APPENDIX A

AGENGY COORDINATION AND SCOPING COMMENTS

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SCOPING REPORT

BRAC-DIRECTED REALIGNMENT ACTIONS AND LAUDERICK CREEK ENHANCED USE LEASE DEVELOPMENT ENVIRONMENTAL IMPACT STATEMENT AT ABERDEEN PROVING GROUND, MARYLAND

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1.0 GENERAL

Two public scoping meetings were held for the Base Realignment and Closure (BRAC)-Directed Actions and Lauderick Creek Enhanced Use Lease (EUL) Development Environmental Impact Statement (EIS) at Aberdeen Proving Ground (APG), Harford County, Maryland. One meeting was originally proposed to be held in Aberdeen, Maryland however, APG personnel requested a second meeting held approximately eight miles away in Edgewood, Maryland based on requests from the public during previous scoping events for other activities. Aberdeen is located adjacent to the APG's Northern Peninsula and Edgewood is located adjacent to APG's Southern Peninsula. The two peninsulas are separated by the Bush River.

1.1 Location, Date, and Time

The first meeting was held on Tuesday, June 6, 2006 at the Holiday Inn, 1007 Beards Hill Road, in Aberdeen, Maryland from 6:30 pm to 8:30 pm EDT. A pre-scoping meeting for public officials and government regulators was held prior to the first meeting from 5:00 pm to 6:00 pm**.** The second meeting was held on Wednesday, June 7, 2006 at the Ramada Inn Conference Center, 1700 Van Bibber Road, Edgewood, Maryland from 6:30 pm to 8:30 pm EDT.

1.2 Notification

Legal notices were published in *The Baltimore Sun* on Sunday, May 23, 2006, *The Aegis* on Wednesday, May 24, 2006, and *The Record* on Friday, May 26, 2006. Copies of the legal notices are provided in Appendix A. Announcements were also mailed to public agencies, public interest groups, political representatives, and individuals known, or thought to have, an interest in the BRAC-directed actions or the Lauderick Creek EUL development at APG. The announcements were mailed on May 19, 2006 and consisted of the meeting description, purpose, and invitation to attend the meetings and/or submit written comments identifying key issues no later than July 7, 2006. On June 20, 2006 additional scoping letters were mailed to agencies inadvertently left out of the initial announcement. A comment deadline of 30 days after letter receipt (about July 25, 2006) was extended to the recipient agencies. Copies of the mailing lists, announcement, and letter are provided in Appendix B.

1.3 Meeting Format

Both meetings were structured in an open house format. Boards (Appendix C) summarizing the NEPA process and the proposed actions and alternatives were displayed around the perimeter of the room. United States Corps of Engineers (USACE) and APG representatives were available to receive public concerns and solicit comments from interested parties during the meetings. Participants received handout material (Appendix D) that summarizes the NEPA process, the proposed actions, and key study issues. Comment sheets and a court reporter were available to document public comments. Sign language interpretation was also available, but not requested at either meeting.

2.0 SUMMARY

2.1 Major Concerns

Concerns most frequently voiced by the public concern increased traffic and stress on off-post community infrastructure, schools, and housing market with regard to the combination of both BRAC and EUL actions. Noise—nighttime noise in particular, the presence of unexploded ordnance(UXO)/chemical warfare material (CWM), and the disturbance of wildlife are specific concerns expressed regarding the Lauderick Creek EUL. A request for more details is the most prevalent comment regarding the BRAC-Directed Actions. The following table summarizes the number of comments received during the scoping process.

Table 2.1 Scoping Comments Summary

Topic/Resource	*Public*	*Agency*	Comment Applicable to:			Total Number Comments Received
			BRAC Actions	Lauderick Creek EUL	Not Specified or Both	
Land Use	*4*	*2*	1	5	0	**6**
Aesthetics and Visual	*1*	*0*	0	0	1	**1**
Air Quality	*1*	*4*	3	0	2	**5**
Noise	*11*	*1*	0	11	1	**12**
Geology and Soils	*0*	*0*	0	0	0	**0**
Water Resources	*1*	*5*	0	0	6	**6**
Biological Resources	*7*	*10*	0	0	17	**17**
Cultural Resources	*0*	*2*	0	0	2	**2**
Socioeconomics	*11*	*2*	0	5	8	**13**
Transportation	*14*	*3*	2	2	13	**17**
Utilities	*2*	*0*	1	1	0	**2**
Hazardous and Toxic	*10*	*5*	3	7	5	**15**
Cumulative Effects	*0*	*2*	0	0	2	**2**
Scoping	*4*	*0*	0	0	4	**4**
Request for Detail	*5*	*3*	3	1	4	**8**
Not Applicable to the EIS	*5*	*0*	1	1	3	**5**
TOTAL	***76***	***39***	**14**	**33**	**68**	**115**

Note: Comment sheets/letters/emails/verbal transcriptions often contain comments on numerous topics. Each comment topic per submission is counted as one comment; therefore, totals are larger than the number of submissions received.

Comments are summarized below by resource area. The number(s) listed in parenthesis following the comment identifies the comment number assigned in the Detailed Scoping Comment Matrix provided in Appendix G. The detailed matrix includes the complete comment, the comment response, the applicable EIS action (BRAC, EUL, Both/Not Specified), and who (Public or Agency) submitted the comment.

2.2 Land Use

- Describe consideration of alternative sites considered for Center for Security Training and Technology (C-STAT) activities. (5, 28)
- Provide justification regarding C-STAT activities at Lauderick Creek site. (45, 46)
- The Maryland Military Department indicated that they have not received notification regarding the possible relocation of Maryland National Guard training. (84)
- Development should be contained to existing or planned population centers as identified in Harford County's comprehensive plan. (111)

2.3 Aesthetics and Visual Resources

- Describe plans for preserving open space in Harford County. (78)

2.4 Air Quality

- Comply with the National Ambient Air Quality Standards. (1, 78, 109)
- Obtain appropriate permits. (106)
- Use energy efficient equipment to reduce overall energy consumption and emission of air pollutants. (110)

2.5 Noise

- Describe noise impacts (nighttime noise in particular) and mitigation measures associated with the proposed Lauderick Creek C-STAT training activities. (42, 43, 47, 49, 50, 51, 52, 54, 58, 60, 61)
- Noise mitigation measures should be implemented during construction activities. (79)

2.6 Geology and Soils

- No comments received.

2.7 Water Resources

- Describe changes to storm water flow and infiltration. (16)
- Describe principal aquifers and groundwater recharge. (80, 94)
- Discuss potential water quality impacts to surface resources. (88, 92)
- Discuss required permits. (99)

2.8 Biological Resources

- Address the migration of wildlife (groundhogs, fox, raccoon, and deer) into community due to construction and operational activity. (63, 65)
- Describe and quantify wildlife, their habitats, and impacts resulting from proposed activities. (64, 66, 67, 68, 69, 77, 86, 90, 100, 101)
- Describe and quantify wetlands and impacts resulting from proposed activities. (91)
- Include analysis of Maryland's Coastal Zone Critical Area. (93, 102)
- Comply with the Forest Conservation Act and Maryland's Roadside Tree Care Law. (95)
- Consider Green Infrastructure (sustainment of irreplaceable natural biodiversity in the State) resources. (98)

2.9 Cultural Resources

- Consider and address effects on historic properties and fulfill compliance with Section 106 and 110 in consultation with the Maryland Historic Trust. (97, 104)

2.10 Socioeconomics

- Provide detail on off-post development of businesses, infrastructure, schools, and emergency services. (56, 73)
- Describe the impact on real estate values. (32, 70)
- Provide more detail on local employment opportunities. (33, 48)
- Describe socioeconomic and cultural status of area. (83, 85)
- Number, proximity, and security of non-U.S. trainees. (44, 72, 74, 75)
- Community encroachment. (62)

2.11 Transportation

- Evaluate traffic and transportation as it relates to the proposed projects. Include existing and proposed public transportation. (17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 37, 40, 76, 81)

- Encourage utilization of alternatives to single occupant vehicles. (107, 112)

2.12 Utilities

- Is Harford County required to increase water and sewer service? (7)
- Ensure the electrical system on the Southern Peninsula is adequate. (12)

2.13 Hazardous and Toxic Substances

- Continue current cleanup efforts. (4, 10, 29)
- Unexploded Ordnance (UXO) and toxic substances at Lauderick Creek. (30, 31, 36, 38, 39, 55, 105)
- Address the presence and management of onsite hazardous waste and materials including those generated during construction. (87, 96, 103, 113)
- Register any onsite x-ray machine. (108)

2.14 Cumulative Effects Summary

- Provide cumulative impacts assessment. (82)
- Incorporate Harford County's environmental concerns. (114)

2.15 Scoping

- Make scoping material handouts and display boards available to the public via internet and mailing. (3, 6)
- Public scoping was not adequately advertised. (13, 14)

2.16 Requests for Additional Detail

- Distinguish BRAC-directed obligatory moves and discretionary moves. (2)
- Provide more detailed maps of project areas to include existing buildings and land type. (8, 57, 89)
- Publish construction, manpower, and personnel plan to include migration diagram. (9)
- Provide information on office space available for lease to the public to aid in off-post land use discussions/decisions. (41)
- Consider timing of moves to and from APG, Ft. Monmouth, and Ft. Lee. (35)
- Response to agency comments should include a copy to the Maryland State Clearinghouse identified with State Application Identifier: MD20060621-0661. (117)

2.17 Not Applicable to the EIS

- Services in lieu of cash for payment of the Lauderick Creek EUL are not advisable. (34)
- More EPA and MDE staff should be available to assist. (11)
- Taxpayers are responsible for public safety. (15)
- Feasibility of the No Action Alternative. (53)
- Describe funding provisions for improvements to Harford County's infrastructure. (59)

3.0 TESTIMONY

Scanned copies of sign-in cards and comments received are provided in Appendices E and F. A total of 57 sign-in cards were completed during the scoping meeting—34 in Aberdeen and 23 in Edgewood. Verbal comments were provided to the court report by five individuals and six written comment sheets were submitted during the evenings of the scoping meetings. Two letters were received via email and three additional comment

sheets from the public arrived through the U.S. Postal Service. Comment letters were also received from the following government agencies:

- Harford County Office of Economic Development
- Harford County Health Department
- Maryland Department of Natural Resources
- Maryland State Clearinghouse (Department of Planning)
- Maryland Department of Planning Historical Trust
- Maryland Department of the Environment
- U.S. Environmental Protection Agency Region III
- U.S. Geological Survey, Maryland-Delaware-D.C. Water Science Center

Comment sheets, letters, and emails often contain comments on numerous topics. Each comment topic per submission is counted as one comment. Overall, 115 individual comments were received. A detailed comment matrix is provided in Appendix G.

APPENDIX A Scoping Meeting Legal Notices

THE BALTIMORE SUN
Publication Date: 05/21/2006
This Electronic Tearsheet serves as confirmation that the ad appeared in The Baltimore Sun on the date and page indicated. Exploiting or repurposing any content displayed or contained on the electronic tearsheet is prohibited.
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Description: ENVIRONMENTA

COUNTYWIDE NEWS

Cochran announces bid for sheriff post

When Maryland Transportation Authority Police Chief Gary W. McLhinney decided he was not going to run for Harford County Sheriff last week, a group of Republicans looking for another candidate found their choice seated at the table.

On Monday, Norman R. Cochran, a former president of the Harford Republican Club and a long-tenured law enforcement officer, announced at a Republican golf fundraiser that he would seek the position.

Sheriff R. Thomas Golding said last month that he would not seek the post.

"I've always thought about it," Cochran said of his candidacy. "With a law enforcement background diversified between a number of agencies, I've always eyed that position."

Cochran, 59, previously ran for County Council president in 2002, losing by 700 votes in the Republican primary to Robert S. Wagner.

His law enforcement experience includes 26 years with the Maryland State Police. He retired in 2001 to work as a private investigator in Fallston, then joined McLhinney at the MdTA in 2004, where he is the manager of the career development unit.

Cochran said he has not decided whether he will withdraw his candidacy for the Republican Central Committee. He cannot serve in both capacities.

Other sheriff candidates include Maj. L. Jesse Bane and Terry W. Serago, both Democrats, and Dave Tritt, a Republican. Serago and Tritt have no law enforcement experience.

Steele makes stops around Aberdeen

Lt. Gov. Michael S. Steele spent Thursday in Aberdeen, attending a luncheon at Aberdeen Proving Ground for Military Appreciation Week and taking a bus tour of the city with Mayor S. Fred Simmons and Sen. Nancy Jacobs.

Steele, a Republican candidate for U.S. Senate, said the stop was part of his vow to visit all 157 municipalities in the state. Aberdeen was his 90th visit, staffers said.

"This is marking a new era for this community," he told a crowd of politicians and government contractors at the ribbon-cutting for Booz Allen Hamilton Inc., which became the first of the large contractors to make the move to the area under a national military base consolidation. "There are 49 other states that are very jealous right now about what's going to happen here."

Afterward, Steele hopped on a bus and visited the Math and Science Academy at Aberdeen High School, where he posed for pictures with the academy's freshmen and sophomores.

At Ripken Stadium, Billy Ripken walked Steele and his staff to Cal Sr.'s Yard, which hosts the Cal Ripken World Series and will soon have a finished replica of Camden Yards' B&O Warehouse. The group stood about 100 feet behind the center-field wall, where a 12-year-old's home run landed last year, Ripken said.

The last stop was Battelle Memorial Institute, a national nonprofit research company.

Chenowith remains in the hospital

Councilwoman Veronica "Roni" L. Chenowith remained hospitalized last week as she undergoes treatment for leukemia.

Chenowith, who has represented Fallston and Abingdon on the council since 1994, has been recovering at Johns Hopkins Hospital since early May. She issued a press release in which she pledged to continue her campaign for re-election and vowed to return May 18.

The council voted on the county budget Tuesday with just four of seven members present.

Transportation meeting Tuesday

The Harford County Transportation Management Association will meet at 9 a.m. Tuesday in the Higher Education and Applied Technology Center, 1201 Technology Drive, Aberdeen.

Association members serve as advocates for convenient, effective and efficient transportation to support the needs of citizens, businesses and government.

Corey Krejcik, project manager for VPSI Inc., will describe how vanpooling can help companies and employees; and how a ZIP-code analysis can aid employers with meeting the transportation needs of their workers.

The Best Workplaces for Commuters List will be discussed and how companies can get on it. By earning this designation, businesses receive local and national recognition for being a great place to work.

VPSI will have commuter vans on site for viewing.

Information: 410-638-3103.

Jarrettsville library to open Wednesday

A ribbon cutting and grand opening of the Jarrettsville library branch will be held at 8:30 a.m. Wednesday at 3722 Norrisville Road.

The Jarrettsville Elementary School band will perform.

Speakers will include Audra L. Caplan, director of the Harford County Public Library; Jennifer Vido, chairman of the county library board of trustees; David R. Craig, Harford County executive; John Stewart Jr., president of the Jarrettsville Friends of the county library and several elected officials.

Information: 410-459-8030.

County Council OKs board appointments

The Harford County Council approved on Tuesday four executive appointments to the Board of Ethics submitted by County Executive David R. Craig.

Craig reappointed Douglas DeLeaver of Abingdon to the board for a term expiring Sept. 14, 2009.

The other three nominees are new board members. They are Kenneth W. Telsee Sr. of Aberdeen, three-year term expiring May 16, 2009; Elizabeth A. Campion of Abingdon, two-year term expiring May 16, 2008; and Tara G. Dedeaux, of Bel Air, one-year-term expiring May 16, 2007.

Information: 410-638-3343.

Jason Kobin joins mediation panel

Harford County Executive David R. Craig has appointed Jason A. Kobin of Forest Hill a member of the county's Community Mediation Commission.

The Harford County Council approved the nomination May 9. Kobin will serve on the panel until Dec. 4.

Information: 410-638-3343.

Play raises money for women, families

V-Day Bel Air recently presented a benefit production of Eve Ensler's play *The Vagina Monologues* at Harford Community College, raising $8,717.

Ten percent of the proceeds went to V-Day for the College Spotlight organization, the Comfort Women, a group of young women who were forced to offer sexual services to Japanese troops between 1932 and 1945.

The remaining proceeds went to the following Harford County organizations: Anna's House, Family and Children's Services, and Family Tree. Each organization received $2,615.

Cable network expands lineup

Harford Cable Network officials have announced the launch of its expanded channel lineup.

New programming to Harford County's PEG (public access, education, and government) channel are:

- Programming now airs seven days a week, beginning at 9 a.m. daily. Daytime lineups, 9 a.m. to 5:30 p.m., are now organized by genre.
- The daily programming lineup will be: Mondays, "Health and Community"; Tuesdays, "Special Events"; Wednesdays, "Religious"; Thursdays, "Military and Government"; Fridays "Entertainment"; Saturdays, "Sporting Events"; and Sundays, "Religious."

In addition to airing overnight, the community bulletin board will also air from noon to 1:30 p.m. and 5:30 p.m. to 7 p.m. daily.

A prime-time lineup, beginning at 7 p.m., now features current programs and specials.

Information: 410-638-3899.

Eimer joins board of Harford Center

Rose A. Eimer of Bel Air was reappointed as the parent representative to the Harford Center Board of Directors Inc. by Harford County Executive David Craig.

The Harford County Council approved the appointment May 9. Eimer will serve a one-year term that will expire May 14, 2007.

PAID LEGAL NOTICE
ENVIRONMENTAL IMPACT STATEMENT – BRAC ACTIONS
ABERDEEN PROVING GROUND, MD

ACTION: Public Scoping Meetings associated with the preparation of an Environmental Impact Statement (EIS) for the Base Realignment and Closure (BRAC) Actions at Aberdeen Proving Ground, Maryland.

SUMMARY: The U.S. Army Corps of Engineers (USACE) is preparing an EIS for use in decision-making regarding implementing the BRAC Actions at Aberdeen Proving Ground in Maryland. The 2005 BRAC Commission recommended the realignment and relocation of a number of agencies and related functions/activities to Aberdeen Proving Ground. The EIS would address consequences resulting from implementing any actions and projects associated with the BRAC realignment and relocation activities. A detailed description of the Commission's recommendations can be found at http://www.brac.gov/FinalReport.asp.

The preparation of an EIS is required by Section 102 (2) (c) of the National Environmental Policy Act of 1969 (NEPA) to document the positive and negative effects of major government actions. The BRAC Commission's deliberation and decision, as well as the need for closing or realigning a military installation, are exempt from NEPA. However, an appropriate level of NEPA documentation is required to analyze how the BRAC actions will be implemented for concurrent actions, both BRAC-directed and discretionary, at each installation that is receiving realigned missions. The EIS will identify and evaluate the environmental and socioeconomic consequences of viable alternatives. Proposed alternatives are currently being developed and include a combination of renovation of existing structures and new construction to accommodate incoming BRAC missions.

The EIS will also identify and evaluate the potential environmental and socioeconomic aspects of an Enhanced Use Lease (EUL) action at Lauderick Creek on the southern (Edgewood) peninsula.

PUBLIC SCOPING MEETING(s): Affected individuals, government agencies, and private organizations are invited to attend one of the Public Scoping Meetings to be held as follows:

June 6, 2006 — Holiday Inn, Susquehanna Room, 1007 Beards Hill Road, Aberdeen, MD, 6:30 pm – 8:30 pm EDT

June 7, 2006 — Ramada Inn Conference Center, 1700 Van Bibber Road, Edgewood, MD, 6:30 pm – 8:30 pm EDT

The meetings will be structured in an open house format. The meetings will describe the proposed action and alternatives; identify issues that should be considered to be included in the EIS; identify other review, coordination, or permit requirements associated with the study, and discuss the role of the EIS in the overall study process. The public is invited to comment on and identify issues that should be addressed in the EIS. Especially sought is information that would assist the Army in analyzing the environmental consequences of the BRAC actions at Aberdeen Proving Ground. Comment sheets will be available to document public comments. A court reporter will also be available to record verbal comments at the Public Scoping Meetings. Individuals may make written comments after the meeting. All interested parties are urged to attend the public meetings. Sign language interpretation will be available.

QUESTIONS and COMMENTS: Questions about the EIS and written comments should be addressed to: Department of the Army Commander USAG-APG, Maryland Boulevard, Director of Safety Health and Environment, ATTN: IMNE-APG-SHE-R (Bud Keesee), Building 5650, Aberdeen Proving Ground, MD 21005-5001. Written comments may be submitted until July 7, 2006.

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ENTRIES SHOULD BE SUBMITTED NO LATER THAN FRIDAY, MAY 26

CONTEST WINNER WILL BE CHOSEN VIA RANDOM DRAWING OF WINNING NAME SUBMISSIONS - WINNER WILL BE NOTIFIED ON MAY 30

Employees of The Baltimore Sun and Ripken Baseball, Inc. are ineligible to win.
See contest page for complete rules.

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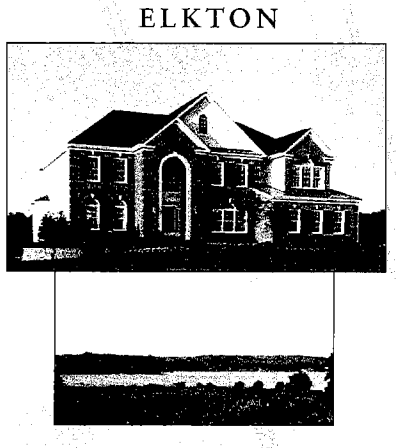

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Notice

ENVIRONMENTAL IMPACT STATEMENT – BRAC ACTIONS

Aberdeen Proving Ground, MD

ACTION: Public Scoping Meetings associated with the preparation of an Environmental Impact Statement (EIS) for the Base Realignment and Closure (BRAC) Actions at Aberdeen Proving Ground, Maryland.

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THE AEGIS ☑ THE RECORD ☑

This is to certify that the attached legal appeared in The Aegis/The Record, a newspaper published and printed in Harford County Maryland for 1 consecutive week(s) before the 27th day of May, 2006.

Mary J. Rosenthal

Mary J. Rosenthal
Legal Advertising Representative

APPENDIX B Scoping Meeting Mailing List and Announcements

APG EIS June 2006 Public Scoping Mailing List

Ruth Ann Young
445 Doris Circle
Aberdeen, MD 21001

George A. & Winifred S. Jonas
124 N. Paradise Road
Havre de Grace, MD 21078

Judy Blomquist, President
Friends of Harford, Inc.
1009 Morrison Boulevard
Aberdeen, MD 21001

James C. Kelton
608 Westgate Road
Aberdeen, MD 21001

Dan Riley
2120 Old Edgewood Road
Edgewood, MD 21040

James Fite
National Secretary
White Lung Association
1608 Walther Avenue
Baltimore, MD 21214

Robert D. Dillon, President
Joppa Magnolia Civic Association
104 Fort Hoyle Road
Magnolia, MD 21085

Thomas T. Garrigan
Joppa/Joppatowne Community Council
1104 Janice Court
Joppa, MD 21085

Honorable Mary-Dulany James
131 South Union Avenue
Havre de Grace, MD 21078

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ABERDEEN PROVING GROUND
BASE REALIGNMENT AND CLOSURE ACTIONS
ENVIRONMENTAL IMPACT STATEMENT
ANNOUNCEMENT OF PUBLIC SCOPING MEETINGS
JUNE 6 AND 7, 2006

The U.S. Army Corps of Engineers (USACE) is preparing an Environmental Impact Statement (EIS) for use in decision-making regarding implementing the Base Realignment and Closure (BRAC) Actions at Aberdeen Proving Ground (APG), Maryland. The 2005 BRAC Commission recommended the realignment and relocation of a number of Department of Defense organizations and related functions to APG. The EIS will address the environmental consequences resulting from implementing actions and projects associated with the realignment and relocation activities. A detailed description of the Commission's recommendations are found at http://www.brac.gov/FinalReport.asp.

The preparation of an EIS is required by the National Environmental Policy Act of 1969 (NEPA), as amended, to document the positive and negative effects of major government actions. The EIS process, including public participation opportunities with respect to this EIS and decision making on the proposed action are guided by 32 Code of Federal Regulations (CFR) Part 651, and the Defense Base Closure and Realignment Act of 1990 (Public Law 101-510), as amended. The BRAC Commission's deliberation and decision, and the need for closing or realigning a military installation, are exempt from NEPA. However, an appropriate level of NEPA documentation is required to analyze how the BRAC actions will be implemented for concurrent actions, both BRAC-directed and discretionary, at each installation that is receiving realigned missions.

Affected individuals, government agencies, and private organizations are invited to attend one of the Public Scoping Meetings to be held as follows:

Tuesday, **June 6, 2006**
Holiday Inn, Susquehanna Room
1007 Beards Hill Road
Aberdeen, MD
6:30 pm to **8:30 pm** EDT

Wednesday, **June 7, 2006**
Ramada Inn Conference Center
1700 Van Bibber Road
Edgewood, MD
6:30 pm to **8:30 pm** EDT

Note for public officials and government regulators:
A **pre-scoping meeting** on the scope and schedule of the EIS will be on
Tuesday June 6, from **5:00 pm** to **6:00 pm** at the
Holiday Inn, Susquehanna Room, 1007 Beards Hill Road, **Aberdeen,** MD

ACTIONS BEING CONSIDERED

The EIS will evaluate the environmental and socioeconomic aspects of alternatives including the No Action Alternative, the BRAC Commission-Directed Action Alternative, and the BRAC Commission-Directed Action with the Lauderick Creek Enhanced Use Lease (EUL) Alternative.

The BRAC Commission-Directed Action Alternative includes a combination of renovation of existing structures and new construction to accommodate incoming BRAC missions. The EIS will also identify and evaluate the potential environmental and socioeconomic aspects of a proposed EUL at Lauderick Creek on the southern (Edgewood) peninsula.

The proposed BRAC and EUL actions may have environmental impacts due to the infrastructure and facilities construction and follow-up operations that will be required to accommodate an increase of military, government civilian, and contractor support personnel. 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 the proposed action. The public scoping meetings will outline the proposed action and solicit comments from the public on the scope of the analysis and what resources should be considered in this EIS.

WHO SHOULD ATTEND THE SCOPING MEETINGS

Affected individuals, government agencies, and private organizations are invited to attend the public scoping meetings. The meetings will describe the proposed action and alternatives; identify issues that should be included in the EIS; identify other review, coordination, or permit requirements associated with the study; and discuss the role of the EIS in the overall study process. The public is invited to comment on and identify issues that should be addressed in the EIS. Especially sought is information that would assist the USACE in analyzing the environmental consequences of the BRAC and EUL actions.

To ensure that the full range of issues related to the proposed realignment action will be addressed, representatives from APG and the USACE will be available to receive public concerns and solicit comments from all interested parties during the public scoping meetings. Participants will receive handout materials that summarize the proposed action and key study issues. The meeting will be structured in an open house format. Comment sheets and a court reporter will be available to document public comments. Sign language interpretation will be available.

All interested parties (including representatives of Federal and non-federal agencies; agricultural, commercial, industrial, business, transportation and utility interests; civic, environmental, recreational, and fish and wildlife organizations; concerned citizens and property owners) are urged to respond to this notice. IN ORDER TO BE HEARD, and to facilitate proper consideration, you should attend the Public Scoping Meeting and present your views, or **send your written comments to:**

Department of the Army Commander USAG-APG
Maryland Boulevard
Director of Safety Health and Environment
ATTN: IMNE-APG-SHE-R (Bud Keesee)
Building 5650
Aberdeen Proving Ground, MD 21005-5001

All comments must be received by July 7, 2006 to be considered for the Draft EIS. Comments received after that date will be considered to the extent practicable.

Commander USAG-APG
Directorate of Safety, Health, and Environment
ATTN: IMNE-APG-SHE-R (Bud Keesee) Building 5650
Aberdeen Proving Ground, MD 21005-5001

June 20, 2006

Name, Title
Agency
Address 1
Address 2
City, State, Zip

Subject: Request for scoping comments

Re: Environmental Impact Statement for Department of the Army Base Realignment and Closure Commission Actions at Aberdeen Proving Ground, Harford County, Maryland

The Mobile District Corps of Engineers is preparing the subject Environmental Impact Statement (EIS) addressing the realignment of certain Department of Defense (DoD) activities to the Aberdeen Proving Ground (APG) Maryland. This EIS is being prepared pursuant to the National Environmental Policy Act (NEPA) of 1969, the Council on Environmental Quality (CEQ) NEPA regulations (40 Code of Federal Regulations (CFR) 1500 to 1508) and 32 CFR Part 651 *Environmental Analysis of Army Actions*. A Notice of Intent to prepare the EIS was published in the Federal Register on November 23, 2005 (Volume 70, Number 225).

The purpose of this letter is to request your assistance in the scoping process for the EIS. The scoping process is intended to aid in determining the scope of the analyses and significant issues related to the proposed action.

The BRAC actions include the realignment of a number of DoD activities from their current locations to the APG facility. In addition, the EIS will examine the potential impacts from the proposed development of an Enhanced Use Lease (EUL) parcel at APG. The current concept for this EUL is the development of an anti-terrorism and law enforcement training center.

Enclosed is a pamphlet prepared for scoping that describes the proposed action and alternatives at his stage of the EIS process. The Department of the Army requests your agency's assistance by reviewing the materials and providing comments regarding: (1) significant issues related to the action that should be analyzed in the EIS; (2) past, present, or reasonably foreseeable future actions known to your agency that should be considered in the cumulative impacts analysis; and (3) any additional agencies that should participate in the scoping process. Agencies listed in Attachment 1 have also received this package.

The Department of the Army appreciates your input and written comments regarding the proposed action within 30 days of the receipt of this letter. If you would prefer an in-person briefing on this action, or if you have any questions, please contact Mr. Bud Keesee at the address above.

Thank you very much for your assistance with this important project.

Sincerely,

for the
Mobile District BRAC NEPA Support Team

Enclosure:

BRAC 2005 Actions and Lauderick Creek EUL Environmental Impact Statement (EIS) Aberdeen Proving Ground, Maryland

Public Agency Scoping

Purpose of Scoping

The purpose of scoping is to seek input from individuals, community organizations, federally-recognized Indian tribes, and federal, state, and local agencies on issues and concerns relating to the scope of an Environmental Impact Statement (EIS) that is being prepared for implementation of the Base Realignment and Closure (BRAC) actions and the Lauderick Creek Enhanced Use Lease (EUL) at Aberdeen Proving Ground (APG). Specifically, the Army is seeking public input on the alternatives to be analyzed and impacts to be addressed in the EIS.

Base Closure and Realignment (BRAC) Legislation and Process

As a result of changing global security requirements, the United States is reducing and restructuring its forces. The process to determine installations for closure and/or realignment was established by the Defense Closure and Realignment Act of 1990 (Public Law 101-510). The BRAC process was conducted in 1991, 1993, and 1995. A 2002 BRAC law authorized another round of realignments and closures in 2005. The Army is closing installations and realigning functions as mandated by the National Defense Authorization Act for Fiscal Year 2002, Public Law 107-107.

The U.S. Army's Enhanced Use Lease (EUL) Program

The National Defense Authorization Act authorizes Department of Defense installations to obtain leasing opportunities. The program is intended to: improve federal property utilization; provide revenue to the installation; reduce installation operating costs; enhance mission performance by fostering cooperation between military services and the private sector; introduce valuable federal property into the local job market. A lease may be entered into only if the Secretary of the Army considers it advantageous to the United States in terms that promote national defense or are in the public interest.

Comments received during the scoping process are important to ensure that the concerns of the public and government agencies pertaining to the BRAC actions and the Lauderick Creek EUL at APG are appropriately addressed in the EIS.

The National Environmental Policy Act (NEPA)

The preparation of an EIS is required by Section 102 (2)(c) of the National Environmental Policy Act of 1969 (NEPA) to document the positive and negative effects of major government actions.

The BRAC Commission's deliberation and decision, as well as the need for closing or realigning a military installation, are exempt from NEPA. This legislation means that NEPA provisions do **not** apply to the need for the BRAC actions to realign APG or the need to consider which BRAC realignment actions will or will not occur at APG. However, an appropriate level of NEPA documentation is required to analyze how the BRAC actions will be implemented for concurrent actions at each installation that is receiving realigned missions.

NEPA provisions **do** apply to the proposed Lauderick Creek EUL.

This EIS addresses consequences resulting from implementing actions and projects associated with the BRAC actions and proposed Lauderick Creek EUL. Comments received will be used by the study team in the preparation of the EIS and Record of Decision for these actions.

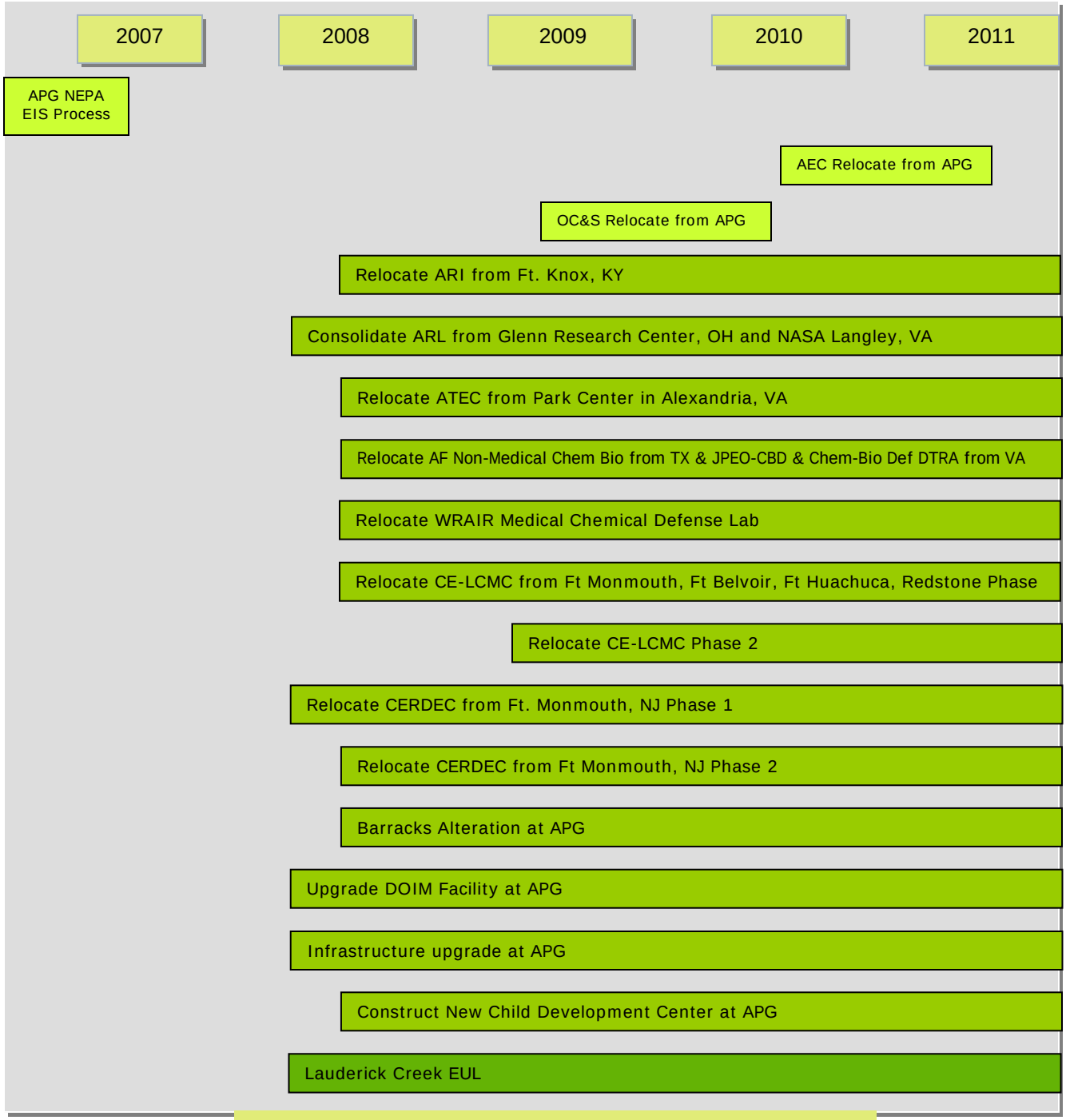
Proposed Action: APG will be receiving numerous Army ... and Air Force activities to transform it into a full spectrum research, development, acquisition center for Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR) Defense Chemical and Biological Systems. The Army Test and Evaluation Command Headquarters ... will also be consolidated at APG. A detailed description of the Commission's recommendations can be found at http://www.brac.gov/Default.asp. The EIS will address the potential impacts from the implementation of the BRAC actions at APG.

Other EIS Actions: The EIS will also address the potential impacts from the use of an EUL site on APG. The Department of the Army proposes to use the EUL program to lease the 1,300-acre Lauderick Creek area located within APG's Southern Peninsula. The current developmental concept is to create an anti-terrorism/law enforcement (AT/LE) technology park and training center. APG is a suitable location for such a facility because of its history in military training and location in the Washington, D.C. region. APG has determined that the Lauderick Creek area offers a potential site for this facility based on existing uses of the area and surrounding features.

Timing of the EIS and BRAC Related Actions

The graphic on the following page illustrates the expected timing of the BRAC actions at APG. Draft EIS is anticipated for public agency review in the Fall of 2006. The Record of Decision for the EIS is expected to be signed in Spring of 2007.

Timeline for Planned Actions



AEC	Army Environmental Center
ARI	Army Research Institute
ARL	Army Research Laboratory
ATEC	Army Test and Evaluation Command
CE-LCMC	Communications-Electronics Life Cycle Management Command
CERDEC	Communications-Electronics Research Development and Engineering Center
DOIM	Directorate of Information Management
DTRA	Defense Threat Reduction Agency
JPEO-CBD	Joint Program Executive Office for Chemical and Biological Defense
OC&S	Ordnance Center and School
WRAIR	Walter Reed Army Institute of Research

Proposed Action and Alternatives

ALTERNATIVE 1 — NO ACTION ALTERNATIVE

The No Action Alternative will be included to identify the existing baseline conditions (as of November 2005) against which potential impacts will be evaluated. For realignment actions directed by the BRAC Commission, it will be noted that the No Action Alternative (maintenance of current conditions) is not feasible since the BRAC actions are congressionally mandated.

ALTERNATIVE 2 — BRAC COMMISSION-DIRECTED ACTIONS and LAUDERICK CREEK EUL (THE PROPOSED ACTION)

BRAC Commission-Directed Actions: As a result of the BRAC Commission Report, a number of organizations will be realigned/relocated to APG (see *List of Incoming Activities* on next page). At APG, the actions will be implemented on both the Northern Peninsula ("Aberdeen Area") and the Southern Peninsula ("Edgewood Area"). This Alternative includes a the maximum use of renovation of existing structures supplemented by the construction of new structures in the cantonment area to accommodate incoming BRAC missions.

and

Lauderick Creek EUL: The proposed plan involves the impact assessment of the EUL site on the southern peninsula. The current developmental concept is the construction of an AT/LE training facility at this EUL site. The concept includes activities on three areas of the EUL site:

Development Area 1: Office/flex-space technology development park. Combines traditional office facilities with engineering, developmental, and implementation/testing and "flex" facilities for private sector organizations that are leading or working closely with AT/LE organizations.

Development Area 2: Lodging, dining, fitness, and recreational amenities for use by center trainers, staff, guests, and the rest of the APG community.

Development Area 3: State-of-the-art, realistic, secure, live-fire, training. This area may include: classrooms, firing ranges, live-fire shoot houses, driving courses, urban assault village, maritime, airport, and rail training facilities, and administrative support areas.

ALTERNATIVE 3 — BRAC COMMISSION-DIRECTED ACTIONS and LAUDERICK CREEK EUL

Alternative 3 is similar to Alternative 2 except that it includes the maximum amount of new construction in the cantonment area supplemented by an appropriate amount of renovation of existing facilities to accommodate incoming BRAC missions.

ALTERNATIVE 4 — BRAC COMMISSION-DIRECTED ACTIONS—MAXIMUM RENOVATION

Alternative 4 is similar to Alternative 2 except that the EUL at Lauderick Creek is not included in the Alternative.

ALTERNATIVE 5 — BRAC COMMISSION-DIRECTED ACTIONS — MAXIMUM NEW CONSTRUCTION

Alternative 5 is similar to Alternative 3 except that the EUL at Lauderick Creek is not included in this Alternative.

List of Incoming Activities

Organization	Mission	Potential Location
Army Research Institute (ARI)	ARI-Human Systems Research evaluates human behavior and its influence in the design and application of ground combat systems within a network centric warfare context.	Northern Peninsula
Army Research Laboratory (ARL)	ARL supports research and development in aerial vehicle propulsion and structural dynamics. Other ARL directorates have existed in the Northern Peninsula for years.	Northern Peninsula
Army Test and Evaluation Command (ATEC)	ATEC supports all Army Test & Evaluation Requirements. ATEC components already reside in the North Peninsula, however, ATEC leadership desires geographic consolidation.	Northern Peninsula
Communications-Electronics Life Cycle Management Command (CE-LCMC)	Develop, acquire, field, and sustain Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR) systems for the tactical and strategic battlespace and the sustaining base.	Northern Peninsula
Communications-Electronics Research Development and Engineering Center (CERDEC)	Develops and integrates C4ISR technologies that enable information dominance and decisive lethality for the networked Warfighter.	Northern Peninsula
Air Force Non-Medical Chem-Bio, Joint Program Executive Office for Chem-Bio Defense (JPEO-CBD), and Chem-Bio Defense Directorate of the Defense Threat Reduction Agency (DTRA)	Chemical and biological defense (CBD) research, non-medical CBD development and acquisition, and point of contact for all chemical, biological, nuclear and radiological detection, and vaccine and medical diagnostic acquisition efforts. Will realign with Edgewood Chemical Biological Center (ECBC) currently at APG.	Southern Peninsula
Walter Reed Army Institute of Research (WRICD)	Biomedical and laboratory research. Will realign with Medical Research Institute of Chemical Defense (MRICD) currently at APG.	Southern Peninsula
Lauderick Creek Enhanced Use Lease (EUL)	The vision is to create a world-class anti-terrorism/law enforcement (AT/LE) technology park and training center. The project will encompass an AT/LE facility capable of providing state-of-the-art, real world training.	Southern Peninsula

Affected Environment

Several resource areas and issues will be considered in the EIS. These include: land use; aesthetics; air quality; noise; geology and soils; water resources; socioeconomic issues, including community facilities and services; transportation; biological resources, including environmentally sensitive areas such as Chesapeake Bay, watershed, threatened and endangered species, and wetlands; site topography and soils; cultural and historic resources; and hazardous and toxic substances. Additional resources and conditions may be identified as a result of this scoping process.

Impact Analysis and Mitigation

The Environmental Consequences section of the EIS will analyze and describe impacts that could reasonably be expected to occur as a result of implementing the proposed actions and related alternatives. For those actions that have the potential to result in significant adverse impacts, the

EIS will describe potential ways to mitigate (i.e. avoid, minimize, rectify, reduce or eliminate, or compensate) these impacts.

Potential beneficial and adverse impacts will be described for each resource category. A wide variety of potential issues are expected to be addressed in the EIS. These issues are likely to include: contaminated installation restoration sites; unexploded ordnance; cultural resources, including potential archeological sites and historical structures; threatened and endangered species (APG hosts the largest concentration of bald eagles on the Chesapeake Bay); wetlands and surface water impacts; forested areas; Chesapeake Bay critical areas; groundwater and source water protection areas; on and off post housing, utilities, transportation, community services; and other issues identified during the EIS process. The EIS will also address cumulative impacts of reasonably foreseeable future actions within the project area.

Other Opportunities for Public Comment

In addition to this initial comment opportunity, agencies will have two additional opportunities to comment:

Fall 2006: The Draft EIS will be completed and will be made available for public review. At that time, a Notice of Availability (NOA) will be published in the *Federal Register*. Notices will also appear in local newspapers. A public meeting will be held to facilitate public comment soon after the Draft EIS is released. Written and oral comments will be accepted for a period of 45 days from the date the NOA is published.

Winter 2007: The Final EIS will be completed and made available for public review. At that time, an NOA will be published in the *Federal Register.* Notices will also appear in local newspapers. Written and oral comments will be accepted for a period of 30 days from the date the NOA is published.

How do I submit comments on the scope of the EIS?

The Department of the Army and APG welcome your input on the issues and concerns that should be addressed in the EIS. Comments may be submitted in the following ways:

Mail

Comments may be mailed to:
Department of the Army
Commander USAG-APG
Director of Safety Health and Environment
ATTN: IMNE-APG-SHE-R (Bud Keesee) Building 5650
Aberdeen Proving Ground, MD 21005-5001

E-mail

Comments may be e-mailed to: Buddy.Keesee@us.army.mil

Fax

Comment may be submitted by Fax: 410-278-6779

Comments must be received or postmarked by July 25, 2006 to be considered in preparation of the Draft EIS. Comments received after that will be considered to the extent practicable.

APPENDIX C Scoping Meeting Display Boards

WELCOME

to the

Aberdeen Proving Ground

BRAC Actions and Lauderick Creek EUL

EIS

Public Scoping Meetings

6:30 p.m. to 8:30 p.m.
June 6 and 7, 2006

The purpose of these meetings is to solicit input on the scope of the EIS and to identify issues and alternatives to be addressed in the study.

Scoping Meeting Participant's Guide

1. Please sign-in at the Information Center. Pickup a brochure and comment sheet.

2. View the displays in the order that you choose.

3. Submit written comments at the Written Comments Station.

4. Submit oral comments at the Court Reporter Station.

Information Center

BRAC Legislation and Process

As a result of changing global security requirements, the United States is reducing and restructuring its forces. The process to determine installations for closure and/or realignment was established by the Defense Closure and Realignment Act of 1990 (Public Law 101-510). The Base Realignment and Closure (BRAC) process was conducted in 1991, 1993, and 1995. The 2002 BRAC law authorized another round of realignments and closures in 2005.

The U.S. Army's Enhanced Use Lease (EUL) Program

The National Defense Authorization Act authorizes Department of Defense installations to obtain leasing opportunities. The program is intended to:

- Improve federal property utilization.
- Provide revenue to the installation.
- Reduce installation operating costs.
- Enhance mission performance by fostering cooperation between military services and the private sector.
- Introduce valuable federal property into the local job market.

A lease may be entered into only if the Secretary of the Army considers it advantageous to the United States in terms that promote national defense or are in the public interest.

BRAC Actions at APG

"APG will be receiving numerous Army … 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 … will also be consolidated at APG."

--Excerpt from the November 23, 2005 Notice of Intent

Lauderick Creek EUL

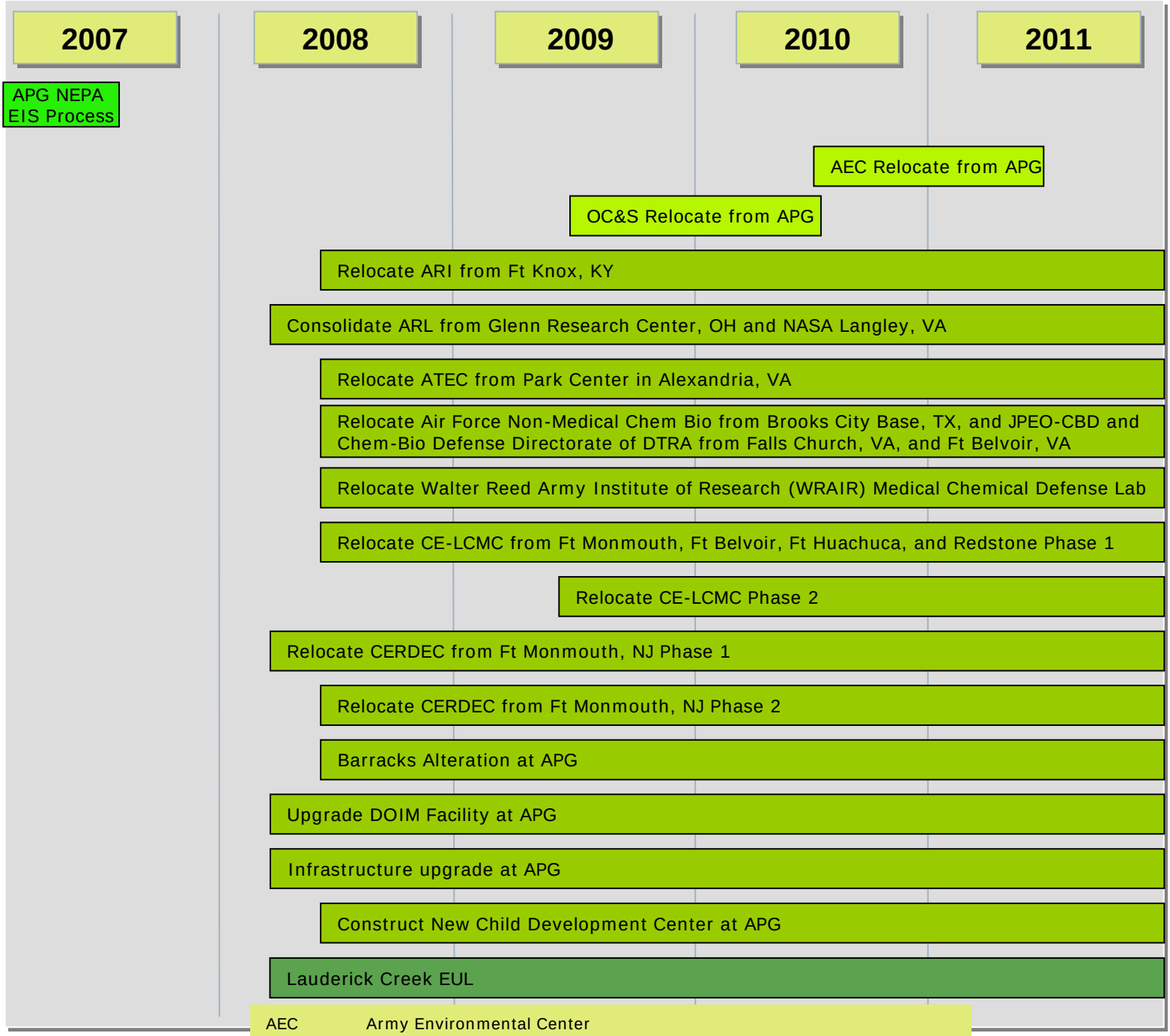
APG proposes to use the EUL program to lease the ~1,300-acre Lauderick Creek area located within APG's Southern Peninsula. The vision is to create an anti-terrorism/law enforcement (AT/LE) technology park and training center. APG is a suitable location for such a facility because of its history in military training and location in the Washington, D.C. region. APG has determined that the Lauderick Creek area offers a potential site for this facility based on existing uses of the area and surrounding features.

BRAC-Directed Activities and Proposed EUL

Incoming Organization	Mission	Potential Location
Army Research Institute (ARI)	ARI-Human Systems Research evaluates human behavior and its influence in the design and application of ground combat systems within a network centric warfare context.	Northern Peninsula
Army Research Laboratory (ARL)	ARL supports research and development in aerial vehicle propulsion and structural dynamics. Other ARL directorates have existed in the Northern Peninsula for years.	Northern Peninsula
Army Test and Evaluation Command (ATEC)	ATEC supports all Army Test & Evaluation Requirements. ATEC components already reside in the North Peninsula.	Northern Peninsula
Communications-Electronics Life Cycle Management Command (CE-LCMC)	Develop, acquire, field, and sustain Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR) systems for the tactical and strategic battlespace and the sustaining base.	Northern Peninsula
Communications-Electronics Research Development and Engineering Center (CERDEC)	Develops and integrates C4ISR technologies that enable information dominance and decisive lethality for the networked Warfighter.	Northern Peninsula
Air Force Non-Medical Chem-Bio, Joint Program Executive Office for Chem-Bio Defense (JPEO-CBD), and Chem-Bio Defense Directorate of the Defense Threat Reduction Agency (DTRA)	Chemical and biological defense research, non-medical chemical and biological defense development and acquisition, and point of contact for all chemical, biological, nuclear and radiological detection, and vaccine and medical diagnostic acquisition efforts. Will realign with Edgewood Chemical Biological Center (ECBC) currently at APG.	Southern Peninsula
Walter Reed Army Institute of Research (WRAIR)	Biomedical and laboratory research. Will realign with Medical Research Institute of Chemical Defense (MRICD) currently at APG.	Southern Peninsula
Lauderick Creek EUL	The vision is to create a world-class anti-terrorism/law enforcement (AT/LE) technology park and multi-modal training center. The project will encompass an AT/LE facility capable of providing state-of-the-art, real world training.	Southern Peninsula

Aberdeen Proving Ground (APG)
Base Realignment and Closure (BRAC) Actions and Lauderick Creek Enhanced Use Lease (EUL)
Environmental Impact Statement (EIS)

Timeline for Planned Actions



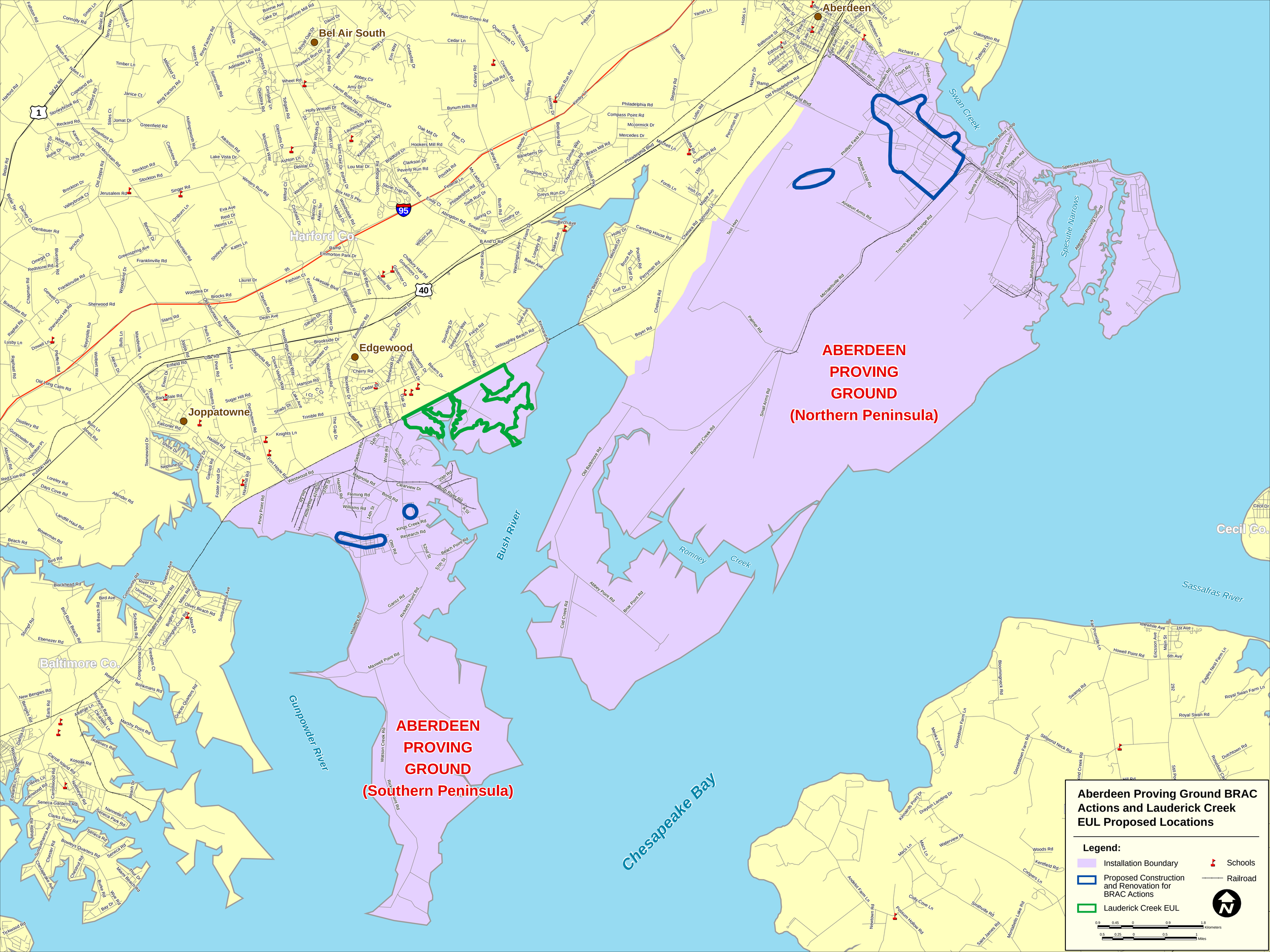
AEC	Army Environmental Center
ARI	Army Research Institute
ARL	Army Research Laboratory
ATEC	Army Test and Evaluation Command
CE-LCMC	Communications-Electronics Life Cycle Management Command
CERDEC	Communications-Electronics Research Development and Engineering Center
DOIM	Directorate of Information Management
DTRA	Defense Threat Reduction Agency
JPEO-CBD	Joint Program Executive Office for Chemical and Biological Defense
OC&S	Ordnance Center and School
WRAIR	Walter Reed Army Institute of Research

Aberdeen Proving Ground (APG)
Base Realignment and Closure (BRAC) Actions and Lauderick Creek Enhanced Use Lease (EUL)
Environmental Impact Statement (EIS)

Personnel and Space Requirements

Organization	Description	Mission	From	Incoming Personnel (Mil, Gov, & Contractor)	Required Space ~gross square feet (Admin, Lab, & Other)
ARI	Relocate ARI from Ft Knox	General administration and accompanying general Human Systems Research Laboratory.	Ft Knox, KY	25 - 40	6,500 - 9,800
ARL	Consolidate Vehicle Tech Labs from Glenn & Langley	Research and development in aerial vehicle propulsion and structural dynamics.	Glenn Research Center, OH, and NASA, Langley AFB, VA	75 - 115	150,000 - 225,000
ATEC	Vacate Park Ctr, Alexandria VA	Supports all Army Test & Evaluation Requirements.	Park Center, Alexandria, VA	700 - 1,200	150,000 - 225,000
Air Force Non-Medical Chem-Bio, JPEO-CBD, and DTRA realign with ECBC	Consolidate Chem-Biological from Brooks/Falls Church/Ft Belvoir	Chemical and Biological Defense Research.	Brooks City-Base, TX, Falls Church, VA, Ft Belvoir, VA	300 - 400	57,000 - 85,000
WRAIR realign with MRICD	Relocate Med-Chem Defense Research	Biomedical and laboratory research. Requires vivarium, vivarium support, and administrative space.	Forest Glen Section, MD	50 - 70	25,000 - 37,000
CE-LCMC	Phase 1-Relocate CE-LCMC Phase 2-Relocate CE-LCMC	Communications and electronics laboratory, fabrication shop facilities, and general administrative.	Ft Monmouth, NJ, Ft Belvoir, VA, Ft Huachuca, AZ, and Redstone Arsenal, AL	5,600 - 8,400 0	1,077,000 - 1,616,000 0
CERDEC	Close Ft Monmouth, relocate CERDEC Phase 1 Close Monmouth relocate CERDEC Phase 2	Develops and integrates C4ISR systems.	Ft Monmouth, NJ	1,600 - 2,300 0	800,000 - 1,200,000 0
Barracks	Barracks Alteration	To meet current housing requirements.	Not Applicable	0	128,000 - 192,000
DOIM	Information Mgmt Upgrade	To meet C4ISR connectivity requirements for incoming organizations.	Not Applicable	0	102,000 - 153,000
Infrastructure	Infrastructure Upgrade at APG	To meet new C4ISR connectivity requirements for incoming organizations.	Not Applicable	0	0
CDC	New Child Development Center	To meet needs for incoming personnel.	Not Applicable	0	20,000 - 29,000
Lauderick Creek EUL	Technology Park and Training Center	To bring together academic, private sector, and government leaders in the field of anti-terrorism for training, policy planning and development.	Not Applicable	Staff 200 - 300 Students per period 500 - 1,000	1,280,000 1,920,000

ARI	Army Research Institute
ARL	Army Research Laboratory
ATEC	Army Test and Evaluation Command
C4ISR	Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance
CE-LCMC	Communications-Electronics Life Cycle Management Command
CERDEC	Communications-Electronics Research Development and Engineering Center
CDC	Child Development Center
DOIM	Directorate of Information Management
DTRA	Defense Threat Reduction Agency
JPEO-CBD	Joint Program Executive Office for Chemical and Biological Defense
ECBC	Edgewood Chemical Biological Center
MRICD	Medical Research Institute of Chemical Defense
WRAIR	Walter Reed Army Institute of Research

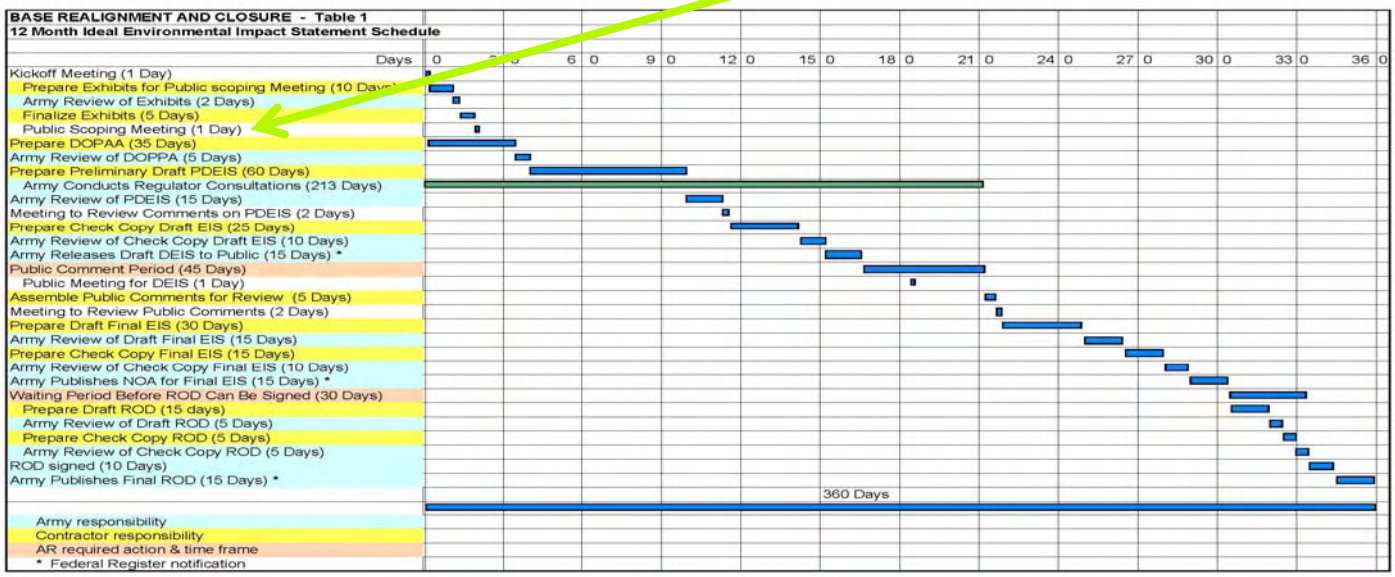

Aberdeen Proving Ground BRAC Actions and Lauderick Creek EUL Proposed Locations
Legend:
Installation Boundary
Proposed Construction and Renovation for BRAC Actions
Lauderick Creek EUL
Schools
Railroad
Kilometers
Miles
ABERDEEN PROVING GROUND (Northern Peninsula)
ABERDEEN PROVING GROUND (Southern Peninsula)
Aberdeen
Bel Air South
Edgewood
Joppatowne
Harford Co.
Baltimore Co.
Cecil Co.
Chesapeake Bay
Bush River
Gunpowder River
Romney Creek
Swan Creek
Spesutie Narrows
Sassafras River

EIS Process and Schedule

The preparation of an EIS is required by Section 102 (2)(c) of the National Environmental Policy Act (NEPA) to document the positive and negative effects of major government actions such as the proposed changes at APG. The EIS addresses consequences resulting from implementing actions and projects associated with realignment, relocation, and development. Comments received during the scoping process will be used by the EIS study team in the preparation of the EIS and Record of Decision for these actions.

- Notice of Intent (NOI) – *November 23, 2005*
- Scoping – *June 2006*
- Draft EIS – *September 2006*
- Draft EIS Public Meeting – *Fall 2006*
- Final EIS – *February 2007*
- Record of Decision (ROD) – *April 2007*

WE ARE HERE



Alternative 1: No Action Alternative

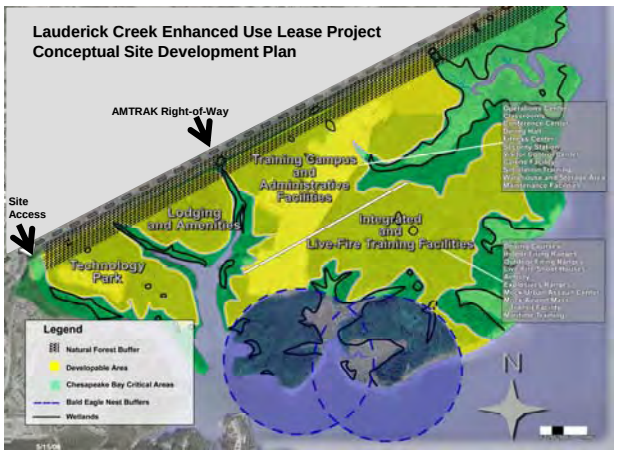
The No Action Alternative will be included to identify the existing baseline conditions against which potential impacts will be evaluated. For realignment actions directed by the BRAC Commission, it will be noted that the No Action Alternative (maintenance of current conditions) is not feasible because the BRAC actions are congressionally mandated actions.

Alternative 2: The BRAC Commission-Directed and Lauderick Creek Enhanced Use Lease

BRAC Commission-Directed Actions: As a result of the BRAC decision, a number of organizations will be realigned/relocated to APG. A combination of new construction and renovation of existing facilities is being considered in developed areas on APG's Northern Peninsula (Aberdeen Area) and Southern Peninsula (Edgewood Area).

Lauderick Creek EUL: The proposed plan involves division of the site into three areas:

Development Area 1: Office/flex-space technology development park. Combines traditional office facilities with engineering, developmental, and implementation/ testing or "flex" facilities for private sector organizations that are leading or working closely with AT/LE organizations.
Development Area 2: Lodging, dining, fitness, and recreational amenities for use by center trainers, staff, guests, and the rest of the APG community.
Development Area 3: State-of-the-art, realistic, secure, live-fire, training. This area will include: classrooms, firing ranges, live-fire shoot houses, driving courses, urban assault village, maritime, airport, and rail training facilities, and administrative support areas.



Alternative 3: BRAC Commission-Directed

Alternative 3 consists of the implementation of all realignment actions mandated by the BRAC Commission Report through a combination of new construction and renovation of existing structures to accommodate incoming BRAC missions.

Impact Analysis and Mitigation

The Environmental Consequences section of the EIS will analyze and describe impacts that could reasonably be expected to occur as a result of implementing the proposed action and related alternatives. For those actions that have the potential to result in significant adverse impacts, the EIS will describe potential ways to mitigate (i.e. avoid, minimize, rectify, reduce or eliminate, or compensate) these impacts.

Potential beneficial and adverse impacts will be described for each of the resource categories. A wide variety of potential issues are expected to be addressed in the EIS include:

- Contaminated Installation Restoration Sites
- Unexploded Ordnance
- Cultural Resources (Including Archeological Sites and Historical Structures)
- Threatened and Endangered Species (APG Hosts the Largest Concentration of Bald Eagles on the Chesapeake Bay)
- Wetlands and Surface Water Impacts
- Forested Areas
- Chesapeake Bay Critical Areas
- Groundwater and Source Water Protection Areas
- On and Off Post Housing, Utilities, Transportation, and Community Services

Socioeconomic (Community) Impact Study Areas

- Economic Development
- Demographics
- Housing
- Quality of Life
- Environmental Justice
- Protection of Children
- Utilities
  - Potable Water Supply
  - Wastewater System
  - Storm Water Runoff
  - Energy Sources
  - Communications
  - Solid Waste

Transportation Impact Study Areas

- Roadways and Traffic
- Installation Transportation
- Public Transportation

Affected Environment
Study Areas

- Water Resources
  - Surface Water
  - Groundwater
  - Floodplains
  - Coastal Zone
- Biological Resources
  - Vegetation
  - Wildlife
  - Sensitive Species
  - Wetlands
- Land Use
- Aesthetics and Visual Resources
- Air Quality
- Noise
- Cultural Resources

How to Submit Your Comments

Comment sheets are available at the Information Center. Don't forget to drop them at the Written Comments Station present during the Scoping Meetings.

A court reporter is available to record verbatim oral comments.

Written comments or requests for more information can be directed to:
Department of the Army
Commander USAG-APG
Director of Safety Health and Environment
ATTN: IMNE-APG-SHE-R-(Bud Keesee)
Building 5650
Aberdeen Proving Ground, MD 21005-5001

A fax number is also available to submit comments: Fax: 410-278-6779

Comments submitted by **July 7, 2006** will be addressed in the Draft EIS. Comments received after that date will be considered to the extent practicable.

Place Written Comments Here

Court Reporter

for

Verbal Comments

THANK YOU

for participating in the APG EIS Scoping Process

US Army Corps of Engineers®
MOBILE DISTRICT

APPENDIX D Scoping Meeting Handout Material

BRAC 2005 Actions and Lauderick Creek EUL Environmental Impact Statement (EIS) Aberdeen Proving Ground, Maryland

Public Scoping Meetings, June 6 and 7, 2006

Purpose of these Scoping Meetings

The purpose of this scoping meeting is to seek input from individuals, community organizations, federally-recognized Indian tribes, and federal, state, and local agencies on issues and concerns relating to the scope of an Environmental Impact Statement (EIS) that is being prepared for implementation of the Base Realignment and Closure (BRAC) actions and the Lauderick Creek Enhanced Use Lease (EUL) at Aberdeen Proving Ground (APG). Specifically, the Army is seeking public input on the alternatives to be analyzed and impacts to be addressed in the EIS.

How to Participate

Stations identifying study areas to be addressed in the EIS are presented during this open-house style meeting. The display boards provide information on topics such as the APG BRAC actions and the Lauderick Creek EUL, alternatives for achieving the proposed actions, the timeline for preparing the EIS, and other public involvement opportunities that will occur throughout the EIS process. APG and U.S. Army Corps of Engineers (USACE) representatives are available to answer questions.

Step 1—Complete an Information Card

Please complete one of the cards available at the Information Center. Completion is not mandatory, but it will ensure that you receive additional information regarding this project as it becomes available.

Step 2—View Displays and Talk with EIS Study Team

We invite you to examine the display boards and talk with staff from the EIS study team to gain a better understanding of the proposed actions and the EIS process.

Step 3—Provide Your Comments

Use the comment sheet provided to identify issues that you would like the study team to consider in preparing the EIS. Comment sheets may be left at the Written Comments Station at this meeting or mailed to the point of contact listed on the sheet along with any other written materials that you would like to enter into the scoping meeting record.

If you would prefer to provide a verbal statement, a Court Reporter station is available where a court recorder will take your comments. Oral statements are limited to 5 minutes.

Comments received during the scoping process are important to ensure that the concerns of the public and government agencies pertaining to the BRAC actions and the Lauderick Creek EUL at APG are appropriately addressed in the EIS.

Base Closure and Realignment (BRAC) Legislation and Process

As a result of changing global security requirements, the United States is reducing and restructuring its forces. The process to determine installations for closure and/or realignment was established by the Defense Closure and Realignment Act of 1990 (Public Law 101-510). The BRAC process was conducted in 1991, 1993, and 1995. A 2002 BRAC law authorized another round of realignments and closures in 2005. The Army is closing installations and realigning functions as mandated by the National Defense Authorization Act for Fiscal Year 2002, Public Law 107-107.

Proposed Action: APG will be receiving numerous Army ... 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 ... will also be consolidated at APG. A detailed description of the Commission's recommendations can be found at http://www.brac.gov/Default.asp

The U.S. Army's Enhanced Use Lease (EUL) Program

The National Defense Authorization Act authorizes Department of Defense installations to obtain leasing opportunities. The program is intended to: improve federal property utilization; provide revenue to the installation; reduce installation operating costs; enhance mission performance by fostering cooperation between military services and the private sector; introduce valuable federal property into the local job market. A lease may be entered into only if the Secretary of the Army considers it advantageous to the United States in terms that promote national defense or are in the public interest.

Proposed Action: APG proposes to use the EUL program to lease the ~1,300-acre Lauderick Creek area located within APG's Southern Peninsula. The vision is to create an anti-terrorism/law enforcement (AT/LE) technology park and training center. APG is a suitable location for such a facility because of its history in military training and location in the Washington, D.C. region. APG has determined that the Lauderick Creek area offers a potential site for this facility based on existing uses of the area and surrounding features.

The National Environmental Policy Act (NEPA)

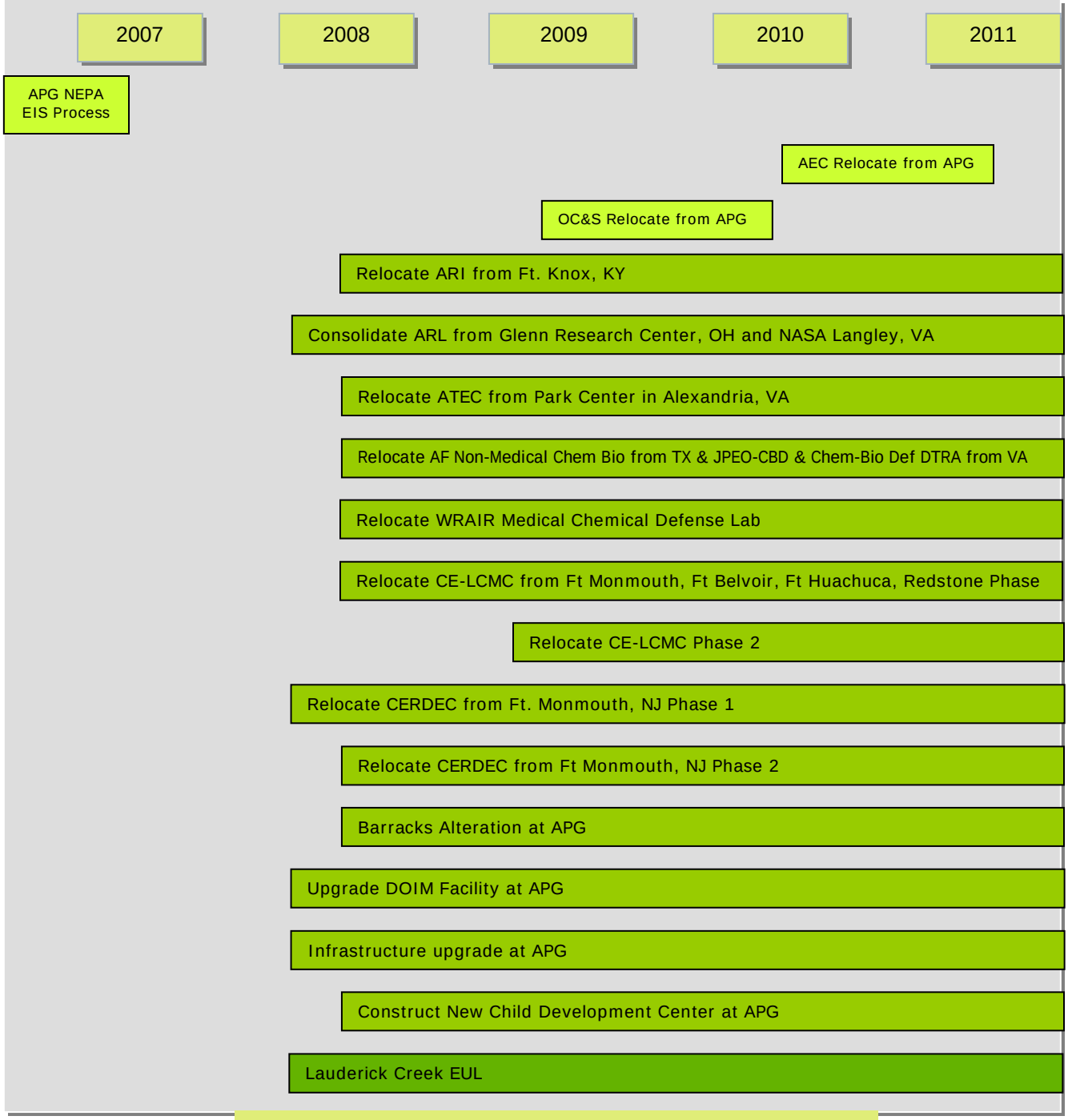
The preparation of an EIS is required by Section 102 (2)(c) of the National Environmental Policy Act of 1969 (NEPA) to document the positive and negative effects of major government actions.

The BRAC Commission's deliberation and decision, as well as the need for closing or realigning a military installation, are exempt from NEPA. This legislation means that NEPA provisions do **not** apply to the need for the BRAC actions to realign APG or the need to consider which BRAC realignment actions will or will not occur at APG. However, an appropriate level of NEPA documentation is required to analyze how the BRAC actions will be implemented for concurrent actions at each installation that is receiving realigned missions.

NEPA provisions do apply to the proposed Lauderick Creek EUL.

This EIS addresses consequences resulting from implementing actions and projects associated with the BRAC actions and proposed Lauderick Creek EUL. Comments received will be used by the study team in the preparation of the EIS and Record of Decision for these actions.

Timeline for Planned Actions



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JPEO-CBD	Joint Program Executive Office for Chemical and Biological Defense
OC&S	Ordnance Center and School
WRAIR	Walter Reed Army Institute of Research

Alternatives

ALTERNATIVE 1 — NO ACTION ALTERNATIVE

The No Action Alternative will be included to identify the existing baseline conditions against which potential impacts will be evaluated. For realignment actions directed by the BRAC Commission, it will be noted that the No Action Alternative (maintenance of current conditions) is not feasible since the BRAC actions are congressionally mandated.

ALTERNATIVE 2 — BRAC COMMISSION-DIRECTED ACTIONS and LAUDERICK CREEK EUL

BRAC Commission-Directed Actions: As a result of the BRAC Commission Report, a number of organizations will be realigned/relocated to APG. At APG, the actions will be implemented on both the Northern Peninsula ("Aberdeen Area") and the Southern Peninsula ("Edgewood Area"). This Alternative includes a combination of new construction and renovation of existing structures to accommodate incoming BRAC missions.

and

Lauderick Creek EUL: The proposed plan involves division of the site into three areas:

Development Area 1: Office/flex-space technology development park. Combines traditional office facilities with engineering, developmental, and implementation/ testing or "flex" facilities for private sector organizations that are leading or working closely with AT/LE organizations.

