	REQUIREMENT	POINTS	ARMY POLICY	FT MEADE POLICY	REQUIRED DOCUMENTATION	RELATED AT/FP STANDARDS
MR Credit 1.2: Building Reuse : Maintain 95% of Existing Walls, Floors & Roof						
<p>Extend the life cycle of existing building stock, conserve resources, retain cultural resources, reduce waste and reduce environmental impacts of new buildings as they relate to materials manufacturing and transport.</p>	<p>Maintain an additional 20% (95% total, based on surface area) of existing building structure (including structural floor and roof decking) and envelope (exterior skin and framing, excluding window assemblies and non-structural roofing material). Hazardous materials that are re-mediated as a part of the project scope shall be excluded from the calculation of the percentage maintained. If the project includes an addition to an existing building, this credit is not applicable if the square footage of the addition is more than 2 times the square footage of the existing building.</p>	<p>1 Point in addition to MR Credit 1.1</p>		<p>EMS</p>	<p>Confirm whether the project is strictly a renovation of an existing building or a renovation with an addition. For projects with additions, confirm the square footage of the new addition(s). Provide a tabulation of the existing and reused areas (sq ft) of each structural/envelope element. Provide an optional narrative describing any special circumstances or considerations regarding the project's approach.</p>	<p>AT Std 1 AT Std 2 AT Std 6 AT Std 7 AT Std 8 AT Std 9 AT Rec 5 AT Rec 6 AT Rec 7 AT Rec 8 AT Rec 10 AT Rec 11 AT Rec 17</p>
MR Credit 1.3: Building Reuse : Maintain 50% of Interior Non-Structural Elements						
<p>Extend the life cycle of existing building stock, conserve resources, retain cultural resources, reduce waste and reduce environmental impacts of new buildings as they relate to materials manufacturing and transport.</p>	<p>Use existing interior non-structural elements (interior walls, doors, floor coverings and ceiling systems) in at least 50% (by area) of the completed building (including additions). If the project includes an addition to an existing building, this credit is not applicable if the square footage of the addition is more than 2 times the square footage of the existing building.</p>	<p>1</p>		<p>EMS</p>	<p>Confirm whether the project is strictly a renovation of an existing building or a renovation of an existing building or a renovation with an addition. For projects with additions, confirm the square footage of the new addition (s). Provide an optional narrative describing any special circumstances or considerations regarding the project's approach.</p>	<p>N/A</p>

Table 3.2: LEED Credit Matrix

INTENT	REQUIREMENT	POINTS	ARMY POLICY	FT MEADE POLICY	REQUIRED DOCUMENTATION	RELATED AT/FP STANDARDS
MR Credit 2.1: Construction Waste Management : Divert 50% from Disposal						
<p>Divert construction and demolition debris from disposal in landfills and incinerators. Redirect recyclable recovered resources back to the manufacturing process. Redirect reusable materials to appropriate sites.</p>	<p>Recycle and/or salvage at least 50% of non-hazardous construction and demolition. Develop and implement a construction waste management plan that, at a minimum identifies the materials to be diverted from disposal and whether the materials will be sorted on-site or commingled. Excavated soil and land-clearing debris does not contribute to this credit. Calculations can be done by weight or volume, but must be consistent throughout.</p>	1		EMS	<p>Complete the construction waste calculation tables in the Submittal Template. The following information will be required to fill in these tables: general description of each type/category of waste generated; location of receiving agent (recycler/landfill) for waste; quantity of waste diverted (by category) in tons, or cubic yards. Provide a narrative describing the project's construction waste management approach. The narrative should include the project's Construction Waste Management Plan. Please provide any additional comments or notes to describe special circumstances or considerations regarding the project's credit approach.</p>	<p>AT Std 1 AT Std 2 AT Rec 3 AT Rec 7 AT Rec 8 AT Rec 9</p>
MR Credit 2.2: Construction Waste Management : Divert 75% from Disposal						
<p>Divert construction and demolition debris from disposal in landfills and incinerators. Redirect recyclable recovered resources back to the manufacturing process. Redirect reusable materials to appropriate sites.</p>	<p>Recycle and/or salvage an additional 25% beyond MR Credit 2.1 (75% total) of non-hazardous construction and demolition debris. Excavated soil and land-clearing debris does not contribute to this credit. Calculations can be done by weight or volume, but must be consistent throughout.</p>	1 Point in addition to MR Credit 2.1		EMS	<p>Complete the construction waste calculation tables in the Submittal Template. The following information will be required to fill in these tables: general description of each type/category of waste generated; location of receiving agent (recycler/landfill) for waste; quantity of waste diverted (by category) in tons, or cubic yards. Provide a narrative describing the project's construction waste management approach. The narrative should include the project's Construction Waste Management Plan. Please provide any additional comments or notes to describe special circumstances or considerations regarding the project's credit approach.</p>	<p>AT Std 1 AT Std 2 AT Rec 3 AT Rec 7 AT Rec 8 AT Rec 9</p>

Table 3.2: LEED Credit Matrix

INTENT	REQUIREMENT	POINTS	ARMY POLICY	FT MEADE POLICY	REQUIRED DOCUMENTATION	RELATED AT/FP STANDARDS
MR Credit 3.1: Materials Reuse : 5%						
<p>Reuse building materials and products in order to reduce demand for virgin materials and to reduce waste, thereby reducing impacts associated with the extraction and processing of virgin resources.</p>	<p>Use salvaged, refurbished or reused materials such that the sum of these materials constitutes at least 5% based on cost of the total value of materials on the project. Mechanical, electrical and plumbing components and specialty items such as elevators and equipment shall not be included in this calculation. Only include materials permanently installed in the project. Furniture may be included, providing it is included consistently in MR Credits 3-7.</p>	1		EMS	<p>Provide the total project materials cost (Divisions 2-10) or provide the total project cost for Divisions 2-10 to apply the 45% default materials value. Provide a tabulation of each salvaged/reused material used on the project. The tabulation must include a description of the material, the source/vendor for the material and the product cost. Provide a narrative describing the materials reuse strategy implemented by the project. Include specific information about reused/salvaged materials used on the project.</p>	<p>AT Std 2 AT Std 5 AT Std 6 AT Std 7 AT Std 8 AT Std 9 AT Std 10 AT Std 12 AT Std 20 AT Rec 11 AT Rec 17</p>
MR Credit 3.2: Materials Reuse : 10%						
<p>Reuse building materials and products in order to reduce demand for virgin materials and to reduce waste, thereby reducing impacts associated with the extraction and processing of virgin resources.</p>	<p>Use salvaged, refurbished or reused materials for an additional 5% beyond MR Credit 3.1 (10% total, based on cost). Mechanical, electrical and plumbing components and specialty items such as elevators and equipment shall not be included in this calculation. Only include materials permanently installed in the project. Furniture may be included, providing it is included consistently in MR Credits 3-7.</p>	1 Point in addition to MR Credit 3.1		EMS	<p>Provide the total project materials cost (Divisions 2-10) or provide the total project cost for Divisions 2-10 to apply the 45% default materials value. Provide a tabulation of each salvaged/reused material used on the project. The tabulation must include a description of the material, the source/vendor for the material and the product cost. Provide a narrative describing the materials reuse strategy implemented by the project. Include specific information about reused/salvaged materials used on the project.</p>	<p>AT Std 2 AT Std 5 AT Std 6 AT Std 7 AT Std 8 AT Std 9 AT Std 10 AT Std 12 AT Std 20 AT Rec 11 AT Rec 17</p>

Table 3.2: LEED Credit Matrix

INTENT	REQUIREMENT	POINTS	ARMY POLICY	FT MEADE POLICY	REQUIRED DOCUMENTATION	RELATED AT/FP STANDARDS
MR Credit 4.1: Recycled Content : 10% (post-consumer + 1/2 pre-consumer)						
<p>Increase demand for building products that incorporate recycled content materials, thereby reducing impacts resulting from extraction and processing of virgin materials.</p>	<p>Use materials with recycled content such that the sum of post-consumer recycled content plus one-half of the pre-consumer content constitutes at least 10% (based on cost) of the total value of the materials in the project. The recycled content value of a material assembly shall be determined by weight. The recycled fraction of the assembly is then multiplied by the cost of assembly to determine the recycled content value. Mechanical, electrical and plumbing components and specialty items such as elevators shall not be included in this calculation. Only include materials permanently installed in the project. Furniture may be included, providing it is included consistently in MR Credits 3-7. Recycled content shall be defined in accordance with the International Organization for Standardization document., <i>ISO 14021-Environmental labels and declarations--Self-declared environmental claims (Type II environmental labeling)</i>. Post-consumer material is defined as waste material generated by households or by commercial, industrial and institutional facilities in their role as end-users of the product, which can no longer be used for its intended purpose. Pre-consumer material is defined as material diverted from the waste stream during the manufacturing process. Excluded is reutilization of materials such as rework, regrind or scrap generated in a process and capable of being reclaimed within the same process that generated it.</p>	<p>1</p>	<p>EO 13101 Greening the Government Sec 401 Acquisition Planning and Sec 402 Affirmative Procurement Programs</p>	<p>EMS (GPP)</p>	<p>Provide the total project materials cost (Divisions 2-10) or provide the total project cost for Divisions 2-10 to apply the 45% default materials value. Provide a tabulation of each material used on the project that is being tracked for recycled content. The tabulation must include a description of the material, the manufacturer of the material, the product cost, the pre-consumer and/or post-consumer recycled content percentage, and the source of the recycled content data. Provide an optional narrative describing any special circumstances or considerations regarding the projects credit approach.</p>	<p>AT Std 2 AT Std 5 AT Std 6 AT Std 7 AT Std 8 AT Std 9 AT Std 10 AT Std 12 AT Std 20 AT Rec 11 AT Rec 17</p>

Table 3.2: LEED Credit Matrix

INTENT	REQUIREMENT	POINTS	ARMY POLICY	FT MEADE POLICY	REQUIRED DOCUMENTATION	RELATED AT/FP STANDARDS
MR Credit 4.2: Recycled Content : 20% (post-consumer + 1/2 pre-consumer)						
<p>Increase demand for building products that incorporate recycled content materials, thereby reducing impacts resulting from extraction and processing of virgin materials.</p>	<p>Use materials with recycled content such that the sum of post-consumer recycled content plus one-half of the pre-consumer content constitutes an additional 10% beyond MR Credit 4.1 (total of 20%, based on cost) of the total value of the materials in the project. The recycled content value of a material assembly shall be determined by weight. The recycled fraction of the assembly is then multiplied by the cost of assembly to determine the recycled content value. Mechanical, electrical and plumbing components and specialty items such as elevators shall not be included in this calculation. Only include materials permanently installed in the project. Furniture may be included, providing it is included consistently in MR Credits 3-7. Recycled content shall be defined in accordance with the International Organization for Standardization document., <i>ISO 14021- Environmental labels and declarations--Self-declared environmental claims (Type II environmental labeling)</i>.</p>	<p>1 Point in addition to MR Credit 4.1</p>	<p>EO 13101 Greening the Government Sec 401 Acquisition Planning and Sec 402 Affirmative Procurement Programs</p>	<p>EMS (GPP)</p>	<p>Provide the total project materials cost (Divisions 2-10) or provide the total project cost for Divisions 2-10 to apply the 45% default materials value. Provide a tabulation of each material used on the project that is being tracked for recycled content. The tabulation must include a description of the material, the manufacturer of the material, the product cost, the pre-consumer and/or post-consumer recycled content percentage, and the source of the recycled content data. Provide an optional narrative describing any special circumstances or considerations regarding the projects credit approach.</p>	<p>AT Std 2 AT Std 5 AT Std 6 AT Std 7 AT Std 8 AT Std 9 AT Std 10 AT Std 12 AT Std 20 AT Rec 11 AT Rec 17</p>
MR Credit 5.1: Regional Materials: 10% extracted, Processed & Manufactured Regionally						
<p>Increase demand for building materials and products that are extracted and manufactured within the region, thereby supporting the use of indigenous resources and reducing the environmental impacts resulting from transportation</p>	<p>Use building materials or products that have been extracted, harvested or recovered, as well as manufactured, within 500 miles of the project site for a minimum of 10% (based on cost) of the total materials value. If only a fraction of a product or material is extracted/harvested/recovered and manufactured locally, then only that percentage (by weight) shall contribute to the regional value. Mechanical, electrical and plumbing components and specialty items such as elevators and equipments shall not be included in this calculation. Only include materials permanently installed in the project. Furniture may be included, providing it is included consistently in MR Credits 3-7.</p>	<p>1</p>		<p>EMS (GPP)</p>	<p>Provide the project's total project cost (for application of 45% default factor) or total materials cost. Note this reported value must be consistent across all MR credits. Complete a template to include the following information: product name for each tracked material; material manufacturer; total product cost for each tracked material; percentage of product by weight, that meets both the extraction and manufacture criteria; distance between the project site and extraction/harvest/recovery site; distance between the project site and the final manufacturing location. Provide an option narrative describing any special circumstances or considerations regarding the project's credit approach.</p>	<p>AT Std 2 AT Std 5 AT Std 6 AT Std 7 AT Std 8 AT Std 9 AT Std 10 AT Std 12 AT Std 20 AT Rec 11 AT Rec 17</p>

Table 3.2: LEED Credit Matrix

INTENT	REQUIREMENT	POINTS	ARMY POLICY	FT MEADE POLICY	REQUIRED DOCUMENTATION	RELATED AT/FP STANDARDS
MR Credit 5.2: Regional Materials: 20% extracted, Processed & Manufactured Regionally						
<p>Increase demand for building materials and products that are extracted and manufactured within the region, thereby supporting the use of indigenous resources and reducing the environmental impacts resulting from transportation</p>	<p>Use building materials or products that have been extracted, harvested or recovered, as well as manufactured, within 500 miles of the project site for a minimum of 10% (based on cost) of the total materials value. If only a fraction of a product or material is extracted/harvested/recovered and manufactured locally, then only that percentage (by weight) shall contribute to the regional value. Mechanical, electrical and plumbing components and specialty items such as elevators and equipments shall not be included in this calculation. Only include materials permanently installed in the project. Furniture may be included, providing it is included consistently in MR Credits 3-7.</p>	<p>1 Point in addition to MR Credit 5.1</p>		<p>EMS (GPP)</p>	<p>Provide the project's total project cost (for application of 45% default factor) or total materials cost. Note this reported value must be consistent across all MR credits. Create and complete a template to include the following information: product name for each tracked material; material manufacturer; total product cost for each tracked material; percentage of product by weight, that meets both the extraction and manufacture criteria; distance between the project site and extraction/harvest/recovery site; distance between the project site and the final manufacturing location. Provide an option narrative describing any special circumstances or considerations regarding the project's credit approach.</p>	<p>AT Std 2 AT Std 5 AT Std 6 AT Std 7 AT Std 8 AT Std 9 AT Std 10 AT Std 12 AT Std 20 AT Rec 11 AT Rec 17</p>
MR Credit 6.0: Rapidly Renewable Materials						
<p>Reduce the use and depletion of finite raw materials and long-cycle renewable materials by replacing them with rapidly renewable materials.</p>	<p>Use rapidly renewable building materials and products (made from plants that are typically harvested within a ten-year cycle or shorter) for 2.5% of the total value of all building materials and products used in the project, based on cost.</p>	<p>1</p>	<p>EO 13101 Greening the Government Sec 401 Acquisition Planning and Sec 402 Affirmative Procurement Programs</p>	<p>EMS (GPP)</p>	<p>Provide the project's total project cost (for application of 45% default factor) or total materials cost. Note this reported value must be consistent across all MR credits. Create and complete a table to include the following information: product name for each tracked material; material manufacturer; total product cost for each tracked material; percentage of product, by weight, for each material that meets the rapidly renewable criteria.</p>	<p>N/A</p>

Table 3.2: LEED Credit Matrix

INTENT	REQUIREMENT	POINTS	ARMY POLICY	FT MEADE POLICY	REQUIRED DOCUMENTATION	RELATED AT/FP STANDARDS
MR Credit 7.0: Certified Wood						
Encourage environmentally responsible forest management.	<p>Use a minimum of 50% of wood-based materials and products, which are certified in accordance with the Forest Stewardship Council's (FSC) Principles and Criteria, for wood building components. These components include, but are not limited to, structural framing and general dimensional framing, flooring, sub-flooring, wood doors and finishes. Include materials permanently installed in the project. Furniture may be included, providing it is included consistently in MR Credits 3-7.</p> <p>Wood products purchased for temporary use on the project (e.g. formwork, bracing, scaffolding, sidewalk protection, and guard rails) maybe included in the calculation at the project teams discretion. If any such materials are included, all such materials must be included in the calculation. If such materials are purchased for use on multiple projects, the applicant may include these materials for only one project, at its discretion.</p>	1	EO 13101 Greening the Government Sec 401 Acquisition Planning and Sec 402 Affirmative Procurement Programs	EMS (GPP)	Provide a list of items (and/or components of products) claimed as FSC certified, including product type, manufacturer, and the appropriate entity's COC (chain-of custody) certification number. Each product name can then be cross-referenced with the manufacturer or vendor COC number during the LEED certification review.	N/A

Table 3.2: LEED Credit Matrix

INTENT	REQUIREMENT	POINTS	ARMY POLICY	FT MEADE POLICY	REQUIRED DOCUMENTATION	RELATED AT/FP STANDARDS
INDOOR ENVIRONMENTAL QUALITY						
EQ Prerequisite 1: Minimum IAQ Performance						
<p>Establish minimum indoor air quality (IAQ) performance to enhance indoor air quality in buildings, thus contributing to the comfort and well-being of the occupants.</p>	<p>Meet the minimum requirement of Sections 4 through 7 of ASHRAE 62.1-2004, Ventilation for Acceptable Indoor Air Quality. Mechanical ventilation systems shall be designed using the Ventilation Rate Procedure or the applicable local code, whichever is more stringent. Naturally ventilated buildings shall comply with ASHRAE 62.1-2004, paragraph 5.1.</p>	<p>REQ'D</p>		<p>IDG</p>	<p>Provide a design narrative describing the project's ventilation design. Include specific information regarding fresh air intake volumes and any special conditions that affected the project's ventilation design. AND For mechanically ventilated building: confirmation that the project has been designed to meet the minimum requirements of ASHRAE Standard 62.1-2004, ventilation for acceptable indoor air quality, using the ventilation rate procedure. OR For naturally ventilated buildings: confirmation that the project has been designed to comply with the requirements for location and size of window openings per ASHRAE Standard 62.1-2004, Section 5.1 AND For naturally ventilated buildings: provide applicable project drawings to show the naturally ventilated building zones and the operable window areas.</p>	<p>AT Std 10 AT Std 13 AT Std 16 AT Std 17 AT Std 22 AT Rec 14 AT Rec 15 AT Rec 16 AT Rec 17</p>

Table 3.2: LEED Credit Matrix

INTENT	REQUIREMENT	POINTS	ARMY POLICY	FT MEADE POLICY	REQUIRED DOCUMENTATION	RELATED AT/FP STANDARDS
EQ Prerequisite 2: Environmental Tobacco Smoke (ETS) Control						
<p>Minimize exposure of building occupants, indoor surfaces, and ventilation air distribution systems to Environmental Tobacco Smoke (ETS)</p>	<p>OPTION 1: Prohibit smoking in the building. Locate any exterior designated smoking areas at least 50 feet away from entries, outdoor air intakes and operable windows.</p> <p>OPTION 2: Prohibit smoking in the building except in designated smoking areas. Locate any exterior designated smoking areas at least 50 feet away from entries, outdoor air intakes and operable windows. Locate designated smoking rooms to effectively contain, capture, and remove ETS from the building. At a minimum, the smoking room must be directly exhausted to the outdoors with no re-circulation of ETS-containing air to the non-smoking area of the building, and enclosed with impermeable deck-to-deck partitions. With the doors to the smoking room closed, operate exhaust sufficient to create a negative pressure with respect to the adjacent spaces of at least an average of 5 Pa (0.02 inches of water gauge) and with a minimum of 1 Pa (0.004 inches of water gauge).</p> <p>OPTION 3: (For residential buildings only) Prohibit smoking in all common areas of the building. Locate any exterior designated smoking areas at least 50 feet away from entries, outdoor air intakes and operable windows opening to common areas. Minimize uncontrolled pathways for ETS transfer between individual residential units by sealing penetrations in walls, ceilings and floors in the residential units, and by sealing vertical chases adjacent to the units. All doors in the residential units leading to common hallways shall be weather-stripped to minimize air leakage into the hallway.</p> <p>Continued on next page</p>	REQ'D	<p>Executive Order 13058 Protects federal employees and the public from exposure to tobacco smoke in the federal workplace.</p> <p>AR 600-63, Army Health Promotion (28 April 1996)</p>	IDG	<p>Confirmation that the project has met the requirements for the appropriate project category: Non-Smoking Building; Building with Designated Smoking Rooms; or Residential Project. For buildings with interior smoking rooms or for residential projects, provide appropriate copies of construction drawings to document the location of the smoking rooms, designed area separations, and dedicated ventilation systems. An optional narrative may be provided to further describe the testing protocols/results and compliance methods implemented by the project.</p>	<p>AT Std 10 AT Std 13 AT Std 16 AT Std 17 AT Std 22 AT Rec 14 AT Rec 15 AT Rec 17</p>

Table 3.2: LEED Credit Matrix

INTENT	REQUIREMENT	POINTS	ARMY POLICY	FT MEADE POLICY	REQUIRED DOCUMENTATION	RELATED AT/FP STANDARDS
EQ Prerequisite 2: Environmental Tobacco Smoke (ETS) Control (cont'd)						
	<p>If the common hallways are pressurized with respect to the residential units then doors in the residential units leading to the common hallways need not be weather-stripped provided that the positive differential pressure is demonstrated as in Option 2 above, considering the residential unit as the smoking room.</p> <p>Acceptable sealing of residential units shall be demonstrated by a blower door test conducted in accordance with ANSI/ASTM-E770-03, Standard Test Method for Determining Air Leakage Rate By Fan Pressurization, AND use the progressive sampling methodology defined in Chapter 4(Compliance Through Quality Construction) of the Residential Manual for Compliance with California's 2001 Energy Efficiency Standards www.energy.ca.gov/title24/residential_manual. Residential units must demonstrate less than 1.25 square inches leakage area per 100 square feet of enclosure area (i.e. sum of all wall, ceiling and floor areas).</p>					

Table 3.2: LEED Credit Matrix

INTENT	REQUIREMENT	POINTS	ARMY POLICY	FT MEADE POLICY	REQUIRED DOCUMENTATION	RELATED AT/FP STANDARDS
EQ Credit 1: Outdoor Air Delivery Monitoring						
<p>Provide capacity for ventilation system monitoring to help sustain occupant comfort and well being.</p>	<p>Install permanent monitoring systems that provide feedback on ventilation system performance to ensure that ventilation systems maintain minimum ventilation requirements. Configure all monitoring equipment to generate an alarm when the conditions vary by 10% of more from set point, via either a building automation system alarm to the building operator or via a visual or audible alert to the building occupants.</p> <p>FOR MECHANICALLY VENTILATED SPACES Monitor carbon dioxide concentrations within all densely occupied spaces (those with a design occupant density greater than or equal to 25 people per 1000 sq ft). CO₂ monitoring locations shall be between 3 feet and 6 feet above the floor. For each mechanical ventilation system serving non-densely occupied spaces, provide a direct outdoor airflow measurement device capable of measuring the minimum outdoor airflow rate with an accuracy of plus or minus 15% of the design minimum outdoor air rate, as defined by ASHRAE 62.1-2004.</p> <p>FOR NATURALLY VENTILATED SPACES Monitor CO₂ concentrations within all naturally ventilated spaces. CO₂ monitoring shall be located within the room between 3 feet and 6 feet above the floor. One CO₂ sensor may be used to represent multiple spaces if the natural ventilation design uses passive stack(s) or other means to induce airflow through those spaces equally and simultaneously without intervention by building occupants.</p>	1		IDG	<p>Confirmation of the type of ventilation system and installed controls. Design narrative describing the project's ventilation design and CO₂ monitoring system. Include specific information regarding location and quantity of installed monitors, operational parameters and set points. Provide copies of the applicable project drawings to document the location and type of installed sensors. Drawings should also show natural ventilation components (operable windows, air intakes, etc.) as applicable.</p>	<p>AT Std 13 AT Std 17 AT Std 18 AT Rec 14 AT Rec 15</p>

Table 3.2: LEED Credit Matrix

INTENT	REQUIREMENT	POINTS	ARMY POLICY	FT MEADE POLICY	REQUIRED DOCUMENTATION	RELATED AT/FP STANDARDS
EQ Credit 2: Increased Ventilation						
<p>Provide additional outdoor air ventilation to improve indoor air quality for improved occupant comfort, well-being and productivity.</p>	<p>FOR MECHANICALLY VENTILATED SPACES Increase breathing zone outdoor air ventilation rates to all occupied spaces by at least 30% above the minimum rates requires by ASHRAE Standard 62.1-2004 as determined by EQ Prerequisite 1. FOR NATURALLY VENTILATED SPACES Design natural ventilation systems for occupied spaces to meet the recommendations set forth in the Carbon Trust Good Practices Guide 237 [1998]. Determine that natural ventilation is an effective strategy for the project by following the flow diagram process shown in Figure 1.18 of the Chartered Institution of Building Services Engineers (CIBSE) Applications Manual 10:2005, Natural ventilation in non-domestic buildings. AND Use diagrams and calculations to show that the design of the natural ventilation systems meets the recommendations set forth in the CIBSE Applications Manual 10:2005, Natural ventilation in non-domestic buildings. OR Use a macroscopic, multi-zone, analytic model to predict that room-by-room airflows will effectively naturally ventilate, defined as providing the minimum ventilation rates required by ASHRAE 62.1-20004 Chapter 6, for at least 90% of occupied spaces.</p>	1		IDG	<p>MECHANICALLY VENTILATED BUILDINGS: Provide confirmation that the breathing zone ventilation rates in all occupied spaces have been designed to exceed the minimum rates required by ASHRAE Standard 62.1-2004 or the applicable local code, whichever is more stringent, by a minimum of 30%. Provide a design narrative describing the project's ventilation system design. Include specific information regarding the fresh air intake volume for each specific occupied zone to demonstrate that the design exceeds the referenced standard or the applicable local code, whichever is more stringent, by at least 30%.</p> <p>NATURALLY VENTILATED BUILDINGS Provide confirmation that the natural ventilation system has been designed to meet the recommendations set forth in the Carbon Trust Good Practice Guide 237 [1998]. Provide a design narrative describing the design method (CIBSE Method/Analytic Model) utilized in determining the natural ventilation design for the project. Provide specific information regarding calculation methodology and/or model results to demonstrate that the ventilation design complies with the referenced standards.</p>	<p>AT Std 10 AT Std 13 AT Std 16 AT Std 17 AT Std 18 AT Rec 14 AT Rec 15 AT Rec 17</p>

Table 3.2: LEED Credit Matrix

INTENT	REQUIREMENT	POINTS	ARMY POLICY	FT MEADE POLICY	REQUIRED DOCUMENTATION	RELATED AT/FP STANDARDS
EQ Credit 3.1: Construction IAQ Management Plan: During Construction						
<p>Reduce indoor air quality problems resulting from the construction/renovation process in order to help sustain the comfort and well-being of construction workers and building occupants.</p>	<p>Develop and implement an Indoor Air Quality (IAQ) Management Plan for the construction and pre-occupancy phases of the building as follows: During construction meet or exceed the recommended Control Measures of the Sheet Metal and Air Conditioning Contractors National Association (SMACNA) IAQ Guideline for Occupied Buildings under Construction, 1995, Chapter 3. Protect stored on-site or installed absorptive materials from moisture damage. In permanently installed air handlers are used during construction, filtration media with a Minimum Efficiency Reporting Value (MERV) of 8 shall be used at each return air grille, as determined by ASHRAE 52.2-1999. Replace all filtration media immediately prior to occupancy.</p>	1			<p>Provide a copy of the project's Indoor Air Quality (IAQ) Management Plan. Confirm if the permanently installed air handling equipment was used during construction. Provide photos to highlight the implemented construction IAQ practices. List all filtration media (manufacturer, model#, MERV rating, location of installed filter) installed during construction and confirm that each was replaced prior to final occupancy. Provide an optional narrative describing any special circumstances or non-standard approaches taken by the project.</p>	<p>AT Std 13 AT Std 17 AT Std 18 AT Rec 12 AT Rec 13</p>

Table 3.2: LEED Credit Matrix

INTENT	REQUIREMENT	POINTS	ARMY POLICY	FT MEADE POLICY	REQUIRED DOCUMENTATION	RELATED AT/FP STANDARDS
EQ Credit 3.2: Construction IAQ Management Plan: Before Occupancy						
<p>Reduce indoor air quality problems resulting from the construction/renovation process in order to help sustain the comfort and well-being of construction workers and building occupants.</p>	<p>Develop and implement an Indoor Air Quality (IAQ) Management Plan for the construction and pre-occupancy phases of the building as follows: OPTION 1-FLUSH OUT After construction ends, prior to occupancy and with all interior finishes installed, perform a building flush-out by supplying a total air volume of 14,000 cu ft of outdoor air per sq ft of floor area while maintaining an internal temperature of at least 60 degrees Fahrenheit and relative humidity no higher than 60%. OR If occupancy is desired prior to completion of the flush-out, the space may be occupied following delivery of a minimum of 3,500 cu ft of outdoor air per sq ft of floor area to the space. Once a space is occupied, it shall be ventilated at a minimum rate of 0.30 cfm/sq ft of outside air or the design minimum outside air rate determined in EQ Prerequisite 1, whichever is greater. During each day of the flush-out period, ventilation shall begin a minimum of three hours prior to occupancy and continue during occupancy. These conditions shall be maintained until a total of 14,000 cu ft of outside air has been delivered to the space. OR OPTION 2- AIR QUALITY TESTING Conduct baseline IAQ testing, after construction ends and prior to occupancy, using testing protocols consistent with the United States Environmental Protection Agency Compendium of Methods for the Determination of Air Pollutants in Indoor Air and as additionally detailed in this Reference Guide. Demonstrate that the contaminant maximum concentrations listed below are not exceeded. Formaldehyde - 50 parts per billion; Particulates (PM10) - 50 micrograms per cubic meter; Total Volatile Organic Compounds (TVOC) - 500 micrograms per cubic meter; *4-Phenylcyclohexene (4-PCH) - 6.5 micrograms per cubic meter; Carbon Monoxide (CO) - 9 part per million and no greater than 2 parts per million above outdoor levels.</p> <p>Continued on next page.</p>	1			<p>Provide confirmation regarding the approach taken by the project (pre-occupancy flush-out; flush-out with early occupancy; IAQ testing). Provide a copy of the project's Indoor Air Quality testing report (if applicable). Provide a narrative describing the project's specific flush-out procedure and/or IAQ testing process and results.</p>	<p>AT Std 13 AT Std 17 AT Std 18 AT Rec 12 AT Rec 13</p>