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ALTERNATIVE 3 — BRAC COMMISSION-DIRECTED ACTIONS

Alternative 3 consists of the implementation of all realignment actions mandated by the BRAC Commission Report through a combination of new construction and renovation of existing structures to accommodate incoming BRAC missions.

Affected Environment

Several resource areas and issues will be considered in the EIS. These include: land use; aesthetics; air quality; noise; geology and soils; water resources; socioeconomic issues, including community facilities and services; transportation; biological resources, including environmentally sensitive areas such as Chesapeake Bay, watershed, threatened and endangered species, and wetlands; site topography and soils; cultural and historic resources; and hazardous and toxic substances. Additional resources and conditions may be identified as a result of this scoping process.

Incoming Activities

Organization	Mission	Potential Location
Army Research Institute (ARI)	ARI-Human Systems Research evaluates human behavior and its influence in the design and application of ground combat systems within a network centric warfare context.	Northern Peninsula
Army Research Laboratory (ARL)	ARL supports research and development in aerial vehicle propulsion and structural dynamics. Other ARL directorates have existed in the Northern Peninsula for years.	Northern Peninsula
Army Test and Evaluation Command (ATEC)	ATEC supports all Army Test & Evaluation Requirements. ATEC components already reside in the North Peninsula, however, ATEC leadership desires geographic consolidation.	Northern Peninsula
Communications-Electronics Life Cycle Management Command (CE-LCMC)	Develop, acquire, field, and sustain Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR) systems for the tactical and strategic battlespace and the sustaining base.	Northern Peninsula
Communications-Electronics Research Development and Engineering Center (CERDEC)	Develops and integrates C4ISR technologies that enable information dominance and decisive lethality for the networked Warfighter.	Northern Peninsula
Air Force Non-Medical Chem-Bio, Joint Program Executive Office for Chem-Bio Defense (JPEO-CBD), and Chem-Bio Defense Directorate of the Defense Threat Reduction Agency (DTRA)	Chemical and biological defense (CBD) research, non-medical CBD development and acquisition, and point of contact for all chemical, biological, nuclear and radiological detection, and vaccine and medical diagnostic acquisition efforts. Will realign with Edgewood Chemical Biological Center (ECBC) currently at APG.	Southern Peninsula
Walter Reed Army Institute of Research (WRICD)	Biomedical and laboratory research. Will realign with Medical Research Institute of Chemical Defense (MRICD) currently at APG.	Southern Peninsula
Lauderick Creek Enhanced Use Lease (EUL)	The vision is to create a world-class anti-terrorism/law enforcement (AT/LE) technology park and training center. The project will encompass an AT/LE facility capable of providing state-of-the-art, real world training.	Southern Peninsula

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Timeline for this EIS and Other Opportunities for Public Comment

In addition to this initial comment opportunity, the public will have two additional opportunities to comment:

Fall 2006: The Draft EIS will be completed and will be made available for public review. At that time, a Notice of Availability (NOA) will be published in the *Federal Register*. Notices will also appear in local newspapers. A public meeting will be held to facilitate public comment soon after the Draft EIS is released. Written and oral comments will be accepted for a period of 45 days from the date the NOA is published.

Winter 2007: The Final EIS will be completed and made available for public review. At that time, an NOA will be published in the *Federal Register.* Notices will also appear in local newspapers. Written and oral comments will be accepted for a period of 30 days from the date the NOA is published.

How do I submit comments on the scope of the EIS?

The Department of the Army and APG welcome your input on the issues and concerns that should be addressed in the EIS. Comments may be submitted in the following ways:

Scoping Meeting

Oral and written comments may be submitted at the June 2006 scoping meetings.

Mail

Comments may be mailed to:
Department of the Army
Commander USAG-APG
Director of Safety Health and Environment
ATTN: IMNE-APG-SHE-R (Bud Keesee) Building 5650
Aberdeen Proving Ground, MD 21005-5001

E-mail

Comments may be e-mailed to: Buddy.Keesee@us.army.mil

Fax

Comment may be submitted by Fax: 410-278-6779

Comments must be received or postmarked by July 7, 2006 to be considered in preparation of the Draft EIS. Comments received after that will be considered to the extent practicable.

APPENDIX E Scoping Meeting Sign-in Cards

Aberdeen Proving Ground, Maryland
BRAC and Lauderick Creek EUL
Environmental Impact Statement
Public Scoping Meeting

Name Pat Barber

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APPENDIX F Scoping Comment Sheets, Letters, Emails, and Verbal Transcripts

MDP
Maryland Department of Planning

Robert L. Ehrlich, Jr.
Governor
Michael S. Steele
Lt. Governor

Audrey E. Scott
Secretary
Florence E. Burian
Deputy Secretary

July 3, 2006

Mr. Bud Keesee
Project Manager, Directorate of Safety, Health, and Environment
U.S. Army Garrison, Aberdeen Proving Ground
IMNE-APG-SHE-R, Building 5650
Aberdeen Proving Ground, MD 21005-5001

STATE CLEARINGHOUSE REVIEW – ADVERSE COMMENTS RECEIVED

State Application Identifier: MD20060621-0661
New Reply Due Date: 07/18/2006
Project Description: Scoping prior to Environmental Impact Statement: Base Realignment and Closure 2005 Actions at Aberdeen Proving Ground, and Lauderick Creek Enhanced Use Lease
Project Location: Harford County
Clearinghouse Contact: Bob Rosenbush

Dear Mr. Keesee:

The State Clearinghouse received the enclosed comments regarding the referenced project from the Maryland Military Department.

Their comments indicate the on-going need for this large, military training site. The Military Department has held a long-term lease of Lauderick Creek, as a Maryland National Guard training site, for many years. The Military Department reported that no prior, official notification had been received about their leaseholder status.

Lauderick Creek is the only large military training site, currently available to the Maryland National Guard in the Baltimore metropolitan area, which offers local soldiers and airmen a wide range of weekend and longer-term training opportunities within a reasonable distance of their home stations.

Consideration of the comments will require an extension of the initial review period. The new reply date is noted above. We encourage you to make an effort to provide clarifying information or resolve conflicting concerns. You may consult directly with the commenting party. Please send a copy of any correspondence between you and the reviewing agency. Upon request, the Clearinghouse can provide assistance to resolve conflicting concerns.

The Clearinghouse requests a response to the enclosed comments by July 18, 2006 to allow us to expeditiously conclude this review. Your cooperation and attention to the review process is appreciated. 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., Director
Maryland State Clearinghouse for Intergovernmental Assistance

LCJ:BR
cc: Karen Jobes - APG
Bill Riley - MILT

06-0661_OACR.OTH.doc

United States Department of the Interior

U. S. GEOLOGICAL SURVEY
Maryland-Delaware-D.C. Water Science Center
8987 Yellow Brick Road
Baltimore, MD 21237-2303

Commander USAG-APG
Directorate of Safety, Health, and Environment
ATTN: IMNE-APG-SHE-R (Bud Keesee) Building 5650
Aberdeen Proving Ground, MD 21005-5001

July 5, 2006

Subject: Response to request for scoping comments

RE: Environmental Impact Statement for Department of the Army Base Realignment and Closure Commission Actions at Aberdeen Proving Ground, Harford County, Maryland

Per your written request on June 20, 2006, the U.S. Geological Survey (USGS) Maryland-Delaware-D.C. Water Science Center is pleased to provide comments on the scoping process for the pending Environmental Impact Statement (EIS) in the Edgewood and Aberdeen peninsulas, and Enhanced Use Lease (EUL) planned for the Lauderick Creek area.

Specifically, in response to your three questions:

(1) Significant issues related to the action that should be analyzed in the EIS: **While no maps were provided, it is likely that some of the BRAC actions and the EUL are located within the areas included in the Installation Restoration Program of the Edgewood ("southern") peninsula. Potential effects of a change in land use should be verified in all areas proposed for refurbishment or new construction with respect to soil, ground water, or sediment contamination and any remediation activities currently underway, both in the immediate vicinity of the action and downgradient. This would include both active and passive remediation or effects that any planned changes to these systems will have on downgradient receptors such as surface water bodies and wetlands. Areas currently undeveloped that are proposed for development (such as in the EUL) should take into consideration habitat quality, particularly wetland impacts. Some of the tidal wetlands along the peninsulas are considered valuable habitat in addition to providing remediation benefits for some contaminants discharging in their direction. Increased loading of sediment, runoff, and contaminants such as polyaromatic hydrocarbons and gasoline components should be assessed in these areas. Conversely, some tidal wetlands along the peninsulas have been heavily managed and could benefit from some habitat restoration. An action near or upgradient of an area could benefit from restoration combined with the activities proposed in the BRAC or EUL activities. Coastal erosion issues, specifically due to sea level rise should also be considered in actions designated to occur near the shoreline. If USAG APG has questions related to specific areas, USGS would be happy to discuss them in more detail.**

(2) Past, present, and reasonably foreseeable future actions known to your agency that should be considered in the cumulative impacts analysis: **USGS is unaware of specific past, present, or future actions that should be generally considered. Since these are likely to be location specific, USGS is happy to provide additional input if USAG APG has specific questions**

about areas in which USGS has previous studied including Canal Creek, Lauderick Creek Cluster 13, Graces Quarters, J-Field, and O-Field.

(3) Additional agencies that should participate in the scoping process **USGS is unaware of additional agencies, other than those included in Attachment 1, that should be contacted for input.**

Sincerely,

James M. Gerhart
Director

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
1650 Arch Street
Philadelphia, Pennsylvania 19103-2029

July 7, 2006

Department of the Army Commander USAG-APG
Maryland Boulevard
Director of Safety Health and Environment
ATTN: IMNE-APG-SHE-R (Bud Keesee)
Building 5650
Aberdeen Proving Ground, MD 21005-5001

Re: Aberdeen Proving Ground Base Realignment and Closure Actions

Dear Mr. Keesee:

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) is responding to your invitation to provide written comments on the above referenced project. Based on the information provided, it was determined that the Department of the Army (Army) should address the following areas of concern in the Draft Environmental Impact Statement (DEIS), if applicable to the scope of the project.

Land Use

The project area should be described in detail and quantified, specifying the type and acreage of land impacted as well as a description of the existing buildings on the site including their use.

Identify any hazardous wastes that would require disposal prior to alteration in land use, and any hazardous materials that would be used or generated in construction or operation. Include or reference a detailed plan for proper disposal.

Discuss any permits required before commencement of the proposed actions. This may include a Section 404/Section 10 permit from the Corps of Engineers, State water quality certification, and local construction and zoning permits.

Wetlands

If the proposed action(s) would impact wetlands, then the Army is required to delineate wetlands according to the 1989 Federal Manual for Identifying and Delineating Jurisdictional Wetlands. Impacts to wetlands should be avoided or minimized whenever possible. The total size of the wetlands should be provided, in addition to the size of the wetland in the study area and size of the direct impact. The DEIS must analyze the size and functional values of all impacted wetlands and develop a mitigation plan for their replacement.

Groundwater Resources

The principal aquifers in the region should be identified and described. All wells, both public and private, that could potentially be affected by the project must be identified. Areas of groundwater recharge in the vicinity should also be identified and any potential impacts from the proposed actions examined.

Surface Water Resources

The DEIS should discuss potential water quality impacts to surface resources in the study area. The potential physical impacts (turbidity, shading, siltation, alteration of currents) should be evaluated and described. The DEIS should outline measures to protect surface waters. The aquatic ecosystem must be evaluated carefully and include a detailed discussion of runoff, sediment and erosion control measures. Such mitigation measures must address both short term construction impacts and long term project impacts.

Aquatic Biota

The fish and benthic invertebrates in the streams, lakes, and ponds within the study area should be surveyed. An analysis of both fish and benthic communities should be conducted to determine the quality and function of the aquatic biota. Mitigation measures should be outlined. The purpose of the survey is: 1) to detect impairment of aquatic biota, 2) to assess the relative severity of the impairment, 3) to prioritize sites for more intensive evaluations, and 4) to define baseline conditions and documenting recovery from impairment following mitigation actions.

Terrestrial Resources

The DEIS should provide a complete description of the terrestrial habitat resources in the study area. The description of the forested areas should include, among other things, a description of their areal extent, species composition, continuity, and diversity. Complete species lists for mammals, birds, amphibians, reptiles, and plants present in the study area should be provided. The composition and characteristics of each community type should be summarized and the functions and total acreage indicated. In addition, the species should be mapped relative to habitat locations and species density.

To determine the baseline value of the habitat and the severity of the potential impacts from the proposed project, EPA recommends that a baseline Habitat Evaluation Procedure (HEP) be completed on the study area using the U.S. Fish and Wildlife Services's Habitat Evaluation Procedure. If the impacts of the wildlife and terrestrial habitat are unavoidable, the HEP will help to determine the type of mitigation measures which would be considered appropriate for the potential impacts.

Measures to avoid potentially adverse impacts to these resources should be evaluated and implementation and mitigation plans to minimize impacts should be developed. Where such impacts cannot be avoided, adequate compensation developed through habitat assessment must be implemented.

Air Quality

To demonstrate compliance with the National Ambient Air Quality Standards (NAAQS), a quantitative assessment air quality assessment must be conducted where significant traffic slowdowns or queuing are possible. The DEIS should identify areas that meet the NAAQS standard for the criteria pollutant as well as those areas where a criteria pollutant level exceeds the NAAQS. The appropriate air quality analysis should be completed using the MOBILE4 emission model and the CALINE3 dispersion model. A copy of the Air Quality Technical Report should be provided for our review.

A general conformity rule analysis should be conducted according to the guidance provided by the EPA in Determining Conformity of General Federal Actions to State or Federal Implementation Plans. Under the general conformity rule, reasonably foreseeable emissions associated with all operational and construction activities, both direct and indirect, must be quantified and compared to the annual de minimis levels for those pollutants in nonattainment for that area.

Traffic and Transportation

The DEIS should address traffic and transportation as it relates to the proposed project. It may be necessary to provide an evaluation of existing roads specifying existing levels of service at major intersections near the project area as well as accident data. If appropriate, an evaluation of the impacts associated with an increased number of employees should be provided. The DEIS should discuss existing and proposed public transportation to the area under consideration and provide estimates of expected usage. Traffic projects should then be made to show expected conditions for a completed project.

Socioeconomic Impacts

Discuss the socioeconomic and cultural status of the area, including the number of people, employees and/or jobs impacted as a result of the proposed project. The DEIS should address the decrease or increase of people/employees/jobs in relation to its effect on tax base, local housing, job markets, schools, utilities, businesses, etc.

Waste Management

The Resource Conservation and Recovery Act (RCRA) sets standards for hazardous waste treatment, storage, and disposal facilities. The management of hazardous waste at the facility should be conducted in compliance with RCRA. The DEIS should also state if a Hazardous Waste Management Plan and a Hazardous Waste Minimization Plan are in place.

The DEIS should also identify known hazardous materials, including asbestos-containing materials (ACM), lead-based paint (LBP), and oil and other hazardous materials (OHMs), located within the study area. The status of the materials should be discussed as well as remedial methods described (if applicable) in addition to providing a detailed plan for proper disposal.

Noise

The results of noise studies in the project area should be summarized in the DEIS. In addition, noise mitigation measures should be implemented during renovation, demolition and/or construction. These measures may include:

- maintenance of construction equipment and installation of mufflers to reduce noise;

- time of day restrictions on construction and maintenance activities to eliminate noise during those times of day when it is considered to be most objectionable; and

- timing of demolition and/or construction activities to avoid primary breeding and nesting seasons of avian and other affected species.

Cultural Resources

Under Sections 106 and 110 of the National Historic Preservation Act, federal agencies must establish programs to identify, evaluate, and nominate to the National Register of Historic Places eligible properties under their control and manage such properties with due consideration for preservation of the cultural values. Under this mandate, planning responsibilities include not only nationally significant properties but also those that may be eligible because of their importance to a locality, state, or region. The Maryland State Historic Preservation Officer (SHPO) should be consulted throughout the planning process. The SHPO will provide information on potential historic or archaeological sites within the study area and work with you fulfill the requirements of Section 106 of the National Historic Preservation Act.

Environmental Justice

Executive Order 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Population," directs each federal agency to incorporate environmental justice into its mission and activities. In accordance with EO 12898, the DEIS

should examine the demographic profile of the population around the study area. Included with this examination should be a determination as to whether the proposed project has the potential to adversely affect human health and the environment in the areas surrounding the project area, specifically with regard to disadvantaged populations.

Cumulative Impacts

Cumulative impacts can result from individually minor, but collectively significant, actions taking place over a period of time. The Council of Environmental Quality in 40 CFR 1508.7 defines cumulative impacts as "impacts on the environment which result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions." Therefore a cumulative impacts assessment should be an integral part of the DEIS for the proposed action.

Thank you for providing EPA with the opportunity to comment on this project. We look forward to reviewing the DEIS. If you have any questions regarding our comments, the staff contact for this project is Karen DelGrosso; she can be reached at 215-814-2765.

Sincerely,

William Arguto
NEPA Team Leader

MD STATE CLEARINGHOUSE REVIEW-ID # MD20060621-0661
Scoping prior to EIS: BRAC 2005 Actions at APG and Lauderick Creek Enhanced Use Lease

OPTION #2 WITH COMMENTS

This request for scoping comments is to expand on the following three questions:

1. Significant issues related to the action that should be considered in the cumulative impacts anaylsis;
2. past, present, or reasonably foreseeable future actions known to your agency that should be considered in the cumulative impacts analysis; and
3. any additional agencies that should participate in the scoping process.

For #1 – follow the organization of the traditional environmental impact statement (EIS) and in previous Clearinghouse reviews. Include the entries provided under the heading "Affected Environment" on page 5 of the pamphlet provided and the issues identified under "Impact Analysis and Mitigation" on pages 5 and 6 of the pamphlet. For #2 – Recommend to incorporate the environmental issues identified on the Harford County Health Department's environmental concerns maps, which are in the area in question and to comply with all environmental codes such as securing permits for open burning, etc. I have no additions to the list of agencies in #3.

Comments submitted by:

Susan Kelly
Director, Environmental Health
Harford County
Health Department
July 17, 2006

MARYLAND
DEPARTMENT OF
NATURAL RESOURCES

Robert L. Ehrlich, Jr., *Governor*
Michael S. Steele, *Lt. Governor*
C. Ronald Franks, *Secretary*

July 18, 2006

Commander USAG-APG
Directorate of Safety, Health, and Environment
ATTN: IMNE-APG-SHE-R (Bud Keesee) Building 5650
Aberdeen Proving Ground, Maryland 21005-5001

Dear Sirs:

This letter is in response to your request for scooping comments relative to the Environmental Impact Statement (EIS) for Department of the Army Base Realignment and Closure Commission Actions at Aberdeen Proving Ground, Harford County, Maryland.

The Maryland Department of Natural Resources has reviewed the information included with the subject request. We offer the following items that we believe should be addressed in the subject EIS:

Ground Water

The Department has identified several issues regarding ground water at Aberdeen Proving Ground that we believe should be addressed in the EIS for the proposed facilities. Environmental impacts on ground water at APG fall into two broad categories: the shallow unconfined ground-water system and deep confined aquifers.

Numerous instances of existing contamination have been documented in the shallow (less than about 50 feet deep) unconfined ground-water system. The potential for exposure of contaminated ground water during construction and subsequent activities should be addressed in the EIS. The EIS should also address the introduction of new contaminants to the shallow ground-water system, either through improper storage and disposal, or through routine activities, such as live-fire training. The shallow ground-water system provides water to streams as baseflow, and to wetlands and estuaries as seepage. The EIS should address the impact on these ecosystem components of altering the recharge characteristics of the shallow aquifer system by creating impervious surfaces (buildings, parking lots, etc.), rerouting of surface runoff, dewatering of construction sites, and re-grading the terrain. It seems unlikely that the shallow aquifer system would be used for water supply due to existing contamination and unreliability during droughts. However, if it is pumped, the impact of withdrawals on the previously mentioned ecosystem components should be considered.

The deep (greater than about 50 feet deep) confined aquifers underlying APG may also be affected by the proposed facilities. If water is withdrawn from the confined aquifers for water supply, the impact of reduced water levels on existing ground-water users should be considered. Construction and operation of deep supply wells must be closely scrutinized to prevent contamination of deep aquifers from surface sources. Withdrawal of significant quantities of

water from deep aquifers would create cones of depression in the regional potentiometric surface, which may alter ground-water flow gradients and cause migration of contaminated ground water. Similarly, ground-water withdrawals may cause brackish-water intrusion from Chesapeake Bay and other tidal estuaries in the area. These potential impacts should be included in the EIS.

Chesapeake Bay Critical Area

Maryland's Critical Area Commission Chesapeake and Atlantic Coastal Bays has reviewed the subject scoping request. The Commission states that the alternatives include a technology park, recreational amenities, and a training facility and that Critical Area issues must be included in the EIS. For more information on Critical Area requirements please contact Dawnn McCleary of the Critical Area Commission at 410-260-3483.

Rare, Threatened and Endangered Species

The Mobile District Corps of Engineers should coordinate with the Department's Wildlife and Heritage Service to determine if the proposed activities will impact any rare, threatened or endangered species. Please contact Lori A. Byrne of our Wildlife and Heritage Service at 410-260-8573 for further coordination.

Fisheries and Aquatic Resources

The Department's Fisheries Service has documented anadromous fish species, including yellow perch (*Perca flavescens*), white perch (*Morone americana*) and herring (*Alosa sp.*) in many of the Bush River drainage area tributaries near APG. In addition to anadromous fish species, streams in the vicinity of APG could support many resident fish populations. Table X-2 (attached) lists resident fish species documented in the Bush River Basin by our Fisheries Service. Many of these species could potentially be found in streams on APG. The EIS should address potential impacts to these fishery resources.

Forest Conservation

The Forest Conservation Act requires that before the issuance of a grading or sediment control permit, the applicant shall have an approved Forest Conservation Plan and Forest Stand Delineation (Nat. Res. Art. 5-1601--5-1613, Annotated Code of Maryland). The Forest Service recommends that a forest conservation plan be submitted to the state or local jurisdiction with planning and zoning authority when the preliminary site plan is submitted for review to the local jurisdiction. The Act provides for the retention of forested areas in sensitive areas on the subject property as one method of mitigation.

Please contact Marian Honeczy, 410-260-8511
Maryland Forest Conservation Act Coordinator
DNR-Forest Service, 580 Taylor Avenue, Tawes State Office Building,
Annapolis, Maryland 21401

Any tree that originates within a public road right-of-way is considered a roadside tree under the Maryland Roadside Tree Care Law (NRA 5-406) and Regulations (COMAR 08.07.02) and any plans to remove, trim, or plant trees within the public fight-of-way are required to obtain a permit from the Maryland Department of Natural Resources Forest Service.

Please contact Todd Ericson, 410-836-4551
Maryland DNR-Forest Service, Central Regional Office
2 South Bond Street, Bel Air, MD 21014

Green Infrastructure

While it is important to look at threatened and endangered species, wetlands, forests, Critical Areas, etc. separately, the Department has spearheaded efforts to take all such factors into account for their collective interrelationships especially as necessary to sustain the irreplaceable natural biodiversity in the State. This integrated look at the complex natural relationships as they engage on the landscape has become known nationally as Green Infrastructure (GI).

Due to persistent development pressure, large contiguous blocks of natural lands are being fragmented. Studies have conclusively shown that there is a measurable direct relationship between increased isolation of natural areas and biodiversity lost within them. When forested areas, for example, become disconnected from others, Forest Interior Dwelling Species (FIDS) are not able to sustain their populations. Both the size of natural "Hubs" on the landscape and their interconnectivity via natural "Corridors" that species can traverse, are now known to be crucial to sustain biologically diverse natural populations.

Maryland's Green Infrastructure Assessment (GIA), an analysis which identifies the State's ecological hub and corridor network, also provides an ecological ranking system or "Eco-Rank" at a 30 meter resolution over the Maryland landscape. This ranking system quantifies the relative ecological values of the natural resources, both for their specific ecological features and for their value to the regional ecological hub and corridor network. All of the areas described as belonging to the US Army Aberdeen Proving Grounds represent the highest ecologically ranking green infrastructure in the region. The main APG island represents the largest contiguous block of the highest ranking GI in the north east quadrant of the state. Each of the remaining islands and peninsulas belonging to the APG have a significant portion, if not the majority of their area, consisting of this highest quality green infrastructure. As you note in your memorandum, this GI is rich in forest cover, wetlands, wildlife, and proximity to the Chesapeake Bay. Every feasible effort should be made to preserve the cohesive quality of these natural areas as well as efforts to preserve their interconnectedness.

Both the ***Affected Environment*** assessment and the ***Impact Analysis and Mitigation*** assessment should consider Green Infrastructure resources. Impacts should consider issues such as reducing the size of hubs, breaking corridor linkages, fragmenting forest and wetland blocks into isolated features and increasing edge habitat relative to interior habitat conditions. Mitigation approaches should consider conservation of unprotected green infrastructure resources in response to any losses or degradation of the existing green infrastructure resource. Additionally, restoration should be targeted to enhance and expand existing green infrastructure resources.

We recognize the ongoing tension between the needs for development and the impacts on the natural landscape. We can provide data, as well as analysis tools and concepts to increase awareness of the sensitivities that we have lightly touched on in this response in relation to the State's Green Infrastructure resources. We would like to make ourselves available for further consultation as your EIS progresses. You may find more information at the following website:

http://www.dnr.state.md.us/greenways/gi/gi.html. For more information on the State's Green Infrastructure you may contact Christine Conn of our Watershed Services' Ecosystem Analysis Center at 410-260-8785.

Thank you for the opportunity to review and comment proposed EIS. If you should have questions concerning these comments you may contact me at 410-260-8331 or by email at rdintaman@dnr.state.md.us.

Sincerely,

Ray C. Dintaman Jr

Ray C. Dintaman, Jr., Director
Environmental Review Unit

Attachment

Table X-2. Fish Species Collected in the Bush River Basin, 1974 through 1984. (New species collected in 1980 through 1984 study designated by *.)

Cyprinidae	
Blacknose dace	*Rhinichthys atratulus* (Hermann)
Longnose dace	*Rhinichthys cataractae* (Valenciennes)
Rosyside dace	*Clinostomus funduloides* Girard
Cutlips minnow	*Exoglossum maxillingua* (Lesueur)
Creek chub	*Semotilus atromaculatus* (Mitchill)
River chub	*Nocomis micropogon* (Cope)
Fallfish	*Semotilus corporalis* (Mitchill)
Common shiner	*Notropis cornutus* (Mitchill)
Bluntnose minnow	*Pimephales notatus* (Rafinesque)
Satinfin shiner	*Notropis analostanus* (Girard)
Spottail shiner	*Notropis hudsonius* (Clinton)
Swallowtail shiner	*Notropis procne* (Cope)
Centrarchidae	
Smallmouth bass	*Micropterus dolomieui* Lacepede
Redbreast sunfish	*Lepomis auritis* (Linnaeus)
Bluegill sunfish	*Lepomis macrochirus* Rafinesque
Percidae	
Tessellated darter	*Etheostoma olmstedi* Storer
Fantail darter	*Etheostoma flabellare* Rafinesque
Catostomidae	
Northern hogsucker	*Hypentelium nigricans* (Lesueur)
White sucker	*Catostomus commersoni* (Lacepede)
Ictaluridae	
Margined madtom	*Noturus insignis* (Richarson)
Cottidae	
Mottled sculpin	*Cottus bairdi* Girard
Anguillidae	
American eel	*Anguilla rostrata* (Lesueur)

Maryland Department of Planning
Maryland Historical Trust

Robert L. Ehrlich, Jr.
Governor

Michael S. Steele
Lt. Governor

Audrey E. Scott
Secretary

Florence B. Burian
Deputy Secretary

July 19, 2006

Mr. Bud Keesee, Project Manager
Department of the Army
Commander USAG-APG
Directorate of Safety, Health, and Environment
ATTN: IMNE-APG-SHA-R (Bud Keesee) Building 5650
Aberdeen Proving Ground, MD 21005-5001

Re: Request for scoping comments – EIS for Department of the Army Base Realignment and Closure (BRAC) 2005 Actions and Lauderick Creek EUL at Aberdeen Proving Ground, Harford County, Maryland
State Clearinghouse No. MD20060621-0661

Dear Mr. Keesee:

Thank you for your recent letter, dated 20 June 2006 and received by the Maryland Historical Trust (Trust) on 22 June 2006 informing our agency of the above-referenced action and requesting scoping comments on the undertaking. We also received notification of the proposed action through the Maryland State Clearinghouse for Intergovernmental Assistance. The Trust, as Maryland's State Historic Preservation Office, will be reviewing the proposed undertaking for effects on historic properties, pursuant to Section 106 of the National Historic Preservation Act of 1966, as amended, and its implementing regulations 36 CFR Part 800. We offer the following preliminary comments.

The proposed EIS will address consequences resulting from implementing the various BRAC 2005 realignment activities at Aberdeen Proving Ground and development of the Lauderick Creek Enhanced Use Lease (EUL). Aberdeen Proving Ground contains numerous known historic properties (including buildings, structures, districts, and archeological sites) eligible for inclusion in the National Register of Historic Places, and undoubtedly includes additional properties that have not yet been identified. As part of planning for the BRAC 2005 activities and Lauderick Creek EUL, the Army must consider and address the effects of the actions on historic properties and fulfill compliance with Section 106 in consultation with the Trust. The EIS should include a thorough description and evaluation of potential impacts to historic and archeological properties resulting from the proposed action and a discussion of the Section 106 process. We look forward to further consultation with the Army, and other relevant parties, to successfully complete the Section 106 review of this important initiative at Aberdeen Proving Ground as project planning proceeds.

If you have questions or require further assistance, please contact Beth Cole of my staff at 410-514-7631 or bcole@mdp.state.md.us. Thank you for providing this opportunity to present early comments.

Sincerely,

J. Rodney Little
Director/State Historic Preservation Officer

JRL/EJC/200602070
cc: Kenneth Stachiw (Army APG)
Bob Rosenbush (MDP)

B Rosenbush

From: B Rosenbush

Sent: Wednesday, July 19, 2006 10:32 AM

To: bkeesee@dshe.apg.army.mil

Cc: M Barnes; L Janey; M Paone

Subject: follow up

Buddy: Hello. You said that you received our "adverse comment" letter dated 7/3/06 about MD20060621-0681
Project Description: Scoping prior to Environmental Impact Statement: Base Realignment and Closure 2005 Actions at Aberdeen Proving Ground, and Lauderick Creek Enhanced Use Lease

The substantive comments contained in our letter follows below.

The Maryland Military Department mentioned their on-going need for a large, military training site.
The Military Department has held a long-term lease of Lauderick Creek, as a Maryland National Guard training site, for many years.
The Military Department reported that no prior, official notification had been received about their leaseholder status.

Lauderick Creek is the only large military training site, currently available to the Maryland National Guard in the Baltimore metropolitan area, which offers local soldiers and airmen a wide range of weekend and longer-term training opportunities within a reasonable distance of their home stations.

You may wish to address any written correspondence to:

Major General Bruce F. Truxill
Adjunct General
Maryland Military Department
5th Regiment Armory
29th Division Street
Baltimore, MD 21201-2288.

I will forward the comments of Harford County when they are received.

I am faxing a copy of Harford County's comments today concerning
State Application Identifier: **MD20060509-0445**
Project Description: Finding of Suitability to Lease: allow for the construction, and operation of appropriate facilities: +/- 1,300 acres with fifteen (15) buildings: Lauderick Creek Area

We hope this is helpful.

Mr. Bob Rosenbush, Planner
Maryland Department of Planning
Room 1104
301 West Preston Street
Baltimore, MD 21201-2305
telephone: 410-767-4487
fax: 410-767-4480
e mail <BRosenbush@MDP.state.md.us>

Post-it® Fax Note 7671	Date 7-19-06	# of pages ▶ 3
To Bud Keesee	From Bob Rosenbush	
Co./Dept. APG DSHE	Co. MDP	
Phone #	Phone # 410 767 4487	
Fax # 410-278 6779	Fax # check your E-mail	

Maryland Department of Planning

Robert L. Ehrlich, Jr.
Governor
Michael S. Steele
Lt. Governor

Audrey E. Scott
Secretary
Florence E. Burian
Deputy Secretary

August 1, 2006

Mr. Bud Keesee
Project Manager, Directorate of Safety, Health, and Environment
U.S. Army Garrison, Aberdeen Proving Ground
IMNE-APG-SHE-R, Building 5650
Aberdeen Proving Ground, MD 21005-5001

STATE CLEARINGHOUSE REVIEW – ADVERSE COMMENTS RECEIVED

State Application Identifier: MD20060621-0661
New Reply Due Date: 08/8/2006
Project Description: Scoping prior to Environmental Impact Statement: Base Realignment and Closure 2005 Actions at Aberdeen Proving Ground, and Lauderick Creek Enhanced Use Lease
Project Location: Harford County
Clearinghouse Contact: Bob Rosenbush

Dear Mr. Keesee:

This is a follow up to our correspondence dated July 3, 2006. The State Clearinghouse received the enclosed comments regarding the referenced project from the Maryland Military Department.

Their comments indicate the on-going need for this large, military training site. The Military Department has held a long-term lease of Lauderick Creek, as a Maryland National Guard training site, for many years. The Military Department reported that no prior, official notification had been received about their leaseholder status.

Lauderick Creek is the only large military training site, currently available to the Maryland National Guard in the Baltimore metropolitan area, which offers local soldiers and airmen a wide range of weekend and longer-term training opportunities within a reasonable distance of their home stations.

Consideration of the comments will require an extension of the initial review period. The new reply date is noted above. We encourage you to make an effort to provide clarifying information or resolve conflicting concerns. You may consult directly with the commenting party. Please send a copy of any correspondence between you and the reviewing agency. Upon request, the Clearinghouse can provide assistance to resolve conflicting concerns.

The Clearinghouse requests a response to the enclosed comments by August 8, 2006 to allow us to expeditiously conclude this review. Your cooperation and attention to the review process is appreciated. 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

Linda C. Janey, J.D., Director
Maryland State Clearinghouse for Intergovernmental Assistance

LCJ:BR
cc: Karen Jobes - APG
Bill Riley - MILT

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Maryland Department of Planning

Robert L. Ehrlich, Jr.
Governor
Michael S. Steele
Lt. Governor

Audrey E. Scott
Secretary
Florence E. Burian
Deputy Secretary

August 8, 2006

Mr. Bud Keesee
Project Manager, Directorate of Safety, Health, and Environment
U.S. Army Garrison, Aberdeen Proving Ground
IMNE-APG-SHE-R, Building 5650
Aberdeen Proving Ground, MD 21005-5001

STATE CLEARINGHOUSE RECOMMENDATION

State Application Identifier: MD20060621-0661
Applicant: U.S. Army Garrison, Aberdeen Proving Ground
Project Description: Scoping prior to Environmental Impact Statement: Base Realignment and Closure 2005 Actions at Aberdeen Proving Ground, and Lauderick Creek Enhanced Use Lease
Project Location: Harford County
Approving Authority: U.S. Department of Defense
Recommendation: **Consistent with Qualifying Comments and Contingent Upon Certain Actions**

Dear Mr. Keesee:

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, with attachments, 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 the Environment, Transportation, Natural Resources, Business and Economic Development, State Police, the Maryland Military Department, Harford County, and the Maryland Department of Planning, including the Maryland Historical Trust. As of this date, the Maryland Department of the Environment has 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 State Police had no comment.

The Maryland Military Department submitted comments that indicated that the proposed action is inconsistent with their plans, programs, and objectives. The Maryland Military Department indicated their on-going need for this large, military training site. The Military Department has held a long-term lease of Lauderick Creek, as a Maryland National Guard training site, for many years. The Military Department reported that no prior, official notification had been received about their leaseholder status

The Military Department stated that Lauderick Creek is the only large military training site, currently available to the Maryland National Guard in the Baltimore metropolitan area, which offers local soldiers and airmen a wide range of weekend and longer-term training opportunities within a reasonable distance of their home stations. It is recommended that all necessary steps be taken by the Applicant to mitigate any adverse impacts on the Maryland Military Department resulting from the Enhanced Use Lease at Lauderick Creek. See the attached response form.

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

The Maryland Historical Trust (the Trust) stated that their finding of consistency is contingent upon the Applicant's completion of the review process required under Section 106 of the National Historic Preservation Act. The Trust stated that the Applicant must consider and address the effects of the proposed actions on historic and archeogocial properties. The Trust determined that further consultation between the Applicant, and the Trust is required. See the attached letter.

The Maryland Department of Transportation, and Harford County found this project to be generally consistent with their plans, programs, and objectives, but included certain qualifying comments summarized below. The Maryland Department of Transportation stated that "as far as can be determined ath this time, the subject has no unacceptable impacts on plans, or programs.

Harford County recommended that the Applicant incorporate the environmental issues identified on the Harford County Health Department's environmental concerns maps, and comply with all environmental codes. See the attached response form.

The Maryland Departments of Business and Economic Development, and Natural Resources; and the Maryland Department of Planning found this project to be consistent with their plans, programs, and objectives.

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

Linda C. Janey, J.D., Director
Maryland State Clearinghouse
for Intergovernmental Assistance

LCJ:BR
Enclosure(s)
cc: Mike Paone - MDPLS
Joane Mueller - MDE
Cindy Johnson - MDOT
Ray Dintaman - DNR
Tammy Edwards - DBED
Beth Cole - MHT
William Ebare - MDSP
Bill Riley - MILT
Theresa Raymond - HRFD

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MARYLAND DEPARTMENT OF THE ENVIRONMENT
1800 Washington Boulevard • Baltimore Maryland 21230-1718
(410) 537-4120

Robert L. Ehrlich, Jr.
Governor

Michael S. Steele
Lt. Governor

Kendl P. Philbrick
Secretary

Jonas A. Jacobson
Deputy Secretary

August 18, 2006

Mr. Bud Keesee
U.S. Army Garrison, Aberdeen Proving Ground
IMNE-APG-SHE-R, Building 5650
Aberdeen Proving Ground, MD 21005-5001

RE: State Application Identifier: MD20060621-0661
Project: Base Realignment and Closure 2005 Actions

Dear Mr. Keesee:

Thank you for the opportunity to review the above referenced project. The document was circulated throughout the Maryland Department of the Environment (MDE) for review, and the following comments are offered for your consideration.

1. If boilers or other equipment capable of producing emissions are installed as a result of this project, the applicant is requested to obtain a permit to construct from MDE's Air and Radiation Management Administration for this equipment, unless the applicant determines that a permit for this equipment is not required under State regulations pertaining to "Permits, Approvals, and Registration" (COMAR 26.11.02.). A review for toxic air pollutants should be performed. Please contact Dr. Justin Hsu, Ph.D., P.E., New Source Permits Division, Air and Radiation Management Administration at (410) 537-3230 to learn about the State's requirements and the permitting processes for such devices.

2. The applicant is encouraged to plan for the maximum utilization of carpools and public transit by employees providing preferential carpool/vanpool parking and bus shelters for commuters that use these methods of transportation. This will minimize the adverse impact of additional traffic generated by the proposed project. Please contact the Mobile Sources Program, Air and Radiation Management Administration at (410) 537-3270 for additional information.

3. All x-ray machines in the State of Maryland must be registered. Please contact Mr. Thomas Ferguson, X-Ray Section, Air and Radiation Management Administration at (410) 537-3300 for additional information. Any person or institution that wants to acquire radioactive materials is required to possess a license. Please contact the Radioactive Materials Licensing Section, Air and Radiation Management Administration at (410) 537-3300 for additional information.

4. If a project receives federal funding, approvals and/or permits, and will be located in a nonattainment area or maintenance area for ozone or carbon monoxide, the applicant should determine whether emissions from the project will exceed the thresholds identified in the federal rule on general conformity. If the project emissions will be greater than 25 tons per year, contact the Planning Division of the Planning and Monitoring Program, Air and Radiation Management Administration, at (410) 537-3240 for further information regarding threshold limits.

5. Fossil fuel fired power plants emit large quantities of sulfur oxide and nitrogen oxides, which cause acid rain. In addition, nitrogen oxide emissions contribute to the problem of global warming and also combine with volatile organic compounds to form smog. The MDE supports energy conservation, which reduces the demand for electricity and therefore, reduces overall emissions of harmful air pollutants. For these reasons, MDE recommends that the builders use energy efficient lighting, computers, insulation and any other energy efficient equipment. Contact the U.S. EPA at (202) 233-9120 to learn more about the voluntary Green Lights Program which encourages businesses to install energy-efficient lighting systems.

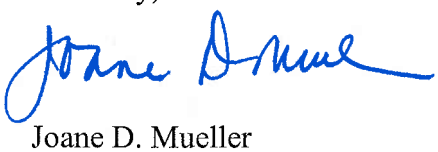
6. Development should be concentrated in suitable areas such as existing or planned population centers as identified in a county's comprehensive plan.

7. Project should support resource conservation and pollution prevention through land use and transportation designs that provide alternatives to single occupant vehicle use.

8. The U.S. Army should work closely with the Hazardous Waste Program on development of the Environmental Impact Statement. The program can be contacted at (410) 537-3343.

Again, thank you for giving MDE the opportunity to review this project. If you have any questions or need additional information, please feel free to call me at (410) 537-4120.

Sincerely,



Joane D. Mueller
MDE Clearinghouse Coordinator
Technical and Regulatory Services Administration

cc: Bob Rosenbush, State Clearinghouse

COMMENTS FOR
ABERDEEN PROVING GROUND (APG)
BASE REALIGNMENT AND CLOSURE (BRAC) ACTIONS AND LAUDERICK CREEK ENHANCED USE LEASE (EUL)
ENVIRONMENTAL IMPACT STATEMENT (EIS)

ISSUES THAT YOU THINK WE SHOULD CONSIDER IN DEVELOPING THE EIS.

① shoot range hours? ② How many foreign nationals or U.S. citizens to be trained? ③ Any Night-time Training and in what? overall noise levels affecting senior citizens? Effects on environment? Traffic for streets w/o STOP lights?

ALTERNATIVES YOU THINK WOULD MEET THE PURPOSE, NEED, AND OBJECTIVES OF THE BRAC ACTIONS.

ALTERNATIVES YOU THINK WOULD MEET THE PURPOSE, NEED, AND OBJECTIVES OF THE LAUDERICK CREEK ENHANCED USE LEASE (EUL).

COMMENTS REGARDING THE SCOPE OF THE EIS.

ADDITIONAL COMMENTS: *(ADDITIONAL PAGES MAY BE INCLUDED)*

INCLUSION OF PERSONAL INFORMATION IS OPTIONAL *(anonymous comments will be fully considered)*

YOUR NAME: Ada Favors

MAILING ADDRESS: 2708 Bovene Way
Edgewood, MD 21040

EMAIL ADDRESS:

☐ *Check here if you do **NOT** want to be included in APG EIS mailings.*

COMMENTS RECEIVED BY JULY 7, 2006 WILL BE CONSIDERED IN THE DRAFT EIS.

COMMENTS RECEIVED AFTER THAT DATE WILL BE CONSIDERED TO THE EXTENT PRACTICABLE.

COMMENTS FOR
ABERDEEN PROVING GROUND (APG)
BASE REALIGNMENT AND CLOSURE (BRAC) ACTIONS AND LAUDERICK CREEK ENHANCED USE LEASE (EUL)
ENVIRONMENTAL IMPACT STATEMENT (EIS)

ISSUES THAT YOU THINK WE SHOULD CONSIDER IN DEVELOPING THE EIS.

Increased traffic on Edgewood Road, particularly at evening rush hour. (It is already backed up to the point where citizens living on the peninsula where Willoughby Beach Rd. is the only outlet cannot get out onto Edgewood Rd. Also, with traffic so heavy, emergency ~~vehicl~~ vehicles could not get through.)

ALTERNATIVES YOU THINK WOULD MEET THE PURPOSE, NEED, AND OBJECTIVES OF THE BRAC ACTIONS.

ALTERNATIVES YOU THINK WOULD MEET THE PURPOSE, NEED, AND OBJECTIVES OF THE LAUDERICK CREEK ENHANCED USE LEASE (EUL).

COMMENTS REGARDING THE SCOPE OF THE EIS.

The Lauderick Creek area has not been cleared of UXOs. The cost of clearing for any excavation must be considered, as well as the possibility of personnel "stumbling" upon UXOs surfacing due to frost heave.

ADDITIONAL COMMENTS: *(ADDITIONAL PAGES MAY BE INCLUDED)*

Close Edgewood Gate & reopen Magnolia Gate. This would allow traffic from Lauderick Creek to exit and not completely ~~snarl~~ snarl Edgewood Rd.

INCLUSION OF PERSONAL INFORMATION IS OPTIONAL *(anonymous comments will be fully considered)*

YOUR NAME:

MAILING ADDRESS:

EMAIL ADDRESS:

☐ *Check here if you do **NOT** want to be included in APG EIS mailings.*

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COMMENTS FOR
ABERDEEN PROVING GROUND (APG)
BASE REALIGNMENT AND CLOSURE (BRAC) ACTIONS AND LAUDERICK CREEK ENHANCED USE LEASE (EUL)
ENVIRONMENTAL IMPACT STATEMENT (EIS)

ISSUES THAT YOU THINK WE SHOULD CONSIDER IN DEVELOPING THE EIS.

BRAC I CLOSED A PORTION OF LAUDERICK CREEK. AT THE TIME CLOSURE DEFINED AS ABSENCE OF ACTIVE ARMY PRESENCE. REUSE OF CLOSED AREA UNDER EUL SHOULD ADDRESS THIS AS DEFENSE SITE

ALTERNATIVES YOU THINK WOULD MEET THE PURPOSE, NEED, AND OBJECTIVES OF THE BRAC ACTIONS.

- IN THE BRAC MOVES, DISTINGUISH OBLIGATORY MOVES TO COMPLY W/ LAW AND DISCRETIONARY MOVES.
- PUBLISH THE CONSTRUCTION (MCA) PLAN, MANPOWER PLAN AND PERSONNEL PLAN TO INCLUDE MIGRATION DIAGRAM.

ALTERNATIVES YOU THINK WOULD MEET THE PURPOSE, NEED, AND OBJECTIVES OF THE LAUDERICK CREEK ENHANCED USE LEASE (EUL).

INFO SESSION DID NOT ADDRESS ALTERNATIVE SITES FOR COUNTER TERRORIST TNG. FT. KNOX, FT POLK HAVE URBAN TNG AREAS. DPG IS USED AS A TNG SITE FOR THE NATL GUARD WMD CST TEAMS. ALSO LOOK AT OTHER SERVICE SITES WHERE NAVY SEAL 6, ARMY ODA - FBI HRT TRAINING. SEEMS LIKE SITE DETERMINED BY MD. SENATORS - NOT DOD INDEPENDANTLY.

COMMENTS REGARDING THE SCOPE OF THE EIS.

LAUDERICK CREEK UXO CLEARANCE DOWN TO 3 FEET. ANY CONSTR WOULD LIKELY REQUIRE FOOTERS DEEPER THAN 3 FEET. NECESSITATE ADDL UXO CLEARANCE. ALSO CONSIDER WATER TABLE.

- NEED BETTER ADVERTISING OF FUTURE MEETINGS. I SAW NO PUBLIC NOTICE CONSPICUOUSLY POSTED IN NEWSPAPER. LEARNED OF MEETING IN REPORTERS ARTICLE.

ADDITIONAL COMMENTS: *(ADDITIONAL PAGES MAY BE INCLUDED)*

- CONCERN TNG SITE WILL CREATE NOISE ADVERSELY IMPACTING EDGEWOOD SCHOOLS AND TRIMBLE RD. AREA.
- 1996 MD ARNG 1/175 INF RGT MAPPED THE AREA FOR NG TNG USE. MEMBERS OF THE RECON FORCE SUSTAINED MUSTARD BLISTERS. NONE WENT INTO FENCED SITES. INJURIES SUSTAINED WALKING IN THE GENERAL AREA.

INCLUSION OF PERSONAL INFORMATION IS OPTIONAL (anonymous comments will be fully considered)

YOUR NAME: MICHAEL EARLY

MAILING ADDRESS: 513 PONDEROSA DR
BEL AIR MD 21014

EMAIL ADDRESS: MJEARLY@COMCAST.NET

☐ *Check here if you do **NOT** want to be included in APG EIS mailings.*

COMMENTS RECEIVED BY JULY 7, 2006 WILL BE CONSIDERED IN THE DRAFT EIS.

COMMENTS RECEIVED AFTER THAT DATE WILL BE CONSIDERED TO THE EXTENT PRACTICABLE.

COMMENTS FOR
ABERDEEN PROVING GROUND (APG)
BASE REALIGNMENT AND CLOSURE (BRAC) ACTIONS AND LAUDERICK CREEK ENHANCED USE LEASE (EUL)
ENVIRONMENTAL IMPACT STATEMENT (EIS)

ISSUES THAT YOU THINK WE SHOULD CONSIDER IN DEVELOPING THE EIS.

CONSIDER TIMING OF READINESS OF FT. LEE TO ACCEPT ORDNANCE CENTER & SCHOOL. TIMING IS CRITICAL AS IT RELATES TO BRINGING CCMC DOWN TO APG FROM FT. MONMOUTH.

ALTERNATIVES YOU THINK WOULD MEET THE PURPOSE, NEED, AND OBJECTIVES OF THE BRAC ACTIONS.

ALTERNATIVES YOU THINK WOULD MEET THE PURPOSE, NEED, AND OBJECTIVES OF THE LAUDERICK CREEK ENHANCED USE LEASE (EUL).

COMMENTS REGARDING THE SCOPE OF THE EIS.

ADDITIONAL COMMENTS: *(ADDITIONAL PAGES MAY BE INCLUDED)*

INCLUSION OF PERSONAL INFORMATION IS OPTIONAL *(anonymous comments will be fully considered)*

YOUR NAME: DENISE B. CARNAGGIO

MAILING ADDRESS: OFFICE OF ECONOMIC DEVELOPMENT
220 S. MAIN STREET BEL AIR MD 21014

EMAIL ADDRESS: dbcarnaggio@harfordcountymd.gov

☐ *Check here if you do **NOT** want to be included in APG EIS mailings.*

COMMENTS RECEIVED BY JULY 7, 2006 WILL BE CONSIDERED IN THE DRAFT EIS.

COMMENTS RECEIVED AFTER THAT DATE WILL BE CONSIDERED TO THE EXTENT PRACTICABLE.

COMMENTS FOR
ABERDEEN PROVING GROUND (APG)
BASE REALIGNMENT AND CLOSURE (BRAC) ACTIONS AND LAUDERICK CREEK ENHANCED USE LEASE (EUL)
ENVIRONMENTAL IMPACT STATEMENT (EIS)

ISSUES THAT YOU THINK WE SHOULD CONSIDER IN DEVELOPING THE EIS.

- Description of plans for preserving open space in Harford Cty.
- In-depth analysis of existing traffic issues local to APG and impact of additional population
- Expansion of public transportation services and methods to incetivize their use.

ALTERNATIVES YOU THINK WOULD MEET THE PURPOSE, NEED, AND OBJECTIVES OF THE BRAC ACTIONS.

ALTERNATIVES YOU THINK WOULD MEET THE PURPOSE, NEED, AND OBJECTIVES OF THE LAUDERICK CREEK ENHANCED USE LEASE (EUL).

COMMENTS REGARDING THE SCOPE OF THE EIS.

ADDITIONAL COMMENTS: *(ADDITIONAL PAGES MAY BE INCLUDED)*

- Would like to see posters and other info from this meeting be made publicly accessible on the internet so they can be shared with community members not able to attend the scoping meetings

INCLUSION OF PERSONAL INFORMATION IS OPTIONAL *(anonymous comments will be fully considered)*

YOUR NAME: Ken Shannon

MAILING ADDRESS: 2044 Park Beach Dr.
Aberdeen, MD 21001

EMAIL ADDRESS: ken.shannon@gmail.com

☐ *Check here if you do **NOT** want to be included in APG EIS mailings.*

COMMENTS RECEIVED BY JULY 7, 2006 WILL BE CONSIDERED IN THE DRAFT EIS.

COMMENTS RECEIVED AFTER THAT DATE WILL BE CONSIDERED TO THE EXTENT PRACTICABLE.

COMMENTS FOR
ABERDEEN PROVING GROUND (APG)
BASE REALIGNMENT AND CLOSURE (BRAC) ACTIONS AND LAUDERICK CREEK ENHANCED USE LEASE (EUL)
ENVIRONMENTAL IMPACT STATEMENT (EIS)

ISSUES THAT YOU THINK WE SHOULD CONSIDER IN DEVELOPING THE EIS.

(1) COSTS INVOLVED IN CLEAN-UP OF THE 1300 ACRE SITE (MUNITIONS, etc)
(2) TRAFFIC INCREASE TO EDGEWOOD ROAD AND HOW THIS WILL AFFECT EMS TO RESIDENCES OF Willoughby Beach AREA — NOT TO MENTION THE INCREASED BOTTLENECK TO JUST GET IN and OUT OF AREA FOR HOME OWNERS.

ALTERNATIVES YOU THINK WOULD MEET THE PURPOSE, NEED, AND OBJECTIVES OF THE BRAC ACTIONS.

ALTERNATIVES YOU THINK WOULD MEET THE PURPOSE, NEED, AND OBJECTIVES OF THE LAUDERICK CREEK ENHANCED USE LEASE (EUL).

COMMENTS REGARDING THE SCOPE OF THE EIS.

LAUDERICK CREEK IS KNOWN TO BE CONTAMINATED WITH POSSIBLE UNEXPLODED ORDNANCE. THIS IS SOMETHING THAT MUST BE CONSIDERED (COST, etc).

ADDITIONAL COMMENTS: *(ADDITIONAL PAGES MAY BE INCLUDED)*

EDGEWOOD ROAD GATE MUST BE PERMANENTLY CLOSED IN ORDER TO KEEP THE TRAFFIC LEVELS AT SAFE AND MANAGABLE LEVELS. EMS, SHERIFFS OFFICE, FIRE DEPT. WILL NOT BE ABLE TO REACH RESIDENCIAL AREAS AT Willoughby BEACH, IN A SAFE TIMELY MANNER. LIVES COULD BE LOST BECAUSE OF OVERLOAD OF EDGEWOOD ROAD → OVER

INCLUSION OF PERSONAL INFORMATION IS OPTIONAL (anonymous comments will be fully considered)

YOUR NAME: BETTY A. WELLS

MAILING ADDRESS: 2493 ALBANTOWNE WAY
EDGEWOOD, MD 21040

EMAIL ADDRESS: BAW149@AOL.COM

☐ *Check here if you do **NOT** want to be included in APG EIS mailings.*

COMMENTS RECEIVED BY JULY 7, 2006 WILL BE CONSIDERED IN THE DRAFT EIS.
COMMENTS RECEIVED AFTER THAT DATE WILL BE CONSIDERED TO THE EXTENT PRACTICABLE.

It is suggested that the Main Gate is utilized more and that the Magnolia Gate be reopened. 300 + each day is NOT acceptable to the already over crowded Edgewood Rd.

Fold here first

Place First Class Stamp Here

Return to:

Department of the Army
Commander USAG-APG
Director of Safety Health and Environment
ATTN: IMNE-APG-SHE-R (Bud Keesee)
Building 5650
Aberdeen Proving Ground, MD 21005-5001

Fold here second

Tape

E

Morita C. Bruce
507 Millwood Drive
Fallston, MD 21047
14 June 2006

Department of the Army
Commander, USAG-APG
Director of Safety, Health and Environment
ATTN: IMNE-APG-SHE-R (Bud Keesee)
Building 5650
Aberdeen Proving Ground, MD 21005-5001

SUBJECT: EIS for APG BRAC Actions and Lauderick Creek EUL

After attending a public scoping meeting on subject issues, I have the following comments, questions and recommendations.

1. After attending a number of Harford County planning meetings on BRAC, it has become apparent that many expensive additions and upgrades to Harford County's infrastructure will be required. This includes roads, water, sewer, schools and emergency preparedness facilities. What provisions are in the Army's budget to enable local and/or state governments to plan and execute these expansions in time to serve the newly arriving BRAC personnel? Will the Army be providing direct funding or loans? Will the proposed EUL facilities at APG-AA and APG-EA require Harford County to provide increased water and sewer services or road expansions?

2. As you are well aware, the Lauderick Creek areas where construction (or other soil disturbances) occur will require intensive surveys for UXO and chemical hazards. I am pleased to know that your experienced and knowledgeable staff will be in charge, and will no doubt file detailed safety and work plans for the site. However, it is critical that a *full time government safety expert* be present on site whenever operations are occurring, either from DSHE or Baltimore Corps of Engineers. Even the best of contractors have a tendency to make serious errors when unsupervised, if for no other reason than that they have limited experience and comprehension of the reasons for certain essential work rules or constraints and like to take "efficiency shortcuts". Since citizens' schools and residences are located close to the work area, operational safety must be paramount.

3. I understand that consideration is being given to accepting services in lieu of cash from the eventual occupant of Lauderick Creek. Based upon my own experience managing hundreds of millions of dollars worth of Army direct labor contracts, I would be extremely wary of any agreement whereby the government is locked in and paid in any way other than with cash. There is sometimes the temptation to yield to contractors' offers to pay with services instead of money, but such an agreement is inadvisable because there are too many negatives from the standpoint of the government. Army needs may change, the contractor may not have the exact expertise desired, the contractor

may exert his best efforts toward satisfying paying customers rather than Army needs, or the Army could be denied income that is required to satisfy more important needs. It is much better to separate "rent payments" from the provision of services which may or may not be obtained from the entity leasing the property.

Finally, I request that you send me a copy of what was shown on the poster boards at the public scoping meeting. I'm particularly interested in the APG-EA and APG-AA maps showing areas being considered for leasing, as this will help inform BRAC planning groups. Any estimates of the amount of office space which could be made available for "civilian use" would help inform ongoing Land Use discussions regarding the amount of land which needs to be available outside of post for office purposes, particularly in the Route 40 Redevelopment Corridor.

Thank you for your time and consideration. I look forward to receiving the information in the previous paragraphs and to reviewing the draft EIS. If you have any questions please call me at 410-877-7146 or email at MoritaBruce@comcast.net .

Sincerely,

// SIGNED //

Morita C. Bruce

DeMartino, Dawn

To: Keesee, Buddy L Mr USAGAPG
Subject: RE: Lauderick Cr. EUL EIS

-----Original Message-----
From: APOLLO6732@aol.com [mailto:APOLLO6732@aol.com]
Sent: Thursday, July 06, 2006 9:24 AM
To: Buddy.Keesee@us.army.mil
Cc: George.Mercer@us.army.mil; melody.mcentee@mail.house.gov; Virginia.Sanders@mail.house.gov; rep.cardin@mail.house.gov; Andrew_Harris@senate.state.md.us; JB_Jennings@house.state.md.us; dfguthrie@harfordcountymd.gov; drcraig@harfordcountymd.gov
Subject: Lauderick Cr. EUL EIS

Dear Mr. Keesee,
I would like to comment on the above subject. First, if I understand correctly, there are still buried, unexploded munitions, etc., on the site.

These would have to be removed before any construction of any facilities could be constructed. Wouldn't this be rather risky? Those UXO's could be very old,

and like old dynamite, could be difficult, if not impossible, to safely remove or destroy in situ.
Second, if the UXO's are removed or destroyed, what would be the outcome to Lauderick Creek and the neighboring communities? Who would remove these munitions--the "cheapest guy in town"? I know how work is put out for bids,

and the bid is usually awarded to the firm with the lowest price. Cheap isn't always good, especially in this case. The firm would have to be VERY carefully monitored and scrutinized before, during, and after this removal/destruction

process. Would they have security clearance....if necessary?
Third, would the land involved be viable for any regrowth--trees, grass, any vegetation--after the process is completed? Or would it become another toxic site, unfit for human or wildlife habitation?
According to the literature handed out at the presentation on June 7, 2006, the "NO ACTION ALTERNATIVE" "is not feasible since the BRAC actions are congressionally mandated." Maybe that's something we the people should lobby our congress people about and get them to make concessions? Of this, I'm not sure. I am certain, however, that to act too hastily to get things up and running could be the ruination of this Harford County area in Edgewood.
Whatever the outcome, I hope that great care, and much thought will go into making an intelligent decision for the Lauderick Creek area. Thank you

for your attention to this matter.

Sincerely,
Carolyn Hicks
1404 Old Joppa Road
Joppa, MD 21085

p.s. Please include me in the APG EIS mailings.

COMMENTS FOR
ABERDEEN PROVING GROUND (APG)
BASE REALIGNMENT AND CLOSURE (BRAC) ACTIONS AND LAUDERICK CREEK ENHANCED USE LEASE (EUL)
ENVIRONMENTAL IMPACT STATEMENT (EIS)

ISSUES THAT YOU THINK WE SHOULD CONSIDER IN DEVELOPING THE EIS.

Protection of wildlife habitat, especially eagles;
Noise from training activities, especially at night;
Foreign nationals, as many as 50,000 per year - who will do background checks and their health histories?

ALTERNATIVES YOU THINK WOULD MEET THE PURPOSE, NEED, AND OBJECTIVES OF THE BRAC ACTIONS.

Training facilities should be on the southern peninsula of APG EA to help abate noise pollution. Housing and administrative buildings could remain at old NIKE site, as proposed.

ALTERNATIVES YOU THINK WOULD MEET THE PURPOSE, NEED, AND OBJECTIVES OF THE LAUDERICK CREEK ENHANCED USE LEASE (EUL).

COMMENTS REGARDING THE SCOPE OF THE EIS.

ADDITIONAL COMMENTS: *(ADDITIONAL PAGES MAY BE INCLUDED)*

INCLUSION OF PERSONAL INFORMATION IS OPTIONAL (anonymous comments will be fully considered)

YOUR NAME: B. Daniel Riley

MAILING ADDRESS: 2120 Old Edgewood Road
Edgewood, Md 21040

EMAIL ADDRESS:

☐ *Check here if you do **NOT** want to be included in APG EIS mailings.*

COMMENTS RECEIVED BY JULY 7, 2006 WILL BE CONSIDERED IN THE DRAFT EIS.
COMMENTS RECEIVED AFTER THAT DATE WILL BE CONSIDERED TO THE EXTENT PRACTICABLE.

COMMENTS FOR
ABERDEEN PROVING GROUND (APG)
BASE REALIGNMENT AND CLOSURE (BRAC) ACTIONS AND LAUDERICK CREEK ENHANCED USE LEASE (EUL)
ENVIRONMENTAL IMPACT STATEMENT (EIS)

ISSUES THAT YOU THINK WE SHOULD CONSIDER IN DEVELOPING THE EIS.

Overall Noise levels
Types and hours, night time or training overall.
Effects on environment, animals, humans
Big shooting range, what hours, what will you be shooting?
who will be trained, what type of security

ALTERNATIVES YOU THINK WOULD MEET THE PURPOSE, NEED, AND OBJECTIVES OF THE BRAC ACTIONS.

ALTERNATIVES YOU THINK WOULD MEET THE PURPOSE, NEED, AND OBJECTIVES OF THE LAUDERICK CREEK ENHANCED USE LEASE (EUL).

COMMENTS REGARDING THE SCOPE OF THE EIS.

ADDITIONAL COMMENTS: *(ADDITIONAL PAGES MAY BE INCLUDED)*

Why behind 3 schools or area where highly populated by Children & families?

INCLUSION OF PERSONAL INFORMATION IS OPTIONAL (anonymous com... red)

YOUR NAME:

MAILING ADDRESS:

EMAIL ADDRESS: Marlyn.taylor@att.net darnellt@att.net

Mr. Darnell Taylor
2807 Keale Way
Edgewood, MD 21040

☐ *Check here if you do **NOT** want to be included in APG EIS mailings.*

COMMENTS RECEIVED BY JULY 7, 2006 WILL BE CONSIDERED IN THE DRAFT EIS.
COMMENTS RECEIVED AFTER THAT DATE WILL BE CONSIDERED TO THE EXTENT PRACTICABLE.

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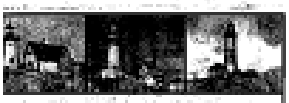
BALTIMORE MD 212

15 JUN 2006 PM 1 T



Mr. Darnell Taylor
2807 Keale Way
Edgewood, MD 21040

Return to:

Department of the Army
Commander USAG-APG
Director of Safety Health and Environment
ATTN: IMNE-APG-SHE-R (Bud Keesee)
Building 5650
Aberdeen Proving Ground, MD 21005-5001

21005+9993

Fold here second

COMMENTS FOR
ABERDEEN PROVING GROUND (APG)
BASE REALIGNMENT AND CLOSURE (BRAC) ACTIONS AND LAUDERICK CREEK ENHANCED USE LEASE (EUL)
ENVIRONMENTAL IMPACT STATEMENT (EIS)

ISSUES THAT YOU THINK WE SHOULD CONSIDER IN DEVELOPING THE EIS.

Given the amount of work that needs to be done more EPA + MDE staff for Fed. Facilities needs to be here to help. The BRAC timeline should not cut short the cleanup. Lessons should be learned from Ft. Meade regarding short cuts. EIS needs to be "global" so as to give the big picture of environment now and what can be expected after BRAC occurs. The cleanup of the ground water is so important.

ALTERNATIVES YOU THINK WOULD MEET THE PURPOSE, NEED, AND OBJECTIVES OF THE BRAC ACTIONS.

Alternative 2 would be very helpful if Lauderick Creek EUL included the 3 Development Areas. I prefer a combination of alternative 2 and 3. The public as well as officials at all levels need to have the whole picture.

ALTERNATIVES YOU THINK WOULD MEET THE PURPOSE, NEED, AND OBJECTIVES OF THE LAUDERICK CREEK ENHANCED USE LEASE (EUL).

APG and public taxpayers are responsible for safety etc. whether its construction, use of or whatever reason causes anyone to be in the proposed area. It would be short-sighted to forget that taxpayers are guaranteeing this policy on safety.

COMMENTS REGARDING THE SCOPE OF THE EIS.

Expand "endangered species" to include deer and other animals that will be forced to relocate because of additional traffic and construction. With DDT nearby, are you considering Bio magnification of that chemical?

ADDITIONAL COMMENTS: *(ADDITIONAL PAGES MAY BE INCLUDED)*

Current "clean-up" efforts cannot be stopped. I'd like more information regarding the airport as mentioned in alt. 2. How close will any activities be to the nearest homes and schools? How will noise be controlled? How will air quality be improved since American Lung Assoc. of 2006 Report gives us an "F" for ozone. Have the electrical problems of ECBC been solved so other buildings will not have the same problems?

INCLUSION OF PERSONAL INFORMATION IS OPTIONAL *(anonymous comments will be fully considered)*

YOUR NAME: Ruth Ann Young

MAILING ADDRESS: 415 Doris Circle
Aberdeen, MD 21001

EMAIL ADDRESS:

☐ *Check here if you do **NOT** want to be included in APG EIS mailings.*

COMMENTS RECEIVED BY JULY 7, 2006 WILL BE CONSIDERED IN THE DRAFT EIS.

COMMENTS RECEIVED AFTER THAT DATE WILL BE CONSIDERED TO THE EXTENT PRACTICABLE.

Fold here first

Ruthann Young
445 Doris Cir.
Aberdeen, MD 21001

BALTIMORE MD 212
05 JUL 2006 PM 4 T

Return to:

Department of the Army
Commander USAG-APG
Director of Safety Health and Environment
ATTN: IMNE-APG-SHE-R (Bud Keesee)
Building 5650
Aberdeen Proving Ground, MD 21005-5001

Fold here second

1 IN THE MATTER OF
2 BRAC 2005 ACTIONS AND LAUDERICK CREEK EUL
3 ENVIRONMENTAL IMPACT STATEMENT (EIS)
4 ABERDEEN PROVING GROUND, MARYLAND
5 * * * * * * * * * * * * * *
6
7 A Public Scoping Meeting was held on
8 Tuesday, June 6, 2006, commencing at 6:30 p.m., at the
9 Holiday Inn Chesapeake House, 1007 Beards Hill Road,
10 Aberdeen, Maryland 21001, before Sandra A. Judd, a
11 Notary Public.
12
13 * * * * * * * * * * * * * *
14
15
16
17
18
19
20 Reported by:
21 Sandra A. Judd

1 PROCEEDINGS

2 - - - - - - -

3 (First verbal comment begins at 7:16 p.m.)

4 UNIDENTIFIED SPEAKER: I choose not to be

5 identified at this time. However, I do want to make

6 some verbal comments to be provided for the Aberdeen

7 Proving Ground BRAC Actions.

8 The first thing that I would like to

9 address would be that the impact of the roadways as far

10 as traffic flow that will be increased into the county.

11 The specific roads that I would identify

12 with would be the Conowingo Dam, which actually is a

13 part of U.S. Route 1. The reason I identify that is

14 because if you go on the northern side of the Conowingo

15 Dam, the area that we have that connects with that

16 would be 222, 276, 273, and those are all U.S. routes.

17 Those are routes that are traditionally

18 used by people coming in from the northern county -- or

19 should I say not the northern county, but from

20 Philadelphia and also the Pennsylvania area. And that

21 will bring unto itself a flow of traffic with it for

1 those people that are coming in from the closure of
2 Bases to the north of us in New Jersey.
3 As they come back on to the southern side
4 of the Conowingo Dam, the areas that I think that you
5 want to be concerned with as far as traffic impact
6 would be Shuresville Road, which is approximately
7 one-tenth -- two-tenths of a mile over the Conowingo
8 Dam which brings you into the town of Darlington,
9 Maryland; that is, D-A-R-L-I-N-G-T-O-N, Maryland. That
10 eventually will connect you into U.S. Route 161.
11 Now, 161 will take you -- if you continue
12 it to the south, it will take you into U.S. Route 155,
13 you'd make a left turn on that road and go up
14 approximately, oh, 2 miles, and at the blinking light
15 you will hit Paradise Road. Paradise Road, if you take
16 that continuing to the south, will connect you into
17 U.S. Route -- U.S. Route 22, which actually is one of
18 the main entrances back into the Post. Okay?
19 And from there you can also hit the next
20 one, and I think that's 724, which is the secondary
21 gate for the Aberdeen Proving Ground location.

1 Now, those are those roads that I'm talking
2 about specifically. However, there are several other
3 roads that I feel will be just as impacted. That would
4 be U.S. Route 136, whereas if you're coming straight
5 down on Route 1 approximately 7 miles south continuing
6 south on U.S. Route 1, you will hit the intersection of
7 U.S. Route 1 and Route 36 -- 136 -- that's 136.
8 136, if you made a right turn, would head
9 up north towards the Pennsylvania area, and if you make
10 the left, then again, it's doing the same thing that
11 Route 161 was doing, which takes you down to 22 and
12 then would bring you back into the Post that way and
13 also 734.
14 The reason I'm talking about those areas
15 right now is because there is a degree of traffic
16 that's on those roads right now, and obviously, with
17 realignment and/or closures from Bases that are to the
18 north of us and jobs that are being filled by people
19 that are in the northern areas, that will bring that
20 traffic flow into the Harford County area.
21 I am saying this for one primary reason as

1 far as number one, is the amount of lanes on the road,
2 the actual traffic impact. I'm not looking at it
3 negatively from the standpoint of providing the
4 opportunity for the Base, but I'm just talking about
5 how it will impact the communities that those roads run
6 through. That addresses the issue of those roadways.
7 The other issue that I'd like to address is
8 the issue of transportation. And as it relates to
9 transportation -- and I'm talking about buses, trains,
10 et cetera, et cetera. The only thing I will not
11 necessarily address is because of the fact I don't
12 know -- I can't be specific as far as how it will
13 impact the roadway as far as U.S. Route -- I'm sorry --
14 Route 95.
15 So, I really am not too sure as to how it
16 will impact that area, but I'm sure that there will be
17 some increasing traffic flow coming in from the south
18 and also coming in from the north, be it that they're
19 coming in from New York or New Jersey or if they're
20 coming in from Virginia or even D.C. So that's going
21 to have an impact. I just can't address those -- what

1 those impacts might be.
2 But what I can talk about is the
3 transportation system here in the county. It is
4 nonexistent, to say the best. The transportation
5 system was geared around and has always been supported
6 on the fact that it's for senior citizens and it is not
7 for the working public.
8 So, therefore, the transportation system
9 does not, number one, have as far a widespread reach as
10 far as within the communities of Harford County, be it
11 that if we're talking about the Aberdeen area, whether
12 we're talking about Joppa, Joppatowne, whether we're
13 talking about Street, whether we're talking about
14 Darlington, whether we're talking about Norrisville,
15 Pylesville, or any of the areas to the north.
16 It is just they have mini -- it's not even
17 a hub. They don't have hubs. They just basically have
18 -- if you look at the names of the buses, the
19 Town-Go-Round, basically is a bus that goes around
20 within the town. There are some connector buses, but
21 as I understand transportation, the transportation

1 systems should be designed more in a north/south,
2 east/west route. And from the standpoint that they're
3 north/south, east/west, then you usually have your hubs
4 that will connect with those routes in order for those
5 people to be able to move freely within the system.
6 Our system was designed for senior
7 citizens, and it is no way close to being supportive of
8 moving the amount of people that might potentially want
9 to ride the buses, whether they are the people who are
10 working on Post or whether they, in fact, are the
11 dependents of those people who are on Post and/or
12 contractors.
13 So, if we're talking military, it could be
14 military personnel and/or contract personnel, so the
15 system -- the transportation system here in Harford
16 County as it relates to Harford County transportation
17 system is far, far removed from being anything that
18 would be realistically looked at as a real truly
19 transportation system.
20 As far as the environmental impact, I'm
21 sure that what you're looking at doing right now where,

1 in fact, you're saying that because of the traffic and
2 things of the nature, it might impact wildlife. I do
3 understand that you're looking to do some things as far
4 as acquiring or you have already acquired land which
5 will act as buffers to take care of those mitigating
6 circumstances as it would like to relate to the impact
7 on wildlife, be it that it's the eagles, et cetera,
8 et cetera, et cetera. So, I really don't have issues
9 there.
10 I just say that we please be cautious as
11 far as making sure that we do not impact wildlife in
12 that if, in fact, there's a potential that we also
13 create another opportunity in another area within the
14 county where, in fact, we can try and flip-flop things
15 as far as making sure that there is that same positive
16 impact in those areas to make up for the negative
17 impact that may have happened in another area. That's
18 my issue on that.
19 I think that the most important thing is
20 that we're not going to get into whether it's a
21 political party or anything else, but I think that it's

1 important that whoever it is that has the ability to be
2 involved with this BRAC thing, please make citizens
3 aware of whether, in fact, there's a real opportunity.
4 The numbers that are being projected right now are to
5 the tune of 60,000, and the reality of it is is that
6 even after talking to people and trying to surmise in
7 my own mind what I believe the true impact might be, it
8 could be a net gain of possibly 10 to 15,000 jobs.
9 And within that 10 to 15,000 jobs, those
10 jobs that are coming in are jobs that people are going
11 to come with, so it's not like those are new
12 opportunities. These are jobs that people currently
13 have in different areas that they're going to follow
14 their job. I don't know of too many people that are in
15 their right mind that would leave a $70,000 job because
16 it requires that they travel an hour more.
17 And if we look at the age of those people
18 that are probably out there with those jobs, they're
19 probably in the 40, 50 age group range. They're not
20 ready for retirement, so, therefore, they're going to
21 go with those jobs. It is not an opportunity that way.

1 There is an opportunity, I perceive, for support
2 services, be it contractors in terms of building
3 facilities, be it, you know, restaurants, whatever,
4 anything that is a support type of initiative, I think
5 that's where the opportunities are.
6 So, if in fact, I want to say that we were
7 going to have an impact of anywhere from 10 to 15,000
8 people, I would say that realistically that in my mind
9 that we might have a theoretical, a hopeful gain of
10 maybe 1 percent, which would be maybe 1,500 -- 1,500
11 jobs.
12 And I guess the comment that I would make
13 is that not that I'm trying to say that the people
14 aren't qualified, but you know what? They're more than
15 happy to put their applications in. But it is not
16 something that a person who is in a two-year college or
17 even a four-college is necessarily going to be
18 qualified to do because these are people who are
19 defending our nation, and from that standpoint they
20 have expertise. That expertise did not just come about
21 as a result of a two- or four-year degree. It is their

1 field experience that goes with it.

2 I thank you very much for your time, and

3 you know, that's the best that I can do as far as

4 trying to give you my thoughts and my feelings about

5 how I think BRAC will positively impact the citizens of

6 Harford County.

7 (First verbal comment concluded at

8 7:28 p.m.)

9 - - - - - - - - - - -

10 (Second verbal comment begins at 7:50 p.m.)

11 UNIDENTIFIED SPEAKER: With the BRAC

12 initiative happening, we have public transit that's

13 within Harford County and Cecil County and that we need

14 to use those buses and show that how they can interact

15 with each other in order to have better transit flows

16 through the counties. And in that way you would have

17 main line buses, circulator buses, and then that would

18 flow off of A.P.G. into the rail station onto Route 40

19 and even 95. Okay?

20 That's basically it. And then if somebody

21 wants to respond to that, then -- and then the other

1 question is is that with all the growth then they need
2 to make sure that there's average-income housing that
3 is going to come to the area so that even though the
4 new people are going to be purchasing homes, the people
5 that have lived here all their lives are going to still
6 be able to purchase a home if and when they desire to
7 do that.
8 That's it.
9 (Second verbal comment concluded at
10 7:52 p.m.)
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1 State of Maryland
2 County of Harford, to wit:
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4 I, Sandra A. Judd, a Notary Public of the
5 State of Maryland, County of Harford, do hereby certify
6 that the within-named proceedings took place before me
7 at the time and place herein set out.
8 I further certify that the proceedings were
9 recorded stenographically by me and this transcript is
10 a true record of the proceedings.
11 I further certify that I am not of counsel
12 to any of the parties, nor an employee of counsel, nor
13 related to any of the parties, nor in any way
14 interested in the outcome of this action.
15 As witness my hand and notarial seal this
16 19th day of June, 2006.
17
18 Sandra A. Judd
19 Sandra A. Judd
Notary Public
20 My Commission Expires:
21 August 1, 2009

1 INDEX

2 Public Scoping Meeting

3 June 6, 2006

4

5 Comment by: Page

6 Unidentified Speaker 2

7 Unidentified Speaker 11

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9 (Exhibits -- None Marked)

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1 IN THE MATTER OF
2 BRAC 2005 ACTIONS AND LAUDERICK CREEK EUL
3 ENVIRONMENTAL IMPACT STATEMENT (EIS)
4 ABERDEEN PROVING GROUND, MARYLAND
5 * * * * * * * * * * * * * *
6
7 A Public Scoping Meeting was held on
8 Wednesday, June 7, 2006, commencing at 6:30 p.m., at
9 the Ramada Inn Conference Center, 1700 Van Bibber Road,
10 Edgewood, Maryland 21040, before Sandra A. Judd, a
11 Notary Public.
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20 Reported by:
21 Sandra A. Judd

1 PROCEEDINGS

2 - - - - - - -

3 (First verbal comment begins at 6:32 p.m.)

4 DAN RILEY: My name is Dan Riley, D-A-N,

5 R-I-L-E-Y. I have several issues and concerns. The

6 first is how it will affect the eagles' habitat or

7 cause any destruction to that. The existing wildlife

8 over there will be forced off that area and into the

9 community, such as the deer, the fox, and groundhogs.

10 Your training facilities over there -- it

11 says anywhere up to 20,000 nationals a -- foreign

12 nationals a year will be trained at the facility. I've

13 heard it's up to 50,000 a year. What kind of

14 background checks are we doing on these foreign

15 nationals? And I -- then how about medical things like

16 are they carrying any diseases.

17 And a concern for my community of Edgewood

18 is the overall noise levels and nighttime trainings. I

19 mean, they do some it now, and it wakes you up at

20 three o'clock in the morning. We called about some

21 strange music being played at night and finally got an

1 answer, and it was Iraqi music. We had no complaint
2 about that, but you know, at 3:30 in the morning, 3:00
3 in the morning, that's kind of sad.
4 I see where they're putting in where the
5 training facility is going to be. I have no problem
6 with the housing being there, but the ranges -- I can't
7 understand why they can't take it further down the
8 southern peninsula. The Aberdeen -- I mean, the
9 Edgewood facility is very large. I can understand why
10 they want to lodge them up there by the high school
11 because you've already got the old Nike Barracks site
12 up there.
13 We have no problem with that. And please
14 don't misunderstand me. I'm not against BRAC and I'm
15 not against this anti-terrorist facility, but I don't
16 think the neighbors should have to prostitute their
17 health, well-being, and quality of life, you know, for
18 some things that the Department of Defense, the Army
19 can take care of. Like I said, if they moved
20 everything, the training part further down the
21 peninsula, many of the problems would be solved.

1 That's it.
2 (First verbal comment concluded at
3 6:35 p.m.)
4 - - - - - - -
5 (Second verbal comment begins at 6:58 p.m.)
6 LINDA RILEY: My name is Linda Riley,
7 R-I-L-E-Y. Okay, my first comment is about I'm
8 concerned -- I live right across from the Amtrak -- I
9 mean, the MARC train on Old Edgewood Road, and I can
10 already hear the National Guard when they're training
11 over there. I'm concerned about night noise because I
12 can't sleep with the firing and the -- and the Arabic
13 music and the machine guns that they have going on
14 there. So that's one of my concerns, is the night
15 noise.
16 Another one is the wildlife misplacement.
17 They've already got a horrible groundhog infestation
18 over there on the Post, and we are getting groundhogs
19 all the time. We have to catch them in a cage and take
20 them away. I'm concerned with not only the groundhogs
21 -- they're the main concern -- but they have foxes and

1 raccoons. The deer, I'm not too concerned about. I
2 see them on the parking lot sometimes, but -- for the
3 MARC train station, but not in our house, so I'm not
4 concerned about that.
5 But the wildlife misplacement from building
6 over there, I am concerned about that. The water
7 runoff from building -- and I don't know if you've
8 noticed that there's a -- if you go up 24 and then turn
9 on Route 40, up a little bit they -- that's a new
10 thing, and that -- putting that there you'll notice on
11 both sides of that little road that goes to Route 40 is
12 a swamp that didn't used to be there. And it's caused
13 from not -- the water is not being able to run off. If
14 you notice, all the trees are dying, and it's -- it's
15 making a swamp. And I'm concerned about that.
16 The eagle population, I'm concerned about
17 that because they -- I know that they have a habitat
18 thing here, but they -- they move around besides that
19 habitat. And they're doing good and coming back. So,
20 I'm concerned about the eagle population.
21 And last but not least, I'm concerned

because we're right across from the MARC train station that when they're building transportation, the building of transportation and all that kind of stuff, that they might want to come and buy our house and use eminent domain. And I would be very upset, because they tried to do that before. So, that's one thing that I'm concerned about.

So, I guess that's it, my main one being noise pollution at night, the wildlife misplacement, the water runoff, the eagle population, and my residence being taken away.

(Second verbal comment concluded at 7:00 p.m.)

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(Third verbal comment begins at 7:35 p.m.)

BRYAN JOHNSON: My name is Bryan Johnson, B-R-Y-A-N, J-O-H-N-S-O-N. I live in Edgewood. I'm a -- I live in Edgewood. I live in the community of Forest Oaks.

Some of my concerns were the impact of the traffic coming in and out of Edgewood, access to the

1 facilities and the impact that it's going to have on
2 the residents of Edgewood, the impact on the schools
3 and the community in itself. What are the plans for
4 making transportation -- moving around more accessible?
5 In Edgewood I notice that some of the main
6 roads are one to two lanes, and I notice that it looks
7 about 20,000 or more people that are going to be coming
8 into these facilities. How much on a daily basis is
9 that going to affect on the traffic and just regular
10 local traffic?
11 Also, access to that -- to this area. I
12 know we have the MARC train in the area. Are there any
13 plans to increase the frequency of the stops to the
14 Edgewood area or even improving the Edgewood area of
15 the MARC train stop?
16 Another concern I have is the impact on the
17 property value. A lot of people in Edgewood really
18 appreciate their property and want their property to
19 maintain value. And I -- and the opportunity for
20 employment for citizens, private citizens, I notice a
21 lot of Government positions that would be transferring

1 from other areas to come up here. But what plans do
2 you have on any civilians, private citizens that would
3 be able to obtain employment?
4 It appears that Edgewood is going to be
5 growing a lot. Are there any plans to increase the
6 businesses in the private area; gas stations,
7 restaurants, other lodging facilities? Those are
8 concerns that I have.
9 I don't know if -- well, I received notice
10 of this meeting today through a person that's running
11 for a Government position in Edgewood. He sent a
12 letter of concern addressing today's meeting, and
13 that's how I was notified. I did not receive anything
14 otherwise, and I received that letter on Friday. And I
15 made copies of the letter and gave it to my neighbors.
16 And they didn't know about it until I gave them a copy
17 of the letter.
18 A lot of us, people in Edgewood do not
19 receive The Aegis, which is the local newspaper. If
20 there was an advertisement in there -- a lot of people
21 do not receive that newspaper and did not know about

1 it. I made my community association aware of it and
2 some of the concerns that I had, and I'm not sure if
3 they sent a representative out or if any other
4 communities in Edgewood received any notification to
5 their community associations.
6 My community association is a pretty --
7 we're pretty well put together. We come out and we
8 like to be involved in a lot of things that's going on,
9 and I'm quite sure we would have had someone -- a
10 representative to come up with concerns that the
11 community had as a whole to bring to this meeting.
12 Another concern that a lot of my neighbors
13 have and are discussing is the noise problem. We're
14 already -- we already experience a lot of noise coming
15 from the Edgewood Arsenal on a daily basis. You can
16 hear explosions that rattle the windows of our houses.
17 There's been times that I've had things fall off the
18 shelves in my house because of the noises. And that's
19 a concern. And is it going to be even more of a noise
20 problem coming from that area that's going to deter
21 other people from wanting to move into the Edgewood

1 area to live for their residence?
2 That's just little concerns that I have as
3 a citizen. I understand that this is something that
4 has to move forward. This is the future. We have to
5 move forward as a country, and I understand it, but I
6 just have little concerns. That's all I have to say.
7 (Third verbal comment concluded at
8 7:40 p.m.)
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1 State of Maryland
2 County of Harford, to wit:
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4 I, Sandra A. Judd, a Notary Public of the
5 State of Maryland, County of Harford, do hereby certify
6 that the within-named proceedings took place before me
7 at the time and place herein set out.
8 I further certify that the proceedings were
9 recorded stenographically by me and this transcript is
10 a true record of the proceedings.
11 I further certify that I am not of counsel
12 to any of the parties, nor an employee of counsel, nor
13 related to any of the parties, nor in any way
14 interested in the outcome of this action.
15 As witness my hand and notarial seal this
16 19th day of June, 2006.
17
18 Sandra A. Judd
19 Sandra A. Judd
Notary Public
20 My Commission Expires:
21 August 1, 2009

1 INDEX

2 Public Scoping Meeting

3 June 7, 2006

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5 Comment by: Page

6 Dan Riley 2

7 Linda Riley 4

8 Bryan Johnson 6

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10 (Exhibits -- None Marked)

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APPENDIX G Detailed Scoping Comment Matrix

Comment	BRAC Actions	EUL	Both or Not Specified	Public	Agency	Response
Air Quality						
1 . How will air quality be improved since American Lung Assoc 2006 Report gives us an "F" in ozone?	☐	☐	☑	☑	☐	As part of its air conformity analysis and in response to MDE, APG provided the following voluntary emission reduction programs to reduce ozone: 1. APG Chemical and Neutralization facility is completing the closure of its operations and will result in NOX and VOC reductions, based on the type of chemicals present. Additionally, 400 vehicles will be eliminated from travel to APG, reducing VOC levels further. 2. APG Paint Policy encourages the use of water-based paints. 3. APG currently is evaluating the use of E85 alternative fuel for more than 150 APG vehicles. 4. Operation of a medical waste incinerator has been discontinued. 5. New building construction will incorporate high-efficiency energy and fuel sources to reduce NOX and VOC emissions. Geothermal heat pumps and steam boilers are some of the replacement technologies to be incorporated. 6. A large number of boilers have been converted from fuel oil to a natural gas/fuel mixture, with additional conversions planned, pending construction/renovation project schedules.
78 . To demonstrate compliance with the National Ambient Air Quality Standards (NAAQS), a quantitative assessment air quality assessment must be conducted where significant traffic slowdowns or queuing are possible. The DEIS should identify areas that meet the NAAQS standard for the criteria pollutant as well as those areas where a criteria pollutant level exceeds the NAAQS. The appropriate air quality analysis should be completed using the MOBILE4 emission model and the CALINE3 dispersion model. A copy of the Air Quality Technical Report should be provided for our review.□□A general conformity rule analysis should be conducted according to the guidance provided by the EPA in Determining Conformity of General Federal Actions to State or Federal Implementation Plans. Under the general conformity rule, reasonable foreseeable emissions associated with all operational and construction activities, both direct and indirect, must be quantified and compared to the annual de minimis levels for those pollutants in nonattainment for that area.	☐	☐	☑	☐	☑	The Air Quality Section in the EIS discusses all relevant air emissions requirements, data, and analyses. Copies of relevant materials are provided in the Appendix.
106 . If boilers or other equipment capable of producing emissions are installed as a result of this project, the applicant is requested to obtain a permit to construct from MDE's Air and Radiations Management Administration for this equipment, unless the applicant determines that a permit for this equipment is not required under State regulations pertaining to "Permits, Approvals, and Registration" (COMAR 26.11.02). A review for toxic air pollutants should be performed. Please contact Dr. Justin Hsu, Ph.D., P.E., New Source Permits Division, Air and Radiation Management Administration at (410) 537-3230 to learn about the State's requirements and the permitting process for such devices.	☑	☐	☐	☐	☑	Comment noted.
109 . If a project receives federal funding, approvals and/or permits, and will be located in a nonattainment area or maintenance area for ozone or carbon monoxide, the applicant should determine whether emissions from the project will exceed the thresholds identified in the federal rule on general conformity. If the project emissions will be greater than 25 tons per years, contact the Planning Division of the Planning and Monitoring Program, Air and Radiation Management Administration at (410) 537-3340 for additional information.	☑	☐	☐	☐	☑	Comment noted.
110 . Fossil fuel fired power plants emit large quantities of sulfur oxide and nitrogen oxides, which cause acid rain. In addition, nitrogen oxide emissions contribute to the problem of global warming and also combine with volatile organic compounds to form smog. The MDE supports energy conservation, which reduces the demand for electricity and therefore, reduces overall emissions of harmful air pollutants. For these reasons, MDE recommends that the builders use energy efficient lighting, computers, insulation and any other energy efficient equipment. Contact the U.S. EPA at (202) 233-9120 to learn more about the voluntary Green Lights Program which encourages businesses to install energy-efficient lighting systems.	☑	☐	☐	☐	☑	Building design for BRAC facilities will incorporate all relevant Army design criteria, including emphasis on sustainable buildings, use of energy efficient materials, and energy efficient operations.

Comment	BRAC Actions	EUL	Both or Not Specified	Public	Agency	Response
Asthetics and Visual Resources						
71 . Description of plans for preserving open space in Harford County.	☐	☐	☑	☑	☐	In accordance with APG's Installation Design Guide, open space considerations are provided within the development of all four of the installation's themes and zones (Old Post, Community Life, APG 2020, and Support Operations). Maps and diagrams throughout the guidance documents, highlight the open space areas throughout the installation for each of these zones. Open space is one of the considerations given to the installation design criteria as well as the compatibility of such areas within the specific zones. Additionally, dedicated open area visual zones are described in the document at length.

Comment	BRAC Actions	EUL	Both or Not Specified	Public	Agency	Response
Biological Resources						
63 . Wildlife misplacement from building over there. They've already got a horrible groundhog infestation over there on the Post, and we are getting groundhogs all the time. I'm concerned not only with the groundhogs -- they're the main concern -- but they have foxes and raccoons. The deer, I'm not too concerned about.	☐	☐	☑	☑	☐	Section 4.8 of the EIS, Biological Resources, discusses the potential impacts on wildlife from BRAC construction. The Army has removed the Lauderick Creek EUL from the BRAC Actions EIS. Once the Lauderick Creek EUL development process matures to the point of environmental analysis, it will be assessed in a separate NEPA document.
64 . The eagle population, I'm concerned about that because they -- I know that they have a habitat thing here, but they move around besides that habitat. And they're doing good and coming back. So, I'm concerned about the eagle population.	☐	☐	☑	☑	☐	Section 4.8 of the EIS, Biological Resources, discusses the potential impacts on wildlife from BRAC construction. The Army has removed the Lauderick Creek EUL from the BRAC Actions EIS. Once the Lauderick Creek EUL development process matures to the point of environmental analysis, it will be assessed in a separate NEPA document.
65 . The existing wildlife over there will be forced off that area into the community, such as the deer, the fox, and groundhogs.	☐	☐	☑	☑	☐	Section 4.8 of the EIS, Biological Resources, discusses the potential impacts on wildlife from BRAC construction. The Army has removed the Lauderick Creek EUL from the BRAC Actions EIS. Once the Lauderick Creek EUL development process matures to the point of environmental analysis, it will be assessed in a separate NEPA document.
66 . Protection of wildlife habitat, especially eagles.	☐	☐	☑	☑	☐	Section 4.8 of the EIS, Biological Resources, discusses the potential impacts on wildlife from BRAC construction. The Army has removed the Lauderick Creek EUL from the BRAC Actions EIS. Once the Lauderick Creek EUL development process matures to the point of environmental analysis, it will be assessed in a separate NEPA document.
67 . Expand "endangered species" to include deer and other animals that will be forced to relocate because of additional traffic and construction. With DDT nearby, are you considering biomagnifications of that chemical?	☐	☐	☑	☑	☐	Section 4.8 of the EIS, Biological Resources, discusses the potential impacts on wildlife from BRAC construction. The scope of the analysis on Endangered Species is specifically noted in applicable regulatory acts. The status on the use of pesticides on APG is discussed in Section 4.13, Hazardous and Toxic Materials.
68 . …please be cautious as far as making sure that we do not impact wildlife.	☐	☐	☑	☑	☐	comment noted.
69 . …how it will affect the eagles' habitat or cause any destruction to that.	☐	☐	☑	☑	☐	Section 4.8 of the EIS, Biological Resources, discusses the potential impacts on wildlife from BRAC construction. The Army has removed the Lauderick Creek EUL from the BRAC Actions EIS. Once the Lauderick Creek EUL development process matures to the point of environmental analysis, it will be assessed in a separate NEPA document.
77 . The Mobile District Corps of Engineers should coordinate with the Department's Wildlife and Heritage Service to determine if the proposed activities will impact any rare, threatened or endangered species. Please contact Lori A. Byrne of our Wildlife and Heritage Service at 410-260-8573 for further coordination.	☐	☐	☑	☐	☑	Comment noted.
86 . The fish and benthic invertebrates in the streams, lakes, and ponds within the study area should be surveyed. An analysis of both fish and benthic communities should be conducted to determine the quality and function of the aquatic biota. Mitigation measures should be outlined. The purpose of the survey is: 1) to detect impairment of aquatic biota, 2) to assess the relative severity of the impairment, 3) to prioritize sites for more intensive evaluations, and 4) to define baseline conditions and documenting recovery from impairment following mitigation actions.	☐	☐	☑	☐	☑	The potential impacts to aquatic resources are addressed in Section 4.8 Biological Resources, Section 4.7 Water Resources, and Section 4.2 Land Use. Since the BRAC action takes place primarily in existing cantonment areas, no adverse impacts were determined. The Army has removed the Lauderick Creek EUL from the BRAC Actions EIS. Once the Lauderick Creek EUL development process matures to the point of environmental analysis, it will be assessed in a separate NEPA document.
90 . The DEIS should provide a complete description of the terrestrial habitat resources in the study area. The description of the forested areas should include, among other things, a description of their areal extent, species composition, continuity, and diversity. Complete species lists for mammals, birds, amphibians, reptiles, and plants present in the study area should be provided. The composition and characteristics of each community type should be summarized and the functions and total acreage indicated. In addition, the species should be mapped relative to habitat locations and species density. To determine the baseline value of the habitat and the severity of the potential impacts from the proposed project, EPA recommends that a baseline Habitat Evaluation Procedure (HEP) be completed on the study area using the U.S. Fish and Wildlife Services's Habitat Evaluation Procedure. If the impacts of the wildlife and terrestrial habitat are unavoidable, the HEP will help to determine the type of mitigation measures which would be considered appropriate for the potential impacts. Measures to avoid potentially adverse impacts to these resources should be evaluated and implementation and mitigation plans to minimize impacts should be developed. Where such impacts cannot be avoided, adequate compensation developed through habitat assessment must be implemented.	☐	☐	☑	☐	☑	Section 4.8 Biological Resources adequately addresses the potential impacts to terrestrial habitats from the BRAC actions at APG. The Army has removed the Lauderick Creek EUL from the BRAC Actions EIS. Once the Lauderick Creek EUL development process matures to the point of environmental analysis, it will be assessed in a separate NEPA document.

Comment	BRAC Actions	EUL	Both or Not Specified	Public	Agency	Response
91 . If the proposed action(s) would impact wetlands, then the Army is required to delineate wetlands according to the 1989 Federal Manual for Identifying and Delineating Jurisdictional Wetlands. Impacts to wetlands should be avoided or minimized whenever possible. The total size of the wetlands should be provided, in addition to the size of the wetland in the study area and size of the direct impact. The DEIS must analyze the size and functional values of all impacted wetlands and develop a mitigation plan for their replacement.	☐	☐	☑	☐	☑	Section 4.8 of the EIS, Biological Resources, discusses the potential impacts on wetlands. The Army has removed the Lauderick Creek EUL from the BRAC Actions EIS. Once the Lauderick Creek EUL development process matures to the point of environmental analysis, it will be assessed in a separate NEPA document.
93 . Maryland's Critical Area Commission Chesapeake and Atlantic Coastal Bays has reviewed the subject scoping request. The Commission states that the alternatives include a technology park, recreational amenities, and a training facility and that Critical Area issues must be included in the EIS. For more information on Critical Area requirements please contact Dawnn McCleary of the Critical Area Commission at 410-260-3483.	☐	☐	☑	☐	☑	Section 4.8 of the EIS, Biological Resources, discusses the potential impacts on coastal zones and critical areas from BRAC construction.
95 . The Forest Conservation Act requires that before the issuance of a grading or sediment control permit, the applicant shall have an approved Forest Conservation Plan and Forest Stand Delineation (Nat. Res. Art. 5-1601—5-1613, Annotated Code of Maryland). The Forest Service recommends that a forest conservation plan be submitted to the state or local jurisdiction with planning and zoning authority when the preliminary site plan is submitted for review to the local jurisdiction. The Act provides for the retention of forested areas in sensitive areas on the subject property as one method of mitigation. Please contact Marian Honeczy, 410-260-8511 Maryland Forest conservation Act coordinator DNR-Forest Service, 580 Taylor Avenue, Tawes State Office Building, Annapolis, Maryland 21401 Any tree that originates within a public road right-of-way is considered a roadside tree under the Maryland Roadside Tree Care Law (NRA 5-406) and Regulations (COMAR 08.07.02) and any plans to remove, trim, or plant trees within the public right-of-way are required to obtain a permit from the Maryland Department of Natural Resources Forest Service.	☐	☐	☑	☐	☑	comment noted.

Comment	BRAC Actions	EUL	Both or Not Specified	Public	Agency	Response
98 . While it is important to look at threatened and endangered species, wetlands, forests, Critical Areas, etc. separately, the Department has spearheaded efforts to take all such factors into account for their collective interrelationships especially as necessary to sustain the irreplaceable natural biodiversity in the State. This integrated look at the complex natural relationships as they engage on the landscape has become known nationally as Green Infrastructure (GI). Due to persistent development pressure, large contiguous blocks of natural lands are being fragmented. Studies have conclusively shown that there is a measurable direct relationship between increased isolation of natural areas and biodiversity lost within them. When forested areas, for example, become disconnected from others, Forest Interior Dwelling Species (FIDS) are not able to sustain their populations. Both the size of natural "Hubs" on the landscape and their interconnectivity via natural "Corridors" that species can traverse, are now known to be crucial to sustain biologically diverse natural populations. Maryland's Green Infrastructure Assessment (GIA), an analysis which identifies the State's ecological hub and corridor network, also provides an ecological ranking system or "Eco-Rank" at a 30 meter resolution over the Maryland landscape. This ranking system quantifies the relative ecological values of the natural resources, both for their specific ecological features and for their value to the regional ecological hub and corridor network. All of the areas described as belonging to the US Army Aberdeen Proving Grounds represent the highest ecologically ranking green infrastructure in the region. The main APG island represents the largest contiguous block of the highest ranking GI in the northeast quadrant of the state. Each of the remaining islands and peninsulas belonging to the APG have a significant portion, if not the majority of their area, consisting of this highest quality green infrastructure. As you note in your memorandum, this GI is rich in forest cover, wetlands, wildlife, and proximity to the Chesapeake Bay. Every feasible effort should be made to preserve the cohesive quality of these natural areas as well as efforts to preserve their interconnectedness. Both the Affected Environment assessment and the Impact Analysis and Mitigation assessment should consider Green Infrastructure resources. Impacts should consider issues such as reducing the size of hubs, breaking corridor linkages, fragmenting forest and wetland blocks into isolated features and increasing edge habitat relative to interior habitat conditions. Mitigation approaches should consider conservation of unprotected green infrastructure resources in response to any losses or degradation of the existing green infrastructure resource. Additionally, restoration should be targeted to enhance and expand existing green infrastructure resources. We recognize the ongoing tension between the needs for development and the impacts on the natural landscape. We can provide data, as well as analysis tools and concepts to increase awareness of the sensitivities that we have lightly touched on in this response in relation to the State's Green Infrastructure resources. We would like to make ourselves available for further consultation as your EIS progresses. You may find more information at the following website:http://www.dnr.state.md.us/greenways/gi/gi.html. For more information on the State's Green Infrastructure you may contact Christine Conn of our Watershed Services' Ecosystem Analysis Center at 410-260-8785.	☐	☐	☑	☐	☑	Section 4.8 of the EIS, Biological Resources, discusses the collective interactions between the critical areas, wildlife, and natural lands. All development on APG will be conducted in accordance with all applicable regulations.
100 . The aquatic ecosystem must be evaluated carefully and include a detailed discussion of runoff, sediment and erosion control measures. Such mitigation measures must address both short term construction impacts and long term project impacts.	☐	☐	☑	☐	☑	Sections 4.2 (Land Use) and 4.7 (Water Resources) address potential impacts from erosion, runoff, and sediment transport. Best Management Practices employed at construction sites will reduce overall impacts to soils and receiving water bodies.
101 . The Department's Fisheries Service has documented anadromous fish species, including yellow perch (Perca flavescens), white perch (Morone americana), and herring (Alosa sp.) in many of the Bush River drainage area tributaries near APG. In addition to anadromous fish species, streams in the vicinity of APG could support many resident fish populations. Table X-2 (attached) lists resident fish species documented in the Bush River Basin by our fisheries Service. Many of these species could potentially be found in streams on APG. The EIS should address potential impacts to these fishery resources.	☐	☐	☑	☐	☑	Section 4.8 of the EIS, Biological Resources, discusses the potential impacts on wildlife from BRAC and EUL construction. Analysis of the data determined that no adverse impacts to fisheries resources were expected from BRAC or EUL actions.
102 . Areas currently undeveloped that are proposed for development (such as in the EUL) should take into consideration habitat quality, particularly wetland impacts. Some of the tidal wetlands along the peninsulas are considered valuable habitat in addition to providing remediation benefits for some contaminants discharging in their direction. Increased loading of sediment, runoff, and contaminants such as polyaromatic hydrocarbons and gasoline components should be assessed in these areas. Conversely, some tidal wetlands along the peninsulas have been heavily managed and could benefit from some habitat restoration. An action near or upgradient of an area could benefit from restoration combined with the activities proposed in the BRAC or EUL activities. Coastal erosion issues, specifically due to sea level rise should also be considered in actions designated to occur near the shoreline. If USAG APG has questions related to specific areas, USGS would be happy to discuss them in more detail.	☐	☐	☑	☐	☑	Section 4.8 of the EIS, Biological Resources, discusses the potential impacts on wetlands from BRAC actions.

Comment	BRAC Actions	EUL	Both or Not Specified	Public	Agency	Response
Cultural Resources						
97 . State Application Identifier: MD20060621-0661 Original letter dated 19 Jul 06. Follow up letters dated 8 Aug 06. The Trust, as Maryland's State Historic Preservation Office, will be reviewing the proposed undertaking for effects on historic properties, pursuant to Section 106 of the National Historic Preservation Act of 1966, as amended, and its implementing regulations 36 CFR Part 800. We offer the following preliminary comments. The proposed EIS will address consequences resulting from implementing the various BRAC 2005 realignment activities at Aberdeen Proving Ground and development of the Lauderick Creek Enhanced Use Lease (EUL). Aberdeen Proving Ground contains numerous known historic properties (including buildings, structures, districts, and archeological sites) eligible for inclusion in the National Register of Historic Places, and undoubtedly includes additional properties that have not yet been identified. As part of planning for the BRAC 2005 activities and Lauderick Creek EUL, the Army must consider and address the effects of the actions on historic properties and fulfill compliance with Section 106 in consultation with the Trust. The EIS should include a thorough description and evaluation of potential impacts to historic and archeological properties resulting from the proposed action and a discussion of the Section 106 process. We look forward to further consultation with the Army, and other relevant parties, to successfully complete the Section 106 review of this important initiative at Aberdeen Proving Ground as project planning proceeds. If you have questions or require further assistance, please contact Beth Cole of my staff at 410-514-7631 or bcole@mdp.state.md.us.	☐	☐	☑	☐	☑	Section 4.9 (Cultural Resources) of the EIS discusses historic properties. Additional data are located in the Appendix.
104 . Under Sections 106 and 110 of the National Historic Preservation Act, federal agencies must establish programs to identify, evaluate, and nominate to the National Register of Historic Places eligible properties under their control and manage such properties with due consideration for preservation of the cultural values. Under this mandate, planning responsibilities include not only nationally significant properties but also those that may be eligible because of their importance to a locality, state, or region. The Maryland State Historic Preservation Officer (SHPO) should be consulted throughout the planning process. The SHPO will provide information on potential historic or archaeological sites within the study area and work with you fulfill the requirements of Section 106 of the National Historic Preservation Act.	☐	☐	☑	☐	☑	Section 4.9 (Cultural Resources) of the EIS discusses historic properties. The Maryland State Historic Preservation Officer (SHPO) has been consulted throughout the EIS process. Additional data are located in the Appendix.

Comment	BRAC Actions	EUL	Both or Not Specified	Public	Agency	Response
Cumulative Effects						
82 . Cumulative impacts can result from individually minor, but collectively significant, actions taking place over a period of time. The Council of Environmental Quality in 40 CFR 1508.7 defines cumulative impacts as "impacts on the environment which result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions." Therefore a cumulative impacts assessment should be an integral part of the DEIS for the proposed action.	☐	☐	☑	☐	☑	Section 4.14 (Cumulative Impacts) discusses the potential for incremental impacts of the proposed action and other past, present, and reasonably foreseeable future actions.
114 . State Application Identifier: MD20060621-0661 Comments dated 17 Jul 06 and follow up letter dated 8 Aug 06 This request for scoping comments is to expand on the following three questions: 1. FROM SCOPING LTR: Significant issues related to the action that should be considered in the cumulative impacts analysis. RESPONSE: For #1 – follow the organization of the traditional environmental impact statement (EIS) and in previous Clearinghouse reviews. Include the entries provided under the heading "Affected Environment" on page 5 of the pamphlet provided and the issues identified under "Impact Analysis and Mitigation" on pages 5 and 6 of the pamphlet. 2. FROM SCOPING LTR: Past, present, or reasonably foreseeable future actions known to your agency that should be considered in the cumulative impact analysis. RESPONSE: For #2 – Recommend to incorporate the environmental issues identified on the Harford County Health Department's environmental concerns maps, which are in the area of question and to comply with all environmental codes such as securing permits for open burning, etc. 3. FROM SCOPING LTR: Any additional agencies that should participate in the scoping process. RESPONSE: I have no additions to the list of agencies in #3.	☐	☐	☑	☐	☑	Comment noted.

Comment	BRAC Actions	EUL	Both or Not Specified	Public	Agency	Response
Hazardous and Toxic Substances						
4 . The BRAC timeline should not cut short the cleanup and lessons should be learned from Ft Meade regarding shortcuts. EIS needs to be "global" so as to give the big picture of environment now and what can be expected after BRAC occurs.	☑	☐	☐	☑	☐	In the EIS, the current status of each environmental resource is described under the "Affected Environment" subheading. This is followed by an analysis of potential impacts from the proposed action and alternatives.
10 . Current "clean-up" efforts cannot be stopped.	☐	☐	☑	☑	☐	Comment noted.
29 . The cleanup of the groundwater is important.	☐	☐	☑	☑	☐	Comment Noted.
30 . Lauderick Creek UXO clearance done to 3 feet. Any constr would likely require footers deeper than 3 feet. Necessitate apro UXO clearance. Also consider water table.	☐	☑	☐	☑	☐	The Army has removed the Lauderick Creek EUL from the BRAC Actions EIS. Once the Lauderick Creek EUL development process matures to the point of environmental analysis, it will be assessed in a separate NEPA document.
31 . Costs involved in clean-up of the 1300-acre site (munitions, etc.).	☐	☑	☐	☑	☐	The Army has removed the Lauderick Creek EUL from the BRAC Actions EIS. Once the Lauderick Creek EUL development process matures to the point of environmental analysis, it will be assessed in a separate NEPA document.
36 . 1976 MD ARNG 1/175 INF RGT mapped the area for NG tng use. Members of the tng recon force sustained mustard blisters. None went into foreign sites. Injuries sustained walking in the general area.	☐	☑	☐	☑	☐	The Army has removed the Lauderick Creek EUL from the BRAC Actions EIS. Once the Lauderick Creek EUL development process matures to the point of environmental analysis, it will be assessed in a separate NEPA document.
38 . Lauderick Creek is known to be contaminated with possible unexploded ordnance. This is something that must be considered (cost, etc.).	☐	☑	☐	☑	☐	The Army has removed the Lauderick Creek EUL from the BRAC Actions EIS. Once the Lauderick Creek EUL development process matures to the point of environmental analysis, it will be assessed in a separate NEPA document.
39 . The Lauderick Creek area has not been cleared of UXOs. The cost of clearing for any excavation must be considered, as well as the possibility of personnel stumbling upon UXOs surfacing due to frost heave.	☐	☑	☐	☑	☐	The Army has removed the Lauderick Creek EUL from the BRAC Actions EIS. Once the Lauderick Creek EUL development process matures to the point of environmental analysis, it will be assessed in a separate NEPA document.
55 . As you are well aware, the Lauderick Creek areas where construction (or other soil disturbances) occur will require intensive surveys for UXO and chemical hazards. I am pleased to know that your experienced and knowledgeable staff will be in charge, and will no doubt file detailed safety and work plans for the site. However, it is critical that a full time government safety expert be present on site whenever operations are occurring, either from DSHE or Baltimore Corps of Engineers. Even the best of contractors have a tendency to make serious errors when unsupervised, if for no other reason than that they have limited experience and comprehension of the reasons for certain essential work rules or constraints and like to take "efficiency shortcuts". Since citizens' schools and residences are located close to the work area, operational safety must be paramount.	☐	☑	☐	☑	☐	The Army has removed the Lauderick Creek EUL from the BRAC Actions EIS. Once the Lauderick Creek EUL development process matures to the point of environmental analysis, it will be assessed in a separate NEPA document.
87 . The Resource Conservation and Recovery Act (RCRA) sets standards for hazardous waste treatment, storage, and disposal facilities. The management of hazardous waste at the facility should be conducted in compliance with RCRA. The DEIS should also state if a Hazardous Waste Management Plan and a Hazardous Waste Minimization Plan are in place. The DEIS should also identify known hazardous materials, including asbestos-containing materials (ACM), lead-based paint (LBP), and oil and other hazardous materials (OHMs), located within the study area. The status of the materials should be discussed as well as remedial methods described (if applicable) in addition to providing a detailed plan for proper disposal.	☐	☐	☑	☐	☑	Comment noted. Identification of asbestos containing materials (ACM) will be done during the engineering evaluations of buildings to be renovated. All ACM work will be conducted in accordance with APG's comprehensive compliance programs.
96 . Identify any hazardous wastes that would require disposal prior to alteration in land use, and any hazardous materials that would be used or generated in construction or operation. Include or reference a detailed plan for proper disposal.	☐	☐	☑	☐	☑	comment noted.
103 . While no maps were provided, it is likely that some of the BRAC Actions and the EUL are located within the areas included in the Installation Restoration Program of the Edgewood ("southern") peninsula. Potential effects of a change in land use should be verified in all areas proposed for refurbishment or new construction with respect to soil, ground water, or sediment contamination and any remediation activities currently underway, both in the immediate vicinity of the action and downgradient. This would include both active and passive remediation or effects that any planned changes to these systems will have on downgradient receptors such as surface water bodies and wetlands.	☐	☐	☑	☐	☑	The BRAC actions will not affect ongoing Installation Restoration Program sites or remediation progress. Any previously undetected contamination detected during BRAC construction will be investigated by APG. The Army has removed the Lauderick Creek EUL from the BRAC Actions EIS. Once the Lauderick Creek EUL development process matures to the point of environmental analysis, it will be assessed in a separate NEPA document.
105 . First, if I understand correctly, there are still buried, unexploded munitions, etc., on the site. These would have to be removed before any construction of any facilities could be constructed. Wouldn't this be rather risky? Those UXO's could be very old, and like old dynamite, could be difficult, if not impossible, to safely remove or destroy in situ. Second, if the UXO's are removed or destroyed, what would be the outcome to Lauderick Creek and the neighboring communities? Who would remove these munitions--the "cheapest guy in town"? I know how work is put out for bids, and the bid is usually awarded to the firm with the lowest price. Cheap isn't always good, especially in this case. The firm would have to be VERY carefully monitored and scrutinized before, during, and after this removal/destruction process. Would they have security clearance....if necessary? Third, would the land involved be viable for any regrowth--trees, grass, any vegetation--after the process is completed? Or would it become another toxic site, unfit for human or wildlife habitation?	☐	☑	☐	☑	☐	The Army has removed the Lauderick Creek EUL from the BRAC Actions EIS. Once the Lauderick Creek EUL development process matures to the point of environmental analysis, it will be assessed in a separate NEPA document.

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108 . All x-ray machines in the State of Maryland must be registered. Please contact Mr. Thomas Ferguson, X-Ray Section, Air and Radiation Management Administration at (410) 537-3300 for additional information.	☑	☐	☐	☐	☑	Comment noted.
113 . The U.S. Army should work closely with the Hazardous Waste Program on development of the Environmental Impact Statement. The program can be contacted at (410) 537-3343.	☑	☐	☐	☐	☑	Comment noted.
Land Usage						
5 . Info session did not address alternative sites for counterterrorist tng. Ft Knox, Ft Polk have urban tng areas. DPG is used as a tng site for the Nat'l Guard WMD CST teams. Also look at other service sites where Navy Seal, Army, ODA, FBI HRT training. Seems like site determined by MD Senators -- not DOD independently.	☐	☑	☐	☑	☐	The Army has removed the Lauderick Creek EUL from the BRAC Actions EIS. Once the Lauderick Creek EUL development process matures to the point of environmental analysis, it will be assessed in a separate NEPA document.
28 . BRAC 1 closed a portion of Lauderick Creek. At the time, closure defined as absence of active Army presence. Reuse of closed area under EUL should address this as defense site.	☐	☑	☐	☑	☐	The Army has removed the Lauderick Creek EUL from the BRAC Actions EIS. Once the Lauderick Creek EUL development process matures to the point of environmental analysis, it will be assessed in a separate NEPA document.
45 . I see where they're putting in the training facility. I have no problem with the housing being there, but the ranges -- I can't understand why they can't take it further down the southern peninsula.	☐	☑	☐	☑	☐	The Army has removed the Lauderick Creek EUL from the BRAC Actions EIS. Once the Lauderick Creek EUL development process matures to the point of environmental analysis, it will be assessed in a separate NEPA document.
46 . Why behind 3 schools or area where highly populated by children and families?	☐	☑	☐	☑	☐	The Army has removed the Lauderick Creek EUL from the BRAC Actions EIS. Once the Lauderick Creek EUL development process matures to the point of environmental analysis, it will be assessed in a separate NEPA document.
84 . State Application Identifier: MD20060621-0661 Original letter dated 3 Jul 06. Email dated 19 Jul 06. Follow up letters date 1 Aug 06 and 8 Aug 06. The Military Department has held a long-term lease of Lauderick Creek, as a Maryland National Guard training site, for many years. The Military Department reported that no prior, official notification had been received about their leaseholder status. Lauderick Creek is the only large military training site, currently available to the Maryland National Guard in the Baltimore metropolitan area, which offers local soldiers and airmen a wide range of weekend and longer-term training opportunities within a reasonable distance of their home station. Written correspondence should be addressed to: Major General Bruce F. Tuxill Adjutant General Maryland Military Department 5th Regiment Armory 29th Division Street Baltimore MD, 21201-2288	☐	☑	☐	☐	☑	The Department of the Army is engaged in discussions with the Maryland Military Department.
111 . Development should be concentrated in suitable areas such as existing or planned population centers as identified in a county's comprehensive plan.	☑	☐	☐	☐	☑	All BRAC construction will follow APG's existing Master Plan.

Comment	BRAC Actions	EUL	Both or Not Specified	Public	Agency	Response
Noise						
42 . Training facilities should be on the southern peninsula of APG to help abate noise pollution. Housing and administrative buildings could remain at old NIKE site as proposed.	☐	☑	☐	☑	☐	The Army has removed the Lauderick Creek EUL from the BRAC Actions EIS. Once the Lauderick Creek EUL development process matures to the point of environmental analysis, it will be assessed in a separate NEPA document.
43 . And a concern for my community of Edgewood is the overall noise levels and nighttime trainings. I mean, they do it some now, and it wakes you up at three o-clock in the morning.	☐	☑	☐	☑	☐	The Army has removed the Lauderick Creek EUL from the BRAC Actions EIS. Once the Lauderick Creek EUL development process matures to the point of environmental analysis, it will be assessed in a separate NEPA document.
47 . How will noise be controlled?	☐	☑	☐	☑	☐	The Army has removed the Lauderick Creek EUL from the BRAC Actions EIS. Once the Lauderick Creek EUL development process matures to the point of environmental analysis, it will be assessed in a separate NEPA document.
49 . Another concern that a lot of my neighbors are discussing is the noise problem. We already experience a lot a noise coming from Edgewood Arsenal on a daily basis. You can hear explosions that rattle the windows…I've had things fall off the shelves because of the noises. And...more of a noise problem coming from that area will deter other people from wanting to moving into the Edgewood area.	☐	☑	☐	☑	☐	The Army has removed the Lauderick Creek EUL from the BRAC Actions EIS. Once the Lauderick Creek EUL development process matures to the point of environmental analysis, it will be assessed in a separate NEPA document.
50 . I live right across from the Amtrak -- I mean, the MARC train on Old Edgewood Road, and I can already hear the National Guard when they're training. I'm concerned abut night noise because I can't sleep with the firing and the Arabic music and the machine guns that they have going on there.	☐	☑	☐	☑	☐	The Army has removed the Lauderick Creek EUL from the BRAC Actions EIS. Once the Lauderick Creek EUL development process matures to the point of environmental analysis, it will be assessed in a separate NEPA document.
51 . Overall noise levels affecting senior citizens?	☐	☑	☐	☑	☐	The Army has removed the Lauderick Creek EUL from the BRAC Actions EIS. Once the Lauderick Creek EUL development process matures to the point of environmental analysis, it will be assessed in a separate NEPA document.
52 . Shoot range hours?	☐	☑	☐	☑	☐	The Army has removed the Lauderick Creek EUL from the BRAC Actions EIS. Once the Lauderick Creek EUL development process matures to the point of environmental analysis, it will be assessed in a separate NEPA document.
54 . Concern tng site will create noise adversely impacting Edgewood schools and Trimble Road area.	☐	☑	☐	☑	☐	The Army has removed the Lauderick Creek EUL from the BRAC Actions EIS. Once the Lauderick Creek EUL development process matures to the point of environmental analysis, it will be assessed in a separate NEPA document.
58 . Any nighttime training and in what?	☐	☑	☐	☑	☐	The Army has removed the Lauderick Creek EUL from the BRAC Actions EIS. Once the Lauderick Creek EUL development process matures to the point of environmental analysis, it will be assessed in a separate NEPA document.
60 . Overall noise levels. Types and hours of nighttime training. Overall effects on environment, _____, Types of shooting range? What hours? What will you be shooting?	☐	☑	☐	☑	☐	The Army has removed the Lauderick Creek EUL from the BRAC Actions EIS. Once the Lauderick Creek EUL development process matures to the point of environmental analysis, it will be assessed in a separate NEPA document.
61 . Noise from training activities, especially at night.	☐	☑	☐	☑	☐	The Army has removed the Lauderick Creek EUL from the BRAC Actions EIS. Once the Lauderick Creek EUL development process matures to the point of environmental analysis, it will be assessed in a separate NEPA document.
79 . The results of noise studies in the project area should be summarized in the DEIS. In addition, noise mitigation measures should be implemented during renovation, demolition and/or construction. These measures may include: maintenance of construction equipment and installation of mufflers to reduce noise; time of day restrictions on construction and maintenance activities to eliminate noise during those times of day when it is considered to be most objectionable; and timing of demolition and/or construction activities to avoid primary breeding and nesting seasons of avian and other affected species.	☐	☐	☑	☐	☑	Section 4.5 (Noise) discusses potential noise impacts and Best Management Practices to reduce potential noise impacts.

Comment	BRAC Actions	EUL	Both or Not Specified	Public	Agency	Response
Not Applicable to the EIS						
11 . Given the amount of work that needs to be done, more EPA and MDE staff for Fed Facilities needs to be here to help.	☐	☐	☑	☑	☐	comment noted.
15 . APG and public tax payers are responsible for safety, etc. Whether its construction, use of or whatever reason causes anyone to be in the proposed area. It would be short-sighted to forget that taxpayers are guaranteeing this policy on safety.	☐	☐	☑	☑	☐	All BRAC actions are subject to Department of the Army regulations on health and safety, as well as APG Health and Safety Plans.
34 . I understand that consideration is being given to accepting services in lieu of cash from the eventual occupant of Lauderick Creek. Based upon my own experience managing hundreds of millions of dollars worth of Army direct labor contracts, I would be extremely wary of any agreement whereby the government is locked in and paid in any way other than with cash. There is sometimes the temptation to yield to contractors' offers to pay with services instead of money, but such an agreement is inadvisable because there are too many negatives from the standpoint of the government. Army needs may change, the contractor may not have the exact expertise desired, the contractor may exert his best efforts toward satisfying paying customers rather than Army needs, or the Army could be denied income that is required to satisfy more important needs. It is much better to separate "rent payments" from the provision of services which may or may not be obtained from the entity leasing the property.	☐	☑	☐	☑	☐	The Army has removed the Lauderick Creek EUL from the BRAC Actions EIS. Once the Lauderick Creek EUL development process matures to the point of environmental analysis, it will be assessed in a separate NEPA document.
53 . According to the literature handed out at the presentation on June 7, 2006, the "NO ACTION ALTERNATIVE" "is not feasible since the 2 are congressionally mandated." Maybe that's something we the people should lobby our congress people about and get them to make concessions? Of this, I'm not sure. I am certain, however, that to act too hastily to get things up and running could be the ruination of this Harford County area in Edgewood. Whatever the outcome, I hope that great care, and much thought will go into making an intelligent decision for the Lauderick Creek area.	☐	☐	☑	☑	☐	Comment noted.
59 . After attending a number of Harford County planning meetings on BRAC, it has become apparent that many expensive additions and upgrades to Harford County's infrastructure will be required. This includes roads, water, sewer, schools and emergency preparedness facilities. What provisions are in the Army's budget to enable local and/or state governments to plan and execute these expansions in time to serve the newly arriving BRAC personnel? Will the Army be providing direct funding or loans?	☑	☐	☐	☑	☐	Section 4.10 (Socioeconomics) discusses the potential off post impacts likely from the BRAC actions. The Department of the Army does not fund off-post actions.

Comment	BRAC Actions	EUL	Both or Not Specified	Public	Agency	Response
Request for Detail						
2 . In the BRAC moves, distinguish obligatory moves to comply w/ law and discretionary moves.	☑	☐	☐	☑	☐	The Army has removed the Lauderick Creek EUL from the BRAC Actions EIS. Once the Lauderick Creek EUL development process matures to the point of environmental analysis, it will be assessed in a separate NEPA document.
8 . Alternative 2 would be very helpful if 3 included the Development Areas. I prefer a combination of Alternative 2 and 3. The public as well as officials at all levels need to have the whole picture.	☐	☐	☑	☑	☐	Comment noted.
9 . Publish the construction (MCA) plan, manpower plan, and personnel plan to include migration diagram.	☑	☐	☐	☑	☐	comment noted.
35 . Consider timing of readiness of Ft. Lee to accept Ordnance Center and School. Timing is critical as it relates to bringing LCMC down to APG from Ft. Monmouth.	☑	☐	☐	☐	☑	Planning and scheduling of BRAC actions are coordinated by the Army Assistant Chief of Staff for Installations and Management (ACSIM).
41 . I'm particularly interested in the APG-EA and APG-AA maps showing areas being considered for leasing, as this will help inform BRAC planning groups. Any estimates of the amount of office space which could be made available for "civilian use" would help inform ongoing Land Use discussions regarding the amount of land which needs to be available outside of post for office purposes, particularly in the Route 40 Redevelopment Corridor.	☐	☐	☑	☑	☐	The Baltimore District Corps of Engineers manages the Army's Enhanced Use Lease Program. The Army has removed the Lauderick Creek EUL from the BRAC Actions EIS. Once the Lauderick Creek EUL development process matures to the point of environmental analysis, it will be assessed in a separate NEPA document.
57 . I'd like more information regarding the airport as mention in Alternative 2. How close will any activities be to the nearest homes and schools?	☐	☑	☐	☑	☐	There is not expected to be any additional aircraft operations resulting from the BRAC actions. Section 4.5 (Noise) discusses the current impacts from aircraft operations at APG. The Army has removed the Lauderick Creek EUL from the BRAC Actions EIS. Once the Lauderick Creek EUL development process matures to the point of environmental analysis, it will be assessed in a separate NEPA document.
89 . The project area should be described in detail and quantified, specifying the type and acreage of land impacted as well as a description of the existing buildings on the site including their use.	☐	☐	☑	☐	☑	The BRAC action planning, design and construction process is ongoing, and separate from this EIS. The construction details provided in this EIS are the most recent available.

Comment	BRAC Actions	EUL	Both or Not Specified	Public	Agency	Response
117 . State Application Identifier: MD20060621-0661 This is the follow up letter dated 8 Aug 06 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 with attachments 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 the Environment, Transportation, Natural Resources, Business and Economic Development, State Police, Maryland Military Department, Harford Count, and the Maryland Department of Planning, including Maryland Historical Trust. The Maryland Military Department submitted comments that indicated that the proposed action is inconsistent with their plans, programs, and objectives. The Maryland Military Department indicated their on-going need for this large, military training site. The Military Department has held a long-term lease of Lauderick Creek, as a Maryland National Guard training site, for many years. The Military Department reported that no prior, official notification had been received about their leaseholder status. The Military Department stated that Lauderick Creek is the only large military training site, currently available to the Maryland National Guard in the Baltimore metropolitan area, which offers local soldiers and airmen a wide range of weekend and longer-term training opportunities within a reasonable distance of their home stations. It is recommended that all necessary steps be taken by the Applicant to mitigate any adverse impacts on the Maryland Military Department resulting from the Enhanced Use Lease at Lauderick Creek. The Maryland Historical Trust (the Trust) stated that their finding of consistency is contingent upon the Applicant's completion of the review process required under Section 106 of the National Historic Preservation Act. The Trust stated that the Applicant must consider and address the effects of the proposed actions on historic and archeological properties. The Trust determined that further consultation between the Applicant and the Trust is required. The Maryland Department of Transportation and Harford County found this project to be generally consistent with their plans, programs, and objectives, but included certain qualifying comments summarized below. The Maryland Department of Transportation stated that "as far as can be determined at this time, the subject as no unacceptable impacts on plans or programs." Harford County recommended that the Applicant incorporation the environmental issues identified on the Harford County Health Department's environmental concerns maps, and comply with all environmental codes. The Maryland Departments of Business and Economic Development, and Natural Resources; and the Maryland Department of Planning found this project to be consistent with their plans, programs, and objectives. 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 information 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 email at brosebush@mdp.state.md.us. Also please complete the attached form and return it to the Sate 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 our files are complete.	☐	☐	☑	☐	☑	The Department of the Army is in discussions with the Maryland Military Department. All coordination required with the Maryland State Historic Preservation Officer (SHPO) has been initiated.

Comment	BRAC Actions	EUL	Both or Not Specified	Public	Agency	Response
Scoping						
3 . Would like to see posters and other information from this meeting be made publicly accessible on the internet so they can be shared with community members not able to attend the scoping meetings.	☐	☐	☑	☑	☐	Copies of all information provided at the Scoping Meeting have been provided to all who requested materials. Copies of scoping materials have been available through the APG Public Affairs Office.
6 . I request that you send me a copy of what was shown on the poster boards at the public scoping meeting.	☐	☐	☑	☑	☐	Copies of all information provided at the Scoping Meeting have been provided to all who requested materials. Copies of scoping materials have been available through the APG Public Affairs Office.
13 . I received notice of these meeting through a person that's running for a Government position in Edgewood. A lot of us, people in Edgewood do not receive The Aegis, which is the local newspaper.	☐	☐	☑	☑	☐	Notification of the scoping period and meeting locations was provided in two local newspapers, exceeding the requirements of NEPA and the CEQ.
14 . Need better advertising of future meetings. I saw no public notice conspicuously posted in newspaper. Learned of meeting in reporters article.	☐	☐	☑	☑	☐	Notification of the scoping period and meeting locations was provided in two local newspapers, exceeding the requirements of NEPA and the CEQ.
Socioeconomics						
32 . Another concern I have the impact on the property value.	☐	☐	☑	☑	☐	Comment noted.
33 . …please make citizens aware of whether, in fact, there's a real (employment) opportunity.	☐	☐	☑	☑	☐	comment noted.
44 . Foreign nationals, as many as 50,000 per year - who will do background checks and their health histories?	☐	☑	☐	☑	☐	The Army has removed the Lauderick Creek EUL from the BRAC Actions EIS. Once the Lauderick Creek EUL development process matures to the point of environmental analysis, it will be assessed in a separate NEPA document.
48 . …I notice a lot of Government positions that would be transferring from other areas to come up here. But what plans do you have on any civilians, private citizens that would be able to obtain employment?	☐	☐	☑	☑	☐	Section 4.10 (Socioeconomics) discusses the impacts of the BRAC actions on local employment.
56 . It appears Edgewood is going to be growing a lot. Are there any plans to increase the businesses in the private area; gas stations, restaurants, other lodging facilities?	☐	☐	☑	☑	☐	Actions taken by commercial and private sector initiatives are outside the scope of this EIS.
62 . We're right across from the MARC train station...when they're building transportation and all that kind of stuff, that they might want to buy our house and use eminent domain. And I would be very upset, because they tried to do that before. So that's one thing I'm concerned about.	☐	☑	☐	☑	☐	Comment noted.
70 . …with all the growth...make sure that there's average-income housing for the people that have lived here all their lives…to still be able to purchase a home…	☐	☐	☑	☑	☐	Comment noted.
72 . How many foreign nationals and U.S. citizens to be trained?	☐	☑	☐	☑	☐	The Army has removed the Lauderick Creek EUL from the BRAC Actions EIS. Once the Lauderick Creek EUL development process matures to the point of environmental analysis, it will be assessed in a separate NEPA document.
73 . ...the impact on schools and the community in itself.	☐	☐	☑	☑	☐	Section 4.10 (Socioeconomics) discusses the impacts of the BRAC action on local schools.
74 . What kind of background checks are we doing on these foreign nationals? And I -- then how about medical things like are they carrying any diseases.	☐	☑	☐	☑	☐	The Army has removed the Lauderick Creek EUL from the BRAC Actions EIS. Once the Lauderick Creek EUL development process matures to the point of environmental analysis, it will be assessed in a separate NEPA document.
75 . Who will be trained? What type of security?	☐	☑	☐	☑	☐	The Army has removed the Lauderick Creek EUL from the BRAC Actions EIS. Once the Lauderick Creek EUL development process matures to the point of environmental analysis, it will be assessed in a separate NEPA document.
83 . Executive Order 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Population," directs each federal agency to incorporate environmental justice into its mission and activities. In accordance with EO 12898, the DEIS should examine the demographic profile of the population around the study area. Included with this examination should be a determination as to whether the proposed project has the potential to adversely affect human health and the environment in the areas surrounding the project area, specifically with regard to disadvantaged populations.	☐	☐	☑	☐	☑	Section 4.10 (Socioeconomics) discusses the environmental justice issues associated with the BRAC actions.
85 . Discuss the socioeconomic and cultural status of the area, including the number of people, employees and/or jobs impacted as a result of the proposed project. The DEIS should address the decrease or increase of people/employees/jobs in relation to its effect on tax base, local housing, job markets, schools, utilities, businesses, etc.	☐	☐	☑	☐	☑	Section 4.10 (Socioeconomics) discusses the local and regional economic issues in detail.

Comment	BRAC Actions	EUL	Both or Not Specified	Public	Agency	Response
Transportation						
17 . Edgewood Road gate must be permanently closed in order to keep the traffic levels at safe and manageable levels. EMS, Sheriff's Office, Fire Dept. will not be able to reach residential areas at Willoughby Beach, in a safe timely manner. Lives could be lost because of overload of Edgewood Road. It is suggested that the main gate is utilized more and that the Magnolia Gate be reopened. 300+ each day is not acceptable to the already over crowded Edgewood Road.	☐	☐	☑	☑	☐	Section 4.11 (Transportation) discusses off-post impacts likely to result from the BRAC actions. The Army has removed the Lauderick Creek EUL from the BRAC Actions EIS. Once the Lauderick Creek EUL development process matures to the point of environmental analysis, it will be assessed in a separate NEPA document.
18 . …the impact of the roadways as far as traffic flow that will be increased into the county.	☐	☐	☑	☑	☐	Section 4.11 (Transportation) discusses off-post impacts likely to result from the BRAC actions. The Army has removed the Lauderick Creek EUL from the BRAC Actions EIS. Once the Lauderick Creek EUL development process matures to the point of environmental analysis, it will be assessed in a separate NEPA document.
19 . …We have public transit that's within Harford County and Cecil County and that we need to use buses and show how they can interact with each other in order to have better transit flows through the counties. And in what way you would have main line buses, circulator buses, and then that would flow off of APG into the rail stations onto Rt 40 and even 95?	☐	☐	☑	☑	☐	Section 4.11 (Transportation) discusses off-post impacts likely to result from the BRAC actions.
20 . Are there any plans to increase the frequency of the stops to the Edgewood area or even improving the Edgewood area of the MARC train stop?	☐	☐	☑	☑	☐	Future development of the MARC train service is not within the scope of this EIS.
21 . Expansion of public transportation services and methods to incentivize their use.	☐	☐	☑	☑	☐	Comment noted.
22 . The other issue that I'd like to address is the issue of transportation… -- and I'm talking about buses, trains, etc. etc. … The transportation system was geared around and has always been supported on the fact that it's for senior citizens and it is not for the working public.	☐	☐	☑	☑	☐	Comment noted.
23 . Close Edgewood Gate and reopen Magnolia Gate. This would allow traffic from Lauderick Creek to exit and not completely snarl Edgewood Road.	☐	☑	☐	☑	☐	The Army has removed the Lauderick Creek EUL from the BRAC Actions EIS. Once the Lauderick Creek EUL development process matures to the point of environmental analysis, it will be assessed in a separate NEPA document.
24 . Traffic for streets without STOP lights?	☐	☐	☑	☑	☐	Comment noted.
25 . …impact of the traffic coming in and out of Edgewood.	☐	☐	☑	☑	☐	Comment noted.
26 . What are the plans for making transportation -- moving around more accessible? …I notice about 20,000 or more people coming… How much on a daily basis is that going to affect the traffic...?	☐	☐	☑	☑	☐	Section 4.11 (Transportation) discusses off-post impacts likely to result from the BRAC actions. The development of public transportation is a regional issue and is not addressed in this EIS.
27 . In-depth analysis of existing traffic issues local to APG and impact of additional population.	☐	☐	☑	☑	☐	Section 4.11 (Transportation) discusses off-post impacts likely to result from the BRAC actions.
37 . Traffic increase to Edgewood Road and how this will affect EMS to residences of Willoughby Beach Area - not to mention the increased bottleneck to just get in and out of area for home owners.	☐	☐	☑	☑	☐	Section 4.11 (Transportation) discusses off-post impacts likely to result from the BRAC actions.
40 . Increased traffic on Edgewood Road, particularly at evening rush hour. (It is already backed up to the point where citizens living on the peninsula where Willoughby Beach Road is the only outlet cannot get out onto Edgewood Road. Also, with traffic as heavy, emergency vehicles could not get through.)	☐	☐	☑	☑	☐	Section 4.11 (Transportation) discusses off-post impacts likely to result from the BRAC actions. The Army has removed the Lauderick Creek EUL from the BRAC Actions EIS. Once the Lauderick Creek EUL development process matures to the point of environmental analysis, it will be assessed in a separate NEPA document.
76 . Will the proposed EUL facilities at APG-AA and APG-EA require Harford County to provide increased...road expansions?	☐	☑	☐	☑	☐	The Army has removed the Lauderick Creek EUL from the BRAC Actions EIS. Once the Lauderick Creek EUL development process matures to the point of environmental analysis, it will be assessed in a separate NEPA document.
81 . The DEIS should address traffic and transportation as it relates to the proposed project. It may be necessary to provide an evaluation of existing roads specifying existing levels of service at major intersections near the project area as well as accident data. If appropriate, an evaluation of the impacts associated with an increased number of employees should be provided. The DEIS should discuss existing and proposed public transportation to the are under consideration and provide estimates of expected usage. Traffic projects should then be made to show expected conditions for a completed project.	☐	☐	☑	☐	☑	Section 4.11 (Transportation) discusses off-post impacts likely to result from the BRAC actions.
107 . The Applicant is encouraged to plan for the maximum utilization of carpools and public transit by employees providing preferential carpool/vanpool parking and bus shelters for commuters that use these methods of transportation. This will minimize the adverse impact of additional traffic generated by the proposed project. Please contact the Mobile Sources Program, Air and Radiation Management Administration at (410) 537-3270 for additional information.	☑	☐	☐	☐	☑	Section 4.11 (Transportation) discusses off-post impacts likely to result from the BRAC actions.
112 . Project should support resource conservation and pollution prevention through land use and transportation designs that provide alternatives to single occupant vehicle use.	☑	☐	☐	☐	☑	Comment noted.

Comment	BRAC Actions	EUL	Both or Not Specified	Public	Agency	Response
Utilities						
7 . Will the proposed EUL facilities at APG-AA and APG-EA require Harford County to provide increased water and sewer services...?	☐	☑	☐	☑	☐	The Army has removed the Lauderick Creek EUL from the BRAC Actions EIS. Once the Lauderick Creek EUL development process matures to the point of environmental analysis, it will be assessed in a separate NEPA document.
12 . Have the electrical problems at ECBC been solved so other buildings will not have the same problems?	☑	☐	☐	☑	☐	Past activities at the ECBC are outside the scope of this EIS.
Water Resources						
16 . The water runoff from building. …if you go up 24 and turn on Rt 40...you'll notice on both sides of that little road that goes to Rt 40 is a swamp that didn't used to be there. And it's caused from...the water not being able to run off. If you notice, all the trees are dying, and it's making a swamp. And I'm concerned about that.	☐	☐	☑	☑	☐	Comment noted.
80 . The principal aquifers in the region should be identified and described. All wells, both public and private, that could potentially be affected by the project must be identified. Areas of groundwater recharge in the vicinity should also be identified and any potential impacts from the proposed actions examined.	☐	☐	☑	☐	☑	Section 4.7 (Water Resources) describes the groundwater resources at APG.
88 . DEIS should discuss potential water quality impacts to surface resources in the study area. The potential physical impacts (turbidity, shading, siltation, alteration of currents) should be evaluated and described. The DEIS should outline measures to protect surface waters.	☐	☐	☑	☐	☑	Section 4.7 (Water Resources) describes the surface resources at APG, and Section 4.8 (Biological Resources) discusses potential impacts to wildlife..
92 . USGS is unaware of specific past, present, or future actions that should be generally considered. Since these are likely to be location specific, USGS is happy to provide additional input if USAG APG has specific questions about areas in which USGS has previous studied including Canal Creek, Lauderick Creek Cluster 13, Graces Quarters, J-Field, and O-Field.	☐	☐	☑	☐	☑	Comment noted.
94 . The Department has identified several issues regarding ground water at Aberdeen Proving Ground that we believe should be addressed in the EIS for the proposed facilities. Environmental impacts on ground water at APG fall into two broad categories: the shallow unconfined groundwater system and deep confined aquifers. Numerous instances of existing contamination have been documented in the shallow (less than about 50 feet deep) unconfined ground-water system. The potential for exposure of contaminated ground water during construction and subsequent activities should be addressed in the EIS. The EIS should also address the introduction of new contaminants to the shallow ground-water system, either through improper storage and disposal, or through routine activities, such as live-fire training. The shallow ground-water system provides water to streams as baseflow, and to wetlands and estuaries as seepage. The EIS should address the impact on these ecosystem components of altering the recharge characteristics of the shallow aquifer system by creating impervious surfaces (buildings, parking lots, etc.), rerouting of surface runoff, dewatering of construction sites, and re-grading the terrain. It seems unlikely that the shallow aquifer system would be used for water supply due to existing contamination and unreliability during droughts. However, if it is pumped, the impact of withdrawal on the previously mentioned ecosystem components should be considered. The deep (greater than about 50 feet deep) confined aquifers underlying APG may also be affected by the proposed facilities. If water is withdrawn from the confined aquifers for water supply, the impact of reduced water levels on existing ground-water users should be considered. Construction and operation of deep supply wells must be closely scrutinized to prevent contamination of deep aquifers from surface sources. Withdrawal of significant quantities of water from deep aquifers would create cones of depression in the regional potentiometric surface, which may alter ground-water flow gradients and cause migration of contaminated ground water. Similarly, ground-water withdrawals may cause brackish-water intrusion from Chesapeake Bay and other tidal estuaries in the area. These potential impacts should be included in the EIS.	☐	☐	☑	☐	☑	Section 4.7 (Water Resources) describes the groundwater resources at APG and Section 4.13 describes the current programs addressing hazardous material contamination and remediation. All water requirements will be supplied by Harford County sources. All construction on the northern and southern peninsulas will be required to meet all erosion controls and runoff protection to protect downstream surface and groundwater resources.
99 . Discuss any permits required before commencement of the proposed actions. This may include a Section 404/Section 10 permit from the Corps of Engineers, State water quality certification, and local construction and zoning permits.	☐	☐	☑	☐	☑	Section 4.8 (Biological Resources) describes any coordination required with permitting agencies.

APPENDIX B

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BRAC 2005 Implementation
Aberdeen Proving Ground, MD

Final

General Conformity Determination

Prepared for

Directorate of Safety, Health and Environment
US Army Garrison
Aberdeen Proving Ground
Aberdeen Proving Ground, Maryland 21005-5001

May 31, 2007

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Estimates of Direct Emissions

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Mobile Source Emission Inventory

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Maryland Department of the Environment Inventory for APG & letter dated April 18, 2006
APG response letter dated June 21, 2006, Maryland Department of the Environment letter dated August 15, 2006

GENERAL CONFORMITY DETERMINATION
BRAC 2005 IMPLEMENTATION
ABERDEEN PROVING GROUND, MARYLAND

1. INTRODUCTION

The US Army's Aberdeen Proving Ground (APG) in Maryland is expected to undergo expansion as a result of the implementation of the Base Realignment and Closure (BRAC) process undertaken by the Department of Defense. This Federal action has the potential to result in a substantial increase in the emissions of criteria pollutants or precursors in the Baltimore Metropolitan non-attainment area, which are currently controlled under Maryland state implementation or maintenance plans. This Conformity Determination was prepared to comply with Federal regulations contained in 40 CFR Part 93 Subpart B.

2. PROPOSED ACTION

The activities proposed for relocation to APG include elements of the US Army Research Laboratory currently located in Virginia and Ohio; activities of the Communications Electronics Life-Cycle Management Command currently located in New Jersey, Virginia, Alabama and Arizona; elements of the US Army Research Institute located in Kentucky; Headquarters, US Army Test and Evaluation Command and Army Evaluation Center, from Virginia; and various chemical and biological defense research activities from Washington, D.C., Virginia, and Texas. Activities proposed to be relocated from APG include the US Army Ordnance Center and School to Fort Lee, Va., and the US Army Environmental Center to Fort Sam Houston, Texas.

The incoming and outgoing activities will result in a net increase of several thousand new government employees and contractors, relocation of equipment, and the renovation of existing and construction of new buildings at APG. Renovation and construction activities are likely to start as early as 2007 and continue at least through Fiscal Year (FY) 2010; most new BRAC personnel will arrive at APG after 2009, with all in place by 2011.

3. APPLICABLE REGULATIONS

The purpose of the general conformity regulations contained in 40 CFR Part 93 Subpart B (Determining Conformity of General Federal Actions to State or Federal Implementation Plans) is to establish that the proposed action would conform to the Maryland State Implementation Plan (SIP) for ozone, thereby demonstrating that emissions from the proposed action would not:

- cause or contribute to any new violation of any standard in the area,
- interfere with provisions in the applicable SIP for maintenance of any standard,
- increase the frequency or severity of any existing violation of any standard in any area, or
- delay timely attainment of any standard or any required interim emission reductions or other milestones in the SIP for purposes of a demonstration of reasonably further progress (RFP), a demonstration of attainment, a maintenance plan.

The general conformity requirements in 40 CFR Part 93 Subpart B, apply to those Federal actions that:

- are located in a non-attainment or maintenance area,
- are not subject to transportation conformity requirements at 40 CFR Part 51, Subpart T, or Part 93, Subpart A,
- have the potential to emit one or more of the six criteria pollutants, i.e., carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), particulate matter (PM10), lead, and precursors (nitrogen oxides or NOx, and volatile organic compounds or VOC) in the case of ozone, at emission rates equal to or exceeding the prescribed rates (referred to as the *de minimis* rates) at 40 CFR Part 93.153(b), or
- have the potential to emit any criteria pollutant at rates that represent 10 percent or more of a non-attainment area (NAA) or maintenance area's total emissions inventory for that pollutant.

The Clean Air Act (CAA), as amended in 1990, defines a NAA as a geographic region that has been designated as not meeting one or more of the National Ambient Air Quality Standards (NAAQS). The proposed action is located in Harford County, Maryland, which has been designated by the Environmental Protection Agency (EPA) as a Moderate NAA for the 8-hour ozone standard (which replaced the 1-hour ozone standard as of June 15, 2005), an Attainment Maintenance Area for CO, and NAA (as of April 5, 2005) for fine particulate matter smaller than 2.5 micrometers in diameter (PM2.5). The Baltimore region is in attainment and not in maintenance for any of the other criteria pollutants: PM10, SO_2, NO_2, and lead.

Maryland has an active ozone SIP and a CO maintenance plan; a revised SIP for ozone is currently expected to be submitted to EPA by June 15, 2007. A PM2.5 SIP is currently being prepared by the State and is currently expected to be submitted to EPA by April 5, 2008.

In the case of APG, the prescribed annual rates are 50 tons of volatile organic compounds (VOCs) and 100 tons of NOx, (moderate ozone NAA), and 100 tons of CO (maintenance area). In the case of the PM2.5 NAA, the *de minimis* levels for PM2.5 direct emissions and SO_2 are 100 tons/year.

Under the regulations, both direct and indirect emissions resulting from the Federal action must be considered. For the purposes of a general conformity determination, direct and indirect emissions are defined as follows (40 CFR Part 93.152):

- Direct Emissions: Those emissions of a criteria pollutant or its precursors that are caused or initiated by the Federal action and occur at the same time and place as the action;

- Indirect Emissions: Those emissions of a criteria pollutant or its precursors that are caused by the Federal action, but may occur later in time and/or may be further removed in distance from the action itself but are still reasonably foreseeable; and the Federal agency can practicably control and will maintain control over due to a continuing program responsibility of the Federal agency.

4. ESTIMATED EMISSIONS

For the purposes of the conformity determination, emissions of the following criteria pollutants were estimated: the ozone and PM2.5 precursors -- VOC and nitrogen oxides (nitrogen dioxide and nitrogen oxide combined, NOx), CO, PM2.5 and SO_2. Since the area is neither non-attainment nor maintenance for SO_2, a conformity analysis is not necessary for this pollutant. However, the Maryland Department of the Environment (MDE) required APG to examine emissions of SO_2 since it can be a PM2.5 precursor. The regulations do not require the analysis of ammonia, which is also a precursor to PM2.5, unless the State or EPA has made a finding that it significantly contributes to the PM2.5 problem in a given area or to other downwind air quality concerns.

The methods used for estimating direct and indirect emissions of VOC, NOx, CO, PM2.5 and SO_2 from the proposed action meet the requirements of 40 CFR Part 93.159. Emissions of PM10, though not required for the conformity determination, were included where required to estimate PM2.5 emissions. The emissions scenario used in the estimates analysis is expected to produce the greatest off-site impacts on a daily and annual basis. Non-road engine emissions were predicted using the NONROAD 2005 model, the latest EPA model for determining emissions from non-road engines. On-road emissions were predicted using the MOBILE 6.2 model, the latest EPA model for predicting emissions from on-road vehicles. Emissions from other sources were estimated using EPA-approved methods such as material balances or "AP-42 Compilation of Emission Factors." Emission estimates are presented in Appendices A and B.[1] The estimates are conservative, i.e., most likely over predict the projected emissions increases. Emission reductions as a result of actions unrelated to BRAC, e.g., currently planned shutdown of facilities or other voluntary measures are not included in these estimates.

Table 1. Estimated Cumulative Direct Emissions

	Year		
Pollutant	**2009 (tons/yr)**	**2010 (tons/yr)**	**2011 (tons/yr)**
NOX	37.3	36.3	95.8
VOC	13.9	6.6	43.9
CO	157.8	135.3	383.5
PM2.5	4.0	6.1	10.9
SO_2	9.8	3.4	27.1

[1] Appendix A presents estimates of direct emissions. Appendix B presents estimates of emissions from mobile sources (i.e., vehicular traffic associated with the BRAC). The portion of mobile source emissions (Appendix B) that occurs within the APG boundary is also included in direct emissions described in Appendix A.

Table 2. Estimated Cumulative Indirect Emissions

Pollutant	Year		
	2009 (tons/yr)	**2010 (tons/yr)**	**2011 (tons/yr)**
NOX	60.0	0.0	128.5
VOC	12.2	0.0	28.9
CO	137.5	0.0	345.8
PM2.5	1.0	0.0	2.1
SO_2	0[2]	0[1]	0[1]

Table 3. Estimated Cumulative Total Emissions

Pollutant	Year		
	2009 (tons/yr)	**2010 (tons/yr)**	**2011 (tons/yr)**
NOX	97.3	36.3	224.3
VOC	26.1	6.6	72.8
CO	295.3	135.3	729.3
PM2.5	5.0	6.1	13.0
SO_2	9.8	3.4	27.1

The APG has determined that the total annual direct and indirect emissions of PM2.5 and its precursor SO_2 are below the *de minimis* levels.[2] Therefore, a general conformity determination for PM2.5 emissions is not required. Further, emissions of NOx, VOC, and CO in all areas other than the Baltimore region are less than the rates prescribed in 40 CFR Part 93.153 that would trigger the requirement to conduct a general conformity determination. A general conformity determination is required only for emissions of NOx, VOC, and CO within the Baltimore region.

5. PRESUMPTION OF CONFORMITY

The MDE has accepted the 2002 base year inventory for APG and the growth estimates. A letter from MDE dated April 18, 2006 states that the growth estimates will be used in the SIP for the years 2006 through 2010, and will be incorporated in the 8-hour SIP, which will be submitted to EPA in June 2007. The April 18, 2006 letter is attached in Appendix C.

Table 4. APG Budgeted Emissions Growth in the 2002 Maryland Ozone SIP

Year	Growth Factor	CO (tons/yr)	NOx (tons/yr)	VOC (tons/yr)
2009	1.34332	520.34	158.10	91.25
2010	1.23536	356.73	108.39	62.56
2011	1.77894	1,180.59	358.71	207.04

[2] Federal regulation of sulfur content in gasoline and in diesel fuels for on-road sources renders the mobile-source emission of this pollutant negligible

By its letter dated August 15, 2006 (also attached in Appendix C), the MDE stated that the direct BRAC-related emissions of NOx and VOC through the year 2010 are less than the projected emissions budget that will be used in the SIP. Further, the indirect emissions in 2011 (full build-out) "will be incorporated into the regional transportation-planning model and will be mitigated via the federal transportation conformity regulations. Removing these mobile indirect emissions from the total cumulative emissions shows that the remaining increases in emissions fall below the *de minimis* levels".

The MDE also stated in the August 15, 2006 letter that the CO maintenance plan accommodates the increase in CO emissions from BRAC.

For NOx and VOC, the proposed action is presumed to conform to the 8-hour ozone SIP for the Baltimore region based on the following:

- A portion of the emissions would not exceed the emissions budget in the SIP – this meets the criteria specified in 40 CFR 93.158 (a)(5(i)(A), and

- A portion of the emissions is included in the transportation plan – this meets the criteria specified in 40 CFR 93.158 (a)(5(ii).

For CO, the proposed action is presumed to conform to the CO maintenance plan for the Baltimore region because the emissions are included in the plan – this meets the criteria specified in 40 CFR 93.158 (a)(1).

Copies of the draft General Conformity Determination were sent to the MDE, the EPA, the Baltimore Metropolitan Council and Harford County, Maryland. A public notice of the conformity determination was placed in the legal section of The Aegis (March 23, 2007), The Record (March 23, 2007) and The Baltimore Sun (March 25, 2007), in conjunction with the public notice for the draft Environmental Impact Statement for BRAC actions. Public meetings were held on April 10, 2007 in Edgewood, Maryland, and on April 11, 2007 in Aberdeen, Maryland.

Dated: May 31, 2007

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John T. Wright

Colonel, OD
Deputy Installation Commander

Appendix A
Estimates of Direct Emissions

1. Introduction

This Appendix provides estimates of increases in direct emissions as a result of the Base Realignment and Closure (BRAC) 2005 implementation. Direct emissions are those that:

- Are caused or initiated by the Federal action,
- Occur at the same time and place as the action itself,
- Are reasonably foreseeable.

Emissions that occur within the Aberdeen Proving Ground (APG) boundary, including emissions from vehicular traffic on post, are included in direct emissions.

Indirect emissions are those that occur outside the APG boundary, e.g., as a result of employees and contractors commuting to and from APG. Estimates of indirect emissions as a result of BRAC, consisting of vehicular traffic generated off post in the Baltimore metropolitan area, are presented in Appendix B.

To estimate direct emissions, each of the emission categories for which emissions were estimated for the 2002 baseline year were reviewed; these estimates were incorporated by the Maryland Department of the Environment (MDE) in the State Implementation Plan (SIP) inventory for APG. The emission categories for which emission increases as a result of BRAC were reasonably foreseeable were identified. To estimate the emission increases, projections (where available) of additional emission sources expected to relocate to APG, e.g., additional aircraft activity or emergency generators were used. Where such projections were not available, emissions were assumed to increase in proportion to the additional BRAC-related population, e.g., emissions from VOC-containing products.

An additional assumption was made that no BRAC-related increases would occur in several emission categories such as inactive landfills, small arms firing, smoke testing, etc.

The BRAC growth is expected occur primarily during the years 2009 through 2011, although some construction may start in 2007. The estimated APG population and BRAC related growth are shown in Table A-1.

Estimates of the potential increase in emissions from various emissions categories (arranged alphabetically, to correspond with the inventory submitted to the MDE) are presented in the sections that follow. A summary of the total emission increase at full build-out (2011) is included in each section. The estimates are conservative, i.e., most likely over-predict the projected emissions increases. Emission reductions as a result of actions unrelated to BRAC, e.g., the shutdown of the Aberdeen Chemical Agent Neutralization Facility (ACANF) or any other voluntary measures are not included in these estimates.

2. Aircraft Operations

2-1 Background

There may be an increase in aircraft operations at APG as a result of the relocation of certain operations from Ft. Monmouth, New Jersey.

Available information about the types of aircraft that might re-locate to APG and their flight activity were summarized, and used to estimate emissions as described in the following paragraph.