Table 3.2: LEED Credit Matrix

INTENT	REQUIREMENT	POINTS	ARMY POLICY	FT MEADE POLICY	REQUIRED DOCUMENTATION	RELATED AT/FP STANDARDS
EQ Credit 3.2: Construction IAQ Management Plan: Before Occupancy (cont'd)						
	<p><i>*This test is only required if carpets and fabrics with styrene butadiene rubber latex backing material are installed as part of the base building systems. For each sampling point where the maximum concentration limits are exceeded conduct additional flush-out with outside air and retest the specific parameter(s) exceeded to indicate the requirements are achieved. Repeat procedure until all requirements have been met. When retesting non-complying building areas, take samples from the same locations as in the first test. The air sample testing shall be conducted as follows: 1. All measurements shall be conducted prior to occupancy, but during normal occupied hours, and with the building ventilation system starting at the normal daily start time and operated at the minimum outside air flow rate for the occupied mode throughout the duration of the air testing. 2. The building shall have all interior finishes installed, including but not limited to millwork, doors, paint, carpet and acoustic tiles. Non-fixed furnishings such as workstations and partitions are encouraged, but not required, to be in place for the testing. 3. The number of sampling locations will vary depending upon the size of the building and number of ventilation systems. For each portion of the building served by a separated ventilation system, the number of sampling points shall not be less than one per 25,000 sq ft or for each contiguous floor area, whichever is larger, and include areas with the least ventilation and greatest presumed source strength. 4. Air samples shall be collected between 3 feet and 6 feet from the floor to represent the breathing zone of occupants, and over a minimum 4-hour period.</i></p>					

Table 3.2: LEED Credit Matrix

INTENT	REQUIREMENT	POINTS	ARMY POLICY	FT MEADE POLICY	REQUIRED DOCUMENTATION	RELATED AT/FP STANDARDS
EQ Credit 4.1: Low-Emitting Materials: Adhesives & Sealants						
Reduce the quantity of indoor air contaminants that are odorous, irritating and/or harmful to the comfort and well-being of installers and occupants.	All adhesives and sealants used on the interior of the building (defined as inside of the weatherproofing system and applied on-site) shall comply with the requirements of the following reference standards: Adhesives, Sealants and Sealant Primers: South Coast Air Quality Management District (SCAQMD) Rule #1168. VOC limits shall correspond to an effective date of July 1, 2005 and rule amendment date of January 7, 2005. Aerosol Adhesives: Green Seal Standard for Commercial Adhesives GS-36 requirements in effect on October 19, 2000.	1		IDG EMS	Provide a list of each indoor adhesive, sealant and sealant primer product used on the project. Include the manufacturer's name, product name, specific VOC data (in g/L, less water) for each product, and the corresponding allowable VOC from the referenced standard. Provide a list of each indoor aerosol adhesive product used on the project. Include the manufacturer's name, specific VOC data (in/L less water for each product, and the corresponding allowable VOC from the standard. Provide a narrative to describe any special circumstances or non-standard compliance paths taken by the project.	AT Std 13
EQ Credit 4.2: Low-Emitting Materials: Paints & Coatings						
Reduce the quantity of indoor air contaminants that are odorous, irritating and/or harmful to the comfort and well-being of installers and occupants.	Paints and coatings used on the interior of the building (defined as inside of the weatherproofing system and applied on-site) shall comply with the following criteria: Architectural paints, coatings and primers applied to interior walls and ceilings: Do not exceed the VOC content limits established in Green Seal Standard GS-11, Paints, First Edition, May 20, 1993. Flats: 50g/L Non-Flats: 150g/L Anti-corrosive and anti-rust paints applied to interior ferrous metal substrates: Do not exceed the VOC content limit of 250 g/L established in Green Seal Standard GC-03, Anti-Corrosive Paints, Second Edition, January 7, 1997. Clear wood finishes, floor coatings, stains, sealers, and shellacs applied to interior elements: Do not exceed the VOC content limits established in South Coast Air Quality Management District (SCAQMD) Rule 1113, Architectural Coatings, rules in effect on January 1, 2004. Clear wood finishes: varnish 350 g/L; lacquer 550 g/L Floor coatings: 100 g/L Shellac: clear 730 g/L; pigmented 550 g/L Sealers: waterproofing sealers 250 g/L; sanding sealers 275 g/L; all other sealers 200g/L Stains: 250 g/L	1		IDG	Provide a listing of each indoor paint and coating used on the project. Include the manufacturer's name, product name, specific VOC data (in g/L) for each product, and the corresponding allowable VOC from the referenced standard. Provide a narrative to describe any special circumstances or non-standard compliance paths taken by the project.	N/A

Table 3.2: LEED Credit Matrix

INTENT	REQUIREMENT	POINTS	ARMY POLICY	FT MEADE POLICY	REQUIRED DOCUMENTATION	RELATED AT/FP STANDARDS
EQ Credit 4.3: Low-Emitting Materials: Carpet Systems						
<p>Reduce the quantity of indoor air contaminants that are odorous, irritating and/or harmful to the comfort and well-being of installers and occupants.</p>	<p>All carpet installed in the building interior shall meet the testing and product requirements of the Carpet and Rug Institute's Green Label Plus program. All carpet cushion installed in the building interior shall meet the requirements of the Carpet and Rug Institute Green Label program. All carpet adhesive shall meet the requirements of EQ Credit 4.1: VOC limit of 50 g/L</p>	1		IDG	<p>Provide listing of each carpet product installed in the building interior. Confirm that the product complies with the CRI Green Label Plus testing program. Provide a listing of each carpet cushion product installed in the building interior. Confirm that the product complies with the CRI Green Label testing program. Provide narrative to describe any special circumstances or non-standard compliance paths taken by the project.</p>	N/A
EQ Credit 4.4: Low-Emitting Materials: Composite Wood & Agrifiber Products						
<p>Reduce the quantity of indoor air contaminants that are odorous, irritating and/or harmful to the comfort and well-being of installers and occupants.</p>	<p>Composite wood and agrifiber products used on the interior of the building (defined as inside of the weatherproofing system) shall contain no added urea-formaldehyde resins. Laminating adhesives used to fabricate on-site and shop-applied composite wood and agrifiber assemblies shall contain no added urea-formaldehyde resins. Composite wood and agrifiber products are defined as: particleboard, medium density fiberboard (MDF), plywood, wheatboard, strawboard, panel substrates and door cores. Furniture and equipment are not considered base building elements and are not included.</p>	1		IDG	<p>Provide a listing of each composite wood and agrifiber product installed in the building interior. Confirm that each product does not contain any added urea-formaldehyde. Provide a narrative to describe any special circumstances or non-standard compliance paths taken by the project.</p>	N/A

Table 3.2: LEED Credit Matrix

INTENT	REQUIREMENT	POINTS	ARMY POLICY	FT MEADE POLICY	REQUIRED DOCUMENTATION	RELATED AT/FP STANDARDS
EQ Credit 5.0: Indoor Chemical & Pollutant Source Control						
<p>Minimize exposure of building occupants to potentially hazardous particulates and chemical pollutants.</p>	<p>Design to minimize and control pollutant entry into buildings and later cross-contamination of regularly occupied areas: Employ permanent entryway systems at least six feet long in the primary direction of travel to capture dirt and particulates from entering the building at all entryways that are directly connected to the outdoors. Acceptable entryway systems include permanently installed grates, grilles, or slotted systems that allow for cleaning underneath. Roll-out mats are only acceptable when maintained on a weekly basis by a contracted service organization. Qualifying entryways are those that serve as regular entry points for building users. Where hazardous gases or chemicals may be present or used (including garages, housekeeping/laundry areas and coping/printing rooms), exhaust each space sufficiently to create negative pressure with respect to adjacent spaces with the doors to the room closed. For each of these spaces, provide self-closing doors and deck to deck partitions or a hard lid ceiling. The exhaust rate shall be at least 0.50 cfm/sq ft, with no air re-circulation.</p> <p>The pressure differential with the surrounding spaces shall be at least 5 Pa (0.02 inches of water gauge) on average and 1 Pa (0.004 inches of water) at a minimum when the doors to the rooms are closed. In mechanically ventilated buildings, provide regularly occupied areas of the building with air filtration media prior to occupancy that provides a Minimum Efficiency Reporting Value (MERV) of 13 or better. Filtration should be applied to process both return and outside air that is to be delivered as supply air.</p>	1		IDG	<p>Provide confirmation that required entryway systems have been provided. Provide a listing of each entryway product installed in the building. For roll-up or carpeted systems, confirm that the required contracted maintenance will take place. Provide copies of the project's construction drawings to highlight the location of the installed entryway systems. Confirm that chemical use area have been designed as separate rooms with dedicated exhaust systems and appropriate negative pressurization. Provide copies of the project's mechanical drawings to highlight the location of chemical usage areas, room separations, and the associated exhaust systems. If mechanically ventilated, confirm that the installed filters have a MERV rating of 13 or better. Provide a listing of the installed filters and their associated MERV ratings. Provide a narrative to describe any special circumstances or non-standard compliance paths taken by the project.</p>	<p>AT Std 13 AT Std 16 AT Std 17 AT Std 18 AT Rec 14 AT Rec 15 AT Rec 16</p>

Table 3.2: LEED Credit Matrix

INTENT	REQUIREMENT	POINTS	ARMY POLICY	FT MEADE POLICY	REQUIRED DOCUMENTATION	RELATED AT/FP STANDARDS
EQ Credit 6.1: Controllability of Systems: Lighting						
<p>Provide a high level of lighting system control by individual occupants or by specific groups in multi-occupant spaces (i.e. classrooms or conference areas) to promote the productivity, comfort and well-being of building occupants.</p>	<p>Provide individual lighting controls for 90% (minimum) of the building occupants to enable adjustments to suit individual task needs and preferences. AND Provide lighting system controllability for all shared multi-occupant spaces to enable lighting adjustments that meets group needs and preferences.</p>	1		IDG	<p>For individual workstation controls, provide a listing of the total number of individual workstations and lighting controls. For shared multi-occupant space control, provide a listing of the project's group multi-occupant spaces and a description of the installed lighting controls. Provide a narrative describing the project's lighting control strategy. Include data regarding the type and location of individual controls (general area illumination controls for multi-workstation spaces may not be counted towards this credit) and also the type and location of controls provided for shared multi-occupant spaces.</p>	<p>AT Std 10 AT Std 16 AT Std 18 AT Std 19 AT Rec 14 AT Rec 15 AT Rec 16 AT Rec 17</p>
EQ Credit 6.2: Controllability of Systems: Thermal Comfort						
<p>Provide a high level of lighting system control by individual occupants or by specific groups in multi-occupant spaces (i.e. classrooms or conference areas) to promote the productivity, comfort and well-being of building occupants.</p>	<p>Provide individual comfort controls for 50% (minimum) of the building occupants to enable adjustments to suit individual task needs and preferences. Operable windows can be used in lieu of comfort controls for occupants of areas that are 20 feet inside of and 10 feet to either side of the operable part of the window. The areas of operable window must meet the requirements of ASHRAE 62.1-2004, paragraph 5.1, Natural Ventilation AND Provide comfort system controls for all shared multi-occupant spaces to enable adjustments to suit group needs and preferences. Conditions for thermal comfort are described in ASHRAE Standard 55-2004 to include the primary factors of air temperature, radiant temperature, air speed and humidity. Comfort system control, for the purposes of this credit, is defined as the provision of control over at least one of these primary factors in the occupant's local environment.</p>	1		IDG	<p>For individual workstation controls, provide a listing of the total number of individual workstations and thermal controls. For shared multi-occupant space control, provide a listing of the project's group multi-occupant spaces and a description of the installed thermal controls. Provide a narrative describing the project's comfort control strategy. Include data regarding the type and location of individual and shared group-occupancy controls.</p>	<p>AT Std 16 AT Std 18 AT Rec 19 AT Rec 14 AT Rec 15</p>

Table 3.2: LEED Credit Matrix

INTENT	REQUIREMENT	POINTS	ARMY POLICY	FT MEADE POLICY	REQUIRED DOCUMENTATION	RELATED AT/FP STANDARDS
EQ Credit 7.1: Thermal Comfort: Design						
Provide a comfortable thermal environment that supports the productivity and well being of building occupants.	Design HVAC systems and the building envelope to meet the requirements of ASHRAE Standard 55-2004, Thermal Comfort Conditions for Human Occupancy. Demonstrate design compliance in accordance with the Section 6.1.1 Documentation.	1		IDG	Provide data regarding seasonal temperature and humidity design criteria. Provide a narrative describing the method used to establish the thermal comfort conditions for the project and how the systems design addresses the design criteria. Include specific information regarding compliance with the referenced standard.	AT Std 10 AT Std 16 AT Std 18 AT Rec 22 AT Rec 15 AT Rec 16 AT Rec 17
EQ Credit 7.2: Thermal Comfort: Verification						
Provide for the assessment of building thermal comfort over time.	Agree to implement a thermal comfort survey of building occupants within a period of six to 18 months after occupancy. This survey should collect anonymous responses about thermal performance and identification of thermal comfort-related problems. Agree to develop a plan for corrective action if the survey results indicate that more than 20% of occupants are dissatisfied with thermal comfort in the building. This plan should include measurement of relevant environmental variables in problem areas in accordance with ASHRAE Standard 55-2004.	1		IDG	Provide a narrative describing the survey planned for the validation of the thermal comfort conditions for the project. Include a specific description of the provisions for creating a plan for corrective action.	AT Std 13 AT Std 16 AT Std 17 AT Std 18 AT Std 22 AT Rec 14 AT Rec 15

Table 3.2: LEED Credit Matrix

INTENT	REQUIREMENT	POINTS	ARMY POLICY	FT MEADE POLICY	REQUIRED DOCUMENTATION	RELATED AT/FP STANDARDS
EQ Credit 8.1: Daylight and Views: Daylight 75% of Spaces						
<p>Provide for the building occupants a connection between indoor spaces and the outdoors through the introduction of daylight and views into the regularly occupied areas of the building</p>	<p>OPTION 1- GLAZING FACTOR CALCULATION Achieve a minimum glazing factor of 2% in a minimum of 75% of all regularly occupied areas. The glazing factor is calculated as follows: Glazing Factor={Window Area [SF]/Floor Area [SF]}x Window Geometry Factor x {Actual T_{vis}/Minimum T_{vis}} x Window Height Factor OR OPTION 2-DAYLIGHT SIMULATION MODEL Demonstrate, through computer simulation, that a minimum daylight illumination level of 25 footcandles has been achieved in a minimum of 75% of all regularly occupied areas. Modeling must demonstrate 25 horizontal footcandles under clear sky conditions, at noon, on the equinox, at 30" above the floor. OR OPTION 3-DAYLIGHT MEASUREMENT Demonstrate, through records of indoor light measurement, that a minimum daylight illumination level of 25 footcandles has been achieved in at least 75% of all regularly occupied areas. Measurements must be taken on a 10-foot grid for all occupied space and must be recorded on building floor plans. In all cases, only the square footage associated with the portions of rooms or spaces meeting the minimum illumination requirements can be applied towards the 75% of total area calculation required to qualify for this credit. In all cases, provide daylight redirection and /or glare control devices to avoid high-contrast situations that could impede visual tasks. Exceptions for areas where tasks would be hindered by the use of daylight will be considered on their merits.</p>	1		IDG	<p>GLAZING FACTOR CALCULATION METHOD Complete a calculation spreadsheet to demonstrate overall Glazing Factor. The following data is required for input: occupied space area (sq ft); area of each type of glazing (sidelighting and toplighting); visible light transmittance (T_{vis}) for each glazing type. OR COMPUTER SIMULATION METHOD Demonstrate that the project complies with the minimum illumination levels. The following data is required for input: total regularly occupied space area (sq ft), total regularly occupied space area that achieves a simulated minimum of 25 footcandles. Provide copies of the applicable project drawings showing the illumination simulation results. OR DAYLIGHT MEASUREMENT METHOD Complete a calculation spreadsheet to demonstrate that the project complies with the minimum illumination levels. The following data is required for input: total regularly occupied space area (sq ft); total regularly occupied space area that achieves a measured minimum of 25 footcandles. Provide copies of the applicable project drawings showing the illumination simulation results. AND Provide a narrative describing any special occupancy areas that have been excluded from compliance. The narrative should include a detailed description of the space function and an explanation as to why the inclusion of views would hinder the normal tasks/function of each exclusion area. For projects that have used computer simulation or physical measurements, please include detailed information describing the method used to determine the daylighting contributions in the building. Include specific information regarding the actual or simulated time of day and weather conditions, measurement equipment or software used, and the calculation method for determining the final daylighting area.</p>	<p>AT Std 1 AT Std 2 AT Std 3 AT Std 4 AT Std 8 AT Std 10 AT Std 11 AT Std 12 AT Std 14 AT Std 15</p>

Table 3.2: LEED Credit Matrix

INTENT	REQUIREMENT	POINTS	ARMY POLICY	FT MEADE POLICY	REQUIRED DOCUMENTATION	RELATED AT/FP STANDARDS
EQ Credit 8.2: Daylight and Views: Views for 90% of Spaces						
<p>Provide for the building occupants a connection between indoor spaces and the outdoors through the introduction of daylight and views into the regularly occupied areas of the building</p>	<p>Achieve direct line of sight to the outdoor environment via vision glazing between 2'6" and 7'6" above finish floor for building occupants in 90% of all regularly occupied areas. Determine the area with direct line of sight by totaling the regularly occupied square footage that meets the following criteria: In plan view, the area is within sight lines drawn from perimeter vision glazing. In section view, a direct sight line can be drawn from the area to perimeter vision glazing. Line of sight may be drawn through interior glazing. For private offices, the entire square footage of the office can be counted if 75% or more of the area has direct line of sight to perimeter vision glazing. For multi-occupant spaces, the actual square footages with direct line of sight to perimeter vision glazing are counted.</p>	1		IDG	<p>Complete a calculation spreadsheet to demonstrate overall access to views from occupied spaces. The following data is required for input: occupied space identification, occupied space area (sq ft), and area (sq ft) of each occupied space with direct access to views. Provide copies of the applicable project drawings showing the line of sight from interior spaces through exterior windows in both plan and sectional views. Provide a narrative describing any special occupancy areas that have been excluded from compliance. The narrative should include a detailed description of the space function and an explanation as to why the inclusion of views would hinder the normal tasks/function of each excluded area.</p>	<p>AT Std 1 AT Std 2 AT Std 3 AT Std 4 AT Std 8 AT Std 10 AT Std 11 AT Std 15 AT Rec 3 AT Rec 4 AT Rec 5 AT Rec 6 AT Rec 7 AT Rec 8 AT Rec 9 AT Rec 10 AT Rec 14 AT Rec 15 AT Rec 16 AT Rec 17</p>

Table 3.2: LEED Credit Matrix

INTENT	REQUIREMENT	POINTS	ARMY POLICY	FT MEADE POLICY	REQUIRED DOCUMENTATION	RELATED AT/FP STANDARDS
INNOVATION AND DESIGN PROCESS						
ID Credit 1.1-1.4: Innovation in Design						
<p>To provide design teams and projects the opportunity to be awarded points for exceptional performance above the requirements set by the LEED-NC Green Building Rating System and /or performance in Breen Building categories not specifically addressed by the LEED-NC Green Building Rating System</p>	<p>In writing, identify the intent of the proposed innovation credit, the proposed requirement for compliance, the proposed submittals to demonstrate compliance, and the design approach (strategies) that might be used to meet the requirements.</p>	<p>1 Point per innovative design idea, max of 4</p>			<p>Provide the specific title for the ID credit being pursued. Provide a narrative statement of the Credit Intent. Provide a narrative statement describing the Credit Requirements. Provide a detailed narrative describing the project's approach to achievement of the credit. This narrative should include a description of the quantifiable environmental benefits of the credit proposal. Provide copies of any specific construction drawings or exhibits that will serve to illustrate the project's approach to the credit.</p>	<p>N/A</p>
ID Credit 2: LEED Accredited Professional						
<p>To support and encourage the design integration required by a LEED-NC green building project and to streamline the application and certification process.</p>	<p>At least one principal participant of the project team shall be a LEED Accredited Professional (AP)</p>	<p>1</p>			<p>Provide the name of the LEED AP. Provide the name of the LEED AP's company. Provide a brief description of the LEED AP's project role(s). Provide a copy of the LEED AP's certificate.</p>	<p>N/A</p>

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SECTION 4. SUSTAINABLE DESIGN AT FORT MEADE

4.1 Integrated Design Process

The Fort Meade IDG outlines an Integrated Design Process in Section 1. An Integrated Design Process calls for a collaborative effort to integrate design strategies among all disciplines and all players in the project delivery process. Integrated design demands a more inclusive team, including architects, engineers, planners, future building users and facility managers to develop the vision and goals for the new facilities.

4.2 Review and Approval Process

All new vertical construction and major renovation projects at Fort Meade must comply with the Green Building Manual and the IDG. The review process is as follows:

- Submit Form 4283, the Design Team IDG Checklist to the Fort Meade Department of Public Works.
- Submit the LEED Documentation Checklist (Appendix C) with supporting documentation to the approval team that consists of the Director of Public Works, supporting Engineer District, designer of record, and/or the prime construction contractor. The approval team will jointly review and verify the final LEED score and rating.
- Upon approval, the LEED Documentation Checklist shall become part of the project record files along with the level of credits achieved and the estimated LEED rating.
- If disapproved, the approval team will collaborate with the project team to reach approval.

It is recommended that the LEED Documentation Checklist be used as a pre-design planning tool when initiating projects. This will assist in keeping track of credits and the required documentation.

4.3 New Construction at Fort Meade

Land use patterns at Fort Meade reflect a “Federal Campus” atmosphere. Presently, the installation has distinct uses between the northern half and southern half. The northern half is predominantly Military Family Housing with public schools. The southern half consists primarily of administrative, unaccompanied housing and industrial operations of the base. A golf course and retail center is located in the center of the base. The NSA complex is located on the western edge of the base and is a mix of administrative and industrial facilities.

In the next few years, new construction at Fort Meade, BRAC, and facility rebuilding will range in facility types from administrative buildings and supporting facilities to housing. This manual applies to the following types of new construction projects identified in the CEMP:

- Training Center
- Operations and Headquarters
- Warehouse Facilities
- Administrative Offices
- Motor Pool Maintenance Facility
- Youth Teen Center
- Chapel Center
- Barracks
- Fitness Center
- Conference/Hotel Facility
- PX Main Store
- Car Wash Facility
- Troop Store/Shoppettes
- Car Care Center

These buildings will be designed to meet the requirements for the maximum amount of LEED credits possible. Once construction is complete, renovations that compromise the intent and value of a LEED credit are strongly discouraged. Installation of partitions, for examples, may reduce daylight, impact the HVAC system or energy performance, which can void the achievement of Energy and Atmosphere credits and Indoor Environmental Quality credits. All renovations must incorporate the intention of the earned credits for each building and incorporate these and any additional LEED credits as appropriate.

Non-conventional structures, such as warehouses and specialized training facilities (i.e., gas chambers), must also be constructed to meet LEED Silver standards in accordance with Army guidance (Appendix A, Engineering and Construction Bulletin). Certain types of structures have design standards that make it difficult to achieve the requirements of LEED Silver. Consult the Fort Meade Department of Public Works and the Environmental Division for further information and assistance to maximize the green features of these structures.

4.4 Demolition

The U.S. Army enforces a 1:1 new construction to demolition rule. New construction projects at Fort Meade must be balanced by the demolition of a U.S. Army facility. On-site construction and demolition wastes from non-contracted activities are handled by the DPW while all other construction and demolition wastes are the responsibility of the contractor. Demolition wastes should be reused or recycled to the maximum extent possible. Refer to the FGGM Integrated Solid Waste Management Plan (2002) for further information.

4.5 LEED-NC Credit Examples and Resources

Table 4.1 provides examples of actions that can be done to help meet the requirements of each credit. A list of resources for each credit is supplied for further research and information. It is important to remember that the credits are meant to be considered in conjunction with each other, so one feature of the building can contribute to several credits though there are different requirements of that feature (see Table 3.2 and the LEED Documentation Checklist in Appendix B) for each credit that must be met to earn the credit.

Guidance for the design of office buildings, training facilities, conference facilities, warehouse facilities, parking facilities, place of worship, youth centers and physical fitness centers is provided in Appendix D. This information is from the Whole Building Design Guide website (www.wbdg.org), which is a highly recommended resource.

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Table 4.1: LEED Credit Examples and Resources

Credit	Description	Points	Examples	Resources
SUSTAINABLE SITES				
SS Prereq 1	Construction Activity Pollution Prevention	Required	- Create an Erosion and Sedimentation Control Plan for all construction activities	CPESC Inc. www.cpesc.net Environment Canada's Freshwater Web Sediment Page www.ec.gc.ca/water/en/nature/sedim/e_sedim.htm EPA Erosion and Sediment Control Model Ordinances www.epa.gov/owow/nps/ordinance/erosion.htm Erosion Control Technology Council www.wctc.org International Erosion Control Association (IECA) www.ieca.org
SS Credit 1	Site Selection	1	- Site building on footprint of existing building	ESRI www.esri.com/hazards/makemap.html Natural Resource Defense Council www.ndrc.org
			- Design building with minimum footprint	
			- Choose sites with minimal/no sensitive elements or restrictive land types	
SS Credit 2	Development Density & Community Connectivity	1	- Choose sites with pedestrian access to a variety of services	International Union for the Scientific Study of Population www.iussp.org Urban Land Institute ULI Washington www.washington.uli.org Congress for New Urbanism www.cnu.org
SS Credit 3	Brownfield Redevelopment	1	- Rehabilitate and remediate brownfield sites	Brownfields Technology Support Center www.brownfieldstsc.org EPA Sustainable Redevelopment of Brownfields Program www.epa.gov/brownfields
SS Credit 4.1	Alternative Transportation, <i>Public Transportation Access</i>	1	- Site building near mass transit, identify transportation needs of future building occupants	US Environmental Protection Agency www.epa.gov/otaq/ Best Workplaces for Commuters www.bestworkplacesforcommuters.gov/index.htm/ Advanced Transportation Technology Institute www.att-info.org
SS Credit 4.2	Alternative Transportation, <i>Bicycle Storage & Changing Rooms</i>	1	- Include bicycle racks and storage and showering/changing facilities in design	Advanced Transportation Technology Institute www.att-info.org
SS Credit 4.3	Alternative Transportation, <i>Low-Emitting and Fuel-Efficient Vehicles</i>	1	- Provide alternate fuel refueling stations	Alternative Fuels Data Center www.afdc.doe.gov American Council for an Energy-Efficient Economy (ACEEE) www.greenercars.com CARB Cleaner Car Guide www.driveclean.ca.gov/en/gv/home/index.asp California Certified Vehicle List www.arb.ca.gov/msprog/ccvl/ccvl.htm Clean Cities Vehicle Buyer's Guide For Consumers www.eere.energy.gov/cleancities/vbg Clean Cities Vehicle Buyer's Guide For Fleets www.eere.energy.gov/cleancities/vbg/fleets CREST www.crest.org/hydrogen/index.html Electric Auto Association www.eaaev.org Electric Drive Transportation Association www.electricdrive.org

Table 4.1: LEED Credit Examples and Resources

Credit	Description	Points	Examples	Resources
SS Credit 4.4	Alternative Transportation, <i>Parking Capacity</i>	1	- Minimize parking lot/garage size	Advanced transportation Technology Institute www.attinfo.org
			- Consider sharing parking facilities with adjacent buildings	
			- Discourage use of single occupancy vehicles	
SS Credit 5.1	Site Development, <i>Protect or Restore Habitat</i>	1	- Use native vegetation in landscaping	American Society of Landscape Architects www.asla.org Ecological Restoration ecologicalrestoration.info Lady Bird Johnson Wildlife Center www.wildflower.org North American Native Plant Society www.nanps.org Plant Native www.plantnative.org Society for Ecological Restoration International www.ser.org Soil and Water Conservation Society www.swcs.org
			- On-site habitat restoration to increase range of habitats	
SS Credit 5.2	Site Development, <i>Maximize Open Space</i>	1	- Remove extra paved surface by moving parking underground	North American Native Plant Society www.nanps.org Soil and Water Conservation Society www.swcs.org Green Roofs for Healthy Cities www.greenroofs.org
			- Minimize building footprint by stacking the building	
SS Credit 6.1	Stormwater Design, <i>Quantity Control</i>	1	- Use planted swales instead of curbs and gutters to reduce runoff	Stormwater Best Management Practice Design Guide, EPS/600/R-04/121A, September 2004 www.epa.gov/ORD/NRMRI/pubs/600r04121/600r04121a.pdf Maryland Stormwater Design Manual www.mde.state.md.us/Programs/WaterPrograms/SedimentandStormwater/stormwater_design/index.asp
			- Install gravel paving in a matrix to retain permeability	
			- Use vegetated roofs	
			- Reuse stormwater volumes for non-potable uses in and around building	
SS Credit 6.2	Stormwater Design, <i>Quality Control</i>	1	- Bioretention filters, constructed wetlands and open channels to treat runoff pollutants	Stormwater Best Management Practice Design Guide, EPS/600/R-04/121A, September 2004 www.epa.gov/ORD/NRMRI/pubs/600r04121/600r04121a.pdf Maryland Stormwater Design Manual www.mde.state.md.us/Programs/WaterPrograms/SedimentandStormwater/stormwater_design/index.asp Technology Acceptance and Reciprocity Partnership www.dep.state.pa.us/dep/deputate/pollprev/techservices/tarp/
			- Promote infiltration with vegetated roofs, pervious pavement, grid pavers, rain gardens, vegetated swales, disconnected imperviousness, rainwater recycling	
SS Credit 7.1	Heat Island Effect, <i>Non-Roof</i>	1	- Landscaping reduces heat island and shades cars	American Concrete Pavement Association www.pavement.com Heat Island Group Lawrence Berkeley National Laboratory http://eetd.lbl.gov/HeatIsland/ Heat Island Effect US Environmental Protection Agency www.epa.gov/heatisland
			- Choose exterior materials that have high reflectance or high albedo	
			- Use light colored pavement	
			- Replace constructed surfaces with vegetated surfaces	

Table 4.1: LEED Credit Examples and Resources

Credit	Description	Points	Examples	Resources
SS Credit 7.2	Heat Island Effect, Roof	1	- Choose exterior materials with high albedo	Cool Roof Rating Council www.coolroofs.org EPA Energy Star Roofing Products www.energystar.gov/index.cfm?c=roof_prods.pr_roof_products Extensive Green Roofs www.greenroofs.php Greenroofs.com www.greenroofs.com Lawrence Berkley National Laboratory Heat Island Group-Cool Roofs http://eetd.lbl.gov/HeatIsland/CoolRoofs/ Penn State Center for Green Roof Research http://hortweb.cas.psu.edu/research/greenroofcenter/
			- Vegetated roofs	
SS Credit 8	Light Pollution Reduction	1	- Use timers on exterior lights	American Society of Heating Refrigeration and Air-Conditioning Engineers www.ashrae.org Illuminating Engineering Society of North America www.iesna.org California Energy Commission (CEC)-2005 California Energy Efficiency Building Standards-Lighting Zones www.energy.ca.gov/title24/2005standards/outdoor_lighting/2004-09-30_LIGHTING_ZONES.PDF International Dark-Sky Association www.darksky.org/ida/ida_2/index.html New England Light Pollution Advisory Group http://cfa-www.harvard.edu/cfa/ps/nelpag.html Sky and Telescope http://skyandtelescope.com/resources/darksky/default.asp
			- Use low-angle spotlights	
			- Use low reflectance surfaces	
			- Full cutoff luminaries	
WATER EFFICIENCY				
WE Credit 1.1	Water Efficient Landscaping, Reduce by 50%	1	- Use native vegetation or adapted plants in landscaping to reduce irrigation needs	American Rainwater Catchments Systems Association (ARCSA) www.arcsa-usa.org Greywater Systems, Compost Toilets, & Rain Collections www.rmi.org/sitepages/pid287.php The Irrigation Association www.irrigation.org Texas Evapotranspiration Website http://texaset.tamu.edu
			- Use high-efficiency equipment and/or climate based controllers	
			- Collect stormwater and/or greywater for irrigation	
WE Credit 1.2	Water Efficient Landscaping, No Potable Use or No Irrigation	1	- Collect stormwater and/or greywater for irrigation	Texas Water Development Board Website www.twdb.state.tx.us Water-Efficient Landscaping http://muextension.missouri.edu/xplor/agguides/hort/g06912.htm Water-efficient Landscaping: Preventing Pollution and Using Resources Wisely www.epa.gov/owm/water-efficiency/final_final.pdf Water Wiser: The Water Efficiency Clearinghouse www.awwa.org/waterwiser
			- Use native vegetation or adapted plants in landscaping to reduce irrigation needs	