2-2 Emissions Calculations

The Federal Aviation Administration's Emissions Dispersion Modeling System (EDMS model), Version 4.4, was used to estimate emissions of criteria pollutants from flight activity. Specific information on Phillips Airfield such as the current year, an elevation of 58 feet above sea level, an average yearly temperature of 59 degrees Fahrenheit, a mixing height of 3000 feet and a default taxi time of 26 minutes was used for program setup. It is assumed that all emissions within the 3000 ft. mixing height occur within the APG boundary. Emissions generated by aircraft outside the height boundary are not captured in this or other emission inventories.

The program calculates nitrogen oxides (NOx), carbon monoxide (CO), and volatile organic compounds (VOC) based on emission factors gathered from the US Air Force and engine manufacturers. The EDMS model uses FAA "first-order approximation (FOA) methodology estimates of particulate matter (PM) emissions from commercial jet-turbine aircraft engines". Emission factors for military aircraft are not provided. Therefore, PM emissions (PM-10 and PM-2.5) were calculated based on the emission factors provided by the Air Force Institute for Environmental and Occupational Health Risk Analysis (*IERA, January 2002)* for some aircraft engines using the following equation:

$$\textit{Emissions (lb)} = \frac{\#AO}{yr} \times \textit{Duration (hr)} \times \frac{\#\ Engines}{Aircraft} \times \frac{\textit{Fuel flow rate (lb fuel)}}{hr} \times \frac{EF\ (lb)}{1{,}000\ lb\ fuel}$$

Where # AO = number of aircraft operations based on landings and take-offs (LTOs)

Emission calculations of CO, NOx, and VOC are presented in Table A-2, and calculations of PM 10 and PM 2.5 are presented in Table A-3 of this appendix. It is assumed that these emissions will occur in 2011. A summary of the total emission estimates in tons/year is as follows:

CO	NOx	PM-10	PM-2.5	SO2	VOC
7.19	1.01	0.16	0.16	0.01	6.11

3. Architectural Surface Coatings

3-1 Background

Architectural surface coating operations consist of applying a thin layer of coating such as paint, paint primer, varnish, or lacquer to architectural surfaces, and the use of solvents as thinners and for cleanup. It is assumed that emissions from this category will increase in proportion to the overall APG population. This is a conservative assumption, because in reality, a lower on-base residential population is expected, and future coatings are expected to have lower a VOC content as compared to that in 2002, as a result of changes in the Code of Maryland Regulations (COMAR) applicable to the VOC content of coatings.

3-2 Emissions Calculations

The VOCs used as solvents in the coatings are emitted during application of the coating and as the coating dries. The amount of coating used and the VOC content of the coating are the factors that primarily determine emissions from architectural surface coating operations. It was assumed that architectural surface coatings at APG residences were applied using brushes and rollers; therefore PM emissions were not considered.

Calculation of VOC emissions from architectural surface coatings were performed using population based usage and emission factors. The emission factors were obtained from the Environmental Protection Agency (EPA) document titled '*Emission Inventory Improvement Program*', *Volume III, November 1995, Table 5-2*. The per capita usage factor is based on the estimated US population in CY 2000 of 281,421,906 people. The gallons of water-based paints and solvent-based paint used for that year was estimated at 515.5 and 122.3 million gallons respectively from information obtained from the US Census Bureau.

Per capita Water-Based Usage Factor = Gallons of Water-Based Paints/Population
= $515.2 \times 10^6 / 281{,}421{,}906$
= 1.83 gallons per person

Per capita Solvent-Based Usage Factor = Gallons of Solvent-Based Paints/Population
= $122.3 \times 10^6 / 281{,}421{,}906$
= 0.43 gallons per person

VOC Emissions from Solvent-Based Coatings = Population * Solvent Usage Factor * Solvent VOC Emission Factor

VOC Emissions from Water-Based Coatings = Population * Water Usage Factor * Solvent VOC Emission Factor

The average VOC content for water-based coatings is 0.74 lb/gal and for solvent-based coatings 3.87 lb/gal. The two emission estimates are added to get the total VOC emissions from residential use of architectural coatings.

Emission calculations are presented in Table A-4. The total VOC emissions from architectural coatings are estimated to be **2.9** tons/year.

4. Asphalt Paving Operations

4-1 Background

The primary pollutants of concern from asphalts and asphalt paving operations are VOCs. Of the three types of asphalt, the major source of VOC emissions comes from cutback asphalt. Since minor amounts of VOCs are emitted from the other two types of asphalts (emulsified asphalt and asphalt cement), these two types are typically not addressed in an air emissions inventory.

The VOC emissions from cutback asphalts result from the evaporation of the petroleum distillate solvent (diluent) used to liquefy the asphalt cement. Cutback asphalt falls into three broad categories: rapid cure (RC), medium cure (MC), and slow cure (SC) road oils. Depending on the viscosity desired, the proportions of solvent added generally range from 25 to 45 percent by volume.

At APG, the majority of the asphalt paving is conducted using asphalt cement for which the VOC emissions were considered minimal and not addressed. However, some specific applications do utilize cutback asphalt. It is assumed that emissions from this category will increase in proportion to the overall APG population.

4-2 Emissions Calculations

The VOC emissions from cutback asphalt paving operations were calculated by multiplying the total amount of cutback asphalt applied during the year by the weight percent of cutback asphalt which is expected to evaporate.

$$E_{VOC} = QA * (WP_{evap}/100)$$

Where,

E_{VOC} = Emissions of VOC (lb/yr)
QA = Quantity of cutback asphalt used (lb/yr)
WP_{evap} = Weight percent of cutback asphalt which evaporates (%)

The total amount of cutback asphalt used was determined by dividing the amount spent by APG on cutback asphalt paving in Calendar Year (CY) 2003 (CY 2002 data was not available) by the average price for cutback asphalt. The amount of cutback asphalt used was estimated to be 10,000 tons/year.

The average solvent content in the cutback asphalt was estimated to be approximately 36% by volume. A RC type of cutback asphalt was assumed for use at APG.

$$E_{VOC} = 10{,}000 * (24/100)$$

E_{VOC} = 2,400 lbs/year or 1.2 tons/year

The total pro-rated year 2011 VOC emissions based on population from cutback asphalt paving are estimated to be **0.3** tons/year.

5. Chemical Usage

5-1 Background

Pollutants are emitted at APG as a result of the usage of VOC-containing substances such as laboratory chemicals, surface coating materials, architectural coatings, and miscellaneous chemicals. The laboratory chemicals of concern for air emission inventory purposes are primarily liquid reagents that contain VOCs. Most emissions from laboratory chemicals occur during preparation/mixing in laboratory hoods. After preparation/mixing, the laboratory reagents to be used are usually kept in a closed container (e.g., flask). Any excess/waste reagent is usually disposed of via the APG hazardous waste management program.

Surface coating operations are typically performed by a variety of shops at APG. Surface coating operations involve the application of primers, paints (e.g., enamels, lacquers, polyurethanes), thinners, stains, varnishes, shellacs, glazes, etc., for decorative and protective purposes. In general, surface coatings are typically composed of a solvent portion and a solids portion (the one exception is thinners which only contain solvents). During drying of the surface coating, VOC emissions result from the evaporation of the solvent portion. Architectural coatings used for residential applications are addressed in Section 3.

Architectural coatings are commonly applied by APG tenants and contractors, and include products such as exterior and interior paints, industrial maintenance coatings, wood and roof coatings, primers, and traffic paints. As with surface coating materials, VOC emissions are a result of the evaporation of the solvent portion of the architectural coating.

Miscellaneous chemicals include various products such as cleaners, solvents, light lubricants/oils, adhesives, sealants, etc. In general, these chemicals are expended in the process (i.e., no waste is collected) and are uncontrolled. Emissions of VOCs are a result of product evaporation.

It is assumed that emissions from this category will increase in proportion to the overall APG population.

5-2 Emissions Calculations

The VOC emissions were extracted from the Hazardous Inventory Tracking System (HITS) system used at APG to track hazardous substances. The HITS system determines usage of a product by tracking the number of containers of product that have been 'flagged' in the system as being used. The material safety data sheet (MSDS) for each product is also tracked in the system. The weight percentage of each chemical component classified as a VOC was multiplied by the density of the product in order to determine a total pounds of VOC per gallon of product. Emissions from laboratory buildings with emission controls were subtracted from the total of VOCs emitted.

For example, in CY 2002, 7 gallons of Product ABC were ordered and 5 gallons were flagged as used. Product ABC has a density of 10 lb/gal and is composed of 20% xylene, 5 to 10% acetone, and 70-75% ammonia. Xylene and acetone are 'identified' as VOCs in the HITS database but ammonia is not. Therefore, VOCs from this product would be calculated as:

(5 gal/yr) * (10 lb/gal) * (30% max. VOC content) = 15 lb/yr VOC

The VOC inventory is conservative in that some VOCs may have already been accounted for when determining emissions from permitted surface coating sources (i.e., paint spray booths) submitted in the 2002 *Annual Emission Certification*. Also, all VOCs were assumed to be released to the atmosphere, when excess laboratory chemicals may have been disposed of, rather than allowing them to evaporate. On the other hand, the inventory may not account for materials not entered into the HITS system such as some paints and other VOC-containing products brought on site and used by contractors. Emission calculations are presented in Table A-5.

The total emissions of VOCs from chemical usage are estimated to be **3.9** tons/year.

6. Construction & Demolition – Fugitive Dust

6-1 Background

Heavy construction and demolition operations involving buildings result in the emissions of fugitive PM. Although most of the emissions from heavy construction and demolition operations come from the exhaust of mechanized construction equipment, such emissions are estimated later in this Appendix in Section 10, Heavy Construction Operations. This section addresses fugitive PM only. It is assumed that emissions from this category will increase in proportion to the area (square footage) of buildings to be constructed or renovated.

Heavy construction operations can be broken down into three major phases: demolition and debris removal, site preparation (earth moving), and general construction. However, since most of the fugitive PM emissions can be expected to come from the first two phases, only these phases are addressed by emission calculations.

6-2 Emissions Calculations

The quantity of dust emissions from construction operations is proportional to the area of land being worked and to the level of construction activity. AP-42 currently includes only one emission factor associated with heavy construction operations as a whole. This emission factor is 1.2 tons/acre/month of activity. Since derivation of this emission factor is based on construction activity occurring 30 days per month, it can be converted into 80 pounds/acre/day of activity.

Emissions from heavy construction operations can be estimated by multiplying the emission factor above times the approximate number of full (i.e., 8-hour equivalent) working days in which construction operations are conducted during the year and then by the estimated area

(acres) of property in which construction operations are performed during a typical day. When referring to construction operations, only demolition and debris removal and site preparation (earth moving) related activities should be considered. Information pertaining to the number and square footage of buildings constructed and demolished in CY 2002 at APG was used to estimate the number of full working days. The estimates are conservative; emission reductions can be readily achieved by using dust suppression methods.

A PM-10 to PM-30 ratio from *AP-4,2 Section 13.2.2* for dust emissions from unpaved roads equates to 0.45 (e.g., 45%). Assuming the Total Suspended Particulate (TSP) from fugitive dust emissions has an aerodynamic diameter less than or equal to 30 microns, the 0.45 ratio can be used to estimate the PM-10 emissions from construction operations.

$$E_{PM\text{-}10} = E_{TSP} * 0.45$$

Where,

$E_{PM\text{-}10}$ = Emissions of PM-10 (lb/yr)
E_{TSP} = Emissions of Total Suspended Particulate (lb/yr)
0.45 = Estimated ratio of PM-10 to TSP

For this evaluation, PM-10 emissions are assumed to be equal to PM2.5 emissions. Emission calculations are presented in Table A-6.

The total emissions of PM-10 are estimated to be **4.5** tons/year. It is conservatively assumed that PM-2.5 emissions are the same as PM-10 emissions.

7. Consumer Products

7-1 Background

The VOC-containing products in this category include personal care, household, automotive aftermarket products, adhesives and sealants, and other consumer products. Personal care products include hair care, deodorants, antiperspirants, perfumes, colognes, and nail care. Household products primarily consist of cleaning products for hard surfaces, clothing, carpet, dishes; and waxes; and polishes. Other household products include air fresheners and charcoal lighter fluids. Automotive aftermarket consumer products include detailing, maintenance, and repair products. Adhesives and sealants include cements, glues, pastes, and caulking compounds.

It is assumed that emissions from this category will increase in proportion to the overall APG population. This assumption is considered to be conservative, because future products are expected to have a lower VOC content as compared to those sold in 2002, as a result of changes in the Code of Maryland Regulations (COMAR) applicable to the VOC content of such products.

7-2 Emissions Calculations

The per capita emission factors were obtained from the EPA document titled '*Emission Inventory Improvement Program', Volume III, August1996, Table 5.4-1.* The emissions from Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) regulated products were not included with consumer products because agricultural application of pesticides does not occur on-site. Also, the product category for coatings and related products are estimated under the Architectural Coatings section of this document. Overall VOC emissions attributable to consumer products were estimated by multiplying the APG residential population by the per capita emission factor.

Emissions = Population * Per Capita Emission Factor

Emission calculations are presented in Table A-7.

The total VOC emissions from consumer products usage are estimated to be **4.8** tons/year.

8. External Combustion Sources

8-1 Background

The APG external combustion sources consist of boilers with a rated heat input less than 1 MMBtu/hr burning natural gas or No. 2 fuel oil; some No. 1 fuel oil (a distillate fuel designed for vaporizing burners) is also used. It is assumed that emissions from this category will increase in proportion to the overall APG population. Emissions from larger boilers are included in the registered sources at APG, which are addressed in Section 15 of this Appendix.

8-2 Emissions Calculations

Emission factors for industrial boilers <10 MMBtu/hr, distillate oil fired, were obtained from *Tables 1.3-1 and 1.3-2 in AP-42 Section 1.3, Fuel Oil Combustion.* Emission factors for small industrial boilers <10 MMBtu/hr, natural gas fired boilers, uncontrolled, were taken from *Tables 1.4-1 and 1.4-2 in AP-42 Section 1.4, Natural Gas Combustion.*

Emissions were calculated for criteria pollutants and PM-2.5 based on fuel usage. Fuel usage was derived by subtracting the fuel usage determined for permitted boilers (>1 MMBtu/hr) from the total quantity of fuel delivered to APG. Additionally, the amount of fuel oil delivered to emergency electrical generators was subtracted from the total. The emission calculations for all boilers <1 MMBtu/hr were based on the net fuel quantity.

Emission calculations are presented in Table A-8.

A summary of the total emission estimates in tons/year is as follows:

CO	NOx	PM-10	PM-2.5	SO2	VOC
0.52	1.78	0.21	0.19	3.56	0.03

9. Fire Fighter Training

9-1 Background

The training of fire fighters is conducted in live fire training exercises, which usually include a mock-up metal structure, such as an aircraft, vehicle, or building. The purpose of these structures is to create a more realistic fire scenario. The primary fuel currently used for the fires is liquid propane. However, JP-8 fuel is used (along with liquid propane) in some aircraft and vehicle fire scenarios. The emissions of concern from fire fighter training are criteria pollutants resulting from the open combustion of fuels. It is assumed that emissions from this category will increase in proportion to the overall APG population.

9-2 Emissions Calculations

The emissions from fire fighter training operations using propane and/or JP-8 fuel were calculated using emission factors derived from the study performed at Goodfellow Air Force Base (AFB). The emissions were calculated by multiplying the quantity of fuel burned at APG by the appropriate emission factor.

$$E_{pol} = QF * EF$$

Where,

E_{pol} = Emissions of a particular pollutant (lbs/yr)
QF = Quantity of fuel burned (gal/yr)
EF = Emission factor (lb/gal)

Emission calculations are presented in Table A-9.

A summary of the total emission estimates in tons/year is as follows:

CO	NOx	PM-10	PM-2.5	SO2	VOC
0.08	0.17	0.05	0.05	0.01	0.14

10. Heavy Construction Operations

10-1 Background

This category includes emissions from a variety of construction equipment, both mobile (e.g., backhoes, bulldozers, graders, cranes, forklifts, aerial lifts, sweepers, etc.), and non-mobile (e.g., generators, heaters, and light towers). The estimates are based on data available for major construction operations conducted at APG in 2002. Emissions from construction-related traffic (e.g., delivery trucks, vehicles used by construction workers) are estimated separately in Section 12 of this Appendix. Emissions of fugitive PM from construction and demolition activities are estimated separately in Section 6 of this Appendix.

It is assumed that emissions from this category will increase in proportion to the area (square footage) of buildings that will be constructed or renovated. Even though some construction activities may start prior to 2009, it is conservatively assumed that emissions from construction activities in prior years are included in the 2009 estimates.

10-2 Emissions Calculations

Criteria pollutant emission factors were obtained from EPA's NON-ROAD 2005c model and were based on Source Classification Codes (SCC). These factors were used to estimate the emissions from non-road vehicles and equipment.

Emission calculations are presented in Tables A-10 through A-15.

A summary of the total emission estimates in tons/year is as follows:

CO	NOx	PM-10	PM-2.5	SO2	VOC
204.08	47.56	4.14	3.88	8.01	12.04

11. Non-Road Equipment

11-1 Background

The APG non-road equipment inventory includes construction equipment (e.g., backhoes, bulldozers, graders, cranes, etc.), industrial equipment (e.g., forklifts, aerial lifts, sweepers, etc.), lawn and garden equipment (e.g., lawn mowers, trimmers, leaf blowers, snow blowers, etc.), agricultural equipment (e.g., agricultural tractors, agricultural mowers, etc.), and miscellaneous vehicles such as all terrain vehicles, utility vehicles, snowmobiles, golf carts, etc. It is assumed that emissions from this category will increase in proportion to the overall APG population.

11-2 Emissions Calculations

Criteria pollutant emission factors were obtained from EPA's NON-ROAD 2005c model. These factors were used to estimate the emissions from non-road vehicles and equipment.

APG gathered information about the number of vehicles, model year, horsepower rating, fuel type, engine cycle type, and estimated operating hours for CY 2002. In the majority of instances, horsepower ratings and operating hours were not readily available and were assumed based on the typical horsepower of similar types of equipment.

Emission calculations are presented in Tables A-16a through A-21b.

A summary of the total emission estimates in tons/year is as follows:

CO	NOx	PM-10	PM-2.5	SO2	VOC
125.88	10.18	1.12	1.03	1.87	5.27

12. Solvent Degreasers

12-1 Background

Solvent cleaners are used at APG to clean (or degrease) parts associated with a variety of vehicles and equipment. Solvent cleaning machines remove grease, oils, lubricants, soil, waxes, carbon deposits, fluxes, tars, and other contaminants from metal, plastic, glass, and other surfaces.

Batch cold cleaning machines typically use non-halogenated solvents to clean parts. In a typical maintenance cleaner, parts are cleaned manually by spraying and then soaking in the tank. After cleaning, the parts are either suspended over the tank to drain or are placed on an external rack that routes the drained solvent back into the cleaner. Emissions from batch cold cleaning machines may occur from a variety of sources, including: 1) waste solvent evaporation; 2) solvent carryout (evaporation from wet parts); 3) solvent bath evaporation; 4) spray evaporation; and 5) agitation. It is assumed that emissions from this category will increase in proportion to the overall APG population.

12-2 Emissions Calculations

Emissions from solvent cleaning tanks can usually be calculated using a mass balance approach. In general, the amount of solvent emitted is approximately equal to the total amount of fresh solvent added to the cleaning machine minus the amount of waste solvent which is removed from the machine and either disposed of, recycled, or reclaimed. In determining the amount of solvent used, data on the amount of solvent removed from APG in 2002 was obtained from the vendor. It was conservatively assumed that 95% of the total solvent supplied was removed and that the other 5% was used and emitted as VOCs.

Emission calculations are presented in Table A-22.

The total emissions of VOCs from solvent degreasers are estimated to be **0.2** tons/year.

13. Stationary Internal Combustion Engines

13-1 Background

Stationary internal combustion engines less than 500 BHP consist of non-permitted generators, stand-alone engines used for mechanics' training, and generators for equipment support. Data on existing equipment and usage was provided by Ft. Monmouth, including number of units, rating in kW and/or HP, fuel type (gasoline or diesel), total fuel usage, run time and power output. It was assumed that equipment with an equivalent capacity will be installed at APG as a result of BRAC.

13-2 Emissions Calculations

Emission factors for generators were derived from *AP-42 Section 3.3, Table 3.3-1* for Gasoline and Diesel Industrial Engines. Where actual operating hours were not known, it was assumed that the units would operate 100 hours/year.

Emission calculations are presented in Table A-23.

A summary of the total emission estimates in tons/year is as follows:

CO	NOx	PM-10	PM-2.5	SO2	VOC
2.20	10.21	0.72	0.72	0.68	0.82

14. On-Road Mobile Sources

14-1 Background

The APG on-road vehicle inventory consists of a mix of light- and heavy-duty gasoline-, diesel-, and natural gas-powered government, tenant, and privately owned vehicles (POVs). Private vehicles include vehicles owned by military personnel, contractor employees, and visitors. The vehicle types are grouped into the following classifications, which were also used in the APG inventory submitted to MDE:

- Compressed Natural Gas Vehicles
- HDDBS - Diesel School Buses
- HDDBT -Diesel Transit and Urban Buses
- HDDV - Heavy-Duty Diesel Vehicles (> 8,500 lbs Gross Vehicle Weight (GVW))
- HDGV - Heavy Duty Gasoline-Fueled Vehicles (> 8,500 lbs GVW)
- LDDT - Light-Duty Diesel Trucks (0 - 8,500 lbs GVW)
- LDDV - Light-Duty Diesel Vehicles (Passenger Cars)
- LDGT12 - Light-Duty Gasoline Trucks (0 - 6,000 lbs GVW)
- LDGT34 - Light-Duty Gasoline Trucks (6,001 - 8,500 lbs GVW)
- LDGV - Light-Duty Gasoline Vehicles (Passenger Cars)

Information on the POVs for APG was estimated from a CY 2001 traffic study conducted for all gates at both Aberdeen and Edgewood.

14-2 Emissions Calculations

Direct emissions were calculated only for the estimated miles and hours of on-base vehicle operation. Indirect emissions in the form of miles traveled off base were not included in the emission calculations in this section. Emissions were determined by running the MOBILE 6.2.03 model. Details about the emissions calculations are presented in Appendix B, which addresses both direct (on-post) and indirect (off-post) vehicular emissions.

A summary of the total emission estimates in tons/year is as follows:

CO	NOx	PM-10	PM-2.5	SO2	VOC
36.95	14.78	0.40	0.27	0.00	4.83

15. Registered Sources

APG has a large number of permitted point emission sources, including space heaters, steam and hot water boilers, paint spray booths, emergency electrical generators, etc., that are covered by the Title V permits issues by MDE to APG. Emissions from these permitted sources are reported annually to MDE in the Annual Emissions Certification, and are not addressed in the previous Sections of this Appendix. It is assumed that there will be an increase in emissions from permitted sources in order to accommodate the increased population and the corresponding increases in heating and cooling loads and ancillary services. This assumption is considered to be conservative, since it is unlikely that there will be any BRAC-related increase in emissions from several of these permitted sources, e.g., paint spray booths, fire test laboratory, etc. The increase in emissions from permitted sources is shown as a line item in Table A-24.

16. Summary

Table A-24 shows the estimated BRAC related emission increases in tons per year. Cumulative emissions for each unregistered source included in this appendix are shown for years 2009, 2010, and 2011. Estimated emissions from permitted Title V sources for each of the above listed years are shown, as well as the sum of the unregistered and registered sources. This total represents the estimated direct emissions for each year, by pollutant type. The estimates of indirect emissions from vehicular traffic occurring off-post for each year are also shown. The total cumulative direct and indirect emissions for the year 2011 represent the emissions that will be accommodated by the SIP growth factors for APG.

Table A-1: Estimated APG Population and BRAC-related growth

Projected Population	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Actual or Currently Planned	17,832	18,591	18,561	18,619	19,271	19,945	20,643	21,366	22,114	22,888
Additional Cumulative Population on account of BRAC								1,543	-717	4,403
Total Population*	17,832	18,591	18,561	18,619	19,271	19,945	20,643	22,909	21,397	27,291
Annual Growth (%) over preceding year	Base year	4.26	-0.16	0.31	3.50	7.31	6.93	17.11	-7.43	38.48

*EUL and RJU population are not included in these estimates.

Table A-2: Aircraft Operations - EDMS 4.4 Output

Aircraft Type	Engine Model	Mode	Mode	Tons				
				CO	THC	NMHC	VOC	NOX
Type 1	Model 1	LTO	Approach	0.004	0.000	0.000	0.000	0.003
			Climb Out	0.001	0.000	0.000	0.000	0.004
			Takeoff	0.000	0.000	0.000	0.000	0.002
			Idle	0.002	0.000	0.000	0.000	0.012
			Subtotal	0.008	0.000	0.000	0.000	0.022
Type 2	Model 2	LTO	Approach	0.103	0.008	0.008	0.008	0.148
			Climb Out	0.057	0.008	0.008	0.009	0.126
			Takeoff	0.029	0.003	0.003	0.004	0.079
			Idle	0.613	0.654	0.654	0.722	0.032
			Subtotal	0.801	0.672	0.672	0.743	0.385
Type 3	Model 3	LTO	Approach	0.157	0.103	0.103	0.112	0.021
			Climb Out	0.007	0.002	0.002	0.002	0.008
			Takeoff	0.004	0.001	0.001	0.001	0.007
			Idle	0.896	0.790	0.790	0.873	0.015
			Subtotal	1.064	0.896	0.896	0.989	0.051
Type 4	Model 3	LTO	Approach	0.409	0.267	0.267	0.294	0.054
			Climb Out	0.018	0.006	0.006	0.007	0.021
			Takeoff	0.011	0.004	0.004	0.004	0.018
			Idle	2.345	2.067	2.067	2.283	0.040
			Subtotal	2.782	2.343	2.343	2.588	0.132
Type 5	Model 5	LTO	Approach	0.033	0.004	0.004	0.004	0.033
			Climb Out	0.011	0.001	0.001	0.002	0.051
			Takeoff	0.011	0.001	0.001	0.001	0.057
			Idle	0.626	0.342	0.342	0.378	0.158
			Subtotal	0.681	0.348	0.348	0.386	0.299
Type 6	Model 3	LTO	Approach	0.198	0.130	0.130	0.143	0.026
			Climb Out	0.009	0.002	0.002	0.003	0.010
			Takeoff	0.006	0.002	0.002	0.002	0.009
			Idle	1.139	1.004	1.004	1.109	0.020
			Subtotal	1.351	1.139	1.139	1.258	0.065
Type 7	Model 4	LTO	Approach	0.055	0.008	0.008	0.008	0.017
			Climb Out	0.004	0.000	0.000	0.000	0.009
			Takeoff	0.002	0.000	0.000	0.000	0.008
			Idle	0.439	0.131	0.131	0.139	0.026
			Subtotal	0.500	0.139	0.139	0.147	0.060
			Total	**7.188**	**5.538**	**5.538**	**6.110**	**1.013**

Table A-3: Aircraft Operations - Particulate Matter

Aircraft Type	Engine Model	Number of Engines	Number of LTOs/yr	Procedure	Power Setting	Duration (hrs)	Fuel Flow Rate (lb fuel /hr)	Emission Factor (lb/1000 lb fuel)			Actual Emissions (lb/yr)		
								SO2	PM-10	PM-2.5	SO2	PM-10	PM-2.5
Type 1	Model 1	2	49	Taxi Out	Idle	0.15	138	0.46	1.48	1.48	0.95	3.06	3.06
		2	49	Take Off	Military	0.007	412	0.46	2.60	2.60	0.13	0.73	0.73
		2	49	Climb Out	Cruise	0.020	283	0.46	2.60	2.60	0.26	1.44	1.44
		2	49	Approach	Flight Idle	0.085	143	0.46	2.60	2.60	0.55	3.10	3.10
		2	49	Taxi In	Idle	0.11	138	0.46	1.48	1.48	0.70	2.24	2.24
Type 2	Model 2	2	346	Taxi Out	Ground Idle	0.15	133	0.46	1.48	1.48	6.48	20.84	20.84
		2	346	Take Off	Overspeed	0.007	706	0.46	2.60	2.60	1.57	8.89	8.89
		2	346	Climb Out	Flight Max	0.020	589	0.46	2.22	2.22	3.75	18.10	18.10
		2	346	Approach	Flight Idle	0.085	500	0.46	1.26	1.26	13.53	37.06	37.06
		2	346	Taxi In	Ground Idle	0.112	133	0.46	1.48	1.48	4.74	15.26	15.26
Type 3	Model 3	2	122	Taxi Out	Idle	0.31	147	0.46					
		2	122	Take Off	Take	0.007	510	0.46					
		2	122	Climb Out	Climb Out	0.007	473	0.46					
		2	122	Approach	Approach	0.058	273	0.46					
		2	122	Taxi In	Idle	0.31	147	0.46					
Type 4	Model 3	2	319	Taxi Out	Idle	0.31	147	0.46					
		2	319	Take Off	Take	0.007	510	0.46					
		2	319	Climb Out	Climb Out	0.007	473	0.46					
		2	319	Approach	Approach	0.058	273	0.46					
		2	319	Taxi In	Idle	0.31	147	0.46					
Type 5	Model 5	4	48	Taxi Out	Idle	0.15	740	0.46	3.64	3.64	10.00	79.13	79.13
		4	48	Flight Idle	Flight Idle	0.085	924	0.46	3.85	3.85	6.94	58.06	58.06
		4	48	Intermediate	Intermediate	0.020	1,611	0.46	1.46	1.46	2.85	9.03	9.03
		4	48	Max Continuo	Max Cont.	0.007	2,105	0.46	1.22	1.22	1.30	3.45	3.45
		4	48	Taxi In	Idle	0.112	740	0.46	3.64	3.64	7.32	57.92	57.92
Type 6	Model 3	2	155	Taxi Out	Idle	0.31	147	0.46					
		2	155	Take Off	Take	0.007	510	0.46					
		2	155	Climb Out	Climb Out	0.007	473	0.46					
		2	155	Approach	Approach	0.058	273	0.46					
		2	155	Taxi In	Idle	0.31	147	0.46					
Type 7	Model 4	1	94	Taxi Out	Idle	0.31	191	0.46					
		1	94	Take Off	Afterburner	0.007	587	0.46					
		1	94	Climb Out	Military	0.013	651						
		1	94	Approach	Intermediate	0.058	334	0.46					
		1	94	Taxi In	Idle	0.31	191	0.46					
ESTIMATED TOTAL EMISSIONS (lb/yr)											28	318	318
ESTIMATED TOTAL EMISSIONS (tons/yr)											0.01	0.16	0.16

NOTES:

- Most of the fuel flow rate at each power setting at the base was not known, therefore typical fuel flow rates for each aircraft were obtained from available sources.

-The number of LTOs are only those at the APG, not at another base on a cross-country flight or while deployed.

-Blank for emission factor indicates that there is no data for this type of engine. "-" for emission factor indicates that the emission factor is zero.

- If emission values are less than 0.1, value is shown as 0.0.

Number of LTOs x Duration (hrs) x # of Engines per Aircraft x Fuel Flow Rate (lb/hr) x Emission Factor (lb/1,000 lb fuel) = Annual Actual Emissions (lb/yr)

Table A-4: Architectural Surface Coatings

Estimated Emissions for Architectural Coatings

	2002 APG Residental Population	VOC Emitted (lbs/yr)	Pro-rated VOCs Emitted based on 2011 BRAC Population (lbs/yr)
VOC Emissions for Solvent Based Coatings	7648	12,727	3,143
VOC Emissions for Water Based Coatings	7648	10,357	2,557
Total APG		23,084	5,700
Total (tpy)		11.54	**2.85**

	Emission Factors (lb VOC/gallon)	Per Capita Usage (gal/person)
Solvent-Based	3.87	0.43
Water-Based	0.74	1.83

VOC Emissions for Solvent-Based Coatings = Population *Usage Factor *VOC Emission Factor

VOC Emissions for Water-Based Coatings = Population *Usage Factor *VOC Emission Factor

Table A-5: Chemical Usage

Estimated Emissions from VOC Containing Materials (includes laboratory chemicals, surface coatings, architectural coatings, and miscellaneous chemicals)

Location of Emissions	VOC	2002 VOC	Increase as a result of 2011 BRAC Population
	(lb/yr)	(tpy)	(tpy)
AA	19,969	10.0	2.5
EA	11,741	5.9	1.4
Total APG	31,710	15.86	3.91

Assumptions

Assumed that all VOC were released as emissions

Calculation of Emissions

VOC losses were calculated using the Hazardous Inventory Tracking System (HITS)

Note

Emissions from laboratory buildings using CBR filters were subtracted from the total

Table A-6: Construction and Demolition - Fugitive Dust

Estimated Emissions for Construction and Demolition

Location	Average Acerage	Estimated Full Working Days	TSP (lb/yr)	PM-10 (lb/yr)	PM-10 (tpy)	Pro-rated PM-10 based on BRAC ft^2 (tpy)
EA	0.5	21	840	378	0.19	1.83
AA	0.5	31	1240	558	0.28	2.71
Total APG		52	2080	936	0.47	**4.54**

Assumptions:

Assumed 52 full days of activity based on the square footage of 7 construction and 6 demolition projects in 2002.

Assumed that an average of 0.5 acre was affected at a time based on the size of the construction and demolition activities in 2002.

Calculation of TSP

This equation is most useful for developing estimates of overall emissions from construction scattered throughout a geographical area.

Thus, this equation was used to estimate average emissions based construction and/or demolition at APG as a whole.

$E_{TSP} = 80 * D * A$

Where,

E_{TSP} = Emissions of Total Suspended Particulate (lb/yr)

80 = Emission factor (lb/acre/day)

D = Estimated number of full (8-hour equivalent) working days during the year in which construction activities (i.e., demolition, debris removal, and/or site preparation) are performed on (days/yr)

A = Average area of property in which daily construction projects are typically performed on (acres)

Calculation of PM10

$E_{PM10} = E_{TSP} * 0.45$

Where,

E_{PM10} = Emissions of PM10 (lb/yr)

E_{TSP} = Emissions of Total Suspended Particulate (lb/yr)

0.45 = Estimated ratio of PM_{10} to TSP

Emissions Pro-rated based on cumulative square footage: 4.54 tons/yr

It is assumed that PM10 = PM2.5

Table A-7: Consumer Products

Estimated Emissions for Consumer Products

Source Category	Per Capita Emission Factor (lb VOC/person)	2002 Residential Population	VOC Emitted (lbs/yr)	Pro-rated Based on 2011 BRAC Population
Personal Care Products	2.32	7,648	17,743	4,381
Household Products	0.79	7,648	6,042	1,492
Automotive Aftermarket Products	1.36	7,648	10,401	2,568
Adhesives and Sealants	0.57	7,648	4,359	1,076
Miscellaneous Products	0.07	7,648	535	132
Total	5.11	7,648	39,081	9,650
Total APG (tpy)			19.54	**4.82**

VOC Emissions for Consumer Products = Population * Per Capita Emission Factor

Table A-8: External Combustion Engines

Estimated Emissions for Boilers

Location of Units	Rated Heat Input Capacity	Fuel Type	2002 Fuel Oil Usage	2002 Natural Gas Usage	Criteria Pollutant Emissions						Pro-rated Emissions based on 2011 BRAC Population					
					CO	NOx	PM-10	PM-2.5	SO2	VOC	CO	NOx	PM-10	PM-2.5	SO2	VOC
	(MMBtu/hr)		(gallons)	(MMcf)	(lb/yr)	(lb/yr)	(lb/yr)	(lb/yr)	(lb/yr)	(lb/yr)	(lb/yr)	(lb/yr)	(lb/yr)	(lb/yr)	(lb/yr)	(lb/yr)
Boilers																
AA	<1	#1 or #2 fuel oil	503,584		2,518	10,072	1,199	1,073	21,755	171	622	2,487	296	265	5,372	42
AA	<1	natural gas		10	856	1,019	77	77	6	56	211	252	19	19	2	14
AA Subtotal					3,374	11,091	1,276	1,150	21,761	227	833	2,738	315	284	5,373	56
AA Subtotal (tpy)					1.7	5.5	0.6	0.6	10.9	0.1	0	1	0	0	3	0
EA	<1	#1 or #2 fuel oil	164,662		823	3,293	392	351	7,113	56	203	813	97	87	1,756	14
EA	<1	natural gas		0	0	0	0	0	0	0	0	0	0	0	0	0
EA Subtotal					823	3,293	392	351	7,113	56	203	813	97	87	1,756	14
EA Subtotal (tpy)					0.4	1.6	0.2	0.2	3.6	0.03	0.1	0.4	0.0	0.0	0.9	0.0
Total					4,197	14,384	1,668	1,501	28,874	283	1,036	3,552	412	371	7,130	70
Total (tpy)					2.10	7.19	0.83	0.75	14.44	0.14	**0.52**	**1.78**	**0.21**	**0.19**	**3.56**	**0.03**

Emission Factors for Criteria Pollutants, derived from AP-42, Sections 1.3 and 1.4

Constituent	Fuel Oil Emission Factors (lb/1000 gal)	NG Emission Factors (lb/MMcf)
CO	5	84
NOx	20	100
PM-10	2.38	7.6
PM-2.5	2.13	7.6
SO_2	43.20	0.6
VOC	0.34	5.5

Table A-9: Fire Fighter Training

Estimated Emissions for Fire Fighting

Fuel Type	Amount	Emission Factors					Emissions					Pro-rated Emissions based on 2011 BRAC Population				
		CO	NOx	PM	S02	VOC	CO	NOx	PM	S02	VOC	CO	NOx	PM	S02	VOC
	(gal/yr)	(lb/gal)	(lb/gal)	(lb/gal)	(lb/gal)	(lb/gal)	(lb/yr)	(lb/yr)	(lb/yr)	(lb/yr)	(lb/yr)	(lb/yr)	(lb/yr)	(lb/yr)	(lb/yr)	(lb/yr)
Liquid Propane	24,000	0.0154	0.0557	0.0095	0.0015	0.0240	369.6	1336.8	228.0	37.0	576.0	91.3	330.1	56.3	9.1	142.2
JP-8	1000	0.2961	0.0100	0.1939	0.0400	0.5845	296.1	10.0	193.9	40.0	584.5	73.1	2.5	47.9	9.9	144.3
TOTAL							665.7	1,346.8	421.9	77.0	1,160.5	164.4	332.5	104.2	19.0	286.5
TOTAL (tpy)							0.33	0.67	0.21	0.04	0.58	**0.08**	**0.17**	**0.05**	**0.01**	**0.14**

**Source: APG Fire Department, typical annual fire training fuel usage*

Table A-10: Mobile Heavy Construction Operations (Diesel)
2009

Equipment Data				Emission Parameters		2009 Emissions Factors (g/hp-hr)							Annual Estimated Emissions (lbs/yr)					
Equipment Type	#	Average Engine Rating (Per Unit) (hp)	Total Operating Time (hr/yr)	Load Factor	SCC	Brake-Specific Fuel Consumption (lb/hp-hr)	VOC	CO	NOx	PM-10	SO_2	Factor for PM-10 to PM-2.5	VOC	CO	NOx	PM-10	PM-2.5	SO_2
Crane (Boom Lift)	2	90	1,744	43%	A2270002045	0.36	0.31	1.23	4.8	0.29	0.75	0.92	46	183	717	43	40	112
Crane (14 ton)	2	90	1,040	43%	A2270002045	0.36	0.31	1.23	4.8	0.29	0.75	0.92	28	109	426	26	24	67
Crane (18 ton)	1	90	696	43%	A2270002045	0.36	0.31	1.23	4.8	0.29	0.75	0.92	18	73	285	17	16	45
Crane (50 ton)	3	150	696	43%	A2270002045	0.36	0.31	1.23	4.8	0.29	0.75	0.92	31	122	475	29	26	74
Crane (65 ton)	1	160	528	43%	A2270002045	0.36	0.31	1.23	4.8	0.29	0.75	0.92	25	99	384	23	21	60
Crane (75 ton)	2	175	1,112	43%	A2270002045	0.36	0.31	1.23	4.8	0.29	0.75	0.92	57	227	886	54	49	138
Crane (125 ton)	1	200	352	43%	A2270002045	0.36	0.31	1.23	4.8	0.29	0.75	0.92	21	82	320	19	18	50
Crane (150 ton)	1	225	352	43%	A2270002045	0.36	0.31	1.23	4.8	0.29	0.75	0.92	23	92	360	22	20	56
Grader	3	140	144	61%	A2270002048	0.36	0.28	1.42	4.0	0.32	0.75	0.92	8	39	107	9	8	20
Bulldozer	2	90	168	55%	A2270002066	0.433	1.28	6.21	6.5	1.04	0.93	0.92	23	114	120	19	18	17
Excavator	1	90	280	55%	A2270002066	0.433	1.28	6.21	6.5	1.04	0.93	0.92	39	190	199	32	29	28
Forklifts (Wiggins)	6	47	5,784	30%	A2270003020	0.481	0.30	2.82	3.9	0.43	0.80	0.92	54	507	694	77	71	144
Roller	2	80	696	56%	A2270002015	0.4	0.37	2.39	4.5	0.45	0.78	0.92	25	164	311	31	28	54
Truck	4	220	2,640	57%	A2270002051	0.433	0.23	1.52	4.5	0.27	0.75	0.92	168	1,110	3,292	197	181	547
Sub Total Emissions													*566*	*3,110*	*8,578*	*598*	*550*	*1,413*
EMISSIONS (lbs/yr)													566	3,110	8,578	598	550	1,413
EMISSIONS (tons/yr)													0.28	1.56	4.29	0.30	0.27	0.71
Prorated annual emissions based on construction square footage													1.14	6.26	17.25	1.20	1.11	2.84

Notes

Annual Estimated Emissions (lb/yr) = Engine Rating (hp) x Loading Factor (%) x Operating Time per Unit (hr/yr) x Number of Units x Emission Factor (g/hp-hr) x Conversion Factor (0.002205 lb/g)

Annual Estimated Emissions (lb/yr) = Fuel Consumption per Unit (gal/yr) x Fuel Density (lb/gal) x Number of Units x Emission Factor (g/hp-hr) x Conversion Factor (0.002205 lb/g) / Brake-Specific Fuel Consumption (lb/hp-hr)

Annual Estimated Emissions (lb/yr) = Fuel Consumption per Unit (gal/yr) x Number of Units x Emission Factor (g/gal) x Conversion Factor (0.002205 lb/g)

All Tables: Annual Estimated PM-2.5 Emissions (lb/yr) = Annual Estimated PM-10 Emissions (lb/yr) x Factor for Converting PM-10 to PM-2.5

Emission factors are obtained from EPA's NONROAD 2005 model. Where not available, factors were obtained from Air Emissions Inventory Guidance Document For Mobile Sources at Air Force Installations, IERA, January, 2002.

The Nonroad model incorporates research results from NEVES, November 1991, as well as from the California off-road model, test results, and regulatory emission standards.

Table A-11: Non-Mobile Heavy Construction Operations
2009

Equipment Description	Fuel Type	Net Workdays	Rating (hp)	Annual Power Output (hp-hr/yr)	Estimated Criteria Pollutant Emissions CO (lb/yr)	NOx (lb/yr)	PM-10 (lb/yr)	PM-2.5 (lb/yr)	SO2 (lb/yr)	VOC (lb/yr)
GENERATOR 2-75 KW	Diesel	2	100.6	2011.5	11.5	23.6	1.9	1.9	3.3	1.6
GENERATOR 2-75 KW	Diesel	2	100.6	2011.5	11.5	23.6	1.9	1.9	3.3	1.6
LIGHT TOWER	Diesel	14	5.4	600.8	3.4	7.0	0.6	0.6	1.0	0.5
LIGHT TOWER	Diesel	14	5.4	600.8	3.4	7.0	0.6	0.6	1.0	0.5
LIGHT TOWER/4000WATT	Diesel	97	5.4	4162.5	23.8	48.7	3.9	3.9	6.9	3.3
LIGHT TOWER/4000WATT	Diesel	97	5.4	4162.5	23.8	48.7	3.9	3.9	6.9	3.3
LIGHT TOWER/4000WATT	Diesel	97	5.4	4162.5	23.8	48.7	3.9	3.9	6.9	3.3
LIGHT TOWER/4000WATT	Diesel	97	5.4	4162.5	23.8	48.7	3.9	3.9	6.9	3.3
LIGHT TOWER/4000WATT	Diesel	97	5.4	4162.5	23.8	48.7	3.9	3.9	6.9	3.3
PROPANE HEATER 115V	Propane	109	0.3	272.5	119.6	3.0	0.2	0.2	0.2	5.9
PROPANE HEATER 115V	Propane	109	0.3	272.5	119.6	3.0	0.2	0.2	0.2	5.9
PROPANE HEATER 115V	Propane	109	0.3	272.5	119.6	3.0	0.2	0.2	0.2	5.9
PROPANE HEATER 115V	Propane	109	0.3	272.5	119.6	3.0	0.2	0.2	0.2	5.9
GENERATOR	Gasoline	43	100.6	43247.25	18985.5	475.7	31.2	31.2	25.6	934.1
GENERATOR	Gasoline	43	100.6	43247.25	18985.5	475.7	31.2	31.2	25.6	934.1
GENERATOR	Diesel	66	100.6	66379.5	379.0	777.3	61.7	61.7	109.5	52.4
LIGHT TOWER	Diesel	24	8.0	1544.8	8.8	18.1	1.4	1.4	2.5	1.2
LIGHT TOWER	Diesel	24	5.4	1029.9	5.9	12.1	1.0	1.0	1.7	0.8
TOWER, LIGHT, 4000 W	Diesel	104	5.4	4462.8	25.5	52.3	4.2	4.2	7.4	3.5
LIGHT TOWER	Diesel	104	5.4	4462.8	25.5	52.3	4.2	4.2	7.4	3.5
PORTABLE DIESEL POWR	Diesel	21	5.4	1126.44	6.4	13.2	1.0	1.0	1.9	0.9
LIGHT TOWER	Diesel	214	5.4	9183.2	52.4	107.5	8.5	8.5	15.2	7.3
LIGHT TOWER	Diesel	214	5.4	9183.2	52.4	107.5	8.5	8.5	15.2	7.3
LIGHT TOWER	Diesel	214	5.4	9183.2	52.4	107.5	8.5	8.5	15.2	7.3
Welder, Big 40	Diesel	21	5.4	1126.44	6.4	13.2	1.0	1.0	1.9	0.9
Welder Big 50	Diesel	21	5.4	1126.44	6.4	13.2	1.0	1.0	1.9	0.9
Welder Big 50	Diesel	21	5.4	1126.44	6.4	13.2	1.0	1.0	1.9	0.9
Welder Big 40	Diesel	21	5.4	1126.44	6.4	13.2	1.0	1.0	1.9	0.9
HEATER,3EA,PROPANE W	Propane	47	0.3	117.5	51.6	1.3	0.1	0.1	0.1	2.5
HEATER,3EA,PROPANE W	Propane	47	0.3	117.5	51.6	1.3	0.1	0.1	0.1	2.5
HEATER,3EA,PROPANE W	Propane	47	0.3	117.5	51.6	1.3	0.1	0.1	0.1	2.5
EMISSIONS (lbs/yr)					39387.2	2572.7	190.9	190.9	278.2	2007.7
EMISSIONS (tons/yr)					19.69	1.29	0.10	0.10	0.14	1.00
Prorated annual emissions based on construction square footage					79.23	5.18	0.38	0.38	0.56	4.04

Table A-11: Non-Mobile Heavy Construction Operations
2009
(continued)

Assumptions:

Propane fueled equipment emissions were calculated using gasoline emission factors.

Assumed that all light towers will be used 8 hours/day and all other equipment 10 hours/day five days per week.

2009 Emission Factors for Criteria Pollutants

Emission Factor (lb/10^3 hp-hr) x (Power Output (hp-hr/yr)/1000) = Emissions (lb/yr)

Diesel:

Constituent	Emission Factor (lb/10^3 hp-hr)
CO	5.71
NOx	11.71
PM-10 (1)	0.93
PM-2.5 (1)	0.93
SOx	1.65
VOC	0.79

(1) All particulate matter is assumed to be less than 1.0 micrometer in diameter (ie. the emission factor applies to Total PM, PM-10, and PM-2.5).

Gasoline:

Constituent	Emission Factor (lb/10^3 hp-hr)
CO	439
NOx	11
PM-10 (1)	0.721
PM-2.5 (1)	0.721
SOx	0.591
VOC	21.6

(1) All particulate matter is assumed to be less than 1.0 micrometer in diameter (ie. the emission factor applies to Total PM, PM-10, and PM-2.5).

Table A-12: Mobile Heavy Construction Operations (Diesel)
2010

Equipment Data				Emission Parameters		2010 Emissions Factors (g/hp-hr)							Annual Estimated Emissions (lbs/yr)					
Equipment Type	#	Average Engine Rating (Per Unit) (hp)	Total Operating Time (hr/yr)	Load Factor	SCC	Brake-Specific Fuel Consumption (lb/hp-hr)	VOC	CO	NOx	PM-10	SO_2	Factor for PM-10 to PM-2.5	VOC	CO	NOx	PM-10	PM-2.5	SO_2
Crane (Boom Lift)	2	90	1,744	43%	A2270002045	0.36	0.29	1.18	4.5	0.27	0.75	0.92	43	176	673	40	37	112
Crane (14 ton)	2	90	1,040	43%	A2270002045	0.36	0.29	1.18	4.5	0.27	0.75	0.92	26	105	401	24	22	67
Crane (18 ton)	1	90	696	43%	A2270002045	0.36	0.29	1.18	4.5	0.27	0.75	0.92	17	70	268	16	15	45
Crane (50 ton)	3	150	696	43%	A2270002045	0.36	0.29	1.18	4.5	0.27	0.75	0.92	29	117	447	27	25	74
Crane (65 ton)	1	160	528	43%	A2270002045	0.36	0.29	1.18	4.5	0.27	0.75	0.92	23	95	362	22	20	60
Crane (75 ton)	2	175	1,112	43%	A2270002045	0.36	0.29	1.18	4.5	0.27	0.75	0.92	54	218	834	50	46	138
Crane (125 ton)	1	200	352	43%	A2270002045	0.36	0.29	1.18	4.5	0.27	0.75	0.92	19	79	302	18	17	50
Crane (150 ton)	1	225	352	43%	A2270002045	0.36	0.29	1.18	4.5	0.27	0.75	0.92	22	89	339	20	19	56
Grader	3	140	144	61%	A2270002048	0.36	0.26	1.39	3.7	0.32	0.75	0.92	7	38	100	9	8	20
Bulldozer	2	90	168	55%	A2270002066	0.433	1.21	6.80	6.3	1.01	0.93	0.92	22	125	115	19	17	17
Excavator	1	90	280	55%	A2270002066	0.433	1.21	6.00	6.3	1.01	0.93	0.92	37	183	191	31	28	28
Forklifts (Wiggins)	6	47	5,784	30%	A2270003020	0.481	0.27	2.77	3.6	0.43	0.80	0.92	49	498	644	77	71	144
Roller	2	80	696	56%	A2270002015	0.4	0.34	2.31	4.3	0.43	0.78	0.92	23	159	295	30	27	54
Truck	4	220	2,640	57%	A2270002051	0.433	0.22	1.49	4.3	0.26	0.75	0.92	161	1,088	3,110	190	175	547
Sub Total Emissions													*531*	*3,037*	*8,081*	*571*	*526*	*1,413*
EMISSIONS (lbs/yr)													531	3,037	8,081	571	526	1,413
EMISSIONS (tons/yr)													0.27	1.52	4.04	0.29	0.26	0.71
Prorated annual emissions based on construction square footage													2.03	11.58	30.80	2.18	2.00	5.38

Notes

Annual Estimated Emissions (lb/yr) = Engine Rating (hp) x Loading Factor (%) x Operating Time per Unit (hr/yr) x Number of Units x Emission Factor (g/hp-hr) x Conversion Factor (0.002205 lb/g)

Annual Estimated Emissions (lb/yr) = Fuel Consumption per Unit (gal/yr) x Fuel Density (lb/gal) x Number of Units x Emission Factor (g/hp-hr) x Conversion Factor (0.002205 lb/g) / Brake-Specific Fuel Consumption (lb/hp-hr)

Annual Estimated Emissions (lb/yr) = Fuel Consumption per Unit (gal/yr) x Number of Units x Emission Factor (g/gal) x Conversion Factor (0.002205 lb/g)

All Tables: Annual Estimated PM-2.5 Emissions (lb/yr) = Annual Estimated PM-10 Emissions (lb/yr) x Factor for Converting PM-10 to PM-2.5

Emission factors are obtained from EPA's NONROAD 2005 model. Where not available, factors were obtained from Air Emissions Inventory Guidance Document For Mobile Sources at Air Force Installations, IERA, January, 2002.

The Nonroad model incorporates research results from NEVES, November 1991, as well as from the California off-road model, test results, and regulatory emission standards.

Table A-13: Non-Mobile Heavy Construction Operations
2010

Equipment Description	Fuel Type	Net Workdays	Rating (hp)	Annual Power Output (hp-hr/yr)	Estimated Criteria Pollutant Emissions CO (lb/yr)	NOx (lb/yr)	PM-10 (lb/yr)	PM-2.5 (lb/yr)	SO2 (lb/yr)	VOC (lb/yr)
GENERATOR 2-75 KW	Diesel	2	100.6	2011.5	10.9	22.4	1.8	1.8	3.3	1.5
GENERATOR 2-75 KW	Diesel	2	100.6	2011.5	10.9	22.4	1.8	1.8	3.3	1.5
LIGHT TOWER	Diesel	14	5.4	600.8	3.2	6.7	0.5	0.5	1.0	0.5
LIGHT TOWER	Diesel	14	5.4	600.8	3.2	6.7	0.5	0.5	1.0	0.5
LIGHT TOWER/4000WATT	Diesel	97	5.4	4162.5	22.5	46.3	3.7	3.7	6.9	3.1
LIGHT TOWER/4000WATT	Diesel	97	5.4	4162.5	22.5	46.3	3.7	3.7	6.9	3.1
LIGHT TOWER/4000WATT	Diesel	97	5.4	4162.5	22.5	46.3	3.7	3.7	6.9	3.1
LIGHT TOWER/4000WATT	Diesel	97	5.4	4162.5	22.5	46.3	3.7	3.7	6.9	3.1
LIGHT TOWER/4000WATT	Diesel	97	5.4	4162.5	22.5	46.3	3.7	3.7	6.9	3.1
PROPANE HEATER 115V	Propane	109	0.3	272.5	119.6	3.0	0.2	0.2	0.2	5.9
PROPANE HEATER 115V	Propane	109	0.3	272.5	119.6	3.0	0.2	0.2	0.2	5.9
PROPANE HEATER 115V	Propane	109	0.3	272.5	119.6	3.0	0.2	0.2	0.2	5.9
PROPANE HEATER 115V	Propane	109	0.3	272.5	119.6	3.0	0.2	0.2	0.2	5.9
GENERATOR	Gasoline	43	100.6	43247.25	18985.5	475.7	31.2	31.2	25.6	934.1
GENERATOR	Gasoline	43	100.6	43247.25	18985.5	475.7	31.2	31.2	25.6	934.1
GENERATOR	Diesel	66	100.6	66379.5	358.4	738.8	58.4	58.4	109.5	49.8
LIGHT TOWER	Diesel	24	8.0	1544.8	8.3	17.2	1.4	1.4	2.5	1.2
LIGHT TOWER	Diesel	24	5.4	1029.9	5.6	11.5	0.9	0.9	1.7	0.8
TOWER, LIGHT, 4000 W	Diesel	104	5.4	4462.8	24.1	49.7	3.9	3.9	7.4	3.3
LIGHT TOWER	Diesel	104	5.4	4462.8	24.1	49.7	3.9	3.9	7.4	3.3
PORTABLE DIESEL POWR	Diesel	21	5.4	1126.44	6.1	12.5	1.0	1.0	1.9	0.8
LIGHT TOWER	Diesel	214	5.4	9183.2	49.6	102.2	8.1	8.1	15.2	6.9
LIGHT TOWER	Diesel	214	5.4	9183.2	49.6	102.2	8.1	8.1	15.2	6.9
LIGHT TOWER	Diesel	214	5.4	9183.2	49.6	102.2	8.1	8.1	15.2	6.9
Welder, Big 40	Diesel	21	5.4	1126.44	6.1	12.5	1.0	1.0	1.9	0.8
Welder Big 50	Diesel	21	5.4	1126.44	6.1	12.5	1.0	1.0	1.9	0.8
Welder Big 50	Diesel	21	5.4	1126.44	6.1	12.5	1.0	1.0	1.9	0.8
Welder Big 40	Diesel	21	5.4	1126.44	6.1	12.5	1.0	1.0	1.9	0.8
HEATER,3EA,PROPANE W	Propane	47	0.3	117.5	51.6	1.3	0.1	0.1	0.1	2.5
HEATER,3EA,PROPANE W	Propane	47	0.3	117.5	51.6	1.3	0.1	0.1	0.1	2.5
HEATER,3EA,PROPANE W	Propane	47	0.3	117.5	51.6	1.3	0.1	0.1	0.1	2.5
EMISSIONS (lbs/yr)					39344.7	2493.2	184.0	184.0	278.2	2002.3
EMISSIONS (tons/yr)					19.67	1.25	0.09	0.09	0.14	1.00
Prorated annual emissions based on construction square footage					149.96	9.50	0.70	0.70	1.06	7.63

Table A-13: Non-Mobile Heavy Construction Operations
2010
(continued)

Assumptions:

Propane fueled equipment emissions were calculated using gasoline emission factors.

Assumed that all light towers will be used 8 hours/day and all other equipment 10 hours/day five days per week.

2010 Emission Factors for Criteria Pollutants

Emission Factor (lb/10^3 hp-hr) x (Power Output (hp-hr/yr)/1000) = Emissions (lb/yr)

Diesel:

Constituent	Emission Factor (lb/10^3 hp-hr)
CO	5.4
NOx	11.13
PM-10 (1)	0.88
PM-2.5 (1)	0.88
SOx	1.65
VOC	0.75

(1) All particulate matter is assumed to be less than 1.0 micrometer in diameter (ie. the emission factor applies to Total PM, PM-10, and PM-2.5).

Gasoline:

Constituent	Emission Factor (lb/10^3 hp-hr)
CO	439
NOx	11
PM-10 (1)	0.721
PM-2.5 (1)	0.721
SOx	0.591
VOC	21.6

(1) All particulate matter is assumed to be less than 1.0 micrometer in diameter (ie. the emission factor applies to Total PM, PM-10, and PM-2.5).

Table A-14: Mobile Heavy Construction Operations (Diesel)
2011

Equipment Data				Emission Parameters		2011 Emissions Factors (g/hp-hr)							Annual Estimated Emissions (lbs/yr)					
Equipment Type	#	Average Engine Rating (Per Unit) (hp)	Total Operating Time (hr/yr)	Load Factor	SCC	Brake-Specific Fuel Consumption (lb/hp-hr)	VOC	CO	NOx	PM-10	SO_2	Factor for PM-10 to PM-2.5	VOC	CO	NOx	PM-10	PM-2.5	SO_2
Crane (Boom Lift)	2	90	1,744	43%	A2270002045	0.36	0.26	1.09	4.2	0.30	0.73	0.92	39	162	621	45	41	109
Crane (14 ton)	2	90	1,040	43%	A2270002045	0.36	0.26	1.09	4.2	0.30	0.73	0.92	23	97	370	27	24	65
Crane (18 ton)	1	90	696	43%	A2270002045	0.36	0.26	1.09	4.2	0.30	0.73	0.92	15	65	248	18	16	43
Crane (50 ton)	3	150	696	43%	A2270002045	0.36	0.26	1.09	4.2	0.30	0.73	0.92	26	108	413	30	27	72
Crane (65 ton)	1	160	528	43%	A2270002045	0.36	0.26	1.09	4.2	0.30	0.73	0.92	21	87	334	24	22	58
Crane (75 ton)	2	175	1,112	43%	A2270002045	0.36	0.26	1.09	4.2	0.30	0.73	0.92	48	201	769	55	51	135
Crane (125 ton)	1	200	352	43%	A2270002045	0.36	0.26	1.09	4.2	0.30	0.73	0.92	17	73	278	20	18	49
Crane (150 ton)	1	225	352	43%	A2270002045	0.36	0.26	1.09	4.2	0.30	0.73	0.92	20	82	313	23	21	55
Grader	3	140	144	61%	A2270002048	0.36	0.24	1.28	3.3	0.36	0.73	0.92	7	35	90	10	9	20
Bulldozer	2	90	168	55%	A2270002066	0.433	1.13	5.81	6.0	0.99	0.93	0.92	21	107	110	18	17	17
Excavator	1	90	280	55%	A2270002066	0.433	1.13	5.81	6.0	0.99	0.93	0.92	35	178	183	30	28	28
Forklifts (Wiggins)	6	47	5,784	30%	A2270003020	0.481	0.24	2.69	3.3	0.45	0.80	0.92	43	484	593	81	74	144
Roller	2	80	696	56%	A2270002015	0.4	0.31	2.22	4.1	0.44	0.78	0.92	21	153	278	30	28	54
Truck	4	220	2,640	57%	A2270002051	0.433	0.21	1.29	3.8	0.35	0.72	0.92	153	942	2,803	255	235	526
Sub Total Emissions													*488*	*2,771*	*7,404*	*666*	*612*	*1,374*
EMISSIONS (lbs/yr)													488	2,771	7,404	666	612	1,374
EMISSIONS (tons/yr)													0.24	1.39	3.70	0.33	0.31	0.69
Prorated annual emissions based on construction square footage													2.37	13.45	35.93	3.23	2.97	6.67

Notes

Annual Estimated Emissions (lb/yr) = Engine Rating (hp) x Loading Factor (%) x Operating Time per Unit (hr/yr) x Number of Units x Emission Factor (g/hp-hr) x Conversion Factor (0.002205 lb/g)

Annual Estimated Emissions (lb/yr) = Fuel Consumption per Unit (gal/yr) x Fuel Density (lb/gal) x Number of Units x Emission Factor (g/hp-hr) x Conversion Factor (0.002205 lb/g) / Brake-Specific Fuel Consumption (lb/hp-hr)

Annual Estimated Emissions (lb/yr) = Fuel Consumption per Unit (gal/yr) x Number of Units x Emission Factor (g/gal) x Conversion Factor (0.002205 lb/g)

All Tables: Annual Estimated PM-2.5 Emissions (lb/yr) = Annual Estimated PM-10 Emissions (lb/yr) x Factor for Converting PM-10 to PM-2.5

Emission factors are obtained from EPA's NONROAD 2005 model. Where not available, factors were obtained from Air Emissions Inventory Guidance Document For Mobile Sources at Air Force Installations, IERA, January, 2002.

The Nonroad model incorporates research results from NEVES, November 1991, as well as from the California off-road model, test results, and regulatory emission standards.

Table A-15: Non-Mobile Heavy Construction Operations
2011

Equipment Description	Fuel Type	Net Workdays	Rating (hp)	Annual Power Output (hp-hr/yr)	Estimated Criteria Pollutant Emissions CO (lb/yr)	NOx (lb/yr)	PM-10 (lb/yr)	PM-2.5 (lb/yr)	SO2 (lb/yr)	VOC (lb/yr)
GENERATOR 2-75 KW	Diesel	2	100.6	2011.5	10.0	21.0	1.8	1.8	3.3	1.4
GENERATOR 2-75 KW	Diesel	2	100.6	2011.5	10.0	21.0	1.8	1.8	3.3	1.4
LIGHT TOWER	Diesel	14	5.4	600.8	3.0	6.3	0.5	0.5	1.0	0.4
LIGHT TOWER	Diesel	14	5.4	600.8	3.0	6.3	0.5	0.5	1.0	0.4
LIGHT TOWER/4000WATT	Diesel	97	5.4	4162.5	20.6	43.4	3.7	3.7	6.8	2.8
LIGHT TOWER/4000WATT	Diesel	97	5.4	4162.5	20.6	43.4	3.7	3.7	6.8	2.8
LIGHT TOWER/4000WATT	Diesel	97	5.4	4162.5	20.6	43.4	3.7	3.7	6.8	2.8
LIGHT TOWER/4000WATT	Diesel	97	5.4	4162.5	20.6	43.4	3.7	3.7	6.8	2.8
LIGHT TOWER/4000WATT	Diesel	97	5.4	4162.5	20.6	43.4	3.7	3.7	6.8	2.8
PROPANE HEATER 115V	Propane	109	0.3	272.5	119.6	3.0	0.2	0.2	0.2	5.9
PROPANE HEATER 115V	Propane	109	0.3	272.5	119.6	3.0	0.2	0.2	0.2	5.9
PROPANE HEATER 115V	Propane	109	0.3	272.5	119.6	3.0	0.2	0.2	0.2	5.9
PROPANE HEATER 115V	Propane	109	0.3	272.5	119.6	3.0	0.2	0.2	0.2	5.9
GENERATOR	Gasoline	43	100.6	43247.25	18985.5	475.7	31.2	31.2	25.6	934.1
GENERATOR	Gasoline	43	100.6	43247.25	18985.5	475.7	31.2	31.2	25.6	934.1
GENERATOR	Diesel	66	100.6	66379.5	329.2	692.3	59.7	59.7	108.2	45.1
LIGHT TOWER	Diesel	24	8.0	1544.8	7.7	16.1	1.4	1.4	2.5	1.1
LIGHT TOWER	Diesel	24	5.4	1029.9	5.1	10.7	0.9	0.9	1.7	0.7
TOWER, LIGHT, 4000 W	Diesel	104	5.4	4462.8	22.1	46.5	4.0	4.0	7.3	3.0
LIGHT TOWER	Diesel	104	5.4	4462.8	22.1	46.5	4.0	4.0	7.3	3.0
PORTABLE DIESEL POWR	Diesel	21	5.4	1126.44	5.6	11.7	1.0	1.0	1.8	0.8
LIGHT TOWER	Diesel	214	5.4	9183.2	45.5	95.8	8.3	8.3	15.0	6.2
LIGHT TOWER	Diesel	214	5.4	9183.2	45.5	95.8	8.3	8.3	15.0	6.2
LIGHT TOWER	Diesel	214	5.4	9183.2	45.5	95.8	8.3	8.3	15.0	6.2
Welder, Big 40	Diesel	21	5.4	1126.44	5.6	11.7	1.0	1.0	1.8	0.8
Welder Big 50	Diesel	21	5.4	1126.44	5.6	11.7	1.0	1.0	1.8	0.8
Welder Big 50	Diesel	21	5.4	1126.44	5.6	11.7	1.0	1.0	1.8	0.8
Welder Big 40	Diesel	21	5.4	1126.44	5.6	11.7	1.0	1.0	1.8	0.8
HEATER,3EA,PROPANE W	Propane	47	0.3	117.5	51.6	1.3	0.1	0.1	0.1	2.5
HEATER,3EA,PROPANE W	Propane	47	0.3	117.5	51.6	1.3	0.1	0.1	0.1	2.5
HEATER,3EA,PROPANE W	Propane	47	0.3	117.5	51.6	1.3	0.1	0.1	0.1	2.5
EMISSIONS (lbs/yr)					39284.4	2397.2	186.8	186.8	275.4	1992.7
EMISSIONS (tons/yr)					19.64	1.20	0.09	0.09	0.14	1.00
Prorated annual emissions based on construction square footage					190.63	11.63	0.91	0.91	1.34	9.67

Table A-15: Non-Mobile Heavy Construction Operations
2011
(continued)

Assumptions:

Propane fueled equipment emissions were calculated using gasoline emission factors.

Assumed that all light towers will be used 8 hours/day and all other equipment 10 hours/day five days per week.

2011 Emission Factors for Criteria Pollutants

Emission Factor (lb/10^3 hp-hr) x (Power Output (hp-hr/yr)/1000) = Emissions (lb/yr)

Diesel:

Constituent	Emission Factor (lb/10^3 hp-hr)
CO	4.96
NOx	10.43
PM-10 (1)	0.9
PM-2.5 (1)	0.9
SOx	1.63
VOC	0.68

(1) All particulate matter is assumed to be less than 1.0 micrometer in diameter (ie. the emission factor applies to Total PM, PM-10, and PM-2.5).

Gasoline:

Constituent	Emission Factor (lb/10^3 hp-hr)
CO	439
NOx	11
PM-10 (1)	0.721
PM-2.5 (1)	0.721
SOx	0.591
VOC	21.6

(1) All particulate matter is assumed to be less than 1.0 micrometer in diameter (ie. the emission factor applies to Total PM, PM-10, and PM-2.5).

Table A-16a: Gasoline Non-Road Vehicles
2009

Emission Factors

Emissions Estimate Based on Engine Rating and Operating Time

Equipment Data						*Emission Parameters*		*Emissions Factors (g/hp-hr)* [4]						
Equipment Type	#	Engine Rating (Per Unit) (hp)	Model Year Base (B)/ Default (D)	Operating Time (Per unit) (hr/yr)	Source for Operating Time Base (B)/ Default (D) [1]	Load Factor [2]	SCC [3]	Brake-Specific Fuel Consumption (lb/hp-hr)	VOC	CO	NOx	PM-10	SO_2	Factor for PM10 to PM2.5 [5]
Chipper	1	8	B	50	B	64%	A2265004045	0.85	9.60	348	2.09	0.05	0.25	0.92
Stump Cutter	1	16	B	50	B	64%	A2265004045	0.85	9.60	348	2.09	0.05	0.25	0.92
Forklift (Clarke)	12	150	B	500	B	30%	A2265003020	0.65	3.45	120	4.96	0.070	0.16	0.92
Forklift (Caterpillar)	4	150	B	500	B	30%	A2265003020	0.65	3.45	120	4.96	0.070	0.16	0.92
Manlift	2	47	B	500	B	30%	A2265003020	0.65	3.45	120	4.96	0.070	0.16	0.92
Lawn Mower	4	16	B	500	B	64%	A2265004045	0.85	9.60	348	2.09	0.05	0.25	0.92
Garden Tractor	1	16	B	500	B	64%	A2265004045	0.85	37.0	429	1.98	0.73	0.24	0.92
All Terrain Vehicle	3	28.4	B	1000	B	65%	A2265001060	0.87	12.1	604	3.42	0.12	0.23	0.92
Lawn Mower	2	16	B	500	B	64%	A2265004045	0.85	9.60	348	2.09	0.05	0.25	0.92
All Terrain Vehicle	2	28.4	B	1000	B	65%	A2265001060	0.87	12.1	604	3.42	0.12	0.23	0.92
Lawn Mower	1	20	B	96	B	67%	A2265004040	0.85	8.14	697	2.89	0.110	0.22	0.92
Snow Blower	2	20	B	100	B	55%	A2265004040	0.85	8.14	697	2.89	0.110	0.22	0.92
Hand Blower (Echo)	6	2.1	B	500	B	70%	A2265004030	1.30	31	654	2.72	0.24	0.23	0.92
Weedeater (Echo)	6	2.1	B	500	B	58%	A2260004075	1.30	261	719	0.94	3.60	0.22	0.92
Chainsaw (Stihl)	4	2.1	B	40	B	92%	A2265004020	1.30	261	719	0.94	3.60	0.22	0.92
Leaf Blower	1	2.1	B	500	B	70%	A2265004030	1.30	31	654	2.72	0.24	0.23	0.92
Lawn Mower	6	20	B	200	B	55%	A2265004040	0.85	8.14	697	2.89	0.110	0.22	0.92
Riding Mower	6	16	B	520	B	64%	A2265004045	0.85	9.60	348	2.09	0.05	0.25	0.92
Leaf Blower	1	2.1	B	200	B	70%	A2265004030	1.30	30	654	2.72	0.24	0.23	0.92
Weedeater	3	2.1	B	200	B	58%	A2260004075	1.30	261	719	0.94	3.60	0.22	0.92
Lawn Mower	5	20	B	200	B	55%	A2265004040	0.85	8.14	697	2.89	0.110	0.22	0.92
Go Carts	19	6	B	500	B	49%	A2265001050	0.85	8.7	813	2.77	0.130	0.21	0.92
Toro Aerator	4	16	B	35	B	65%	A2265004075	1.09	20.61	653	3.04	0.180	0.23	0.92
Beverage Cart	1	16	B	500	B	65%	A2265001060	0.87	12.1	604	3.42	0.12	0.23	0.92
Cushman Truckster	6	8	B	500	B	65%	A2265001060	0.87	12.1	604	3.42	0.12	0.23	0.92
John Deere Sand Pro	5	8	B	555	B	64%	A2265004045	0.85	37.0	429	1.98	0.73	0.24	0.92
Club Car Utility	2	9	B	500	B	65%	A2265001060	0.87	12.1	604	3.42	0.12	0.23	0.92
Golf Carts	123	6	B	500	B	49%	A2265001050	0.85	8.7	813	2.77	0.130	0.21	0.92

Table A-16a: Gasoline Non-Road Vehicles
2009
(Continued)

Equipment Data						Emission Parameters		Emissions Factors (g/hp-hr) [4]						
Equipment Type	#	Engine Rating (Per Unit) (hp)	Model Year Base (B)/ Default (D)	Operating Time (Per unit) (hr/yr)	Source for Operating Time Base (B)/ Default (D) [1]	Load Factor [2]	SCC [3]	Brake-Specific Fuel Consumption (lb/hp-hr)	VOC	CO	NOx	PM-10	SO_2	Factor for PM10 to PM2.5 [5]
Golf Ball Retriever	2	8	B	900	B	65%	A2265001060	0.87	12.1	604	3.42	0.12	0.23	0.92
Jacobsen F-10 Mower	5	16	B	520	B	64%	A2265004045	0.85	9.60	348	2.09	0.05	0.25	0.92
Greens Mower (Kohler)	1	16	B	520	B	64%	A2265004045	0.85	9.60	348	2.09	0.05	0.25	0.92
Turf Cat Mower	1	16	B	520	B	64%	A2265004045	0.85	9.60	348	2.09	0.05	0.25	0.92
Triplex Mower	1	16	B	520	B	64%	A2265004045	0.85	9.60	348	2.09	0.05	0.25	0.92
Perkins Mower	3	16	B	520	B	64%	A2265004045	0.85	9.60	348	2.09	0.05	0.25	0.92
Tri King Mower	1	16	B	520	B	64%	A2265004045	0.85	9.60	348	2.09	0.05	0.25	0.92
John Deere 220 Mower	1	16	B	555	B	64%	A2265004045	0.85	9.60	348	2.09	0.05	0.25	0.92
John Deere Chipper	1	8	B	555	B	64%	A2265004045	0.85	9.60	348	2.09	0.05	0.25	0.92
Toro Walk Behind Mower	2	4	B	555	B	64%	A2265004045	0.85	9.60	348	2.09	0.05	0.25	0.92
Kottler Mower	1	4	B	555	B	64%	A2265004045	0.85	9.60	348	2.09	0.05	0.25	0.92
JD Walk Behind Mower	2	4	B	555	B	64%	A2265004045	0.85	9.60	348	2.09	0.05	0.25	0.92
Toro Ground Master	1	16	B	555	B	64%	A2265004045	0.85	9.60	348	2.09	0.05	0.25	0.92
Forklift (10,000 lb)	12	300	B	500	B	30%	A2265003020	0.65	3.45	120	4.96	0.070	0.16	0.92
Forklift (Clarke)	12	47	B	500	B	30%	A2265003020	0.65	3.45	120	4.96	0.070	0.16	0.92
Forklift (Caterpillar)	4	47	B	500	B	30%	A2265003020	0.65	3.45	120	4.96	0.070	0.16	0.92
All Terrain Vehicle	9	28.4	B	1000	B	65%	A2265001060	0.87	12.1	604	3.42	0.12	0.23	0.92
Lawn Mower	2	20	B	200	B	55%	A2265004040	0.85	8.14	697	2.89	0.110	0.22	0.92

Calculation of Annual Estimated Criteria Pollutant Emissions

For Table 1: Annual Estimated Emissions (lb/yr) = Engine Rating (hp) x Loading Factor (%) x Operating Time per Unit (hr/yr) x Number of Units x Emission Factor (g/hp-hr) x Conversion Factor (0.002205 lb/g)

All Tables: Annual Estimated PM-2.5 Emissions (lb/yr) = Annual Estimated PM-10 Emissions (lb/yr) x Factor for Converting PM-10 to PM-2.5

Table Notes

[1] Default operating time is obtained from EPA's NONROAD 2005c model data files.

[2] Load factor is the fraction of available power at which the engine normally operates. Source: Table 2-1, Air Emissions Inventory Guidance Document for Mobile Sources, IERA, Jan 2002.

[3] SCC obtained from Air Emissions Inventory Guidance Document For Mobile Sources at Air Force Installations, IERA, January 2002.

[4] Emission factors are obtained from Air Emissions Inventory Guidance Document For Mobile Sources at Air Force Installation, IERA, January 2002.