Table 4.1: LEED Credit Examples and Resources

Credit	Description	Points	Examples	Resources
WE Credit 2	Innovative Wastewater Technologies	1	- Collect and use rainwater or greywater in buildings for non-potable uses	American Rainwater Catchment Systems Association www.arcsa-usa.org Constructed Wetlands for Wastewater Treatment and Wildlife Habitat: 17 Case Studies US EPA EPA Publication No 832/B-93-005, 1993 www.epa.gov/owow/wetlands/construc/ How to Conserve Water and Use it Effectively US EPA www.epa.gov/OW/you/chap3_html On-Site Wastewater Treatment Systems Manual US EPA www.epa.gov/owm/septic/pubs/septic_2002_osdm_all.pdf Sustainable Building Technical Manual, Public Technology, Inc., 1996. On-site Wastewater treatment System Manual www.epa.gov/owm/septic/pubs/septic_2002_osdm_all.pdf
			- Composting toilets and waterless urinals	
			- On-site wastewater treatment: biological nutrient removal systems, constructed wetlands, high-efficiency filtration systems	
WE Credit 3.1	Water Use Reduction, 20% Reduction	1	- Use water-efficient appliances	Choosing a Toilet www.taunton.com/finehomesbuilding/pages/h00042.asp Composting Toilet Reviews www.buildinggreen.com/features/mr/waste.html National Climatic Data Center www.ncdc.noaa.gov/oa/climate/aasc.html Rocky Mountain Institute www.rmi.org/sitepages/pid15.php Smart Communities Network www.sustainable.doe.gov/efficiency/weinfo.shtml Terry Love's Consumer Toilet Reports www.terrylove.com/crtoilet.htm Water Closet Performance Testing www.ebmud.com/conserving_&_recycling/toilet_test_report/default.htm
			- Use low-water use fixtures (automatic faucet controls in lavatories)	
			- Use occupant sensors to reduce potable water demand	
WE Credit 3.2	Water Use Reduction, 30% Reduction	1	-Use composting toilets in place of conventional flush toilets	Same as WE Credit 3.1
			- Reuse stormwater and greywater for non-potable uses throughout building (toilet, urinal, custodial uses, mechanical uses)	
ENERGY & ATMOSPHERE				
EA Prereq 1	Fundamental Commissioning of the Building Energy Systems	Required	- Develop a commissioning team to carry out commissioning activities and requirements as listed in the matrix and LEED-NC manual	American Society of Heating, Refrigeration and Air-Conditioning Engineers www.ashrae.org Building Commissioning Association www.bcxa.org California Commissioning Collaborative www.cacx.org Cx Assistant Commissioning Tool www.ctg-net.com/edr2002/cx/ Portland Energy Conservation Inc. www.peci.org Department of Engineering Professional Development University of Wisconsin, Madison www.engr.wisc.edu

Table 4.1: LEED Credit Examples and Resources

Credit	Description	Points	Examples	Resources
EA Prereq 2	Minimum Energy Performance	Required	- Design building envelope, HVAC, lighting, and other systems to maximize energy performance	Advanced Building www.advancedbuildings.org American Council for an Energy Efficient Economy www.aceee.org Buildings Upgrade Manual ENERGY STAR www.energystar.gov/index.cfm?c=business.bus_upgrade_manual New Building Institute, Inc. www.newbuildings.org Building Energy Codes Program US Department of Energy www.energycodes.gov Office of Energy Efficiency and Renewable Energy www.eere.energy.gov
			- Document compliance using worksheets in ASHRAE 90.1-2004 User's Manual	
EA Prereq 3	Fundamental Refrigerant Management	Required	- Specify new HVAC equipment that uses no CFC refrigerant	US Environmental Protection Agency www.epa.gov/ozone The Treatment by LEED of the Environmental Impact of HVAC Refrigerants US Green Building Council www.usgbc.org/DisplayPage.aspx?CMSPageID=154
			- Replace CFC refrigerants in equipment being reused	
EA Credit 1	Optimize Energy Performance	1 to 10	- Provide an open floor plan and openings located to catch prevailing winds	Advanced Buildings Technologies & Practices Natural Resources Canada www.advancedbuildings.org American Council for an Energy Efficient Economy www.aceee.org American Society of Heating, Refrigeration and Air Conditioning Engineers www.ashrae.org Building Energy Codes Program US Department of Energy www.energycodes.gov Building Energy Use and Cost Analysis Software www.doe2.com ENERGY STAR www.energystar.gov Building Upgrade Manual www.energystar.gov/index.cfm?c=business.bus_upgrade_manual&layout=print Energy-10TM Energy Simulation Software National Renewable Energy Program www.nrel.gov/buildingd/energy10 www.nrel.gov/buildings/energy10 Sustainable Buildings Industry Council www.Energy-10.com New Buildings Institute www.newbuildings.org Office of Energy efficiency and Renewable Energy US Department of Energy www.eere.energy.gov/EE/buildings.html
			- Use operable windows	
			- Minimize the number of east and west windows	
			- Use light-colored exterior walls and roofs	
			- Orient the building properly, site building for southern exposure	
			- Shade south windows with exterior louvers, awnings, or trellises	
			- Use large exterior windows for daylighting	
			- Use automatic-dimming electronic fluorescent lamp ballasts in conjunction with daylighting	
			- Vegetated/Green roofs	
			- Use occupancy sensors with light controls	
			- Use total energy management systems that monitor and controls energy use in buildings (alerts occupants to open windows, automatically opens or closes windows, automatically adjusts lighting according to monitored daylight levels)	
- Optimize energy performance with glazing systems for high-performance windows and doors				

Table 4.1: LEED Credit Examples and Resources

Credit	Description	Points	Examples	Resources
EA Credit 2	On-Site Renewable Energy	1 to 3	- Use a photovoltaic system to generate electricity	American Wind Energy Association www.awea.org Database of State Incentives for Renewable Energy www.dsireusa.org ENERGY Guide www.energyguide.com Green Power Network US Department of Energy www.eere.energy.gov/greenpower National Center for Photovoltaics www.nrel.gov/hcpv National Renewable Energy Laboratory www.nrel.gov Office of Energy Efficiency and Renewable Energy US Department of Energy www.eere.energy.gov US EPA Green Power Partnership www.epa.gov/greenpower/index.htm
			- Use geothermal wells to heat and cool building	
			- Use solar water heaters	
			- Consider solar, wind, low-impact hydro, biomass and bio-gas energy strategies	
EA Credit 3	Enhanced Commissioning	1	- Execute additional activities after systems performance is completed such as commissioning design review, commissioning submittal review, and a systems manual	
EA Credit 4	Enhanced Refrigerant Management	1	- Do not use refrigerants	EPA's Significant New Alternatives Policy (SNAP) www.epa.gov/ozone/snap/index.html Stratospheric Ozone Protection: Moving to Alternative Refrigerants http://es.epa.gov/program/epaorgs/oar/altrefrg.html
			- Use HVAC&R equipment with reduced refrigerant charge and increased equipment life	
			- Maintain equipment to prevent leakage of refrigerant to the atmosphere	
			- Utilize fire suppression systems that do not contain HCFCs or Halons	
EA Credit 5	Measurement & Verification	1	- Take advantage of net metering with the local utility if using solar, wind, geothermal, low-impact hydro, biomass and bio-gas strategies	International Performance Measurement and Verification Protocol (IPMVP) www.ipmvp.org
			- Develop a M&V Plan to evaluate building and/or energy performance	
EA Credit 6	Green Power	1	- Engage in green power contract for solar, wind, geothermal, biomass or low-impact hydro sources	US Department of Energy www.eere.energy.gov/greenpower Green-e Program www.green-e.org Clean Energy Union of Concerned Scientists www.ucsusa.org/clean_energy Green Power Partnership US Environmental Protection Agency (EPA) www.epa.gov/greenpower
			- Renewable energy certificates, tradable renewable certificates, green tags and other forms or green power documents to verify compliance with this credit	

Table 4.1: LEED Credit Examples and Resources

Credit	Description	Points	Examples	Resources
MATERIALS & RESOURCES				
MR Prereq 1	Storage & Collection of Recyclables	Required	- Provide an easily accessible and appropriately sized recycling area in the building to handle anticipated recyclables	California Integrated Waste Management Board www.ciwmb.ca.gov/WasteChar/ California Statewide Solid Waste Characterization Study www.ciwmb.ca.gov/Publications/default.asp?pubid=1097 Earth 911 www.earth911.org/master.asp Recycling at Work www.usmayors.org/USCM/recycle Waste at Work Inform: Strategies for a Better Environment www.informinc.org/wasteatwork.php
			- Consider employing cardboard balers, aluminum can crushers and recycling chutes	
			- Consider placing collection bins at individual workstations	
MR Credit 1.1	Building Reuse, <i>Maintain 75% of Existing Walls, Floors & Roof</i>	1	- Consider reuse of existing, previously occupied buildings, including structure, envelope and elements	How Buildings Learn: What Happens After They're Built by Stewart Brand
MR Credit 1.2	Building Reuse, <i>Maintain 95% of Existing Walls, Floors & Roof</i>	1	- Maintain 95% of building use with removal of hazardous elements and upgrades to enhance energy and water efficiency	How Buildings Learn: What Happens After They're Built by Stewart Brand
MR Credit 1.3	Building Reuse, <i>Maintain 50% of Interior Non-Structural Elements</i>	1	- Use existing interior non-structural elements (interior walls, doors, floor coverings, and ceiling systems) in at least 50% of the area of the completed building	How Buildings Learn: What Happens After They're Built by Stewart Brand
MR Credit 2.1	Construction Waste Management, <i>Divert 50% from Disposal</i>	1	- Adopt a construction waste management plan	Construction and Demolition Debris Recycling Information California Integrated Waste Management Board www.ciwmb.ca.gov/ConDemo Construction Materials Recycling Association www.cdrecycling.org Construction Waste Management Handbook Smart Growth Online www.smartgrowth.org/library/articles.asp?art=15 Contractors' Guide to Preventing Waste and Recycling Resource Venture www.resourceventure.org/rv/issues/building/publications/index.php
			- Recycle cardboard, metal, brick, acoustical tile, concrete, plastic, clean wood, glass, gypsum wallboard, carpet and insulation	
			- Donate materials to charitable organizations and salvage materials on-site	
MR Credit 2.2	Construction Waste Management, <i>Divert 75% from Disposal</i>	1	- Use strategies from Credit 2.1 and increase amount of waste diverted from disposal to 75%	Construction and Demolition Debris Recycling Information California Integrated Waste Management Board www.ciwmb.ca.gov/ConDemo Construction Materials Recycling Association www.cdrecycling.org Construction Waste Management Handbook Smart Growth Online www.smartgrowth.org/library/articles.asp?art=15 Contractors' Guide to Preventing Waste and Recycling Resource Venture www.resourceventure.org/rv/issues/building/publications/index.php

Table 4.1: LEED Credit Examples and Resources

Credit	Description	Points	Examples	Resources
MR Credit 3.1	Materials Reuse, 5%	1	- Incorporate salvaged materials into building design (beams, posts, flooring, paneling, doors, frames, cabinetry, furniture, brick and decorative items)	California Materials Exchange California Integrated Waste management Board www.ciwmb.ca.gov/CalMAX Guide to Resource-Efficient Building Elements www.crbt.org/index.html Industrial Materials Exchange (IMEX) Local Hazardous Waste Management Program in King County, OR www.govlink.org/hazwaste Reuse Development Organization (ReDO) www.redo.org Salvaged Building Materials Exchange Green Building Resource Guide www.greenguide.com/exchange/search.html
MR Credit 3.2	Materials Reuse, 10%	1	- Use strategy from Credit 3.1 and reuse 10% of materials	Building Materials Reuse Association www.ubma.org Used Building Materials Exchange www.build.recycle.net Old to New: Design Guide, Salvaged Building Materials in New Construction The Greater Vancouver Regional District (GVRD) www.gvrd.bc.ca/buildsmart/PDFS/oldtonewdesignguidesalvbuildmatinnewc.pdf
			- Use chips of concrete from existing foundation as a road base	
MR Credit 4.1	Recycled Content, 10% (Post-consumer + ½ pre-consumer)	1	- Use materials with recycled content as 10% of total value of the materials in the project	California Integrated Waste Management Board www.ciwmb.ca.gov/rcp BuildingGreen, Inc. www.buildinggreen.com/menus/index.cfm Guide to Resource-Efficient Building Elements www.crbt.org/index.html Oikos www.oikos.com "Recycled Content: What is it and What is it Worth?" www.buildinggreen.com/auth/article.cfm?filename=140201a.xml US EPA Comprehensive Procurement Guidelines Program www.epaa.gov/cpg/products.htm
			- Use material suppliers that can achieve this goal	
MR Credit 4.2	Recycled Content, 20% (Post-consumer + ½ pre-consumer)	1	- Use materials with recycled content as 20% of total value of the materials in the project	California Integrated Waste Management Board www.ciwmb.ca.gov/rcp BuildingGreen, Inc. www.buildinggreen.com/menus/index.cfm Guide to Resource-Efficient Building Elements www.crbt.org/index.html Oikos www.oikos.com "Recycled Content: What is it and What is it Worth?" www.buildinggreen.com/auth/article.cfm?filename=140201a.xml US EPA Comprehensive Procurement Guidelines Program www.epaa.gov/cpg/products.htm
			- Use material suppliers that can achieve this goal	
MR Credit 5.1	Regional Materials, 10% Extracted, Processed & Manufactured Regionally	1	- Use building materials that have been extracted, harvested, recovered or manufactured within 500 miles of the project site for a minimum of 10% of the total materials value	

Table 4.1: LEED Credit Examples and Resources

Credit	Description	Points	Examples	Resources
MR Credit 5.2	Regional Materials, 20% Extracted, Processed & Manufactured Regionally	1	- Use building materials that have been extracted, harvested, recovered or manufactured within 500 miles of the project site for a minimum of 20% of the total materials value	
MR Credit 6	Rapidly Renewable Materials	1	<ul style="list-style-type: none"> - Use rapidly renewable building materials and products made from plants that are typically harvested within a ten-year cycle or shorter - Use materials such as bamboo, wool, cotton insulation, agrifiber, linoleum, wheatboard, strawboard and cork 	Environmental Building News BuildingGreen, Inc. www.buildinggreen.com/products/bamboo.html Environmental Design + Construction www.edcmag.com GreenSpec BuildingGreen, Inc. www.buildinggreen.com/menus/index.cfm Oikos www.oikos.com
MR Credit 7	Certified Wood	1	<ul style="list-style-type: none"> - Use a minimum of 50% of wood-based materials and products that are certified with the Forest Stewardship Council Principles and Criteria for wood building components - Products include structural framing, general dimensional framing, flooring, sub-flooring, wood doors and finishes 	Forest Stewardship Council, United States www.fscus.org/green_building
INDOOR ENVIRONMENTAL QUALITY				
EQ Prereq 1	Minimum IAQ Performance	Required	<ul style="list-style-type: none"> - Use ventilation systems that meet or exceed the minimum outdoor air ventilation rates - Use natural ventilation where possible - Provide occupants with access to operable windows - Use ASHRAE 62 User's Manual and standards 	ASHRAE www.ashrae.org US Environmental Protection Agency's Indoor Air Quality Website www.epa.gov/iaq
EQ Prereq 2	Environmental Tobacco Smoke (ETS) Control	Required	- Prohibit smoking buildings or limit smoking to designated areas	ANSI/ASTM-E779-03, Standard Test Method for Determining Air Leakage Rate By Fan Pressurization www.astm.org Energy Rating Systems (HERS) Required Verification and Diagnostic Testing, California Low Rise Residential Alternative Calculation Method Approval Manual www.energy.ca.gov/title24/residential_manual/res_manual_chapter4.PDF What You Can Do About Secondhand Smoke as Parents, Decision Makers and Building Occupants US Environmental Protection Agency www.epa.gov/smokefree/pubs/etsbro.html Setting the Record Straight: Secondhand Smoke Is a Preventable Health Risk US Environmental Protection Agency www.epa.gov/smokefree/pubs/strsfs.html

Table 4.1: LEED Credit Examples and Resources

Credit	Description	Points	Examples	Resources
EQ Credit 1	Outdoor Air Delivery Monitoring	1	<ul style="list-style-type: none"> - Install carbon dioxide and airflow measurement equipment and feed the information to the HVAC system and/or Building Automation System to trigger corrective action - Use measurement equipment to trigger alarms for building operators or occupants to address possible deficiency in outdoor air delivery 	<p>ASHRAE 62.1-2004 Users Manual Appendix A www.ashrae.org ASHRAE www.ashrae.org Building Air Quality: A Guide for Building Owners and Facility Managers www.epa.gov/iaq/largebldgs/baqtoc.html</p>
EQ Credit 2	Increased Ventilation	1	<ul style="list-style-type: none"> - Mechanical ventilation: use heat recovery to minimize additional energy consumption associated with higher ventilation rates - Natural ventilation: follow eight steps of the Carbon Trust Good Practice Guide 237: 1) Develop design requirements; 2) Plan airflow paths; 3) Identify building uses and features that might require special attention; 4) Determine ventilation requirements; 5) Estimate external driving pressures; 6) Select types of ventilation devices; 7) Size ventilation devices; 8) Analyze the design 	<p>ASHRAE Standard 62.1-2004: Ventilation For Acceptable Indoor Air Quality www.ashrae.org The Carbon Trust Good Practice Guide 237-Natural ventilation in non-domestic buildings-a guide for designers; developers and owners (1998) www.thecarbontrust.org.uk CIBSE Applications Manual 10: 2005, Natural ventilation in non-domestic buildings www.cibse.org Building Assessment, Survey and Evaluation Study www.epa.gov/iaq/largebldgs/base_page.htm Building Air Quality Action Plan www.epa.gov/iaq/largebldgs/actionpl.html Chartered Institution of Building Services Engineers www.cibse.org</p>
EQ Credit 3.1	Construction IAQ Management Plan, <i>During Construction</i>	1	<ul style="list-style-type: none"> - Adopt an IAQ management plan to protect the HVAC system during construction, control pollutant sources and interrupt contamination pathways - Sequence the installation of materials to avoid contamination of absorptive materials such as insulation, carpeting, ceiling tile and gypsum wallboard 	<p>Controlling Pollutant and Sources www.epa.gov/iaq/schooldesign/controlling.html The State of Washington (SOW) Program and IAQ Standards www.aerias.org/kview.asp?DocId=85&spaceid=2&ubid=13 SMACNA www.smacna.org</p>
EQ Credit 3.2	Construction IAQ Management Plan, <i>Before Occupancy</i>	1	<ul style="list-style-type: none"> - Prior to occupancy perform a building flush-out or test the air contaminant levels in the building 	<p>Indoor Air Pollution Report (July, 2005) California Air Resources Board www.arb.ca.gov/research/indoor/ab1173/finalreport.htm Controlling Pollutants and Sources, IAQ Design for Schools www.epa.gov/iaq/schooldesign/controlling.html State of Washington (SOW) Program and IAQ Standards www.aerias.org/kview.asp?DocId=85&spaceid=2&ubid=13 SMACNA www.smacna.org</p>

Table 4.1: LEED Credit Examples and Resources

Credit	Description	Points	Examples	Resources
EQ Credit 4.1	Low-Emitting Materials, <i>Adhesives & Sealants</i>	1	- Specify low-VOC materials in construction documents such as general construction adhesives, flooring adhesives, fire-stopping sealants, caulking, duct sealants, plumbing adhesives, and cove base adhesives	South Coast Rule #1168 by the South Coast Air Quality Management District www.aqmd.gov/rules Green Seal Standard 36 (GS-36) www.greenseal.org/standards/commercialadhesives.htm
			- All adhesives and sealants meet the following requirements: South Coast Air Quality Management District Rule #1168 (2005) and Green Seal Standard for Commercial Adhesives GS-36 (2000)	
EQ Credit 4.2	Low-Emitting Materials, <i>Paints & Coatings</i>	1	- Specify low-VOC paints and coatings in construction documents	Green Seal www.greenseal.org South Coast Air Quality Management District www.aqmd.gov
			- All paints and coatings meet the following criteria: Green Seal Standard GS-11, Paints (1993); Green Seal Standard GC-03, Anti-Corrosive Paints (1997); South Coast Air Quality Management District Rule 1113, Architectural Coatings (2004)	
Credit 4.3	Low-Emitting Materials, <i>Carpet Systems</i>	1	- Specify requirements for product testing and/or certification in the construction documents.	Carpet and Rug Institute www.carpet-rug.org
			- Select products that are either certified under the Green Label Plus program or for which testing has been done by qualified independent laboratories in accordance with the appropriate requirements	
EQ Credit 4.4	Low-Emitting Materials, <i>Composite Wood & Agrifiber Products</i>	1	- Specify wood and agrifiber products and laminating adhesives that contain no added urea-formaldehyde resins	An Update on Formaldehyde Consumer Product Safety Commission www.cpsc.gov/CPSCPUB/PUBS/725.html
			- This includes: particleboard, medium density fiberboard (MDF), plywood, wheatboard, strawboard, panel substrates and door cores	

Table 4.1: LEED Credit Examples and Resources

Credit	Description	Points	Examples	Resources
EQ Credit 5	Indoor Chemical & Pollutant Source Control	1	- Design facility cleaning and maintenance areas with isolated exhaust systems for contaminants.	Green Seal www.greenseal.org/recommendations.htm Janitorial Products Pollution Prevention Project www.westp2net.org/janitorial/jp4.htm EPA Environmentally Preferable Product Information www.epa.gov/opptintr/epp/
			- Maintain physical isolation of hazardous chemicals and pollutants from the rest of the regularly occupied areas of the building, design isolated storage closets for cleaning and maintenance projects	
			- Install permanent architectural entryway systems such as grills or grates to prevent occupant-borne contaminants from entering the building	
			- Avoid carpet and other hard-to-clean floor surfaces near entry	
			- Install high-level filtration systems in air handling units processing both return air and outside supply air	
			- Ensure that air handling units can accommodate required filter sizes and pressure drops	
EQ Credit 6.1	Controllability of Systems, <i>Lighting</i>	1	- Install occupant control for ambient and task lighting	A Field Study of PEM (Personal Environmental Module) Performance in Bank of America's San Francisco Office Buildings www.cbe.berkeley.edu/research/pdf_files/bauman1998_bofa.pdf "Do Green Buildings Enhance the Well-being of Workers? Yes" www.edcmag.com/CDA/ArticleInformation/coverstory/BNPCoverStoryItem/0,4118,19794,00.html
			- Integrate lighting systems controllability into the overall lighting design, providing ambient and task lighting while managing the overall energy use of the building	
EQ Credit 6.2	Controllability of Systems, <i>Thermal Comfort</i>	1	- Design the building and system with comfort controls to allow adjustments to suit individual needs or those of groups in shared spaces.	Center for the Built Environment www.cbe.berkeley.edu "Do Green Buildings Enhance the Well-being of Workers? Yes" www.edcmag.com/CDA/ArticleInformation/coverstory/BNPCoverStoryItem/0,4118,19794,00.html
			- Use operable windows, hybrid systems integrating operable windows and mechanical systems or mechanical systems alone.	
			- For individual adjustments use individual thermostat controls, local diffusers at floor, desk, or overhead levels, or control of individual radiant panels, or other means integrated into the overall building, thermal comfort systems, and energy system design	

Table 4.1: LEED Credit Examples and Resources

Credit	Description	Points	Examples	Resources
EQ Credit 7.1	Thermal Comfort, <i>Design</i>	1	- Meet comfort criteria per ASHRAE Standard 55-2004, to support the desired quality and occupant satisfaction with building performance	Enhance Indoor Environmental Quality (IEQ) The Whole Building Design Guide www.wbdg.org/design/ieq.php
			- Evaluate air temperature, radiant temperature, air speed, and relative humidity in an integrated fashion and coordinate these criteria with EQ Prereq 1, EQ Credit 1, EQ Credit 2	
EQ Credit 7.2	Thermal Comfort, <i>Verification</i>	1	- Use ASHRAE Standard 55-2004 guidance to establish thermal comfort criteria	Center for the Built Environment www.cbesurvey.org The Usable Buildings Trust www.usablebuildings.co.uk
			- Design a monitoring system with corrective actions for thermal comfort in the building	
EQ Credit 8.1	Daylight & Views, <i>Daylight 75% of Spaces</i>	1	- Design building to maximize interior daylighting using building orientation, shallow floor plates, increased building perimeter, exterior and interior permanent shading devices, high performance glazing and automatic photocell-based controls	Analysis of the Performance of Students in Daylight Schools www.innovativedesign.net/studentperformance.htm The Art of Daylighting www.edcmag.com/CDA/ArticleInformation/features/BNP_Features_Item/0,4120,18800,00.html New Buildings Institute's Productivity and Building Science Program www.newbuildings.org/downloads/FinalAttachments/PIER_Final_Report(P500-03-082).pdf Radiance Software http://radsite.lbl.gov/radiance The Whole Building Design Guide, Daylighting www.wbdg.org/design/daylighting.php?r=ieq Lighting Controls www.wbdg.org/design/electriclighting.?php?r=ieq
			- Predict daylight factors via manual calculations or model daylighting strategies with a physical or computer model to assess footcandle levels and daylight factors achieved	
			- Provide views for employees to maximize visual comfort	
EQ Credit 8.2	Daylight & Views, <i>Views for 90% of Spaces</i>	1	- Use same methods as described in Credit 8.1, maximize daylight to 90% of spaces in building	Analysis of the Performance of Students in Daylight Schools www.innovativedesign.net/studentperformance.htm The Art of Daylighting www.edcmag.com/CDA/ArticleInformation/features/BNP_Features_Item/0,4120,18800,00.html New Buildings Institute's Productivity and Building Science Program www.newbuildings.org/downloads/FinalAttachments/PIER_Final_Report(P500-03-082).pdf

Table 4.1: LEED Credit Examples and Resources				
Credit	Description	Points	Examples	Resources
INNOVATION & DESIGN PROCESS				
ID Credit 1.1	Innovation in Design, <i>Provide Specific Title</i>	1	- Substantially exceed a LEED-NC credit	Visit the USGBC Certified Project List and Case Studies website for further information: http://www.usgbc.org/LEED/Project/CertifiedProjectList.aspx?CMSPageID=244
			- Apply strategies or measures that demonstrate a comprehensive approach and quantifiable environment and/or health benefits.	
ID Credit 1.2	Innovation in Design, <i>Provide Specific Title</i>	1	- Same as Credit 1.1	
ID Credit 1.3	Innovation in Design	1	- Same as Credit 1.1	
ID Credit 1.4	Innovation in Design	1	- Same as Credit 1.1	
ID Credit 2	LEED Accredited Professional	1	- At least one principal participant on the project team is a LEED Accredited Professional who will educate the project team members about green building design & construction	

Table Source: USGBC LEED-NC version. 2.2

4.6 Features and Strategies for Multiple Credits

There are opportunities to implement a feature that will help meet the purposes of more than one credit. Each credit has a specific intent and documentation requirements that will need to be met to achieve the maximum amount of credits per feature. For example, a green or vegetated roof can help earn up to 4 credits, reuse of stormwater or greywater can help earn up to 5 credits and the use of native vegetation in landscaping can help earn up to 3 credits. Table 4.2 presents the different intents of each credit by feature. Please refer to Table 3.2 and Appendix C for further information.

Table 4.2 Features and Strategies for Multiple Credits

Feature/Strategy	Credit	Notes
Green Roof	SS Credit 6.1: Stormwater Design: Quantity Control	Green roof can help manage stormwater runoff and reduce quantity through reducing impervious cover and increasing on-site infiltration.
	SS Credit 6.2: Stormwater Design: Quality Control	Green roof can improve stormwater quality through increasing on-site infiltration, removing pollutants, and reducing impervious cover.
	SS Credit 7.2: Heat Island Effect: Roof	Green roofs can reduce heat island effect on the roof and minimize impact on microclimate and human and wildlife habitat.
	EA Credit 1: Optimize Energy Performance	Green roofs can help increase energy performance to reduce environmental and economic impacts associated with excessive energy use.
Reuse of stormwater/greywater	SS Credit 6.1: Stormwater Design: Quantity Control	Collection and use of stormwater in the building and/or for irrigation can help reduce stormwater quantity.
	WE Credit 1.1: Water Efficient Landscaping: Reduce by 50%	Collection and use of stormwater/greywater for irrigation will limit or eliminate the use of potable water.
	WE Credit 1.2: Water Efficient Landscaping: No Potable Water Use or No Irrigation	Collection and use of stormwater/greywater for irrigation will eliminate the use of potable water.
	WE Credit 2: Innovative Wastewater Technologies	Use of stormwater/greywater will reduce potable water demand and reduce the generation of wastewater.
	WE Credit 3.2: Water Use Reduction: 30% Reduction	Use of stormwater/greywater within the building (toilet, urinals, custodial and mechanical uses) will maximize water efficiency and reduce burden on municipal water supply and wastewater systems.
Use native vegetation in landscaping	SS Credit 5.1: Site Development: Protect or Restore Habitat	Planting native vegetation can restore damaged areas and provide habitat and promote biodiversity.
	WE Credit 1.1: Water Efficient Landscaping: Reduce by 50%	Use native vegetation in landscaping to reduce the use of potable water for landscape irrigation. These plants are adapted to the climate of the area.
	WE Credit 1.2: Water Efficient Landscaping: No Potable Water Use or No Irrigation	Use native vegetation in landscaping to eliminate the use of potable water for landscape irrigation. These plants are adapted to the climate of the area.

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SECTION 5. EXAMPLE GREEN BUILDING FACILITIES

The information contained in this section is from the USGBC Certified Project List (<http://www.usgbc.org/LEED/Project/CertifiedProjectList.aspx?CMSPageID=244>)

5.1 The Chesapeake Bay Foundation's Philip Merrill Environmental Center

5.1.1 Overview

- Location: Annapolis, MD
- Building Type: Commercial office, Interpretive Center
- New Construction
- 32,000 sq. feet (2,970 sq. meters)
- Project Scope: 2-story building
- Suburban setting
- Completed December 2000
- Rating: U.S. Green Building Council LEED-NC, v1.0 – Level: Platinum
 - Rating: Green Building Challenge – Level: 2.7 in GB Tool 1.76

5.1.2 Background

The Chesapeake Bay Foundation Headquarters building is recognized as one of the “greenest” buildings ever constructed. Sustainability issues ranging from energy use to material selection were given serious consideration throughout design and construction of this facility. It was the first building to receive a Platinum rating through the U.S. Green Building Council’s LEED Rating System, version 1.0.