[5] Factor to estimate PM2.5 emissions from PM10 emissions obtained from EPA's NONROAD 2002a model data files

Table A-16b: Gasoline Non-Road Vehicles
2009

Estimated Emissions

Emissions Estimate Based on Engine Rating and Operating Time

Equipment Data						*Emission Parameters*		*Annual Estimated Emissions (lbs/yr)*					
Equipment Type	#	Engine Rating (Per Unit) (hp)	Model Year Base (B)/ Default (D)	Operating Time (Per unit) (hr/yr)	Source for Operating Time Base (B)/ Default (D) [1]	Load Factor [2]	SCC [3]	VOC	CO	NOx	PM-10	PM-2.5	SO_2
Chipper	1	8	B	50	B	64%	A2265004045	5	196	1	0	0	0
Stump Cutter	1	16	B	50	B	64%	A2265004045	11	393	2	0	0	0
Forklift (Clarke)	12	150	B	500	B	30%	A2265003020	2,054	71,269	2,953	42	38	95
Forklift (Caterpillar)	4	150	B	500	B	30%	A2265003020	685	23,756	984	14	13	32
Manlift	2	47	B	500	B	30%	A2265003020	107	3,722	154	2	2	5
Lawn Mower	4	16	B	500	B	64%	A2265004045	434	15,715	94	2	2	11
Garden Tractor	1	16	B	500	B	64%	A2265004045	418	4,843	22	8	8	3
All Terrain Vehicle	3	28.4	B	1000	B	65%	A2265001060	1,474	73,641	417	15	13	28
Lawn Mower	2	16	B	500	B	64%	A2265004045	217	7,858	47	1	1	6
All Terrain Vehicle	2	28.4	B	1000	B	65%	A2265001060	983	49,094	278	10	9	19
Lawn Mower	1	20	B	96	B	67%	A2265004040	23	1,976	8	0.3	0.3	1
Snow Blower	2	20	B	100	B	55%	A2265004040	39	3,379	14	0.5	0.5	1.1
Hand Blower (Echo)	6	2.1	B	500	B	70%	A2265004030	298	6,363	26.4	2.3	2.1	2.2
Weedeater (Echo)	6	2.1	B	500	B	58%	A2260004075	2,103	5,793	8	29	27	1.8
Chainsaw (Stihl)	4	2.1	B	40	B	92%	A2265004020	178	490	0.6	2.5	2.3	0.1
Leaf Blower	1	2.1	B	500	B	70%	A2265004030	50	1,061	4.4	0.4	0.4	0.4
Lawn Mower	6	20	B	200	B	55%	A2265004040	237	20,274	84	3.2	2.9	6
Riding Mower	6	16	B	520	B	64%	A2265004045	676	24,516	147	4	3	18
Leaf Blower	1	2.1	B	200	B	70%	A2265004030	20	424	1.8	0.2	0.1	0.1
Weedeater	3	2.1	B	200	B	58%	A2260004075	421	1,159	2	6	5	0.4
Lawn Mower	5	20	B	200	B	55%	A2265004040	197	16,895	70	2.7	2.5	5
Go Carts	19	6	B	500	B	49%	A2265001050	537	50,097	171	8	7	13
Toro Aerator	4	16	B	35	B	65%	A2265004075	66	2,095	10	0.6	0.5	0.7
Beverage Cart	1	16	B	500	B	65%	A2265001060	139	6,921	39	1	1	3
Cushman Truckster	6	8	B	500	B	65%	A2265001060	416	20,762	118	4	4	8
John Deere Sand Pro	5	8	B	555	B	64%	A2265004045	1,159	13,440	62	23	21	8
Club Car Utility	2	9	B	500	B	65%	A2265001060	156	7,786	44.1	1.5	1.4	3.0
Golf Carts	123	6	B	500	B	49%	A2265001050	3,477	324,311	1,104	52	48	84
Golf Ball Retriever	2	8	B	900	B	65%	A2265001060	249	12,457	71	2	2	5

Table A-16b: Gasoline Non-Road Vehicles
2009
(Continued)

Equipment Data						Emission Parameters		Annual Estimated Emissions (lbs/yr)					
Equipment Type	#	Engine Rating (Per Unit) (hp)	Model Year Base (B)/ Default (D)	Operating Time (Per unit) (hr/yr)	Source for Operating Time Base (B)/ Default (D) [1]	Load Factor [2]	SCC [3]	VOC	CO	NOx	PM-10	PM-2.5	SO_2
Jacobsen F-10 Mower	5	16	B	520	B	64%	A2265004045	564	20,430	123	3	3	15
Greens Mower (Kohler)	1	16	B	520	B	64%	A2265004045	113	4,086	25	1	1	3
Turf Cat Mower	1	16	B	520	B	64%	A2265004045	113	4,086	25	1	1	3
Triplex Mower	1	16	B	520	B	64%	A2265004045	113	4,086	25	1	1	3
Perkins Mower	3	16	B	520	B	64%	A2265004045	338	12,258	74	2	2	9
Tri King Mower	1	16	B	520	B	64%	A2265004045	113	4,086	25	1	1	3
John Deere 220 Mower	1	16	B	555	B	64%	A2265004045	120	4,361	26	1	1	3
John Deere Chipper	1	8	B	555	B	64%	A2265004045	60	2,180	13	0	0	2
Toro Walk Behind Mower	2	4	B	555	B	64%	A2265004045	60	2,180	13	0	0	2
Kottler Mower	1	4	B	555	B	64%	A2265004045	30	1,090	7	0	0	1
JD Walk Behind Mower	2	4	B	555	B	64%	A2265004045	60	2,180	13	0	0	2
Toro Ground Master	1	16	B	555	B	64%	A2265004045	120	4,361	26	1	1	3
Forklift (10,000 lb)	12	300	B	500	B	30%	A2265003020	4,108	142,539	5,906	83	77	191
Forklift (Clarke)	12	47	B	500	B	30%	A2265003020	644	22,331	925	13	12	30
Forklift (Caterpillar)	4	47	B	500	B	30%	A2265003020	215	7,444	308	4	4	10
All Terrain Vehicle	9	28.4	B	1000	B	65%	A2265001060	4,421	220,924	1,252	44	40	84
Lawn Mower	2	20	B	200	B	55%	A2265004040	79	6,758	28	1.1	1.0	2
TOTAL EMISSIONS FROM ALL GASOLINE-FIRED VEHICLES/EQUIPMENT (lbs/yr)								28,097	1,236,067	15,751	392	361	722
TOTAL EMISSIONS FROM ALL GASOLINE-FIRED VEHICLES/EQUIPMENT (tons/yr)								14.05	618.03	7.88	0.20	0.18	0.36
Pro-rated based on BRAC Population								1.22	53.48	0.68	0.02	0.02	0.03

Calculation of Annual Estimated Criteria Pollutant Emissions

For Table 1: Annual Estimated Emissions (lb/yr) = Engine Rating (hp) x Loading Factor (%) x Operating Time per Unit (hr/yr) x Number of Units x Emission Factor (g/hp-hr) x Conversion Factor (0.002205 lb/g)

All Tables: Annual Estimated PM-2.5 Emissions (lb/yr) = Annual Estimated PM-10 Emissions (lb/yr) x Factor for Converting PM-10 to PM-2.5

Table Notes

[1] Default operating time is obtained from EPA's NONROAD 2005c model data files.

[2] Load factor is the fraction of available power at which the engine normally operates. Source: Table 2-1, Air Emissions Inventory Guidance Document for Mobile Sources, IERA, Jan 2002.

[3] SCC obtained from Air Emissions Inventory Guidance Document For Mobile Sources at Air Force Installations, IERA, January 2002.

Table A-17a: Diesel Non-Road Vehicles
2009

Emission Factors

Emissions Estimate Based on Engine Rating and Operating Time (All Diesel-fired Equipment)

Equipment Data					*Emission Parameters*			*Emissions Factors (g/hp-hr)* [4]						
Equipment Type	#	Average Engine Rating (Per Unit) (hp)	Estimated Operating Time (Per unit) (hr/yr)	Total Operating Time (hr/yr)	Load Factor [2]	SCC [3]	Emission Factor Group	Brake-Specific Fuel Consumption (lb/hp-hr)	VOC	CO	NOx	PM-10	SO_2	Factor for PM-10 to PM-2.5 5
Loader	13	90	100	1,300	55%	A2270002066	Group 3	0.433	1.28	6.21	6.5	1.04	0.93	0.92
Excavator	3	90	750	2,250	55%	A2270002066	Group 3	0.433	1.28	6.21	6.5	1.04	0.93	0.92
Sweeper	4	90	700	2,800	68%	A2270003030	Group 2	0.4	0.33	1.48	4.4	0.34	0.77	0.92
Tractor	27	90	100	2,700	70%	A2270005015	Group 2	0.4	0.50	2.90	5.5	0.56	0.77	0.92
Tractor	13	70	40	520	55%	A2270002066	Group 3	0.481	1.28	6.21	6.5	1.04	0.93	0.92
Scraper	2	140	750	1,500	61%	A2270002048	Group 4	0.36	0.28	1.42	4.0	0.32	0.75	0.92
Soil Prep Unit	1	190	50	50	43%	A2270002045	Group 4	0.36	0.31	1.23	4.8	0.29	0.75	0.92
Trk Tank Sludge Disposal	1	220	500	500	57%	A2270002051	Group 3	0.433	0.23	1.52	4.5	0.27	0.75	0.92
Grinder	1	16	40	40	64%	A2270004045	Group 1	0.408	1.80	5.00	6.9	0.80	1.18	0.92
Roller	1	80	40	40	56%	A2270002015	Group 4	0.4	0.37	2.39	4.5	0.45	0.78	0.92
Bulldozer	5	90	100	500	55%	A2270002066	Group 3	0.433	1.28	6.21	6.5	1.04	0.93	0.92
Backhoe	4	150	100	400	55%	A2270002066	Group 3	0.433	1.28	6.21	6.5	1.04	0.93	0.92
Riding Mower	2	16	500	1,000	64%	A2270004045	Group 1	0.408	1.80	5.00	6.9	0.80	1.18	0.92
Crane	12	190	500	6,000	43%	A2270002045	Group 4	0.36	0.31	1.23	4.8	0.29	0.75	0.92
Grader	7	140	500	3,500	61%	A2270002048	Group 4	0.36	0.28	1.42	4.0	0.32	0.75	0.92
Forklifts (4K, Hyster)	25	32	1,000	25,000	30%	A2270003020	Group 3	0.481	0.30	2.82	3.9	0.43	0.80	0.92
Forklifts (6K, Hyster)	39	47	1,000	39,000	30%	A2270003020	Group 3	0.481	0.30	2.82	3.9	0.43	0.80	0.92
Forklifts (Clarke)	25	47	1,000	25,000	30%	A2270003020	Group 3	0.481	0.30	2.82	3.9	0.43	0.80	0.92
Forklifts (Wiggins)	6	47	1,000	6,000	30%	A2270003020	Group 3	0.481	0.30	2.82	3.9	0.43	0.80	0.92
Forklifts (Yale)	20	47	1,000	20,000	30%	A2270003020	Group 3	0.481	0.30	2.82	3.9	0.43	0.80	0.92
Tractor	14	70	100	1,400	55%	A2270002066	Group 3	0.481	1.28	6.21	6.5	1.04	0.93	0.92
Tractor	17	90	100	1,700	70%	A2270005015	Group 2	0.4	0.50	2.90	5.5	0.56	0.77	0.92
Crane	16	150	100	1,600	43%	A2270002045	Group 4	0.36	0.31	1.23	4.8	0.29	0.75	0.92
Truck	4	220	100	400	57%	A2270002051	Group 3	0.433	0.23	1.52	4.5	0.27	0.75	0.92
Forklifts (6K)	10	150	2,500	25,000	30%	A2270003020	Group 3	0.481	0.30	2.82	3.9	0.43	0.80	0.92
Forklifts (6K, Hyster)	6	150	2,500	15,000	30%	A2270003020	Group 3	0.481	0.30	2.82	3.9	0.43	0.80	0.92
Excavator	2	90	750	1,500	55%	A2270002066	Group 3	0.433	1.28	6.21	6.5	1.04	0.93	0.92
Grader	2	140	500	1,000	61%	A2270002048	Group 4	0.36	0.28	1.42	4.0	0.32	0.75	0.92
Sweeper	2	90	700	1,400	68%	A2270003030	Group 2	0.4	0.33	1.48	4.4	0.34	0.77	0.92
Bulldozer	1	90	500	500	55%	A2270002066	Group 3	0.433	1.28	6.21	6.5	1.04	0.93	0.92
Roller	1	80	500	500	56%	A2270002015	Group 4	0.4	0.37	2.39	4.5	0.45	0.78	0.92
Loader	1	90	500	500	55%	A2270002066	Group 3	0.433	1.28	6.21	6.5	1.04	0.93	0.92

Table A-17a: Diesel Non-Road Vehicles
2009
(Continued)

Equipment Data					Emission Parameters			Emissions Factors (g/hp-hr) [4]						
Equipment Type	#	Average Engine Rating (Per Unit) (hp)	Estimated Operating Time (Per unit) (hr/yr)	Total Operating Time (hr/yr)	Load Factor [2]	SCC [3]	Emission Factor Group	Brake-Specific Fuel Consumption (lb/hp-hr)	VOC	CO	NOx	PM-10	SO_2	Factor for PM-10 to PM-2.5 5
Crane	10	150	500	5,000	43%	A2270002045	Group 4	0.36	0.31	1.23	4.8	0.29	0.75	0.92
Loader	5	90	500	2,500	55%	A2270002066	Group 3	0.433	1.28	6.21	6.5	1.04	0.93	0.92
Excavator	3	90	500	1,500	55%	A2270002066	Group 3	0.433	1.28	6.21	6.5	1.04	0.93	0.92
Bulldozer	1	90	500	500	55%	A2270002066	Group 3	0.433	1.28	6.21	6.5	1.04	0.93	0.92
Tractor	14	90	500	7,000	70%	A2270005015	Group 2	0.4	0.50	2.90	5.5	0.56	0.77	0.92
Forklifts	38	150	500	19,000	30%	A2270003020	Group 3	0.481	0.30	2.82	3.9	0.43	0.80	0.92
Jacobsen Greens Mower	7	16	520	3,640	55%	A2270004045	Group 1	0.408	0.70	2.00	5.2	0.60	1.19	0.92
John Deere Tractor	1	5.5	312	312	55%	A2270004045	Group 1	0.408	0.80	2.50	5.5	0.60	1.19	0.92
Greensaire Mower	1	16	312	312	55%	A2270004045	Group 1	0.408	1.80	5.00	6.9	0.80	1.18	0.92
Toro Grounds Master	5	16	312	1,560	55%	A2270004045	Group 1	0.408	1.80	5.00	6.9	0.80	1.18	0.92
Jacobsen Greens Mower	1	16	520	520	55%	A2270004045	Group 1	0.408	0.70	2.00	5.2	0.60	1.19	0.92
Toro Reelmaster	3	16	520	1,560	55%	A2270004045	Group 1	0.408	1.80	5.00	6.9	0.80	1.18	0.92
Toro Freeway Mower	1	16	555	555	64%	A2270004045	Group 1	0.408	1.80	5.00	6.9	0.80	1.18	0.92
Toro Mower 6500D	1	16	555	555	64%	A2270004045	Group 1	0.408	1.80	5.00	6.9	0.80	1.18	0.92
Toro Mower 455D	2	16	555	1,110	64%	A2270004045	Group 1	0.408	1.80	5.00	6.9	0.80	1.18	0.92
Forklift (10,000 lb)	1	300	2,900	2,900	30%	A2270003020	Group 3	0.481	0.30	2.82	3.9	0.43	0.80	0.92
Forklift (6,000 lb)	1	152	900	900	30%	A2270003020	Group 3	0.481	0.30	2.82	3.9	0.43	0.80	0.92
Forklift (4,000 lb)	1	75	2,500	2,500	30%	A2270003020	Group 3	0.481	0.30	2.82	3.9	0.43	0.80	0.92
Crane	4	150	500	2,000	43%	A2270002045	Group 4	0.36	0.31	1.23	4.8	0.29	0.75	0.92
Forklifts	5	75	1,000	5,000	30%	A2270003020	Group 3	0.481	0.30	2.82	3.9	0.43	0.80	0.92
Loader	5	90	500	2,500	55%	A2270002066	Group 3	0.433	1.28	6.21	6.5	1.04	0.93	0.92
Tractor	2	90	500	1,000	70%	A2270005015	Group 2	0.4	0.50	2.90	5.5	0.56	0.77	0.92

Calculation of Annual Estimated Criteria Pollutant Emissions

For Table 1: Annual Estimated Emissions (lb/yr) = Engine Rating (hp) x Loading Factor (%) x Operating Time per Unit (hr/yr) x Number of Units x Emission Factor (g/hp-hr) x Conversion Factor (0.002205 lb/g)

All Tables: Annual Estimated PM-2.5 Emissions (lb/yr) = Annual Estimated PM-10 Emissions (lb/yr) x Factor for Converting PM-10 to PM-2.5

Table Notes

[1] Default operating time is obtained from EPA's NONROAD 2002a model data files.

[2] Load factor is the fraction of available power at which the engine normally operates. Source: Table 2-1, Air Emissions Inventory Guidance Document for Mobile Sources, IERA, Jan 2002.

[3] SCC obtained from Air Emissions Inventory Guidance Document For Mobile Sources at Air Force Installations, IERA, January 2002.

[4] Emission factors are obtained from Air Emissions Inventory Guidance Document For Mobile Sources at Air Force Installations, IERA, January 2002.

[5] Factor to estimate PM-2.5 emissions from PM-10 emissions obtained from EPA's NONROAD 2002a model data files.

Table A-17b: Diesel Non-Road Vehicles
2009

Estimated Emissions

Emissions Estimate Based on Engine Rating and Operating Time (All Diesel-fired Equipment)

Equipment Data					*Emission Parameters*			*Annual Estimated Emissions (lb/yr)*					
Equipment Type	#	Average Engine Rating (Per Unit) (hp)	Estimated Operating Time (Per unit) (hr/yr)	Total Operating Time (hr/yr)	Load Factor [2]	SCC [3]	Emission Factor Group	VOC	CO	NOx	PM-10	PM-2.5	SO_2
Loader	13	90	100	1,300	55%	A2270002066	Group 3	182	881	925	148	136	132
Excavator	3	90	750	2,250	55%	A2270002066	Group 3	314	1,525	1,601	255	235	228
Sweeper	4	90	700	2,800	68%	A2270003030	Group 2	125	559	1,670	128	118	291
Tractor	27	90	100	2,700	70%	A2270005015	Group 2	188	1,088	2,055	210	193	289
Tractor	13	70	40	520	55%	A2270002066	Group 3	57	274	288	46	42	41
Scraper	2	140	750	1,500	61%	A2270002048	Group 4	79	401	1,116	90	83	212
Soil Prep Unit	1	190	50	50	43%	A2270002045	Group 4	3	11	43	3	2	7
Trk Tank Sludge Disposal	1	220	500	500	57%	A2270002051	Group 3	32	210	624	37	34	104
Grinder	1	16	40	40	64%	A2270004045	Group 1	2	5	6	1	1	1
Roller	1	80	40	40	56%	A2270002015	Group 4	1	9	18	2	2	3
Bulldozer	5	90	100	500	55%	A2270002066	Group 3	70	339	356	57	52	51
Backhoe	4	150	100	400	55%	A2270002066	Group 3	93	452	474	76	70	68
Riding Mower	2	16	500	1,000	64%	A2270004045	Group 1	41	113	156	18	17	27
Crane	12	190	500	6,000	43%	A2270002045	Group 4	335	1,329	5,210	313	288	811
Grader	7	140	500	3,500	61%	A2270002048	Group 4	185	936	2,603	211	194	494
Forklifts (4K, Hyster)	25	32	1,000	25,000	30%	A2270003020	Group 3	159	1,492	2,043	228	209	423
Forklifts (6K, Hyster)	39	47	1,000	39,000	30%	A2270003020	Group 3	364	3,419	4,680	521	480	970
Forklifts (Clarke)	25	47	1,000	25,000	30%	A2270003020	Group 3	233	2,192	3,000	334	307	622
Forklifts (Wiggins)	6	47	1,000	6,000	30%	A2270003020	Group 3	56	526	720	80	74	149
Forklifts (Yale)	20	47	1,000	20,000	30%	A2270003020	Group 3	187	1,754	2,400	267	246	497
Tractor	14	70	100	1,400	55%	A2270002066	Group 3	152	738	775	124	114	111
Tractor	17	90	100	1,700	70%	A2270005015	Group 2	118	685	1,294	132	122	182
Crane	16	150	100	1,600	43%	A2270002045	Group 4	71	280	1,097	66	61	171
Truck	4	220	100	400	57%	A2270002051	Group 3	25	168	499	30	27	83
Forklifts (6K)	10	150	2,500	25,000	30%	A2270003020	Group 3	744	6,995	9,575	1,067	981	1,985
Forklifts (6K, Hyster)	6	150	2,500	15,000	30%	A2270003020	Group 3	447	4,197	5,745	640	589	1,191
Excavator	2	90	750	1,500	55%	A2270002066	Group 3	210	1,017	1,067	170	157	152
Grader	2	140	500	1,000	61%	A2270002048	Group 4	53	267	744	60	55	141
Sweeper	2	90	700	1,400	68%	A2270003030	Group 2	62	280	835	64	59	145
Bulldozer	1	90	500	500	55%	A2270002066	Group 3	70	339	356	57	52	51
Roller	1	80	500	500	56%	A2270002015	Group 4	18	118	223	22	20	39
Loader	1	90	500	500	55%	A2270002066	Group 3	70	339	356	57	52	51

Table A-17b: Diesel Non-Road Vehicles
2009
(Continued)

Equipment Data					Emission Parameters			Annual Estimated Emissions (lb/yr)					
Equipment Type	#	Average Engine Rating (Per Unit) (hp)	Estimated Operating Time (Per unit) (hr/yr)	Total Operating Time (hr/yr)	Load Factor [2]	SCC [3]	Emission Factor Group	VOC	CO	NOx	PM-10	PM-2.5	SO_2
Crane	10	150	500	5,000	43%	A2270002045	Group 4	220	875	3,428	206	190	533
Loader	5	90	500	2,500	55%	A2270002066	Group 3	349	1,695	1,779	284	261	254
Excavator	3	90	500	1,500	55%	A2270002066	Group 3	210	1,017	1,067	170	157	152
Bulldozer	1	90	500	500	55%	A2270002066	Group 3	70	339	356	57	52	51
Tractor	14	90	500	7,000	70%	A2270005015	Group 2	486	2,820	5,329	545	501	749
Forklifts	38	150	500	19,000	30%	A2270003020	Group 3	566	5,316	7,277	811	746	1,508
Jacobsen Greens Mower	7	16	520	3,640	55%	A2270004045	Group 1	49	141	367	42	39	84
John Deere Tractor	1	5.5	312	312	55%	A2270004045	Group 1	2	5	11	1	1	2
Greensaire Mower	1	16	312	312	55%	A2270004045	Group 1	11	30	42	5	4	7
Toro Grounds Master	5	16	312	1,560	55%	A2270004045	Group 1	54	151	209	24	22	36
Jacobsen Greens Mower	1	16	520	520	55%	A2270004045	Group 1	7	20	52	6	6	12
Toro Reelmaster	3	16	520	1,560	55%	A2270004045	Group 1	54	151	209	24	22	36
Toro Freeway Mower	1	16	555	555	64%	A2270004045	Group 1	23	63	86	10	9	15
Toro Mower 6500D	1	16	555	555	64%	A2270004045	Group 1	23	63	86	10	9	15
Toro Mower 455D	2	16	555	1,110	64%	A2270004045	Group 1	45	125	173	20	18	30
Forklift (10,000 lb)	1	300	2,900	2,900	30%	A2270003020	Group 3	173	1,623	2,221	247	228	460
Forklift (6,000 lb)	1	152	900	900	30%	A2270003020	Group 3	27	255	349	39	36	72
Forklift (4,000 lb)	1	75	2,500	2,500	30%	A2270003020	Group 3	37	350	479	53	49	99
Crane	4	150	500	2,000	43%	A2270002045	Group 4	88	350	1,371	82	76	213
Forklifts	5	75	1,000	5,000	30%	A2270003020	Group 3	74	700	958	107	98	198
Loader	5	90	500	2,500	55%	A2270002066	Group 3	349	1,695	1,779	284	261	254
Tractor	2	90	500	1,000	70%	A2270005015	Group 2	69	403	761	78	72	107
TOTAL EMISSIONS (lbs/yr)								7,681	50,984	80,579	8,578	7,892	14,524
TOTAL EMISSIONS (tons/yr)								3.84	25.49	40.29	4.29	3.95	7.26
Pro-rated based on BRAC Population								0.33	2.21	3.49	0.37	0.34	0.63

Calculation of Annual Estimated Criteria Pollutant Emissions

For Table 1: Annual Estimated Emissions (lb/yr) = Engine Rating (hp) x Loading Factor (%) x Operating Time per Unit (hr/yr) x Number of Units x Emission Factor (g/hp-hr) x Conversion Factor (0.002205 lb/g)

All Tables: Annual Estimated PM-2.5 Emissions (lb/yr) = Annual Estimated PM-10 Emissions (lb/yr) x Factor for Converting PM-10 to PM-2.5

Table Notes

[1] Default operating time is obtained from EPA's NONROAD 2002a model data files.

[2] Load factor is the fraction of available power at which the engine normally operates. Source: Table 2-1, Air Emissions Inventory Guidance Document for Mobile Sources, IERA, Jan 2002.

[3] SCC obtained from Air Emissions Inventory Guidance Document For Mobile Sources at Air Force Installations, IERA, January 2002.

Table A-18a: Gasoline Non-Road Vehicles
2010

Emission Factors

Emissions Estimate Based on Engine Rating and Operating Time

Equipment Data						*Emission Parameters*		*Emissions Factors (g/hp-hr)* [4]						
Equipment Type	#	Engine Rating (Per Unit) (hp)	Model Year Base (B)/ Default (D)	Operating Time (Per unit) (hr/yr)	Source for Operating Time Base (B)/ Default (D) [1]	Load Factor [2]	SCC [3]	Brake-Specific Fuel Consumption (lb/hp-hr)	VOC	CO	NOx	PM-10	SO_2	Factor for PM10 to PM2.5 [5]
Chipper	1	8	B	50	B	64%	A2265004045	0.85	9.60	348	2.09	0.05	0.25	0.92
Stump Cutter	1	16	B	50	B	64%	A2265004045	0.85	9.60	348	2.09	0.05	0.25	0.92
Forklift (Clarke)	12	150	B	500	B	30%	A2265003020	0.65	2.94	103	4.24	0.070	0.16	0.92
Forklift (Caterpillar)	4	150	B	500	B	30%	A2265003020	0.65	2.94	103	4.24	0.070	0.16	0.92
Manlift	2	47	B	500	B	30%	A2265003020	0.65	2.94	103	4.24	0.070	0.16	0.92
Lawn Mower	4	16	B	500	B	64%	A2265004045	0.85	9.60	348	2.09	0.05	0.25	0.92
Garden Tractor	1	16	B	500	B	64%	A2265004045	0.85	37.0	429	1.98	0.73	0.24	0.92
All Terrain Vehicle	3	28.4	B	1000	B	65%	A2265001060	0.87	11.6	602	3.39	0.12	0.23	0.92
Lawn Mower	2	16	B	500	B	64%	A2265004045	0.85	9.60	348	2.09	0.05	0.25	0.92
All Terrain Vehicle	2	28.4	B	1000	B	65%	A2265001060	0.87	11.6	602	3.39	0.12	0.23	0.92
Lawn Mower	1	20	B	96	B	67%	A2265004040	0.85	7.92	699	2.83	0.110	0.22	0.92
Snow Blower	2	20	B	100	B	55%	A2265004040	0.85	7.92	699	2.83	0.110	0.22	0.92
Hand Blower (Echo)	6	2.1	B	500	B	70%	A2265004030	1.30	25	650	2.41	0.20	0.23	0.92
Weedeater (Echo)	6	2.1	B	500	B	58%	A2260004075	1.30	261	719	0.94	3.60	0.22	0.92
Chainsaw (Stihl)	4	2.1	B	40	B	92%	A2265004020	1.30	261	719	0.94	3.60	0.22	0.92
Leaf Blower	1	2.1	B	500	B	70%	A2265004030	1.30	25	650	2.41	0.20	0.23	0.92
Lawn Mower	6	20	B	200	B	55%	A2265004040	0.85	7.92	699	2.83	0.110	0.22	0.92
Riding Mower	6	16	B	520	B	64%	A2265004045	0.85	9.60	348	2.09	0.05	0.25	0.92
Leaf Blower	1	2.1	B	200	B	70%	A2265004030	1.30	25	650	2.41	0.20	0.23	0.92
Weedeater	3	2.1	B	200	B	58%	A2260004075	1.30	261	719	0.94	3.60	0.22	0.92
Lawn Mower	5	20	B	200	B	55%	A2265004040	0.85	7.92	699	2.83	0.110	0.22	0.92
Go Carts	19	6	B	500	B	49%	A2265001050	0.85	8.7	813	2.77	0.130	0.21	0.92
Toro Aerator	4	16	B	35	B	65%	A2265004075	1.09	18.57	653	2.87	0.170	0.23	0.92
Beverage Cart	1	16	B	500	B	65%	A2265001060	0.87	11.6	602	3.39	0.12	0.23	0.92
Cushman Truckster	6	8	B	500	B	65%	A2265001060	0.87	11.6	602	3.39	0.12	0.23	0.92
John Deere Sand Pro	5	8	B	555	B	64%	A2265004045	0.85	37.0	429	1.98	0.73	0.24	0.92
Club Car Utility	2	9	B	500	B	65%	A2265001060	0.87	11.6	602	3.39	0.12	0.23	0.92
Golf Carts	123	6	B	500	B	49%	A2265001050	0.85	8.7	813	2.77	0.130	0.21	0.92

Table A-18a: Gasoline Non-Road Vehicles
2010
(Continued)

Equipment Data						Emission Parameters		Emissions Factors (g/hp-hr) [4]						
Equipment Type	#	Engine Rating (Per Unit) (hp)	Model Year Base (B)/ Default (D)	Operating Time (Per unit) (hr/yr)	Source for Operating Time Base (B)/ Default (D) [1]	Load Factor [2]	SCC [3]	Brake-Specific Fuel Consumption (lb/hp-hr)	VOC	CO	NOx	PM-10	SO_2	Factor for PM10 to PM2.5 [5]
Golf Ball Retriever	2	8	B	900	B	65%	A2265001060	0.87	11.6	602	3.39	0.12	0.23	0.92
Jacobsen F-10 Mower	5	16	B	520	B	64%	A2265004045	0.85	9.60	348	2.09	0.05	0.25	0.92
Greens Mower (Kohler)	1	16	B	520	B	64%	A2265004045	0.85	9.60	348	2.09	0.05	0.25	0.92
Turf Cat Mower	1	16	B	520	B	64%	A2265004045	0.85	9.60	348	2.09	0.05	0.25	0.92
Triplex Mower	1	16	B	520	B	64%	A2265004045	0.85	9.60	348	2.09	0.05	0.25	0.92
Perkins Mower	3	16	B	520	B	64%	A2265004045	0.85	9.60	348	2.09	0.05	0.25	0.92
Tri King Mower	1	16	B	520	B	64%	A2265004045	0.85	9.60	348	2.09	0.05	0.25	0.92
John Deere 220 Mower	1	16	B	555	B	64%	A2265004045	0.85	9.60	348	2.09	0.05	0.25	0.92
John Deere Chipper	1	8	B	555	B	64%	A2265004045	0.85	9.60	348	2.09	0.05	0.25	0.92
Toro Walk Behind Mower	2	4	B	555	B	64%	A2265004045	0.85	9.60	348	2.09	0.05	0.25	0.92
Kottler Mower	1	4	B	555	B	64%	A2265004045	0.85	9.60	348	2.09	0.05	0.25	0.92
JD Walk Behind Mower	2	4	B	555	B	64%	A2265004045	0.85	9.60	348	2.09	0.05	0.25	0.92
Toro Ground Master	1	16	B	555	B	64%	A2265004045	0.85	9.60	348	2.09	0.05	0.25	0.92
Forklift (10,000 lb)	12	300	B	500	B	30%	A2265003020	0.65	2.94	103	4.24	0.070	0.16	0.92
Forklift (Clarke)	12	47	B	500	B	30%	A2265003020	0.65	2.94	103	4.24	0.070	0.16	0.92
Forklift (Caterpillar)	4	47	B	500	B	30%	A2265003020	0.65	2.94	103	4.24	0.070	0.16	0.92
All Terrain Vehicle	9	28.4	B	1000	B	65%	A2265001060	0.87	11.6	602	3.39	0.12	0.23	0.92
Lawn Mower	2	20	B	200	B	55%	A2265004040	0.85	7.92	699	2.83	0.110	0.22	0.92

Calculation of Annual Estimated Criteria Pollutant Emissions

For Table 1: Annual Estimated Emissions (lb/yr) = Engine Rating (hp) x Loading Factor (%) x Operating Time per Unit (hr/yr) x Number of Units x Emission Factor (g/hp-hr) x Conversion Factor (0.002205 lb/g)

All Tables: Annual Estimated PM-2.5 Emissions (lb/yr) = Annual Estimated PM-10 Emissions (lb/yr) x Factor for Converting PM-10 to PM-2.5

Table Notes

[1] Default operating time is obtained from EPA's NONROAD 2005c model data files.

[2] Load factor is the fraction of available power at which the engine normally operates. Source: Table 2-1, Air Emissions Inventory Guidance Document for Mobile Sources, IERA, Jan 2002.

[3] SCC obtained from Air Emissions Inventory Guidance Document For Mobile Sources at Air Force Installations, IERA, January 2002.

[4] Emission factors are obtained from Air Emissions Inventory Guidance Document For Mobile Sources at Air Force Installation, IERA, January 2002.

[5] Factor to estimate PM2.5 emissions from PM10 emissions obtained from EPA's NONROAD 2002a model data files

Table A-18b: Gasoline Non-Road Vehicles
2010

Estimated Emissions

Emissions Estimate Based on Engine Rating and Operating Time

Equipment Data						*Emission Parameters*		*Annual Estimated Emissions (lbs/yr)*					
Equipment Type	#	Engine Rating (Per Unit) (hp)	Model Year Base (B)/ Default (D)	Operating Time (Per unit) (hr/yr)	Source for Operating Time Base (B)/ Default (D) [1]	Load Factor [2]	SCC [3]	VOC	CO	NOx	PM-10	PM-2.5	SO_2
Chipper	1	8	B	50	B	64%	A2265004045	5	196	1	0	0	0
Stump Cutter	1	16	B	50	B	64%	A2265004045	11	393	2	0	0	0
Forklift (Clarke)	12	150	B	500	B	30%	A2265003020	1,750	61,440	2,524	42	38	95
Forklift (Caterpillar)	4	150	B	500	B	30%	A2265003020	583	20,480	841	14	13	32
Manlift	2	47	B	500	B	30%	A2265003020	91	3,209	132	2	2	5
Lawn Mower	4	16	B	500	B	64%	A2265004045	434	15,715	94	2	2	11
Garden Tractor	1	16	B	500	B	64%	A2265004045	418	4,843	22	8	8	3
All Terrain Vehicle	3	28.4	B	1000	B	65%	A2265001060	1,415	73,468	414	15	13	28
Lawn Mower	2	16	B	500	B	64%	A2265004045	217	7,858	47	1	1	6
All Terrain Vehicle	2	28.4	B	1000	B	65%	A2265001060	944	48,979	276	10	9	19
Lawn Mower	1	20	B	96	B	67%	A2265004040	22	1,983	8	0.3	0.3	1
Snow Blower	2	20	B	100	B	55%	A2265004040	38	3,391	14	0.5	0.5	1.1
Hand Blower (Echo)	6	2.1	B	500	B	70%	A2265004030	245	6,324	23.4	1.9	1.8	2.2
Weedeater (Echo)	6	2.1	B	500	B	58%	A2260004075	2,103	5,793	8	29	27	1.8
Chainsaw (Stihl)	4	2.1	B	40	B	92%	A2265004020	178	490	0.6	2.5	2.3	0.1
Leaf Blower	1	2.1	B	500	B	70%	A2265004030	41	1,054	3.9	0.3	0.3	0.4
Lawn Mower	6	20	B	200	B	55%	A2265004040	231	20,344	82	3.2	2.9	6
Riding Mower	6	16	B	520	B	64%	A2265004045	676	24,516	147	4	3	18
Leaf Blower	1	2.1	B	200	B	70%	A2265004030	16	422	1.6	0.1	0.1	0.1
Weedeater	3	2.1	B	200	B	58%	A2260004075	421	1,159	2	6	5	0.4
Lawn Mower	5	20	B	200	B	55%	A2265004040	192	16,953	69	2.7	2.5	5
Go Carts	19	6	B	500	B	49%	A2265001050	537	50,097	171	8	7	13
Toro Aerator	4	16	B	35	B	65%	A2265004075	60	2,096	9	0.5	0.5	0.7
Beverage Cart	1	16	B	500	B	65%	A2265001060	133	6,904	39	1	1	3
Cushman Truckster	6	8	B	500	B	65%	A2265001060	399	20,713	117	4	4	8
John Deere Sand Pro	5	8	B	555	B	64%	A2265004045	1,159	13,440	62	23	21	8
Club Car Utility	2	9	B	500	B	65%	A2265001060	150	7,768	43.7	1.5	1.4	3.0
Golf Carts	123	6	B	500	B	49%	A2265001050	3,477	324,311	1,104	52	48	84
Golf Ball Retriever	2	8	B	900	B	65%	A2265001060	239	12,428	70	2	2	5

Table A-18b: Gasoline Non-Road Vehicles
2010
(Continued)

Equipment Data						Emission Parameters		Annual Estimated Emissions (lbs/yr)					
Equipment Type	#	Engine Rating (Per Unit) (hp)	Model Year Base (B)/ Default (D)	Operating Time (Per unit) (hr/yr)	Source for Operating Time Base (B)/ Default (D) [1]	Load Factor [2]	SCC [3]	VOC	CO	NOx	PM-10	PM-2.5	SO_2
Jacobsen F-10 Mower	5	16	B	520	B	64%	A2265004045	564	20,430	123	3	3	15
Greens Mower (Kohler)	1	16	B	520	B	64%	A2265004045	113	4,086	25	1	1	3
Turf Cat Mower	1	16	B	520	B	64%	A2265004045	113	4,086	25	1	1	3
Triplex Mower	1	16	B	520	B	64%	A2265004045	113	4,086	25	1	1	3
Perkins Mower	3	16	B	520	B	64%	A2265004045	338	12,258	74	2	2	9
Tri King Mower	1	16	B	520	B	64%	A2265004045	113	4,086	25	1	1	3
John Deere 220 Mower	1	16	B	555	B	64%	A2265004045	120	4,361	26	1	1	3
John Deere Chipper	1	8	B	555	B	64%	A2265004045	60	2,180	13	0	0	2
Toro Walk Behind Mower	2	4	B	555	B	64%	A2265004045	60	2,180	13	0	0	2
Kottler Mower	1	4	B	555	B	64%	A2265004045	30	1,090	7	0	0	1
JD Walk Behind Mower	2	4	B	555	B	64%	A2265004045	60	2,180	13	0	0	2
Toro Ground Master	1	16	B	555	B	64%	A2265004045	120	4,361	26	1	1	3
Forklift (10,000 lb)	12	300	B	500	B	30%	A2265003020	3,501	122,880	5,049	83	77	191
Forklift (Clarke)	12	47	B	500	B	30%	A2265003020	548	19,251	791	13	12	30
Forklift (Caterpillar)	4	47	B	500	B	30%	A2265003020	183	6,417	264	4	4	10
All Terrain Vehicle	9	28.4	B	1000	B	65%	A2265001060	4,246	220,404	1,241	44	40	84
Lawn Mower	2	20	B	200	B	55%	A2265004040	77	6,781	27	1.1	1.0	2
TOTAL EMISSIONS FROM ALL GASOLINE-FIRED VEHICLES/EQUIPMENT (lbs/yr)								26,544	1,197,884	14,092	392	360	722
TOTAL EMISSIONS FROM ALL GASOLINE-FIRED VEHICLES/EQUIPMENT (tons/yr)								13.27	598.94	7.05	0.20	0.18	0.36
Pro-rated based on BRAC Population								-0.53	-24.08	-0.28	-0.01	-0.01	-0.01

Calculation of Annual Estimated Criteria Pollutant Emissions

For Table 1: Annual Estimated Emissions (lb/yr) = Engine Rating (hp) x Loading Factor (%) x Operating Time per Unit (hr/yr) x Number of Units x Emission Factor (g/hp-hr) x Conversion Factor (0.002205 lb/g)

All Tables: Annual Estimated PM-2.5 Emissions (lb/yr) = Annual Estimated PM-10 Emissions (lb/yr) x Factor for Converting PM-10 to PM-2.5

Table Notes

[1] Default operating time is obtained from EPA's NONROAD 2005c model data files.

[2] Load factor is the fraction of available power at which the engine normally operates. Source: Table 2-1, Air Emissions Inventory Guidance Document for Mobile Sources, IERA, Jan 2002.

[3] SCC obtained from Air Emissions Inventory Guidance Document For Mobile Sources at Air Force Installations, IERA, January 2002.

Table A-19a: Diesel Non-Road Vehicles
2010

Emission Factors

Emissions Estimate Based on Engine Rating and Operating Time (All Diesel-fired Equipment)

Equipment Data					*Emission Parameters*			*Emissions Factors (g/hp-hr)* [4]						
Equipment Type	#	Average Engine Rating (Per Unit) (hp)	Estimated Operating Time (Per unit) (hr/yr)	Total Operating Time (hr/yr)	Load Factor [2]	SCC [3]	Emission Factor Group	Brake-Specific Fuel Consumption (lb/hp-hr)	VOC	CO	NOx	PM-10	SO_2	Factor for PM-10 to PM-2.5 5
Loader	13	90	100	1,300	55%	A2270002066	Group 3	0.433	1.21	6.00	6.3	1.01	0.93	0.92
Excavator	3	90	750	2,250	55%	A2270002066	Group 3	0.433	1.21	6.00	6.3	1.01	0.93	0.92
Sweeper	4	90	700	2,800	68%	A2270003030	Group 2	0.4	0.31	1.46	4.1	0.33	0.77	0.92
Tractor	27	90	100	2,700	70%	A2270005015	Group 2	0.4	0.46	2.72	5.2	0.53	0.77	0.92
Tractor	13	70	40	520	55%	A2270002066	Group 3	0.481	1.21	6.00	6.3	1.01	0.93	0.92
Scraper	2	140	750	1,500	61%	A2270002048	Group 4	0.36	0.26	1.39	3.7	0.32	0.75	0.92
Soil Prep Unit	1	190	50	50	43%	A2270002045	Group 4	0.36	0.29	1.18	4.5	0.27	0.75	0.92
Trk Tank Sludge Disposal	1	220	500	500	57%	A2270002051	Group 3	0.433	0.22	1.49	4.3	0.26	0.35	0.92
Grinder	1	16	40	40	64%	A2270004045	Group 1	0.408	1.80	5.00	6.9	0.80	1.18	0.92
Roller	1	80	40	40	56%	A2270002015	Group 4	0.4	0.34	2.31	4.3	0.43	0.78	0.92
Bulldozer	5	90	100	500	55%	A2270002066	Group 3	0.433	1.21	6.00	6.3	1.01	0.93	0.92
Backhoe	4	150	100	400	55%	A2270002066	Group 3	0.433	1.21	6.00	6.3	1.01	0.93	0.92
Riding Mower	2	16	500	1,000	64%	A2270004045	Group 1	0.408	1.80	5.00	6.9	0.80	1.18	0.92
Crane	12	190	500	6,000	43%	A2270002045	Group 4	0.36	0.29	1.18	4.5	0.27	0.75	0.92
Grader	7	140	500	3,500	61%	A2270002048	Group 4	0.36	0.26	1.39	3.7	0.32	0.75	0.92
Forklifts (4K, Hyster)	25	32	1,000	25,000	30%	A2270003020	Group 3	0.481	0.27	2.77	3.6	0.43	0.80	0.92
Forklifts (6K, Hyster)	39	47	1,000	39,000	30%	A2270003020	Group 3	0.481	0.27	2.77	3.6	0.43	0.80	0.92
Forklifts (Clarke)	25	47	1,000	25,000	30%	A2270003020	Group 3	0.481	0.27	2.77	3.6	0.43	0.80	0.92
Forklifts (Wiggins)	6	47	1,000	6,000	30%	A2270003020	Group 3	0.481	0.27	2.77	3.6	0.43	0.80	0.92
Forklifts (Yale)	20	47	1,000	20,000	30%	A2270003020	Group 3	0.481	0.27	2.77	3.6	0.43	0.80	0.92
Tractor	14	70	100	1,400	55%	A2270002066	Group 3	0.481	1.21	6.00	6.3	1.01	0.93	0.92
Tractor	17	90	100	1,700	70%	A2270005015	Group 2	0.4	0.46	2.72	5.2	0.53	0.77	0.92
Crane	16	150	100	1,600	43%	A2270002045	Group 4	0.36	0.29	1.18	4.5	0.27	0.75	0.92
Truck	4	220	100	400	57%	A2270002051	Group 3	0.433	0.22	1.49	4.3	0.26	0.35	0.92
Forklifts (6K)	10	150	2,500	25,000	30%	A2270003020	Group 3	0.481	0.27	2.77	3.6	0.43	0.80	0.92
Forklifts (6K, Hyster)	6	150	2,500	15,000	30%	A2270003020	Group 3	0.481	0.27	2.77	3.6	0.43	0.80	0.92
Excavator	2	90	750	1,500	55%	A2270002066	Group 3	0.433	1.21	6.00	6.3	1.01	0.93	0.92
Grader	2	140	500	1,000	61%	A2270002048	Group 4	0.36	0.26	1.39	3.7	0.32	0.75	0.92
Sweeper	2	90	700	1,400	68%	A2270003030	Group 2	0.4	0.31	1.46	4.1	0.33	0.77	0.92
Bulldozer	1	90	500	500	55%	A2270002066	Group 3	0.433	1.21	6.00	6.3	1.01	0.93	0.92
Roller	1	80	500	500	56%	A2270002015	Group 4	0.4	0.34	2.31	4.3	0.43	0.78	0.92

Table A-19a: Diesel Non-Road Vehicles
2010
(Continued)

Equipment Data					Emission Parameters			Emissions Factors (g/hp-hr) [4]						
Equipment Type	#	Average Engine Rating (Per Unit) (hp)	Estimated Operating Time (Per unit) (hr/yr)	Total Operating Time (hr/yr)	Load Factor [2]	SCC [3]	Emission Factor Group	Brake-Specific Fuel Consumption (lb/hp-hr)	VOC	CO	NOx	PM-10	SO_2	Factor for PM-10 to PM-2.5 5
Loader	1	90	500	500	55%	A2270002066	Group 3	0.433	1.21	6.00	6.3	1.01	0.93	0.92
Crane	10	150	500	5,000	43%	A2270002045	Group 4	0.36	0.29	1.18	4.5	0.27	0.75	0.92
Loader	5	90	500	2,500	55%	A2270002066	Group 3	0.433	1.21	6.00	6.3	1.01	0.93	0.92
Excavator	3	90	500	1,500	55%	A2270002066	Group 3	0.433	1.21	6.00	6.3	1.01	0.93	0.92
Bulldozer	1	90	500	500	55%	A2270002066	Group 3	0.433	1.21	6.00	6.3	1.01	0.93	0.92
Tractor	14	90	500	7,000	70%	A2270005015	Group 2	0.4	0.46	2.72	5.2	0.53	0.77	0.92
Forklifts	38	150	500	19,000	30%	A2270003020	Group 3	0.481	0.27	2.77	3.6	0.43	0.80	0.92
Jacobsen Greens Mower	7	16	520	3,640	55%	A2270004045	Group 1	0.408	0.70	2.00	5.2	0.60	1.19	0.92
John Deere Tractor	1	5.5	312	312	55%	A2270004045	Group 1	0.408	0.80	2.50	5.5	0.60	1.19	0.92
Greensaire Mower	1	16	312	312	55%	A2270004045	Group 1	0.408	1.80	5.00	6.9	0.80	1.18	0.92
Toro Grounds Master	5	16	312	1,560	55%	A2270004045	Group 1	0.408	1.80	5.00	6.9	0.80	1.18	0.92
Jacobsen Greens Mower	1	16	520	520	55%	A2270004045	Group 1	0.408	0.70	2.00	5.2	0.60	1.19	0.92
Toro Reelmaster	3	16	520	1,560	55%	A2270004045	Group 1	0.408	1.80	5.00	6.9	0.80	1.18	0.92
Toro Freeway Mower	1	16	555	555	64%	A2270004045	Group 1	0.408	1.80	5.00	6.9	0.80	1.18	0.92
Toro Mower 6500D	1	16	555	555	64%	A2270004045	Group 1	0.408	1.80	5.00	6.9	0.80	1.18	0.92
Toro Mower 455D	2	16	555	1,110	64%	A2270004045	Group 1	0.408	1.80	5.00	6.9	0.80	1.18	0.92
Forklift (10,000 lb)	1	300	2,900	2,900	30%	A2270003020	Group 3	0.481	0.27	2.77	3.6	0.43	0.80	0.92
Forklift (6,000 lb)	1	152	900	900	30%	A2270003020	Group 3	0.481	0.27	2.77	3.6	0.43	0.80	0.92
Forklift (4,000 lb)	1	75	2,500	2,500	30%	A2270003020	Group 3	0.481	0.27	2.77	3.6	0.43	0.80	0.92
Crane	4	150	500	2,000	43%	A2270002045	Group 4	0.36	0.29	1.18	4.5	0.27	0.75	0.92
Forklifts	5	75	1,000	5,000	30%	A2270003020	Group 3	0.481	0.27	2.77	3.6	0.43	0.80	0.92
Loader	5	90	500	2,500	55%	A2270002066	Group 3	0.433	1.21	6.00	6.3	1.01	0.93	0.92
Tractor	2	90	500	1,000	70%	A2270005015	Group 2	0.4	0.46	2.72	5.2	0.53	0.77	0.92

Calculation of Annual Estimated Criteria Pollutant Emissions

For Table 1: Annual Estimated Emissions (lb/yr) = Engine Rating (hp) x Loading Factor (%) x Operating Time per Unit (hr/yr) x Number of Units x Emission Factor (g/hp-hr) x Conversion Factor (0.002205 lb/g)

All Tables: Annual Estimated PM-2.5 Emissions (lb/yr) = Annual Estimated PM-10 Emissions (lb/yr) x Factor for Converting PM-10 to PM-2.5

Table Notes

[1] Default operating time is obtained from EPA's NONROAD 2002a model data files.

[2] Load factor is the fraction of available power at which the engine normally operates. Source: Table 2-1, Air Emissions Inventory Guidance Document for Mobile Sources, IERA, Jan 2002.

[3] SCC obtained from Air Emissions Inventory Guidance Document For Mobile Sources at Air Force Installations, IERA, January 2002.

[4] Emission factors are obtained from Air Emissions Inventory Guidance Document For Mobile Sources at Air Force Installations, IERA, January 2002.

[5] Factor to estimate PM-2.5 emissions from PM-10 emissions obtained from EPA's NONROAD 2002a model data files.

Table A-19b: Diesel Non-Road Vehicles
2010

Estimated Emissions

Emissions Estimate Based on Engine Rating and Operating Time (All Diesel-fired Equipment)

Equipment Data					*Emission Parameters*			*Annual Estimated Emissions (lb/yr)*					
Equipment Type	#	Average Engine Rating (Per Unit) (hp)	Estimated Operating Time (Per unit) (hr/yr)	Total Operating Time (hr/yr)	Load Factor [2]	SCC [3]	Emission Factor Group	VOC	CO	NOx	PM-10	PM-2.5	SO_2
Loader	13	90	100	1,300	55%	A2270002066	Group 3	172	851	887	143	132	132
Excavator	3	90	750	2,250	55%	A2270002066	Group 3	297	1,473	1,535	248	228	228
Sweeper	4	90	700	2,800	68%	A2270003030	Group 2	117	552	1,561	125	115	291
Tractor	27	90	100	2,700	70%	A2270005015	Group 2	173	1,020	1,962	199	183	289
Tractor	13	70	40	520	55%	A2270002066	Group 3	53	265	276	45	41	41
Scraper	2	140	750	1,500	61%	A2270002048	Group 4	73	393	1,039	90	83	212
Soil Prep Unit	1	190	50	50	43%	A2270002045	Group 4	3	11	41	2	2	7
Trk Tank Sludge Disposal	1	220	500	500	57%	A2270002051	Group 3	30	206	589	36	33	48
Grinder	1	16	40	40	64%	A2270004045	Group 1	2	5	6	1	1	1
Roller	1	80	40	40	56%	A2270002015	Group 4	1	9	17	2	2	3
Bulldozer	5	90	100	500	55%	A2270002066	Group 3	66	327	341	55	51	51
Backhoe	4	150	100	400	55%	A2270002066	Group 3	88	437	455	73	68	68
Riding Mower	2	16	500	1,000	64%	A2270004045	Group 1	41	113	156	18	17	27
Crane	12	190	500	6,000	43%	A2270002045	Group 4	313	1,275	4,886	292	268	811
Grader	7	140	500	3,500	61%	A2270002048	Group 4	171	916	2,425	211	194	494
Forklifts (4K, Hyster)	25	32	1,000	25,000	30%	A2270003020	Group 3	143	1,466	1,895	228	209	423
Forklifts (6K, Hyster)	39	47	1,000	39,000	30%	A2270003020	Group 3	327	3,359	4,341	521	480	970
Forklifts (Clarke)	25	47	1,000	25,000	30%	A2270003020	Group 3	210	2,153	2,783	334	307	622
Forklifts (Wiggins)	6	47	1,000	6,000	30%	A2270003020	Group 3	50	517	668	80	74	149
Forklifts (Yale)	20	47	1,000	20,000	30%	A2270003020	Group 3	168	1,722	2,226	267	246	497
Tractor	14	70	100	1,400	55%	A2270002066	Group 3	144	713	743	120	110	111
Tractor	17	90	100	1,700	70%	A2270005015	Group 2	109	642	1,235	125	115	182
Crane	16	150	100	1,600	43%	A2270002045	Group 4	66	269	1,029	61	57	171
Truck	4	220	100	400	57%	A2270002051	Group 3	24	165	471	29	26	39
Forklifts (6K)	10	150	2,500	25,000	30%	A2270003020	Group 3	670	6,871	8,881	1,067	981	1,985
Forklifts (6K, Hyster)	6	150	2,500	15,000	30%	A2270003020	Group 3	402	4,123	5,328	640	589	1,191
Excavator	2	90	750	1,500	55%	A2270002066	Group 3	198	982	1,023	165	152	152
Grader	2	140	500	1,000	61%	A2270002048	Group 4	49	262	693	60	55	141
Sweeper	2	90	700	1,400	68%	A2270003030	Group 2	59	276	780	62	57	145
Bulldozer	1	90	500	500	55%	A2270002066	Group 3	66	327	341	55	51	51
Roller	1	80	500	500	56%	A2270002015	Group 4	17	114	212	21	20	39
Loader	1	90	500	500	55%	A2270002066	Group 3	66	327	341	55	51	51

Table A-19b: Diesel Non-Road Vehicles
2010
(Continued)

Equipment Data					Emission Parameters			Annual Estimated Emissions (lb/yr)					
Equipment Type	#	Average Engine Rating (Per Unit) (hp)	Estimated Operating Time (Per unit) (hr/yr)	Total Operating Time (hr/yr)	Load Factor [2]	SCC [3]	Emission Factor Group	VOC	CO	NOx	PM-10	PM-2.5	SO_2
Crane	10	150	500	5,000	43%	A2270002045	Group 4	206	839	3,214	192	177	533
Loader	5	90	500	2,500	55%	A2270002066	Group 3	330	1,637	1,705	276	254	254
Excavator	3	90	500	1,500	55%	A2270002066	Group 3	198	982	1,023	165	152	152
Bulldozer	1	90	500	500	55%	A2270002066	Group 3	66	327	341	55	51	51
Tractor	14	90	500	7,000	70%	A2270005015	Group 2	447	2,645	5,086	515	474	749
Forklifts	38	150	500	19,000	30%	A2270003020	Group 3	509	5,222	6,749	811	746	1,508
Jacobsen Greens Mower	7	16	520	3,640	55%	A2270004045	Group 1	49	141	367	42	39	84
John Deere Tractor	1	5.5	312	312	55%	A2270004045	Group 1	2	5	11	1	1	2
Greensaire Mower	1	16	312	312	55%	A2270004045	Group 1	11	30	42	5	4	7
Toro Grounds Master	5	16	312	1,560	55%	A2270004045	Group 1	54	151	209	24	22	36
Jacobsen Greens Mower	1	16	520	520	55%	A2270004045	Group 1	7	20	52	6	6	12
Toro Reelmaster	3	16	520	1,560	55%	A2270004045	Group 1	54	151	209	24	22	36
Toro Freeway Mower	1	16	555	555	64%	A2270004045	Group 1	23	63	86	10	9	15
Toro Mower 6500D	1	16	555	555	64%	A2270004045	Group 1	23	63	86	10	9	15
Toro Mower 455D	2	16	555	1,110	64%	A2270004045	Group 1	45	125	173	20	18	30
Forklift (10,000 lb)	1	300	2,900	2,900	30%	A2270003020	Group 3	155	1,594	2,060	247	228	460
Forklift (6,000 lb)	1	152	900	900	30%	A2270003020	Group 3	24	251	324	39	36	72
Forklift (4,000 lb)	1	75	2,500	2,500	30%	A2270003020	Group 3	33	344	444	53	49	99
Crane	4	150	500	2,000	43%	A2270002045	Group 4	82	336	1,286	77	71	213
Forklifts	5	75	1,000	5,000	30%	A2270003020	Group 3	67	687	888	107	98	198
Loader	5	90	500	2,500	55%	A2270002066	Group 3	330	1,637	1,705	276	254	254
Tractor	2	90	500	1,000	70%	A2270005015	Group 2	64	378	727	74	68	107
TOTAL EMISSIONS (lbs/yr)								7,101	49,630	75,586	8,419	7,746	14,424
TOTAL EMISSIONS (tons/yr)								3.55	24.81	37.79	4.21	3.87	7.21
Pro-rated based on BRAC Population								-0.14	-1.00	-1.52	-0.17	-0.16	-0.29

Calculation of Annual Estimated Criteria Pollutant Emissions

For Table 1: Annual Estimated Emissions (lb/yr) = Engine Rating (hp) x Loading Factor (%) x Operating Time per Unit (hr/yr) x Number of Units x Emission Factor (g/hp-hr) x Conversion Factor (0.002205 lb/g)

All Tables: Annual Estimated PM-2.5 Emissions (lb/yr) = Annual Estimated PM-10 Emissions (lb/yr) x Factor for Converting PM-10 to PM-2.5

Table Notes

[1] Default operating time is obtained from EPA's NONROAD 2002a model data files.

[2] Load factor is the fraction of available power at which the engine normally operates. Source: Table 2-1, Air Emissions Inventory Guidance Document for Mobile Sources, IERA, Jan 2002.

[3] SCC obtained from Air Emissions Inventory Guidance Document For Mobile Sources at Air Force Installations, IERA, January 2002.

Table A-20a: Gasoline Non-Road Vehicles
2011

Emission Factors

Emissions Estimate Based on Engine Rating and Operating Time

Equipment Data						*Emission Parameters*		*Emissions Factors (g/hp-hr)* [4]						
Equipment Type	#	Engine Rating (Per Unit) (hp)	Model Year Base (B)/ Default (D)	Operating Time (Per unit) (hr/yr)	Source for Operating Time Base (B)/ Default (D) [1]	Load Factor [2]	SCC [3]	Brake-Specific Fuel Consumption (lb/hp-hr)	VOC	CO	NOx	PM-10	SO_2	Factor for PM10 to PM2.5 [5]
Chipper	1	8	B	50	B	64%	A2265004045	0.85	9.60	348	2.09	0.05	0.25	0.92
Stump Cutter	1	16	B	50	B	64%	A2265004045	0.85	9.60	348	2.09	0.05	0.25	0.92
Forklift (Clarke)	12	150	B	500	B	30%	A2265003020	0.65	2.41	86	3.5	0.070	0.15	0.92
Forklift (Caterpillar)	4	150	B	500	B	30%	A2265003020	0.65	2.41	86	3.5	0.070	0.15	0.92
Manlift	2	47	B	500	B	30%	A2265003020	0.65	2.41	86	3.5	0.070	0.15	0.92
Lawn Mower	4	16	B	500	B	64%	A2265004045	0.85	9.60	348	2.09	0.05	0.25	0.92
Garden Tractor	1	16	B	500	B	64%	A2265004045	0.85	37.0	429	1.98	0.73	0.24	0.92
All Terrain Vehicle	3	28.4	B	1000	B	65%	A2265001060	0.87	11.1	601	3.36	0.12	0.23	0.92
Lawn Mower	2	16	B	500	B	64%	A2265004045	0.85	9.60	348	2.09	0.05	0.25	0.92
All Terrain Vehicle	2	28.4	B	1000	B	65%	A2265001060	0.87	11.1	601	3.36	0.12	0.23	0.92
Lawn Mower	1	20	B	96	B	67%	A2265004040	0.85	7.79	700	2.81	0.110	0.22	0.92
Snow Blower	2	20	B	100	B	55%	A2265004040	0.85	7.79	700	2.81	0.110	0.22	0.92
Hand Blower (Echo)	6	2.1	B	500	B	70%	A2265004030	1.30	20	647	2.13	0.17	0.23	0.92
Weedeater (Echo)	6	2.1	B	500	B	58%	A2260004075	1.30	261	719	0.94	3.60	0.22	0.92
Chainsaw (Stihl)	4	2.1	B	40	B	92%	A2265004020	1.30	261	719	0.94	3.60	0.22	0.92
Leaf Blower	1	2.1	B	500	B	70%	A2265004030	1.30	20	647	2.13	0.17	0.23	0.92
Lawn Mower	6	20	B	200	B	55%	A2265004040	0.85	7.79	700	2.81	0.110	0.22	0.92
Riding Mower	6	16	B	520	B	64%	A2265004045	0.85	9.60	348	2.09	0.05	0.25	0.92
Leaf Blower	1	2.1	B	200	B	70%	A2265004030	1.30	20	647	2.13	0.17	0.23	0.92
Weedeater	3	2.1	B	200	B	58%	A2260004075	1.30	261	719	0.94	3.60	0.22	0.92
Lawn Mower	5	20	B	200	B	55%	A2265004040	0.85	7.79	700	2.81	0.110	0.22	0.92
Go Carts	19	6	B	500	B	49%	A2265001050	0.85	8.7	813	2.77	0.130	0.21	0.92
Toro Aerator	4	16	B	35	B	65%	A2265004075	1.09	16.45	653	2.71	0.160	0.23	0.92
Beverage Cart	1	16	B	500	B	65%	A2265001060	0.87	11.1	601	3.36	0.12	0.23	0.92
Cushman Truckster	6	8	B	500	B	65%	A2265001060	0.87	11.1	601	3.36	0.12	0.23	0.92
John Deere Sand Pro	5	8	B	555	B	64%	A2265004045	0.85	37.0	429	1.98	0.73	0.24	0.92
Club Car Utility	2	9	B	500	B	65%	A2265001060	0.87	11.1	601	3.36	0.12	0.23	0.92
Golf Carts	123	6	B	500	B	49%	A2265001050	0.85	36.9	348	2.09	0.050	0.24	0.92

Table A-20a: Gasoline Non-Road Vehicles
2011
(Continued)

Equipment Data						Emission Parameters		Emissions Factors (g/hp-hr) [4]						
Equipment Type	#	Engine Rating (Per Unit) (hp)	Model Year Base (B)/ Default (D)	Operating Time (Per unit) (hr/yr)	Source for Operating Time Base (B)/ Default (D) [1]	Load Factor [2]	SCC [3]	Brake-Specific Fuel Consumption (lb/hp-hr)	VOC	CO	NOx	PM-10	SO_2	Factor for PM10 to PM2.5 [5]
Golf Ball Retriever	2	8	B	900	B	65%	A2265001060	0.87	11.1	601	3.36	0.12	0.23	0.92
Jacobsen F-10 Mower	5	16	B	520	B	64%	A2265004045	0.85	9.60	348	2.09	0.05	0.25	0.92
Greens Mower (Kohler)	1	16	B	520	B	64%	A2265004045	0.85	9.60	348	2.09	0.05	0.25	0.92
Turf Cat Mower	1	16	B	520	B	64%	A2265004045	0.85	9.60	348	2.09	0.05	0.25	0.92
Triplex Mower	1	16	B	520	B	64%	A2265004045	0.85	9.60	348	2.09	0.05	0.25	0.92
Perkins Mower	3	16	B	520	B	64%	A2265004045	0.85	9.60	348	2.09	0.05	0.25	0.92
Tri King Mower	1	16	B	520	B	64%	A2265004045	0.85	9.60	348	2.09	0.05	0.25	0.92
John Deere 220 Mower	1	16	B	555	B	64%	A2265004045	0.85	9.60	348	2.09	0.05	0.25	0.92
John Deere Chipper	1	8	B	555	B	64%	A2265004045	0.85	9.60	348	2.09	0.05	0.25	0.92
Toro Walk Behind Mower	2	4	B	555	B	64%	A2265004045	0.85	9.60	348	2.09	0.05	0.25	0.92
Kottler Mower	1	4	B	555	B	64%	A2265004045	0.85	9.60	348	2.09	0.05	0.25	0.92
JD Walk Behind Mower	2	4	B	555	B	64%	A2265004045	0.85	9.60	348	2.09	0.05	0.25	0.92
Toro Ground Master	1	16	B	555	B	64%	A2265004045	0.85	9.60	348	2.09	0.05	0.25	0.92
Forklift (10,000 lb)	12	300	B	500	B	30%	A2265003020	0.65	2.41	86	3.5	0.070	0.15	0.92
Forklift (Clarke)	12	47	B	500	B	30%	A2265003020	0.65	2.41	86	3.5	0.070	0.15	0.92
Forklift (Caterpillar)	4	47	B	500	B	30%	A2265003020	0.65	2.41	86	3.5	0.070	0.15	0.92
All Terrain Vehicle	9	28.4	B	1000	B	65%	A2265001060	0.87	11.1	601	3.36	0.12	0.23	0.92
Lawn Mower	2	20	B	200	B	55%	A2265004040	0.85	7.79	700	2.81	0.110	0.22	0.92

Calculation of Annual Estimated Criteria Pollutant Emissions

For Table 1: Annual Estimated Emissions (lb/yr) = Engine Rating (hp) x Loading Factor (%) x Operating Time per Unit (hr/yr) x Number of Units x Emission Factor (g/hp-hr) x Conversion Factor (0.002205 lb/g)

All Tables: Annual Estimated PM-2.5 Emissions (lb/yr) = Annual Estimated PM-10 Emissions (lb/yr) x Factor for Converting PM-10 to PM-2.5

Table Notes

[1] Default operating time is obtained from EPA's NONROAD 2005c model data files.

[2] Load factor is the fraction of available power at which the engine normally operates. Source: Table 2-1, Air Emissions Inventory Guidance Document for Mobile Sources, IERA, Jan 2002.

[3] SCC obtained from Air Emissions Inventory Guidance Document For Mobile Sources at Air Force Installations, IERA, January 2002.

[4] Emission factors are obtained from Air Emissions Inventory Guidance Document For Mobile Sources at Air Force Installation, IERA, January 2002.

[5] Factor to estimate PM2.5 emissions from PM10 emissions obtained from EPA's NONROAD 2002a model data files

Table A-20b: Gasoline Non-Road Vehicles
2011

Estimated Emissions

Emissions Estimate Based on Engine Rating and Operating Time

Equipment Data						*Emission Parameters*		*Annual Estimated Emissions (lbs/yr)*					
Equipment Type	#	Engine Rating (Per Unit) (hp)	Model Year Base (B)/ Default (D)	Operating Time (Per unit) (hr/yr)	Source for Operating Time Base (B)/ Default (D) [1]	Load Factor [2]	SCC [3]	VOC	CO	NOx	PM-10	PM-2.5	SO_2
Chipper	1	8	B	50	B	64%	A2265004045	5	196	1	0	0	0
Stump Cutter	1	16	B	50	B	64%	A2265004045	11	393	2	0	0	0
Forklift (Clarke)	12	150	B	500	B	30%	A2265003020	1,435	51,016	2,084	42	38	89
Forklift (Caterpillar)	4	150	B	500	B	30%	A2265003020	478	17,005	695	14	13	30
Manlift	2	47	B	500	B	30%	A2265003020	75	2,664	109	2	2	5
Lawn Mower	4	16	B	500	B	64%	A2265004045	434	15,715	94	2	2	11
Garden Tractor	1	16	B	500	B	64%	A2265004045	418	4,843	22	8	8	3
All Terrain Vehicle	3	28.4	B	1000	B	65%	A2265001060	1,358	73,319	410	15	13	28
Lawn Mower	2	16	B	500	B	64%	A2265004045	217	7,858	47	1	1	6
All Terrain Vehicle	2	28.4	B	1000	B	65%	A2265001060	905	48,879	273	10	9	19
Lawn Mower	1	20	B	96	B	67%	A2265004040	22	1,986	8	0.3	0.3	1
Snow Blower	2	20	B	100	B	55%	A2265004040	38	3,397	14	0.5	0.5	1.1
Hand Blower (Echo)	6	2.1	B	500	B	70%	A2265004030	195	6,287	20.7	1.7	1.5	2.2
Weedeater (Echo)	6	2.1	B	500	B	58%	A2260004075	2,103	5,793	8	29	27	1.8
Chainsaw (Stihl)	4	2.1	B	40	B	92%	A2265004020	178	490	0.6	2.5	2.3	0.1
Leaf Blower	1	2.1	B	500	B	70%	A2265004030	33	1,048	3.5	0.3	0.3	0.4
Lawn Mower	6	20	B	200	B	55%	A2265004040	227	20,382	82	3.2	2.9	6
Riding Mower	6	16	B	520	B	64%	A2265004045	676	24,516	147	4	3	18
Leaf Blower	1	2.1	B	200	B	70%	A2265004030	13	419	1.4	0.1	0.1	0.1
Weedeater	3	2.1	B	200	B	58%	A2260004075	421	1,159	2	6	5	0.4
Lawn Mower	5	20	B	200	B	55%	A2265004040	189	16,985	68	2.7	2.5	5
Go Carts	19	6	B	500	B	49%	A2265001050	537	50,097	171	8	7	13
Toro Aerator	4	16	B	35	B	65%	A2265004075	53	2,097	9	0.5	0.5	0.7
Beverage Cart	1	16	B	500	B	65%	A2265001060	128	6,890	39	1	1	3
Cushman Truckster	6	8	B	500	B	65%	A2265001060	383	20,671	116	4	4	8
John Deere Sand Pro	5	8	B	555	B	64%	A2265004045	1,159	13,440	62	23	21	8
Club Car Utility	2	9	B	500	B	65%	A2265001060	144	7,752	43.3	1.5	1.4	3.0
Golf Carts	123	6	B	500	B	49%	A2265001050	14,712	138,743	833	20	18	96
Golf Ball Retriever	2	8	B	900	B	65%	A2265001060	230	12,403	69	2	2	5

Table A-20b: Gasoline Non-Road Vehicles
2011
(Continued)

Equipment Data						Emission Parameters		Annual Estimated Emissions (lbs/yr)					
Equipment Type	#	Engine Rating (Per Unit) (hp)	Model Year Base (B)/ Default (D)	Operating Time (Per unit) (hr/yr)	Source for Operating Time Base (B)/ Default (D) [1]	Load Factor [2]	SCC [3]	VOC	CO	NOx	PM-10	PM-2.5	SO_2
Jacobsen F-10 Mower	5	16	B	520	B	64%	A2265004045	564	20,430	123	3	3	15
Greens Mower (Kohler)	1	16	B	520	B	64%	A2265004045	113	4,086	25	1	1	3
Turf Cat Mower	1	16	B	520	B	64%	A2265004045	113	4,086	25	1	1	3
Triplex Mower	1	16	B	520	B	64%	A2265004045	113	4,086	25	1	1	3
Perkins Mower	3	16	B	520	B	64%	A2265004045	338	12,258	74	2	2	9
Tri King Mower	1	16	B	520	B	64%	A2265004045	113	4,086	25	1	1	3
John Deere 220 Mower	1	16	B	555	B	64%	A2265004045	120	4,361	26	1	1	3
John Deere Chipper	1	8	B	555	B	64%	A2265004045	60	2,180	13	0	0	2
Toro Walk Behind Mower	2	4	B	555	B	64%	A2265004045	60	2,180	13	0	0	2
Kottler Mower	1	4	B	555	B	64%	A2265004045	30	1,090	7	0	0	1
JD Walk Behind Mower	2	4	B	555	B	64%	A2265004045	60	2,180	13	0	0	2
Toro Ground Master	1	16	B	555	B	64%	A2265004045	120	4,361	26	1	1	3
Forklift (10,000 lb)	12	300	B	500	B	30%	A2265003020	2,870	102,031	4,167	83	77	179
Forklift (Clarke)	12	47	B	500	B	30%	A2265003020	450	15,985	653	13	12	28
Forklift (Caterpillar)	4	47	B	500	B	30%	A2265003020	150	5,328	218	4	4	9
All Terrain Vehicle	9	28.4	B	1000	B	65%	A2265001060	4,074	219,957	1,230	44	40	84
Lawn Mower	2	20	B	200	B	55%	A2265004040	76	6,794	27	1.1	1.0	2
TOTAL EMISSIONS FROM ALL GASOLINE-FIRED VEHICLES/EQUIPMENT (lbs/yr)								36,196	971,924	12,121	359	331	711
TOTAL EMISSIONS FROM ALL GASOLINE-FIRED VEHICLES/EQUIPMENT (tons/yr)								18.10	485.96	6.06	0.18	0.17	0.36
Pro-rated based on BRAC Population								4.47	119.99	1.50	0.04	0.04	0.09

Calculation of Annual Estimated Criteria Pollutant Emissions

For Table 1: Annual Estimated Emissions (lb/yr) = Engine Rating (hp) x Loading Factor (%) x Operating Time per Unit (hr/yr) x Number of Units x Emission Factor (g/hp-hr) x Conversion Factor (0.002205 lb/g)

All Tables: Annual Estimated PM-2.5 Emissions (lb/yr) = Annual Estimated PM-10 Emissions (lb/yr) x Factor for Converting PM-10 to PM-2.5

Table Notes

[1] Default operating time is obtained from EPA's NONROAD 2005c model data files.

[2] Load factor is the fraction of available power at which the engine normally operates. Source: Table 2-1, Air Emissions Inventory Guidance Document for Mobile Sources, IERA, Jan 2002.

[3] SCC obtained from Air Emissions Inventory Guidance Document For Mobile Sources at Air Force Installations, IERA, January 2002.

Table A-21a: Diesel Non-Road Vehicles
2011

Emission Factors

Emissions Estimate Based on Engine Rating and Operating Time (All Diesel-fired Equipment)

Equipment Data					*Emission Parameters*			*Emissions Factors (g/hp-hr)* [4]						
Equipment Type	#	Average Engine Rating (Per Unit) (hp)	Estimated Operating Time (Per unit) (hr/yr)	Total Operating Time (hr/yr)	Load Factor [2]	SCC [3]	Emission Factor Group	Brake-Specific Fuel Consumption (lb/hp-hr)	VOC	CO	NOx	PM-10	SO_2	Factor for PM-10 to PM-2.5 5
Loader	13	90	100	1,300	55%	A2270002066	Group 3	0.433	1.13	5.81	6.0	0.99	0.93	0.92
Excavator	3	90	750	2,250	55%	A2270002066	Group 3	0.433	1.13	5.81	6.0	0.99	0.93	0.92
Sweeper	4	90	700	2,800	68%	A2270003030	Group 2	0.4	0.28	1.43	3.8	0.33	0.77	0.92
Tractor	27	90	100	2,700	70%	A2270005015	Group 2	0.4	0.42	2.52	4.9	0.52	0.76	0.92
Tractor	13	70	40	520	55%	A2270002066	Group 3	0.481	1.13	5.81	6.0	0.99	0.93	0.92
Scraper	2	140	750	1,500	61%	A2270002048	Group 4	0.36	0.24	1.28	3.3	0.36	0.73	0.92
Soil Prep Unit	1	190	50	50	43%	A2270002045	Group 4	0.36	0.26	1.09	4.2	0.30	0.73	0.92
Trk Tank Sludge Disposal	1	220	500	500	57%	A2270002051	Group 3	0.433	0.21	1.29	3.8	0.35	0.72	0.92
Grinder	1	16	40	40	64%	A2270004045	Group 1	0.408	1.80	5.00	6.9	0.80	1.18	0.92
Roller	1	80	40	40	56%	A2270002015	Group 4	0.4	0.31	2.22	4.1	0.44	0.78	0.92
Bulldozer	5	90	100	500	55%	A2270002066	Group 3	0.433	1.13	5.81	6.0	0.99	0.93	0.92
Backhoe	4	150	100	400	55%	A2270002066	Group 3	0.433	1.13	5.81	6.0	0.99	0.93	0.92
Riding Mower	2	16	500	1,000	64%	A2270004045	Group 1	0.408	1.80	5.00	6.9	0.80	1.18	0.92
Crane	12	190	500	6,000	43%	A2270002045	Group 4	0.36	0.26	1.09	4.2	0.30	0.73	0.92
Grader	7	140	500	3,500	61%	A2270002048	Group 4	0.36	0.24	1.28	3.3	0.36	0.73	0.92
Forklifts (4K, Hyster)	25	32	1,000	25,000	30%	A2270003020	Group 3	0.481	0.24	2.69	3.3	0.45	0.80	0.92
Forklifts (6K, Hyster)	39	47	1,000	39,000	30%	A2270003020	Group 3	0.481	0.24	2.69	3.3	0.45	0.80	0.92
Forklifts (Clarke)	25	47	1,000	25,000	30%	A2270003020	Group 3	0.481	0.24	2.69	3.3	0.45	0.80	0.92
Forklifts (Wiggins)	6	47	1,000	6,000	30%	A2270003020	Group 3	0.481	0.24	2.69	3.3	0.45	0.80	0.92
Forklifts (Yale)	20	47	1,000	20,000	30%	A2270003020	Group 3	0.481	0.24	2.69	3.3	0.45	0.80	0.92
Tractor	14	70	100	1,400	55%	A2270002066	Group 3	0.481	1.13	5.81	6.0	0.99	0.93	0.92
Tractor	17	90	100	1,700	70%	A2270005015	Group 2	0.4	0.42	2.52	4.9	0.52	0.76	0.92
Crane	16	150	100	1,600	43%	A2270002045	Group 4	0.36	0.26	1.09	4.2	0.30	0.73	0.92
Truck	4	220	100	400	57%	A2270002051	Group 3	0.433	0.21	1.29	3.8	0.35	0.72	0.92
Forklifts (6K)	10	150	2,500	25,000	30%	A2270003020	Group 3	0.481	0.24	2.69	3.3	0.45	0.80	0.92
Forklifts (6K, Hyster)	6	150	2,500	15,000	30%	A2270003020	Group 3	0.481	0.24	2.69	3.3	0.45	0.80	0.92
Excavator	2	90	750	1,500	55%	A2270002066	Group 3	0.433	1.13	5.81	6.0	0.99	0.93	0.92
Grader	2	140	500	1,000	61%	A2270002048	Group 4	0.36	0.24	1.28	3.3	0.36	0.73	0.92
Sweeper	2	90	700	1,400	68%	A2270003030	Group 2	0.4	0.28	1.43	3.8	0.33	0.77	0.92
Bulldozer	1	90	500	500	55%	A2270002066	Group 3	0.433	1.13	5.81	6.0	0.99	0.93	0.92
Roller	1	80	500	500	56%	A2270002015	Group 4	0.4	0.31	2.22	4.1	0.44	0.78	0.92
Loader	1	90	500	500	55%	A2270002066	Group 3	0.433	1.13	5.81	6.0	0.99	0.93	0.92

Table A-21a: Diesel Non-Road Vehicles
2011
(Continued)

Equipment Data					Emission Parameters			Emissions Factors (g/hp-hr) [4]						
Equipment Type	#	Average Engine Rating (Per Unit) (hp)	Estimated Operating Time (Per unit) (hr/yr)	Total Operating Time (hr/yr)	Load Factor [2]	SCC [3]	Emission Factor Group	Brake-Specific Fuel Consumption (lb/hp-hr)	VOC	CO	NOx	PM-10	SO_2	Factor for PM-10 to PM-2.5 5
Crane	10	150	500	5,000	43%	A2270002045	Group 4	0.36	0.26	1.09	4.2	0.30	0.73	0.92
Loader	5	90	500	2,500	55%	A2270002066	Group 3	0.433	1.13	5.81	6.0	0.99	0.93	0.92
Excavator	3	90	500	1,500	55%	A2270002066	Group 3	0.433	1.13	5.81	6.0	0.99	0.93	0.92
Bulldozer	1	90	500	500	55%	A2270002066	Group 3	0.433	1.13	5.81	6.0	0.99	0.93	0.92
Tractor	14	90	500	7,000	70%	A2270005015	Group 2	0.4	0.42	2.52	4.9	0.52	0.76	0.92
Forklifts	38	150	500	19,000	30%	A2270003020	Group 3	0.481	0.24	2.69	3.3	0.45	0.80	0.92
Jacobsen Greens Mower	7	16	520	3,640	55%	A2270004045	Group 1	0.408	0.70	2.00	5.2	0.60	1.19	0.92
John Deere Tractor	1	5.5	312	312	55%	A2270004045	Group 1	0.408	0.80	2.50	5.5	0.60	1.19	0.92
Greensaire Mower	1	16	312	312	55%	A2270004045	Group 1	0.408	1.80	5.00	6.9	0.80	1.18	0.92
Toro Grounds Master	5	16	312	1,560	55%	A2270004045	Group 1	0.408	1.80	5.00	6.9	0.80	1.18	0.92
Jacobsen Greens Mower	1	16	520	520	55%	A2270004045	Group 1	0.408	0.70	2.00	5.2	0.60	1.19	0.92
Toro Reelmaster	3	16	520	1,560	55%	A2270004045	Group 1	0.408	1.80	5.00	6.9	0.80	1.18	0.92
Toro Freeway Mower	1	16	555	555	64%	A2270004045	Group 1	0.408	1.80	5.00	6.9	0.80	1.18	0.92
Toro Mower 6500D	1	16	555	555	64%	A2270004045	Group 1	0.408	1.80	5.00	6.9	0.80	1.18	0.92
Toro Mower 455D	2	16	555	1,110	64%	A2270004045	Group 1	0.408	1.80	5.00	6.9	0.80	1.18	0.92
Forklift (10,000 lb)	1	300	2,900	2,900	30%	A2270003020	Group 3	0.481	0.24	2.69	3.3	0.45	0.80	0.92
Forklift (6,000 lb)	1	152	900	900	30%	A2270003020	Group 3	0.481	0.24	2.69	3.3	0.45	0.80	0.92
Forklift (4,000 lb)	1	75	2,500	2,500	30%	A2270003020	Group 3	0.481	0.24	2.69	3.3	0.45	0.80	0.92
Crane	4	150	500	2,000	43%	A2270002045	Group 4	0.36	0.26	1.09	4.2	0.30	0.73	0.92
Forklifts	5	75	1,000	5,000	30%	A2270003020	Group 3	0.481	0.24	2.69	3.3	0.45	0.80	0.92
Loader	5	90	500	2,500	55%	A2270002066	Group 3	0.433	1.13	5.81	6.0	0.99	0.93	0.92
Tractor	2	90	500	1,000	70%	A2270005015	Group 2	0.4	0.42	2.52	4.9	0.52	0.76	0.92

Calculation of Annual Estimated Criteria Pollutant Emissions

For Table 1: Annual Estimated Emissions (lb/yr) = Engine Rating (hp) x Loading Factor (%) x Operating Time per Unit (hr/yr) x Number of Units x Emission Factor (g/hp-hr) x Conversion Factor (0.002205 lb/g)

All Tables: Annual Estimated PM-2.5 Emissions (lb/yr) = Annual Estimated PM-10 Emissions (lb/yr) x Factor for Converting PM-10 to PM-2.5

Table Notes

[1] Default operating time is obtained from EPA's NONROAD 2002a model data files.

[2] Load factor is the fraction of available power at which the engine normally operates. Source: Table 2-1, Air Emissions Inventory Guidance Document for Mobile Sources, IERA, Jan 2002.

[3] SCC obtained from Air Emissions Inventory Guidance Document For Mobile Sources at Air Force Installations, IERA, January 2002.

[4] Emission factors are obtained from Air Emissions Inventory Guidance Document For Mobile Sources at Air Force Installations, IERA, January 2002.

[5] Factor to estimate PM-2.5 emissions from PM-10 emissions obtained from EPA's NONROAD 2002a model data files.

Table A-21b: Diesel Non-Road Vehicles
2011

Estimated Emissions

Emissions Estimate Based on Engine Rating and Operating Time (All Diesel-fired Equipment)

Equipment Data					*Emission Parameters*			*Annual Estimated Emissions (lb/yr)*					
Equipment Type	#	Average Engine Rating (Per Unit) (hp)	Estimated Operating Time (Per unit) (hr/yr)	Total Operating Time (hr/yr)	Load Factor [2]	SCC [3]	Emission Factor Group	VOC	CO	NOx	PM-10	PM-2.5	SO_2
Loader	13	90	100	1,300	55%	A2270002066	Group 3	160	824	850	140	129	132
Excavator	3	90	750	2,250	55%	A2270002066	Group 3	278	1,427	1,471	243	224	228
Sweeper	4	90	700	2,800	68%	A2270003030	Group 2	106	540	1,451	125	115	291
Tractor	27	90	100	2,700	70%	A2270005015	Group 2	158	945	1,853	195	179	285
Tractor	13	70	40	520	55%	A2270002066	Group 3	50	256	264	44	40	41
Scraper	2	140	750	1,500	61%	A2270002048	Group 4	68	362	938	102	94	206
Soil Prep Unit	1	190	50	50	43%	A2270002045	Group 4	2	10	38	3	2	7
Trk Tank Sludge Disposal	1	220	500	500	57%	A2270002051	Group 3	29	178	531	48	45	100
Grinder	1	16	40	40	64%	A2270004045	Group 1	2	5	6	1	1	1
Roller	1	80	40	40	56%	A2270002015	Group 4	1	9	16	2	2	3
Bulldozer	5	90	100	500	55%	A2270002066	Group 3	62	317	327	54	50	51
Backhoe	4	150	100	400	55%	A2270002066	Group 3	82	423	436	72	66	68
Riding Mower	2	16	500	1,000	64%	A2270004045	Group 1	41	113	156	18	17	27
Crane	12	190	500	6,000	43%	A2270002045	Group 4	281	1,178	4,507	324	298	789
Grader	7	140	500	3,500	61%	A2270002048	Group 4	158	844	2,188	237	218	481
Forklifts (4K, Hyster)	25	32	1,000	25,000	30%	A2270003020	Group 3	127	1,424	1,746	238	219	423
Forklifts (6K, Hyster)	39	47	1,000	39,000	30%	A2270003020	Group 3	291	3,262	4,001	546	502	970
Forklifts (Clarke)	25	47	1,000	25,000	30%	A2270003020	Group 3	187	2,091	2,565	350	322	622
Forklifts (Wiggins)	6	47	1,000	6,000	30%	A2270003020	Group 3	45	502	616	84	77	149
Forklifts (Yale)	20	47	1,000	20,000	30%	A2270003020	Group 3	149	1,673	2,052	280	257	497
Tractor	14	70	100	1,400	55%	A2270002066	Group 3	134	691	712	118	108	111
Tractor	17	90	100	1,700	70%	A2270005015	Group 2	99	595	1,167	123	113	179
Crane	16	150	100	1,600	43%	A2270002045	Group 4	59	248	949	68	63	166
Truck	4	220	100	400	57%	A2270002051	Group 3	23	143	425	39	36	80
Forklifts (6K)	10	150	2,500	25,000	30%	A2270003020	Group 3	595	6,673	8,186	1,116	1,027	1,985
Forklifts (6K, Hyster)	6	150	2,500	15,000	30%	A2270003020	Group 3	357	4,004	4,912	670	616	1,191
Excavator	2	90	750	1,500	55%	A2270002066	Group 3	185	951	981	162	149	152
Grader	2	140	500	1,000	61%	A2270002048	Group 4	45	241	625	68	62	137
Sweeper	2	90	700	1,400	68%	A2270003030	Group 2	53	270	725	62	57	145
Bulldozer	1	90	500	500	55%	A2270002066	Group 3	62	317	327	54	50	51
Roller	1	80	500	500	56%	A2270002015	Group 4	15	110	200	22	20	39
Loader	1	90	500	500	55%	A2270002066	Group 3	62	317	327	54	50	51

Table A-21b: Diesel Non-Road Vehicles
2011
(Continued)

Equipment Data					Emission Parameters			Annual Estimated Emissions (lb/yr)					
Equipment Type	#	Average Engine Rating (Per Unit) (hp)	Estimated Operating Time (Per unit) (hr/yr)	Total Operating Time (hr/yr)	Load Factor [2]	SCC [3]	Emission Factor Group	VOC	CO	NOx	PM-10	PM-2.5	SO_2
Crane	10	150	500	5,000	43%	A2270002045	Group 4	185	775	2,965	213	196	519
Loader	5	90	500	2,500	55%	A2270002066	Group 3	308	1,585	1,634	270	249	254
Excavator	3	90	500	1,500	55%	A2270002066	Group 3	185	951	981	162	149	152
Bulldozer	1	90	500	500	55%	A2270002066	Group 3	62	317	327	54	50	51
Tractor	14	90	500	7,000	70%	A2270005015	Group 2	408	2,450	4,804	506	465	739
Forklifts	38	150	500	19,000	30%	A2270003020	Group 3	452	5,071	6,221	848	781	1,508
Jacobsen Greens Mower	7	16	520	3,640	55%	A2270004045	Group 1	49	141	367	42	39	84
John Deere Tractor	1	5.5	312	312	55%	A2270004045	Group 1	2	5	11	1	1	2
Greensaire Mower	1	16	312	312	55%	A2270004045	Group 1	11	30	42	5	4	7
Toro Grounds Master	5	16	312	1,560	55%	A2270004045	Group 1	54	151	209	24	22	36
Jacobsen Greens Mower	1	16	520	520	55%	A2270004045	Group 1	7	20	52	6	6	12
Toro Reelmaster	3	16	520	1,560	55%	A2270004045	Group 1	54	151	209	24	22	36
Toro Freeway Mower	1	16	555	555	64%	A2270004045	Group 1	23	63	86	10	9	15
Toro Mower 6500D	1	16	555	555	64%	A2270004045	Group 1	23	63	86	10	9	15
Toro Mower 455D	2	16	555	1,110	64%	A2270004045	Group 1	45	125	173	20	18	30
Forklift (10,000 lb)	1	300	2,900	2,900	30%	A2270003020	Group 3	138	1,548	1,899	259	238	460
Forklift (6,000 lb)	1	152	900	900	30%	A2270003020	Group 3	22	243	299	41	37	72
Forklift (4,000 lb)	1	75	2,500	2,500	30%	A2270003020	Group 3	30	334	409	56	51	99
Crane	4	150	500	2,000	43%	A2270002045	Group 4	74	310	1,186	85	79	208
Forklifts	5	75	1,000	5,000	30%	A2270003020	Group 3	60	667	819	112	103	198
Loader	5	90	500	2,500	55%	A2270002066	Group 3	308	1,585	1,634	270	249	254
Tractor	2	90	500	1,000	70%	A2270005015	Group 2	58	350	686	72	66	106
TOTAL EMISSIONS (lbs/yr)								6,475	47,738	70,281	8,710	8,013	14,430
TOTAL EMISSIONS (tons/yr)								3.24	23.87	35.14	4.35	4.01	7.21
Pro-rated based on BRAC Population								0.80	5.89	8.68	1.08	0.99	1.78

Calculation of Annual Estimated Criteria Pollutant Emissions

For Table 1: Annual Estimated Emissions (lb/yr) = Engine Rating (hp) x Loading Factor (%) x Operating Time per Unit (hr/yr) x Number of Units x Emission Factor (g/hp-hr) x Conversion Factor (0.002205 lb/g)

All Tables: Annual Estimated PM-2.5 Emissions (lb/yr) = Annual Estimated PM-10 Emissions (lb/yr) x Factor for Converting PM-10 to PM-2.5

Table Notes

[1] Default operating time is obtained from EPA's NONROAD 2002a model data files.

[2] Load factor is the fraction of available power at which the engine normally operates. Source: Table 2-1, Air Emissions Inventory Guidance Document for Mobile Sources, IERA, Jan 2002.

[3] SCC obtained from Air Emissions Inventory Guidance Document For Mobile Sources at Air Force Installations, IERA, January 2002.

Table A-22: Solvent Degreasers

Estimated Emissions for Solvent Degreasing

Location of Solvent Degreasers	Solvent Removed as Waste	Solvent Used/Emitted	VOC Losses	VOC Losses	Prorated VOC Losses based on 2011 BRAC population
	(lb/year)	(lb/yr)	(lb/yr)	(tons/yr)	(tons/yr)
APG Total:	29,928	1,575	1,575	0.7875	0.2

Assumptions:

95% of total solvent supplied was removed as waste
100% of solvent used is emitted as VOCs.
60% of emissions from the Aberdeen Area and 40% from the Edgewood Area

Table A-23: Generators

Estimated Emissions for Generators (< 600 HP) from Ft. Monmouth

Number of Units	Generator Rating		Fuel Type	Fuel Usage	Run Time	Annual Power Output	Criteria Pollutant Emissions					
							CO	NOx	PM-10	PM-2.5	SOx	VOC
	(kw)	(hp)		(gal/yr)	(hr/yr)**	(hp-hr/yr)	(lb/yr)	(lb/yr)	(lb/yr)	(lb/yr)	(lb/yr)	(lb/yr)
1	60	91.9	Diesel Fuel	585,000	100	9,189	61.4	284.8	20.2	20.2	18.8	23.0
1	60	91.9	Diesel Fuel	585,000	100	9,189	61.4	284.8	20.2	20.2	18.8	23.0
1	10	15.3	NG	97,500	100	1,531	10.2	47.5	3.4	3.4	3.1	3.8
1	30	45.9	Diesel Fuel	293,000	100	4,594	30.7	142.4	10.1	10.1	9.4	11.5
1	70	107.2	NG	683,000	100	10,720	71.6	332.3	23.6	23.6	22.0	26.8
1	17.5	26.8	Diesel Fuel	171,000	100	2,680	17.9	83.1	5.9	5.9	5.5	6.7
1	30	45.9	Diesel	293,000	100	4,594	30.7	142.4	10.1	10.1	9.4	11.5
1	17.5	26.8	Diesel	171,000	100	2,680	17.9	83.1	5.9	5.9	5.5	6.7
1	200	306.3	Diesel	585,000	100	30,629	204.6	949.5	67.4	67.4	62.8	76.6
1	60	91.9	Diesel	585,000	100	9,189	61.4	284.8	20.2	20.2	18.8	23.0
1	17.5	26.8	Diesel	171,000	100	2,680	17.9	83.1	5.9	5.9	5.5	6.7
1	17.5	26.8	Diesel	171,000	100	2,680	17.9	83.1	5.9	5.9	5.5	6.7
1	20	30.6	NG	195,000	100	3,063	20.5	94.9	6.7	6.7	6.3	7.7
1	45	68.9	Diesel	439,000	100	6,891	46.0	213.6	15.2	15.2	14.1	17.2
1	75	114.9	Diesel	731,000	100	11,486	76.7	356.1	25.3	25.3	23.5	28.7
1	60	91.9	NG	585,000	100	9,189	61.4	284.8	20.2	20.2	18.8	23.0
1	60	91.9	NG		100	9,189	61.4	284.8	20.2	20.2	18.8	23.0
1	60	91.9	Diesel Fuel	293,000	100	9,189	61.4	284.8	20.2	20.2	18.8	23.0
1	60	91.9	NG		100	9,189	61.4	284.8	20.2	20.2	18.8	23.0
1	30	45.9	Diesel	293,000	100	4,594	30.7	142.4	10.1	10.1	9.4	11.5
1	60	91.9	NG		100	9,189	61.4	284.8	20.2	20.2	18.8	23.0
1	60	91.9	NG		100	9,189	61.4	284.8	20.2	20.2	18.8	23.0
1	100	153.1	Diesel Fuel	975,000	100	15,314	102.3	474.7	33.7	33.7	31.4	38.3
1	280	428.8	NG	2,682,000	100	42,880	286.4	1329.3	94.3	94.3	87.9	107.2
1	180	275.7	NG	1,755,000	100	27,566	184.1	854.5	60.6	60.6	56.5	68.9
1	50	76.6	NG		100	7,657	51.1	237.4	16.8	16.8	15.7	19.1
1	30	45.9	Diesel Fuel	293,000	100	4,594	30.7	142.4	10.1	10.1	9.4	11.5
1		383.0	NG		100	38,300	255.8	1187.3	84.3	84.3	78.5	95.8
1	100	153.1	Diesel	975,000	100	15,314	102.3	474.7	33.7	33.7	31.4	38.3
1	1.75	2.7	Diesel	N/A	100	268	1.8	8.3	0.6	0.6	0.5	0.7
1	1.75	2.7	Diesel	N/A	100	268	1.8	8.3	0.6	0.6	0.5	0.7
1	80	122.5	NG		100	12,251	81.8	379.8	27.0	27.0	25.1	30.6

Table A-23: Generators

(Continued)

Number of Units	Generator Rating		Fuel Type	Fuel Usage	Run Time	Annual Power Output	Criteria Pollutant Emissions					
							CO	NOx	PM-10	PM-2.5	SOx	VOC
	(kw)	(hp)		(gal/yr)	(hr/yr)**	(hp-hr/yr)	(lb/yr)	(lb/yr)	(lb/yr)	(lb/yr)	(lb/yr)	(lb/yr)
1	100	153.1	Diesel Fuel	N/A	100	15,314	102.3	474.7	33.7	33.7	31.4	38.3
1	100	153.1	Diesel	N/A	100	15,314	102.3	474.7	33.7	33.7	31.4	38.3
1	500	765.7	Diesel		100	76,571	511.5	2373.7	168.5	168.5	157.0	191.4
1	250	382.9	NG		100	38,286	255.7	1186.9	84.2	84.2	78.5	95.7
1	45	68.9	Diesel Fuel	439,000	100	6,891	46.0	213.6	15.2	15.2	14.1	17.2
1	20	30.6	Diesel Fuel		100	3,063	20.5	94.9	6.7	6.7	6.3	7.7
1	60	91.9	NG	585,000	100	9,189	61.4	284.8	20.2	20.2	18.8	23.0
1	395	604.9	NG	3,901,000	100	60,491	404.1	1875.2	133.1	133.1	124.0	151.2
1		247.0	Diesel Fuel		100	24,700	165.0	765.7	54.3	54.3	50.6	61.8
1		247.0	Diesel		100	24,700	165.0	765.7	54.3	54.3	50.6	61.8
1	15	23.0			100	2,297	15.3	71.2	5.1	5.1	4.7	5.7
1	75	114.9	Diesel	731,000	100	11,486	76.7	356.1	25.3	25.3	23.5	28.7
1	125	191.4	Diesel	1,219,000	100	19,143	127.9	593.4	42.1	42.1	39.2	47.9
1	10	15.3			100	1,531	10.2	47.5	3.4	3.4	3.1	3.8
1	53	81.2	Diesel	780,000	100	8,117	54.2	251.6	17.9	17.9	16.6	20.3
1	0	0.0			100	0	0.0	0.0	0.0	0.0	0.0	0.0
1		60.0	Diesel		100	6,000	40.1	186.0	13.2	13.2	12.3	15.0
Total:							4,402	20,430	1,450	1,450	1,351	1,648
Total (tpy):							2.20	10.21	0.72	0.72	0.68	0.82

Note: If table values are less than 0.1, value is shown as 0.0.

Assumptions:

* When no kw rating was available, a value of 129 kw was input. This is the average of all known generators.

** When fuel usage was not known, a value of 50 hours per year was input. This assumes 2 hours per month load test, and 2 hours usage per month.

Calculation of Unit Rating

Unit rating (kw) x 1.341 (hp/kw) = Unit rating (hp)

Emission Factors for Criteria Pollutants, derived from AP-42, Section 3.3. Table 3.3-1 (10/96)

Emission Factor (lb/10^3 hp-hr) x (Power Output (hp-hr/yr)/1000) = Emissions (lb/yr)

Emission Factor (lb/10^3 gal) x (Fuel Usage (gal/yr)/1000) = Emissions (lb/yr)

Table A-23: Generators

(Continued)

Diesel:

Constituent	Emission Factor ($lb/10^3$ hp-hr)	Emission Factor ($lb/10^3$ gal)
CO	6.68	130
NOx	31	604
PM-10 (1)	2.2	42.5
PM-2.5 (1)	2.2	42.5
SOx	2.05	39.7
VOC	2.5	49.3

(1) All particulate matter is assumed to be less than 1.0 micrometer in diameter (ie. the emission factor applies to Total PM, PM-10, and PM-2.5).

Gasoline:

Constituent	Emission Factor ($lb/10^3$ hp-hr)	Emission Factor ($lb/10^3$ gal)
CO	439	7900
NOx	11	205
PM-10 (1)	0.721	12.6
PM-2.5 (1)	0.721	12.6
SOx	0.591	10.6
VOC	21.6	382

(1) All particulate matter is assumed to be less than 1.0 micrometer in diameter (ie. the emission factor applies to Total PM, PM-10, and PM-2.5).

Table A-24: Estimated BRAC-related emission increases (tons/year)

Source Category	BRAC-related Cumulative increase 2009					BRAC-related Cumulative increase 2010					BRAC-related Cumulative increase 2011				
	CO	NOx	PM-2.5	SO2	VOC	CO	NOx	PM-2.5	SO2	VOC	CO	NOx	PM-2.5	SO2	VOC
Aircraft Operations	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.2	1.0	0.2	0.0	6.1
Architectural Surface Coatings	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	-0.5	0.0	0.0	0.0	0.0	2.9
Asphalt Paving Operations	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	-0.1	0.0	0.0	0.0	0.0	0.4
Chemical Usage	0.0	0.0	0.0	0.0	1.4	0.0	0.0	0.0	0.0	-0.6	0.0	0.0	0.0	0.0	3.9
Construction and Demolition – Fugitive Dust	0.0	0.0	1.9	0.0	0.0	0.0	0.0	3.6	0.0	0.0	0.0	0.0	4.5	0.0	0.0
Consumer Products	0.0	0.0	0.0	0.0	1.7	0.0	0.0	0.0	0.0	-0.8	0.0	0.0	0.0	0.0	4.8
External Combustion Sources	0.2	0.6	0.1	1.2	0.0	-0.1	-0.3	0.0	-0.6	0.0	0.5	1.8	0.2	3.6	0.0
Fire Fighter Training	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.1	0.0	0.1
Heavy Construction Operations	85.5	22.4	1.6	3.4	5.2	161.5	40.3	2.7	6.4	9.7	204.1	47.6	3.9	8.0	12.0
Non-Road Vehicles	55.7	4.2	0.4	0.7	1.6	-25.1	-2.1	-0.2	-0.3	-0.7	125.9	10.2	1.0	1.9	5.3
On-Road Vehicles	14.1	6.5	0.1	0.0	2.0	0.0	0.0	0.0	0.0	0.0	37.0	14.8	0.3	0.0	4.8
Solvent Degreasers	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
Stationary Internal Combustion Engines	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.2	10.2	0.7	0.7	0.8
Total Unregistered Sources	**155.5**	**33.8**	**4.0**	**5.3**	**13.1**	**136.4**	**37.9**	**6.1**	**5.5**	**7.0**	**376.9**	**85.7**	**10.9**	**14.1**	**41.4**
Total Permitted Sources	**2.3**	**3.5**	--	**4.5**	**0.9**	**-1.1**	**-1.6**	--	**-2.1**	**-0.4**	**6.6**	**10.1**	--	**12.9**	**2.4**
Total All Sources	**157.8**	**37.3**	**4.0**	**9.8**	**13.9**	**135.3**	**36.3**	**6.1**	**3.4**	**6.6**	**383.5**	**95.8**	**10.9**	**27.1**	**43.9**
Indirect Emissions	137.5	60.0	1.0	0.0	12.2	0.0	0.0	0.0	0.0	0.0	345.8	128.5	2.1	0.0	28.9
TOTAL	295.3	97.3	5.0	9.8	26.1	135.3	36.3	6.1	3.4	6.6	729.3	224.3	13.0	27.1	72.8

Appendix B
Mobile Source Emission Inventory

Note

This Appendix presents estimates of emissions from mobile sources, i.e., vehicular traffic associated with BRAC. The portion of mobile source emissions that occurs on post is included in direct emissions described in Appendix A, Section 12. The portion of mobile source emissions that occurs off post is included in indirect emissions.

General Conformity Analysis for BRAC Related APG Expansion Mobile Source Emissions Inventory

A. INTRODUCTION

The Aberdeen Proving Ground military post (APG) in Maryland is proposed to undergo expansion as a result of the base realignment and closure (BRAC) process undertaken by the Department of Defense. This Federal action has the potential to result in a substantial increase in the emission of criteria pollutants or precursors in the Baltimore Region non-attainment area, which are currently controlled under Maryland state implementation or maintenance plans. Therefore, an emissions inventory has been prepared as a conformity analysis according to the Clean Air Act (CAA) regulations Title 40 Part 93, in order to determine if a conformity determination is required. If the overall predicted emissions increment due to the federal action exceed the de minimis rates defined in the section 93.153, the Department of Defense would be required to make a conformity determination in order to prevent the air quality impacts of the action from causing or contributing to a violation of the national ambient air quality standards (NAAQS) or interfering with the purpose of a State implementation plan (SIP).

B. METHODOLOGY

The following sections describe the methodology for modeling predicted increments in pollutant emissions from the BRAC related vehicular trips.

POLLUTANTS FOR ANALYSIS

APG is within the Baltimore Region, MD, determined by the Environmental Protection Agency (EPA) to be a Moderate Non-Attainment Area for 8-hour ozone, Attainment Maintenance Area for carbon monoxide (CO), and Non-Attainment Area for fine particulate matter smaller than 2.5 micrometers in diameter ($PM_{2.5}$). There is an active ozone SIP and CO maintenance plan; a $PM_{2.5}$ SIP is currently being prepared by the State and is due in April 2008. Therefore, the analysis included ozone precursors—volatile organic compounds (VOC) and nitrogen oxides (nitrogen dioxide and nitrogen oxide combined, NO_x), which are also $PM_{2.5}$ precursors, CO and $PM_{2.5}$; PM_{10} was included as well, for completeness of the particulate matter inventory. Sulfur dioxide, which can be a $PM_{2.5}$ precursor, was not included since the federal regulation of fuel sulfur content both in gasoline and in diesel fuels for on-road sources renders the mobile-source emission of this pollutant negligible. The regulations do not require the analysis of ammonia, which is also a precursor to $PM_{2.5}$, unless the State or EPA has made a finding that they significantly contribute to the $PM_{2.5}$ problem in a given area or to other downwind air quality concerns.

The Baltimore Region is in attainment and not in maintenance for any of the other criteria pollutants—SO_2, NO_2, lead. Therefore, no inventories were prepared for these pollutants.

INVENTORY YEARS

The inventory includes all years leading up to the year in which the project will be at full capacity—2009 through 2011. In addition, 2015 was analyzed since it is a target year for the CO maintenance plan, and 2020 and 2030 were included since these years are target years used for the region-wide transportation conformity analysis performed by the Baltimore Metropolitan Council (BMC), which is the metropolitan planning organization responsible for transportation conformity for SIP purposes.

EMISSION FACTOR MODELING

Emission factors, i.e., unitary emission rates per vehicle by year, vehicle type, and roadway class, were obtained by running the EPA mobile source emissions model, Mobile6.2, using inputs specific to Harford County which were supplied by BMC in March, 2004. Baltimore Region files were supplied and run as well, but since the actual trips would be the same vehicles regardless of their origin or destination, and since the results for specific roadway class and vehicle types were negligibly different, the Harford County factors were used for all trip segments.

ANNUAL MILEAGE ESTIMATES

The increment in vehicle miles traveled (VMT) within each non-attainment area were estimated, based on the latest traffic data available. It was assumed that BRAC traffic would have the same characteristics as the existing APG traffic, and that the increment would be relative to the population increment.

Trips to APG, including commuters and deliveries, were estimated based on 2004 gate-entry counts at all APG gates, assuming a return trip for each entry, by multiplying the total entries by the ratio of the BRAC growth for each target year to the total 2004 base population. The distribution of vehicle types and travel distances (based on origins/destinations) was based on the distribution for trips to/from the county supplied by BMC in March 2004. For trips that would leave the Baltimore region, which is the boundary of the BMC traffic model, destinations were assumed and the additional mileage added to the trip within the appropriate non-attainment area.

Total mileage for each year within each non-attainment area by vehicle type and roadway class were then obtained by multiplying the number of trips by the fraction of trips to each destination for each vehicle type, and the mileage within each area for each roadway class.

In addition, mileage increments within the APG area were estimated based on the 2002 on-post mileage (*APG Air Emissions Summary*, 2002) by multiplying the mileage for each vehicle type by the ratio of the BRAC growth for each target year to the total 2002 base population. All on-base trips would be on local roadways.

TOTAL ANNUAL EMISSION RATES

Total annual emission rates were calculated by multiplying the annual mileage estimates for each area, roadway class, and vehicle type by the appropriate emission factor.

C. RESULTS

Off-post, on-post, and total emissions are presented in Tables 1, 2, and 3 respectively. Since APG is in the Baltimore Region non-attainment area, on-post and total emissions are presented only for that area. For all other non-attainment areas where vehicle trips may increase due to the BRAC action, the total increment would be that presented in Table 1.

Since a population decrease is expected in 2010 due to BRAC related construction, trips and ensuing emission would be expected to decrease. This analysis conservatively assumes that there would be no decrease in populations, and therefore there would be no change in mobile source emissions in 2010.

Table 1
Off-Post Emissions by Non-Attainment Area
(tons per year)

NAA	Year	VOC	NO_x	CO	$PM_{2.5}$	PM_{10}
Baltimore Region	2009	12.2258	59.9699	137.50	0.9597	1.4336
	2010	Assume No Growth				
	2011	28.904	128.54	345.81	2.1153	3.4019
	2015	20.962	69.115	285.27	1.4011	2.6012
	2020	17.105	35.254	264.45	1.1654	2.3497
	2030	13.115	16.902	237.81	0.9999	2.1287
Washington DC	2009	0.4099	2.8219	5.2513	0.0387	0.0566
	2010	Assume No Growth				
	2011	0.9754	6.0200	13.195	0.0843	0.1326
	2015	0.7108	3.1937	10.860	0.0541	0.0988
	2020	0.5521	1.6337	9.7838	0.0433	0.0863
	2030	0.5043	0.8315	11.051	0.0378	0.0802
Kent and Queen Anne's	2009	0.0055	0.0567	0.0656	0.0007	0.001
	2010	Assume No Growth				
	2011	0.0132	0.1206	0.1641	0.0016	0.0023
	2015	0.0098	0.0631	0.1347	0.0009	0.0016
	2020	0.0098	0.0361	0.1608	0.0007	0.0013
	2030	0.0109	0.0183	0.2298	0.0006	0.0012
Pennsylvania (PA) (total, any non-attainment area)	2009	0.1236	0.5211	1.693	0.0077	0.0123
	2010	Assume No Growth				
	2011	0.2923	1.1198	4.2675	0.0177	0.0304
	2015	0.21	0.6088	3.5161	0.0128	0.0249
	2020	0.1826	0.3556	3.5823	0.011	0.0229
	2030	0.1635	0.2142	3.9408	0.0101	0.0218
Philadelphia	2009	0.6851	4.2421	8.7455	0.0594	0.088
	2010	Assume No Growth				
	2011	1.6278	9.0659	22.003	0.1304	0.2082
	2015	1.1829	4.8289	18.121	0.0855	0.1578
	2020	0.956	2.6332	16.897	0.0692	0.1391
	2030	0.8305	1.3926	17.671	0.061	0.1299
Washington Co.	2009	0.0044	0.0482	0.0471	0.0007	0.0009

	2010	Assume No Growth				
	2011	0.0105	0.1025	0.1172	0.0014	0.002
	2015	0.0079	0.0536	0.096	0.0008	0.0013
	2020	0.0073	0.0289	0.1035	0.0006	0.0011
	2030	0.0082	0.0146	0.1488	0.0005	0.001

Notes: 2010 population is predicted to decrease temporarily due to BRAC construction, which would result in decreased emissions. It is conservatively assumed here that there would be no change in emissions.

Since very minor increments could occur in PA to unknown destinations, all PA trips were combined and could occur in any non-attainment area in PA.

Table 2
On-Post Emissions
(tons per year)

Year	VOC	NO_x	CO	$PM_{2.5}$	PM_{10}
2009	2.0	6.5	14.1	0.1	0.2
2010	Assume No Growth				
2011	4.8	14.8	37.0	0.3	0.4
2015	3.6	8.1	31.3	0.2	0.3
2020	2.9	4.1	29.1	0.1	0.2
2030	2.4	1.9	27.8	0.1	0.2

Notes: 2010 population is predicted to decrease temporarily due to BRAC construction, which would result in decreased emissions. It is conservatively assumed here that there would be no change in emissions.

Table 3
Baltimore Region Non-Attainment Area Total Mobile Source Emissions
(tons per year)

Year	VOC	NO_x	CO	$PM_{2.5}$	PM_{10}
2009	14.2	66.5	151.6	1.1	1.6
2010	Assume No Growth				
2011	33.7	143.3	382.8	2.4	3.8
2015	24.6	77.2	316.6	1.6	2.9
2020	20.0	39.4	293.5	1.3	2.6
2030	15.6	18.8	265.6	1.1	2.4

Notes: 2010 population is predicted to decrease temporarily due to BRAC construction, which would result in decreased emissions. It is conservatively assumed here that there would be no change in emissions.

The emissions predicted in the Baltimore Region non-attainment area, presented in Table 3, represent the mobile source portion of the BRAC emissions inventory for conformity analysis. The predicted emissions in other non-attainment areas, presented in Table 1, would be the total emissions in those areas since BRAC would have no other activity in these areas.

The general conformity regulations define de minimis levels of 50 tons of VOC, 100 tons of NO_x, 100 tons of CO, and 100 tons of $PM_{2.5}$ or any of its precursors per year. If these levels are exceeded, the lead federal agency for the project would be required to prepare a conformity

determination. These levels were not exceeded in any non-attainment area other than Baltimore Region.

D. CONCLUSIONS

The total predicted annual emission rates in all non-attainment areas other than the Baltimore Region area are lower than the applicable de minimis rates which would require a general conformity determination. Since there would be no other emissions in those non-attainment areas resulting from the BRAC action, the results presented in Table 1 represent the total predicted emissions in those areas and no further analysis or determination would be required for those areas. The emissions within the Baltimore Region non-attainment area, presented in Table 3 above, can be added to the direct (stationary source) on-post emissions for a complete conformity analysis inventory. ✳

Mobile Source Emissions Summary

AKRF

Aberdeen Proving Ground
BRAC Expansion Indirect Emissions Increment

The following spreadsheet includes the calculation of indirect emissions from BRAC expansion of APG due to on-road vehicular trips.

TABLE OF CONTENTS

Tab name	Content
2009 / 2010 / 2011 / 2015 / 2020 / 2030	One-way distances by destination, and total project daily and annual emissions increment by year (each tab is one target year).
MOBILE6 EFs	Vehicular emission factors from Mobile6.2 model runs (based on BMC input files).
Gates and On-Post Miles	Traffic survey data (2004) -- vehicle entry counts by gate, and projected future daily trips; On-Post mileage estimate; GOV mileage estimate.
APG Population	APG population data and projections.
Destination Distribution	Distribution of APG trip destinations/origins (from BMC model).
Baltimore Distances	Trip distances within the Baltimore Metropolitan Area (from BMC model).
External Distances	Trip distances outside of the Baltimore Metropolitan Area -- excludes DC, PA, and trips to/via Cecil County (AKRF estimate).
DC PA and Philly Distances	Trip distances outside of the Baltimore Metropolitan Area -- DC, PA, and trips to/via Cecil County (AKRF estimate).
On-Base Emissions	On-base emissions calculation by trip type and year.

PROCESS

All trip distances estimates are made for one-way trips (yellow tabs).

The distribution of trips by destination and vehicle type was provided by BMC.

The number of trips from the Edgewood and Aberdeen areas of the base were estimated by using the existing counts from DLES 2004 and taking the proportion of trips based on the ratio of BRAC-growth population by year to the 2004 population (light blue tabs).

One-way emissions by destination within each NAA are obtained by multiplying the one-way trip distance by the appropriate emissions factor for each roadway class and vehicle type, multiplying by the fraction of the trips per destination and vehicle type, and by the total trips for each base area. Total annual emissions are obtained by summing all segments by non-attainment area (NAA) and multiplying by 2 (for return trip) and by 365 days per year. (orange tabs by year).

On-base emissions were calculated by multiplying distance for each trip type and vehicle type by the number of trips and the appropriate emission factor.

RESULTS SUMMARY

Off-Post Emissions by non-attainment area (tpy)

NAA	Year	VOC	NOx	CO	$PM_{2.5}$	PM_{10}
Baltimore	2009	12.2258	59.9699	137.504	0.9597	1.43357
	2010	Assume No Growth				
	2011	28.9038	128.539	345.812	2.11531	3.40193
	2015	20.9621	69.1148	285.274	1.40114	2.60121
	2020	17.1052	35.2536	264.453	1.16538	2.34975
	2030	13.1154	16.9015	237.813	0.99991	2.12872
Washington DC	2009	0.40997	2.82186	5.25134	0.0387	0.0566
	2010	Assume No Growth				
	2011	0.97541	6.02004	13.1949	0.08428	0.13265
	2015	0.71084	3.19372	10.86	0.05413	0.09884
	2020	0.55208	1.63366	9.78378	0.04327	0.08632
	2030	0.50427	0.83154	11.0507	0.0378	0.08023
Kent and Queen Anne's	2009	0.00549	0.05675	0.06563	0.00075	0.00104
	2010	Assume No Growth				
	2011	0.01318	0.1206	0.16405	0.00157	0.00234
	2015	0.00978	0.06315	0.1347	0.00093	0.00161
	2020	0.00981	0.03609	0.16077	0.0007	0.00135
	2030	0.01087	0.01834	0.22979	0.00058	0.00122
PA	2009	0.12363	0.52106	1.693	0.00769	0.01228
	2010	Assume No Growth				
	2011	0.29228	1.11975	4.26749	0.01769	0.03036
	2015	0.20998	0.60882	3.51608	0.01284	0.02492
	2020	0.18264	0.35558	3.5823	0.01105	0.02286
	2030	0.16353	0.21415	3.94076	0.01014	0.02185
Philadelphia	2009	0.68512	4.24214	8.74546	0.05938	0.08803
	2010	Assume No Growth				
	2011	1.62779	9.06588	22.003	0.13044	0.20821
	2015	1.18289	4.82898	18.1207	0.08548	0.15779
	2020	0.95605	2.63323	16.8975	0.06923	0.13906
	2030	0.83049	1.39263	17.6711	0.06104	0.12994
Washington Co.	2009	0.00436	0.04824	0.04707	0.00066	0.0009
	2010	Assume No Growth				
	2011	0.0105	0.10253	0.11721	0.00138	0.002
	2015	0.00788	0.05357	0.096	0.00079	0.00134
	2020	0.00728	0.02893	0.10351	0.00058	0.00109
	2030	0.00817	0.01459	0.14881	0.00047	0.00098

On-Post Emissions (tpy)

Year	VOC	NOx	CO	$PM_{2.5}$	PM_{10}
2009	2.0	6.5	14.1	0.1	0.2
2010	Assume No Growth				
2011	4.8	14.8	37.0	0.3	0.4
2015	3.6	8.1	31.3	0.2	0.3
2020	2.9	4.1	29.1	0.1	0.2
2030	2.4	1.9	27.8	0.1	0.2

Total Mobile Source Emissions within Baltimore NAA (tpy)

Year	VOC	NOx	CO	$PM_{2.5}$	PM_{10}
2009	14.2	66.5	151.6	1.1	1.6
2010	Assume No Growth				
2011	33.7	143.3	382.8	2.4	3.8
2015	24.6	77.2	316.6	1.6	2.9
2020	20.0	39.4	293.5	1.3	2.6
2030	15.6	18.8	265.6	1.1	2.4

Construction Trips

Year	Daily Trips		Emissions (g/day)			Emissions (ton/year)		
	Worker / contractor	Heavy trucks	VOC	NO_x	CO	VOC	NO_x	CO
2007	50	3	1233	1548	14529	0.001	0.002	0.016
2008	75	5	1854	2400	21828	0.002	0.003	0.024
2009	100.0	7.0	2475	3252	29126	0.003	0.004	0.032
2010	125.0	8.0	2790	3483	34125	0.003	0.004	0.038
2011	150.0	10.0	3039	3756	38772	0.003	0.004	0.043
2015	0.0	0.0	0	0	0	0.000	0.000	0.000
2020	0.0	0.0	0	0	0	0.000	0.000	0.000
2030	0.0	0.0	0	0	0	0.000	0.000	0.000

Trip Distances (miles)

	Freeway	Arterial	Local
Commuter	11.9	9.8	2.4
Truck	5.4	4.5	0.6

Non-Government Owned Vehicle Trips

Year	On-Base Emissions (tons per year)				
	VOC	NO_x	CO	$PM_{2.5}$	PM_{10}
2009	1.5	5.2	10.1	0.1	0.1
2010	Assume No Growth				
2011	3.8	11.8	26.7	0.2	0.3
2015	2.8	6.3	22.3	0.1	0.2
2020	2.3	3.2	20.7	0.1	0.2
2030	1.9	1.5	19.7	0.1	0.2

Government Owned Vehicles (Aberdeen and Edgwood)

Vehicle Type	Number of Vehcles	2002 Baseline On-Base Annual Mileage
HDDBS	3	4,324
HDDBT	17	390,606
HDDV	142	421,979
HDGV *	367	1,539,682
LDDT	0	0
LDGT12	123	921,066
LDGT34	195	1,031,770
LDGV *	74	769,500

* Natural gas (NG) vehicles were conservatively assumed to have the same emissions as the normal fuel fleet, since Mobile6 does not yet provide separate factors for NG vehicles, and since the continued fraction of NG vehicles in the future fleet is unclear.

Year	On-Base Emissions (tons per year)				
	VOC	NOx	CO	$PM_{2.5}$	PM_{10}
2009	0.5	1.3	4.0	0.02	0.03
2010	Assume No Growth				
2011	1.1	2.9	10.2	0.05	0.07
2015	0.8	1.7	8.9	0.03	0.05
2020	0.6	0.9	8.4	0.03	0.05
2030	0.5	0.4	8.0	0.02	0.04

NAA	Destination	Commuter Trip Distance from APG Within Each NAA by Destination (miles)						Truck Trip Distance from APG Within Each NAA by Destination (miles)						Trip Emissions (one-way g/day)				
		Aberdeen			Edgwood			Aberdeen			Edgwood							
		Freeway	Arterial	Local	Freeway	Arterial	Local	Freeway	Arterial	Local	Freeway	Arterial	Local	VOC	NOx	CO	$PM_{2.5}$	PM_{10}
Baltimore	Southern MD	60.7	2.0	1.0	53.3	2.0	1.0	60.7	2.0	1.0	53.3	2.0	1.0	88	149	1,431	6	13
	Northern Vir	53.1	2.0	1.0	45.8	2.0	1.0	53.1	2.0	1.0	45.8	2.0	1.0	340	342	8,635	18	35
	Vir/West Vir	69.3	2.0	1.0	62.0	2.0	1.0	69.3	2.0	1.0	62.0	2.0	1.0	24	56	490	2	4
	Washington Co.	69.3	2.0	1.0	62.0	2.0	1.0	69.3	2.0	1.0	62.0	2.0	1.0	59	128	1,255	4	8
	Penn	36.9	2.0	1.0	32.4	2.0	1.0	36.9	2.0	1.0	32.4	2.0	1.0	166	216	3,969	10	22
	Cecil, Wilmington, or Philadelphia	9.6	2.0	1.0	18.0	2.0	1.0	9.6	2.0	1.0	18.0	2.0	1.0	634	989	12,732	45	95
	Bay Bridge	66.5	2.0	1.0	59.1	2.0	1.0	66.5	2.0	1.0	59.1	2.0	1.0	41	75	926	2	5
	DC	53.2	2.0	1.0	46.0	2.0	1.0	53.2	2.0	1.0	46.0	2.0	1.0	124	269	2,608	15	31
	Wash. MD subs.	58.5	2.0	1.0	51.2	2.0	1.0	58.5	2.0	1.0	51.2	2.0	1.0	708	1,497	14,981	67	141
	Baltimore Region	10.0	10.0	2.9	10.0	10.0	2.9	4.9	5.0	0.9	4.9	5.0	0.9	14,135	17,284	248,509	1,076	2,292
Washington DC	Southern MD	36.5	2.0	1.0	36.5	2.0	1.0	36.5	2.0	1.0	36.5	2.0	1.0	43	92	891	4	6
	Northern Vir	33.5	2.0	1.0	33.5	2.0	1.0	33.5	2.0	1.0	33.5	2.0	1.0	225	223	5,628	11	23
	Vir/West Vir	39.7	2.0	1.0	39.7	2.0	1.0	39.7	2.0	1.0	39.7	2.0	1.0	14	33	290	1	3
	Washington Co.	29.4			29.4			29.4			29.4			24	53	516	2	3
	Penn																	
	Cecil, Wilmington, or Philadelphia																	
	Bay Bridge																	
	DC	15.1	2.0	1.0	15.0	2.0	1.0	15.1	2.0	1.0	15.0	2.0	1.0	43	84	833	5	10
	Wash. MD subs.	19.9	2.0	1.0	19.9	2.0	1.0	19.9	2.0	1.0	19.9	2.0	1.0	277	548	5,574	25	53
	Baltimore Region																	
Kent and Queen Anne's	Southern MD																	
	Northern Vir																	
	Vir/West Vir																	
	Washington Co.																	
	Penn																	
	Cecil, Wilmington, or Philadelphia																	
	Bay Bridge	18.6	2.0	1.0	18.6	2.0	1.0	18.6	2.0	1.0	18.6	2.0	1.0	14	23	286	1	2
	DC																	
	Wash. MD subs.																	
	Baltimore Region																	
PA	Southern MD																	
	Northern Vir																	
	Vir/West Vir																	
	Washington Co.																	
	Penn	45.8	2.0	1.0	45.8	2.0	1.0	45.8	2.0	1.0	45.8	2.0	1.0	203	266	4,897	13	27
	Cecil, Wilmington, or Philadelphia																	
	Bay Bridge																	
	DC																	
	Wash. MD subs.																	
	Baltimore Region																	
Philadelphia	Southern MD																	
	Northern Vir																	
	Vir/West Vir																	
	Washington Co.																	
	Penn																	
	Cecil, Wilmington, or Philadelphia	19.3	2.0	1.0	19.2	2.0	1.0	19.3	2.0	1.0	19.2	2.0	1.0	1,032	1,731	21,960	76	161
	Bay Bridge																	
	DC																	
	Wash. MD subs.																	
	Baltimore Region																	
Wahington Co.	Southern MD																	
	Northern Vir																	
	Vir/West Vir	2.3			2.3			2.3			2.3			1	2	15	0	0
	Washington Co.	7.0	2.0	1.0	7.0	2.0	1.0	7.0	2.0	1.0	7.0	2.0	1.0	9	16	170	1	1
	Penn																	
	Cecil, Wilmington, or Philadelphia																	
	Bay Bridge																	
	DC																	
	Wash. MD subs.																	
	Baltimore Region																	

NOTES:
1 mile of local road and two miles of arterial were added at each origin and destination.
All distances and emissions are per 1-way trip. Total annual summary applies a factor of 2 to account for round-trip.

Assumed mix of trips through Cecil County:	
Destination	Fraction
Cecil Co.	95%
Wilmington	4%
Philadelphia	1%

Baltimore region distances change by year as predicted by BMC.
Assume: outbound number of trips = inbound number of trips

Summary by NAA:

	Emissions Increase (tpy)				
NAA	VOC	NOx	CO	$PM_{2.5}$	PM_{10}
Baltimore	13.115	16.902	237.813	1.000	2.129
Washington DC	0.504	0.832	11.051	0.038	0.080
Kent and Queen Anne's	0.011	0.018	0.230	0.001	0.001
PA	0.164	0.214	3.941	0.010	0.022
Philadelphia	0.830	1.393	17.671	0.061	0.130
Washington Co.	0.008	0.015	0.149	0.000	0.001

2012 emissions are conservatively based on 2012 trips with 2010 emission factors, in order to enable comparisson with 2010 SIP emission budget.
Daily emissions are average day. Total tons per year assume 365 days per year.

2020

NAA	Destination	Commuter Trip Distance from APG Within Each NAA by Destination (miles)						Truck Trip Distance from APG Within Each NAA by Destination (miles)						Trip Emissions (one-way g/day)				
		Aberdeen			Edgwood			Aberdeen			Edgwood							
		Freeway	Arterial	Local	Freeway	Arterial	Local	Freeway	Arterial	Local	Freeway	Arterial	Local	VOC	NOx	CO	$PM_{2.5}$	PM_{10}
Baltimore	Southern MD	60.7	2.0	1.0	53.3	2.0	1.0	60.7	2.0	1.0	53.3	2.0	1.0	71	308	1,191	7	14
	Northern Vir	53.1	2.0	1.0	45.8	2.0	1.0	53.1	2.0	1.0	45.8	2.0	1.0	330	494	6,677	17	36
	Vir/West Vir	69.3	2.0	1.0	62.0	2.0	1.0	69.3	2.0	1.0	62.0	2.0	1.0	27	116	455	2	5
	Washington Co.	69.3	2.0	1.0	62.0	2.0	1.0	69.3	2.0	1.0	62.0	2.0	1.0	52	255	839	5	9
	Penn	36.9	2.0	1.0	32.4	2.0	1.0	36.9	2.0	1.0	32.4	2.0	1.0	185	358	3,607	11	23
	Cecil, Wilmington, or Philadelphia	9.6	2.0	1.0	18.0	2.0	1.0	9.6	2.0	1.0	18.0	2.0	1.0	725	1,865	12,164	51	102
	Bay Bridge	66.5	2.0	1.0	59.1	2.0	1.0	66.5	2.0	1.0	59.1	2.0	1.0	37	148	646	3	5
	DC	53.2	2.0	1.0	46.0	2.0	1.0	53.2	2.0	1.0	46.0	2.0	1.0	157	612	2,712	17	34
	Wash. MD subs.	58.5	2.0	1.0	51.2	2.0	1.0	58.5	2.0	1.0	51.2	2.0	1.0	853	3,153	15,018	78	153
	Baltimore Region	11.5	10.2	2.5	11.5	10.2	2.5	5.0	4.3	0.9	5.0	4.3	0.9	18,821	36,501	285,332	1,258	2,540
Washington DC	Southern MD	36.5	2.0	1.0	36.5	2.0	1.0	36.5	2.0	1.0	36.5	2.0	1.0	45	190.8351	742.0186	5	9
	Northern Vir	33.5	2.0	1.0	33.5	2.0	1.0	33.5	2.0	1.0	33.5	2.0	1.0	218	322	4,351	11	24
	Vir/West Vir	39.7	2.0	1.0	39.7	2.0	1.0	39.7	2.0	1.0	39.7	2.0	1.0	16	68	269	1	3
	Washington Co.	29.4			29.4			29.4			29.4			21	106	345	2	4
	Penn																	
	Cecil, Wilmington, or Philadelphia																	
	Bay Bridge																	
	DC	15.1	2.0	1.0	15.0	2.0	1.0	15.1	2.0	1.0	15.0	2.0	1.0	54	191	866	6	11
	Wash. MD subs.	19.9	2.0	1.0	19.9	2.0	1.0	19.9	2.0	1.0	19.9	2.0	1.0	333	1,153	5,585	29	57
	Baltimore Region																	
Kent and Queen Anne's	Southern MD																	
	Northern Vir																	
	Vir/West Vir																	
	Washington Co.																	
	Penn																	
	Cecil, Wilmington, or Philadelphia																	
	Bay Bridge	18.6	2.0	1.0	18.6	2.0	1.0	18.6	2.0	1.0	18.6	2.0	1.0	12	45	200	1	2
	DC																	
	Wash. MD subs.																	
	Baltimore Region																	
PA	Southern MD																	
	Northern Vir																	
	Vir/West Vir																	
	Washington Co.																	
	Penn	45.8	2.0	1.0	45.8	2.0	1.0	45.8	2.0	1.0	45.8	2.0	1.0	227	442	4,452	14	28
	Cecil, Wilmington, or Philadelphia																	
	Bay Bridge																	
	DC																	
	Wash. MD subs.																	
	Baltimore Region																	
Philadelphia	Southern MD																	
	Northern Vir																	
	Vir/West Vir																	
	Washington Co.																	
	Penn																	
	Cecil, Wilmington, or Philadelphia	19.3	2.0	1.0	19.2	2.0	1.0	19.3	2.0	1.0	19.2	2.0	1.0	1,188	3,272	20,999	86	173
	Bay Bridge																	
	DC																	
	Wash. MD subs.																	
	Baltimore Region																	
Wahington Co.	Southern MD																	
	Northern Vir																	
	Vir/West Vir	2.3			2.3			2.3			2.3			1	4	14	0	0
	Washington Co.	7.0	2.0	1.0	7.0	2.0	1.0	7.0	2.0	1.0	7.0	2.0	1.0	8	32	114	1	1
	Penn																	
	Cecil, Wilmington, or Philadelphia																	
	Bay Bridge																	
	DC																	
	Wash. MD subs.																	
	Baltimore Region																	

NOTES:
1 mile of local road and two miles of arterial were added at each origin and destination.
All distances and emissions are per 1-way trip. Total annual summary applies a factor of 2 to account for round-trip.

Assumed mix of trips through Cecil County:	
Destination	**Fraction**
Cecil Co.	95%
Wilmington	4%
Philadelphia	1%

Baltimore region distances change by year as predicted by BMC.
Assume: outbound number of trips = inbound number of trips

Summary by NAA:

	Emissions Increase (tpy)				
NAA	VOC	NOx	CO	$PM_{2.5}$	PM_{10}
Baltimore	17.105	35.254	264.453	1.165	2.350
Washington DC	0.552	1.634	9.784	0.043	0.086
Kent and Queen Anne's	0.010	0.036	0.161	0.001	0.001
PA	0.183	0.356	3.582	0.011	0.023
Philadelphia	0.956	2.633	16.897	0.069	0.139
Washington Co.	0.007	0.029	0.104	0.001	0.001

2012 emissions are conservatively based on 2012 trips with 2010 emission factors, in order to enable comparison with 2010 SIP emission budget.
Daily emissions are average day. Total tons per year assume 365 days per year.

2015

NAA	Destination	Commuter Trip Distance from APG Within Each NAA by Destination (miles)						Truck Trip Distance from APG Within Each NAA by Destination (miles)						Trip Emissions (one-way g/day)				
		Aberdeen			Edgwood			Aberdeen			Edgwood							
		Freeway	Arterial	Local	Freeway	Arterial	Local	Freeway	Arterial	Local	Freeway	Arterial	Local	VOC	NOx	CO	$PM_{2.5}$	PM_{10}
Baltimore	Southern MD	60.7	2.0	1.0	53.3	2.0	1.0	60.7	2.0	1.0	53.3	2.0	1.0	111	580	1,716	9	17
	Northern Vir	53.1	2.0	1.0	45.8	2.0	1.0	53.1	2.0	1.0	45.8	2.0	1.0	344	828	5,891	19	39
	Vir/West Vir	69.3	2.0	1.0	62.0	2.0	1.0	69.3	2.0	1.0	62.0	2.0	1.0	33	231	481	3	6
	Washington Co.	69.3	2.0	1.0	62.0	2.0	1.0	69.3	2.0	1.0	62.0	2.0	1.0	56	472	765	6	11
	Penn	36.9	2.0	1.0	32.4	2.0	1.0	36.9	2.0	1.0	32.4	2.0	1.0	213	812	3,540	13	25
	Cecil, Wilmington, or Philladelphia	9.6	2.0	1.0	18.0	2.0	1.0	9.6	2.0	1.0	18.0	2.0	1.0	692	3,408	13,017	62	115
	Bay Bridge	66.5	2.0	1.0	59.1	2.0	1.0	66.5	2.0	1.0	59.1	2.0	1.0	37	260	542	4	6
	DC	53.2	2.0	1.0	46.0	2.0	1.0	53.2	2.0	1.0	46.0	2.0	1.0	262	1,370	4,058	22	39
	Wash. MD subs.	58.5	2.0	1.0	51.2	2.0	1.0	58.5	2.0	1.0	51.2	2.0	1.0	1,173	6,348	18,057	99	178
	Baltimore Region	11.9	9.8	2.4	11.9	9.8	2.4	5.4	4.5	0.6	5.4	4.5	0.6	22,928	71,782	306,450	1,503	2,797
Washington DC	Southern MD	36.5	2.0	1.0	36.5	2.0	1.0	36.5	2.0	1.0	36.5	2.0	1.0	70	359	1,068	6	10
	Northern Vir	33.5	2.0	1.0	33.5	2.0	1.0	33.5	2.0	1.0	33.5	2.0	1.0	227	538	3,837	13	25
	Vir/West Vir	39.7	2.0	1.0	39.7	2.0	1.0	39.7	2.0	1.0	39.7	2.0	1.0	20	136	285	2	3
	Washington Co.	29.4			29.4			29.4			29.4			22	196	314	3	4
	Penn																	
	Cecil, Wilmington, or Philladelphia																	
	Bay Bridge																	
	DC	15.1	2.0	1.0	15.0	2.0	1.0	15.1	2.0	1.0	15.0	2.0	1.0	89	425	1,291	7	13
	Wash. MD subs.	19.9	2.0	1.0	19.9	2.0	1.0	19.9	2.0	1.0	19.9	2.0	1.0	455	2,315	6,701	37	67
	Baltimore Region																	
Kent and Queen Anne's	Southern MD																	
	Northern Vir																	
	Vir/West Vir																	
	Washington Co.																	
	Penn																	
	Cecil, Wilmington, or Philladelphia																	
	Bay Bridge	18.6	2.0	1.0	18.6	2.0	1.0	18.6	2.0	1.0	18.6	2.0	1.0	12	78	167	1	2
	DC																	
	Wash. MD subs.																	
	Baltimore Region																	
PA	Southern MD																	
	Northern Vir																	
	Vir/West Vir																	
	Washington Co.																	
	Penn	45.8	2.0	1.0	45.8	2.0	1.0	45.8	2.0	1.0	45.8	2.0	1.0	261	757	4,389	16	31
	Cecil, Wilmington, or Philladelphia																	
	Bay Bridge																	
	DC																	
	Wash. MD subs.																	
	Baltimore Region																	
Philadelphia	Southern MD																	
	Northern Vir																	
	Vir/West Vir																	
	Washington Co.																	
	Penn																	
	Cecil, Wilmington, or Philladelphia	19.3	2.0	1.0	19.2	2.0	1.0	19.3	2.0	1.0	19.2	2.0	1.0	1,470	6,001	22,519	106	196
	Bay Bridge																	
	DC																	
	Wash. MD subs.																	
	Baltimore Region																	
Wahington Co.	Southern MD																	
	Northern Vir																	
	Vir/West Vir	2.3			2.3			2.3			2.3			1	7	15	0	0
	Washington Co.	7.0	2.0	1.0	7.0	2.0	1.0	7.0	2.0	1.0	7.0	2.0	1.0	9	59	104	1	1
	Penn																	
	Cecil, Wilmington, or Philladelphia																	
	Bay Bridge																	
	DC																	
	Wash. MD subs.																	
	Baltimore Region																	

NOTES:
2015 trips are the same as 2011 trips since no growth is predicted
1 mile of local road and two miles of arterial were added at each origin and destination.
All distances and emissions are per 1-way trip. Total annual summary applies a factor of 2 to account for round-trip.

Assumed mix of trips through Cecil County:	
Destination	**Fraction**
Cecil Co.	95%
Wilmington	4%
Philadelphia	1%

Baltimore region distances change by year as predicted by BMC.
Assume: outbound number of trips = inbound number of trips

Summary by NAA:

	Emissions Increase (tpy)				
NAA	VOC	NOx	CO	$PM_{2.5}$	PM_{10}
Baltimore	20.962	69.115	285.274	1.401	2.601
Washington DC	0.711	3.194	10.860	0.054	0.099
Kent and Queen Anne's	0.010	0.063	0.135	0.001	0.002
PA	0.210	0.609	3.516	0.013	0.025
Philadelphia	1.183	4.829	18.121	0.085	0.158
Washington Co.	0.008	0.054	0.096	0.001	0.001

2012 emissions are conservatively based on 2012 trips with 2010 emission factors, in order to enable comparison with 2010 SIP emission budget.
Daily emissions are average day. Total tons per year assume 365 days per year.

NAA	Destination	Commuter Trip Distance from APG Within Each NAA by Destination (miles)						Truck Trip Distance from APG Within Each NAA by Destination (miles)						Trip Emissions (one-way g/day)				
		Aberdeen			Edgwood			Aberdeen			Edgwood							
		Freeway	Arterial	Local	Freeway	Arterial	Local	Freeway	Arterial	Local	Freeway	Arterial	Local	VOC	NOx	CO	$PM_{2.5}$	PM_{10}
Baltimore	Southern MD	60.7	2.0	1.0	53.3	2.0	1.0	60.7	2.0	1.0	53.3	2.0	1.0	151	1,100	2,087	15	23
	Northern Vir	53.1	2.0	1.0	45.8	2.0	1.0	53.1	2.0	1.0	45.8	2.0	1.0	481	1,500	7,148	25	45
	Vir/West Vir	69.3	2.0	1.0	62.0	2.0	1.0	69.3	2.0	1.0	62.0	2.0	1.0	45	442	586	6	8
	Washington Co.	69.3	2.0	1.0	62.0	2.0	1.0	69.3	2.0	1.0	62.0	2.0	1.0	74	906	933	11	16
	Penn	36.9	2.0	1.0	32.4	2.0	1.0	36.9	2.0	1.0	32.4	2.0	1.0	296	1,125	4,295	18	31
	Cecil, Wilmington, or Philladelphia	9.6	2.0	1.0	18.0	2.0	1.0	9.6	2.0	1.0	18.0	2.0	1.0	1,227	6,385	15,792	95	152
	Bay Bridge	66.5	2.0	1.0	59.1	2.0	1.0	66.5	2.0	1.0	59.1	2.0	1.0	50	498	660	8	9
	DC	53.2	2.0	1.0	46.0	2.0	1.0	53.2	2.0	1.0	46.0	2.0	1.0	359	2,595	4,935	35	54
	Wash. MD subs.	58.5	2.0	1.0	51.2	2.0	1.0	58.5	2.0	1.0	51.2	2.0	1.0	1,602	12,045	21,962	159	245
	Baltimore Region	11.9	9.5	2.4	11.9	9.5	2.4	5.4	4.5	0.6	5.4	4.5	0.6	31,833	133,142	371,350	2,259	3,644
Washington DC	Southern MD	36.5	2.0	1.0	36.5	2.0	1.0	36.5	2.0	1.0	36.5	2.0	1.0	96	680	1,298	9	14
	Northern Vir	33.5	2.0	1.0	33.5	2.0	1.0	33.5	2.0	1.0	33.5	2.0	1.0	318	974	4,654	17	30
	Vir/West Vir	39.7	2.0	1.0	39.7	2.0	1.0	39.7	2.0	1.0	39.7	2.0	1.0	27	260	347	3	5
	Washington Co.	29.4			29.4			29.4			29.4			30	377	383	5	7
	Penn																	
	Cecil, Wilmington, or Philladelphia																	
	Bay Bridge																	
	DC	15.1	2.0	1.0	15.0	2.0	1.0	15.1	2.0	1.0	15.0	2.0	1.0	121	805	1,569	11	17
	Wash. MD subs.	19.9	2.0	1.0	19.9	2.0	1.0	19.9	2.0	1.0	19.9	2.0	1.0	621	4,386	8,148	60	92
	Baltimore Region																	
Kent and Queen Anne's	Southern MD																	
	Northern Vir																	
	Vir/West Vir																	
	Washington Co																	
	Penn																	
	Cecil, Wilmington, or Philladelphia																	
	Bay Bridge	18.6	2.0	1.0	18.6	2.0	1.0	18.6	2.0	1.0	18.6	2.0	1.0	16	150	204	2	3
	DC																	
	Wash. MD subs.																	
	Baltimore Region																	
PA	Southern MD																	
	Northern Vir																	
	Vir/West Vir																	
	Washington Co.																	
	Penn	45.6	2.0	1.0	45.8	2.0	1.0	45.8	2.0	1.0	45.8	2.0	1.0	363	1,392	5,303	22	38
	Cecil, Wilmington, or Philladelphia																	
	Bay Bridge																	
	DC																	
	Wash. MD subs.																	
	Baltimore Region																	
Philadelphia	Southern MD																	
	Northern Vir																	
	Vir/West Vir																	
	Washington Co.																	
	Penn																	
	Cecil, Wilmington, or Philladelphia	19.3	2.0	1.0	19.2	2.0	1.0	19.3	2.0	1.0	19.2	2.0	1.0	2,023	11,266	27,344	162	259
	Bay Bridge																	
	DC																	
	Wash. MD subs.																	
	Baltimore Region																	
Wahington Co.	Southern MD																	
	Northern Vir																	
	Vir/West Vir	2.3			2.3			2.3			2.3			1	14	18	0	0
	Washington Co.	7.0	2.0	1.0	7.0	2.0	1.0	7.0	2.0	1.0	7.0	2.0	1.0	12	113	127	2	2
	Penn																	
	Cecil, Wilmington, or Philladelphia																	
	Bay Bridge																	
	DC																	
	Wash. MD subs.																	
	Baltimore Region																	

NOTES:
1 mile of local road and two miles of arterial were added at each origin and destination.
All distances and emissions are per 1-way trip. Total annual summary applies a factor of 2 to account for round-trip.

Assumed mix of trips through Cecil County:	
Destination	**Fraction**
Cecil Co.	95%
Wilmington	4%
Philadelphia	1%

Baltimore region distances change by year as predicted by BMC.
Assume: outbound number of trips = inbound number of trips

Summary by NAA:

	Emissions Increase (tpy)				
NAA	VOC	NOx	CO	$PM_{2.5}$	PM_{10}
Baltimore	28.904	128.539	345.812	2.115	3.402
Washington DC	0.975	6.020	13.195	0.084	0.133
Kent and Queen Anne's	0.013	0.121	0.164	0.002	0.002
PA	0.292	1.120	4.267	0.018	0.030
Philadelphia	1.628	9.066	22.003	0.130	0.208
Washington Co.	0.010	0.103	0.117	0.001	0.002

2012 emissions are conservatively based on 2012 trips with 2010 emission factors, in order to enable comparisson with 2010 SIP emission budget.
Daily emissions are average day. Total tons per year assume 365 days per year.

2010

NAA	Destination	Commuter Trip Distance from APG Within Each NAA by Destination (miles)						Truck Trip Distance from APG Within Each NAA by Destination (miles)						Trip Emissions (one-way g/day)				
		Aberdeen			Edgwood			Aberdeen			Edgwood							
		Freeway	Arterial	Local	Freeway	Arterial	Local	Freeway	Arterial	Local	Freeway	Arterial	Local	VOC	NOx	CO	$PM_{2.5}$	PM_{10}
Baltimore	Southern MD	60.7	2.0	1.0	53.3	2.0	1.0	60.7	2.0	1.0	53.3	2.0	1.0					
	Northern Vir	53.1	2.0	1.0	45.8	2.0	1.0	53.1	2.0	1.0	45.8	2.0	1.0					
	Vir/West Vir	69.3	2.0	1.0	62.0	2.0	1.0	69.3	2.0	1.0	62.0	2.0	1.0					
	Washington Co.	69.3	2.0	1.0	62.0	2.0	1.0	69.3	2.0	1.0	62.0	2.0	1.0					
	Penn	36.9	2.0	1.0	32.4	2.0	1.0	36.9	2.0	1.0	32.4	2.0	1.0					
	Cecil, Wilmington, or Philadelphia	9.6	2.0	1.0	18.0	2.0	1.0	9.6	2.0	1.0	18.0	2.0	1.0					
	Bay Bridge	66.5	2.0	1.0	59.1	2.0	1.0	66.5	2.0	1.0	59.1	2.0	1.0					
	DC	53.2	2.0	1.0	46.0	2.0	1.0	53.2	2.0	1.0	46.0	2.0	1.0					
	Wash. MD subs.	58.5	2.0	1.0	51.2	2.0	1.0	58.5	2.0	1.0	51.2	2.0	1.0					
	Baltimore Region	11.9	6.8	2.4	11.9	6.8	2.4	5.4	4.5	0.8	5.4	4.5	0.8					
Washington DC	Southern MD	36.5	2.0	1.0	36.5	2.0	1.0	36.5	2.0	1.0	36.5	2.0	1.0					
	Northern Vir	33.5	2.0	1.0	33.5	2.0	1.0	33.5	2.0	1.0	33.5	2.0	1.0					
	Vir/West Vir	39.7	2.0	1.0	39.7	2.0	1.0	39.7	2.0	1.0	39.7	2.0	1.0					
	Washington Co.	29.4			29.4			29.4			29.4							
	Penn																	
	Cecil, Wilmington, or Philadelphia																	
	Bay Bridge																	
	DC	15.1	2.0	1.0	15.0	2.0	1.0	15.1	2.0	1.0	15.0	2.0	1.0					
	Wash. MD subs.	19.9	2.0	1.0	19.9	2.0	1.0	19.9	2.0	1.0	19.9	2.0	1.0					
	Baltimore Region																	
Kent and Queen Anne's	Southern MD																	
	Northern Vir																	
	Vir/West Vir																	
	Washington Co.																	
	Penn																	
	Cecil, Wilmington, or Philadelphia																	
	Bay Bridge	18.6	2.0	1.0	18.6	2.0	1.0	18.6	2.0	1.0	18.6	2.0	1.0					
	DC																	
	Wash. MD subs.																	
	Baltimore Region																	
PA	Southern MD																	
	Northern Vir																	
	Vir/West Vir																	
	Washington Co.																	
	Penn	45.8	2.0	1.0	45.8	2.0	1.0	45.8	2.0	1.0	45.8	2.0	1.0					
	Cecil, Wilmington, or Philadelphia																	
	Bay Bridge																	
	DC																	
	Wash. MD subs.																	
	Baltimore Region																	
Philadelphia	Southern MD																	
	Northern Vir																	
	Vir/West Vir																	
	Washington Co.																	
	Penn																	
	Cecil, Wilmington, or Philadelphia	19.3	2.0	1.0	19.2	2.0	1.0	19.3	2.0	1.0	19.2	2.0	1.0					
	Bay Bridge																	
	DC																	
	Wash. MD subs.																	
	Baltimore Region																	
Wahington Co.	Southern MD																	
	Northern Vir																	
	Vir/West Vir	2.3			2.3			2.3			2.3							
	Washington Co.	7.0	2.0	1.0	7.0	2.0	1.0	7.0	2.0	1.0	7.0	2.0	1.0					
	Penn																	
	Cecil, Wilmington, or Philadelphia																	
	Bay Bridge																	
	DC																	
	Wash. MD subs.																	
	Baltimore Region																	

NOTES:
1 mile of local road and two miles of arterial were added at each origin and destination.
All distances and emissions are per 1-way trip. Total annual summary applies a factor of 2 to account for round-trip.

Assumed mix of trips through Cecil County:	
Destination	**Fraction**
Cecil Co.	95%
Wilmington	4%
Philadelphia	1%

Baltimore region distances change by year as predicted by BMC.
Assume: outbound number of trips = inbound number of trips

Summary by NAA:

	Emissions Increase (tpy)				
NAA	VOC	NOx	CO	$PM_{2.5}$	PM_{10}
Baltimore	0.000	0.000	0.000	0.000	0.000
Washington DC	0.000	0.000	0.000	0.000	0.000
Kent and Queen Anne's	0.000	0.000	0.000	0.000	0.000
PA	0.000	0.000	0.000	0.000	0.000
Philadelphia	0.000	0.000	0.000	0.000	0.000
Washington Co.	0.000	0.000	0.000	0.000	0.000

2012 emissions are conservatively based on 2012 trips with 2010 emission factors, in order to enable comparison with 2010 SIP emission budget.
Daily emissions are average day. Total tons per year assume 365 days per year.

NAA	Destination	Commuter Trip Distance from APG Within Each NAA by Destination (miles)						Truck Trip Distance from APG Within Each NAA by Destination (miles)						Trip Emissions (one-way g/day)				
		Aberdeen			Edgwood			Aberdeen			Edgwood							
		Freeway	Arterial	Local	Freeway	Arterial	Local	Freeway	Arterial	Local	Freeway	Arterial	Local	VOC	NOx	CO	$PM_{2.5}$	PM_{10}
Baltimore	Southern MD	60.7	2.0	1.0	53.3	2.0	1.0	60.7	2.0	1.0	53.3	2.0	1.0	63	511	823	7	10
	Northern Vir	53.1	2.0	1.0	45.8	2.0	1.0	53.1	2.0	1.0	45.8	2.0	1.0	202	687	2,799	11	18
	Vir/West Vir	69.3	2.0	1.0	62.0	2.0	1.0	69.3	2.0	1.0	62.0	2.0	1.0	18	206	232	3	4
	Washington Co.	69.3	2.0	1.0	62.0	2.0	1.0	69.3	2.0	1.0	62.0	2.0	1.0	30	423	371	5	7
	Penn	36.9	2.0	1.0	32.4	2.0	1.0	36.9	2.0	1.0	32.4	2.0	1.0	124	518	1,686	8	12
	Cecil, Wilmington, or Philadelphia	9.6	2.0	1.0	18.0	2.0	1.0	9.6	2.0	1.0	18.0	2.0	1.0	545	3,172	6,651	46	68
	Bay Bridge	66.5	2.0	1.0	59.1	2.0	1.0	66.5	2.0	1.0	59.1	2.0	1.0	21	232	261	3	4
	DC	53.2	2.0	1.0	46.0	2.0	1.0	53.2	2.0	1.0	46.0	2.0	1.0	149	1,204	1,943	16	23
	Wash. MD subs.	58.5	2.0	1.0	51.2	2.0	1.0	58.5	2.0	1.0	51.2	2.0	1.0	664	5,597	8,660	73	105
	Baltimore Region	11.9	9.5	2.4	11.9	9.5	2.4	9.4	4.5	0.6	9.4	4.5	0.6	13,378	61,975	147,452	1,022	1,531
Washington DC	Southern MD	36.5	2.0	1.0	36.5	2.0	1.0	36.5	2.0	1.0	36.5	2.0	1.0	40	319	517	4	6
	Northern Vir	33.5	2.0	1.0	33.5	2.0	1.0	33.5	2.0	1.0	33.5	2.0	1.0	135	451	1,844	7	12
	Vir/West Vir	39.7	2.0	1.0	39.7	2.0	1.0	39.7	2.0	1.0	39.7	2.0	1.0	11	122	139	2	2
	Washington Co.	29.4			29.4			29.4			29.4			12	178	154	2	3
	Penn																	
	Cecil, Wilmington, or Philadelphia																	
	Bay Bridge																	
	DC	15.1	2.0	1.0	15.0	2.0	1.0	15.1	2.0	1.0	15.0	2.0	1.0	51	377	625	5	7
	Wash. MD subs.	19.9	2.0	1.0	19.9	2.0	1.0	19.9	2.0	1.0	19.9	2.0	1.0	260	2,059	3,247	28	40
	Baltimore Region																	
Kent and Queen Anne's	Southern MD																	
	Northern Vir																	
	Vir/West Vir																	
	Washington Co.																	
	Penn																	
	Cecil, Wilmington, or Philadelphia																	
	Bay Bridge	18.6	2.0	1.0	18.6	2.0	1.0	18.6	2.0	1.0	18.6	2.0	1.0	7	71	82	1	1
	DC																	
	Wash. MD subs.																	
	Baltimore Region																	
PA	Southern MD																	
	Northern Vir																	
	Vir/West Vir																	
	Washington Co.																	
	Penn	45.6	2.0	1.0	45.8	2.0	1.0	45.8	2.0	1.0	45.8	2.0	1.0	154	648	2,104	10	15
	Cecil, Wilmington, or Philadelphia																	
	Bay Bridge																	
	DC																	
	Wash. MD subs.																	
	Baltimore Region																	
Philadelphia	Southern MD																	
	Northern Vir																	
	Vir/West Vir																	
	Washington Co.																	
	Penn																	
	Cecil, Wilmington, or Philadelphia	19.3	2.0	1.0	19.2	2.0	1.0	19.3	2.0	1.0	19.2	2.0	1.0	851	5,272	10,868	74	109
	Bay Bridge																	
	DC																	
	Wash. MD subs.																	
	Baltimore Region																	
Wahington Co.	Southern MD																	
	Northern Vir																	
	Vir/West Vir	2.3			2.3			2.3			2.3			1	7	7	0	0
	Washington Co.	7.0	2.0	1.0	7.0	2.0	1.0	7.0	2.0	1.0	7.0	2.0	1.0	5	53	51	1	1
	Penn																	
	Cecil, Wilmington, or Philadelphia																	
	Bay Bridge																	
	DC																	
	Wash. MD subs.																	
	Baltimore Region																	

NOTES:
1 mile of local road and two miles of arterial were added at each origin and destination.
All distances and emissions are per 1-way trip. Total annual summary applies a factor of 2 to account for round-trip.

Assumed mix of trips through Cecil County:	
Destination	Fraction
Cecil Co.	95%
Wilmington	4%
Philadelphia	1%

Baltimore region distances change by year as predicted by BMC.
Assume: outbound number of trips = inbound number of trips

Summary by NAA:

	Emissions Increase (tpy)				
NAA	VOC	NOx	CO	$PM_{2.5}$	PM_{10}
Baltimore	12.226	59.970	137.504	0.960	1.434
Washington DC	0.410	2.822	5.251	0.039	0.057
Kent and Queen Anne's	0.005	0.057	0.066	0.001	0.001
PA	0.124	0.521	1.693	0.008	0.012
Philadelphia	0.685	4.242	8.745	0.059	0.088
Washington Co.	0.004	0.048	0.047	0.001	0.001

2012 emissions are conservatively based on 2012 trips with 2010 emission factors, in order to enable comparison with 2010 SIP emission budget.
Daily emissions are average day. Total tons per year assume 365 days per year.