5.1.3 Design Team

Owner/Developer	Structural Engineer
LEED Coordinator	Civil Engineer
Environmental Building Consultant	Mechanical Engineer
Architect	Electrical Engineer
Landscape Architect	Plumbing Engineer
Interior Designer	Energy Monitoring and Evaluation
Commissioning Agent	

5.1.4 Finance and Cost

Cost data in U.S. dollars as of date of completion:

- Total project cost (land excluded): \$7,500,000
- Some of the hard costs:
 - Construction: \$199 per sq foot (\$2,140 per sq meter)
 - Of the \$199 per sq foot cost, roughly \$46 per sq foot is directly attributable to premiums spent for green measures. This initial investment will pay for itself within 7-8 years through reduced operation costs.

5.1.5 Green Strategies

5.1.5.1 Sustainable Sites

- Sited on the footprint of an existing building
- Removed extra pavement by moving parking underground
- Native landscaping and on-site habitat restoration projects to increase ranges of habitats
- Use planted swales instead of curbs and gutters to reduce runoff
- Install gravel paving in a matrix to retain permeability
- Oil and other runoff pollutants from the parking lot are treated by a bioretention filter
- Landscaping and exterior material choices minimize the heat island effect and provide shade for parked vehicles
- Light pollution minimized by use of timers on exterior lights

5.1.5.2 Water Efficiency

- Composting toilets in place of conventional flush toilets
- Water-efficient appliances
- Native landscaping reduces irrigation needs
- Captured rainwater used in building
- Use low-water-use fixtures, such as automatic faucets controls for lavatories

5.1.5.3 Energy and Atmosphere

- Wall Insulation
 - Achieve a whole-wall R-value of 15 or greater
 - Use advanced framing techniques
- Ground-Coupled Systems
 - Use ground-source heat pumps as a source for heating and cooling
- Solar Cooling Loads
 - Use light-colored exterior walls and roofs
 - Orient the building properly
 - Minimize the number of east and west windows
 - Shade south windows with exterior louvers, awnings, or trellises
- Daylighting for Energy Efficiency
 - Use large exterior windows and high ceilings to increase daylighting
 - Use north/south roof monitors and/or clerestories for daylighting
- Non-Solar Cooling Loads
 - Provide an open floor plan and openings located to catch prevailing breezes
 - Use operable windows
- Water Heaters
 - Use solar water heaters
- Cooling System
 - Commission the HVAC system

- Photovoltaics
 - Use a photovoltaic (PV) system to generate electricity on-site
- Heating Loads
 - Site the building for southern exposure
- Lamp Ballasts
 - Use automatic-dimming electronic fluorescent lamp ballasts in conjunction with daylighting
- High-Performance Windows and Doors
 - Optimize energy performance of glazing systems
- Lighting Controls
 - Use occupancy sensors
- HVAC Controls and Zoning
 - Provide separate HVAC systems for spaces with distinct heating and cooling loads
- Roof Insulation
 - Achieve a whole-roof R-value of 25 or greater
- Geothermal wells are used for heating in winter and cooling in summer
- Total energy management system monitors and controls energy use in building
 - System alerts employees when windows should be open, other windows are opened and closed automatically, and electric lighting is adjusted according to monitored daylight levels

5.1.5.4 Materials and Resources

- “Cradle-to-Cradle” philosophy
 - Materials selected by what they can be made into at the end of their useful lives
- Existing structures on the site were recycled into the new construction
 - Require a waste management plan from the contractor
- Use recycled materials and renewable and regenerable resources
 - Use salvaged wood for finish carpentry
 - Prefer roofing materials with high levels of recycled content
 - Use plastic toilet partitions made from recycled plastic
- Use wood treated with less-toxic preservatives than the standard CCA or ACZA
- Roof and wall enclosures use Structurally Insulated Panels (SIPs)
- Prefer materials that are sources and manufactured within the local area
- Green Products Used:
 - Bamboo flooring
 - Composting toilets
 - Cork flooring
 - Granulated Linoleum-Cork Composite Sheets
 - High-Performance Fiberglass Windows
 - Natural Linoleum Flooring
 - Occupancy Sensors and Controls
 - Photovoltaic Collectors
 - Recycled-Wood Fiberboard and Particleboard

5.1.5.5 Indoor Environmental Quality

- Entry of Pollutants
 - Design entry to facilitate removal of dirt before entering building
 - Avoid carpet and other hard-to-clean floor surfaces near entry
- Visual Comfort and Interior Design
 - Design open floor plans to allow exterior daylight to penetrate to the interior
 - Provide views for employees to maximize visual comfort (i.e., view of the Chesapeake Bay)
- Ventilation and Filtration Systems
 - Provide occupants with access to operable windows
 - Use natural ventilation when possible
- Below Grade Rainwater and Groundwater
 - Raise the building up on piers
- Reduction of Indoor Pollutants
 - Use only very low or no-VOC paints
 - Specify prefinished wood or bamboo flooring
 - Avoid wood products made with urea-formaldehyde binder
 - Use a carbon monoxide monitor
- Building Commissioning for IEQ
 - Use a comprehensive commissioning process to ensure that design intent is realized
- Maintenance for IEQ
 - Design isolated storage closet for cleaning and maintenance products

5.2 The Bremerton Bachelor Enlisted Quarters Building 1044

5.2.1 Overview

- Location: Bremerton, WA
- Building type(s): Multi-unit residential
- New construction
- 99,800 sq. feet (9,270 sq. meters)
- Project scope: 8-story building
- Suburban setting
- Completed December 2004
- Rating: U.S. Green Building Council LEED-NC, v2--Level: Certified (29 points)

The Bremerton Bachelor Enlisted Quarters (BEQ) Building 1044, was constructed as part of a navy base housing complex that will eventually contain seven BEQ buildings divided into several projects extending through 2015. The building provides 132 living units along with common areas and support spaces. The living units are occupied only when the sailors are on-shore.

Green features in the design and construction of Building 1044 were guided by the LEED(r) Rating System. Site restoration, porous pavement, and removal of hardscapes reduce stormwater

flows by 25 percent compared to predevelopment conditions. Asphalt from the structures formerly on the site was recycled during demolition into aggregate for future paving on the site. Wood, asphalt, gypsum, steel, cardboard, and other construction debris recycling resulted in a greater than 90 percent diversion of construction waste from the landfill. Integrated energy efficiency strategies reduce the base building energy use by approximately 35 percent compared to the American Society of Heating, Refrigerating, and Air Conditioning (ASHRAE) 90.1-1999 standard. Dual-sensor direct digital controls (DDC) further contribute to energy savings by allowing power to each apartment unit to be turned off when the unit is unoccupied. The architects accounted for the future use of the building in their plans. Apartment units are designed to house four occupants with the ability to convert to two-occupant housing. Highly durable building materials with minimum maintenance requirements act as finishes throughout the building. A green housekeeping plan for maintenance staff and occupants lowers the building's maintenance impact.

5.2.2 Design Team

Owner/Developer	Structural Engineer
Project Managers	Civil Engineer
Project Superintendent	Mechanical Engineer
Architect	Electrical Engineer
Landscape Architect	Quality Control
Interior Designer	Code Analyst
Commissioning Agent	LEED Implementation Manager
Sustainability Consultant	Geo/hazard Tester

5.2.3 Finance and Cost

Financing Mechanisms

- Equity: Government appropriation
- Procurement process: Design-build

Cost Data

Cost data in U.S. dollars as of date of completion.

- Total project cost (land excluded): \$21,000,000

The original contract award amount was \$24.3 million. The contract included upgrading sewer and electrical systems, which were underground and undocumented. Additionally, the contract amount provided for furniture. The building itself came in below budget.

Overall, costs associated with meeting LEED requirements were less than 1.5 percent of total construction costs.

5.2.4 Green Strategies

5.2.4.1 Sustainable Sites

- Replaced an existing small building with a large building
- Replaced surface parking adjacent to the building with green space for occupants and visitors
- Provide safe access for bicyclers and pedestrians
- Covered bike storage for 15 percent of the building occupants
- Increase open spaces to encourage a pedestrian community
- Access to two bus stops within 650 ft of building
- Site restoration including removal of hardscapes and installation of porous pavement reduced stormwater flows by 25 percent
- Runoff from parking lot is treated with a propriety system

5.2.4.2 Water Efficiency

- Water efficient landscaping eliminates need for permanent irrigation system
- Artificial turf in high-use recreation areas eliminates need for maintenance and water use
- Reduce runoff by reduction in driveway pavement
- Use porous turf-paving systems on low-traffic parking and driveway areas
- Incorporate a pollutant separation/filtering system in parking lot drains

5.2.4.3 Energy and Atmosphere

- Use high-efficiency motors for all fans and pumps that provide at least 3.0 horsepower and variable-speed drives on the secondary chilled water pumps
- Domestic hot water is provided with semi-instantaneous water heaters, which use steam to heat water in small storage tanks located near the points of end use
- A four-pipe fan-coil system provides mechanical heating, cooling, and ventilation
 - Steam from a central plant heats the water
 - Chilled water comes from the building's own air-cooled chiller
- Each living unit has its own fan coil and thermostat
- Dual-sensor direct digital controls (DDC) allow power to apartment units to be turned off when unoccupied
- Lighting values are 0.8 watts per square foot (half the suggested value)
- High-efficiency fluorescent lighting is used throughout the interior, supplemented with incandescent task lighting and accent lighting
- Commission the HVAC system

5.2.4.4 Materials and Resources

- Recycling chutes on each floor lead to a central recycling area in the basement
- HVAC systems are CFC-, HCFC-, and Halon-free

- Diversion of 93 percent of material from landfill – most materials recycled, steel doors, frames, equipment, lights, and poles reused
- Combination of concrete walls and a regular, symmetrical building reduced concrete formwork since forms could be flipped and mirrored instead of being reconstructed for each floor
- Four-person living units designed to facilitate possible conversion into smaller one- or two- person units
- Minimize ozone-depletion potential of refrigerants in cooling systems
- Cluster buildings to minimize infrastructure requirements
- Use materials and systems with low maintenance requirements
- Use reusable forms
- Require waste management plan from the contractor
- Physical in-house recycling system
- Use recycled materials as aggregate in the concrete
- Use wood products from independently certified, well-managed forests for finished carpentry
- Prefer materials that are sourced and manufactured within the local area

5.2.4.5 Indoor Environmental Quality

- Design entry to facilitate removal of dirt before entering building
- Use low or no- VOC interior adhesives, sealants, interior paints and coating
- Use interior composite wood materials containing no added urea-formaldehyde resins
- Permanent entryway walk-off mats, appropriate drains, and separate ventilation for housekeeping areas minimize pollutant cross-contamination of regularly occupied areas
- Provide local exhaust ventilation for rooms with high-emitting sources
- Establish protocols for controlling the spread of pollutants during work on occupied buildings
- Provide temporary filters on any permanent air-handling devices used during construction
- Use a comprehensive commission process

5.3 The Genzyme Center

5.3.1 Overview

Location: Cambridge, MA

Building type(s): Commercial office

New construction

344,000 sq. feet (32,000 sq. meters)

Project scope: 12-story building

Urban setting

Completed November 2003

Rating: U.S. Green Building Council LEED-NC, v2--Level: Platinum (52 points)

5.3.2 Background

Genzyme Center is the corporate headquarters for a biotechnology company, with offices, an employee cafeteria, a library, gardens, training rooms, a conference center, cafes, and public retail space. Genzyme Center was created as a symbol of progress to represent a point of identification for the company, its employees, and visitors. The goal of the design was to develop a building from the inside out, from the individual working environment to the overall complex structure of the building. Largely due to the collaboration of the design team, developer, client, and construction team, this led to an environmentally friendly, highly communicative, and innovative signature building.

The project team and the client balanced aesthetics, cost, constructability, and reliability to create an environmentally responsible corporate headquarters. A number of environmental design strategies contribute to the LEED Platinum rating the building is expected to achieve and establish an open spatial atmosphere for the building occupants.

The building envelope is a high-performance curtainwall glazing system with operable windows on all 12 floors. More than 32 percent of the exterior envelope is a ventilated double-facade that blocks solar gains in summer and captures solar gains in the winter. Steam from a nearby power plant is used for central heating and cooling.

The building's central atrium acts as a huge return air duct and light shaft. Fresh air moves into the atrium and up and out exhaust fans near the skylight. Natural light from the fully glazed facade and from the atrium (brought in by solar-tracking mirrors above the skylight) is reflected deep into the building.

The building uses 32 percent less water than a comparable office building by using waterless urinals, dual-flush toilets, automatic faucets, and low-flow fixtures. Stormwater supplement the evaporative cooling towers and irrigates the landscaped roof.

Building materials were chosen for their low emissions, recycled content, or local manufacturing. Nearly 90 percent of the wood was FSC certified.

5.3.3 Design Team

Owner/Developer	Structural Engineer
Architect	Master Environmental Planner
Executive Architect – base building	Environmental Consultant
Executive Architect – tenant improvement	Lighting Consultant
Landscape Architect	Interior Gardens Consultant

5.3.4 Finance and Cost

A 20-kW photovoltaic system was partially funded by a grant from the Massachusetts Renewable Energy Trust.

The greening process in our design makes good sense all around. First, it offers direct operating savings. There is also a growing body of evidence that supports the theory that high-performance buildings are beneficial to employee health and productivity. While these costs and benefits are still in development, the potential for savings is significant. One report indicates that annual personnel costs vary from \$300 to \$500 per square foot. Therefore, a 1 percent increase in efficiency could be worth \$3 to \$5 per square foot. For Genzyme, this could average \$1,040,000 per year in personnel efficiency alone.

It has been recorded that companies who provide a good working environment report a considerable drop in absenteeism, which enhances the productivity figure above. People value a direct connection to the outdoors. This is supported by European blue-green laws coming, whereby all employees are entitled to a view of the sky and vegetation. The role of daylight is a key factor in the design, as it has a positive effect on the productivity of the workforce. A number of studies also point out that the problem stated above is often also a consequence of uncomfortable surroundings, which include furniture ergonomics. This was evaluated and brought into the design of the furniture as a means for the employees to create and modify their own work environment.

There are many aspects to the greening process, and the success of the Genzyme building will be recorded in its LEED rating and its future "real life" use.

5.3.5 Green Strategies

5.3.5.1 Sustainable Sites

- Integrate building with local mixed-use community and regional transportation corridors
- Use a remediated brownfield site
- Reuse existing infrastructure
- Provide subsidies for public transit passes
- Implement a guaranteed-ride-home program
- Carpool database services
- Indoor bike storage with lockers and showers, additional bike storage in garage
- Preferred carpool spaces
- Alternative fuel recharging stations for electric vehicles
- Reduce heat-island effect by using below grade parking and vegetated roofs
- On-site open space is planted with native or adaptive plants and trees
- Vegetated roof and skylight rainwater collection system reduces stormwater runoff by 25 percent
- Filters were placed in the piping systems to reduce pollutant levels and stop soil erosion during construction
- Light pollution is controlled by reflective lighting, controlling indoor lights, and shading with an automated blind system after dark

5.3.5.2 Water Efficiency

- Rainwater collected from vegetated roof supplements the water demand for the evaporative cooling towers
- Overflow from vegetated roof and from surface drains is filtered to remove solids before it is discharged from the site
- Use efficient irrigation systems with moisture sensors for outdoor and indoor garden irrigation
- Use automated and low-flow faucets
- Use waterless urinals and dual-flush toilets
- Use landscape plantings to stabilize soils and control erosion

5.3.5.3 Energy and Atmosphere

- The central heating and cooling systems are powered with steam from an adjacent power plant – the steam drives absorption chillers for cooling during summer and is exchanged directly into heat for heating during winter
- Fan coil units are used for local heating or cooling loads in each space and will automatically shut off when windows or doors are opened for natural ventilation
- Photo sensors and occupancy sensors detect conditions and dim overhead lights as needed
- Natural light enhancement system uses roof-mounted heliostats, prismatic louvers, hanging prismatic mobiles, series of reflective panels, and a reflective light wall, with horizontal, reflective, motorized blinds that reflect light up to a reflective ceiling panel
- One-third of the building's façade is constructed as a double façade with a four-foot externally ventilate void with operable blinds to control solar gains and ventilation
- Use two photovoltaic arrays on the roof
- Use efficient fans, motors and equipment
- Develop an extensive building management system
- Use third-party commissioning firm for extensive building commissioning
- Integrate climatic conditions, including wind, rainfall, sunshine and average cloud cover into building design

5.3.5.4 Materials and Resources

- Require a waste management plan from the contractor
- Specify recycling receptacles that are accessible to the occupants – 500 square foot area devoted to building recycling program
- Design a physical in-house recycling system
- Use wood products from independently certified, well-managed forests for finish carpentry
- Prefer materials that are sourced and manufactured within the local area
- 93 percent of construction waste recycled or reused

- Use filigree slab concrete, which reduces need for reinforcing steel and increases the thermal efficiency of the finished building, also reduces release of VOCs into the environment
- Use foam fillers in panels to reduce foundation elements
- Use recycled aggregate material

5.3.5.5 Indoor Environmental Quality

- Design entry to facilitate removal of dirt before entering building
- Provide occupants with the means to control temperature in their area
- Use skylights and/or clerestories for daylighting
- Design open floor plans to allow exterior daylighting to penetrate to the interior
- Provide occupants with control of light in their area
- Provide illumination sensors
- Provide occupants with access to operable windows
- Provide views for occupants
- Provide indoor gardens and access to outdoor patios to enhance occupants' connection with outdoor environment
- Provide local exhaust ventilation for rooms with high-emitting sources
- Avoid wood products made with urea-formaldehyde binder
- Use only very-low-VOC carpet adhesives

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SECTION 6. POLICY AND RELATED GUIDANCE

6.1 E.O. 13423 – Strengthening Federal Environmental, Energy, and Transportation Management

On January 24, 2007, Executive Order 13423, “Strengthening Federal Environmental, Energy, and Transportation Management” was signed. This order consolidates and strengthens E.O.’s 13101, 13123, 13134, 13148 and 13149 and establishes new and updated environmental goals. E.O. 13423 requires all Federal agencies to advance their energy efficiency and environmental performance in the following areas:

- Improve energy efficiency through reduction of energy intensity
- Reduce greenhouse gas emissions
- Increase use of renewable sources of energy
- Reduce water consumption intensity
- Acquisition of biobased, environmentally preferable, energy-efficient, water-efficient and recycled content goods
- Reduce acquisition, use and disposal of toxic and hazardous chemicals
- Increase diversion of solid waste and maintain cost-effective waste prevention and recycling programs
- New construction and major renovations must comply with the Guiding Principles for Federal Leadership in High Performance and Sustainable Buildings
- Reduce consumption of petroleum products and increase consumption of non-petroleum products, use hybrid vehicles
- Acquire electronic products that meet Energy Star standards or Electronic Product Environmental Assessment Tool standards

These goals must be implemented within the agency environmental management system with appropriate training, compliance review and audit, and leadership awards within the agency.

6.2 OASA (I&E) Memo – Sustainable Design and Development Policy Update – SPiRiT to LEED Transition

The Department of the Army, Office of the Assistant Secretary of the Army (Installations and Environment) released a memorandum in January 2006 to update the Army Strategy for integrating sustainability across all army installations by transitioning from SPiRiT to the USGBC LEED rating system. All FY08 military vertical building construction projects will achieve the SILVER level of LEED NC (New Construction).

6.3 OASA (I&E) Memo – Sustainable Design and Development Policy Update – Life-Cycle Costs

The Department of the Army, Office of the Assistant Secretary of the Army (Installations and Environment) released a memorandum on 27 April 2007 to provide further clarification on incorporating sustainable design and development in new construction and major renovation and repair projects. New vertical construction projects with climate control are still to achieve a

minimum of SILVER level LEED rating as of FY08. Major renovation and repair projects exceeding \$7.5 million are required to achieve a minimum of CERTIFIED level LEED rating as of FY08. Beginning with the FY09 Military Construction program, life-cycle cost analyses and actual cost analyses associated with achieving this policy will be documented in accordance with DoDI 4170.11, "Installation Energy Management."

6.4 E.0. 12873 – Federal Acquisition, Recycling, and Waste Prevention

On August 6, 1993 Executive Order (EO) 12873, "Federal Acquisition, Recycling, and Waste Prevention," was signed. Section 401 of this E.O. states that "In developing plans, drawings, work statements, specifications, or other product descriptions, agencies shall consider the following factors: elimination of virgin material requirements; use of recovered materials; reuse of product; life cycle cost; recyclability; use of environmentally preferable products; waste prevention (including toxicity reduction or elimination); and ultimate disposal, as appropriate." The EO also directed the Environmental Protection Agency (EPA) develop guidance to help federal agencies incorporate environmental preferability into their purchasing procedures.

6.5 EPA Comprehensive Procurement Guidelines (CPG I and II)

In response to EO 12873, EPA developed Comprehensive Procurement Guidelines (CPG I and II). These are the first formal regulations implementing sustainability requirements. The companion Recovered Materials Advisory Notices (RMAN I and II) contain EPA's recommendations for purchasing all items designated in the final CPGs. Currently, EPA has designated 36 items that are, or can be, manufactured using recycled and recovered materials. Construction, landscape, park and recreation products are among the designated items. Federal Agencies are required to purchase EPA-designated items meeting minimum recycled-content standards unless they are not available within a reasonable period of time; fail to meet reasonable specification standards; are not available from two or more sources (to maintain competition); or are unreasonably priced (5 percent higher than comparable nonrecycled products). Recycled-content purchase requirements are discussed in EPA's "Federal Recycling Guide for Waste Prevention, Recycling and Buying Recycled."

SECTION 7. RESOURCES

7.1 Websites

U.S. Green Building Council

USGBC – LEED-NC

<http://www.usgbc.org/DisplayPage.aspx?CMSPageID=220>

LEED Certified Project List and Case Studies

<http://www.usgbc.org/LEED/Project/CertifiedProjectList.aspx?CMSPageID=244>

Whole Building Design Guide

Whole Building Design Guide (WBDG)

<http://www.wbdg.org/index.php>

WBDG LEED DoD Antiterrorism

http://www.wbdg.org/tools/leed_atfp.php?u=8

WBDG Building and Space Examples

<http://www.wbdg.org/design/buildingtypes.php> and
<http://www.wbdg.org/design/spacetypes.php>

ASHRAE

American Society of Heating, Refrigerating, and Air Conditioning

Reference and guidance to HVAC&R system designers involved in green or sustainable building design, website includes publications, design guides, training opportunities
www.ashrae.org (Requires membership for access to certain types of information)

ASHRAE GreenGuide: The Design, Construction, and Operation of Sustainable Buildings, 2nd ed. Available for purchase:

<http://resourcecenter.ashrae.org/store/ashrae/newstore.cgi?itemid=28824&view=item&categoryid=895&categoryparent=895&page=1>

ASHRAE Building-Type Green Tips

www.ashrae.org/doclib/20061128_greentips_2006.pdf

Additional Websites

Building Green.com

<http://www.buildinggreen.com>

Green Building Resource Guide

<http://www.greenguide.com>

Green Home Building – Sustainable Architecture
http://www.greenhomebuilding.com/sustainable_architecture.htm

7.2 Agency Resources

U.S. Army

U.S. Army Sustainability
<http://www.sustainability.army.mil/>

Fort Meade Environmental Division
<http://www.fortmeade-ems.org/>

EKO – Sustainable Design and Development (requires U.S. Army password)
<https://eko.usace.army.mil/fa/sdd>

Facilities and Housing Directorate – Information on Sustainable Design and Development
<http://www.hqda.army.mil/ascimweb/fd/linksSDD.htm#sustainable>

Fort Bragg Installation Design Guide
http://www.bragg.army.mil/dpw/idg/html/ex_fr1.htm

U.S. Department of Energy

Dept. of Energy: Office of Energy Efficiency and Renewable Energy – High Performance
Federal Buildings
<http://www.eere.energy.gov/buildings/highperformance/>

U.S. Environmental Protection Agency

EPA Green Building Website
<http://www.epa.gov/greenbuilding/>

U.S. Air Force

Air Force Sustainability
<http://www.afcee.brooks.af.mil/dc/dcd/arch/rfg/index.html>

SECTION 8. REFERENCES

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<http://www.fortmeade-ems.org/>, last accessed January 2007.
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U.S. Green Building Council. 2007. *Certified Project List*. Website:
<http://www.usgbc.org/LEED/PROJECT/CERTIFIEDPROJECTLIST.ASPX?CMSPAGEID=244>, last accessed January 2007.

Whole Building Design Guide. 2007. *LEED® - DoD Antiterrorism Standards Tool*. Website:
http://www.wbdg.org/tools/leed_atfp.php, last accessed January 2007.

SECTION 9. ACRONYMS

4-PCH	4-Phenycyclohexene
A&E	Architectural and Engineering
ACEE	American Council for an Energy Efficient Economy
ACZA	Ammoniacal Copper Zinc Arsenate
ANSI	American National Standards Institute
AP	Accredited Professional
ASHRAE	American Society of Heating, Refrigerating and Air-Conditioning Engineers
ASTM	American Society for Testing and Materials
AT/FP	Anti-Terrorism/ Force Protection
BMPs	Best Management Practices
BOD	Basis of Design
BRAC	Base Realignment and Closure
CBECS	Commercial Buildings Energy Consumption Survey
CEMP	Comprehensive Expansion Master Plan
CFC	Chlorofluorocarbon
CIBSE	Chartered Institution of Building Services Engineers
CO	Carbon Monoxide
CO₂	Carbon Dioxide
CPG	Comprehensive Procurement Guidelines
CPG Permit	Construction General Permit
CRI	Carpet and Rug Institute
CRS	Center for Resource Solutions
CxA	Commissioning Authority
CZM	Coastal Zone Management
DASA	Department of the Army, Office of the Assistant Secretary of the Army
DDC	Direct Digital Controls
DOE	Department of Energy
DPW	Department of Public Works
EMS	Environmental Management System
EO	Executive Order
EPA	Environmental Protection Agency
ESC	Erosion and Sedimentation Control
ESRI	Environmental Systems Research Institute
ETS	Environmental Tobacco Smoke
FCAP	Forest Conservation Act Policy
FGGM	Fort George G. Meade
FGGM-TMP	Fort George G. Meade Tree Management Policy
FSC	Forest Stewardship Council
FTE	Full-time Equivalent
GPP	Green Procurement Plan
HCFC	Hydrochlorofluorocarbon
HVAC&R	Heating, Ventilating, Air Condition and Refrigeration

IAQ	Indoor Air Quality
ICRMP	Integrated Cultural Resource Management Plan
IDG	Installation Design Guide
IEQ	Indoor Environmental Quality
IESNA	Illuminating Engineering Society of North America
INRMP	Integrated Natural Resource Management Plan
IPMVP	International Performance Measurement and Verification Protocol
LCODP	Lifecycle Ozone Depletion Potential (lbCFC11/Ton-Year)
LCGWP	Lifecycle Direct Global Warming Potential (lbCO ₂ /Ton-Year)
GWPr	Global Warming Potential of Refrigerant (0 to 12,000 lbCO ₂ /lbr)
ODPr	Ozone Depletion Potential of Refrigerant (0 to 0.2 lbCFC11/lbr)
Lr	Refrigerant Leakage Rate (0.5% to 2.0%; default of 2%)
Mr	End-of-life Refrigerant Loss (2% to 10%; default of 10%)
Rc	Refrigerant Charge (0.5 to 5.0 lbs of refrigerant per ton cooling capacity)
LEED-NC	Leadership in Energy and Environmental Design – New Construction
LID	Low Impact Development
LPD	Lighting Power Density
M&V	Measurement and Verification
MDF	Medium Density Fiberboard
MERV	Minimum Efficiency Reporting Value
NPDES	National Pollutant Discharge Elimination System
OPR	Owner’s Project Requirements
PM	Particulate Matter
PV	Photovoltaic
RMAN	Recovered Materials Advisory Notices
SCAQMD	South Coast Air Quality Management District
SIPs	Structurally Insulated Panels
SMACNA	Sheet Metal and Air Conditioning Contractors National Association
SPiRiT	Sustainable Project Rating Tool
SRI	Solar Reflectance Index
TSS	Total Suspended Solids
TVOC	Total Volatile Organic Compounds
TWA	Total Water Applied
USGBC	U.S. Green Building Council
VOC	Volatile Organic Compounds

APPENDIX A. LEED GUIDANCE



DEPARTMENT OF THE ARMY
OFFICE OF THE ASSISTANT SECRETARY OF THE ARMY
INSTALLATIONS AND ENVIRONMENT
110 ARMY PENTAGON
WASHINGTON DC 20310-0110
05 JAN 2006

MEMORANDUM FOR SEE DISTRIBUTION

SUBJECT: Sustainable Design and Development Policy Update – SPiRiT to LEED Transition

1. The purpose of this memorandum is to update the Army Strategy for integrating the principles and practices of sustainability on our installations as we minimize the impacts and total ownership costs of Army systems, material, facilities, and operations. Accordingly, the Army will transition from the Sustainable Project Rating Tool (SPiRiT) to the US Green Building Council (USGBC) Leadership in Energy and Environmental Design (LEED®) rating system effective with the FY 08 Military Construction program.
2. All military vertical building construction projects starting with the FY 08 military construction program will achieve the SILVER level of LEED NC (New Construction). This policy includes all new construction projects, regardless of fund source. Horizontal construction, such as ranges, roads and airfields, will continue to incorporate Sustainable Design and Development features to the maximum extent possible. The installation Director of Public Works or the Reserve Component equivalent, supporting Engineer District, designer and constructor will jointly certify the final LEED score and rating.
3. Projects prior to the FY 08 program will continue to use SPiRiT and achieve the GOLD level. Such projects may be scored using LEED NC if the LEED SILVER rating level can be achieved within the program amount. Projects using the design/ build procurement method will include the SPiRiT or LEED assessment in the RFP requirements and achieve the appropriate sustainable rating level in the project.
4. The Army will adopt LEED Homes for scoring residential housing when released by the USGBC. In the meantime, SPiRiT will continue to be used to rate all Army Family Housing new construction projects and homes built under the Residential Communities Initiative. These projects will continue to attain SPiRiT GOLD.
5. It is important that we all continue to emphasize sustainability and incorporate sustainable design and development practices into all facilities built on our installations. This is just one way we are reducing our energy consumption and optimizing life cycle economic performance.

A handwritten signature in black ink, reading "Joseph W. Whitaker".