MOBILE6 EFs

The project is located in Harford Co., although many of the trips may originate in Baltimore Co.
Since the emission factors from the two counties are almost identical, Harford Co. factors, which were in some cases slightly higher, were used.

Mobile6.2 Emission Factors (g/mile)

	Car			Truck		
2009	Freeway	Arterial	Local	Freeway	Arterial	Local
VOC	0.46	0.50	0.73	0.33	0.42	0.95
NOx	0.46	0.43	0.44	9.4	5.4	6.1
CO	6.7	5.4	4.4	3.4	2.5	7.0
2010						
VOC	0.41	0.45	0.66	0.31	0.39	0.88
NOx	0.41	0.38	0.39	8.1	4.6	5.3
CO	6.3	5.1	4.2	3.1	2.3	6.4
2011						
VOC	0.4	0.4	0.6	0.3	0.4	0.8
NOx	0.4	0.3	0.4	7.0	4.0	4.6
CO	6.0	4.8	4.0	2.9	2.1	5.9
2015						
VOC	0.3	0.3	0.4	0.2	0.3	0.6
NOx	0.2	0.2	0.2	3.6	2.1	2.4
CO	4.9	4.0	3.6	2.3	1.7	4.7
2020						
VOC	0.20	0.23	0.34	0.18	0.24	0.53
NOx	0.15	0.14	0.15	1.7	1.0	1.2
CO	4.4	3.6	3.4	2.2	1.6	4.3
2030						
VOC	0.15	0.18	0.28	0.15	0.20	0.45
NOx	0.11	0.11	0.12	0.69	0.40	0.48
CO	4.2	3.4	3.3	2.1	1.5	4.0

From Title 40, § 51.853:

	Tons/ year
Ozone (VOC's or NOX):	
Serious NAA's	50
Severe NAA's	25
Extreme NAA's	10
Other ozone NAA's outside an ozone transport region	**100**
Marginal and moderate NAA's inside an ozone transport region:	
VOC	**50**
NOX	**100**

$PM_{2.5}$						
2009	0.0116	0.0116	0.0116	0.1108	0.1108	0.1108
2010	0.0116	0.0116	0.0116	0.0897	0.0897	0.0897
2011	0.0115	0.0115	0.0115	0.0784	0.0784	0.0784
2015	0.0114	0.0114	0.0114	0.0409	0.0409	0.0409
2020	0.0113	0.0113	0.0113	0.0277	0.0277	0.0277
2030	0.0112	0.0112	0.0112	0.0211	0.0211	0.0211
PM_{10}						
2009	0.0251	0.0251	0.0251	0.1430	0.1430	0.1430
2010	0.0251	0.0251	0.0251	0.1199	0.1199	0.1199
2011	0.0250	0.0250	0.0250	0.1073	0.1073	0.1073
2015	0.0250	0.0250	0.0250	0.0652	0.0652	0.0652
2020	0.0248	0.0248	0.0248	0.0499	0.0499	0.0499
2030	0.0247	0.0247	0.0247	0.0425	0.0425	0.0425

Local Emission Factors by Detailed Vehicle Class (g/mile)

	2009	2010	2011	2015	2020	2030
VOC						
HDDBS	0.94	0.88	0.82	0.70	0.57	0.53
HDDBT	0.66	0.58	0.54	0.47	0.44	0.44
HDDV	0.69	0.65	0.62	0.52	0.47	0.44
HDGV	1.38	1.24	1.10	0.79	0.56	0.42
LDDT	0.45	0.41	0.36	0.23	0.16	0.13
LDGT12	0.45	0.41	0.38	0.29	0.26	0.25
LDGT34	1.06	0.98	0.89	0.61	0.45	0.38
LDGV	0.73	0.66	0.59	0.42	0.34	0.28
GOV Weighted	*0.94*	*0.85*	*0.77*	*0.56*	*0.43*	*0.36*
CO						
HDDBS	3.3	2.9	2.6	1.6	0.9	0.5
HDDBT	6.6	5.6	5.0	2.9	1.6	0.7
HDDV	3.4	2.8	2.5	1.3	0.8	0.5
HDGV	14.8	14.3	13.6	12.6	12.5	12.3
LDDT	1.2	1.1	1.0	0.7	0.6	0.5
LDGT12	4.3	4.1	3.9	3.5	3.4	3.4
LDGT34	7.6	7.1	6.7	5.6	4.7	4.4
LDGV	4.4	4.2	4.1	3.6	3.4	3.3
GOV Weighted	*8.26*	*7.82*	*7.39*	*6.47*	*6.05*	*5.80*
NOx						
HDDBS	9.65	8.60	7.61	4.32	1.98	0.66
HDDBT	15.28	13.76	12.43	7.39	3.56	1.00
HDDV	6.97	5.99	5.11	2.52	1.23	0.58
HDGV	2.03	1.74	1.53	0.89	0.45	0.15
LDDT	0.55	0.46	0.39	0.21	0.11	0.07
LDGT12	0.42	0.37	0.33	0.21	0.16	0.14
LDGT34	0.93	0.86	0.79	0.56	0.35	0.25
LDGV	0.44	0.39	0.35	0.23	0.15	0.12
GOV Weighted	*2.71*	*2.39*	*2.13*	*1.24*	*0.64*	*0.27*
$PM_{2.5}$						
HDDBS	0.28	0.22	0.18	0.09	0.05	0.03
HDDBT	0.20	0.15	0.13	0.07	0.04	0.03
HDDV	0.14	0.11	0.10	0.05	0.03	0.02
HDGV	0.05	0.04	0.04	0.03	0.02	0.02
LDDT	0.07	0.06	0.05	0.03	0.02	0.02
LDGT12	0.01	0.01	0.01	0.01	0.01	0.01
LDGT34	0.01	0.01	0.01	0.01	0.01	0.01
LDGV	0.01	0.01	0.01	0.01	0.01	0.01
GOV Weighted	*0.05*	*0.04*	*0.03*	*0.02*	*0.02*	*0.02*
PM_{10}						
HDDBS	0.32	0.25	0.21	0.12	0.07	0.05
HDDBT	0.23	0.18	0.15	0.09	0.06	0.05
HDDV	0.18	0.15	0.13	0.08	0.06	0.05
HDGV	0.06	0.06	0.05	0.04	0.04	0.03
LDDT	0.09	0.08	0.07	0.04	0.03	0.03
LDGT12	0.02	0.02	0.02	0.02	0.02	0.02
LDGT34	0.03	0.03	0.02	0.02	0.02	0.02
LDGV	0.02	0.02	0.02	0.02	0.02	0.02
GOV Weighted	*0.07*	*0.06*	*0.05*	*0.04*	*0.03*	*0.03*

Gates and On-Post Miles

Traffic (Speed) Survey Information

September 1–5, 2004
Hartford Gate (in-bound only)
17,909 total vehicles
3,582 vehicles per day

July 22-29, 2004
Rt 24/Hoadley Road Gate (in-bound only)
46,245 total vehicles
5,781 vehicles per day

March 1-7, 2004
Hartford Gate (in-bound only)
27,706 total vehicles
3,958 vehicles per day

May 19-26, 2004
Rt 755/Edgewood Road Gate (in-bound only)

26,614 total vehicles
3,327 vehicles per day

March 29-April 1, 2004
MD Blvd (in-bound only)
28,599 total vehicles
7,150 vehicles per day

Total Predicted Inbound Trips Per Day		
	Aberdeen	Edgwood
2004 APG baseline:	11,108	9,107
BRAC Increment:		
2009	1,426	255
2010	0	0
2011	4,499	296
2020	4,499	296
2030	4,499	296

On-post distances				BRAC Increment (miles/day)				
	cars/day	miles/day/vehicle	Miles/day	2009	2010	2011	2020	2030
Aberdeen (total)	*11,108*	*5.4*	*60,003*	*4,232*	*0*	*13,354*	*13,354*	*13,354*
Hartford	3,958	9.0	35,622	2,512	0	7,928	7,928	7,928
Maryland	7,150	3.4	24,381	1,719	0	5,426	5,426	5,426
Edgewood (total)	*9,107*	*2.8*	*25,233*	*318*	*0*	*370*	*370*	*370*
Rt 24/Hoadly Rd	5,781	2.8	16,417	0	241	241	241	0
Edgewood Rd/Rt 755	3,327	2.7	8,816	129	129	129	0	0
Total	***20,215***	***4.2***	***85,236***	***4,550***	***0***	***13,724***	***13,724***	***13,724***

NOTE:□ □ □ □
□□□□The one-way mileage was estimated as the distance from the gate to a midpoint on the base
□□The mileage was doubled to account for the daily on-base mileage□ □

APG Population

Projected APG Population

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Actual or Currently Planned	17,832	18,591	18,561	18,619	19,271	19,945	20,643	21,366	22,114	22,888	23,689
Additional Cumulative Population on account of BRAC								1,543	-717	4,403	4,403
Edgewood Area								234		272	
Aberdeen Area								1,309		4,131	
Total BRAC Increment as fraction of 2002 baseline:								0.086529834	-0.040209	0.246916	0.246916

growth 2004-2011	1.233	
BRAC Increment 2011 as fraction of 2004	0.192	
	Aberdeen	**Edgewood**
BRAC Increment 2009 as fraction of 2004	0.071	0.013
BRAC Increment 2010 as fraction of 2004		
BRAC Increment 2011 as fraction of 2004	0.223	0.015

Increment is conservatively assumed to be zero, since there will be an overall reduction in population during construction.

Destination Distribution

Share of external daily trip activity for destination/origin of APG
APG as a Destination

2010	Work	Non-Work	**Total Cars**	Com.	Lt.	Ht.	**Total Trucks**
Southern MD	0.07%	0.02%	**0.09%**	0.01%	0.00%	0.04%	**0.05%**
Northern Vir	0.13%	0.29%	**0.43%**	0.01%	0.00%	0.04%	**0.06%**
Vir/West Vir	0.01%	0.01%	**0.02%**	0.00%	0.00%	0.01%	**0.02%**
Washington Co.	0.01%	0.02%	**0.03%**	0.01%	0.00%	0.02%	**0.04%**
Penn	0.26%	0.09%	**0.35%**	0.03%	0.01%	0.02%	**0.07%**
Cecil	2.17%	1.54%	**3.72%**	0.68%	0.20%	0.50%	**1.39%**
Bay Bridge	0.01%	0.01%	**0.02%**	0.01%	0.01%	0.01%	**0.02%**
DC	0.11%	0.14%	**0.25%**	0.08%	0.02%	0.03%	**0.13%**
Wash. MD subs.	0.58%	0.43%	**1.00%**	0.28%	0.07%	0.20%	**0.55%**
Baltimore Region	36.18%	15.63%	**51.80%**	31.48%	5.76%	2.73%	**39.97%**

2020	Work	Non-Work	**Total Cars**	Com.	Lt.	Ht.	**Total Trucks**
Southern MD	0.03%	0.03%	**0.06%**	0.01%	0.00%	0.04%	**0.06%**
Northern Vir	0.11%	0.43%	**0.54%**	0.01%	0.00%	0.05%	**0.06%**
Vir/West Vir	0.01%	0.01%	**0.02%**	0.01%	0.00%	0.01%	**0.02%**
Washington Co.	0.01%	0.02%	**0.04%**	0.01%	0.00%	0.02%	**0.04%**
Penn	0.28%	0.11%	**0.40%**	0.04%	0.02%	0.03%	**0.08%**
Cecil	2.16%	1.60%	**3.76%**	0.77%	0.22%	0.56%	**1.54%**
Bay Bridge	0.01%	0.02%	**0.03%**	0.01%	0.01%	0.01%	**0.02%**
DC	0.07%	0.10%	**0.17%**	0.08%	0.02%	0.03%	**0.12%**
Wash. MD subs.	0.48%	0.41%	**0.89%**	0.29%	0.07%	0.20%	**0.57%**
Baltimore Region	36.20%	15.75%	**51.94%**	31.14%	5.77%	2.74%	**39.64%**

2030	Work	Non-Work	**Total Cars**	Com.	Lt.	Ht.	**Total Trucks**
Southern MD	0.05%	0.03%	**0.08%**	0.01%	0.00%	0.04%	**0.06%**
Northern Vir	0.08%	0.67%	**0.75%**	0.02%	0.00%	0.05%	**0.07%**
Vir/West Vir	0.01%	0.02%	**0.02%**	0.01%	0.00%	0.01%	**0.02%**
Washington Co.	0.01%	0.05%	**0.07%**	0.01%	0.00%	0.03%	**0.04%**
Penn	0.33%	0.13%	**0.46%**	0.05%	0.02%	0.03%	**0.09%**
Cecil	2.47%	1.65%	**4.12%**	0.90%	0.24%	0.63%	**1.77%**
Bay Bridge	0.01%	0.04%	**0.06%**	0.01%	0.01%	0.01%	**0.02%**
DC	0.04%	0.14%	**0.18%**	0.08%	0.02%	0.03%	**0.12%**
Wash. MD subs.	0.43%	0.50%	**0.93%**	0.31%	0.08%	0.21%	**0.60%**
Baltimore Region	35.40%	15.16%	**50.56%**	31.18%	6.05%	2.74%	**39.97%**

Work / Non-Work	*Light Duty (cars)*
COM	*Commercial: 2 axle 4 tire vehicles – light panel trucks/service vehicles*
LT	*Light trucks (2 axle 6 tire vehicles)*
HT	*Heavy trucks (3+ axles)*

Area Def.	
Southern MD	MD 2 thru MD 210
Norhtern Vir.	I-495 thru I-495
Vir/West Vir.	US 15 thru US 40
Washington Co.	US 40 Alt. thru MD 550
Penn.	MD 140 thru MD 623
Cecil	US 1 thru US 40
Bay Bridge	US 50/301
DC	District of Columbia
Wash. MD subs.	Montgomery, Prince George's and Frederick counties

Baltimore Distances

AM (6 am - 10 AM) Average Vehicle Trip Length - Vehicle trips starting within the Balitmore Region (Baltimore city, Anne Arundel, Baltimore, Carroll, Harford, and Howard counties) with a destination of APG (TAZ - 1002).

	SOV	HOV	**SOV&HOV**	COM	LT	HT	**All Trucks**
2010							
Freeway	10.43	12.05	**10.55**	3.51	5.62	16.67	**4.71**
Arterial	9.73	10.56	**9.79**	3.73	5.67	10.33	**4.46**
Local	2.35	2.45	**2.36**	0.53	0.75	1.66	**0.64**
Ramp	1.32	1.48	**1.33**	0.51	0.81	1.99	**0.65**
Total	23.84	26.54	**24.03**	8.28	12.84	30.65	**10.46**
2020							
Freeway	9.96	13.28	**10.20**	3.24	5.10	14.76	**4.31**
Arterial	10.08	11.21	**10.16**	4.08	6.03	10.94	**4.84**
Local	2.85	3.18	**2.88**	0.70	0.99	2.30	**0.86**
Ramp	1.36	1.78	**1.39**	0.53	0.82	2.01	**0.67**
Total	24.26	29.45	**24.64**	8.55	12.94	30.01	**10.67**
2030							
Freeway	8.49	11.38	**8.70**	3.21	4.76	14.40	**4.21**
Arterial	9.95	11.13	**10.03**	4.25	6.23	11.21	**5.03**
Local	2.91	3.27	**2.94**	0.75	1.05	2.46	**0.91**
Ramp	1.25	1.64	**1.27**	0.54	0.82	2.02	**0.68**
Total	22.60	27.43	**22.94**	8.75	12.86	30.09	**10.83**

SOV *Single Occupant Vehicles*
HOV *High Occupant Vehicles 2+*
COM *Commercial: 2 axle 4 tire vehicles – light panel trucks/service vehicles*
LT *Light trucks (2 axle 6 tire vehicles)*
HT *Heavy trucks (3+ axles)*

The average trip length was calculated using the gravity model contained in the region's travel demand model for the am peak period (6 am to 10 am) for vehicle trips starting and traveling within the Baltimore region with a destination of APG. Other work travel starting outside the Baltimore region or Home-Based-non-work related travel was not considered.

Based on the planning assumptions of additional highway capacity contained in the region's long range transportation plan and the forecasted demographic data, average trip lengths with a destination of APG are forecasted to decrease. This is a function of increase capacity allowing for more direct routes and increase households locating in Baltimore (2000 HH 299,900/2030 HH 346,700) and Harford (2000 HH 79,665/2030 HH 117,200) counties. As household growth increases in suburban locations, the gravity model increases the probability of interactions between suburban households and suburban employment destinations resulting in lower average trip lengths.

External Distances

	Distance (feet)	Distance (miles)	NAA Zone
Centerville - Queen Anne's County			
State Highway	6,376	1.2	Queen Anne's Zone
US Highway	91,654	17.4	Queen Anne's Zone
State Highway	82,342	15.6	Baltimore Zone
US Highway	41,162	7.8	Baltimore Zone
Interstate Highway	168,124	31.8	Baltimore Zone
Frederick - Frederick County			
Interstate Highway	306,648	58.1	Baltimore Zone
Interstate Highway	66,941	12.7	Washingon DC Zone
Hagerstown - through Washington County via I70			
Interstate Highway	36,931	7.0	Washington County Zone
Interstate Highway	155,404	29.4	Washington DC Zone
Interstate Highway	306,642	58.1	Baltimore Zone
La Plata - Charles County via Rt 301			
US Highway	179,200	33.9	Washington DC Zone
State Highway	13,469	2.6	Washington DC Zone
State Highway	37,069	7.0	Baltimore Zone
Interstate Highway	223,985	42.4	Baltimore Zone
Morningside - Prince George County			
Interstate Highway	134,447	25.5	Washington DC Zone
Interstate Highway	221,327	41.9	Baltimore Zone
Rockville - Montgomery County			
Interstate Highway	114,457	21.7	Washington DC Zone
Interstate Highway	221,319	41.9	Baltimore Zone
N. VA Border of Maryland - 495 to 95			
Interstate Highway	123,974	23.5	Washington DC Zone
Interstate Highway	221,286	41.9	Baltimore Zone
VA/W. VA Border of Maryland - US 340			
US Highway	11,890	2.3	Washington County Zone
US Highway	74,094	14.0	Washington DC Zone
Interstate Highway	82,739	15.7	Washington DC Zone
Interstate Highway	306,663	58.1	Baltimore Zone
Aberdeen Gate			
Interstate Highway	42,683	8.1	Baltimore Zone
State Highway	16,599	3.1	Baltimore Zone
Local Road	409	0.1	Baltimore Zone
Edgewood Gate			
State Highway	20,565	3.9	Baltimore Zone

DC PA and Phily Distances

Entrance:	Aberdeen					Edgwood				
Destination / Origin	LENGTH Feet	Miles	HWYNAME	FCC	Zone	LENGTH Feet	Miles	HWYNAME	FCC	Zone
Washington DC	1,142	0.22	GRANT CIR NW	A20	DC	1,142	0.22	GRANT CIR NW	A20	DC
	3,742	0.71	NEW HAMPSHIRE AVE NE	A20	DC	3,742	0.71	NEW HAMPSHIRE AVE NE	A20	DC
	8,175	1.55	NEW HAMPSHIRE AVE NW	A20	DC	8,175	1.55	NEW HAMPSHIRE AVE NW	A20	DC
	8,895	1.68	US HWY 29	A20	DC	8,895	1.68	US HWY 29	A20	DC
	7,319	1.39	I 495	A10	DC	7,319	1.39	I 495	A10	DC
	21,381	4.05	STATE HWY 650	A20	DC	21,381	4.05	STATE HWY 650	A20	DC
	16,603	3.14	STATE HWY 22	A30	Baltimore Region	20,643	3.91	STATE HWY 24	A30	Baltimore Region
	41,870	7.93	I 95	A15	DC	41,616	7.88	I 95	A10	DC
	264,465	50.09	I 95	A15	Baltimore Region	222,006	42.05	I 95	A10	Baltimore Region
Harrisburg	43,300	8.20	I 95	A11	Baltimore Region	33,594	6.36	STATE HWY 24	A20	Baltimore Region
	13,031	2.47	STATE HWY 24	A20	Baltimore Region	503	0.10	FULFORD AVE	A30	Baltimore Region
	228	0.04	ABERDEEN THWY	A30	Baltimore Region	1,038	0.20	N MAIN ST	A30	Baltimore Region
	4,733	0.90	E BEL AIR AVE	A30	Baltimore Region	5,191	0.98	ROCK SPRING RD	A30	Baltimore Region
	503	0.10	FULFORD AVE	A30	Baltimore Region	62,642	11.86	STATE HWY 23	A30	Baltimore Region
	324	0.06	HARFORD BLVD	A30	Baltimore Region	36,332	6.88	STATE HWY 439	A30	Baltimore Region
	1,038	0.20	N MAIN ST	A30	Baltimore Region	28,958	5.48	STATE HWY 924	A30	Baltimore Region
	769	0.15	NE RD	A30	Baltimore Region	2,990	0.57	US HWY 1 BUS	A30	Baltimore Region
	5,191	0.98	ROCK SPRING RD	A30	Baltimore Region	241,768	45.79	I 83	A10	PA
	775	0.15	STATE HWY 22	A30	Baltimore Region	6,644	1.26	I 83	A10	Baltimore Region
	62,499	11.84	STATE HWY 23	A30	Baltimore Region					
	36,428	6.90	STATE HWY 439	A30	Baltimore Region					
	28,958	5.48	STATE HWY 924	A30	Baltimore Region					
	2,990	0.57	US HWY 1 BUS	A30	Baltimore Region					
	8,732	1.65	W BEL AIR AVE	A30	Baltimore Region					
	241,712	45.78	I 83	A10	PA					
	6,625	1.25	I 83	A10	Baltimore Region					
Philly	412	0.08	HARFORD BLVD	A30	Baltimore Region	20,643	3.91	STATE HWY 24	A30	Baltimore Region
	16,603	3.14	STATE HWY 22	A30	Baltimore Region	96,546	18.29	I 95	A13	Cecil County
	109,676	20.77	I 95	A11	Phil.	77,147	14.61	I 95	A13	Baltimore Region
	34,113	6.46	I 95	A11	Baltimore Region	109,676	20.77	I 95	A13	Phil.
	96,320	18.24	I 95	A11	Cecil County	120,498	22.82	I 95	A13	DE
	120,476	22.82	I 95	A12	DE					
Cecil Co.		0.08	HARFORD BLVD	A30	Baltimore Region		3.91	STATE HWY 24	A30	Baltimore Region
		3.14	STATE HWY 22	A30	Baltimore Region		18.29	I 95	A13	Cecil County
		6.46	I 95	A11	Baltimore Region		14.61	I 95	A13	Baltimore Region
		18.24	I 95	A11	Cecil County					
Wilmigton	313	0.06	HARFORD BLVD	A30	Baltimore Region	22,511	4.26	STATE HWY 24	A30	Baltimore Region
	16,603	3.14	STATE HWY 22	A30	Baltimore Region	87,749	16.62	I 95	A11	Phil.
	87,841	16.64	I 95	A11	Phil.	76,813	14.55	I 95	A11	Phil.
	96,123	18.21	I 95	A11	Cecil County	96,079	18.20	I 95	A11	Cecil County
	33,981	6.44	I 95	A11	Baltimore Region					

Appendix C

Maryland Department of the Environment Inventory for APG

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Letter dated April 18, 2006

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APG response Letter dated June 21, 2006

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Maryland Department of the Environment Letter dated August 15, 2006

MDE Permitted Sources

The Maryland Department of the Environment (MDE) requested emissions data from Aberdeen Proving Ground (APG) in order to update its State Implementation Plan (SIP) Emission Inventory for the calendar year 2002, which is the base year for the SIP. In response to this request, APG submitted its inventory of emissions of criteria pollutants from the Aberdeen and Edgewood Areas for calendar year 2002, in August 2005. The inventory was classified by the various types of operations conducted at APG, and covers only sources such as aircraft, automobiles and small stationary sources that are not included in the Annual Emissions Certification submitted by APG.

Table C-1 consists of registered point sources at the Aberdeen (listed as "Aberdeen Proving Ground") and Edgewood areas (listed as "Edgewood Area") of APG for the year 2002 from the Annual Emissions Certification submitted by APG. The emissions growth rate for the county will be applied to these sources. Currently (July 2006) the county growth rates are not known. Totals for APG registered point sources are as follows:

	CO	NOx	VOC
Registered Title V Sources	26.71	40.89	9.95

The MDE reviewed the inventory of unregistered sources submitted by APG, and used it to prepare its SIP inventory for APG, for inclusion in the National Emissions Inventory (NEI). The NEI is classified by Source Classification Codes (SCC). The 2002 SIP inventory for APG is summarized in Table C-2. The MDE also reviewed the growth factors submitted by APG, to reflect the increase in emissions at APG as a result of a variety of projects at APG, including those related to Base Realignment & Closure (BRAC). Growth rates for APG are also listed in table C-2. Totals for unregistered sources at APG are as follows:

	CO	NOx	VOC
Unregistered Sources	1488.93	419.62	255.85

Totals for both registered and unregistered sources for year 2002 are as follows:

	CO	NOx	VOC
All APG Sources	1515.64	460.51	265.79

Table C-3 summarizes emissions with growth factors applied over time. The allowed growth that APG must operate within is shown in Section 1. On post direct emissions by year (net) and cumulative by year are shown in Section 2. On post unregistered emissions will be taken from the total APG budget. Permitted point sources will be accommodated by the growth projected for the county (unknown at this time). Off post indirect emissions by year (net) and cumulative by year are shown in Section 3. Off post emissions will be accommodated within the projected growth for the Baltimore region.

Table C-1: MDE Permitted Point Source Emissions Inventory for APG

strStateFacilityIdentifier	strFacilityName	strSICPrimary	strBlankField	CO	NOX	VOC
025-0081	ABERDEEN PROVING GROUND	9711	025-0081-4-0619	2.707	9.5	0.1829
025-0081	ABERDEEN PROVING GROUND	9711	025-0081-5-0079	2.8666	2.2571	0.1877
025-0081	ABERDEEN PROVING GROUND	9711	025-0081-5-0080	1.428	0.5445	0.0935
025-0081	ABERDEEN PROVING GROUND	9711	025-0081-5-0081	1.428	0.5445	0.0935
025-0081	ABERDEEN PROVING GROUND	9711	025-0081-5-0085	0.8608	0.3646	0.0564
025-0081	ABERDEEN PROVING GROUND	9711	025-0081-5-0086	0.8608	0.3646	0.0564
025-0081	ABERDEEN PROVING GROUND	9711	025-0081-5-0087	0.8608	0.3646	0.0564
025-0081	ABERDEEN PROVING GROUND	9711	025-0081-5-0152	7.072	9.525	0.464
025-0081	ABERDEEN PROVING GROUND	9711	025-0081-5-0164	0	0	0
025-0081	ABERDEEN PROVING GROUND	9711	025-0081-5-0165	0	0	0
025-0081	ABERDEEN PROVING GROUND	9711	025-0081-5-0166	0	0	0
025-0081	ABERDEEN PROVING GROUND	9711	025-0081-5-0167	0	0	0
025-0081	ABERDEEN PROVING GROUND	9711	025-0081-6-0132	0	0	0.1213
025-0081	ABERDEEN PROVING GROUND	9711	025-0081-6-0133	0	0	0.1213
025-0081	ABERDEEN PROVING GROUND	9711	025-0081-6-0157	0	0	0
025-0081	ABERDEEN PROVING GROUND	9711	025-0081-6-0158	0	0	0
025-0081	ABERDEEN PROVING GROUND	9711	025-0081-6-0159	0	0	1.343
025-0081	ABERDEEN PROVING GROUND	9711	025-0081-6-0162	0	0	0.1955
025-0081	ABERDEEN PROVING GROUND	9711	025-0081-6-0163	0	0	0.0323
025-0081	ABERDEEN PROVING GROUND	9711	025-0081-6-0164	0	0	0
025-0081	ABERDEEN PROVING GROUND	9711	025-0081-6-0170	2.353	0.0237	0
025-0081	ABERDEEN PROVING GROUND	9711	025-0081-6-0189	0	0	0.0011
025-0081	ABERDEEN PROVING GROUND	9711	025-0081-6-0198	0	0	0
025-0081	ABERDEEN PROVING GROUND	9711	025-0081-6-0202	0	0	0.0203
025-0081	ABERDEEN PROVING GROUND	9711	025-0081-6-0207	0	0	0.003
025-0081	ABERDEEN PROVING GROUND	9711	025-0081-6-0231	0	0	0.0222
025-0081	ABERDEEN PROVING GROUND	9711	025-0081-6-0232	0	0	0.0142
025-0081	ABERDEEN PROVING GROUND	9711	025-0081-6-0269	0	0	0
025-0081	ABERDEEN PROVING GROUND	9711	025-0081-6-0308	0	0	0.9395
025-0081	ABERDEEN PROVING GROUND	9711	025-0081-9-0152	0	0	3.8163
025-0081	ABERDEEN PROVING GROUND	9711	025-0081-9-0182	0	0	0
025-0081	ABERDEEN PROVING GROUND	9711	025-0081-9-0186	0	0	0
025-0081	ABERDEEN PROVING GROUND	9711	025-0081-9-0198	0	0	0.3534
025-0081	ABERDEEN PROVING GROUND	9711	025-0081-9-0212	0	0	0
025-0081	ABERDEEN PROVING GROUND	9711	025-0081-9-0216	0.0002	0.0008	0.0001
025-0081	ABERDEEN PROVING GROUND	9711	025-0081-9-0225	0.0128	0.0483	0.0012
025-0081	ABERDEEN PROVING GROUND	9711	025-0081-9-0227	0.0228	0.0858	0.0022
025-0081	ABERDEEN PROVING GROUND	9711	025-0081-9-0228	0.0271	0.1019	0.0026
025-0081	ABERDEEN PROVING GROUND	9711	025-0081-9-0229	0.0296	0.1115	0.0029
025-0081	ABERDEEN PROVING GROUND	9711	025-0081-9-0276	0.0176	0.0661	0.0017
025-0081	ABERDEEN PROVING GROUND	9711	025-0081-9-0277	0.0176	0.0661	0.0017
				20.565	**23.969**	**8.1866**
025-0082	EDGEWOOD AREA	9711	025-0082-4-0098	0	0	0
025-0082	EDGEWOOD AREA	9711	025-0082-4-0099	0	0	0
025-0082	EDGEWOOD AREA	9711	025-0082-4-0100	0	0	0
025-0082	EDGEWOOD AREA	9711	025-0082-4-0103	0.6014	1.322	0.0399
025-0082	EDGEWOOD AREA	9711	025-0082-4-0104	0.6014	1.322	0.0399
025-0082	EDGEWOOD AREA	9711	025-0082-4-0113	0	0	0

Table C-1: MDE Permitted Point Source Emissions Inventory for APG

(Continued)

025-0082	EDGEWOOD AREA	9711	025-0082-4-0114	0	0	0
025-0082	EDGEWOOD AREA	9711	025-0082-4-0115	0	0	0
025-0082	EDGEWOOD AREA	9711	025-0082-4-0264	0.1526	0.3258	0.0101
025-0082	EDGEWOOD AREA	9711	025-0082-4-0265	0.1526	0.3258	0.0101
025-0082	EDGEWOOD AREA	9711	025-0082-4-0270	0.0306	0.1225	0.0021
025-0082	EDGEWOOD AREA	9711	025-0082-4-0271	0.1526	0.3258	0.0101
025-0082	EDGEWOOD AREA	9711	025-0082-4-0294	0.0492	0.197	0.0033
025-0082	EDGEWOOD AREA	9711	025-0082-4-0301	0.0412	0.1649	0.0028
025-0082	EDGEWOOD AREA	9711	025-0082-4-0381	0.1003	0.4011	0.0068
025-0082	EDGEWOOD AREA	9711	025-0082-4-0382	0.1003	0.4011	0.0068
025-0082	EDGEWOOD AREA	9711	025-0082-4-0383	0.0247	0.0988	0.0017
025-0082	EDGEWOOD AREA	9711	025-0082-4-0385	0.0246	0.0983	0.0017
025-0082	EDGEWOOD AREA	9711	025-0082-4-0388	0.0113	0.0453	0.0008
025-0082	EDGEWOOD AREA	9711	025-0082-4-0389	0.0113	0.0453	0.0008
025-0082	EDGEWOOD AREA	9711	025-0082-4-0392	0.0692	0.2768	0.0047
025-0082	EDGEWOOD AREA	9711	025-0082-4-0395	0.1156	0.229	0.0077
025-0082	EDGEWOOD AREA	9711	025-0082-4-0396	0.1156	0.229	0.0077
025-0082	EDGEWOOD AREA	9711	025-0082-4-0397	0.1156	0.229	0.0077
025-0082	EDGEWOOD AREA	9711	025-0082-4-0430	0.0379	0.1515	0.0026
025-0082	EDGEWOOD AREA	9711	025-0082-4-0431	0.0412	0.1649	0.0028
025-0082	EDGEWOOD AREA	9711	025-0082-4-0432	0.0288	0.1154	0.002
025-0082	EDGEWOOD AREA	9711	025-0082-4-0433	0.0359	0.1438	0.0024
025-0082	EDGEWOOD AREA	9711	025-0082-4-0437	0	0	0
025-0082	EDGEWOOD AREA	9711	025-0082-4-0438	0	0	0
025-0082	EDGEWOOD AREA	9711	025-0082-4-0441	0.0871	0.3484	0.0059
025-0082	EDGEWOOD AREA	9711	025-0082-4-0460	0.6014	1.01	0.0399
025-0082	EDGEWOOD AREA	9711	025-0082-4-0501	0.0634	0.2538	0.0043
025-0082	EDGEWOOD AREA	9711	025-0082-4-0506	0.0692	0.2768	0.0047
025-0082	EDGEWOOD AREA	9711	025-0082-4-0523	0.0692	0.2768	0.0047
025-0082	EDGEWOOD AREA	9711	025-0082-4-0543	0.6014	1.322	0.0399
025-0082	EDGEWOOD AREA	9711	025-0082-4-0544	0.6014	1.01	0.0399
025-0082	EDGEWOOD AREA	9711	025-0082-4-0545	0.0264	0.1055	0.0018
025-0082	EDGEWOOD AREA	9711	025-0082-4-0556	0.0428	0.1713	0.0029
025-0082	EDGEWOOD AREA	9711	025-0082-4-0558	0.1508	0.6031	0.0103
025-0082	EDGEWOOD AREA	9711	025-0082-4-0559	0.1508	0.6031	0.0103
025-0082	EDGEWOOD AREA	9711	025-0082-4-0560	0.1508	0.6031	0.0103
025-0082	EDGEWOOD AREA	9711	025-0082-4-0568	0.1992	0.7969	0.0136
025-0082	EDGEWOOD AREA	9711	025-0082-4-0569	0.1992	0.7969	0.0136
025-0082	EDGEWOOD AREA	9711	025-0082-4-0570	0.0113	0.0453	0.0008
025-0082	EDGEWOOD AREA	9711	025-0082-4-0571	0.0113	0.0453	0.0008
025-0082	EDGEWOOD AREA	9711	025-0082-4-0572	0.0113	0.0453	0.0008
025-0082	EDGEWOOD AREA	9711	025-0082-4-0620	0	0	0
025-0082	EDGEWOOD AREA	9711	025-0082-4-0623	0	0	0
025-0082	EDGEWOOD AREA	9711	025-0082-4-0625	0.0247	0.0987	0.0017
025-0082	EDGEWOOD AREA	9711	025-0082-4-0626	0.017	0.0681	0.0012
025-0082	EDGEWOOD AREA	9711	025-0082-4-0627	0.068	0.2718	0.0046
025-0082	EDGEWOOD AREA	9711	025-0082-4-0628	0.0038	0.015	0.0003
025-0082	EDGEWOOD AREA	9711	025-0082-4-0629	0.0149	0.0597	0.001
025-0082	EDGEWOOD AREA	9711	025-0082-4-0630	0.0149	0.0597	0.001
025-0082	EDGEWOOD AREA	9711	025-0082-5-0092	0	0	0
025-0082	EDGEWOOD AREA	9711	025-0082-5-0127	0	0	0

Table C-1: MDE Permitted Point Source Emissions Inventory for APG

(Continued)

025-0082	EDGEWOOD AREA	9711	025-0082-5-0128	0	0	0
025-0082	EDGEWOOD AREA	9711	025-0082-5-0129	0.025	0.0999	0.0017
025-0082	EDGEWOOD AREA	9711	025-0082-5-0163	0	0	0
025-0082	EDGEWOOD AREA	9711	025-0082-5-0170	0	0	0
025-0082	EDGEWOOD AREA	9711	025-0082-5-0171	0.0143	0.0571	0.001
025-0082	EDGEWOOD AREA	9711	025-0082-6-0166	0	0	0
025-0082	EDGEWOOD AREA	9711	025-0082-6-0167	0	0	0.0426
025-0082	EDGEWOOD AREA	9711	025-0082-6-0287	0	0	0.0271
025-0082	EDGEWOOD AREA	9711	025-0082-9-0151	0	0	1.2691
025-0082	EDGEWOOD AREA	9711	025-0082-9-0154	0	0	0
025-0082	EDGEWOOD AREA	9711	025-0082-9-0230	0.0849	0.3198	0.0082
025-0082	EDGEWOOD AREA	9711	025-0082-9-0231	0.091	0.3427	0.0088
025-0082	EDGEWOOD AREA	9711	025-0082-9-0232	0.0229	0.0863	0.0022
025-0082	EDGEWOOD AREA	9711	025-0082-9-0235	0	0	0
025-0082	EDGEWOOD AREA	9711	025-0082-9-0237	0	0	0
025-0082	EDGEWOOD AREA	9711	025-0082-9-0238	0	0	0
025-0082	EDGEWOOD AREA	9711	025-0082-9-0249	0	0	0
025-0082	EDGEWOOD AREA	9711	025-0082-9-0278	0.0372	0.1399	0.0036
025-0082	EDGEWOOD AREA	9711	025-0082-9-0279	0.0357	0.1345	0.0034
025-0082	EDGEWOOD AREA	9711	025-0082-9-0280	0.0324	0.122	0.0031
025-0082	EDGEWOOD AREA	9711	025-0082-9-0293	0	0	0
025-0082	EDGEWOOD AREA	9711	025-0082-9-0294	0	0	0
025-0082	EDGEWOOD AREA	9711	025-0082-9-0295	0	0	0
025-0082	EDGEWOOD AREA	9711	025-0082-9-0296	0	0	0
				6.1476	**16.924**	**1.7596**
				26.712	40.893	9.9462

Table C-2: MDE Unregistered Source Emissions Inventory for APG

strSCC	Emission Process Description	strBlankField2	CO	NOX	VOC
2103004000	Emissions from commercial/institutional distillate oil combustion.	Boilers	1.670615	6.68246	0.11360182
2103006000	Emissions from commercial/institutional natural gas combustion.	Boilers	0.42798	0.5095	0.0280225
2201001000	Mobile - LDGV Emissions	On-Road	154.6031303	9.926357167	7.135269301
2201020000	Mobile - LDGT 1&2 Emissions	On-Road	13.48655798	1.126402495	0.772157356
2201040000	Mobile - LDGT 3&4 Emissions	On-Road	319.7771425	33.01967521	19.53205371
2201070000	Mobile - HDGV	On-Road	12.61516918	10.00065743	4.190739269
2230060000	Mobile - LDDT 1-4	On-Road	0.013048792	0.019577162	0.007322334
2230070000	Mobile - HDDV	On-Road	0.179179414	1.170377144	0.064395668
223007233X	Mobile - HDDV Exhaust	On-Road	21.31282643	120.2053374	4.652067566
2230075330	Mobile - HDDB	On-Road	0.183505882	0.68945246	0.049149083
2260004075	2-Stroke Gas Eng; Lawn & Garden Equip; Other Equipment	APG Gas-Fired N	3.475819998	0.004544187	1.261737162
2265001050	4-Stroke Gas Eng; Recreational Equip; Golf Carts	APG Gas-Fired N	80.0872758	0.480983927	8.492012865
2265001060	4-Stroke Gas Eng; Recreational Equip; Specialty Vehicles/Carts	APG Gas-Fired N	116.1001296	0.673587727	4.197888923
2265002051	4-Stroke Gas Eng; Construction & Mining Equip; Off-Highway Trucks	Hvy cons. Non-m	18.98554275	0.47571975	0.9341406
2265003020	4-Stroke Gas Eng; Industrial Equip; Forklifts	APG Gas-Fired N	225.2992928	5.84193141	7.33637898
2265004020	4-Stroke Gas Eng; Lawn & Garden Equip; Chain Saws	APG Gas-Fired N	0.245038651	0.000320357	0.088950053
2265004030	4-Stroke Gas Eng; Lawn & Garden Equip; Leafblowers/Vacuums (Res)	APG Gas-Fired N	4.311481703	0.005636708	1.565085848
2265004040	4-Stroke Gas Eng; Lawn & Garden Equip; Rear Eng Riding Mowers (Res	APG Gas-Fired N	12.31058909	0.073934285	0.339602458
2265004045	4-Stroke Gas Eng; Lawn & Garden Equip; Front Mowers	APG Gas-Fired N	66.17277677	0.384706809	2.361710938
2265004075	4-Stroke Gas Eng; Lawn & Garden Equip; Other Lawn & Garden Equip (	APG Gas-Fired N	0.55862352	0.003354952	0.015410304
2265006005	4-Stroke Gas Eng; Commercial Equip; Generator Sets	AA Generatory &	19.69336385	0.49740365	0.96521444
2267002051	LPG Eng; Construction & Mining Equip; Off-Highway Trucks	Hvy cons. Non-m	0.31662875	0.00793375	0.015579
2268000HDT	Mobile - HD CNG Trucks	On-Road	0.34567236	0.02560536	0.003840804
2268000LDV	Mobile - LD CNG Trucks	On-Road	0.24691854	0.02904924	0.018155775
2270002015	Diesel Eng; Construction & Mining Equip; Rollers	Hvy cons. Diesel	0.189250387	0.567751162	0.05005978
2270002045	Diesel Eng; Construction & Mining Equip; Cranes	Hvy cons. Diesel	5.296200922	12.92896107	0.934623692
2270002048	Diesel Eng; Construction & Mining Equip; Graders	Hvy cons. Diesel	2.198220595	5.553399398	0.908212193
2270002051	Diesel Eng; Construction & Mining Equip; Off-highway Trucks	Hvy cons. Diesel	3.034387818	4.208989554	0.734126085
2270002066	Diesel Eng; Construction & Mining Equip; Tractors/Loaders/Backhoes	Hvy cons. Diesel	5.629522437	8.66171639	1.266682569
2270002081	Diesel Eng; Construction & Mining Equip; Other Construction Equip	Hvy cons. Non-m	0.45790891	2.125026378	0.171373095
2270003020	Diesel Eng; Industrial Equip; Forklifts	Hvy cons. Diesel	60.31732853	36.91836488	20.27910183
2270003030	Diesel Eng; Industrial Equip; Sweepers/Scrubbers	APG Diesel-Fired	0.4250799	2.32377012	0.25504794
2270004045	Diesel Eng; Lawn & Garden Equip; Front Mowers	APG Diesel-Fired	0.433828789	0.699296015	0.155267104
2270005015	Diesel Eng; Agricultural Equip; Agricultural Tractors	APG Diesel-Fired	0.3445092	5.8566564	0.5167638
2270006005	Diesel Eng; Commercial Equip; Generator Sets	AA Generatory &	5.969353817	20.99320411	1.619390744
2275000000	All Aircraft LTOs	EDMS AIR_EMIS	289.6833377	125.2003363	94.6115113

Table C-2: MDE Unregistered Source Emissions Inventory for APG

(Continued)

2275900000	Emissions from aircraft refueling.	Storage Tanks			0.0077
2282010000	Emissions from recreational marine 4-stroke gasoline equipment	Training Watercr	39.82099	0.1774366	13.024374
2282020000	Emissions from recreational marine diesel compression ignition equipmen	Training Watercr	0.2583	0.6273	0.3321
2311000080	Construction Welding	Welding	1.76472	0.017802	
2401002000	Emissions from solvent-based architectural surface coatings.	Architectural Coa			6.3635184
2401003000	Emissions from water-based architectural surface coatings.	Architectural Coa			5.1784608
2415300000	Emissions from cold cleaning solvents.	Solvent Degreas			0.7482
2440000000	Solvent Utilization - Misc	Chemical Usage			15.855
2465000000	Emissions from commercial/consumer solvents.	Consumer Produ			23.984128
2610010000	Open Burning Detonation	Open burn Open	0.09743665	0.08735265	0.00171428
2620000000	Landfills - All Categories	Landfill			4.11655
2670001000	Munitions Detonation	Open burn Open	0.2472334	0.1426022	0.0109694
2810035000	Firefighting Training	Fire Training	0.33285	0.6734	0.58025
39999998	Industrial Process - Miscellaneous	Firing Range	0.00986076	0.00140868	3.93022E-05
			1488.928629	**419.6192825**	**255.8456511**

Table C-2: MDE Unregistered Source Emissions Inventory for APG

(Continued)

Sources	teFacilityIde	gf 2003	gf 2004	gf 2005	gf 2006	gf 2007	gf 2008	gf 2009	gf 2010	gf 2011	gf 2012
ALL	025-0081	1.042564	1.040882	1.044134	1.117149	1.159657	1.239962	1.343315	1.235363	1.778937	1.835689

Table C-3. Summary of emissions growth

Pollutant	Base Year 2002 Emissions	Growth Factor									
		2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
		1.042564	1.040882	1.044134	1.117149	1.159657	1.239962	1.343315	1.235363	1.778937	1.835689
CO	**1515.6409**	1580.15	1577.60	1582.53	1693.20	1757.62	1879.34	2035.98	1872.37	2696.23	2782.24
NOX	**460.5123**	480.11	479.34	480.84	514.46	534.04	571.02	618.61	568.90	819.22	845.36
VOC	**265.7919**	277.11	276.66	277.52	296.93	308.23	329.57	357.04	328.35	472.83	487.91

Section 1: *Increase in APG budgeted emissions over 2002 base year (tons/year)*

Note: APG is allowed to grow emissions to levels shown in section 1.

	2009	2010	2011
CO	**520.34**	**356.73**	**1180.59**
NOX	**158.10**	**108.39**	**358.71**
VOC	**91.25**	**62.56**	**207.04**

Section 2: ON-POST

BRAC Increase by Year -- direct emissions (point and fugitive sources on post) (tons/year)

	2009	2010	2011
CO	157.8	-22.5	248.2
NOX	37.3	-1.0	59.5
VOC	13.9	-7.3	37.3

BRAC Cumulative Increase -- direct emissions (point and fugitive sources on post)

Note: On-post unregistered emissions will count against the APG emissions budget. Permitted point sources will be accommodated by the growth projected for the County.

	2009	2010	2011
CO	157.8	135.3	383.5
NOX	37.3	36.3	95.8
VOC	13.9	6.6	43.9

Section 3: OFF-POST

BRAC Increase by Year -- indirect emissions (mobile emissions off-post) in Baltimore Metropolitan Area (tons/year)

	2009	2010	2011
CO	137.5	0.0	208.3
NOX	60.0	0.0	68.5
VOC	12.2	0.0	16.7

BRAC Cumulative Increase -- indirect emissions (mobile emissions off-post) in Baltimore Metropolitan Area

Note: Off-post emissions will be accommodated within the projected growth for the Baltimore region.

	2009	2010	2011
CO	137.5	0	345.8
NOX	60.0	0	128.5
VOC	12.2	0	28.9

MDE

MARYLAND DEPARTMENT OF THE ENVIRONMENT

1800 Washington Boulevard • Baltimore MD 21230
410-537-3000 • 1-800-633-6101

Robert L. Ehrlich, Jr.
Governor

Michael S. Steele
Lieutenant Governor

Kendl P. Philbrick
Secretary

Jonas A. Jacobson
Deputy Secretary

April 18, 2006

Mr. Ralph A. Cardenuto
Chief, Environmental Compliance Division
Directorate of Safety, Health and the Environment
4303 Susquehanna Ave, 3rd Floor Wing B
Aberdeen Proving Ground, MD 21005

RE: Aberdeen Proving Ground 2002 Emissions Inventory

Dear Mr. Cardenuto

Thank you for your assistance with developing the 2002 Base Year Emissions Inventory for Aberdeen Proving Grounds. The Maryland Department of the Environment (MDE) has reviewed the emission estimates you have provided and we plan on incorporating these estimates into the official 2002 Base Year Inventory. MDE will be submitting this 2002 Base Year Inventory to the USEPA in June 2006. MDE has provided you with spreadsheets on April 5, 2006 that identify the exact emission estimates that we will be incorporating.

MDE has also agreed to the BRAC based growth estimates (with the exception of the permitted point sources which will be grown via county based SCC coded growth percentages) you have provided for the purposes of growing out the 2002 Base Year Emissions. These growth estimates will be used in the State Implementation Plan for the years 2006, 2007, 2008, 2009 and 2010. MDE will be incorporating these growth factors in the 8-hr Ozone SIP, which will be submitted to EPA in June 2007.

MDE appreciates the efforts of Aberdeen Proving Grounds (APG) in providing the most accurate emission inventory possible. While agreeing to use the BRAC growth estimates creates a significantly more accurate projected inventory it also increases the projected emissions for our ozone attainment years. Comparing the new BRAC based projections versus our normal county rate shows an increase in 2009 emissions of approximately 160 tons per year of NOx and approximately 130 tons per year of VOC.

In the spirit of future cooperation, MDE would like APG to develop and provide a list of voluntary programs aimed at reducing NOx and VOC emissions to help offset the increase from the BRAC growth rates. MDE would like APG to consider the implementation of any cost effective voluntary programs available to help lower emissions and clean the air. One possibility would be to work with MDE and Clean Air Partners on the development of a voluntary business emission reduction program aimed at

increasing the emission benefits of the Air Quality Action Day program, which APG has been an awarded member of for over 10 years. MDE would like to review the list of voluntary measures by June 30th, 2006.

Thank you again for working closely with MDE on these emission inventory projects. If there are any questions please call Brian Hug or Roger Thunell at 410-537-3245.

Sincerely,

Diane L. Franks

Diane L. Franks
Deputy Program Manager
Air Quality Planning and Monitoring Program

CC: Brian Hug, MDE
Roger Thunell, MDE
Randy Mosier, MDE

DEPARTMENT OF THE ARMY
U.S. ARMY GARRISON, ABERDEEN PROVING GROUND
2201 ABERDEEN BOULEVARD
ABERDEEN PROVING GROUND, MARYLAND 21005-5001

REPLY TO
ATTENTION OF

JUN 21 2006

Directorate of Safety,
Health and Environment

Ms. Diane L. Franks
Deputy Program Manager
Air Quality Planning and Monitoring Program
Maryland Department of the Environment
1800 Washington Boulevard
Baltimore, MD 21230

Dear Ms. Franks:

In response to your letter dated April 18, 2006, Aberdeen Proving Ground (APG) is providing a list of voluntary programs aimed at reducing NOx and VOC emissions to help offset the anticipated emissions increase associated with Base Realignment and Closure (BRAC). APG has proactive policy of reducing emissions and conserving energy and will continue exploring and implementing additional emission reduction opportunities in the future.

Our point of contact for this matter in the Environmental Compliance Division is Dr. Hazoor Khan, 410-306-2278.

Sincerely,

Ralph A. Cardenuto
Chief, Environmental
Compliance Division

Enclosure

DISTRIBUTION RESTRICTION
STATEMENT APPROVED FOR PUBLIC RELEASE:
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VOLUNTARY EMISSION REDUCTION PROGRAMS
ABERDEEN PROVING GROUND

Since the initiation of Title V permit program, Aberdeen Proving Ground has been proactively evaluating and implementing a variety of programs to reduce NO_X and VOC emissions and conserve energy. Major programs include the following:

1. APG works with the Maryland Department of the Environment (MDE) and Clean Air Partners to reduce emissions on Air Quality Action Days. These actions include promoting public awareness and placing restrictions on fueling vehicles at APG gas stations on ozone action days.

2. APG has adopted a year-round Regular Day Off work schedule by which employees work 9-hour days for 8 days, 8 hours on the 9th day, with the 10th day off every two weeks. This work schedule reduces vehicular emissions associated with employee and contractor traffic by approximately 10%, and significantly reduces the heating, cooling and lighting energy consumption in APG buildings.

3. The Aberdeen Chemical and Neutralization Facility has completed processing of the unique materials. This eliminates NO_X and VOC emissions resulting from the process and the support facilities. The facility closure work is in progress. The completion of this project will reduce additional 400 vehicles traveling at Aberdeen Proving Ground.

4. APG Paint policy encourages use of water-based paints with significant reductions of VOC emissions.

5. APG is evaluating the use of alternative fuels such as E85. Such alternate fuel vehicles have lower emission levels as compared to conventional-fuel vehicles. Over 150 of APG's vehicles are currently E85 compatible.

6. Operation of a medical waste incinerator at APG has been discontinued.

7. APG has installed about 640 geothermal heat pumps in family housing units. These geothermal units are approximately 60 percent more efficient than the air to air units that were replaced. This has generated significant savings in electrical consumption.

8. APG has performed over 6 million dollars worth of lighting retrofits and building insulation improvements. Forty Watt T12 fluorescent bulbs have been replaced with 32 Watts bulbs and more efficient ballasts. For example, insulation improvements in building 525 have reduced the number of boiler required to run in the winter from 3 to 1.

9. APG utilizes steam powered cooling equipment which makes use of steam from Harford County's Waste to Energy Plant, a renewable energy source, to reduce emission and save electricity during the summer months.

10. Old energy in-efficient buildings have been demolished and additional demolition work continues depending upon the availability of funds. Energy in-efficient world war II buildings consume a large amount of energy and contribute to increased NO_X and VOC emissions.

11. New building construction at APG uses emission reduction and energy efficient designs including better insulation and higher efficiency equipment (e.g., steam and hot water boilers, air-conditioning units, etc.). The BRAC action will provide an opportunity to replace or renovate some older buildings with more energy efficient modern buildings.

12. APG has installed an Energy Management Control System (EMCS) in over 3 million square feet of building space. This enables emission reductions and efficient utilization of electricity and fuel by adjusting interior temperatures during non-working hours. Air-conditioning systems operation hours are delayed to reduce emissions. HVAC systems are turned of over weekends and holidays.

13. A large number of boilers using fuel oil have been retrofitted to operate on dual fuel (natural gas and fuel oil). Since natural gas environmental friendly fuel, substituting natural gas for fuel oil has significantly reduced NO_X and VOC emissions.

MDE

MARYLAND DEPARTMENT OF THE ENVIRONMENT

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Robert L. Ehrlich, Jr.
Governor

Michael S. Steele
Lieutenant Governor

Kendl P. Philbrick
Secretary

Jonas A. Jacobson
Deputy Secretary

August 15, 2006

Mr. Ralph A. Cardenuto
Chief, Environmental Compliance Division
Directorate of Safety, Health and the Environment
4303 Susquehanna Ave, 3rd Floor Wing B
Aberdeen Proving Ground, MD 21005

RE: Draft BRAC 2005 Implementation, Aberdeen Proving Ground, MD, General Conformity Determination

Dear Mr. Cardenuto:

Thank you for providing the Maryland Department of the Environment (MDE) the opportunity to review and comment on your draft conformity determination. The MDE concurs with the results of your analysis pending the following comments and/or revisions.

- While it is accurate to state that the increase in direct on-post emissions is less than the APG projected emissions that MDE has agreed to use in the State Implementation Plan it should be noted that MDE has only agreed to use Aberdeen Proving Ground's (APG's) growth projections for the years 2006-2010. MDE has not agreed to use APG's growth projections for 2011.

- The cumulative emissions totals for NOx and VOC for both 2009 and 2010 are below the general conformity *de minimis* levels of 100 tpy of NOx and 50 tpy of VOC. The 2011 (full build-out) cumulative emissions are significantly higher than the *de mimimis* levels but APG and MDE agree than the indirect emissions (consisting strictly of off-post mobile emissions) will be incorporated into the regional transportation-planning model and will be mitigated via the federal transportation conformity regulations. Removing these mobile indirect emissions from the total cumulative emissions shows that the remaining increases in emissions fall below the *de minimis* levels. The MDE agrees with this approach and requests that APG continue to work closely with the Baltimore Regional Transportation Board to ensure that the off-post mobile emissions are properly characterized.

- MDE concurs that increases in CO emissions at APG from BRAC can be accommodated for in the current CO Maintenance Plan for the Baltimore Region.

- On July 17, 2006 the EPA published a direct final rule establishing *de minimis* levels for PM2.5 General Conformity Analyses: http://www.epa.gov/fedrgstr/EPA-AIR/2006/July/Day-17/a11241.htm

- This final federal PM2.5 general conformity rule states that SO2 emissions are always considered a PM2.5 precursor and a *de minimis* threshold of 100 tpy has been established. The Baltimore Region, which includes APG has been designated nonattainment for PM2.5. In order to conform with the federal general conformity requirements for PM2.5, APG needs to examine SO2 emissions and ensure they are below *de minimis*.

Thank you again for working closely with MDE on this project. If there are any questions please contact me or Brian Hug at 410-537-3245.

Sincerely,

BHug for

Diane L. Franks
Acting Program Manager
Air Quality Planning and Monitoring Program

CC: Brian Hug, MDE
Roger Thunell, MDE
Harvey Bloom, Baltimore Metropolitan Council

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APPENDIX C

BIOLOGICAL ASSESSMENT COORDINATION

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DEPARTMENT OF THE ARMY
US ARMY ABERDEEN PROVING GROUND
2201 ABERDEEN BOULEVARD
ABERDEEN PROVING GROUND MD 21005-5001

REPLY TO
ATTENTION OF

SEP 6 2006

Deputy Installation Commander

Mr. Craig Koppie
US Fish and Wildlife Service
Chesapeake Bay Field Office
177 Admiral Cochrane Drive
Annapolis, Maryland 21401

Dear Mr. Koppie:

Thank you for attending the August 8, 2006, planning meeting at Aberdeen Proving Ground (APG). As discussed during the meeting, the US Army Corps of Engineers (USACE) is preparing an Environmental Impact Statement (EIS) for Base Realignment and Closure (BRAC) actions and the proposed Lauderick Creek Enhanced Use Lease (EUL) at APG. A request for EIS scoping comments was submitted to Mr. John Wolflin of your office on June 20, 2006, and included a general Description of the Proposed Action and Alternatives (DOPAA). The purpose of this letter is to request informal Endangered Species Act section 7 consultation with the US Fish and Wildlife Service for the proposed actions and to provide you with additional information regarding the proposed actions. A detailed Draft DOPAA is provided in Enclosure 1. Key information relative to potential effects of the actions on the bald eagle is summarized below.

BRAC Actions

The BRAC actions involve the realignment of several incoming organizations and personnel to APG and are expected to result in the net increase of about 4,400 new personnel to the installation. Renovation of existing facilities and construction of new facilities is required to accommodate the increase in personnel. All renovation and construction associated with the BRAC actions will occur within the proposed development areas shown in Figures 3-1, 3-2, and 3-3 of Enclosure 1, which are located in the developed cantonment areas on the Northern Peninsula (Aberdeen Area) and Southern Peninsula (Edgewood Area). All renovation and new construction is planned for upland areas that are currently developed, have been previously disturbed, and/or are currently maintained. Specific building locations and the mix of renovation and new construction would be established through the ongoing planning and design process.

The total space required (renovation and new construction) is estimated to be 3.6 million square feet (SF) of mixed administrative, laboratory and miscellaneous facility spaces, parking, and other logistic appurtenances. The majority of this space will support administrative, technical and support elements of the in-bound communities associated Command, Control, Communication, Computers for Intelligence, Surveillance, Reconnaissance (C4ISR), Chem/Bio and DT/OT research, development, test evaluation (RDT&E) and acquisition. As such, the majority of the population will be working within the confines of their respective offices and laboratories, on a regular basis. Outdoor field and range operations are also required for this type

of DOD work however, will be sporadic and managed through a central range control office. The overall impact to current outdoor operations is projected as minimal, of short duration while underway and requires no unlike mission related modifications nor upgrades.

Potential bald eagle nesting, foraging, and roosting habitat does not exist or is very limited within the proposed BRAC development areas based on existing development, human activity, minimal forest cover, and distances to forested shorelines and large wetlands. As shown in Enclosure 2, no bald eagle nests or protection buffers are located within the proposed BRAC development areas. The closest nests to the proposed BRAC development areas on the Northern Peninsula and Southern Peninsula are about 4,500 feet to the east and 5,100 feet to the west, respectively. Furthermore, no known bald eagle communal roosts or associated buffers are located within one mile of the proposed development areas.

Section 9 of the APG Bald Eagle Biological Assessment (BA) (January 2005) addresses future APG development activities to a limited extent:

"The potential development areas listed in Table 19 are predominately located in the respective cantonment areas, or are currently developed (e.g., Phillips Army Airfield) and are not used by bald eagles as habitat. The exact nature of the development or redevelopment of these areas has yet to be determined. The development and continued use of these sites is not, however, expected to affect the use of surrounding habitats by bald eagles."

The USFWS' Draft Biological Opinion (BO) (May 4, 2006) indicates:

"The cantonment area (public facilities, residential homes, and community areas) in most cases is not considered habitat for bald eagles and therefore will not be incorporated in the impacts analysis."

Based on information presented in the BA and Draft BO, the nature of the BRAC actions, and the lack of suitable habitat within the proposed BRAC development areas, the Army's initial determination is: (1) the proposed BRAC actions would have no effect on bald eagle populations or (2) the proposed BRAC actions are not likely to adversely affect bald eagle populations. We request your written concurrence with these determinations and any other comments that you have regarding the proposed BRAC actions within 30 days of receipt of this letter.

Lauderick Creek EUL Action

The Lauderick Creek EUL action would involve leasing a 1,300-acre parcel to a private development partnership under the Army's EUL Program. The current concept is for the partnership to develop and operate an anti-terrorism/law enforcement technology park and training center, as described in Enclosure 1. As discussed during our August 8, 2006, meeting at

APG, conceptual planning for the EUL is ongoing and specific development and use plans are not yet available. Preliminary conceptual plans for the EUL are provided in Enclosure 3.

The Lauderick Creek area includes three bald eagle nesting sites (two active and one inactive during 2006) and high quality bald eagle foraging habitat. No communal roosting sites are known to exist in the area, but potentially suitable roosting habitat is present. While the effects of the proposed Lauderick Creek EUL action on the bald eagle cannot be fully quantified based on the current stage of planning, the Army believes that the action has the potential to adversely affect bald eagles. Accordingly, the Army intends to work with the USFWS and EUL development partnership through the informal consultation process to avoid and minimize adverse effects. At this time, we request your written comments on the proposed Lauderick Creek EUL and would like to schedule a meeting to discuss your comments and review project design concepts and potential conservation measures within 30 days of receipt of this letter. We will contact you soon to discuss a possible meeting date.

We appreciate your assistance on this important and time sensitive project. If you have any questions, please contact Mr. Tim McNamara at (410) 306-2250 or Mr. John Paul at (410) 436-4567. A copy of this letter is being forwarded to Mr. Bud Keesee and Mr. John Paul, APG and to Mr. Leo Montroy and Mr. Mark Collins, Parsons.

Sincerely,

John T. Wright
Colonel, US Army
Deputy Installation Commander

Enclosures

October 4, 2006

U.S. Department of the Army
U.S. Army Garrison, Aberdeen Proving Ground
AMSSB-GCO
2201 Aberdeen Boulevard
Aberdeen Proving Ground, MD 21005-5001

Attn: Tim McNamara

Re: EIS for Base Realignment and Closure (BRAC)/Lauderick Creek EUL

Dear Colonel Wright:

This responds to your request for review of the Army's preparation of an Environmental Impact Statement for Base Realignment and Closure (BRAC) actions and the proposed Lauderick Creek Enhanced Use Lease (EUL) at APG. The proposed actions may affect bald eagles *(Haliaeeuts leucocephalus)*, a federally listed threatened species, which occupy forests within the 32,000 acre natural areas portion of the Army complex. Biologists at APG have documented four communal roost sites in addition to approximately 35 active nesting territories. We have reviewed the information you enclosed, and are providing comments in accordance with Section 7 of the Endangered Species Act (87 Stat.884, as amended; 16 U.S.C. 1531 *et seq*.).

With regards to the upcoming BRAC initiative, the Service concurs with the Army that bald eagles are not likely to be impacted. Selected locations for renovations and new construction projects are planned within the cantonment areas of APG which has been developed and does not provide for suitable bald eagle nesting habitat. Currently, bald eagle nests are located no closer than 4,500 feet and 5,100 feet from the proposed action area.

The Enhanced Use Lease action at Lauderick Creek is likely to negatively impact nesting and foraging bald eagles. During the 2006 Bald Eagle Nest Survey, APG biologists documented two bald eagle pairs and visually sighted three nests within the forested peninsula between Lauderick Creek and the Bush River. Since a conceptual plan for the EUL has not yet been finalized, the Service cannot accurately assess the level of potential impacts to bald eagles or propose conservation measures to minimize those future impacts. We expect, however, that land clearing for development projects associated with the construction of explosive ranges, arms ranges, urban assault village, and a maritime training component, will likely adversely affect one or more nesting pairs and possibly numerous non-breeding and foraging eagles. Therefore, we concur with the Army's preliminary determination that the Lauderick Creek

EUL will likely adversely affect bald eagles and therefore, will require the preparation of a biological assessment to determine the level of potential impacts to nesting and foraging bald eagles.

The Service will continue to assist the Army in developing a site plan that would allow the EUL project to move forward while minimizing impacts to resident and non-resident bald eagles. If you should have concerns or questions regarding this review, please contact Craig Koppie of the Threatened and Endangered Species Program at 410/573-4534.

Sincerely,

John Wolflin
Supervisor

cc: Glenn Therres, MD DNR

United States Department of the Interior

FISH AND WILDLIFE SERVICE

Chesapeake Bay Field Office
177 Admiral Cochrane Drive
Annapolis, MD 21401

December 27, 2006

Colonel John T. Wright
Commander, U.S. Army Proving Ground
2201 Aberdeen Blvd.
Aberdeen Proving Ground, Maryland 21005-5001

Attn: Tim McNamara

Re: Biological Opinion, APG bald eagle mortality

Dear Colonel Wright:

This document transmits the U.S. Fish and Wildlife Service's (Service) biological opinion based on our review of the Army's biological assessment for impacts to bald eagles (*Haliaeetus leucocephalus*) as a result of conducting military mission activities including training operations and associated building infrastructure at Aberdeen Proving Ground (APG). The Army facility is located in southern Harford and eastern Baltimore Counties in Aberdeen, Maryland. We are providing comments in accordance with Section 7 of the Endangered Species Act of 1973 (ESA), as amended (87 Stat. 884, as amended: 16 U.S.C. 1531 *et seq.*).

This biological opinion (BO) is based on information from interagency meetings, site visits, and data provided in your January 29, 2005 Biological Assessment (BA) provided by General Physics Corporation. The Service also reviewed the results of monthly shoreline training exercises and subsequent bald eagle monitoring reports conducted before and after each activity. In addition, prior biological opinions and other relevant bald eagle studies pertinent to the Chesapeake Bay bald eagle population were reviewed. The Service requested a 60-day extension on April 19, 2005 to complete the review of the BA due to simultaneous review of other APG projects. On August 3, 2005, the Service found it necessary to request an additional 30-day extension to review the APG 2025 Master Plan and recent information pertaining to the President's Department of Defense (DoD) Base Realignment and Closure procedures (BRAC) for the APG facility. On September 21, 2005 the Service requested the Army to submit a final Supplement to their BA which was delivered on January 28, 2006. Further discussion with the Army was required to address "privatization" of public utilities at APG that had implications to establishing the level of incidental take in the BO.

I. CONSULTATION HISTORY

In 1980, the U.S. Army Aberdeen Proving Ground initiated its first ESA section 7 consultation with the Service for potential impacts to federally threatened bald eagles as a result of constructing new test facility structures. Ordnance testing, Range firing exercises, and vehicle track testing had been the standard types of operations since 1917. To accomplish these and other military mission objectives, the Army designated large tracts of land to carry out training and Range Control exercises safely distanced from the public. By restricting development and human activity within the Range and other Impact Areas, a vast complex of natural habitat (wetlands and forest) was made available for many types of wildlife species. The bald eagle greatly benefited from this arrangement and soon began to re-colonize a nesting population at APG. including, congregations of hundreds of non-resident migrant bald eagles that over winter and summer here, from northern and southern territories of the United States and Canada.

Due to the eagles' protected status under the Endangered Species Act (ESA), the Army had the responsibility to coordinate with Maryland Department of Natural Resources and the Service to annually inventory and monitor nests of eagle pairs, in addition to conducting shoreline surveys to identify essential foraging areas. In 1995, APG biologists completed a Bald Eagle Management Plan (BEMP) designed to protect bald eagles while allowing for the continued planning and execution of Army mission objectives. As stated in the BEMP, a 500 meter buffer zone was established by the Army and is currently enforced by APG Garrison to protect eagle nests and communal roost areas from human disturbance year round. The Army's objectives at APG involved weapons development and testing but since 1999, new tenant activities involved increased small arms firing and shoreline training component consisting of beach assault maneuvers, troop extractions using helicopters, laser targeting exercises, close air support and cement bomb deployment by A-10 and F-16 fixed-wing aircraft among others.

As the bald eagle population rebounded in the 1980's, eagle mortalities also were beginning to occur at APG. It appeared that bald eagles, and other raptors such as osprey (*Pandion haliaeetus*) and red-tailed hawks (*Buteo jamaicensis*), were using the cross arms of power poles for perching. In attempts to either land or take flight, their wings would make contact with two or more "live wires" resulting in death by electrocution. In response to this mortality, APG consulted with the Service to seek solutions to reduce adverse impacts to bald eagles. One practical measure implemented to deter eagles from landing on power poles was to elevate perches above the cross arms of transformer poles (1992-1995). Approximately 320 perches were placed on power poles beginning at Spesutie Island and moving southward to Carroll Island. The incidences of documented eagle mortalities stopped for several years but the mortalities began again in 1997 and 1998. In 1999 and 2000, four birds were lost each year. In 2001, eagle mortality now included mid-line collision with suspended power lines. From 2002-2004 bald eagle mortalities increased from 7-15 eagles per year (APG BA, 2005).

These increasing incidents initiated an investigation by the Fish and Wildlife Service's Division

of Law Enforcement to determine the cause(s) leading to eagle mortality at APG. Burn marks to the feet or body feathers of bald eagles indicated electrical burns resulting from either landing on exposed wires or colliding with power lines (FWS LE Necropsy Reports, 2004). Since mortality was not being curtailed, the Army requested consultation with the Service's Chesapeake Bay Field Office in 2003. The Army began preparation of a Biological Assessment (BA) to address current impacts to bald eagles as a result of on-going mission activities at APG. In all, APG biologists documented a total of 53 bald eagle carcasses at the APG between 1985 and 2004, which does not include an additional 11 mortalities which have occurred since March 2005. Between 2005 and 2006 three additional mortalities were confirmed. Interim measures to reduce eagle mortalities from mid-line collisions included the placement of aviation spheres attached every 50 feet apart in addition to deploying several thousand avian diverters (Fire-Fly II's) that could be attached to energized wires. The conclusion of the Army's biological assessment was that APG mission activities were adversely affecting bald eagles.

In addition to past and present mission activities being conducted at APG, the Service was recently informed that APG is expected to participate in the DoD BRAC initiative. Through BRAC planning and privatizing public works and other services, it is likely that APG will implement new programs that may result in modifications to the existing landscape; changes not previously planned for in the APG 2025 Master Plan. It is foreseeable that with the changing dynamics of the military mission, modifications to infrastructure and increasing bald eagle population at APG, additional impacts are likely to continue.

A complete administrative record of this consultation is on file at this office (see Appendix A).

II. BIOLOGICAL OPINION

DESCRIPTION OF PROPOSED ACTIONS

The action area for this Biological Opinion is described as the U.S. Army properties of Aberdeen Proving Ground and the Edgewood Area, collectively known as APG. The proposed action(s) covered by this opinion is not defined as a single activity, but rather all the activities that occur at APG that effect eagles. To understand this we provide a comprehensive review of past, present, and future Army mission activities at APG to understand effects and suggest potential minimization measures. The activities are conducted by the primary tenants at APG which include the Aberdeen Test Center (ATC), Army Research Lab (ARL) and the Edgewood Chemical and Biological Center (ECBC). Past, present and future activities conducted by ATC and ARL include, but are not limited to, munitions testing, weapons firing, and remediation of building infrastructure. In addition to testing and range operations, ATC recently initiated shoreline training exercises during 2000, which is expected to continue into the foreseeable future. Many of these activities involved day and nighttime exercises involving Special Boat Team Training (Navy) located along the Chesapeake Bay shoreline and several tributaries at APG. These and other exercises involved the use of lasers to mark targets for fixed-wing and

rotory-wing aircraft close air support to ground troops. As a result of the September 11, 2001 terrorist attack on the United States, many DoD Agencies, including the Army, have stepped-up training activities to meet directives mandated under the Department of Homeland Security. Monthly training activities also have increased, both in quantity and frequency per month at APG. Training exercises have been focused at shoreline areas of the installation, located from Black Point to Abbey Point along the Chesapeake Bay. The coastline which is approximately 12 miles in length and several miles of Romney Creek (and associated tributaries) are deemed by the Army as "essential" primary areas to conduct military training activities. Both of these training/target firing areas contain forested shorelines that are often used by bald eagles for nesting, foraging, and roosting. Past activities conducted by ECBC involved research and development associated with the chemical processing at the Edgewood Area, which are expected to continue. Current and future activities involving soil remediation and restoration of Super Fund clean-up sites will continue as required by EPA. Several sites at Aberdeen contain residual chemical wastes which may require APG personnel or contractors to travel or conduct remediation activities within the 500 meter buffers of existing bald eagle nests or future nesting areas.

The cantonment area is located outside of the restricted ordnance testing and munitions firing areas. This area consists of man-made infrastructure (educational, recreational and training facilities), residential homes, commercial and retail stores among others. The landscape features of the area are generally not considered habitat for bald eagles although marginal forested habitat does exist. Long term maintenance programs, expansion involving new construction, and other associated support activities within the cantonment area are anticipated. Future land clearing is probable which may affect nesting bald eagles that either currently exist or may arrive at some point in the future. Since 1990, the Army has been conducting mission activities at APG with documented incidences involving eagle mortality with a notable increase beginning in 2001.

STATUS OF THE SPECIES/CRITICAL HABITAT

Life History

With a wingspan of 6.5 feet, the bald eagle is one of the largest birds of prey found in North America. It is often found near large bodies of water, associated with shoreline habitats near estuaries, rivers and lakes. Adult eagles are easily recognized by their distinctive white head and tail feathers. Juvenile birds are dark brown during their first year of life, transitioning into a mottled brown plumage. The fully capped white head appears at sexual maturity usually at age four to five. The diet of the bald eagle consists largely of fish, eel, and turtles throughout the spring and summer months. During winter months bald eagles adapt to seasonal changes in prey availability by shifting their diet to include waterfowl and small mammals.

For foraging and nesting, eagles generally prefer undisturbed forested habitats away from other types of human development and associated activities. Eagles generally avoid areas of human

activity (Fraser,1985; Chandler *et al.* 1995). The selected nest tree usually extends above the forest canopy, usually less than a mile distance to water. In the Chesapeake Bay region, eagles prefer live trees, such as, loblolly pine (*Pinus taeda*) 70% of the time but often select deciduous trees. Mature Tulip poplar (*Liriodendrin tulipifera*), American beech *(Fagus grandifolia*), white and red oak (*Quercus* sp.*)*, and Virginia pine (*Pinus virginianus*) are regularly used by eagles. Large sticks are placed near the top of the nest tree, usually averaging heights of 90 feet. The nest is circular to oval in shape and averages 3 to 4 feet deep by 5 feet across. Eagles will usually occupy the same nest tree for several years but will relocate to other areas within the territory due to habitat loss, declines in food production, and human disturbance. Natural elements, such as adverse weather conditions or the need to relocate a nest site due to excessive external parasites, may also account for alternate nest site selection. Adult eagles mate for life, establishing nesting territories that they return to each year. Nesting pairs may remain near their territory year round, especially towards the southern end of the species range. In Maryland, nest building and repair usually begin in late November or December. One to three egg clutches are laid between February and late March. However eggs can be laid as late as the end of April if an earlier nesting attempt fails. Most eggs hatch between March and early May and eaglets remain in the nest for 11 to 12 weeks. Eggs or young within the first three weeks of hatching are highly susceptible to wind-chill or even death as a result of heat loss that may occur when adults are disturbed from the nest for prolonged periods. By mid-July, eaglets have mastered the skills of flight but are dependent on the parents and remain in the general vicinity of the nest for several more weeks. After this time, most young have dispersed from the nest site to other areas of the Chesapeake Bay region and possibly further.

Status of the Species within the Chesapeake Bay Portion of Its Range

Historically, bald eagles were abundant on the Chesapeake Bay. Eagle densities could be compared to eagle populations found in undeveloped Alaska. Based on comparisons with undisturbed shorelines elsewhere, it has been estimated that prior to European settlement total eagle numbers in the Chesapeake Bay region may have exceeded 3,000 pairs. Declines in population numbers resulted from loss of habitat due to land clearing for crops and human habitation. In the late 1940's eagle numbers were dramatically reduced through the use of the chemical insecticide DDT for crop management. By the late 1960's, breeding populations of predatory birds, such as peregrine falcons, ospreys and bald eagles had been decimated as a result of eggshell thinning (Wiemeyer *et al.* 1984). Since the nationwide ban of DDT and other chlorinated hydrocarbon pesticides, the Chesapeake Bay population has steadily increased. According to State survey data (G. Therres, Maryland Department of Natural Resources, Annapolis MD) the population has increased from approximately 70 pairs in the mid 1970's to 492 pairs in 1999. Between 2000 and 2002, approximately 553 pairs had produced 805 young and 627 pairs had produced 897 young, respectively. The 2003 nest survey which documented approximately 850 active nests, was the last comprehensive aerial survey (inclusive of MD, VA, DE, and DC) for the Chesapeake Bay region. Maryland Department of Natural Resources has

discontinued annual nest monitoring surveys in the Maryland portion of the range. The neighboring state of Delaware has recently (2005) documented 37 active nests.