Joseph W. Whitaker
Deputy Assistant Secretary of the Army
(Installations and Housing)
OASA(I&E)

SUBJECT: Sustainable Design and Development Policy Update – SPiRiT to LEED Transition

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CHIEF, ARMY RESERVE

DIRECTOR, ARMY NATIONAL GUARD



DEPARTMENT OF THE ARMY
OFFICE OF THE ASSISTANT SECRETARY OF THE ARMY
INSTALLATIONS AND ENVIRONMENT
110 ARMY PENTAGON
WASHINGTON, DC 20310-0110
27 APR 2007

MEMORANDUM FOR: SEE DISTRIBUTION

SUBJECT: Sustainable Design and Development Policy Update – Life-Cycle Costs

1. References.

a. Memorandum, DASA (I&H), 5 Jan 06, subject: Sustainable Design and Development Policy Update – SPIRiT to LEED Transition.

b. AR 415-15, Army Military Construction and Non-Appropriated Funded Construction Program Development and Execution, 12 Jun 06.

c. Energy Policy Act of 2005, 8 Aug 05.

d. DoDI 4170.11, Installation Energy Management, 22 Nov 05.

e. Guiding Principles for Federal Leadership in High Performance and Sustainable Buildings, Memorandum of Understanding, 6 Mar 06.

f. Federal Register, Vol. 71, No. 232, Rules and Regulations, 4 Dec 06.

g. Executive Order 13423, Strengthening Federal Environmental, Energy, and Transportation Management, 26 Jan 07.

2. Purpose. The purpose of this memorandum is to update the sustainable design and development (SDD) policy for Army facilities. Life-cycle cost analyses will be completed to determine the best capital asset investments to reduce the total ownership cost of facilities; improve energy efficiency and water conservation; provide safe, healthy and productive built environments; promote sustainable environmental stewardship; and reduce environmental impact/footprint of operations in accordance with AR 415-15. Life-cycle cost means the total cost related to energy conservation measures of owning, operating, and maintaining a building over its useful life as determined in accordance with 10 CFR part 436 (reference Federal Register). This policy applies worldwide to all construction activities on permanent Army installations, Army Reserve, Army Readiness Centers, and Armed Forces Reserve Centers, regardless of funds source.

3. Policy.

a. New Construction. No change is made to existing policy requiring all vertical construction projects with climate control, beginning with the FY08 military construction

program, to achieve a minimum of the Silver level of the Leadership in Energy and Environmental Design (LEED®) for New Construction per the U.S. Green Building Council (USGBC) rating system. Horizontal construction (e.g. ranges, roads, and airfields) will incorporate sustainable design features to the maximum extent possible. The installation Director of Public Works or the Reserve Component equivalent, supporting Engineer District, designer of record, and/or the prime construction contractor will jointly verify the final LEED® score and rating. USGBC certification is not required.

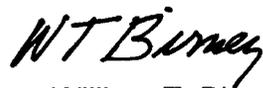
b. Family Housing. The Army anticipates adopting LEED® Homes for scoring residential housing. In the interim, all Army Family Housing new construction projects and homes built under the Residential Communities Initiative will attain a minimum of the Army Sustainable Project Rating Tool (SPiRiT) GOLD and Energy Star® Qualified New Homes (at least 15 percent more energy efficient than homes built to the 2004 International Residential Code). The installation Director of Public Works, supporting Engineer District, designer of record, and/or the prime construction contractor will jointly verify the final SPiRiT score and rating as well as verification of Energy Star® Qualified New Homes features documentation. Third party rating using the Home Energy Rating System is not required.

c. Existing Buildings. The Army is determining the appropriate rating level of LEED® Existing Buildings and will issue additional policy once completed. In the interim, beginning in FY08, all major renovation and repair projects exceeding \$7.5 million (requiring congressional notification) shall incorporate sustainable design features where life-cycle cost effective to achieve a minimum of the Certified level of the LEED® Existing Buildings rating system. The installation Director of Public Works or the Reserve Component equivalent, supporting Engineer District, designer of record, and/or the prime construction contractor will jointly verify the final LEED® score and rating. USGBC certification is not required.

d. Programming. Documenting SDD, EAct05, and EO 13423 costs on DD Form 1391, Military Construction Project Data, in accordance with DoDI 4170.11, will commence beginning with the FY09 Military Construction program. Under the primary facilities cost, a separate line item will be added labeled "SDD & EAct05" (under DD Form 1391 category code 00005). The cost will include the actual costs associated with achieving this policy. If the costs are undetermined at the time the DD Form 1391 is developed, they will be programmed at 2 percent of the primary facility cost (facilities with climate control systems only) until they are determined. When the costs exceed 2 percent, an explanation will be provided in the description of the proposed construction under block 10 of the DD Form 1391 describing the SDD, EAct05 and/or EO 13423 features (such as distributed generation systems including renewable systems, solar electric, solar lighting, geo (or ground coupled) thermal, wind turbines, biomass, as well as other generation systems such as fuel cell, cogeneration, or highly efficient alternatives) included in the design. For DD Forms 1391 with multiple primary facilities, the SDD & EAct05 primary line item will include sub-line items for each facility's SDD & EAct05 costs.

e. Objectives. EPO05 and the new EO have fundamentally changed the way we approach efficient design of our facilities. Value engineering studies in accordance with AR 415-15 shall incorporate SDD principles and maximize points in the water consumption reduction and efficiencies and energy optimizing energy performance. Opportunities to include renewable energy will be investigated for each project. To accomplish these objectives all new construction projects that have not completed concept design prior to the issuance of this policy memorandum shall be designed to reduce the energy consumption level by 30 percent compared to the baseline building performance rating per the American Society of Heating, Refrigerating, and Air Conditioning Engineers, Inc., (ASHRAE) and the Illuminating Engineering Society of North America (IESNA) Standard 90.1-2004, Energy Standard for Buildings Except Low Rise Residential. Major renovations and repair projects that have not completed concept design prior to the issuance of this policy memorandum shall be designed to reduce the energy consumption level by 20 percent below pre-renovations 2003 baseline. If it is determined through life-cycle cost analysis that these energy consumption reductions levels cannot be achieved, successive life-cycle cost analyses at 5 percent lower energy consumption levels will be completed to determine the appropriate percent energy consumption reduction. Waivers from the mandated requirements for SSD, EPO05, or EO 13423, to include not meeting mandatory energy consumption reduction levels of 30 percent for new construction and 20 percent for major renovations and repair projects, shall be obtained following procedures in Appendix D of AR 415-15, regardless of funds source (this includes BRAC-funded construction).

f. Conclusion. Immediate and sustained action is necessary to reduce demands on limited resources. High performance buildings will reduce the total ownership cost of facilities; improve energy efficiency and water conservation; provide safe, healthy, and productive built environments; promote sustainable environmental stewardship; and reduce environmental impact/footprint of operations. I appreciate your support in the implementation of this policy.



William T. Birney
 Acting Deputy Assistant Secretary of the Army
 (Installations and Housing)
 OASA(I&E)

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 COMMANDER AND CHIEF OF ENGINEERS, USACE
 CHIEF, ARMY RESERVE
 CHIEF, NATIONAL GUARD BUREAU

APPENDIX B. LEED AND ANTI-TERRORISM/FORCE PROTECTION STANDARDS

APPENDIX B. ANTI-TERRORISM/ FORCE PROTECTION STANDARDS

SITE PLANNING

- Standard 1. Minimum Standoff Distances
- Standard 2. Unobstructed Space
- Standard 3. Drive-Up/ Drop-Off Areas
- Standard 4. Access Roads
- Standard 5. Parking Beneath Buildings or on Rooftops

STRUCTURAL DESIGN

- Standard 6. Progressive Collapse Avoidance
- Standard 7. Structural Isolation
- Standard 8. Building Overhangs
- Standard 9. Exterior Masonry Walls.

ARCHITECTURAL DESIGN

- Standard 10. Windows, Skylights, and Glazed Doors
- Standard 11. Building Entrance Layout
- Standard 12. Exterior Doors
- Standard 13. Mailrooms
- Standard 14. Roof Access
- Standard 15. Overhead Mounted Architectural Features

ELECTRICAL AND MECHANICAL DESIGN

- Standard 16. Air Intakes
- Standard 17. Mailroom Ventilation
- Standard 18. Emergency Air Distribution Shutoff
- Standard 19. Utility Distribution and Installation
- Standard 20. Equipment Bracing
- Standard 21. Under Building Access
- Standard 22. Mass Notification

The following table presents the issues and strategies to coordinate both AT/FP Standards and LEED credits in building projects. The information is from the Whole Building Design Guide website (2007): http://www.wbdg.org/tools/leed_atfp.php?u=8

LEED® Credit	Credit Description	Issues & Strategies	Related AT/FP Standards
Sustainable Sites			
SS Prereq 1	Construction Activity Pollution Prevention	Several strategies can be implemented to protect the installation or facility perimeter (controlling vehicular access) as well as to control erosion. These include: earth dikes, sediment traps, and sediment basins. However, sediment traps and basins, depending on their size, may become concealment opportunities for terrorists. Other erosion control measures, like seeding and mulching, and installing pervious paving, can be implemented to stabilize the soil and to mitigate potential damage to a building's foundation and structural system due to floods, mudslides, torrential rainstorms, and other natural hazards. Where parking, roadways, and drive-up/drop-off areas are required, including within the standoff distance, consider pervious paving, which will minimize erosion due to water runoff.	AT Std 1 AT Std 3 AT Rec 2 AT Rec 3 AT Rec 8
SS Credit 1	Site Selection	The most suitable areas on a site for a building in terms of security and anti-terrorism force protection (ATFP) may have negative environmental impacts. While it is unlikely that buildings are sited on areas deemed inappropriate by this LEED SS Credit 1 (i.e., prime farmland, in a floodplain, on endangered species habitat, in wetlands, or on parklands) for security reasons, there are cases where this may occur. As such, conduct a threat/vulnerability assessment and risk analysis to determine the overriding priority for the site and building. Where possible, choose sites that allow for adequate protection and meet the LEED SS Credit 1 criteria. For DoD buildings that cannot meet required standoff distances because land is not available, DoD standards allow the application of building hardening and other mitigating strategies as a means of last resort to achieve the required level of protection. New buildings must still comply with the required "effective standoff distance" as well as the 33' unobstructed space requirement. The cost of mitigating strategies must be considered in the risk analysis. Incorporate standoff distances and designated greenfield areas into the master plans for facilities, installations, and campuses. This will help ensure that standoff distances and undeveloped spaces are not encroached upon by future expansions and developments.	AT Std 1 AT Std 2 AT Rec 2 AT Rec 3 AT Rec 5 AT Rec 6 AT Rec 7 AT Rec 8 AT Rec 10
SS Credit 2	Development Density & Community Connectivity	Minimum standoff distances, building separation recommendations, and unobstructed spaces are established within UFC 4-010-01 to keep terrorists as far away from inhabited buildings as possible and to minimize the possibility that an attack on one building would cause injuries in adjacent buildings. Because of these standards, DoD buildings are rarely sited in dense urban areas, as required by this LEED SS Credit 2. However, conduct a threat/vulnerability assessment and risk analysis to determine if utilizing a site that is located within an existing minimum development density of 60,000 square feet per acre is acceptable for the particular facility. For DoD buildings that cannot meet required standoff distances because land is not available, DoD standards allow the application of building hardening and other mitigating strategies as a means of last resort to achieve the required level of protection. New buildings must still comply with the required "effective standoff distance" as well as the 33' unobstructed space requirement. The cost of mitigating strategies must be considered in the risk analysis.	AT Std 1 AT Std 2 AT Rec 2 AT Rec 3 AT Rec 5 AT Rec 6 AT Rec 7 AT Rec 8 AT Rec 10

LEED® Credit	Credit Description	Issues & Strategies	Related AT/FP Standards
SS Credit 3	Brownfield Redevelopment	Ensure that the brownfield site allows for compliance with DoD minimum standoff distances and building separation requirements. For DoD buildings that cannot meet required standoff distances because land is not available, DoD standards allow the application of building hardening and other mitigating strategies as a means of last resort to achieve the required level of protection. New buildings must still comply with the required "effective standoff distance" as well as the 33' unobstructed space requirement. The cost of mitigating strategies must be considered in the risk analysis.	AT Std 1 AT Std 2 AT Rec 2 AT Rec 3 AT Rec 5 AT Rec 6 AT Rec 7 AT Rec 8 AT Rec 10
SS Credit 4.1	Alternative Transportation, Public Transportation Access	DoD recommends avoiding sites that are close to railroads (UFC 4-010-01, Recommendation 6: Railroad Location). However, it is possible to locate a building near public transportation access while meeting minimum standoff distances for security and protection. Keep perimeter access points to a minimum, but where possible, locate them near rail stations and/or bus stops to accommodate public transportation users.	AT Std 1 AT Rec 1 AT Rec 6 AT Rec 8
SS Credit 4.2	Alternative Transportation, Bicycle Storage and Changing Rooms	If this credit is pursued, in certain cases DoD recommends that exposed barriers and site furnishings, which include bicycle racks, be protected to prevent fragmentation hazards. Refer to UFC 4-010-01, Recommendation 9: Minimize Secondary Debris for more information. Within a DoD building, visitor-accessible bike storage facilities and changing/shower facilities should be controlled and located away from "sensitive or critical areas, areas where high-risk or mission-critical personnel are located, or other areas with large population densities of DoD personnel" (UFC 4-010-01, Recommendation 13. Visitor Control). Covered bicycle storage facilities, when located outside the building, should comply with unobstructed space requirements.	AT Std 1 AT Std 2 AT Rec 8 AT Rec 9 AT Rec 12 AT Rec 13 AT Rec 14 AT Rec 15
SS Credit 4.3	Alternative Transportation, Low-Emitting and Fuel-Efficient Vehicles	For DoD buildings, locate liquid or gaseous fueling facilities outdoors and beyond the minimum standoff distance for the building per UFC 3-460-01 and NFPA 30A. Parking, including parking for alternative fuel vehicles such as hybrid vehicles, should be located to comply with the required standoff distances from inhabited buildings. Per UFC 4-010-01, Standard 5, avoid locating parking beneath buildings or on rooftops of inhabited buildings. When unavoidable, follow measures identified in Standard 5 to achieve the required level of protection for new and existing buildings.	AT Std 1 AT Std 3 AT Std 4 AT Std 5 AT Std 16 AT Rec 4 AT Rec 8

LEED® Credit	Credit Description	Issues & Strategies	Related AT/FP Standards
SS Credit 4.4	Alternative Transportation, Parking Capacity	Parking and carpool/vanpool parking areas should be located beyond the minimum standoff distance for the building. Per UFC 4-010-01, Standard 5, avoid locating parking beneath buildings or on rooftops of inhabited buildings. When these conditions are unavoidable, follow measures identified in Standard 5 to achieve the required level of protection for new and existing buildings.	AT Std 1 AT Std 3 AT Std 4 AT Std 5 AT Rec 4 AT Rec 8
SS Credit 5.1	Site Development, Protect or Restore Habitat	DoD requirements for unobstructed space and standoff distances from inhabited buildings, and recommended building separation distances, when left undeveloped, support strategies for achieving this credit. For previously developed sites, choose native and adapted vegetation that will not create concealment opportunities, especially within the unobstructed space. Vegetation can also be used to shield people or assets from potential aggressors in vantage points. Controlled perimeters are not conducive to protecting or restoring open spaces, as they often require man-made physical boundaries. Work with the Project Manager, Base Security Office, and Facility Manager to locate staging areas where they would not create concealment opportunities, compromise security nor disturb open spaces.	AT Std 1 AT Std 2 AT Std 4 AT Std 19 AT Rec 1 AT Rec 3 AT Rec 5 AT Rec 7 AT Rec 8 AT Rec 10
SS Credit 5.2	Site Development, Maximize Open Space	In most cases, DoD requirements require eliminating under building parking and locating emergency backup systems away from the systems for which they provide backup. These measures do not support reducing the development's footprint per this credit. However, in areas with no local zoning requirements, the required standoff distance may support designation of an open area adjacent to the building that is equal to the developed footprint. In addition, DoD requirements for unobstructed space and recommended building separation distances, when left undeveloped, support strategies for achieving this credit. The installation of onsite power generation and fuel supply for emergency backup power and/or increased power reliability may increase development of open space as well as habitat disturbance. Incorporate standoff distances and designated greenfield areas into the master plans for facilities, installations, and campuses. This will help ensure that standoff distances and undeveloped spaces are not encroached upon by future expansions and developments.	AT Std 1 AT Std 2 AT Std 3 AT Std 5 AT Std 8 AT Std 19 AT Rec 4 AT Rec 7 AT Rec 8 AT Rec 10

LEED® Credit	Credit Description	Issues & Strategies	Related AT/FP Standards
SS Credit 6.1	Stormwater Design, Quantity Control	Standoff distances can provide areas for stormwater management features or pervious areas to reduce runoff. Limit impervious surfaces within the controlled perimeter, standoff distance, and/or unobstructed space. Use pervious paving for low-vehicle traffic areas, including parking and maintenance roads, which should be located according to minimum standoff distances. Bioswales and bioretention ponds (two of many low impact development technologies) can be used to reduce the rate of stormwater runoff and provide a physical barrier between occupied buildings and potential aggressors. One strategy to minimize the amount of paving and hard surfaces within an installation or campus (read: less stormwater runoff) is to concentrate development. Be sure to comply with DoD required standoff distances and unobstructed space requirements. Consider installing extensive vegetated—or "green"—roofs to reduce stormwater runoff. Intensive vegetated roofs offer the use of the roof space, however, DoD Standard 14 requires limiting roof access to minimize potential threats.	AT Std 1 AT Std 2 AT Std 3 AT Std 5 AT Std 8 AT Std 14 AT Rec 1 AT Rec 2 AT Rec 3 AT Rec 4 AT Rec 5 AT Rec 7 AT Rec 8 AT Rec 10
SS Credit 6.2	Stormwater Design, Quality Control	Standoff distances can provide areas for stormwater management features or pervious areas to reduce runoff. Mechanical or natural stormwater treatment systems, such as constructed wetlands, bioretention ponds, and vegetated filter strips, could serve as part of the perimeter protection scheme. Large bioretention ponds located next to a building can be designed to break-up potential bomb-loaded, high velocity vehicle approaches and absorb the bomb blast if it detonates in the water.	AT Std 1 AT Rec 1 AT Rec 2 AT Rec 3 AT Rec 7 AT Rec 8 AT Rec 10
SS Credit 7.1	Heat Island Effect, Non-Roof	Stand alone structured parking is preferable because parking under inhabited DoD buildings should be eliminated in most cases. The top floor of a covered parking area can provide an ideal location for photovoltaic panels, if the project is to utilize renewable energy sources (see LEED EA Credits 2.1 - 2.3: Renewable Energy). Use native and adapted trees and vegetation to create shade for parking areas, roadways, and drive-up/drop-off areas; and to screen vulnerable buildings and occupants from potential aggressors in vantage points. However, also ensure that the vegetation as well as any light-colored/high-albedo covered structures do not provide concealment opportunities, especially in unobstructed spaces.	AT Std 1 AT Std 2 AT Std 3 AT Std 4 AT Std 5 AT Rec 1 AT Rec 2 AT Rec 3 AT Rec 4 AT Rec 8 AT Rec 10

LEED® Credit	Credit Description	Issues & Strategies	Related AT/FP Standards
SS Credit 7.2	Heat Island Effect, Roof	Elimination of rooftop parking, as required by DoD standards, opens the door for the use of roofing materials that will meet the criteria for this LEED SS Credit 7.2, including some roofing membranes, metal roofing, and extensive vegetated—or "green"—roofs. Intensive vegetated roofs offer the use of the roof space; however, DoD Standard 14 requires limiting roof access to minimize potential threats.	AT Std 5 AT Std 14
SS Credit 8	Light Pollution Reduction	For DoD buildings, exterior security lighting must be provided in accordance with Military Handbook 1013/1A, Design Guidelines for Physical Security of Facilities. In some cases, this requirement may prohibit achievement of this LEED credit. Note that the Military Handbook will be replaced by UFC 4-011-02, Design: Security Engineering (draft due in late 2004). Where possible, use downlighting techniques instead of uplighting techniques to minimize light pollution. Horizontal or "out-lighting" techniques from the building for security should be avoided in favor of downlighting. Reflective glazing is appropriate for shielding people and assets inside buildings from potential aggressors. However, consider minimizing its use where reflected glare may cause occupant visual discomfort and/or increased energy load in adjacent buildings.	AT Std 1 AT Std 3 AT Std 5 AT Std 15 AT Rec 4 AT Rec 8 AT Rec 9 AT Rec 17
Water Efficiency			
WE Credit 1.1	Water-Efficient Landscaping, Reduce by 50%	Use native and adapted vegetation to decrease the need for irrigation as well as to screen occupants in or around the building from potential aggressors and to break-up potential high velocity vehicle approaches. Ensure that the vegetation does not create concealment opportunities. Consider integrating rainwater collection and storage systems into the architecture of the facility, such as the building facade. If this is not feasible, ensure that stand alone, exterior rain collection systems do not provide concealment opportunities and are located beyond the required unobstructed space and/or minimum standoff distance.	AT Std 1 AT Std 2 AT Rec 3 AT Rec 8 AT Rec 9 AT Rec 10
WE Credit 1.2	Water-Efficient Landscaping, No Potable Use or No Irrigation	See WE Credit 1.1: Water Efficient Landscaping, Reduce by 50%	AT Std 1 AT Std 2 AT Rec 8 AT Rec 9 AT Rec 10

LEED® Credit	Credit Description	Issues & Strategies	Related AT/FP Standards
WE Credit 2	Innovative Wastewater Technologies	Ensure that stand alone, exterior rainwater collection systems or wastewater treatment systems do not provide concealment opportunities and are located beyond the required unobstructed space and/or minimum standoff distance. Constructed wetlands, used for wastewater treatment, can be incorporated into perimeter protection strategies to control vehicular and pedestrian access.	AT Std 1 AT Std 2 AT Rec 3 AT Rec 8 AT Rec 9 AT Rec 10
WE Credits 3.1 - 3.2	Water Use Reduction, [20%] [30%] Reduction	In conjunction with a water use reduction program, consider on-site potable and non-potable water storage for buildings where the occupants may be required to man their positions for extended durations following an incident when off-site water sources may be damaged or otherwise unavailable.	AT Std 19 AT Rec 15 AT Rec 16 AT Rec 17
Energy & Atmosphere			
EA Prereq 1	Fundamental Commissioning of the Building Energy Systems	Use building commissioning to verify that building systems and features function optimally and that the project's goals, including security, safety, and sustainability, have been achieved. The more complex the building type and the more integrated the building systems, the more likely that a formal building commissioning process will prove valuable. According to the U.S. Green Building Council (USGBC), commissioning can improve new building energy performance by 8% to 30%. Consider procuring commissioning services through the construction manager contract.	AT Std 1-22 AT Rec 1-17
EA Prereq 2	Minimum Energy Performance	Decrease infiltration through tight building construction, proper air sealing, and mechanically controlled ventilation. This will improve comfort, save energy, control moisture, reduce indoor pollution, and promote ventilation. Also, tight building construction in combination with building pressurization can effectively prevent infiltration of exterior chemical, biological and radiological (CBR) agents released at some distance from a building, such as a large-scale attack. Consider a dedicated heating and cooling system for the mailroom. This will help to limit damage to the rest of the building should an incident occur within the mailroom. It is recognized that a common heating and cooling system serving the mailroom and other areas of the building may save money over the cost of providing separate steam, hot water, chilled water, and refrigerant systems. However, per Standard 13 the mail room may be located far enough away from the building's heating and cooling source that the cost of running piping to the mailroom may offset the cost saving of having a single unit serving the mailroom and other areas of the building. Additionally, the need for separate, dedicated air ventilation systems for mailrooms may complicate running piping from a remote heating and cooling source. Consider co-locating the mailroom with other areas that require special design considerations such as loading docks and receiving areas to efficiently maximize the investment of protective design funds while simultaneously meeting LEED goals.	AT Std 9 AT Std 10 AT Std 11 AT Std 12 AT Std 13 AT Std 16 AT Std 17 AT Std 18 AT Std 19 AT Std 22 AT Rec 10 AT Rec 15 AT Rec 16 AT Rec 17

LEED® Credit	Credit Description	Issues & Strategies	Related AT/FP Standards
EA Prereq 3	Fundamental Refrigerant Management	Do not use CFC-based refrigerant systems—including for the mailroom—whether it is served by common heating and cooling systems or by separate dedicated mailroom heating and cooling systems.	AT Std 17
EA Credit 1	Optimize Energy Performance	<p>If possible, minimize additional equipment and systems needed to defend against terrorist attacks, protect against fires, and mitigate natural hazards because they will increase the building's energy load and may affect its energy performance. Windows, glazed doors, and building entrances containing extensive glazing can have a significant impact on the building's energy performance, particularly HVAC systems. Choose glazing that minimizes solar gain, allows optimum daylight penetration, and meets DoD ATFP objectives, including Standard 10 for glazing thickness and type, and frame material and strength. See also LEED EQ Credit 8.1: Daylight and Views: Daylight 75% of Spaces. Standard 10 provisions require the use of laminated windows for new construction and all planned window replacements. As such, while certain window films are designed to hold shattered glass together as well as to improve building energy efficiency, they are not DoD's preferred design solution for blast effect mitigation except as a temporary solution for existing windows that are not planned to be replaced. Locate building entrances, especially those with glazed doors, per Standard 11 and Recommendation 4: Drive-Up/Drop-Off to mitigate vulnerable vantage points and the potential for hazardous flying glass fragments in the event of an explosion. Where feasible, use thermal mass walls, or Trombe walls, to passively heat a space. A typical Trombe wall consists of an 8- to 16-inch thick masonry, stone, adobe, or concrete wall coated with a dark, heat-absorbing material and faced with a single or double layer of glass. The glass is placed from about 3/4" to 6" away from the wall to create a small airspace. Heat from sunlight passing through the glass is absorbed by the dark surface and stored in the wall. As it cools gradually during the night, it slowly releases its stored heat indirectly into the space. Trombe walls can serve double duty to reduce energy consumption and provide blast protection if they are integrated into the structural system and are made of reinforced concrete— unreinforced masonry walls break up readily and become secondary fragments during blasts. Consider distributed energy resources (DER), such as fuel cells and microturbines, for primary and/or emergency back-up power. DER can provide greater reliability, strengthen energy security, and provide low-cost energy. The efficiency of on-site power generation can be increased by using the waste heat for existing thermal processes (i.e., in combined heat and power, or cogeneration, applications). To the maximum extent feasible, specify and install Energy Star® and Federal Energy Management Program (FEMP) recommended products, equipment, and fixtures.</p>	<p>AT Std 9 AT Std 10 AT Std 11 AT Std 12 AT Std 13 AT Std 16 AT Std 17 AT Std 18 AT Std 19 AT Std 22 AT Rec 10 AT Rec 15 AT Rec 16 AT Rec 17</p>

LEED® Credit	Credit Description	Issues & Strategies	Related AT/FP Standards
EA Credit 2	On-Site Renewable Energy	Consider on-site renewable energy systems for primary power, emergency back-up systems, or as a redundant utility source. These systems offer the potential for lower cost, higher service reliability, high power quality, increased energy efficiency, and energy security. Where applicable, use standalone solar-powered (photovoltaic [PV]) lighting systems as part of the site security scheme to reduce energy consumption. Standalone PV lighting systems can be counted for this credit, using a special calculation method as defined within a LEED credit interpretation by the USGBC on 23 Jul 2003: "After the energy modeling is completed, add the unregulated site lighting's electricity requirements to the design case's Regulated Subtotal (DEC') and add the solar-powered pole lights' contribution to the Renewable Subtotal (REC') and complete the calculations for the renewable percentage."	AT Std 19 AT Rec 9
EA Credit 3	Enhanced Commissioning	See EA Prerequisite 1: Fundamental Building Systems Commissioning.	AT Std 1-22 AT Rec 1-17
EA Credit 4	Enhanced Refrigerant Management	Do not use HVAC and refrigeration equipment and fire suppression systems containing HCFCs or Halons for the building, including the mailroom.	AT Std 17
EA Credit 5	Measurement & Verification	Consider installing an integrated Building Automation and Control System (BAS), which enables electronic monitoring and control of air flow, space temperature, system performance, energy conservation, fire alarms, security functions, etc. from a single, centralized location. This will facilitate optimized building operations, energy efficiency, indoor comfort, safety, and security. A BAS can be programmed such that a duct sensor can monitor the efficiency of the air flow, but can also detect a contaminant in the ductwork and alarm the facility manager, who can then reconfigure the HVAC system in that part of the building, notify the proper officials, and evacuate occupants safely. Do not locate metering equipment in mailrooms because they are primary targets. Locate monitoring devices for mailroom ventilation isolation controls outside of the mailroom so they may effectively perform their function during or after an incident.	AT Std 13 AT Std 17 AT Std 18 AT Std 22
EA Credit 6	Green Power	Investigate the availability of green power as a source of redundant utilities. The Western Area Power Administration green power program is available to all Federal agencies in the western region. Consider alternatives, including on-site storage of fuel and water, if redundant sources of natural gas and potable water are not available.	AT Std 19
Materials & Resources			
MR Prereq 1	Storage & Collection of Recyclables	Follow DoD Standard 1 for securing and locating recycling containers and other recycling-related devices (e.g., cardboard balers, aluminum can crushers) outside a building.	AT Std 1 AT Rec 9

LEED® Credit	Credit Description	Issues & Strategies	Related AT/FP Standards
MR Credit 1.1	Building Reuse, Maintain 75% of Existing Walls, Floors, and Roof	Reuse of an existing building depends on many factors. Conduct a comprehensive analysis of the existing building and its site to determine if it meets programmatic, performance, structural, code, security, and other requirements. If the building/site meets all/most of the requirements but not the DoD security criteria, determine if incorporating mitigating measures are life-cycle cost-competitive to constructing new. Security issues that may affect the feasibility of reusing an existing building or portions thereof include: standoff distance, unobstructed space, building layout, progressive collapse, structural isolation, architectural components (e.g., building overhangs), and material integrity. Note that existing unreinforced masonry walls must be upgraded to provide the level of protection defined in Standard 9 for exterior masonry walls. This mitigation effort may negate the percentage of the building that is reused.	AT Std 1 AT Std 2 AT Std 6 AT Std 7 AT Std 8 AT Std 9 AT Rec 5 AT Rec 6 AT Rec 7 AT Rec 8 AT Rec 10 AT Rec 11 AT Rec 17
MR Credit 1.2	Building Reuse, Maintain 95% of Existing Walls, Floors, and Roof	ATFP standards may require significant alterations to the existing building structure and shell. See MR Credit 1.1: Building Reuse, Maintain 75% of Existing Shell.	AT Std 1 AT Std 2 AT Std 6 AT Std 7 AT Std 8 AT Std 9 AT Rec 5 AT Rec 6 AT Rec 7 AT Rec 8 AT Rec 10 AT Rec 11 AT Rec 17
MR Credit 1.3	Building Reuse, Maintain 50% of Interior Non-Structural Elements	See MR Credit 1.1: Building Reuse, Maintain 75% of Existing Shell.	N/A

LEED® Credit	Credit Description	Issues & Strategies	Related AT/FP Standards
MR Credits 2.1 - 2.2	Construction Waste Management, Divert [50%] [75%] from Disposal	Consult the Project Manager, Base Security Office, and Facilities Manager for the most appropriate location for temporary construction waste and recycling containers and other construction waste management-related devices (e.g., concrete crushers, cardboard balers). Location of these containers and devices should not create concealment opportunities nor compromise other security strategies. Especially for buildings occupied during construction, ensure that security procedures and access control measures are in place to process construction workers, delivery trucks, recycling haulers, etc.	AT Std 1 AT Std 2 AT Rec 3 AT Rec 7 AT Rec 8 AT Rec 9
MR Credits 3.1 - 3.2	Materials Reuse, [5%] [10%]	To prevent unneeded security upgrades, hence use of more resources and materials, a comprehensive threat assessment, vulnerability assessment, and risk analysis should be conducted to identify the appropriate level of security for the building. Analyze each salvaged, refurbished or reused materials, products and furnishings to ensure that it meets DoD security criteria and will not adversely affect the desired level of security.	AT Std 2 AT Std 5 AT Std 6 AT Std 7 AT Std 8 AT Std 9 AT Std 10 AT Std 12 AT Std 20 AT Rec 11 AT Rec 17
MR Credits 4.1 - 4.2	Recycled Content, [10%] [20%] (post consumer + 1/2 post industrial)	Some security and safety products are made of materials with recycled content or other environmentally preferable characteristics. Examples include concrete planters made with fly ash (a by-product of coal burning plants), recycled content metal fencing, and site furnishings made of slag (a by-product of steel production) and plastic lumber—all of which can be used for perimeter access control. Concrete made with fly ash or slag has increased strength, which can be beneficial in buildings that require structural concrete.	AT Std 2 AT Std 5 AT Std 6 AT Std 7 AT Std 8 AT Std 9 AT Std 10 AT Std 12 AT Std 20 AT Rec 11 AT Rec 17

LEED® Credit	Credit Description	Issues & Strategies	Related AT/FP Standards
MR Credit 5.1	Regional Materials, 10% Extracted, Processed & Manufactured Regionally	Some security products needed to meet DoD security criteria may not be manufactured within a 500 miles radius of the project site. This may adversely affect the regionally manufactured materials percentage calculation for this LEED credit.	AT Std 2 AT Std 5 AT Std 6 AT Std 7 AT Std 8 AT Std 9 AT Std 10 AT Std 12 AT Std 20 AT Rec 11 AT Rec 17
MR Credit 5.2	Regional Materials, 20% Extracted, Processed & Manufactured Regionally	While some security products needed to meet DoD security criteria may be manufactured regionally, they may not be extracted, harvested or recovered within a 500 miles radius of the project site. This may adversely affect the regionally extracted materials percentage calculation for this LEED credit.	AT Std 2 AT Std 5 AT Std 6 AT Std 7 AT Std 8 AT Std 9 AT Std 10 AT Std 12 AT Std 20 AT Rec 11 AT Rec 17
MR Credit 6	Rapidly Renewable Materials	Evaluate choices of renewable building materials to ensure they pose no additional threat of splintering, fragmenting, or shattering compared to standard building materials.	N/A
MR Credit 7	Certified Wood	Many applications requiring AFTP protection will require construction with materials other than wood products. Where wood products are used, specify certified wood to the maximum extent feasible.	N/A

LEED® Credit	Credit Description	Issues & Strategies	Related AT/FP Standards
Indoor Environmental Quality			
EQ Prereq 1	Minimum IAQ Performance	To help maintain superior indoor air quality and limit exposure of building occupants to potentially hazardous chemical, biological and radiological (CBR) agents, dedicated ventilation systems (aka. dedicated outdoor air systems [DOAS]) and dedicated exhaust systems can be installed. DOAS use separate air handlers to condition and deliver the minimum required constant volume of outdoor air. Be sure to protect all outdoor air intakes and locate discharge points away from them. To maintain acceptable indoor air quality in the mailrooms, ensure the low leakage isolation dampers in the mailroom ventilation system are open and operating properly during normal working conditions. Provide controls that will: monitor the negative air pressure in the mailroom with respect to the rest of the building; sound an alarm if the air pressure changes; and allow the flow of air from the mailroom to the rest of the building. In temperate climates (e.g., San Francisco), consider operable windows for natural ventilation. Be sure to coordinate this strategy with other ventilation, energy efficiency, and security strategies, including blast resistant glazing (see LEED EA Credit 1: Minimum Energy Performance). Operable blast resistant window systems including thermally efficient systems are available but are expensive. See also LEED EQ Credit 6.1: Controllability of Systems: Perimeter.	AT Std 10 AT Std 13 AT Std 16 AT Std 17 AT Std 22 AT Rec 14 AT Rec 15 AT Rec 16 AT Rec 17
EQ Prereq 2	Environmental Tobacco Smoke (ETS) Control	See LEED EA Prerequisite 1: Fundamental Building Systems Commissioning for commissioning the dedicated smoking room. Do not make smoking rooms the refuge area for an incident. Locate the smoking room on the building's perimeter to keep the smoke exhaust system duct run short and to avoid conflicting paths with main building air supply and return ducts.	AT Std 10 AT Std 13 AT Std 16 AT Std 17 AT Std 22 AT Rec 14 AT Rec 15 AT Rec 17
EQ Credit 1	Outdoor Air Delivery Monitoring	Consider automating the building's emergency air distribution shutoff system to integrate carbon dioxide monitoring. Include carbon dioxide detection in mailroom isolation controls for detecting chemical, biological, or radiological agents.	AT Std 13 AT Std 17 AT Std 18 AT Rec 14 AT Rec 15

LEED® Credit	Credit Description	Issues & Strategies	Related AT/FP Standards
EQ Credit 2	Increased Ventilation	Use motorized dampers to close air intakes when not operational. To prevent compromising the ventilation effectiveness of the building's ventilation system, do not locate the building's air intakes close to the air intake for the mailroom or other high-risk areas. Follow the recommendations for outdoor air intakes found in Department of Health and Human Services, National Institute for Occupational Safety and Health, Guidance for Protecting Building Environments from Airborne Chemical, Biological, or Radiological Attacks. Raised floors should not be used in laboratories or other spaces containing hazardous materials that could spill onto the floor and contaminate the underfloor space/air.	AT Std 10 AT Std 13 AT Std 16 AT Std 17 AT Std 18 AT Rec 14 AT Rec 15 AT Rec 17
EQ Credit 3.1	Construction IAQ Management Plan, During Construction	Should it be necessary for a building section to become occupied while another section is still under construction, do not store construction materials adjacent to occupied section and take precautions to prevent occupants' exposure to dust, chemicals, and moisture. Replace HVAC system filters frequently during the construction phase. Ensure air intakes are located according to the provisions of Standard 16. Provide access control to restrict construction workers' access to occupied sections. Provide the capability to immediately shut down the air distribution system throughout the building in order to limit airborne contaminants ranging from construction dust to chemical/biological agents.	AT Std 13 AT Std 17 AT Std 18 AT Rec 12 AT Rec 13
EQ Credit 3.2	Construction IAQ Management Plan, Before Occupancy	Should it be necessary for a building section to become occupied while another section is still under construction, do not store construction materials adjacent to occupied section and take precautions to prevent occupants' exposure to dust, chemicals, and moisture. Replace HVAC system filters frequently during the construction phase. Ensure air intakes are located according to the provisions of Standard 16. Provide access control to restrict construction workers' access to occupied sections. Provide the capability to immediately shut down the air distribution system throughout the building in order to limit airborne contaminants ranging from construction dust to chemical/biological agents.	AT Std 13 AT Std 17 AT Std 18 AT Rec 12 AT Rec 13
EQ Credit 4.1	Low-Emitting Materials, Adhesives & Sealants	Ensure all cracks, and wall, floor and ceiling/roof penetrations are sealed with long-life, non-shrinking sealants meeting the requirements of EQ Credit 4.1.	AT Std 13
EQ Credit 4.2	Low-Emitting Materials, Paints and Coatings	Ensure low-emitting materials, paints and coatings are no less fire retardant/resistant than standard products of the same type.	N/A

LEED® Credit	Credit Description	Issues & Strategies	Related AT/FP Standards
EQ Credit 4.3	Low-Emitting Materials, Carpet Systems	Ensure carpet systems meeting the requirements of EQ Credit 4.3 are no less fire retardant/resistant than standard products of the same type.	N/A
EQ Credit 4.4	Low-Emitting Materials, Composite Wood & Agrifiber Products	Ensure composite wood and agrifiber products meeting the requirements of EQ Credit 4.4 are no less fire retardant/resistant than standard products of the same type.	N/A
EQ Credit 5	Indoor Chemical & Pollutant Source Control	To the maximum extent possible, locate rooms where chemicals are being used on the building's perimeter to keep the dedicated exhaust system duct runs short and to avoid conflicting paths with main building air supply and return ducts. Exposure of building occupants to potentially hazardous chemical, biological and radiological (CBR) agents negatively impacts the indoor environment and can pose serious health threats. To help maintain superior indoor air quality and protect people's health, dedicated ventilation systems (aka. dedicated outdoor air systems [DOAS]) and dedicated exhaust systems can be installed. DOAS use separate air handlers to condition and deliver the minimum required constant volume of outdoor air. Be sure to protect all outdoor air intakes and locate discharge points away from them.	AT Std 13 AT Std 16 AT Std 17 AT Std 18 AT Rec 14 AT Rec 15 AT Rec 16

LEED® Credit	Credit Description	Issues & Strategies	Related AT/FP Standards
EQ Credit 6.1 - 6.2	Controllability of Systems	<p>Perimeter Spaces: Where appropriate, install operable windows to allow for natural ventilation. Natural ventilation has become an increasingly energy-efficient and attractive method for providing acceptable indoor air quality and maintaining a healthy, comfortable, and productive indoor climate rather than the more prevailing approach of using energy-intensive mechanical ventilation. Power sources are not needed to operate natural ventilation systems, so building occupants can maintain their level of comfort in the event of power shortages or blackouts. On the other hand, natural ventilation systems could bring outside contaminants inside. For critical and high-risk buildings, mechanical ventilation with special filters is recommended to protect against possible chemical, biological and radiological (CBR) agents from entering interior spaces. Although more energy will be used, mechanical ventilation does allow for precise control of humidity, preventing the growth of mold and mildew. Operable windows on the perimeter walls are not recommended for buildings that do not meet the required minimum standoff distance. Operable blast resistant window systems are available and can be designed. However, these are generally not as effective as fixed windows and they can cost 2 to 5 times that of a comparable fixed window system. Coordinate natural ventilation strategies with other ventilation, energy efficiency, and security strategies, including blast resistant glazing (see LEED EA Credit 1: Optimize Energy Performance). Ensure that operable windows have appropriate locks and security gates to prevent intruders and falls from heights. Locate low occupancy support areas on the side of the building most vulnerable to blast events. Keep in mind that the installation and distribution of utility systems should comply with the provisions of Standard 19.</p>	AT Std 10 AT Std 16 AT Std 18 AT Std 19 AT Rec 14 AT Rec 15 AT Rec 16 AT Rec 17
		<p>Non-Perimeter Spaces: Ensure individual controls for airflow, temperature, and lighting do not affect the facility manager's capability to control the systems and the systems' ability to safely allow occupants to exit the building during an incident. Raised floors should not be used in laboratories or other spaces containing hazardous materials that could spill onto the floor and contaminate the underfloor space/air.</p>	AT Std 16 AT Std 18 AT Rec 19 AT Rec 14 AT Rec 15

LEED® Credit	Credit Description	Issues & Strategies	Related AT/FP Standards
EQ Credit 7.1	Thermal Comfort, Design	<p>Decrease infiltration—through tight building construction, proper air sealing, and mechanically controlled ventilation—to improve comfort, save energy, control moisture, reduce indoor pollution and promote ventilation. Also, tight building construction in combination with building pressurization can effectively prevent infiltration of exterior chemical, biological and radiological (CBR) agents released at some distance from a building, such as a large-scale attack. Consider installing an integrated Building Automation and Control System (BAS), which enables electronic monitoring and control of air flow, space temperature, system performance, energy conservation, fire alarms, security functions, etc. from a single, centralized location. This will facilitate optimized building operations, energy efficiency, indoor comfort, and safety and security. A BAS can be programmed such that a duct sensor can monitor the efficiency of the air flow, but can also detect a contaminant in the ductwork and alarm the facility manager, who can then reconfigure the HVAC system in that part of the building, notify the proper officials, and evacuate occupants safely. Where appropriate, consider natural ventilation and operable windows. Note that operable windows on the perimeter walls are not recommended for buildings that do not meet the required minimum standoff distance. Ensure that operable windows have appropriate locks and security gates to prevent intruders and falls from heights.</p>	<p>AT Std 10 AT Std 16 AT Std 18 AT Rec 22 AT Rec 15 AT Rec 16 AT Rec 17</p>
EQ Credit 7.2	Thermal Comfort, Verification	<p>Consider installing an integrated Building Automation and Control System (BAS), which enables electronic monitoring and control of air flow, space temperature, system performance, energy conservation, fire alarms, security functions, etc. from a single, centralized location. This will facilitate optimized building operations, energy efficiency, indoor comfort, and safety and security. A BAS can be programmed such that a duct sensor can monitor the efficiency of the air flow, but can also detect a contaminant in the ductwork and alarm the facility manager, who can then reconfigure the HVAC system in that part of the building, notify the proper officials, and evacuate occupants safely. Do not locate metering equipment in mailrooms, as they are primary targets. Locate monitoring devices for mailroom ventilation isolation controls outside of the mailroom so they may effectively perform their function during an incident.</p>	<p>AT Std 13 AT Std 16 AT Std 17 AT Std 18 AT Std 22 AT Rec 14 AT Rec 15</p>

LEED® Credit	Credit Description	Issues & Strategies	Related AT/FP Standards
EQ Credit 8.1	Daylight & Views, Daylight 75% of Spaces	<p>Implement daylighting strategies to the maximum extent possible while meeting all ATFP requirements. Daylighting—the controlled admission of natural light through glazing—reduces the need for electric lighting, enhances the indoor environment, and contributes to the security of a building by shedding light on otherwise dark corners. Provide glazing that admits daylight to spaces, prevents heat transfer and glare, and minimizes the potential for hazard to building occupants from glass breaking due to natural hazards, accidents or explosions. Provisions for unobstructed space may result in open areas around the building, which could foster admittance of daylight into a building. Be sure to specify energy-efficient windows and glazing to control heat gain. To reduce the potential for glazing hazards, size and locate windows, glazed doors, and building entrances with extensive glazing with detonation points in mind. Minimize glazing on the side(s) of the building exposed to threat delivery locations such as those sides that are close to parking areas, streets, access roads, loading docks, etc. Where minimum standoff distances cannot be met, consider the use of skylights and clerestories to minimize glazing along perimeter walls while still achieving daylighting goals. If glazing is to be installed along the perimeter, use blast resistant glazing (see bullet point on window films below) as needed. Coordinate daylighting scheme with shading strategies and site security strategies. Avoid exterior ornamentation, including certain sun control and shading devices, that can break away easily. Do not use external sun control and shading devices on buildings susceptible to explosive threats. Note that the placement of windows and doors to allow for good visibility and surveillance may interfere with the daylighting scheme. Standard 10 provisions require the use of laminated windows for new construction and all planned window replacements. As such, while certain window films are designed to hold shattered glass together as well as to improve building energy efficiency, they are not DoD's preferred design solution for blast effect mitigation except as a temporary solution for existing windows that are not planned to be replaced.</p>	<p>AT Std 1 AT Std 2 AT Std 3 AT Std 4 AT Std 8 AT Std 10 AT Std 11 AT Std 12 AT Std 14 AT Std 15</p>

LEED® Credit	Credit Description	Issues & Strategies	Related AT/FP Standards
EQ Credit 8.2	Daylight & Views, Views for 90% of Spaces	Direct line of sight may increase the risks to occupant due to external surveillance by potential aggressors and/or bombing or ballistic attacks and may conflict with DoD security criteria.	AT Std 1 AT Std 2 AT Std 3 AT Std 4 AT Std 8 AT Std 10 AT Std 11 AT Std 15 AT Rec 3 AT Rec 4 AT Rec 5 AT Rec 6 AT Rec 7 AT Rec 8 AT Rec 9 AT Rec 10 AT Rec 14 AT Rec 15 AT Rec 16 AT Rec 17
Innovation & Design Process			
ID Credit 1.1	Innovation in Design	There are many ways to achieve an innovation credit. Designers applying for future innovation credits are encouraged to come up with new and creative ideas, and not just duplicate what has been done before. Some of the strategies may have security implications (positive or negative) and careful evaluation is necessary. For example, if an Education Display Element is being pursued as an innovation credit, displays should be located away from critical areas and personnel. On the other hand, building hardening for blast protection, which typically involves using a lot of concrete, may result in exceeding the recycled content requirements of LEED MR Credit 4.2: Recycled Content: 10% if concrete with slag or fly ash was used. Refer to the US Green Building Council's Credit Ruling Interpretations and <i>Reference Guide</i> for further guidance on potential innovation credits.	N/A
ID Credit 1.2	Innovation in Design	Same as ID-1.1	N/A
ID Credit 1.3	Innovation in Design	Same as ID-1.1	N/A

LEED® Credit	Credit Description	Issues & Strategies	Related AT/FP Standards
ID Credit 1.4	Innovation in Design	Same as ID-1.1	N/A
ID Credit 2	LEED Accredited Professional	A competent security design professional should work in conjunction with the LEED® Accredited Professional to ensure issues of security and sustainability are discussed and evaluated early in the concept design phase of the project.	N/A

APPENDIX C. LEED CHECKLIST

APPENDIX C. LEED DOCUMENTATION CHECKLIST

The following checklist lists all of the required documentation necessary to earn a credit. The prerequisite credits **must** be earned and all required documentation must be complete and submitted. If all the documentation is complete for a credit, check it off in the points earned column and mark the credit point in the points earned column. Add the earned points to determine the rating for the building project:

- Certified 26 – 32 points
- Silver 33 – 38 points
- Gold 39 – 51 points
- Platinum 52 – 69 points

This checklist should be used from the beginning of the project design to help determine what is involved in each credit and see how the credits may work together.

Submit this checklist with the required documentation to the Integrated Design Team for review.

Possible Points	Credit	Description	Points Earned
14 points	SUSTAINABLE SITES		
REQ	SS Prereq 1	Construction Activity Pollution Prevention	REQ
		Project drawings that document the erosion and sedimentation control measures implemented on the site	
		Confirmation of the compliance path taken by the project (NPDES Compliance or Local Erosion Control Standards).	
		Narrative to describe the Erosion and Sedimentation control measures implemented on the project.	
		If a local standard has been followed, demonstrate that the local standard is equal to or more stringent than the referenced NPDES program.	
1	SS Credit 1	Site Selection	
		Confirm that the project site does not meet any of the prohibited criteria.	
		Narrative to describe any special circumstances or non-standard compliance paths taken by the project.	
1	SS Credit 2	Development Density & Community Connectivity	
		Option 1 Development Density: Site vicinity plan showing the project site and the surrounding sites and buildings. Sketches, block diagrams, maps, and aerial photos are all acceptable for this purpose. Draw the density boundary on the drawing or note the drawing scale. Provide project site and building area (sq ft). Submit a listing of site and building areas for all surrounding sites within the density radius.	
		Option 2 Community Connectivity: Site vicinity drawing showing the project site, the 1/2 mile community radius, and the locations of the community services surrounding the project. Sketches, block diagrams, maps, and aerial photos are all acceptable for this purpose. Either draw the 1/2 mile radius on the drawing or note the drawing scale. Provide Project site and building area (sq ft). Submit a listing (including business name and type) of all community services within the 1/2 mile radius.	
		For projects with special circumstances - either compliance path - provide a narrative to describe any special circumstances or non-standard compliance paths taken by the project.	
1	SS Credit 3	Brownfield Redevelopment	
		Confirm whether the project site was determined contaminated by means of an ASTM E 1903-97 Phase II Environmental Site Assessment or if the site was defined as a Brownfield by a local, state, or federal government agency.	
		Provide a detailed narrative describing the site contamination and remediation efforts undertaken by the project.	
1	SS Credit 4.1	Alternative Transportation: Public Transportation Access	
		Commuter Rail Service: Provide a site vicinity drawing showing the project site and the location of all (existing/proposed) fixed rail stations within 1/2 mile of the site. A listing of each fixed rail station and the distance from the station to the project site (miles).	

Possible Points	Credit	Description	Points Earned
		Bus Service: Provide a site vicinity drawing showing the project site and the location of all existing bus stops within 1/4 mile of the site. A listing of each bus line that serves the site vicinity and the distance from the bus stop to the project site (miles).	
		For projects with special circumstances, provide a narrative to describe any special circumstances or non-standard compliance paths taken by the project.	
1	SS Credit 4.2	Alternative Transportation, Bicycle Storage & Changing Rooms	
		Provide the FTE occupancy and transient occupancy for the project.	
		Provide project drawings to show the location(s) of the secure bicycle storage areas and shower/changing facilities. In addition, please provide the following project data and calculation information based on project type: <i>Non-residential Buildings</i> - Confirm the quantity of shower/changing facilities provided and their distance from the building entry. <i>Residential Buildings</i> - No additional documentation is required. <i>Mixed Non-residential and Residential Buildings</i> - Confirm the number of residential units and residential FTE occupants for the project. Confirm the quantity of shower/changing facilities provided for the non-residential portion of the project and their distance from the building entry.	
		For projects with special circumstances, provide a narrative to describe any special circumstances or non-standard compliance paths taken by the project.	
1	SS Credit 4.3	Alternative Transportation, Low-Emitting and Fuel-Efficient Vehicles	
		Provide the FTE occupancy for the project. Provide the total parking capacity of the site.	
		OPTION 1-Low-emitting/Fuel Efficient Vehicles Provide project drawings to show the location(s) of the preferred parking spaces for low-emitting/fuel-efficient vehicles. Confirm the quantity of low-emitting/fuel-efficient vehicles provided and their make, model, and manufacturer. Confirm whether each vehicle is a zero-emission vehicle or enter each vehicle's ACEEE vehicle score.	
		OPTION 2-Preferred Parking for Low-emitting/Fuel Efficient Vehicles Provide project drawings to show the location(s) of the preferred parking spaces for low-emitting/fuel-efficient vehicles. Confirm the number of preferred parking spaces provided.	
		OPTION 3-Alternative Fuel Refueling Stations Provide project drawings to show the location(s) of the alternative fuel refueling stations. Confirm the fuel type, number of stations, and fueling capacity for each station for an 8-hour period.	
		AND (For projects with special circumstances-any compliance path) Provide an optional narrative to describe any special circumstances or non-standard compliance paths taken by the project.	

Possible Points	Credit	Description	Points Earned
1	SS Credit 4.4	Alternative Transportation, Parking Capacity	
		Provide the FTE occupancy for the project. Provide the total parking capacity of the site.	
		Confirm the appropriate project compliance path. In addition, provide the following project data and calculation information based on the appropriate compliance path:	
		OPTION 1 - NON-RESIDENTIAL Provide the number of parking spaces required for the project per local code or ordinance. Provide the number of carpool/vanpool spaces that are on-site.	
		OPTION 2 - NON-RESIDENTIAL Provide the number of carpool/vanpool spaces that are on-site.	
		OPTION 3 - RESIDENTIAL Provide a description of the infrastructure/programs that are in place to support and promote ridesharing.	
		OPTION 4 - ALL There are no additional items required for this compliance path.	
		For projects with special circumstances, provide a narrative to describe any special circumstances or non-standard compliance paths taken by the project.	
1	SS Credit 5.1	Site Development, Protect or Restore Habitat	
		Provide the project site area. Provide the project building footprint area. Provide a narrative describing the project's approach to this credit.	
		In addition provide the following project data and calculation information based on the appropriate compliance path:	
		GREENFIELD SITES - Provide a copy of the project's site/grading drawings highlighting the designated site disturbance boundaries.	
		PREVIOUSLY DEVELOPED/GRADED SITES - Provide the area (sqft) of the site that has been restored using native and/or adaptive planting. Provide a copy of the project's site/landscape plan that provides information regarding the restored site area and the planting materials.	
		Include information regarding any special circumstances or considerations regarding the project.	
1	SS Credit 5.2	Site Development, Maximize Open Space	
		Provide the project site area and project building footprint area. Provide a copy of the project's site/landscape drawings highlighting the dedicated vegetated open space.	
		OPTION 1: Provide the area(sq ft) of open space required by local zoning codes/ordinances. Provide the area (sq ft) of the vegetated dedicated open space provided by the project.	
		OPTION 2: Provide the area (sq ft) of the vegetated dedicated open space provided by the project.	
		OPTION 3: Provide the area (sq ft) of the vegetated dedicated open space provided by the project.	

Possible Points	Credit	Description	Points Earned
		Provide a narrative describing any special circumstances or considerations regarding the project's credit approach.	
1	SS Credit 6.1	Stormwater Design, Quantity Control	
		OPTION 1: Provide the pre-development site runoff rate (cfs) and the pre-development site runoff quantity (cf). Provide the post-development site runoff rate (cfs), and the post development site runoff quantity(cf).	
		Provide a narrative describing the project site conditions, measures taken, and controls implemented to prevent excessive stream velocities and associated erosion.	
		OPTION 2: Provide the pre-development site runoff rate (cfs) and the pre-development site runoff quantity (cf). Provide the post-development site runoff rate (cfs), and the post development site runoff quantity(cf).	
1	SS Credit 6.2	Stormwater Design, Quality Control	
		NON-STRUCTURAL CONTROLS Provide list of Best Management Practices (BMP's), including a description of the function of each BMP and the percent annual rainfall treated.	
		STRUCTURAL CONTROLS Provide list of structural controls including a description of the pollutant removal of each control and the percent annual rainfall treated.	
		Provide a narrative describing any special circumstances or considerations regarding the approach to the credit.	
1	SS Credit 7.1	Heat Island Effect, Non-Roof	
		Provide project site drawings, highlighting the location of specific paving materials, landscape shading, and/or underground or covered parking.	
		OPTION 1: Provide the following data in the submittal template: The measured reflectance and emittance of each paving material installed on-site (to Calculate the SRI -OR- the actual SRI for each paving material installed on site. Total area of site hardscape, total area of hardscape to be shaded within 5 years, total area of installed SRI compliant hardscape materials, and total area of open grid pavement.	
		OPTION 2: Total number of parking spaces provided on-sits, and total number of covered parking spaces on-site.	
		Provide a narrative to describe any special circumstances or non-standard compliance paths taken by the project.	
1	SS Credit 7.2	Heat Island Effect, Roof	
		Provide copies of the project's roof drawings to highlight the location of specific roof materials and/or green roof systems.	
		OPTION 1: Total area of installed SRI compliant roofing materials. Provide a listing of installed roofing materials and their SRI values.	

Possible Points	Credit	Description	Points Earned
		OPTION 2: Total area of installed green roof systems.	
		OPTION 3: Total area of installed green roof systems, total area of installed SRI compliant roofing materials, and provide a listing of installed roofing materials and their SRI values.	
		Provide a narrative to describe any special circumstances or non-standard compliance paths taken by the project.	
1	SS Credit 8	Light Pollution Reduction	
		Provide copies of the project lighting drawings (interior and site) to document the location and type of fixtures installed. Interior drawings should clearly show exterior building surfaces to confirm that the maximum candela from interior fixtures does not intersect transparent or translucent building surfaces.	
		Provide confirmation that the interior lighting design has been evaluated to ensure that the maximum candela from each interior luminaires intersects opaque interior surfaces and does not exit through windows, OR, that automatic controls have been installed to turn off interior lighting during non-occupied hours.	
		FOR PROJECTS WITH NO EXTERIOR LIGHTING Confirm that no exterior lighting has been installed.	
		FOR PROJECTS WITH EXTERIOR LIGHTING Complete Lighting Power Density tables for both exterior site lighting and façade/landscape lighting. The following data will be required to complete the template: - location and ID of each installed exterior luminaires; - site area (sq ft) to be illuminated by the luminaire(s); - installed LPD; - and ASHRAE-allowable LPD.	
		Confirm the site zone classification for the project. Complete the Site Lumen Calculation on the submittal template (visit the USGBC website for credit templates: http://www.usgbc.org/DisplayPage.aspx?CMSPageID=1447). The following data will be required to complete the template: - luminaires type/ID; - quantity installed; - initial lamp lumens per luminaires; - initial lamp lumens above 90 degrees from nadir.	
		Provide a narrative that includes specific information regarding the light trespass analysis conducted to determine compliance.	
		Please provide any additional comments or notes regarding special circumstances or considerations regarding the project's credit approach.	
5 points	WATER EFFICIENCY		
1	WE Credit 1.1	Water Efficient Landscaping, Reduce by 50%	
		Provide the project's calculated baseline Total Water Applied (TWA) (gal).	

Possible Points	Credit	Description	Points Earned
		Provide the project's calculated design case Total Water Applied (TWA) (gal).	
		Provide the total non-potable water supply (gal) available for irrigation purposes.	
		Provide a narrative describing: - the landscaping and irrigation design strategies employed by the project; - description of the water use calculation methodology used to determine savings; - and for projects using non-potable water, specific information regarding source and available quantity of non-potable supplies.	
1	WE Credit 1.2	Water Efficient Landscaping, No Potable Use or No Irrigation	
		Provide the project's calculated baseline Total Water Applied (TWA) (gal).	
		Provide the project's calculated design case Total Water Applied (TWA) (gal).	
		Provide the total non-potable water supply (gal) available for irrigation purposes.	
		Provide a narrative describing - the landscaping and irrigation design strategies employed by the project; - description of the water use calculation methodology used to determine savings; - and for projects using non-potable water, specific information regarding source and available quantity of non-potable supplies.	
1	WE Credit 2	Innovative Wastewater Technologies	
		Provide the applicable plumbing drawings from the construction documents that provide data regarding any on-site wastewater treatment facilities.	
		Provide the project's calculated occupants, use a default one-to-one men to women ratio. Projects with special occupancy situations that result in an unbalanced ratio may enter project specific data for this credit.	
		Provide the project's calculated baseline water usage for sewer conveyance. This data is calculated using typical fixture types and the project's mix of occupants.	
		Provide the project's calculated design case water usage for sewage conveyance. This data is calculated using typical fixture types and the project's mix of occupants. Note: project teams must provide the following fixture information for each typical installed flush fixture type: fixture manufacturer, fixture model, flush rate in gallons per flush.	
		For projects using non-potable water for sewage conveyance, provide the total non-potable water supply (gal) available for sewage conveyance purposes.	

Possible Points	Credit	Description	Points Earned
		For projects treating wastewater onsite, provide the annual quantity of water treated, the annual quantity (gal) of treated water that is infiltrated, and the annual quantity (gal) of treated water that is re-used on-site.	
		Provide a narrative describing the potable water reduction strategies employed by the project. For projects using non-potable water, include specific information regarding any reclaimed water usage (graywater re-use/rainwater reuse/on-site or municipally treated wastewater).	
		If the project is treating wastewater on-site to tertiary standards, include specific information regarding the use of the treated water.	
1	WE Credit 3.1	Water Use Reduction, 20% Reduction	
		The project's calculated occupant(s). Use a default one-to-one men to women ratio. Projects with special occupancy situations that result in an unbalanced ratio may enter project specific data for this credit.	
		The project's calculated design case water usage (flush and flow fixtures) This data is calculated using project specified fixture types and the project's mix on occupants. Note: project teams must provide the following fixture information for each typical installed flush fixture type: fixture manufacturer, fixture model, flush rate in gallons per flush, or flow rate in gallons per minute.	
		The project's calculated baseline water usage (flush and flow fixtures). This data is calculated using typical fixture types and project's mix of occupants.	
		For projects using non-potable water for sewage conveyance, provide the total non-potable water supply available for sewage conveyance purposes.	
		Narrative describing the potable water reduction strategies employed by the project. For projects using non-potable water, include specific information regarding any reclaimed water usage (graywater re-use/rainwater reuse/on-site treated wastewater).	
1	WE Credit 3.2	Water Use Reduction, 30% Reduction	
		Same as WE Credit 3.1	
17 points	ENERGY AND ATMOSPHERE		
REQ	EA Prereq 1	Fundamental Commissioning of the Building Energy Systems	REQ
		Provide the name and company information for the CxA.	
		Confirm that the 6 required tasks have been completed.	
		Provide a narrative description of the systems that were commissioned and the results of the commissioning process.	
REQ	EA Prereq 2	Minimum Energy Performance	REQ
		Confirm that the project meets the requirements of ASHRAE Std 90.1-2004.	
		Provide a narrative regarding special circumstances or considerations regarding the project's prerequisite approach.	

Possible Points	Credit	Description	Points Earned
REQ	EA Prereq 3	Fundamental Refrigerant Management	REQ
		Confirm that the project does not use CFC refrigerants. OR Confirm that the project has a phase-out plan for any existing CFC-based equipment.	
		Provide a narrative description of the phase-out plan, including dates and refrigerant quantities as a percentage of the overall project equipment.	
1 to 10	EA Credit 1	Optimize Energy Performance	
		Refer to the USGBC Credit Template for this credit at this website: http://www.usgbc.org/DisplayPage.aspx?CMSPageID=1447	
		Option 1 (up to 10 points): Confirm use of energy simulation software that has all capabilities described in either 'G2 Simulation Requirements' in Appendix G of ASHRAE 90.1-2004 or the analogous section of the alternative qualifying energy code.	
		Confirm the baseline building and proposed building in the project's energy simulation runs use the assumptions and modeling methodology described in either Appendix G of ASHRAE 90.1-2004 or the analogous section of the alternative qualifying energy code used.	
		General Information: Identify the simulation program, quantity of stories, principal heating source, weather file, Energy Code used (ASHRAE 90.1-2004 Appendix G), climate zone, new construction percent, existing renovation percent, target finder score (use Energy Star website: http://www.energystar.gov/index.cfm?fuseaction=target_finder.&CFID=154897)	
		Space Summary: Provide table that includes columns: building use (occupancy type), conditioned area (sf), unconditioned area (sf), total area (sf)	
		Advisory Messages from the simulation output files: Provide the following for both the proposed building and the baseling building (0 deg. Rotation): number of hours heating loads not met, number of hours cooling loads not met, number of warning messages, number of error messages, number of defaults overridden. Calculate the difference between the proposed and baseline buildings for each number.	

Possible Points	Credit	Description	Points Earned
		<p>Comparison of Proposed Design Versus Baseline Design Energy Model Inputs:</p> <p>For the following model input parameters, provide a description for both the proposed design input and the baseline design input:</p> <p>exterior wall construction, underground wall, roof, floor, and slab assemblies including framing type, assembly R-values, assembly U-factors, and roof reflectivity when modeling cool roofs</p> <p>fenestration types, assembly U-factors (including the impact of the frame on the assembly), SHGCs, and visual light transmittances, overall window-to-gross wall ratio, fixed shading devices, and automated movable shading devices</p> <p>interior lighting power densities, exterior lighting power, process lighting power, and lighting controls modeled for credit</p> <p>receptacle equipment, elevators or escalators, refrigeration equipment, and other process loads</p> <p>HVAC system information including types and efficiencies, fan control, fan supply air volume, fan power, economizer control, demand control ventilation, exhaust heat recovery, pump power and controls, and any other pertinent system information (include the ASHRAE 90.1-2004 Table G.3.1.1)</p> <p>Domestic hot water system type, efficiency and storage tank volume</p> <p>General schedule information</p>	
		<p>Energy Type Summary:</p> <p>List the energy types used for your project (i.e. electricity, natural gas, purchased chilled water or steam, etc.) for either the baseline or proposed design. Also describe the utility rate used for each energy type, as well as the units of energy used, and the units of demand used.</p>	
		<p>On-Site Renewable Energy (skip if project does not include on-site renewable energy):</p> <p>Show calculations for the cost of on-site renewable energy using either an energy model or purchased USGBC calculation tools. Indicate the renewable source, backup energy type, annual energy generated and the rated capacity for the source.</p>	
		<p>Exceptional Calculation Measure Summary:</p> <p>Show calculations for calculating exceptional calculation measure cost savings using either an energy model based on local utility rate structures or the purchased USGBC forms.</p>	

Possible Points	Credit	Description	Points Earned
		<p>Performance Rating Method Compliance Report: List each energy end use for the project (including all end uses reflected in the baseline and proposed designs). Check whether the end-use is a process load, indicate the energy type, and list the energy consumption and peak demand for each end-use for the four baseline design orientations (0 degrees rotation, 90 degrees rotation, 180 degrees rotation and 270 degrees rotation). Indicate the total baseline energy cost for each energy type based on the four baseline design orientations. If either the baseline or proposed design uses more than one energy type for a single end use (i.e. electric resistance reheat, and central natural gas heating), list each energy type as a separate end use (i.e. Heating-Electric, and Heating, NG) Indicate the energy consumption and peak demand for each end use of the proposed design energy consumption. Indicate the total proposed energy cost for each energy type.</p>	
		<p>Provide the input and output summaries of the simulated energy consumption models for the baseline and proposed buildings.</p>	
		<p>OR Option 2 (4 points): Confirm that the building complies with all the prescriptive measures of the ASHRAE Advance Energy Design Guide Buildings 2004: the project is less than 20,000 square feet, the project is office occupancy, the project has fully complied with all applicable criteria as established in the Advanced Energy Design Guide for the climate zone in which the building is located (also indicate the climate zone)</p>	
		<p>OR Option 3 (1 point): Confirm that the project fully complies with the Basic Criteria and Prescriptive Measures of the Advanced Buildings BenchmarkTM Version 1.1 with the exception of the following sections: 1.7 Monitoring and Trend-logging, 1.11 Indoor Air Quality, and 1.14 Networked Computer Monitor Control. Also indicate the climate zone.</p>	
1 to 3	EA Credit 2	On-Site Renewable Energy	
		<p>Provide the On-Site Renewable Energy Source (s) used, the annual energy generated from each source, and the backup fuel for each source (ie, the fuel that is used when the renewable energy source is unavailable).</p>	
		<p>Describe the source of the annual energy cost information (energy model or industry database), and provide the appropriate energy values and costs.</p>	
1	EA Credit 3	Enhanced Commissioning	
		<p>Provide the name, firm and experience information for the CxA.</p>	
		<p>Confirm that the 6 required tasks have been completed.</p>	
		<p>Provide a narrative description of the results of the commissioning design review, implementation of the systems manual and training, and the plan for the review of building operation at 8 to 10 months.</p>	

Possible Points	Credit	Description	Points Earned
1	EA Credit 4	Enhanced Refrigerant Management	
		Enter into the template the HVAC&R equipment types, including number, size (tons), refrigerant, and refrigerant charge.	
		Provide a narrative describing any special circumstances or calculation explanations.	
1	EA Credit 5	Measurement & Verification	
		Confirm the IPMVP Option pursued by the project.	
		Submit a copy of the M&V Plan.	
		Provide a narrative describing any special circumstances or calculation explanations.	
1	EA Credit 6	Green Power	
		OPTION 1: Provide the name of the green power provider and contract term. Enter total annual electricity consumption (kWh) and total annual green power purchase (kWh).	
		OPTION 2: Provide the name of the renewable energy certificate vendor. Enter total annual electricity consumption (kWh). Enter the value of the green tags purchased (kWh).	
13 points	MATERIALS AND RESOURCES		
REQ	MR Prereq 1	Storage & Collection of Recyclables	REQ
		Confirm that recycling collection areas have been provided, per requirements, to meet the needs of the project.	
		Confirm the types of materials that are being collected for recycling.	
		Provide a narrative describing any special circumstances or considerations regarding the project's prerequisite approach.	
1	MR Credit 1.1	Building Reuse, Maintain 75% of Existing Walls, Floors & Roof	
		Confirm whether the project is strictly a renovation of an existing building or a renovation with an addition. For projects with additions, confirm the square footage of the new addition(s).	
		Provide a tabulation of the existing and reused areas (sq ft) of each structural/envelope element.	
		Provide a narrative describing any special circumstances or considerations regarding the project's approach.	
1	MR Credit 1.2	Building Reuse, Maintain 95% of Existing Walls, Floors & Roof	
		Confirm whether the project is strictly a renovation of an existing building or a renovation with an addition. For projects with additions, confirm the square footage of the new addition(s).	
		Provide a tabulation of the existing and reused areas (sq ft) of each structural/envelope element.	
		Provide a narrative describing any special circumstances or considerations regarding the project's approach.	

Possible Points	Credit	Description	Points Earned
1	MR Credit 1.3	Building Reuse, Maintain 50% of Interior Non-Structural Elements	
		Confirm whether the project is strictly a renovation of an existing building or a renovation of an existing building or a renovation with an addition. For projects with additions, confirm the square footage of the new addition (s).	
		Provide a tabulation of the existing and reused areas (sq ft) of each structural/envelope element.	
		Provide an optional narrative describing any special circumstances or considerations regarding the project's approach.	
1	MR Credit 2.1	Construction Waste Management, Divert 50% from Disposal	
		Complete the construction waste calculation tables in the Submittal Template (visit the USGBC website for credit templates: http://www.usgbc.org/DisplayPage.aspx?CMSPageID=1447). The following information will be required to fill in these tables: - general description of each type/category of waste generated; - location of receiving agent (recycler/landfill) for waste; - quantity of waste diverted (by category) in tons, or cubic yards.	
		Provide a narrative describing the project's construction waste management approach. the narrative should include the project's Construction Waste Management Plan.	
		Please provide any additional comments or notes to describe special circumstances or considerations regarding the project's credit approach.	
1	MR Credit 2.2	Construction Waste Management, Divert 75% from Disposal	
		Complete the construction waste calculation tables in the Submittal Template (visit the USGBC website for credit templates: http://www.usgbc.org/DisplayPage.aspx?CMSPageID=1447). The following information will be required to fill in these tables: - general description of each type/category of waste generated; - location of receiving agent (recycler/landfill) for waste; - quantity of waste diverted (by category) in tons, or cubic yards.	
		Provide a narrative describing the project's construction waste management approach. the narrative should include the project's Construction Waste Management Plan.	
		Please provide any additional comments or notes to describe special circumstances or considerations regarding the project's credit approach.	
1	MR Credit 3.1	Materials Reuse, 5%	
		Provide the total project materials cost (Divisions 2-10) or provide the total project cost for Divisions 2-10 to apply the 45% default materials value.	
		Provide a tabulation of each salvaged/reused material used on the project. The tabulation must include a description of the material, the source/vendor for the material and the product cost.	

Possible Points	Credit	Description	Points Earned
		Provide a narrative describing the materials reuse strategy implemented by the project. Include specific information about reused/salvaged materials used on the project.	
1	MR Credit 3.2	Materials Reuse, 10%	
		Provide the total project materials cost (Divisions 2-10) or provide the total project cost for Divisions 2-10 to apply the 45% default materials value.	
		Provide a tabulation of each salvaged/reused material used on the project. The tabulation must include a description of the material, the source/vendor for the material and the product cost.	
		Provide a narrative describing the materials reuse strategy implemented by the project. Include specific information about reused/salvaged materials used on the project.	
1	MR Credit 4.1	Recycled Content, 10% (Post-consumer + ½ pre-consumer)	
		Provide the total project materials cost (Divisions 2-10) or provide the total project cost for Divisions 2-10 to apply the 45% default materials value.	
		Provide a tabulation of each material used on the project that is being tracked for recycled content. The tabulation must include - a description of the material, - the manufacturer of the material, - the product cost, - the pre-consumer and/or post-consumer recycled content percentage, - and the source of the recycled content data.	
		Provide a narrative describing any special circumstances or considerations regarding the project's credit approach.	
1	MR Credit 4.2	Recycled Content, 20% (Post-consumer + ½ pre-consumer)	
		Provide the total project materials cost (Divisions 2-10) or provide the total project cost for Divisions 2-10 to apply the 45% default materials value.	
		Provide a tabulation of each material used on the project that is being tracked for recycled content. The tabulation must include - a description of the material, - the manufacturer of the material, - the product cost, - the pre-consumer and/or post-consumer recycled content percentage, - and the source of the recycled content data.	
		Provide a narrative describing any special circumstances or considerations regarding the project's credit approach.	

Possible Points	Credit	Description	Points Earned
1	MR Credit 5.1	Regional Materials, 10% Extracted, Processed & Manufactured Regionally	
		Provide the project's total project cost (for application of 45% default factor) or total materials cost. Note: this reported value must be consistent across all MR credits.	
		Complete a template to include the following information: - product name for each tracked material; - material manufacturer; - total product cost for each tracked material; - percentage of product by weight, that meets both the extraction and manufacture criteria; - distance between the project site and extraction/harvest/recovery site; - distance between the project site and the final manufacturing location.	
		Provide a narrative describing any special circumstances or considerations regarding the project's credit approach.	
1	MR Credit 5.2	Regional Materials, 20% Extracted, Processed & Manufactured Regionally	
		Provide the project's total project cost (for application of 45% default factor) or total materials cost. Note: this reported value must be consistent across all MR credits.	
		Create and complete a template to include the following information: - product name for each tracked material; - material manufacturer; - total product cost for each tracked material; - percentage of product by weight, that meets both the extraction and manufacture criteria; - distance between the project site and extraction/harvest/recovery site; - distance between the project site and the final manufacturing location.	
		Provide a narrative describing any special circumstances or considerations regarding the project's credit approach.	
1	MR Credit 6	Rapidly Renewable Materials	
		Provide the project's total project cost (for application of 45% default factor) or total materials cost. Note this reported value must be consistent across all MR credits.	
		Create and complete a table to include the following information: - product name for each tracked material; - material manufacturer; - total product cost for each tracked material; - percentage of product, by weight, for each material that meets the rapidly renewable criteria.	

Possible Points	Credit	Description	Points Earned
1	MR Credit 7	Certified Wood	
		Provide a list of items (and/or components of products) claimed as FSC certified, including product type, manufacturer, and the appropriate entity's COC (chain-of custody) certification number. Each product name can then be cross-referenced with the manufacturer or vendor COC number during the LEED certification review.	
15 points	Indoor Environmental Quality		
REQ	EQ Prereq 1	Minimum IAQ Performance	REQ
		Provide a design narrative describing the project's ventilation design. Include specific information regarding fresh air intake volumes and any special conditions that affected the project's ventilation design.	
		For mechanically ventilated building: confirmation that the project has been designed to meet the minimum requirements of ASHRAE Standard 62.1-2004, ventilation for acceptable indoor air quality, using the ventilation rate procedure. OR For naturally ventilated buildings: confirmation that the project has been designed to comply with the requirements for location and size of window openings per ASHRAE Standard 62.1-2004, Section 5.1	
		For naturally ventilated buildings: provide applicable project drawings to show the naturally ventilated building zones and the operable window areas.	
REQ	EQ Prereq 2	Environmental Tobacco Smoke (ETS) Control	REQ
		Confirmation that the project has met the requirements for the appropriate project category: Non-Smoking Building; Building with Designated Smoking Rooms; or Residential Project.	
		For buildings with interior smoking rooms or for residential projects, provide appropriate copies of construction drawings to document the location of the smoking rooms, designed area separations, and dedicated ventilation systems.	
		A narrative may be submitted to further describe the testing protocols/results and compliance methods implemented by the project.	
1	EQ Credit 1	Outdoor Air Delivery Monitoring	
		Confirmation of the type of ventilation system and installed controls.	
		Design narrative describing the project's ventilation design and CO2 monitoring system. Include specific information regarding location and quantity of installed monitors, operational parameters and setpoints.	
		Provide copies of the applicable project drawings to document the location and type of installed sensors. Drawings should also show natural ventilation components (operable windows, air intakes, etc.) as applicable.	

Possible Points	Credit	Description	Points Earned
1	EQ Credit 2	Increased Ventilation	
		<p>MECHANICALLY VENTILATED BUILDINGS:</p> <ul style="list-style-type: none"> - Provide confirmation that the breathing zone ventilation rates in all occupied spaces have been designed to exceed the minimum rates required by ASHRAE Standard 62.1-2004 or the applicable local code, whichever is more stringent, by a minimum of 30%. - Provide a design narrative describing the project's ventilation system design. Include specific information regarding the fresh air intake volume for each specific occupied zone to demonstrate that the design exceeds the referenced standard or the applicable local code, whichever is more stringent, by at least 30%. 	
		<p>NATURALLY VENTILATED BUILDINGS</p> <ul style="list-style-type: none"> - Provide confirmation that the natural ventilation system has been designed to meet the recommendations set forth in the Carbon Trust Good Practice Guide 237 [1998]. - Provide a design narrative describing the design method (CIBSE Method/Analytic Model) utilized in determining the natural ventilation design for the project. - Provide specific information regarding calculation methodology and/or model results to demonstrate that the ventilation design complies with the referenced standards. 	
1	EQ Credit 3.1	Construction IAQ Management Plan, During Construction	
		Provide a copy of the project's Indoor Air Quality (IAQ) Management Plan. Confirm if the permanently installed air handling equipment was used during construction.	
		Provide photos to highlight the implemented construction IAQ practices.	
		List all filtration media (manufacturer, model#, MERV rating, location of installed filter) installed during construction and confirm that each was replaced prior to final occupancy.	
		Provide a narrative describing any special circumstances or non-standard approaches taken by the project.	
1	EQ Credit 3.2	Construction IAQ Management Plan, Before Occupancy	
		Provide confirmation regarding the approach taken by the project (pre-occupancy flush-out; flush-out with early occupancy; IAQ testing).	
		Provide a copy of the project's Indoor Air Quality testing report (if applicable).	
		Provide a narrative describing the project's specific flush-out procedure and/or IAQ testing process and results.	
1	EQ Credit 4.1	Low-Emitting Materials, Adhesives & Sealants	
		Provide a listing of each indoor adhesive, sealant and sealant primer product used on the project. Include the manufacturer's name, product name, specific VOC data (in g/L, less water) for each product, and the corresponding allowable VOC from the referenced standard.	

Possible Points	Credit	Description	Points Earned
		Provide a listing of each indoor aerosol adhesive product used on the project. Include the manufacturer's name, specific VOC data (in/L less water for each product, and the corresponding allowable VOC from the standard.	
		Provide a narrative to describe any special circumstances or non-standard compliance paths taken by the project.	
1	EQ Credit 4.2	Low-Emitting Materials, Paints & Coatings	
		Provide a listing of each indoor pain and coating used on the project. Include the manufacturer's name, product name, specific VOC data (in g/L) for each product, and the corresponding allowable VOC from the referenced standard.	
		Provide a narrative to describe any special circumstances or non-standard compliance paths taken by the project.	
1	EQ Credit 4.3	Low-Emitting Materials, Carpet Systems	
		Provide listing of each carpet product installed in the building interior. Confirm that the product complies with the CRI Green Label Plus testing program.	
		Provide a listing of each carpet cushion product installed in the building interior. Confirm that the product complies with the CRI Green Label testing program.	
		Provide narrative to describe any special circumstances or non-standard compliance paths taken by the project.	
1	EQ Credit 4.4	Low-Emitting Materials, Composite Wood & Agrifiber Products	
		Provide a listing of each composite wood and agrifiber product installed in the building interior. Confirm that each product does not contain any added urea-formaldehyde.	
		Provide a narrative to describe any special circumstances or non-standard compliance paths taken by the project.	
1	EQ Credit 5	Indoor Chemical & Pollutant Source Control	
		Provide confirmation that required entryway systems have been provided.	
		Provide a listing of each entryway product installed in the building. For roll-up or carpeted systems, confirm that the required contracted maintenance will take place.	
		Provide copies of the project's construction drawings to highlight the location of the installed entryway systems.	
		Confirm that chemical use area have been designed as separate rooms with dedicated exhaust systems and appropriate negative pressurization. Provide copies of the project's mechanical drawings to highlight the location of chemical usage areas, room separations, and the associated exhaust systems. If mechanically ventilated, confirm that the installed filters have a MERV rating of 13 or better. Provide a listing of the installed filters and their associated MERV ratings.	

Possible Points	Credit	Description	Points Earned
		Provide a narrative to describe any special circumstances or non-standard compliance paths taken by the project.	
1	EQ Credit 6.1	Controllability of Systems, Lighting	
		For individual workstation controls, provide a listing of the total number of individual workstations and lighting controls.	
		For shared multi-occupant space control, provide a listing of the project's group multi-occupant spaces and a description of the installed lighting controls.	
		Provide a narrative describing the project's lighting control strategy. Include data regarding the type and location of individual controls (general area illumination controls for multi-workstation spaces may not be counted towards this credit) and also the type and location of controls provided for shared multi-occupant spaces.	
1	EQ Credit 6.2	Controllability of Systems, Thermal Comfort	
		For individual workstation controls, provide a listing of the total number of individual workstations and thermal controls.	
		For shared multi-occupant space control, provide a listing of the project's group multi-occupant spaces and a description of the installed thermal controls.	
		Provide a narrative describing the project's comfort control strategy. Include data regarding the type and location of individual and shared group-occupancy controls.	
1	EQ Credit 7.1	Thermal Comfort, Design	
		Provide data regarding seasonal temperature and humidity design criteria.	
		Provide a narrative describing the method used to establish the thermal comfort conditions for the project and how the systems design addresses the design criteria. Include specific information regarding compliance with the referenced standard.	
1	EQ Credit 7.2	Thermal Comfort, Verification	
		Provide a narrative describing the survey planned for the validation of the thermal comfort conditions for the project. Include a specific description of the provisions for creating a plan for corrective action.	
1	EQ Credit 8.1	Daylight & Views, Daylight 75% of Spaces	
		GLAZING FACTOR CALCULATION METHOD Complete a calculation spreadsheet to demonstrate overall Glazing Factor. The following data is required for input: occupied space area (sq ft); area of each type of glazing (sidelighting and toplighting); visible light transmittance (T_{vis}) for each glazing type.	

Possible Points	Credit	Description	Points Earned
		<p>OR COMPUTER SIMULATION METHOD</p> <p>Demonstrate that the project complies with the minimum illumination levels. The following data is required for input: total regularly occupied space area (sq ft), total regularly occupied space area that achieves a simulated minimum of 25 footcandles. Provide copies of the applicable project drawings showing the illumination simulation results.</p>	
		<p>OR DAYLIGHT MEASUREMENT METHOD</p> <p>Complete a calculation spreadsheet to demonstrate that the project complies with the minimum illumination levels.</p>	
		<p>The following data is required for input:</p> <ul style="list-style-type: none"> - total regularly occupied space area (sq ft); - total regularly occupied space area that achieves a measured minimum of 25 footcandles. <p>Provide copies of the applicable project drawings showing the illumination simulation results.</p>	
		<p>Provide a narrative describing any special occupancy areas that have been excluded from compliance. The narrative should include a detailed description of the space function and an explanation as to why the inclusion of views would hinder the normal tasks/function of each exclusion area.</p>	
		<p>For projects that have used computer simulation or physical measurements, please include detailed information describing the method used to determine the daylighting contributions in the building. Include specific information regarding the actual or simulated time of day and weather conditions, measurement equipment or software used, and the calculation method for determining the final daylighting area.</p>	
1	EQ Credit 8.2	Daylight & Views, Views for 90% of Spaces	
		<p>Complete a calculation spreadsheet to demonstrate overall access to views from occupied spaces. The following data is required for input:</p> <ul style="list-style-type: none"> - occupied space identification, - occupied space area (sq ft), - and area (sq ft) of each occupied space with direct access to views. 	
		<p>Provide copies of the applicable project drawings showing the line of sight from interior spaces through exterior windows in both plan and sectional views.</p>	
		<p>Provide a narrative describing any special occupancy areas that have been excluded from compliance. The narrative should include a detailed description of the space function and an explanation as to why the inclusion of views would hinder the normal tasks/function of each excluded area.</p>	

Possible Points	Credit	Description	Points Earned
5 points	Innovation & Design Process		
1	ID Credit 1.1	Innovation in Design, Provide Specific Title	
		Provide the specific title for the ID credit being pursued. Provide a narrative statement of the Credit Intent. Provide a narrative statement describing the Credit Requirements.	
		Provide a detailed narrative describing the project's approach to achievement of the credit. This narrative should include a description of the quantifiable environmental benefits of the credit proposal.	
		Provide copies of any specific construction drawings or exhibits that will serve to illustrate the project's approach to the credit.	
1	ID Credit 1.2	Innovation in Design, Provide Specific Title	
		Same as Credit 1.1	
1	ID Credit 1.3	Innovation in Design, Provide Specific Title	
		Same as Credit 1.1	
1	ID Credit 1.4	Innovation in Design, Provide Specific Title	
		Same as Credit 1.1	
1	ID Credit 2	LEED Accredited Professional	
		Provide the name of the LEED AP. Provide the name of the LEED AP's company. Provide a brief description of the LEED AP's project role(s). Provide a copy of the LEED AP's certificate.	
		TOTAL POINTS EARNED	
	Certified 26-32 points; Silver 33-38 points; Gold 39-51 points; Platinum 52-69 points		

APPENDIX D. SAMPLE FACILITY TYPES

APPENDIX D. FACILITY TYPE GUIDANCE

1.0	Office Buildings	3
2.0	Training Facility	7
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8.0	Physical Fitness Center	20

The information contained in Appendix D is from the Whole Building Design Guide website:

- <http://www.wbdg.org/design/buildingtypes.php>
- <http://www.wbdg.org/design/spacetypes.php>

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1.0 Office Buildings



Federal Building—Oakland, CA
(Courtesy of Kaplan McLaughlin Diaz)

1.1 Functional/Operational

1.1.1 Tenant Requirements

The building design must consider the integrated requirements of the intended tenants. This includes their desired image, degree of public access, operating hours, growth demands, security issues and vulnerability assessment results, organization and group sizes, growth potential, long-term consistency of need, group assembly requirements, electronic equipment and technology requirements, acoustical requirements, special floor loading and filing/storage requirements, special utility services, any material handling or operational process flows, special health hazards, use of vehicles and types of vehicles used, and economic objectives.

1.1.2 Flexibility

The high-performance office must easily and economically accommodate frequent renovation and alteration, sometimes referred to as "churn." These modifications may be due to management reorganization, personnel shifts, changes in business models, or the advent of technological innovation, but the office infrastructure, interior systems, and furnishings must be up to the challenge.

- Consider raised floors to allow for easy access to cabling and power distribution, as well as advanced air distribution capabilities to address individual occupant comfort.
- Incorporate features such as plug-and-play floor boxes for power, data, voice and fiber, modular and harnessed wiring and buses, and conferencing hubs to allow for daily flexibility at work as well as future reorganization of office workstations.

1.2 Urban Planning

The concentration of a large number of workers within one building can have a significant impact on neighborhoods. Office structures can vitalize neighborhoods with the retail, food service, and interrelated business links the office brings to the neighborhood. Consideration of transportation issues must also be given when developing office structures. Office buildings are often impacted by urban planning and municipal zoning, which attempt to promote compatible land use and vibrant neighborhoods.

- Consideration should be given when selecting office locations to the distance the majority of occupants will have to travel to reach the office. Studies including zip code origination should be conducted to determine the best location of the office. The development of new office locations will often necessitate relocation of employees, particularly if the office is moved or opened in a new geographical area. Consideration of the municipal resources should include housing costs and availability, traffic congestion, school system quality, cultural resources such as museums, sports teams and institutions of higher education, natural attractions such as coastal areas, mountains and public parks, availability of educated labor, crime rate and law enforcement, and civic infrastructure capacity such as water, waste water and waste processing.
- Once a building has been constructed and occupied, it is critical that long-term performance be confirmed through an aggressive process of metering, monitoring and reporting. The results of this feedback should inform maintenance operations and be available as input to new design efforts.

1.3 Productive

1.3.1 Worker Satisfaction, Health, and Comfort

In office environments, by far the single greatest cost to employers is the salaries of the employees occupying the space. It generally exceeds the lease and energy costs of a facility by a factor of ten on a square foot basis. For this reason, the health, safety, and comfort of employees in a high-performance office are of paramount concern.

- Utilize strategies such as increased fresh air ventilation rates, the specification of non-toxic and low-polluting materials and systems, and indoor air quality monitoring.
- Provide individualized climate control that permits users to set their own, localized temperature, ventilation rate, and air movement preferences.
- While difficult to quantify, it is widely accepted that worker satisfaction and performance is increased when office workers are provided stimulating, dynamic working environments. Access to windows and view, opportunities for interaction, and control of one's immediate environment are some of the factors that contribute to improved workplace satisfaction. See also the Psychosocial Value of Space.

- Natural light is important to the health and psychological well-being of office workers. The design of office environments must place emphasis on providing each occupant with access to natural light and views to the outside. A minimum of 30 foot candles per square foot of diffused indirect natural light is desirable.
- The acoustical environment of the office must be designed and integrated with the other architectural systems and furnishings of the office. Special consideration must be given to noise control in open office settings, with absorptive finish materials, masking white noise, and sufficient separation of individual occupants.

1.4 Technical Connectivity

Technology has become an indispensable tool for business, industry, and education. Given that technology is driving a variety of changes in the organizational and architectural forms of office buildings, consider the following issues when incorporating it, particularly information technology (IT), into an office:

- Plan new office buildings to have a distributed, robust, and flexible IT infrastructure, which would allow technological access in virtually all the spaces.
- During the planning stage, identify all necessary technological systems (e.g., voice/cable/data systems such as audio/visual systems, speaker systems, Internet access, and Local Area Networks [LAN] / Wide-Area Networks [WAN] / Wireless Fidelity [WI-FI]), and provide adequate equipment rooms and conduit runs for them.
- Consider and accommodate for wireless technologies, as appropriate.
- For existing office buildings, consider improving access to the IT infrastructure as renovations are undertaken.

See WBDG Productive—Design for the Changing Workplace and Productive—Integrate Technological Tools for more information about incorporating IT into facility design.

1.5 Secure / Safe

Terrorist attacks of the last decade have focused design on protection of occupants and assets against violent attack. Through comprehensive threat assessment, vulnerability assessment, and risk analysis, security requirements for individual buildings are identified, and appropriate reasonable design responses are identified for integration into the office buildings design.

- Consider entrances that do not face uncontrolled vantage points with direct lines of sight to the entrance. Utilize site barriers and setbacks, perimeter barriers and blast resistances, access control and intrusion detection, entrance screening, package screening and control, open areas that allow for easy visual detection

by occupants, and minimized glazing. See WBDG Safe—Provide Security for Building Occupants and Assets.

- First-time visitors, unfamiliar with their surroundings, may have trouble navigating the safest exit route from the building. Consider using increased signage and/or providing safety information and a building directory in welcome brochures. Also, review and evaluate safety plans on a regular basis. See WBDG Safe—Plan for Fire Protection and Safe—Ensure Occupant Safety and Health.

1.6 Sustainable

1.6.1 Energy Efficiency

Depending on the office's size, local climate, use profile, and utility rates, strategies for minimizing energy consumption involve: 1) reducing the load (by integrating the building with the site, optimizing the building envelope [decreasing infiltration, increasing insulation], etc.); 2) correctly sizing the heating, ventilating, and air-conditioning systems; and 3) installing high-efficiency equipment, lighting, and appliances.

Consideration should be given to the application of renewable energy systems such as building-integrated photovoltaic systems that generate building electricity, solar thermal systems that produce hot water for domestic hot water (DHW) or space conditioning, or geothermal heat pump systems that draw on the thermal capacitance of the earth to improve HVAC system performance.

Additional consideration should be given to the applications of other distributed energy sources, including microturbines, fuel cells, etc., that provide reliability (emergency and mission critical power) and grid-independence, and reduce reliance on fossil fuel grid power.

1.7 Modernization

The extensive inventory of facilities that are over 25 years of age present a significant recapitalization challenge. For GSA, its first impressions program addresses the quality of the entrance and lobby areas of its older facility portfolio. Key areas of concern for modernization include upgrading the exterior envelope, mechanical systems, telecommunications infrastructure, security, and interior finishes. Improving the workplace quality, energy performance, security, flexibility to accommodate tenant churn, maintenance overhead and life-cycle expectancy are important objectives for modernizing these facilities. Appropriate preservation for buildings on or eligible to be on the historic registry is part of the modernization effort.



Federal Office Building, San Francisco, California

2.0 Training Facility

2.1 Flexibility

At some training facilities, programs and schedules vary frequently. Furthermore, instructors have different and evolving training methods. As such, flexibility within the building's design is critical to the success of an enduring training program. The following strategies can be used to meet the challenge of designing a training facility around evolving teaching styles and emerging technologies:

- Cluster instructional areas around central, shared support and resource spaces. Shared resource spaces may include informal gathering spaces, shared seminar rooms, computer kiosks, and trainer offices.
- Use an appropriate combination of stand-alone movable partitions, movable modular furnishings, and large double doors between classrooms and shared spaces.
- Create classrooms of various sizes. Equip larger rooms with movable partitions to accommodate a wide variety of group learning sizes.
- Arrange spaces in keeping with the educational and programmatic goals of the facility.
- When connecting semi-private or enclosed spaces to more open areas, ensure moderate visual openness and acoustical privacy.
- Where possible, allow for individually controlled temperature and lighting.

See WBDG [Productive—Design for the Changing Workplace](#) and [Accessible—Plan for Flexibility](#) for more information.



A classroom in Florida Community College at Jacksonville's Advanced Technology Center. (Courtesy of KBJ Architects Inc.)



Left: A U-shaped, tiered seating configuration places participants and trainers within close proximity and promotes discussion and dialogue for case teaching.
Right: Nuclear reactor training laboratory at the Naval Nuclear Power Training Center (Photos courtesy of KBJ Architects Inc.)

2.2 Indoor Environmental Quality

All educational facilities, including training facilities, must have high-quality indoor environments to promote learning as well as productivity. The following strategies support good indoor environmental quality that can positively influence task performance and attention spans:

- *Quality Acoustics*: Trainees should be able to hear their instructors clearly, and vice versa. Ensure low ambient background noise and appropriate acoustics in classrooms and support spaces through a combination of space planning, sound absorption, and sound transmission reduction techniques. For example, avoid placing mechanical rooms next to classrooms, conference rooms, auditoriums, offices; libraries, laboratories, and computer centers may be adjacent to classrooms. Consider sound amplification and/or speaker systems for auditoriums and other appropriate spaces. Provide accommodations for hearing impaired trainees.
- *Appropriate Lighting*: A high quality, energy-efficient lighting system that utilizes both natural and electric sources as well as lighting controls is optimal for a learning environment. Ensure the lighting design is appropriate for the task at hand. Consider indirect/direct luminaires for ambient lighting in classrooms and support areas. Allow individually controlled lighting in study areas and workrooms where possible. Design appropriate exterior lighting for facilities that will be used at night.
- *Daylighting*: Use daylighting to enhance the visual environment of classrooms as well as support spaces. Coordinate the daylighting scheme with the design of interior lighting and controls as well as other energy efficiency measures. Specify energy-efficient windows. Install proper sun control and shading

- devices to reduce glare (especially in computer training rooms) and allow for room darkening (for rooms with A/V equipment).
- *Environmentally Preferable Products*: Use low VOC paints and finishes for interior surfaces. Consider selecting renewable materials such as bamboo flooring. Specify no-formaldehyde panels and cabinetry. Use non-toxic cleaning products. See WBDG Evaluating and Selecting Green Products and Sustainable O&M Practices for more information.
 - *Good Sightlines*: Ensure adequate and appropriate sightlines in auditoriums, conference rooms, and seminar rooms. Consider sloped floors, which promote good sightlines and are more accessible than tiered floors.
 - *Comfort and Aesthetics*: Allow users to adjust seating, computer equipment placement, light levels, table or desk heights, classroom layout, and ventilation. See WBDG Productive—Provide Comfortable Environments for more information. Make a learning environment more conducive with colors.
 - *Thermal Comfort and Ventilation*: Ensure fresh air intake and adequate airflow rates. Specify high-performance heating, ventilating, and air-conditioning equipment (HVAC) zoned to accommodate varying occupancy rates. Commission the system to ensure functionality. At a minimum, comply with American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE) Standard 55 Thermal Environmental Conditions for Human Occupancy, and ASHRAE Standard 62-2001—Ventilation for Acceptable Indoor Air Quality (ANSI Approved). Refer to ASHRAE Applications Guide, Chapter 6 for guidance on designing HVAC systems in educational spaces. Incorporate natural ventilation, if appropriate. See WBDG Productive—Provide Comfortable Environments for more information.

Many of the topics mentioned above are discussed in more detail in the WBDG Productive Branch and Sustainable Branch.

2.3 Signage

Signage and other way finding measures help promote a welcoming and efficient training environment, especially for trainees new to the training facility.

- Signage should include posted directories for easy navigation, schedules of activities, and clear designation of classrooms and support spaces.
- Many facilities have extended hours and exist on "open" campuses. When entrances are unmonitored, post building hours, appropriate trespassing notices, and important building use policies on the exterior of the building.
- Consider the use of colors or other visual markers to facilitate way finding.
- Ensure signage is available for persons with disabilities.

2.4 Security and Occupant Safety

- Implement security measures based on the level of protection desired to protect facility occupants and assets (e.g., computer equipment). Consider standoff

distances; access control strategies; entrances that do not face uncontrolled vantage points with direct lines of sight to the entrance; open areas that allow for easy visual detection by occupants; and minimized glazing. See WBDG [Secure/Safe—Provide Security for Building Occupants and Assets](#).

- First time visitors, unfamiliar with their surroundings, may have trouble navigating the safest exit route from the building. Consider using increased signage and/or providing safety information and a building directory in welcome brochures. Also, review and evaluate safety plans on a regular basis. See WBDG [Secure/Safe—Plan for Fire Protection](#) and [Secure/Safe—Ensure Occupant Safety and Health](#).

2.5 Operations and Maintenance

Training facilities have varied hours and rates of occupancy, which affect the facilities' operations and maintenance schedules. Consider the following recommendations in developing an operations and maintenance plan:

- During the planning stage of the project, design a proactive facility management program to anticipate facility problems, rather than reacting to problems when they occur. This plan is essential to ensuring optimal long- and short-term use of the facility.
- Appropriate planning decisions can support custodial care, ease of maintenance of facility grounds and building equipment, materials and surfaces, as well as support the flexible scheduling of space for future programs.
- Ensure that program schedules and maintenance schedules are cohesive and compatible.

See WBDG [Sustainable—Optimize Operational and Maintenance Practices](#), [Sustainable O&M Practices](#), and [Reliability-Centered Maintenance \(RCM\)](#) for more information.

3.0 Conference Facility

3.1 Functional / Operational

3.1.1 Flexibility

The Conference/Classroom needs to be adaptable as occupant needs will change daily. These spaces generally will contain modular furniture that is light and easily rearranged. These spaces are generally located in areas with standard column grids and single story levels with flat floors. Movable partitions typically help to further subdivide the space as well as provide added projection surfaces.

3.1.2 Special HVAC and Utility Requirements

A conference center will typically have a separate AHU, which requires a 15% increase in cooling capacity. HVAC, electrical, and security systems are generally designed to operate after hours on a regular basis. Toilet requirements are often exceeded to accommodate additional occupancy loads comfortably.

3.1.3 Occupancy

Occupancy Group Classification is Business or Assembly A3, with sprinklered protected construction, and GSA Acoustical Class B1 space where meetings are held on a regular basis. See also WBDG Secure / Safe—Plan for Fire Protection.

4.0 Warehouse Facility



4.1 Durable/Functional

Warehouse facilities should be planned to accommodate loads of stored materials as well as associated handling equipment.

- Design of warehouses is to be based on the dead and live load requirements of the structure as it will be built. Snow, wind, and seismic loads shall be considered where they are applicable. Racking in seismic areas must be built stronger and be better braced.
- Wind uplift can cause great damage to roofs and metal roof copings at the roof edge. Building codes recognize that wind velocity is greater across open areas, typical for warehouse zones.
- Wind-driven rain can easily penetrate the vast surface areas of the warehouse walls. Design walls to permit any infiltrating water to evaporate harmlessly without collecting in the wall cavities or damaging stored product.
- Proper floor types are an important consideration in the design. General warehouse space should be floored with a concrete slab to carry wheel loads and withstand the abrasion generated by the continual use of hard rubber and steel-wheeled forklift trucks. Consider

adding hardeners and dustproofers to protect the concrete. Consider using epoxy coating on concrete floors near battery charging areas.

- Floor flatness and levelness requirements are critical, especially for high ceilinged space and safe operation of high-lifting equipment.
- Adequate space must be provided on-site for truck maneuvering, truck storage if the business owns a fleet, car parking for employees and future office space/population expansion (which might be driven by higher rent for center-city office space), and landscaped areas.

4.2 **Energy-Efficient**

- Be designed with passive solar concepts, solar geometry, and building load requirements in mind.
- Possess light colored roof to reflect a large percentage of solar radiation, reducing HVAC loads, and energy consumption. First cost is also reduced, due to the smaller plant size required. When a large roof area is anticipated, this effect can be significant, especially for temperature controlled warehouses. Greater heat reflection will increase worker productivity in the summer.
- Be planned with interior dock space in colder climates to reduce energy consumption and provide more tolerable winter working conditions for dock workers.
- Use ceiling mounted fans to reduce heat stratification and provide air movement, thus increasing worker comfort in both summer and winter. Mount fans above highest forklift level for worker safety.
- Consider specifying white painted metal roof decking, thereby increasing ceiling surface reflectivity, lighting efficiency, and worker comfort without any added energy cost.
- Use energy-efficient fixtures, systems, and appliances, e.g., motion sensor instant-on lighting systems, wherever feasible.



4.3 **Safety/Security of Personnel and Material**

- Address the traditional life-safety and health concerns common to all buildings, including measures to prevent occupational injuries and illnesses (work-related musculoskeletal disorders (WMSD), trips, falls, etc.), ensure electrical safety, and

eliminate exposure to hazardous materials. The following operations have historically contributed to significant numbers of warehouse injuries and are considered to be the most hazardous: docks, powered industrial trucks, conveyors, materials storage, manual lifting/handling, roof ladders and hatches, and charging stations. Other serious operational safety problems include inadequate fire safety provisions, improper blocking of exits and egress paths, chemical exposure, improper use of lockout procedures, lack of ergonomics, and failure to wear personal protective equipment.

- Incorporate proper signage to clearly warn of hazards or to direct personnel to take precaution. The specific strategy for the warehouses signs must be determined early in the facility design process.
- Possess non-slip surface treatments on floors subject to wetting, such as outdoor docks, to eliminate slips and falls to personnel.
- Be designed with fire sprinkler systems engineered to cover the specific commodity classification in the specific storage configuration for the planned warehouse. The adequacy of the sprinkler system must be evaluated when changes occur that can increase the hazard classification, such as introducing a new product line, using a different packaging material, or changing from wood pallets to plastic pallets.
- Include appropriate security systems incorporated into the overall warehouse design.

4.4 Health/Comfort

- Provide proper ventilation under all circumstances.
- Provide local exhaust for restrooms, kitchens, janitor's closets, copy rooms, battery-charging areas, etc.
- Consider installing CO₂ sensors to provide real time monitoring of air quality.
- Integrate daylighting with the electric lighting system.
- Allow for natural lighting where possible. Provide lighting controls that turn off lights when sufficient daylight exists. Consider dimming controls that continuously adjust lighting levels to respond to daylight conditions.
- Consider the different natural lighting designs for warehouses.
- Minimize HVAC system noise in occupied space.
- Use furnishings, chairs, and equipment that are ergonomically designed and approved for that use.
- Design equipment and furnishings reflective of healthy work practices in an effort to eliminate repetitive motions as well as prevent strains and sprains.
- Strive to create a 'sense of place' such that the warehouse has a unique character that engenders a sense of pride, purpose, and dedication for individual workers and the workplace community.

5.0 Parking Facilities



Hermosa Beach Parking Structure
(Courtesy of Gordon H. Chong & Partners
Architecture)

5.1 Functional Requirements

- Optimizing site potential, by choice of site and its relationship to walking, driving, other transportation linkages and good design opportunities.
- Ventilation is an issue within some types and some areas of parking garage design. New technologies are increasing the effectiveness in design and monitoring of these areas for concern. Natural ventilation is always a good method however detailed study is required in some areas and types of parking garage design to determine its effectiveness.
- Provide space for bicycle parking and storage.

5.2 Safety and Security

Safety and security of the people using the garage are of paramount importance:

- Open, glass stairwells and glass-backed elevators.
- Security devices such as video, audio and emergency buttons that call into the booth or local police station.
- Public telephones
- Eliminate potential hiding places, such as under open stairs.
- Handicap accessibility with vehicles close to stair and elevator cores having a direct path to key movement patterns of the garage.
- To avoid carbon monoxide build-up, air flow is adequately designed for through mechanical and/or natural ventilation.
- Non-slip floor surface
- Cleanliness
- Design for the points of intersection between man and the automobile for adequate safety of movement.
- Energy efficient lighting is very important in garage safety but can pose problems with spillage out of the garage onto neighboring communities. A balance between daylighting, interior lighting and exterior control can be addressed in many ways on the exterior design of the façade while providing adequate lighting within. Lights should be vandal resistant and easy to maintain.

- Use CPTED (Crime Prevention Through Environmental Design) whenever appropriate along with technological equipment.

5.3 Aesthetics

Aesthetics of garage design has become very important to communities across the country:

- Recently garage design has become part of an architectural style of the surrounding architecture, respecting the language of design and using the design process.
- The historic preservation movement was one of the key issues in garage design as garages were needed to revitalize dense older urban fabrics without destroying the architectural context. Many excellent examples can be found across the country solving these contextual issues.
- The Parking garage itself is now also part of the historic preservation movement as some older existing structures can and should be designated for preservation.
- The Parking Facility has played an important role in design evolution throughout its history often being the leader in many crucial design issues; it is truly a unique and important civic building. Perhaps one of the most important design laboratories of the 20th century it has become the gateway to our buildings and cities.



Bryan Street Garage
(Courtesy of Carl Walker, Inc.)

- Maintain the urban street front by having the sidewalk condition of the garage contain stores or provide a safe and pleasant walk experience.
- Using landscaping and changes in architectural materials forms, and scales to enhance the garage façade along the street. Use landscaping to shield and enhance parking lot design.
- Architecturally breaking down the scale of the large structure along its façade.
- Designing beautiful stairs and elevator cores to enhance the community and walking experience.
- Most costly solution is to "hide" the garage by placing below ground



Left: Queensway Bay Facility
(Courtesy of International Parking Design, Inc. and Erhard Pfeiffer,
photographer)
And Right: Landscaped rooftop of Northpark Town Center
(Courtesy of John Portman & Associates and Michael Portman,
photographer)

5.4 Integrated and Mixed-Use Design

Garages are often connected to other uses:

- The garage has always been a mixed-use structure combining and often connected with all other building types.
- Plan for any loading or unloading conditions required by mixed-use, so as not to interfere with garage traffic.
- Separate roofing and structural system for any human-occupied space within garage.
- Provide for simple and well-designed movement systems for pedestrian and automobiles.
- Many garages are combined with almost any use imaginable such as a playing surface on the roof requiring green architecture, so enjoy the possibilities of integrating a fully functional structure requiring many technological advances.
- Surface parking lots can be designed to become mixed-use plaza spaces.
- The garage has often in its history been part of a multi-modal system linking different forms of transportation.



Center Street Park and Ride
(Courtesy of Herbert Lewis Kruse Blunck,
Architects and Assassi Productions©2002)

5.5 Sustainable Design

The parking garage in and of itself is a better land-use choice in attempting to create a more sustainable built environment by increasing the amount of parking within a limited land area or making the connection to other forms of transportation reducing traffic and congestion issues. The actual construction of the garage can begin to meet the LEED (Leadership in Energy and Environmental Design) Green Building Rating System® criteria and a new Federal Green Construction Guide for Specifiers will soon be available, also refer to Sustainable Design Objectives. New advanced material choices both in steel and concrete can contribute to the overall score while site sensitivity is also crucial. Lighting can be handled from both a passive design approach as well as technological solutions to just provide light when needed. While solar technology can also be used to handle energy needs. Also since the parking garage is such an integrative building typology many other solutions can contribute to sustainable design such as the now common for underground parking garages the green roof. Due to its integrative nature with other building typologies it can also help to support them in sustainable solutions designing the parking facility to become part of an energy generating solution. The parking garage has often been at the forefront of design advancements due to its ability to be transformed both inside and outside to meet changing practical needs. As the automobile and our energy sources change over the next century, a symbiotic relationship between the building, the automobile, and energy can occur, each providing energy and power to each other creating a totally sustainable solution. Water conservation, sun control shading and other passive devices can be integrated into parking facilities.

6.0 Place of Worship



A flag presentation was held during the dedication ceremony of new stained glass window at the Pentagon Chapel on September 11, 2003. The new windows in the Chapel are dedicated to the memory of those who died in the Pentagon on September 11, 2001. (DoD photo by Tech. Sgt. Andy Dunaway, U.S. Air Force.)

6.1 Aesthetics

- **Character:** Utilize appropriate finishes, furniture, signage, and art to reflect the public nature of the space. See also WBDG Style.
- **Verticality:** Highlight or soften the verticality of the space by delineating horizontal bands with windows, lighting, and wall coverings. A spatial compression/release experience can enhance the aesthetic experience.
- **Lighting:** According to the Department of Defense's UFC Design: Chapels and Religious Education Facilities, good places of worship may be dimly lit like

medieval buildings or brightly lit like Christopher Wren's churches. The light may be filtered through colored glass or come through clear glass. Colored glass may supply an exotic character, but clear glass brings a consciousness of the surrounding world. The important thing to remember is that no factor in the design of a place of worship is more important than the nature of its light. Designers should not be limited by stereotypes.

- **Transition:** Provide an entry space in order to allow visitors to transition from a busy institutional environment to a calmer, warmer, and more welcoming one.
- **Glazing:** Include glazing system materials or detailing that emits natural light, but prevents glare and light reflection. Consider using clerestory windows to let natural light into the space when desirable views are not available or when available views are considered to be distracting.

6.2 Functional / Operational

- **Location and Adjacencies:** Preferred locations for places of worship are those readily accessible to primary users (i.e. patients if the place of worship is located in a hospital) and at high traffic locations. Sound control is to be considered, as well as visual privacy.

6.3 Productive

- **Plan for Flexibility:** The Place of Worship is generally a single volume of basically simple geometry. Design features such as dominating axialities, implied focus, hierarchical progressions of space or imperious bisymmetry should be avoided because these features limit flexibility of arrangements and use. To promote flexibility, seating may be interlocking and stackable, but also comfortable and attractive.
- **Acoustics:** If the space will be used for formal meetings or religious services, study its acoustic properties and include sound absorptive materials as the program requires. An electronic speaker system should not be necessary in most small places of worship if proper consideration is given to room shapes and surfaces.
- **Audiovisual Equipment in Hospital Facilities:** In some facilities, an electronic sound and video system is necessary so that the sound may be enhanced for the hearing impaired and so that the events of services can be transmitted to bedside television sets. See also WBDG Productive—Integrate Technological Tools.
- **Special Lighting:** Establish lighting zones at the beginning of the design process. Differentiate between the lighting needs for private reflection spaces, counseling spaces, storage spaces and support offices. Consider energy-efficient lighting.
- **Comfort:** Specify HVAC equipment that will ensure a comfortable and reliable temperature. For more information see WBDG High Performance HVAC [Link to <http://wbdg.org/design/hvac.php>]. Air and motor sounds in ventilating systems should be reduced aggressively by duct lining, bends, sound traps and

velocity control. See also WBDG Productive—Provide Comfortable Environments.

6.4 Sustainable

- **Daylighting:** For places of worship spaces at the exterior of a building, utilize daylighting to reduce electric lighting needs. If sufficient daylight is provided so that artificial lighting is not required during daylight hours, an advantage is gained, but large areas of glass, even when triple glazed, are expensive in terms of the energy used. Skylights can distribute light well and do not leak if carefully detailed.

7.0 Youth Center

7.1 Create a Homelike Environment

While meeting the durability requirements for a public facility, the finishes, furnishings, fixtures, and equipment in Youth Centers should be comfortable and have a homelike quality:

- Provide ample natural light
- Provide a sense of welcome and arrival at the entrance, lobby, and control desk
- Use residential-style doors and windows
- Use indirect lighting as main ambient lighting, and
- Avoid institutional, unnatural finishes, textures, and colors.

7.2 Encourage Creativity

Part of the facility's mission is to encourage creative development. The project development process and final design can help accomplish this in several ways:

- Carefully consider interior colors and textures. Design the Youth Center to communicate a sense of fun, but use restraint (e.g., neutral tones for backgrounds and ceilings, with warm colors for accents). Consider wall murals in some common areas.
- Particularly for the teen room, consider guiding a teen focus group to select an interior color scheme
- Provide space and consider various techniques to display and celebrate youth artwork, and
- Design display areas to be easily changed and updated, minimize permanent graphics.

7.3 Maintain a Safe and Healthy Environment

Design the facility to accommodate equipment and operational strategies to both protect the youth and maintain a healthy environment. Consider the following critical elements:

- Prevent unauthorized access by potentially dangerous personnel
- Provide visual access to all spaces to monitor potential child abuse situations
- Provide easily-cleaned finishes
- Use non-toxic building materials and improved maintenance practices
- Ensure good indoor air quality and abundant natural light, and
- Ensure that equipment, furnishings, and finishes do not contain asbestos or lead.

8.0 Physical Fitness Center

8.1 Functional / Operational

- ***Spatial Requirements of Equipment and Exercise Activities:*** A minimum 12' ceiling height is generally required in this space type to accommodate the clearances needed for daily equipment usage. Special surfaces are also required for many athletic activities such as cushioned training surfaces, mirror walls, or impact-resistant walls. Anticipate circulation, in particular controlled circulation, using a flow diagram at the beginning of the design process.
- ***Durability of Structure and Finishes:*** Increased structural steel is typically provided to reduce vibration transmission. Exercise and weight rooms, including equipment storage rooms, should be designed for a 150 LB/SF live load. Finishes should be durable and easy to maintain in anticipation of maximum use. See also WBDG—Wall Systems.
- ***Acoustical Control:*** Reduce noise impact generated by physical activity, by including sound baffles at all acoustically rated partitions, in particular exercise and weight rooms and tenant demising partitions.
- ***Occupancy:*** Occupancy Group Classification is Business Occupancy B, with sprinklered protected construction and GSA Acoustical Class X space where noisy operations are located.

8.2 Sustainable

- ***Special HVAC:*** Employ measures to reduce moisture and odor migration to other spaces—assume this space type requires a 20% increase in cooling capacity above the overall building shell and core. Provide a separate AHU for exercise areas. Fitness centers will typically have negative air pressure relative to other areas of the building.

APPENDIX E. GREEN BUILDINGS AT FORT MEADE

1.0 Building Name

1.1.1 Overview

- Location on Fort Meade
- Building Type
- New Construction or Major Renovation?
- Sq. footage/ sq. meters
- Number of stories
- Completion Date
- Rating requirements achieved (Bronze, Silver, Gold, Platinum) and which LEED guide was used (will be LEED-NC, v 2.2 until further guidance is released)

1.1.2 Background

Brief discussion about building, the purpose of the building and what green features or strategies were emphasized in its design and construction.

1.1.3 Design Team

List technical design team members by trade.

1.1.4 Finance and Cost

- Total project cost
- Cost per sq. foot
 - Of the cost per sq. foot, how much is attributed to green measures.
 - Estimate how soon the initial investment will begin to pay for itself in reduced operation costs.

1.1.5 Green Strategies

List which credits were earned and the features or strategies employed to earn them.

1.1.5.1 Sustainable Sites

1.1.5.2 Water Efficiency

1.1.5.3 Energy and Atmosphere

1.1.5.4 Materials and Resources

1.1.5.5 Indoor Environmental Quality

1.1.5.6 Innovation and Design Process

Appendix I

Coastal Zone Management Program

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REPLY TO
ATTENTION OF:

DEPARTMENT OF THE ARMY
US ARMY INSTALLATION MANAGEMENT COMMAND
HEADQUARTERS, UNITED STATES ARMY GARRISON
4551 LLEWELLYN AVENUE
FORT GEORGE G. MEADE, MARYLAND 20755-5000

Directorate of Public Works

AUG 16 2007

Mr. Elder Ghigiarelli, Jr.
Deputy Program Administrator-Federal Consistency Coordinator
Coastal Consistency Division - Wetlands and Waterways Program
Maryland Department of the Environment
Montgomery Park Business Center
1800 Washington Boulevard, Suite 430
Baltimore, Maryland 21230-1708

Reference: Coastal Zone Management Determination for the Fort Meade BRAC 2005 and DoD EUL Actions

Dear Mr. Ghigiarelli:

In accordance with the National Environmental Policy Act of 1969 (NEPA), the Council on Environmental Quality (CEQ) implementing regulations, and pursuant to Section 307 of the Coastal Zone Management Act (CZMA), 16 U.S.C. § 1456, as amended, and its implementing regulations at 15 C.F.R. Part 930, the purpose of this letter is to request a Federal Consistency Determination for the referenced proposed action regarding construction of administrative and associated facilities related to the implementation of BRAC 2005 and the implementation of the DoD Enhanced Use Lease (EUL) Actions. The EUL actions involve leasing two parcels of land totaling 173 acres to a private developer for 50 years to construct administrative buildings and associated facilities. A third parcel of land totaling 267 acres would be reserved for in-kind development of two 18-hole golf courses.

Figure 1 shows the locations for construction of the proposed BRAC and EUL Actions Alternative.

The proposed action involves the construction and operation of 2,887,243 square feet of administrative and parking facilities to accommodate BRAC actions on three sites, Sites F, G and X (Figure 1). In addition, to accommodate the DoD EUL actions, approximately 2,000,000 square feet of administrative facilities would be constructed on Sites Y and Z, which would be leased to a private developer; and two 18-hole golf facilities would be constructed on Site S, as an in-kind service. The BRAC and EUL actions represent potential indirect and direct effects to the Maryland coastal resources in that impervious surfaces, erosion, sedimentation, and stormwater runoff may increase due to soil disturbance.

The proposed action would be consistent with the Maryland CZMP under 15 CFR 930.36 in that all activities would be conducted in accordance with the Maryland erosion and sediment control regulations, Maryland stormwater regulations, and applicable federal and state permit requirements, as explained in more detail below.

Directorate of Public Works

Reference: Coastal Zone Management Determination for the Fort Meade BRAC 2005 and DoD EUL Actions

New construction and operation of the proposed Federal action meets the goals and objectives of the Maryland Coastal Zone management Program by:

- To the extent feasible, consider low impact development options during the design phase of the projects;
- Avoid construction activities within 100 feet of riparian areas where practical;
- Avoid construction activities within 100 feet of wetland areas, where practical (MDE requires a 25 foot buffer area for wetlands);
- Avoid construction activities within 100 feet of wetlands meeting the criteria of MDE's Special State Concern.
- Development and implementation of a site specific Erosion and Sediment Control Plan; and Development and implementation of Stormwater Management Plan including SWPPP measures to control stormwater runoff.

In addition, Fort Meade will adhere to all Federal, and state permit requirements to protect coastal and marine resources and wetland areas. Any BRAC and EUL activity that involves excavating, filling, changing drainage patterns, disturbing the water table, grading and removing vegetation in non-tidal wetlands or within a 25-foot buffer requires a permit from the State of Maryland. A wetlands survey will be conducted at all sites to verify ground conditions and the presence of any wetlands before implementing construction activities.

Based on the above description, the proposed BRAC and EUL Actions Alternative represent minimal foreseeable effects over coastal uses or resources in the State of Maryland. Construction activities in relation to the proposed action represent minor impacts to surface water and wetlands. Impervious surface would increase in the immediate area of development, but efforts would be made to minimize the amount of impervious surface, such as adherence to guidelines outlined in the Fort Meade Green Building Manual, Installation Design Guide, and Integrated Natural Resources Management Plan. Erosion, sedimentation, and stormwater runoff impacts would be minimized through best management practices and by following applicable Maryland regulations, guidelines, and permit requirements.

An erosion and sediment control plan and a stormwater management plan would be prepared and implemented as a component of the construction process. The erosion and sediment control plan would be developed consistent with Maryland's 1994 Standards & Specifications for Soil Erosion & Sediment Control and would be approved in accordance with requirements established in Title 4, Subtitle 1 of the Environment Article, Annotated Code of Maryland and in the Code of Maryland Regulations 26.17.01. The approved plan would include the location and design of erosion and sediment control measures, including best management

Directorate of Public Works

Reference: Coastal Zone Management Determination for the Fort Meade BRAC 2005 and DoD EUL Actions

practices, that would be implemented during construction to minimize potential effects to water quality and habitats associated with erosion and surface water runoff.

A stormwater management plan would also be developed, consistent with the provisions established in Maryland's 2001 Stormwater Management Guidelines for State and Federal Projects, and approved in accordance with the requirements established in Title 4, Subtitle 2 of the Environment Article, Annotated Code of Maryland and in the Code of Maryland Regulations 26.17.02. The plan would be implemented to ensure proper reduction and management of runoff both during and following construction. All required permits would be obtained prior to construction.

Construction of the BRAC and EUL and support facilities would minimize potential effects to land or water resources in the State of Maryland's coastal zone. The proposed BRAC and EUL Actions Alternative would be consistent with the Maryland CZMP.

All development under the proposed BRAC and EUL Actions Alternative would be located outside of the 100-year floodplain.

Conclusion

Based on the above information, data, and analysis, Fort Meade finds that the BRAC and EUL Actions Alternative for constructing administrative and support facilities on the proposed BRAC and EUL sites is consistent with the applicable enforceable policies and mechanisms of Maryland CZMP. In accordance with Section 307 of the Federal Coastal Zone Management Act of 1972, Fort Meade is requesting a Coastal Zone Management determination from your office.

The Final EIS is being prepared for public release. It will be forwarded to you immediately upon public release. Fort Meade thanks you for your assistance in this matter. Due to the accelerated schedule for this project, we would greatly appreciate your timely consideration of this request within three weeks of receipt of the Final EIS. We look forward to further coordination with you in the future. If you have any questions regarding this request or need additional information, please feel free to contact me at 301-677-9188 at your convenience.

Sincerely,



Michael P. Butler
Chief, Environmental Division
Directorate of Public Works

Enclosure: Figure 1, Proposed BRAC and EUL Action Site Locations

Figure 1: Proposed BRAC and EUL Actions Site Locations