In addition to the resident breeding population, the Chesapeake Bay region supports more than ten bald eagle concentration areas. Collectively, these areas are known to support over a thousand non-breeding adult and sub-adult individuals during summer and winter months. Concentration areas may contain eagles in numbers ranging from smaller groups of under 20, to larger groups comprising of 150 individuals or more. Biologists believe eagles are attracted to these areas due to a combination of factors but primarily, abundance and availability of food in proximity to undeveloped forested shoreline habitats play a key role in the site selection. Mature climax-forests provide suitable perch trees for daytime loafing or overnight roosting. Telemetry studies have shown that these concentration areas support not only Bay region eagles, but considerable numbers of eagles from northern and southern states congregate here (Buehler *et al.* 1991a).

In Maryland, concentration areas include the Aberdeen Proving Ground, Blackwater National Wildlife Refuge, Indian Head (Navy Surface Warfare Center on the Potomac River) and below the Conowingo Dam on the Susquehanna River. In Delaware, a small concentration of eagles is known to frequent an area near Rehoboth. In Virginia, five roosting sites are known to exist. Two sites have been documented on the James River, one on the Rappahannock River and at least two sites (Mason Neck; Caledon State Park) are located within the Potomac River. The closest eagle concentration area to Washington D.C. is approximately 12-14 miles south, at the Mason Neck National Wildlife Refuge and the Mason Neck State Park bordering the Potomac River in Fairfax County, Virginia.

Analysis of the species/critical habitat likely to be affected

The Chesapeake Bay bald eagle population has experienced significant growth over the past 20 years. Shoreline development throughout the Chesapeake Bay drainage can be seen as a limiting factor for the continuing expansion of the regional bald eagle population. The clearing and removal of shoreline forest for human developments will continue to permanently degrade or deplete eagle roosting and nesting habitat. Loss of suitable nesting, roosting, and foraging habitat was identified a significant threat to this population during early recovery (U.S. Fish and Wildlife Service, Recovery Plan, 1990). Between 1978 and 2020, the developed area of the Chesapeake Bay watershed was predicted to increase by 74% in Maryland and 80% in Virginia (Gray *et al.* 1998). Housing developments, business office complexes, boat marinas, among others, will increase the probability of encounters between eagles and surrounding human activity. The Service believes habitat fragmentation of forested habitats along riparian corridors in Delaware also is a growing concern and with increased development pressure the expansion of the Delaware bald eagle population will be limited.

Buehler *et al.* (1991b) found that bald eagle use of shoreline was inversely related to building density and directly related to development set-back distance. Clark (1992) found that eagle

numbers decreased with increased numbers of buildings and medium duty roads. Additionally, he concluded that "increased numbers of waterfront buildings and structures combined with decreased shoreline woodland...negatively affect eagle shoreline use." Buehler *et al.* (1991b) found that in northern Chesapeake Bay, 76% of shoreline areas may now be unsuitable for eagle use because of the presence of development within 1,640 feet of the shoreline. Interactions between humans and bald eagles during the breeding season occur throughout most of the eagle's range and can be detrimental to reproductive success (Fyfe and Olendorff 1976; Fraser 1985). In a study in Arizona, bald eagles were more easily disturbed when foraging than nesting and showed a greater adverse response to pedestrian and vehicle movement than aircraft noise (Grubb and King, 1991). A study in north central Michigan revealed similar frequencies of disturbance from pedestrian and vehicle movement although aircraft and aquatic activities were more common. Within 75% of these interactions, the eagles reacted at 500 meters and initiated flight responses at 200 meters (Grubb *et al.*1992).

As in other parts of the United States, the effects of development to Chesapeake Bay bald eagles are well documented. Since a large percentage of eagle nests are found on private property along tributaries and shorelines of the Bay, land and water development projects continue to impact nesting and foraging eagles. Therres *et al.* (1993) concluded that "the distance of the development activity to the nest may be more critical during the land clearing phase than during house construction." In a case study, nests were abandoned up to 1,200 feet (366 m) from clearing operations while house construction was tolerated as close as 260 feet (79 m) in several cases. Nest abandonment most often occurred at locations where there was a direct line-of-sight between the eagles' nest and the activity (i.e., lack of a wooded visual buffer).

Boating activities are likely to adversely impact eagles because they disrupt feeding activity and affect large areas in short periods of time (Knight and Knight 1984). Buehler *et al.* (1991b) found that on the northern Chesapeake Bay, eagles were flushed by an approaching boat at an average distance of 575 feet. Recreational fishing boats, sport boats and commercial boats contribute to foraging disturbances to eagles. However, fishing boats were observed to leave the main channel more often and navigate closer to shallow water habitats. This combined with peak fishing hours after dawn suggests greater opportunity to disturb perched and foraging eagles (Watts and Whalen 1997).

There is new information from the Chesapeake Bay area and other eagle recovery regions, that suggest bald eagles, in some places, may be more adaptable and tolerant of development than previously thought. In 1994, an eagle pair nesting along the Potomac River at Mason Neck, Virginia, built a nest in an established residential community within 250 feet of an occupied dwelling and within 500-700 feet of another homes. A formal consultation between the Service and the developer allowed for the construction of an additional house, outside of the nesting season, at the same distance from the nest tree as other homes that pre-dated the arrival of the eagle pair. The eagles returned to the modified landscape, nested in the same tree and produced triplets that season. In 1997, a similar situation occurred near Dover, Delaware, where an eagle pair was documented to nest within a narrow ridge of trees abutting an open field. The nest tree

was approximately 82 feet from the corner of an occupied residence within an existing residential community. The pair had an affinity to this site, continuing to use the same nest site for the next five years, despite activities of two other subdivision projects close by (C. Koppie, USFWS, 1998, 2002, pers. observ.). From 2002-2004, several other nesting pairs of eagles have demonstrated increased tolerance to human activities. In 2004, an eagle pair constructed an alternate nest in an oak tree in the backyard of an occupied single-family home. The nest, situated in a solitary tree, was located directly above a playground swing set and sand box and within 60 feet of a neighbor's swimming pool. The acclimated pair successfully fledged three young (C. Koppie, USFWS, 2005, pers. observ.).

One bald eagle pair gained national attention because its nesting territory encompassed the action areas of two proposed large-scaled commercial developments within the Washington D.C. area with a combined value of nearly five billion dollars. These independent projects, Interstate 95/495 Woodrow Wilson Bridge replacement and National Harbor Resort Complex, were under consultation with the Service to minimize impacts to the nesting pair and wintering migrant eagles. Despite the reduction and fragmentation of forested habitat within the project areas, the bald eagle pair (and migrant wintering eagles) became quite tolerant of construction activities occurring on land and barge activities along the shoreline. The pair showed incredible resilience to human activity and because of their adaptability was able to successfully continue nesting year after year.

Locally, there has been a rise in the number of incidents involving bald eagle mortality through collisions with power lines. Although electrocution from power poles and line-strikes are known to occur each year to bald eagles throughout the Chesapeake Bay region, incidences have become more numerous on Department of Defense lands. Since 2000, the U.S. Army Aberdeen Proving Ground and Indian Head Navy Surface Warfare Center have seen a rise in the number of line-strike electrocutions. Bald eagles are congregating within these areas in response to increased development pressure and urban sprawl within the private lands sector. Unfortunately, these federal facilities contain miles of electrical distribution lines that are supported above ground, and are located close to river bodies or Bay shoreline. Interim measures to reduce eagle mortalities from mid-line collisions have included the placement of aviation spheres and other bird excluder devices such as the Fire-Fly. The device consists of a vinyl panel (6 inch x 3.5 inch) covered with reflective colored tape, and attached to a ball bearing swivel

Recovery Goals and Accomplishments

In the Chesapeake Bay Recovery Region, delisting requires (1) a nesting population of 300-400 pairs with an average productivity of 1.1 eaglets per nest, sustained over 5 years and (2) permanent protection of sufficient habitat to support this number of nesting pairs. Additionally, there must be enough roosting habitat to accommodate population levels commensurate with increases throughout the Atlantic region resulting from increased productivity (U.S. Fish and Wildlife Service, 1990). Since 1992, the numbers of breeding pairs and nest productivity (300, 1.1, respectively) have been met, and limited land acquisition has taken place in known eagle

concentration areas. The bald eagle was reclassified to "threatened" in August 1995 for all eagle populations in the lower 48 states. The Service now believes the Chesapeake Bay bald eagle population has reached 1,000 nesting pairs. The Service published a proposed rule to delist the bald eagle in the Federal Register in the summer of 1999. Since the publication of the 1999 proposed delisting, Service programs have been working together to provide a process for how protections under the Bald and Golden Eagle Protection Act (BGEPA) would be implemented after ESA delisting. On February 12, 2006, the Service announced the re-opening of the public comment period to initiate the formal process for delisting the species. The Service anticipates officially delisting the bald eagle (nationally) in 2007. In addition to protection under the ESA, the Bald and Golden Eagle Protection Act (BGEPA) and Migratory Bird Treaty Act (MBTA) protect bald eagles including those bald eagles found in Alaska.

ENVIRONMENTAL BASELINE

As defined in the Service's consultation regulations, "environmental baseline" includes the past and present impacts of all Federal, State or private actions and other human activities in the action area, the anticipated impacts of all proposed Federal projects in that action area that have already undergone formal or early consultation, and the impact of State or private actions which are contemporaneous with the consultation in process. 50 C.F.R. § 402.02. "Action" means all activities or programs of any kind authorized, funded, or carried out, in whole or in part, by federal agencies in the United States or upon the high seas. The "action area" is defined as all areas to be affected directly or indirectly by the federal action and not merely the immediate area involved in the action. The environmental baseline represents the most current snapshot of the project, the landscape, and the status of resources in the action area.

Natural Resources- As described in the 2005, APG BA, naturally forested habitat and wetlands comprise 33,000 acres of the 70,000 acre Army facility. The designated Range and Impact areas are contained within these restricted natural areas. The APG is essentially made up of two large peninsulas commonly known as Aberdeen Proving Ground and the Edgewood Facility that are separated by the Bush River. The APG mainland can be generalized as a composition of three large land masses; Spesutie Island to the north, the main body of APG being centrally located, and Monk's Island to the south. Graces Quarters including Carroll Island and Poole's Island, are located on the outermost land segments of the Army property. The Chesapeake Bay and several large tributaries (Susquehanna River, Bush River, Gunpowder River, Mosquito Creek, and Romney Creek) border the military base and provides approximately 150 miles of shoreline habitat for a variety of fish and wildlife species (Figure 1). These areas have an exceptional appeal to the bald eagle where undisturbed forested shorelines provide perching, foraging, and roosting opportunities close to open water. Interconnecting marshes, tidal wetlands, and shallow water systems provide additional foraging and nesting habitat for other species of fish, waterfowl, and wading birds during spring and winter months. A 200 meter restriction for public recreation along APG's shoreline may indirectly attribute protection to a diversity of fish species (50) and other aquatic organisms (APG BA, 2005). This too, may be one of the reasons for the attraction of the largest Great-blue heron rookery in the northern Chesapeake Bay region

(3,000 nesting pairs) which annually occupies Poole's Island.

Installation Infrastructure - APG maintains numerous facilities which serve the Army Garrison Command, Aberdeen Test Center, and the Edgewood Chemical Biological Center. Occupants of the Edgewood and APG areas include government employees, contractors, residents, civilians and soldiers. An Army census (December 31, 2003) revealed a human population of 17,763 people (APG BA, 2005). Recently, APG Command was notified that they will participate in the Base Realignment and Closure (BRAC) initiative which is expected to add several thousand civilians and soldiers. Increases in personnel likely will require additional building infrastructure and modifications to the landscape. The Maryland Army National Guard is associated with APG which conducts helicopter mission and support services to the Army. Presently, several hundred miles of electrical utility wires dating as early as the 1940's, currently exist (via telephone poles) which are a necessary component to implement mission objectives at APG. The wire infrastructure is currently owned and maintenance by the Directorate of Installation (DIO). However, the Army is in the process of "privatizing" public utilities which will include a goal to bury all above ground wires (electrical, fiber optic, television cable) at the Aberdeen Proving Ground. There are approximately 645 miles of exposed (live and dead-end) wire within one mile of bald eagle roosts and nest sites. Of these, 120 miles of pole-to-pole suspended wire exist in areas near the shoreline and have been shown to adversely affect bald eagles and other larger raptors (2005 APG BA).

Impact Areas and Range Activities- The Edgewood Area and Aberdeen Proving Ground conducts research and development, munitions testing and soldier training. Generally, the research and development associated with chemical processing is associated with the Edgewood Chemical Research Facility. During the World War II era, residual chemical wastes were stored in containment areas including landfills which are recognized as EPA Super Fund clean-up sites, several which are under review or are currently undergoing ground remediation. The Aberdeen Proving Ground conducts primarily range activities. Since 1999, the Army has elevated military combat training to include, shoreline training. The areas of Cherry Tree Point, Stony Point, and Abbey Point along the Chesapeake Bay at APG including, Cod Creek and Romney Creek, have been designated as primary training areas that allow for coordinated warfare exercises involving ground and amphibious maneuvers and close air support. Monthly mission activities have been conducted there and have included implementing the protection measures provided within the APG BEMP (including monitoring) to safeguard bald eagles.

Current Status of Bald Eagles in the Action Area

The nesting population at APG has increased from one known pair in 1977 to 24 pairs in 2003. Spatially, the nests were located close to the shoreline almost uniformly positioned from one other. The average doubling period for the APG bald eagle population is approximately 5.9 years in contrast to nearly 7 years for the broader Chesapeake Bay region (APG BA, 2005). According to survey information collected between 1991 and 2003, the reproductive rate of bald eagles at APG had exceeded the Chesapeake Bay Bald Eagle recovery goal of 1.1 young per

active nest and was virtually identical to those recorded for the broader Chesapeake Bay population (APG BA, 2005). Since that time, the number of eagle pairs has increased to approximately 36 in 2005 (John Paul, APG, pers. comm.). According to annual bald eagle surveys conducted by the Army, new nesting pairs are "filling in" between nest sites occupied by existing resident pairs. The APG currently supports approximately 7% of the Maryland bald eagle population and 3% of the greater Chesapeake Bay population (APG BA, 2005). It appears that the resident nesting population at APG can tolerate increased competition with the arrival of new pairs which is supported by the fact that new nests continue to be documented in close proximity to one another each year during successive nest surveys. Eagle nesting territories which for many years maintained only a single active pair are now known to contain two or more pairs. An abundant fisheries resource and relatively undisturbed upland forests component surrounding the APG complex, may, in part, have provided conditions acceptable for eagles to have compressed territories. It now appears that APG supports the highest density of nesting eagles in the Chesapeake Bay region and through the 500 meter nesting and communal roost protection buffers nearly 2,170 acres of protected forested habitat is available for bald eagles (Figure 2).

Limiting factors for continued expansion of nesting bald eagles at APG, will hinge on the availability of remaining (unoccupied) mature forested habitat, intra-specific behavior between other nesting eagle pairs, tolerance to human activity, and to a degree, the level of competition for suitable nests or nest sites with other raptor species such as Great-horned owls (*Bubo virginianus)*, which are known to occupy mature canopy forests. There are some indications that competition for nest trees by Great-horned owls is causing displacement of bald eagle nests. Great horned-owls are known to take over nests of other raptors, including bald eagles, since they nest earlier in the season and are able to take advantage of an unattended nest structure without incident. Although nocturnal and diurnal raptors are natural competitors to one another, Great-horned owls are not easily intimidated. During the 2004-2005 nesting season, owls had displaced two bald eagle nest sites. In one case, the eagle pair returned to find their nest occupied by owls which resulted in the pair having to move to the opposite end of the woodlot and construct an alternate nest. This is a common occurrence in latitudes where Great horned owls are found and is not considered a problem, especially if suitable forested habitat is available. In a second case, a resident eagle pair relocated to a man-made structure (drop-tower) because owls took over the former eagle nest prior to their arrival in late winter. Over time, displacement of this type may prove problematic for bald eagles. Should a greater number of eagles become displaced early in the nesting season and other suitable habitat is not available, new pairs may opt to utilize man-made structures as nesting platforms which may impede military testing should they be located on an active tower. In addition to natural competition between raptor species, the level of human activity occurring near the shoreline will continue and likely contribute towards limiting the expansion of the breeding population at APG.

In addition to the nesting population, APG monitors and protects several communal roost sites of non-nesting bald eagles. Telemetry studies provided locations of four bald eagle communal roosts at Aberdeen Proving Ground (Millsap *et al.*,1983). These communal roost areas are

located within the restricted ranges or nearby training areas at APG. The roosts are located at Romney Creek, Mosquito Creek, AA-5 area, and Woodrest area (Figure 3). The AA-5 roost no longer is considered to be active based on the absence of birds (John Paul, US Army, pers. comm, 2006). There also may be a new roost forming at the Edgewood Facility near the Watson Creek area. Since the late 1970's, APG has been known to support elevated numbers of bald eagles during the summer months (Millsap *et al.*, 1983). Between 1984 and 1985, an aerial shoreline survey was conducted for the northern Chesapeake Bay area and APG was documented as having the highest bald eagle density in the study area (Buehler *et al.*, 1987). A second study was conducted by SWCA, Inc., during 1993-1995, showing a peak count of 80 bald eagles on APG. Bald eagles from populations in the Southeast and Northeast converge during the summer and/or winter at several areas of the Chesapeake Bay, including APG. Telemetry studies have indicated that eagles from these two separate populations migrate to the Chesapeake Bay region. Northern eagles from Canada and the Northeast United States migrate south during late fall. Peak numbers are established between mid-December and mid-February. Eagles from the Southeast states migrate to Chesapeake Bay in early summer when peak numbers occur between mid-June and mid-July (Watts and Byrd, Center for Conservation Biology, unpublished data).

Bald eagles usually forage close to the communal roost area. Buheler (1987) tracked several radio-tagged birds on APG that revealed eagles traveled within 2 km of the communal roost site to the foraging area. A comparative study on relative use of these roost sites between 1997 and 2003 (General Physics Corp, Inc. 2002; 2003), indicated that of the four roost sites Romney Creek roost site maintained the highest level of bald eagles up through 1999. Eagle numbers peaked at 88% in 1999 and declined to 32% in 2003. Conversely, Mosquito Creek and Woodrest Creek roost sites began to noticeably increase in number of individuals during 2003.

Threats to the species in the action area

Threats to the species in the vicinity of the APG action area, and not including the actions occurring at APG, include gradual loss of forested habitat and disturbance through increased shoreline and upland development within a mile of foraging areas. Recreational water activities such as boating and sport fishing may likely increase over time but the regional bald eagle population has increased despite these threats and these are not considered to be significant at this time.

Bald Eagle Mortality (Collision/electrocution) - Mortality resulting from intra-specific competition (i.e., territorial fighting) between breeding bald eagle pairs, has been observed in areas of the Chesapeake Bay including eagles at APG. In one case, two eagles, (one sub-adult and one immature) were electrocuted and found dead under utility lines. A fish was clutched in the talon of one eagle and breast feathers (of another eagle) were grasped in the talon of the second dead eagle (APG, pers. commun., 2004). These interactions are common between raptors and may cause injury or death but there is no evidence to suggest that territorial conflicts, alone, are the sole basis for eagle electrocutions.

Eagle mortality at APG is not evenly distributed. Approximately 67.4% of carcasses were found within 500 meters of open water (APG BA, 2005). Given the large size of the APG property, these recovered eagles may only be a small fraction of the total mortality. During the period from 1992-1995, the Army erected over 320 elevated perches to power poles with cross arms in hope to reduce eagle mortality. During the period of 1997-1998, no mortality was reported. However, bald eagle mortality again was reported during the 1999-2000 period when four individuals were found dead under electrical wires. During 2001, the Army initiated the placement of 152 elevated perches and an additional 20 perches in 2002, at a cost of $60,200. Despite this effort, bald eagle mortality increased from 7 to 15 birds per year from 2002-2004.

Other protective measures included deployment of thousands of Fire-Fly II (P & Technologies) avian diverters. The devise consists of a vinyl panel (6 inch x 3.5 inch) covered with reflective colored tape, and attached to a ball bearing swivel. Air movement across the panel would initiate a spinning motion of the unit, thus providing a visual deterrent during daylight hours as a bird approached a power line. During low light conditions, the fire fly emits a glow that can be seen even several hours after dark. Thus far, the Fire-Fly appears to work more effectively than aviation spheres alone, but has not entirely eliminated eagle mortality from collisions with power lines.

Mission Impact and other tenant Activities - In addition to standard operations involving impact and range activities, the Service coordinated monthly reviews of new construction projects to support the military mission including shoreline training exercises. The shoreline training began in 2003. Throughout this process, recommendations were provided to reduce potential adverse effects to eagles while conducting day and nighttime mission exercises. Soldier training often involved the use of lasers to mark targets for close air support in areas located between Black Point and Abby Point along the Chesapeake Bay shoreline. Lasers may have a negative effect on night roosting bald eagles.

Environmental Contaminants - Contaminated chemical residues generated since the 1940's have accumulated in soils at various locations at APG and Edgewood. Safety concerns regarding suspected high levels of lead and mercury have resulted in EPA mandates for the Army to remediate affected areas.

Natural Diseases – The West Nile Virus (WNV) was confirmed in one deceased eagle at APG. Although there have been documented cases of the virus found in other avian species along the Atlantic Flyway, now including the peregrine falcon, the WNV has not been detected in any large number within the Chesapeake Bay bald eagle population. Avian Vascular Myelinopathy, a bird neurological disease, was documented in bald eagles in South Carolina, North Carolina, Arkansas, and Georgia, causing brain lesions. Several coots were documented with AVM in Harford County, but there has been no extensive studies conducted in the Chesapeake Bay region to determine if wide-spread outbreaks have occurred. The recent outbreak of the avian flu virus in Asia and other countries may have future implications to bald eagles should

waterfowl or other birds carry the virus into the United States. Since poultry and waterfowl are primary carriers of the viral strain, bald eagles may be at risk due from either consumption or the spreading of the virus to other individuals within the communal roost. At this time it is impossible to determine the level of mortality that could potentially occur.

EFFECTS OF THE ACTION

This section includes an analysis of the direct and indirect effects of the proposed action on the species and/or critical habitat, and its interrelated and interdependent activities. For purposes of this BO, the Service will address the effects of existing man-made electrical infrastructure, noise (including pyrotechnics and fire), land clearing and development, environmental contaminants, and use of soldier training weaponry, including lasers on bald eagles at APG.

Direct Effects

Direct effects are defined as immediate effects on the species or its habitat. The opinion will focus on all activities involved with carrying out APG mission objectives at both the APG parcel and the Edgewood Area parcel and their potential impacts to nesting and foraging bald eagles.

Electrical Infrastructure- Bald eagles have died as a direct result of landing on un-insulated transformer poles. Eagles also have died from collision with above ground electrical power lines. In this regard, bald eagles and other large birds die from trauma or electrocution when they make contact with un-insulated power lines. Prior to 2001, two of seven mortalities (29%) were attributed to line strikes. After 2001, eighteen of twenty-five mortalities (72%) were documented as line strikes (APG BA, 2005). With 120 miles of suspended electrical utility line currently located between forested habitat and the shoreline at APG, bald eagles will continue at some level to be negatively impacted.

Mortality results from eagles being disturbed and flying into power lines or from inclement weather. The events that cause eagles to be disturbed or disoriented are not clearly understood. Analysis of mission activities indicated that of 40,000 military events that have been identified and documented at APG and the Edgewood Area, up to 2004, less than 1% was correlated with an eagle mortality that resulted from electrocution (APG BA, 2005). Mission activities were inventoried by type, date, time of day, etc., in relation to the period an eagle death was recorded. Any future mission activities that startle eagles, especially at night, have the potential to contribute to mortality.

Shoreline Training Activities – The effects of shoreline training, especially at night, is likely to disturb nesting and roosting bald eagles increasing the probability of causing collision with power lines and resulting in eagle mortality. Disturbance from training missions also can result in nest failure and loss of productivity. Since 2002, the Army has increased its military readiness by training soldiers under various conditions, including day time and night time

activities. After dark, infrared lasers have been used to mark targets by ground personnel to coordinate troop extraction by rotary aircraft, fighter support for fixed-wing jet aircraft, and beach landing assaults at Cod Creek, Abby Point, and Stony Point by Navy seal teams. The events include noise and disturbance resulting from ammunition and rotary and fixed-wing aircraft. Monthly soldier training exercises usually involved no less than 11 consecutive days of day/night training. The following citation from the BA (2005) report described APG's increased mission activities involving testing and weaponry:

> "A review of the number of activities conducted for the southeast shoreline area revealed that Abbey Point had the largest increase in activity of all the training areas during 1999-2000. Army data indicated that static discharge testing began in 2000 and continued through 2003. Small arms fire revealed two spikes recorded during single weeks in 2002 and 2003; 3,200 and 8,000 rounds expended respectively. The shoreline areas north of Romney Creek also increased in activity during the 2001-2002 period. The number of rounds expended during training exercises dramatically increased to as many as 45,000 rounds near Black Point and 30,000 rounds in areas of Romney Creek".

Thus far, no eagles have been found injured or dead as a result of gun fire. Eagles would likely be disturbed by noise from bullets or grenade impacts should they be perched outside the eagle protection buffer zone that could not be adequately monitored at long distances. A protocol (Appendix B) was developed from which the Army could continue to engage in shoreline training while minimizing potential impacts of direct line-of-fire to bald eagle nests and communal roost areas.

The use of lasers for conducting tests or night time military training may have adverse effects to roosting eagles and possibly warrants further examination. There is considerable concern that a laser beam can be seen by eagles at dawn, dusk, or other low-light periods of the day. If bald eagles should become startled and disoriented during the night they would be at increased risk of colliding into power lines. Tracer fire (illuminated flash rounds) from larger caliber weapons could cause eagles to flush during the night which may increase the risk of injury. The uncertainty of visual impacts to bald eagles from night time laser use and tracer fire should be further investigated.

Noise, flares, fire- A noise study conducted by SWCA, Inc., (APG Bald Eagle Study "Influence of Noise From Weapons-Testing", April 1996) indicated that eagles showed little signs of disturbance from loud noise during the nesting season. More recently, new eagle pairs have been documented building nests and successfully raising young in close proximity to impact areas. It is highly likely that the nesting pairs of eagles spend a considerable amount of time through the year in the vicinity of APG and have become densensitized to noise disturbance. Conversely, migratory eagles that make up the winter and summer communal roost population spend shorter amounts of time at APG and may be at greater risk from noise disturbance. Noises, flash from tracer bullets, and potential fires ignited by explosives or flares (which have occurred on numerous occasions) are likely to adversely effect night roosting eagles.

Land Clearing/Development- Habitat clearing has been extremely limited, and has not directly impacted nesting or foraging bald eagles. Bald eagle mortality was attributed, almost exclusively, to above ground electrical wire infrastructure (APG BA, 2005). However, incremental land clearing of forested habitat within the 500 meter bald eagle protection buffer will eventually lead to nest disturbance. The Edgewood Area has the greatest potential to undergo new development or expansion of existing facilities.

Environmental Contaminants- Mercury contamination is known to cause impaired vision in birds. Many of the deceased eagles collected at APG could not be tested for mercury contamination due to the poor condition of the carcasses. Only birds found within 12 hours of death can be successfully tested for mercury contamination. Although necropsy results did detect levels of mercury in the brain tissues of some eagles, none were noted to exceed levels considered harmful. Canal Creek at APG was known to have elevated mercury levels in fish species sampled in 2003. Of those fish species sampled, large-mouth bass were recorded with higher than average mercury levels. Although mercury contamination has been detected at some areas within APG, without further data, no correlations could be determined regarding chemical uptake within the food chain and possible adverse affects to bald eagles. Additional studies regarding prey (fish) should be considered in the near future.

Indirect Effects

Indirect effects are defined as those that are caused by the proposed action(s) and are later in time, but still are reasonably certain to occur (50 CFR 402.02). The major indirect effects are the shift in foraging eagles to new areas where adverse effects may be greater.

The increased training activities and associated disturbance along the Chesapeake Bay shoreline is believed to have caused eagles to shift their foraging patterns from the Romney Creek roost area to areas with less shoreline activity (APG BA, 2005). Previously, aerial shoreline surveys showed that some of the highest use foraging areas were the Romney Creek area and Chesapeake Bay shoreline between Abbey Point and Black Point (Buehler *et al.*1987, SWCA, Inc.1996). The increased number of eagles now occurring at the more northerly roost locations of Mosquito Creek and Woodrest Creek also may be linked to a behavioral response to increased human activity at the Bay shoreline. Eagles have shifted to alternate foraging areas such as Spesutie Island where there is extensive power pole and line configuration. Spesutie Island now has the highest documented eagle mortality from collisions with electrical lines.

Spesutie Island including Mulberry Point at APG, and Watson Creek at Edgewood, had the highest frequency of documented mortality due to mid-line strikes. Spesutie Island accounted for 42.5% of all mortality. Mortalities appear to be associated with the migratory (non-breeding) bald eagle population and some resident populations based on the dates of the recovery. The majority of deceased eagles recovered occurred outside of the designated nesting season (December 15 – June 15). It is possible to conclude that non-nesting eagles (migrants)

may not be as acclimated to noise and other disturbances at APG as resident bald eagles, and may be more easily disturbed from roost sites during day or night time training exercises. The combination of increased frequency of training, increased ammunition rounds, use of close-air support, and shoreline training maneuvers during the day and night have a plausible correlation to the change in eagle foraging behavior which has resulted in a shift from traditional foraging areas along the Chesapeake Bay.

Interdependent/Interrelated Effects

Effects of the action include not only direct and indirect effects, but analysis of the effects of those actions that are interrelated and interdependent with the proposed action. An interrelated activity is one that is part of the proposed action and depends on the proposed action for its justification. An interdependent activity is one that has no independent utility apart from the proposed action under consultation. At this time, no interdependent/interrelated effects are known or anticipated.

CUMULATIVE EFFECTS

Cumulative effects include the impacts of future State, local, or private actions that are reasonably certain to occur in the action area. As described in the Army's 2005 BA, there are no other future State, local, or private actions anticipated within the action area. The location of the APG facility near tidal fresh-water tributaries, including the Chesapeake Bay, the proximity to the Atlantic Flyway for coastal bird migrations, and its large naturally forested landscape, has made the area uniquely attractive to bald eagles and other migratory birds. As community planners and developers in Harford County continue to increase land and shoreline development in the areas surrounding Aberdeen Proving Ground, it is expected that less habitat will be available for nesting and foraging eagles on private lands, making the natural areas of APG all the more attractive to bald eagles.

CONCLUSION

The Service believes that the combination of electrical infrastructure and military activities occurring within one mile of forested habitat and foraging areas at APG will continue to adversely impact bald eagles despite the implementation of visual deterrents and other avoidance measures such as monitoring. However, the Service concludes in its biological opinion, that actions at APG are not likely to jeopardize the continued existence of the bald eagle. This determination is based upon and supported by the Service's review of the current status of the bald eagle throughout its range and in the action area, especially its expansion and nesting success within the Chesapeake Bay recovery area, as well as the environmental baseline for the action area, the effects of the proposed action, and the cumulative effects. No critical habitat has been designated for this species therefore, none will be affected.

III. INCIDENTAL TAKE STATEMENT

Sections 4(d) and 9 of the ESA, as amended, prohibit taking (harass, harm, pursue, hunt, shoot, wound, kill, trap capture or collect, or attempt to engage in any such conduct) of listed species of fish or wildlife without special exemption. Harm is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns such as breeding, feeding, or sheltering. Harass is defined as actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns, which include, but are not limited to, breeding, feeding, or sheltering. Incidental take is any take of listed animal species that results from, but is not the purpose of, carrying out an otherwise lawful activity conducted by the federal agency or applicant. Under the terms of Section 7(b)(4) and Section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered a prohibited taking provided that such taking is in compliance with the terms and conditions of this Incidental Take Statement. The Service will not refer the incidental take of any migratory bird or bald eagle for prosecution under the Migratory Bird Treaty Act of 1918, as amended (16 U.S.C. sections 703-712), or the Bald and Golden Eagle Protection Act of 1940, as amended (16 U.S.C. sections 668-668d), if such take is in compliance with the terms and conditions (including amount and or number) specified herein.

By implementing protection measures under the APG Bald Eagle Management Plan such as, time-of-year restrictions and maintaining a 500 meter buffer distances at nests and roost sites, the Army has been able to achieve nearly all their mission objectives while ensuring protected habitat for nesting and foraging bald eagles remains. Over the past decade, the reproduction rates at APG have been relatively constant, or slightly higher, than those in the greater Chesapeake Bay bald eagle population yielding 1.4 young per active nest (APG BA, 2005). Random nest failures by some pairs have occurred at APG and are expected within a breeding population. Nest failures occurring in a more uniform pattern (or cluster) usually is indicative of an associated human disturbance or potentially, environmental contaminants close by which is not apparent within the APG breeding population. An analysis of historic bald eagle nest productivity by the Army suggests the bald eagle population is increasing throughout all the regions of APG. The APG also states with regards to shoreline training "the available data does not support a final conclusion that there is clear evidence of impacts to eagle reproduction success due to Army activities....there was not a consistent pattern of nest failures where activities occurred" (2005, BA Supplement). It is worthy to note, however, that although numbers of breeding pairs is generally increasing, nest productivity (in 2004) was especially low in nesting zones AA2 and AA3. According to data provided in the APG BA Supplement (2006), nests failures in 2004 were documented in areas that were located closest to shoreline training positions.

The Service has reviewed the information in the APG BA (2005), supplemental nesting productivity analysis, monthly training mission proposals, post-monitoring reports from training

actions, and other relevant information, and has determined that incidental take in the form of "harassment" (i.e., disturbance) is associated, to a degree, with bald eagle mortality at APG. We believe that given the scope of military activities currently being conducted, disturbances have invariably affected some nesting bald eagle pairs including foraging bald eagles that predominantly used the tributaries near confluences to the Chesapeake Bay. Under varying circumstances, eagles that nest or forage near firing ranges or troop training areas, may be forced to alter routine feeding patterns. Nesting pairs may experience disturbances which could lead to nest abandonment in those areas near shoreline training (Figure 4). Since the nesting data are inconsistent (in the manner in which it was collected) the Service can only speculate that some nest failures may be attributed to military operations. The Service recommends a standard protocol for obtaining bald eagle nesting data be integrated into future bald eagle management plans in order to evaluate the level of potentially occurring impacts to nesting pairs.

The Army has stated that shoreline activities between Black Point and Abbey Point, and potentially including areas of Romney Creek, must be available for active mission training now and into the foreseeable future. The existing power line configuration at Spesutie Island has been demonstrated to adversely impact bald eagles during their travel to feeding or roosting trees. Thus far, the frequency of line strikes and mortality is highest at this location. Long-term protection of eagles from line strike electrocution, or trauma, can only be possible through conservation measures aimed at relocating or removing overhead power lines that are located between eagle roosts and travel corridors. Since utility lines are an integral part of the military mission, underground burial of electrical wires may be the only method to avoid or greatly reduce take of bald eagles while conducting military mission objectives. The Army has documented the highest frequency of bald eagle mortality to have occurred at Spesutie Island. Watson Creek and Mulberry Point also are considered higher risk areas (2005 BA, APG) to eagles due to documented mortalities and require additional corrective measures. The Army has agreed to immediately secure funding to remove/bury all above ground wires at Spesutie Island to eliminate future bald eagle mortality due to power pole electrocution and line-strikes. Known eagle mortality from electrocution during the periods between 1985-1999 and 2002-2004 were 1.3 and 8.0 eagles per year, respectively. The increase in line-strike mortality during the 2002-2004 periods may likely have been influenced by the increased presence of military training exercises which began at approximately the same time. In addition to the apparent overlapping timelines, the shoreline training exercises have a component of nighttime activities which involved close air support (helicopters and fixed-wing aircraft), use of lasers, and increased frequency and duration of rounds being fired which also may be attributed to possible disturbances of nighttime roosting eagles.

It is highly unlikely that "take" of bald eagles (through electrocution) can be entirely eliminated throughout the entire APG landscape even though considerable efforts to reduce these impacts have been implemented through the use of avian diverters. The Service believes "take" of nests, through harassment, may be impossible to avoid due to DoD national security objectives requiring the Army (and Navy) to increase levels of training for military preparedness. Shoreline training exercises are expected to continue year round to support military combat activities

overseas which will require continued active training along the Chesapeake Bay shoreline from Black Point south to Abbey Point. Therefore, the Service anticipates disturbance of several nests currently established near the primary training area, including new nest should they occur later in time.

AMOUNT OR EXTENT OF TAKE

The Service anticipates "take" of bald eagles to occur primarily from collisions with suspended power lines and possibly other man-made infrastructure as bald eagles are startled and disturbed by military activities, causing injury or death. Take of nesting pairs, from disturbance, is also anticipated to occur in the near future. Since new nests are being documented closer to the training areas, eagles are demonstrating increased tolerance. However, with increased mission activities the tolerance threshold level is likely to change beyond an acceptable level thereby causing disturbance of eagles, nest failures, or abandonment.

Eagle mortality from power line strikes will likely continue for several more years but overall is expected to be reduced incrementally over the years as line burial operations are completed at the "high risk" areas. In 2003, a total of 15 bald eagles were found dead, eight of which were known line-strike or pole electrocutions. Information provided by the Army, confirmed seven line-strike/pole mortalities in 2005 (John Paul, APG, person. com., 2006). Based on the expectation that the Army will continue to retrofit lines with avian diverters (Fire-Fly II) located near foraging areas or line sections where known mortalities have occurred, the Service anticipates no more than six bald eagle mortalities per year resulting from line-strike trauma/electrocution. By implementing conservation measures to remove (bury) electrical distribution lines within the "high risk" areas such as Spesutie Island, Mulberry Point, and Watson Creek, bald eagle mortalities will be greatly reduced and eventually eliminated at the completion of the project. Due to the likely annual increases in the density of nesting eagles in the action area, it is possible that "take" of up to three nests per year may occur through harassment of adults, abandonment of nests, and loss of up to three eggs or young per nest.

REASONABLE AND PRUDENT MEASURES

The Service believes the following reasonable and prudent measure(s) are necessary and appropriate to minimize impacts of incidental take of bald eagles.

1. The Army will significantly reduce eagle mortality resulting from power pole electrocution and mid-line collisions at the Aberdeen Proving Ground and Edgewood Facility.

2. The Army will minimize "disturbance" of active bald eagle nests within all portions of the Aberdeen Proving Ground and Edgewood Facility.

3. The Army will conduct a 3-year telemetry study to determine potential effects to bald eagles at communal roost areas associated with day and nighttime shoreline training.

TERMS AND CONDITIONS

In order to be exempt from prohibitions of Section 9 of the ESA, the Army will comply with the following terms and conditions, which implement the reasonable and prudent measures described above and outline the required reporting requirements. These terms and conditions are nondiscretionary.

1. a) Eliminate the risk of future mortalities by electrocution through the removal and/or burial of existing above ground power lines at areas deemed as greatest risk to bald eagles at APG. These will include the areas of Spesutie Island, Mulberry Point, and Watson Creek. Line burial shall begin no later than January 2008.

   b) Bury all power lines including cable and fiber optic lines, for new projects proposed in areas located between bald eagle communal roosts and shoreline foraging areas.

   c) Complete the installation of visual deterrents (Fire-Fly II's) to sections of utility line where eagle electrocutions have been previously documented to significantly reduce the risk of future bald eagle mortalities.

   d) Conduct a study on the use of lasers used in shoreline training exercises to determine the behavioral effects on roosting bald eagles at dawn, dusk, and after dark periods at APG.

2. a) Minimize direct impacts to bald eagles by maintaining a 500 meter protection buffer for known nests and communal roost areas. Exceptions to restrict activities within the 500 meter nest buffer may be warranted on the basis of relocation of nests by existing pairs or arrival of new pairs to an area where on-going mission activities have been documented. Exceptions will be determined on a case-by-case basis, if warranted. Plan and conduct training exercises so that no direct line-of-sight target is aimed toward a bald eagle nest or perimeter buffer.

   b) Implement the minimization standards, as described in Appendix B, for altitude limitations of aircraft (rotary-wing and fixed-wing) used in conjunction with mission/shoreline training.

   c) Conduct/fund a bald eagle study involving the use of remote-operated video cameras at selected nest sites in and around the Army's primary target/training areas of Romney Creek, Cod Creek, Black Point, Cherry Tree, and Stony Point to evaluate potential levels of disturbance that may be associated with shoreline training.

d) The Army will develop a standardize protocol to conduct bald eagle nest surveys and inventory productivity at APG and Edgewood. Using this protocol, conduct a 3-year Comprehensive Bald Eagle Nest Study to monitor productivity and stability of the local bald eagle breeding population and evaluate any potential effects from nest disturbance.

3. Conduct/fund a telemetry study to evaluate the movement and behavioral response of roosting eagles at known roost sites (Mosquito Creek, Woodress, Romney Creek, or any newly established roost site) at APG to potential impacts from shoreline training exercises.

4. Conduct bald eagle mortalities/ investigations in accordance with FWS Law Enforcement protocols for recovered carcasses in addition to implementing the Services' Standard Operating Procedures (SOP) for collecting and refrigeration to preserve tissues for necropsy.

Report all bald eagle injuries or mortalities to the USFWS Chesapeake Bay Field Office at 410/573-4534 and the Division of Law Enforcement at 410/962-7980.

IV. CONSERVATION RECOMMENDATION

1. The Service recommends the Army to reduce the frequency of Special Boat Training activities to either day or nighttime operations (preferably daylight periods) within a 24 hour period to reduce potential impacts to roosting and nesting eagles.

2. The Service recommends the Army to modify future Special Boat Training exercises to areas of the Bush River and Gunpowder River. The Romney Creek area should be avoided from Special Boat Training to reduce potential long term adverse impacts to roosting and nesting eagles *unless* monitoring data can support unrestrictive or limited use of the area.

3. Earlier research studies have indicated that the bald eagle population at APG is comprised of eagles from two other recovery areas (Northern States Recovery Area and Southeast States Recovery Area) in addition to the northern Chesapeake Bay breeding population. The topographic features of uplands, wetland complexes, and surrounding tributaries at APG have evolved into an important wildlife sanctuary that protects a large bald eagle population. The Service recognizes the need to protect forested shoreline habitat like those found at APG for sustaining bald eagles within the Chesapeake Bay prior to *delisting* and recommends the Army continues to maintain the highest level of protection for bald eagles in a manner that will not unduly compromise DoD national security initiatives.

4. The Service recommends the Army to explore the possibility of future off site land preservation through conservation easements on non-federal lands to protect bald eagles on adjacent properties bordering the APG installation.

V. REINITIATION- CLOSING STATEMENT

This concludes formal consultation on the action requested by the Army. As provided in 50 CFR 402.16, reinitiation of formal consultation is required where discretionary federal agency involvement or control over the action has been retained and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion; (3) the action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in this opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending reinitiation. For any reinitiation that may result from exceeding the level of allowable incidental take, the Service will consider the expansion of the APG bald eagle population as a potential factor. The Service will consider if the proportion of take from line strikes has been reduced.

If you have questions or concerns regarding this document, please contact Craig Koppie, at 410/573-4534, of the Threatened and Endangered Species Program.

Sincerely,

John Wolflin,
Supervisor

cc: Glenn Therres, Maryland Department of Natural Resource
John Paul, US Army, DSHE, Aberdeen Proving Ground
William Armstrong, LE, Aberdeen Proving Ground

VI. LITERATURE CITED

Buehler, D. A., T. J. Mersmann, J. D. Fraser, and J. K .D. Seegar. 1991a. Non-breeding bald eagle communal and solitary roosting behavior and roost habitat on northern Chesapeake Bay. Journal of Wildlife Management 55:273-281.

Buehler, D. A., J. D. Fraser, J. K .D. Seegar, G. D. Therres, and M. A. Byrd. 1991b. Effects of human activity on bald eagle distribution on the northern Chesapeake Bay Journal Wildlife Management 55(2):282-290.

Chandler, S. K., J. D. Fraser, D.A. Buehler, and J. K. D. Seegar. 1995. Perch trees and shoreline development as predictors of bald eagle distribution on Chesapeake Bay. Journal of Wildlife Management 59:325-332.

Clark, K. H. 1992. Shoreline foraging habitat selection by bald eagles in a non-breeding eagle concentration area on the James River, Virginia. M.S.Thesis. College of William and Mary, Williamsburg, VA.

Fraser, J. D. 1985. The impact of human activities on bald eagle population. In J. M. Gerrard and T. N. Ingram, eds. Bald eagle in Canada Proceedings of Bald Eagle Days.

Fyfe, R. W., and R. R. Olendorff, 1976. Minimizing the dangers of nesting studies to raptors and other sensitive species. Can. Fish and Wildlife Service. Occas. Pap. 17pp.

General Physics Corp. 1998. Annual Roost Study Update: Aberdeen Proving Ground Bald Eagle Study. GP-R_71198(C)186, November 1998, 37pp.

Gray, R. J., Blase Cooke, O. J. Lighthizer, M. J. Forrester, Jr., I. Hand, J. D. Himes, A. R. McNeal, C. S. Spooner and W.T. Murphy, Jr. 1998. Population growth and development in the Chesapeake Bay watershed in the year 2020. U.S. Environmental Protection Agency, Chesapeake Bay Liaison Office, Annapolis, MD. 73pp.

Grubb, T. G. and King, R. M., 1991. Assessing Human Disturbance of Breeding Bald Eagles with Classification Tree Models. Journal of Wildlife Management 55(3):500-511.

Grubb, T. G., Bowerman,W. W., Giesy, J. P. and Dawson, G. A. 1992. Responses to human activities in northcentral Michigan. The Canadian Field-Naturalist. 106(4): 443-453.

Knight, R. L. and S. K. Knight. 1984. Responses of wintering bald eagles to boating activity. Journal of Wildlife Management. 48:999-1004.

Therres, G. D., Byrd, M. A., Bradshaw, D. S. 1993. Effects of Development on Nesting Bald Eagles: Case Studies from Chesapeake Bay. Trans. 58th North American Wildlife and Natural Resources Conference. 62-69

U.S. Fish and Wildlife Service, 1990. Chesapeake Bay region bald eagle recovery plan; first revision. Newton Corner, MA. 1-59

Watts, B. D. and D. M. Whalen. 1997. Interactions between eagles and humans in the James River bald eagle concentration area. Prepared by the Center for Conservation Biology, College of William and Mary, for the Department of Game and Inland Fisheries, Richmond, VA.

Wiemeyer, S. N., T. G. Lamont, C. M. Bunck, C. R. Sindelar, F .J. Gramlich, J .D. Fraser, and M. A. Byrd. 1984. Organochlorine pesticide, PCB and mercury residues in bald eagle eggs, 1969-1979, and their relationships to shell thinning and reproduction. Archives of Environmental Contamination and Toxicology 13:529-549.

Figure 1. APG LOCATION MAP (ACTION AREA)

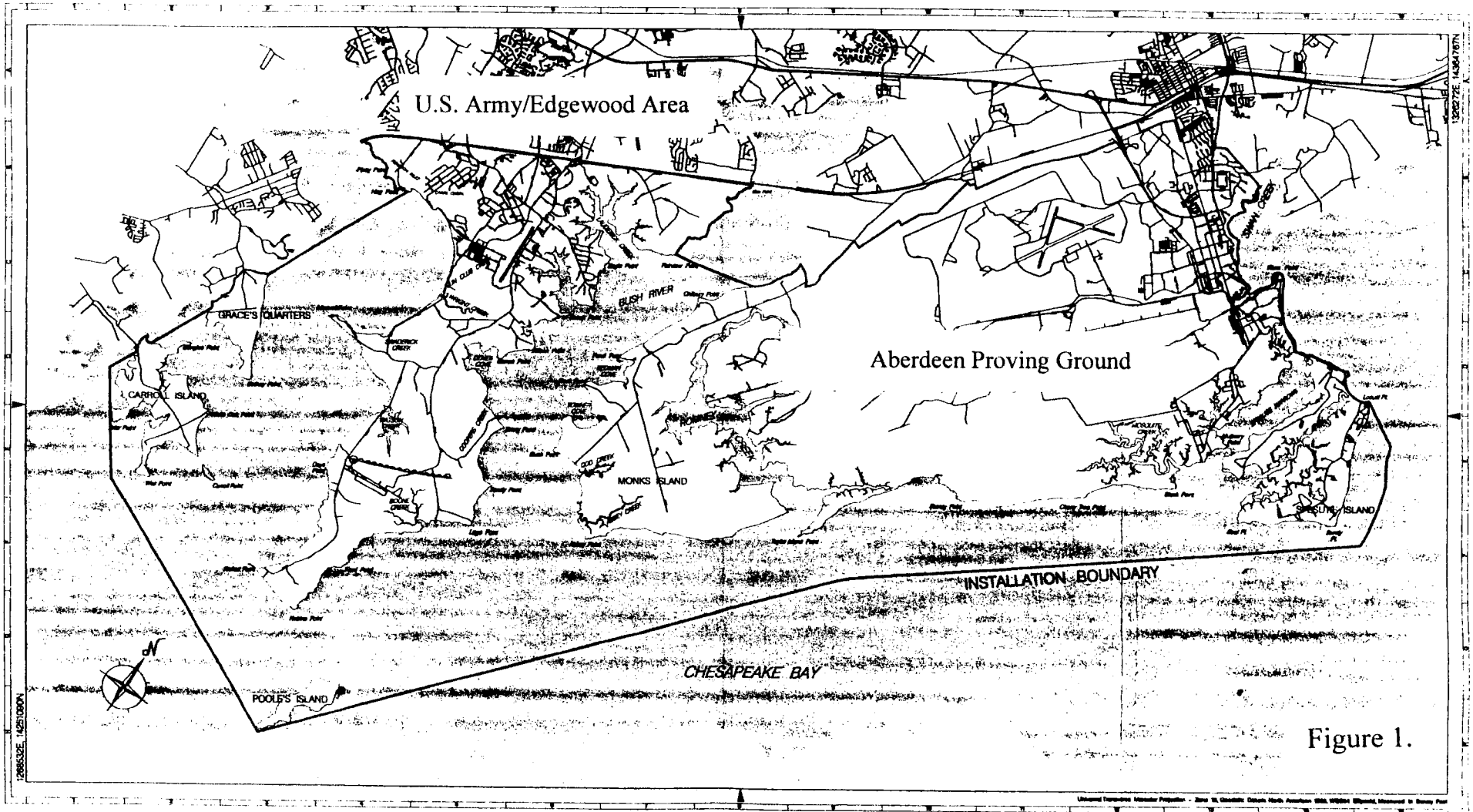

Figure 1.

L E G E N D

Water — Road — Installation Boundary

7500 5000 2500 0 7500 15000

GRAPHICAL SCALE
IN FEET (1" = 7500')

1:90000

TITLE:

REGIONAL LOCATION MAP

Map Location of Action Area

(Graphic provided by General Physics Corporation)

Figure 2. Bald Eagle Communal Roosts and Nest Sites

Figure 3. Foraging Areas within 2 km of Known Bald Eagle Communal Roosts

Figure 4. APG-Bald Eagle Nest Zone Classification

Figure 4. U.S. Army Classification of Bald Eagle Nests at APG and Edgewood Areas

There are five Regions in the Aberdeen Area (AA) and four are in to the Edgewood Area (EA) of APG. The Regions are as follows:

No.	Region	Name	Description
1	AA1	Spesutie Island	Island in the Northeast corner of APG with primarily open terrain and dispersed forested wood lots. Most of the open areas have a network of power poles and wires used to support ongoing missions. Most of the work consists of static or limited range testing.
2	AA2	Aberdeen Area North / PAAF	This is the north central part of APG which includes most of the buildings and the Phillips Army Airfield (PAAF). Some test ranges are in the area and the patrol boats used to control water access to APG are based in this area.
3	AA3	Aberdeen Area Central Shoreline	This area consists primarily of active range areas, both aquatic and terrestrial. The inland boundary runs along the Romney Creek Road to the middle of Romney Creek proper. This area is frequently used for weapons firing at APG. Access is strictly controlled for safety reasons.
4	AA4	Aberdeen Area Central Inland	This area consists of the land from Romney Creek Road to the installation boundary. Little munitions work is done here, but equipment testing occurs in some areas.
5	AA5	Aberdeen Area South Shoreline	This is the area south of the East / West section of Romney Creek, which is frequently used for weapons firing. Access is strictly controlled for safety reasons.
6	EA1	Edgewood Area – WET site	This is the old NIKE site used for Week End Training (WET) just south and west of the Bush River AMTRAK Crossing. Monks and Lauderick Creeks are located in this Region.
7	EA2	Edgewood Area -- Peninsula	Includes the remainder of the EA peninsula. A wide variety of testing missions occur in the downrange areas of EA.
8	EA3	Edgewood Area / Graces Quarters & Carroll Island	This area consists of the two peninsulas along the western shore of the Gunpowder River in Baltimore County. Historically, the areas were used for testing. Limited training occurs on Carroll Island.
9	EA4	Edgewood Area / Poole's Island	This area consists of Poole's Island. Little military activity occurs here.

APPENDIX A CONSULTATION HISTORY

Date	Description
May 29, 2003	Meeting between FWS (LE, CBFO) and Army APG personnel to discuss bald eagle mortality due to power line electrocution
June 9, 2003	CBFO letter to APG regarding bald eagle mortalities and the need to initiate formal consultation for "take"
June 10, 2003	E-mail from W. Armstrong (APG) to CBFO describing bald eagle mortality that occurred on May 27, 2003 at "M" Field
June 12, 2003	E-mail from CBFO to Jim Pottie (APG) requesting copy of APG 1995 Bald Eagle Management Plan
June 23, 2003	E-mail from W. Amstrong (APG) to LE/Bryce Findley citing bald eagle mortality at Range 7 at Spesutie Island
July 10, 2003	Installation Commander's acknowledgement letter to CBFO letter to initiate formal consultation and requesting meeting to discuss scope of the Army's biological assessment
July 11, 2003	Response e-mail regarding Training Exercise #03-07 from John Wolflin, Supervisor, (CBFO) to Tim McNamara, APG Director of Health, Safety, and Environment providing a non-concurrence determination
July 14, 2003	Copy of necropsy reports from US Army Medical Research Institute (APG) stating two eagle mortalities resulted from power line strikes
July 17, 2003	Meeting at CBFO to discuss bald eagle mortality and data gathering to develop the Army's Biological Assessment
July 21, 2003	APG NEPA coordinator letter to DOI stating EIS programmatic document will include stronger language in the INRMP to protect and manage bald eagles
July, 2003	Copy of draft Statement of Work for Comprehensive Bald Eagle Study for Aberdeen Proving Ground and Aberdeen Test Center

Date	Description
August 4, 2003	Proposed military training activity (PEO Soldier Systems Test Facilities at Mulberry Point
August 7, 2003	Meeting to discuss military training at Mulberry Point and BA development
August 13, 2003	Activity plan for Training Exercise #03-08
August 20, 2003	Response letter to APG regarding Training Exercise #03-08
August 27, 2003	APG report of eagle mortality at "L" Field
August 29, 2003	E-mail from USGS National Wildlife Health Center identified an APG bald eagle tested positive for West Nile Virus
September 4, 2003	APG update re: placement of alternative perches at power poles and High Visibility Eagle Spheres on wires in high-risk area
September 8, 2003	Copy of Monitoring Report for Training Exercise #03-08
September 15, 2003	Fish advisory for the Bush River regarding mercury contamination
September 26, 2003	Army/APG request to review October Training Exercise #03-10
October 2, 2003	CBFO response letter for Training Exercise #03-10
October 2, 2003	CBFO response letter to Mulberry Point Soldier Systems Test Facility and proposed Firing Range
October 7, 2003	Bald Eagle Monitoring Report #03-10
October 24, 2003	CBFO response (via e-mail) regarding parachute jump certification
November 3, 2003	Army/APG request to review November Training #03-11
November 6, 2003	CBFO response letter for Training Exercise #03-11
November 13, 2003	Copy of Monitoring Report for Training Exercise #03-11
November 18, 2003	APG e-mail from W. Armstrong to FWS Agent Bryce Findley

Date	Description
November 18 (cont.)	describing bald eagle fatality due to wire-strike
December 1, 2003	Copy of APG Quarterly Roost Study Update report
December 4, 2003	APG request for review of Navy Special Warfare Training #03-12
December 8, 2003	APG request for review of BATT Facility proposal at "C" Field
December 8, 2003	APG e-mail notice to FWS,LE and CBFO regarding bald eagle fatality occurring on December 7th
December 15, 2003	CBFO response letter to APG re: Navy Special Warfare Training #03-12
December 23, 2003	APG site visit regarding BATT Facility project "C" Field
December 30, 2003	APG e-mail regarding investigation of two bald eagle fatalities that occurred along Palmer Road on December 26th w/ copy of LE report
January 6, 2004	FWS/ LE letter to APG requesting official copies of reports pertaining to bald eagle mortalities
January 20, 2004	Report of an eagle fatality at Grace's Quarters (Edgewood Area) on January 17th
January 22, 2004	Intra-service e-mail to John Wolflin regarding probable delivery of a draft Biological Assessment
January 22, 2004	CBFO response letter to APG for request of an extension to continue construction of buildings E-1401, 1407, and 1410 at Edgwood
January 23, 2003	APG Mid-winter Bald Eagle Survey Report
February 10, 2004	APG e-mail regarding new bald eagle nest at Carroll Island
February 10, 2004	APG request for review of Training Exercise #04-01
February 13, 2004	CBFO response letter to APG re: Training Exercise #04-01

Date	Description
February 17, 2004	APG e-mail to CBFO regarding new nests found at "H" Field and "D" Field
February 18, 2004	APG request for 60-day extension to complete the BA
March 17, 2004	FWS, Region 5, Briefing Statement regarding status of APG Section 7 formal consultation
March 21, 2004	APG Bald Eagle Nesting Survey
March 24, 2004	Note to File/ re: necessary changes to proposed activities for Training Exercise #04-02 to avoid impacts to eagles
March 25, 2004	APG report of bald eagle fatality (discovered March 21) at Bush Point
March 31, 2004	E-mail from W. Armstrong regarding incident of two bald eagles (imm.) engaged in aerial fight with both falling to the ground.
April 2, 2004	CBFO response letter to APG re: Training Exercise #04-02
April 7, 2004	CBFO e-mail response to APG e-mail (April 6) re: changes to Training Exercise #04-02
April 9, 2004	APG draft BA comments
April 19, 2004	APG report of bald eagle fatality, April 18th, at Spesutie Island
April 22, 2004	CBFO response letter to APG re: elements to be incorporated in the Army's BA
April 30, 2004	APG request for review of Training Exercise #04-03
May 10, 2004	CBFO response letter to APG re: Training Exercise #04-03
May 2004	Bald Eagle Monitoring Report for Training Exercise #04-03
May 16, 2004	APG Bald Eagle Nesting Survey (2004)
May 30, 2004	APG report of bald eagle fatality, May 28th, at Spesutie Island

Date	Description
July 1, 2004	APG notification (e-mail) of bald eagle fatality at Maxwell Point, Edgewood Area
July 7, 2004	APG request for review of Training Exercise #04-04 Subsequently cancelled via e-mail notification on 7/9/04
July 28, 2004	APG request for review of Training Exercise #04-05
July 12, 2004	APG Bald Eagle Study: Quarterly Roost Study Update
July 20, 2004	Intra-Service e-mail referencing recent bald eagle fatality; found within 3 hours after line strike (brain and eyes collected/preserved in formalin)
July 27, 2004	E-mail from W. Armstrong describing an eagle hitting and cart wheeling after colliding with a power line.
August 13, 2004	CBFO response letter to APG re: Training Exercise #04-05
August 24, 2004	APG Monitoring Report for Training Exercise #04-05
August 24, 2004	APG notification to FWS/LE/CBFO re: bald eagle fatality on August 23, 2004 at East Leg of Spesutie Island
September 5, 2004	APG notification to FWS/LE/CBFO re: bald eagle fatality on Sept. 4, 2004
NO DATE	APG bald eagle fatality compilation w/investigation notice
September 7, 2004	APG request for review of Training Exercise #04-06
September 8, 2004	CBFO response letter to APG for Training Exercise #04-06
September 13, 2004	APG submittal of preliminary BA
September 23, 2004	APG Monitoring Report for Training Exercise #04-06
September 24, 2004	APG letter of commitment to implement minimization measures
October 8, 2004	CBFO response letter to APG re: Training Exercise #04-07

Date	Description
October 14, 2004	APG Monitoring Report for Training Exercise #04-07
October 14, 2004	APG notification (e-mail) to FWS LE/CBFO re: bald eagle fatality at "L" Field in Edgewood (possible result of nighttime training)
October 19, 2004	APG e-mail describing BA status
October 20, 2004	APG request for review of Training Exercise #04-08
October 25, 2004	CBFO response letter to APG for Training Exercise #04-08
October 26, 2004	Chronology for APG bald eagle take and development of BA
November 2, 2004	Note to File/ protection measures against bald eagle electrocution
November 5, 2004	Intra-Service e-mail notating "burying" line as avoidance measure
November 5, 2004	APG request for review of Training Exercise #04-10
November 8, 2004	APG Monitoring Report for Training Exercise #04-08
November 11, 2004	CBFO response (e-mail) to APG for Training Exercise #04-10
November 18, 2004	APG Monitoring Report for Training Exercise #04-10
December 3, 2004	Note to File re: December 2nd meeting at CBFO; focus on long term funding for burying electrical infrastructure to avoid eagle take
December 15, 2004	E-mail from APG/ W. Armstrong re: "positive" flush reaction to test on raptors (approx. 15 bald eagles at eagle Romney Creek) using lasers during low-light conditions
NO DATE	USGS/ National Health Lab results of eagle #ST818956
December 22, 2004	CBFO/APG e-mail noting December 17th meeting and issues unresolved in the development of the Army's BA
January 18, 2005	APG notification of a bald eagle fatality at Aberdeen Proving Ground near building A-723

Date	Description
January 18, 2005	Army (NERO) e-mail regarding possibility of developing a regional/programmatic BO
January 27, 2005	APG request for review of Training Exercise #05-02
January 27, 2005	APG letter requesting initiation of formal Section 7 consultation
January 28, 2005	Telephone conversation between Sarah Martin (NERO) and Craig Koppie (CBFO) discussing the need to initiate a DoD Workgroup to address a programmatic option
March 3, 2005	APG letter of commitment to begin line burial
March 4, 2005	CBFO response letter to APG re: Training Exercise #05-02
March 9, 2005	CBFO e-mail to APG recommending changes to #05-02 due to re-occupancy of eagle nest #20
March 11, 2005	APG Monitoring Report for Training #05-02
March 2005	APG request for review of Training Exercise #05-03
March 14, 2005	CBFO response letter to APG re: Training Exercise #05-03
March 16, 2005	APG Monitoring Report for Training Exercise #05-03
March 21, 2005	APG notification of new nest at "C" Field at Wilson Point
March 31, 2005	APG notification of a new nest on the shoreline between Cherry Tree Point and Stony Point
April 5, 2005	APG notification (via fax) of new firing point to replace Cherry Tree Exercise
April 11, 2005	APG request to review Mulberry Point project
April 15, 2005	APG notification of a bald eagle fatality on 4/14/05 at Range 13 (Poverty Island)

Date	Description
April 17, 2005	Forensic report for a deceased bald eagle found on 4/14/05 (50 feet from a previous eagle fatality on 4/4/05)
April 19, 2005	CBFO request for 60-day extension for the biological opinion
April 21, 2005	APG Monitoring Report for Training #05-04
April 24, 2005	E-mail response to APG re: Mulberry Point bald eagle nest failure
April 26, 2005	E-mail attachment from APG re: Bald Eagle Chronology (1980's thru 2004)
May 2, 2005	APG notification of two bald eagle fatalities -Poverty Is. and "I" Field, EA
May 2, 2005	Copy of Aberdeen Proving Ground Bald Eagle Study: Semi-Annual Roost Study Update
May 9, 2005	APG concurrence letter for 60-day extension
May 11, 2005	APG request to review Training Exercise #05-05
May 20, 2005	Map of new bald eagle nest (#50) at Cherry Tree Point
May 23, 2005	CBFO response letter to APG re: Training Exercise #05-05 (Faxed on May 24, 2005)
May 23, 2005	CBFO e-mail to APG to provide adequate time to review Training Exercises and land development projects
June 1, 2005	APG Monitoring Report for Training Exercise #05-05
June 1, 2005	CBFO e-mail to APG re: options to rebuild/replace fallen bald eagle nest structure with two eaglets
June 14, 2005	APG notification (e-mail) of replacing fallen eaglet to nest at the "Old" Drop Tower
June 27, 2005	APG request letter to review APG re: Training Exercise #05-08

Date	Description
July 11, 2005	CBFO response letter to APG re: Training Exercise #05-08
July 29, 2005	APG Monitoring Report for Training Exercise #05-08
August 3, 2005	CBFO request to APG for a 30-day extension to complete the Service's BO (due to new information re: DoD BRAC Initiative)
August 19, 2005	APG notification of a bald eagle fatality on Spesutie Island; Building M
August 22, 2005	APG notification (e-mail) of a bald eagle fatality on Spesutie Island (August 19); power lines had orange balls, no flappers
August 26, 2005	APG concurrence letter for 30-day extension to review Army's 2025 Master Plan
September 7, 2005	Informal Section 7 consultation request for Vortex Chamber at M-Field at Edgewood
September 8, 2005	CBFO request to APG (mutually agreed) for an additional 30-day extension to complete the BO for bald eagle nest productivity analysis for years 2004 and 2005
September, 2005	APG request letter to review Training Exercise #05-09
September 9, 2005	CBFO response letter for APG re: Training Exercise #05-09
September 13, 2005	APG concurrence letter to CBFO; 30-day extension for completing the BO
September 14, 2005	Request for 30-day BO Extension
September 21, 2005	Meeting at CBFO re: BA and BO
September 22, 2005	APG Monitoring Report for Training Exercise #05-09
October 4, 2005	APG request letter to review Training Exercise #05-12
October 7, 2005	APG notification of cancellation re: Training Exercise #05-11
October 17, 2005	CBFO response letter to APG re: Training Exercise #05-12

Date	Description
October 20, 2005	APG Monitoring Report for Training Exercise #05-12
November 4, 2005	Intra-Service e-mail re: future take of eagle nest atop a Drop Tower
November, 2005	Meeting: BRAC 2005 Construction and Site Alternatives Analysis
December 14, 2005	CBFO response to APG Vortex Chamber project
December 22, 2005	CBFO e-mail to APG recommending the removal of camera at the "C" Field bald eagle nest
January 26, 2006	APG letter to CBFO requesting review of Training Exercise #06-01
January 27, 2006	E-mail from APG to CBFO noting no activity of nest #50
February 10, 2006	Voice mail notification of adult incubating at nest #50
February 10, 2006	Memo from APG Law Enforcement regarding adult eagle mortality (electrocution) near nest #14
February 17, 2006	CBFO "non-concurrence" letter to APG re: Training Exercise #06-01 as proposed
February 24, 2006	CBFO e-mail providing minimization measures for construction of the Test and Range Operations building
February 28, 2006	E-mail result from USGS Madison Lab regarding eagle mortality of Feb. 10 (massive internal hemorrhage from blunt force trauma)
March 01, 2006	E-mail response to APG regarding Vortex Chamber
March 15, 2006	E-mail response to APG regarding erosion control measures at Mulberry Point
March 27, 2006	APG letter to CBFO requesting concurrence for Training Exercise #06-03
March 27, 2006	E-mail request to remove fallen tree on wires at C-Field eagle nest

Date	Description
April 4, 2006	E-mail from ATC regarding the Drop Tower nest (#46)
April 17, 2006	APG letter to CBFO requesting review and concurrence for Training Exercise # 06-06
April 20, 2006	E-mail update that 7 mortalities occurred during 2005
April 24, 2006	E-mail from APG/LE regarding M-Field Votex Chamber and possible harassment issue
May 4, 2006	APG letter to CBFO requesting concurrence for Training Exercise #06-04 and #06-05
May 4, 2006	Draft BO sent to APG to provide comments
May 5, 2006	E-mail "concurrence" response to Training Exercise # 06-06
May 8, 2006	E-mail concurrence for construction activities of the Vehicle Prep Building at Mulberry Point
May 9, 2006	Bald Eagle Monitoring Report for Training Exercise #06-06
May 17 2006	E-mail "concurrence" response to Training Exercise #06-04 and #06-05
May 23, 2006	E-mail from ATC stating Training Exercise #06-05 was cancelled
May 16, 2006	E-mail from APG regarding Drop Tower- nest occupants are now Ospreys
June 1, 2006	Preliminary meeting at APG to discuss draft BO
June 20, 2006	E-mail notification of bald eagle mortality at the Trench Warfare Range (APG)
June 20, 2006	APG letter requesting comments for BRAC EIS
June 21, 2006	APG letter to CBFO requesting a 45-day extension to provide comments to the draft BO

Date	Description
June 27, 2006	E-mail from FWS/LE concurring with the determination of an Osprey nest at the Drop Tower
July 6, 2006	Meeting at APG to discuss use of cameras at selected nests
July 7, 2006	E-mail notification of bald eagle mortality (sub-adult) at "J" Field under power line
July 14, 2006	E-mail from APG requesting senior level meeting with Major General Nadeau (APG Installation Commander)
July 17, 2006	APG letter acknowledging receipt of the Services draft BO
July 26, 2006	E-mail to CBFO providing information on a blast-shield test at the Fuze Range
July 27, 2007	Meeting at APG to discuss minimization measures for blast-shield test
August 8, 2006	Scoping meeting for Lauderick Creek Enhanced Use Leasing
August 10, 2006	Minutes of the Biweekly Eagle Work Group
August 14, 2006	E-mail from APG to notify the Service of the need to remove the Drop Tower structure and destruction of the osprey nest
August 18, 2006	E-mail response (above) to APG and FWS/LE
August 20, 2006	APG/LE notification of bald eagle mortality under power line at Spesutie Island (line with visible orange balls and reflectors)
August 30, 2006	APG letter requesting review/concurrence for training 06-10
September 5, 2006	APG letter request for review of the Lauderick Creek EIS for potential impacts to eagles
September 12, 2006	APG letter request for review and concurrence for placement of four remote surveillance cameras at selected nests
September 14, 2006	CBFO e-mail concurrence with the conservation measures presented in the draft EIS for prescribed range fires at APG

Date	Description
September 20, 2006	CBFO e-mail concurrence for Training Exercise #06-10
September 26, 2006	APG Bald Eagle Monitoring Report for Training Exercise #06-10
September 29, 2006	PG notification of an adult bald eagle mortality at Spesutie Island
October 4, 2006	CBFO reply letter to the Lauderick Creek Enhanced Use Leasing
October 10, 2006	E-mail from ATC describing bald eagle loafing activity on the runway of the Phillips Army Air Field
October 10, 2006	CBFO reply letter to APG regarding Training Exercise #06-11
October 16, 2006	CBFO reply letter to APG regarding bald eagle nest study
October 30, 2006	APG letter request for concurrence for Training Exercise #06-12
November 1, 2006	CBFO reply letter to APG for Training Exercise #06-12
November 1, 2006	APG notification (e-mail) that an adult bald eagle was struck by a vehicle; may have sustained injuries but not recovered
November 2, 2006	Site visit at the Twin Towers (APG) to provide guidance on placement of nest camera
November 4, 2006	Bald Eagle Monitoring Report for Training Exercise #06-12
November 14, 2006	APG letter request concurrence for Training Exercise #06-14
November 15, 2006	CBFO reply letter regarding concurrence for Training Exercise #06-14
November 15, 2006	CBFO receipt of the Army's consolidated comments to the draft BO
November 20, 2006	E-mail from ATC regarding construction of a tunnel complex at Mulberry Point
December 21, 2006	E-mail from APG providing a timeline to begin burial of power lines at Spesutie Island; begin work in January 2008 and between 4-5 years

APPENDIX B Shoreline Training (Bald Eagle Avoidance and Monitoring Measures)

APPENDIX B Avoidance and Monitoring Measures for bald eagles currently implemented by the Army during WarFighter Training Exercises

Avoidance and Monitoring Measures include the following actions:

1) Initiate training exercises after the morning foraging period (dawn to 10 a.m.);

2) Maintain an adequate protection distance (buffer zone) from all known eagle nests and roost areas; and where possible;

3) Utilize firing points to targets that provide the greatest protection to the nest tree (year round);

3) Execute a Bald Eagle Monitoring Plan (BEMP) to protect eagles during the training exercise. In accordance with the BEMP, the Army has agreed to conduct a dawn shoreline survey for eagles along the proposed training areas (shoreline between Stony Point and Cherry Tree Point, and Carroll Island) prior to commencement of the planned activities;

4) Halt any exercise that results in a flush response to the activity. Exercises will be stopped and assessed, as provided in the BEMP and reported to the Service;

5) Maintain a minimum altitude of 1,000 feet (over land) for all rotary wing aircraft while in transit for deployment or extraction of field personnel; and as implemented in previous training exercises,

6) Conduct a post-activity monitoring survey. It is important to fully implement the monitoring plan, and document any positive or negative effects to foraging and roosting bald eagles.

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APPENDIX D

ECONOMIC IMPACT FORECASTING SYSTEM (EIFS) MODEL OUTPUT

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EIFS REPORT

PROJECT NAME

Aberdeen Proving Ground, BRAC EIS –Operations: Proposed Action, Net Change In Annual Impacts
(Harford & Cecil Counties, Primary ROI - One-Year Personnel Movement)

STUDY AREA– Primary Region of Influence

24015 Cecil County, MD
24025 Harford County, MD

FORECAST INPUT

Change In Local Expenditures	$0
Change In Civilian Employment	7574
Average Income of Affected Civilian	$80,000
Percent Expected to Relocate	85
Change In Military Employment	0
Average Income of Affected Military	$0
Percent of Military Living On-post	0

FORECAST OUTPUT

Employment Multiplier	2.77	**RTV**
Income Multiplier	2.77	
Sales Volume - Direct	$467,787,800	
Sales Volume - Induced	$862,272,700	
Sales Volume - Total	$1,330,059,500	20.80%
Income – Direct	$539,329,000	
Income – Induced	$147,862,000	
Income - Total(place of work)	$687,191,000	9.51%
Employment – Direct	6448	
Employment – Induced	4171	
Employment – Total	11035	9.40%
Local Population		
Local Off-base Population	15087	5.16%

RTV SUMMARY

	Sales Volume	Income	Employment	Population
Positive RTV	11.6 %	10.79 %	4.58 %	1.9 %
Negative RTV	-8.19 %	-4.53 %	-3.75 %	-0.7 %

EIFS REPORT

PROJECT NAME

Aberdeen Proving Ground, BRAC EIS –Operations: Proposed Action, Net Change In Annual Impacts
(Harford & Cecil Counties, Primary ROI - Two-Year Personnel Movement)

STUDY AREA– Primary Region of Influence

24015 Cecil County, MD
24025 Harford County, MD

FORECAST INPUT

Change In Local Expenditures	$0
Change In Civilian Employment	3787
Average Income of Affected Civilian	$80,000
Percent Expected to Relocate	85
Change In Military Employment	0
Average Income of Affected Military	$0
Percent of Military Living On-post	0

FORECAST OUTPUT

Employment Multiplier	2.77	**RTV**
Income Multiplier	2.77	
Sales Volume - Direct	$243,579,800	
Sales Volume - Induced	$431,136,400	
Sales Volume - Total	$674,716,200	10.41%
Income - Direct	$302,960,000	
Income - Induced	$81,358,020	
Income - Total(place of work)	$384,318,000	5.29%
Employment - Direct	5060	
Employment - Induced	2253	
Employment - Total	7313	6.27%
Local Population	8015	
Local Off-base Population	8015	2.74%

RTV SUMMARY

	Sales Volume	Income	Employment	Population
Positive RTV	11.6 %	10.79 %	4.58 %	1.9 %
Negative RTV	-8.19 %	-4.53 %	-3.75 %	-0.7 %

EIFS REPORT

PROJECT NAME

Aberdeen Proving Ground, BRAC EIS –Operations: Proposed Action, Net Change In Annual Impacts
(Harford & Cecil Counties, Primary ROI - Three-Year Personnel Movement)

STUDY AREA– Primary Region of Influence

24015 Cecil County, MD
24025 Harford County, MD

FORECAST INPUT

Change In Local Expenditures	$0
Change In Civilian Employment	2525
Average Income of Affected Civilian	$80,000
Percent Expected to Relocate	85
Change In Military Employment	0
Average Income of Affected Military	$0
Percent of Military Living On-post	0

FORECAST OUTPUT

Employment Multiplier	2.77	**RTV**
Income Multiplier	2.77	
Sales Volume - Direct	$162,408,000	
Sales Volume - Induced	$287,462,100	
Sales Volume - Total	$449,870,100	6.94%
Income - Direct	$202,000,000	
Income - Induced	$54,245,840	
Income - Total(place of work)	$256,245,800	3.52%
Employment - Direct	3374	
Employment - Induced	1502	
Employment - Total	4876	4.18%
Local Population	5344	
Local Off-base Population	5344	1.83%

RTV SUMMARY

	Sales Volume	Income	Employment	Population
Positive RTV	11.6 %	10.79 %	4.58 %	1.9 %
Negative RTV	-8.19 %	-4.53 %	-3.75 %	-0.7 %

EIFS REPORT

PROJECT NAME

Aberdeen Proving Ground, BRAC EIS: Annual Construction Impacts, Proposed Action (Seven-County/City of Baltimore Region of Influence)

STUDY AREA – Secondary Region of Influence

24003	Anne Arundel County, MD
24005	Baltimore County, MD
24013	Carroll County, MD
24015	Cecil County, MD
24025	Harford County, MD
24027	Howard County, MD
24035	Queen Anne's County, MD
24510	City of Baltimore, MD

FORECAST INPUT

Change In Local Expenditures	$187,000,000
Change In Civilian Employment	0
Average Income of Affected Civilian	$39,000
Percent Expected to Relocate	0
Change In Military Employment	0
Average Income of Affected Military	$0
Percent of Military Living On-post	0

FORECAST OUTPUT

Employment Multiplier	4.96	**RTV**
Income Multiplier	4.96	
Sales Volume - Direct	$187,000,000	
Sales Volume - Induced	$740,520,000	
Sales Volume - Total	$927,520,000	0.78%
Income - Direct	$36,211,120	
Income - Induced	$143,396,100	
Income - Total(place of work)	$179,607,200	0.25%
Employment - Direct	817	
Employment - Induced	3237	
Employment - Total	4054	0.27%
Local Population	0	
Local Off-base Population	0	0%

RTV SUMMARY

	Sales Volume	Income	Employment	Population
Positive RTV	11.57 %	10.51 %	2.97 %	1.02 %
Negative RTV	-4.8 %	-4.54 %	-3.1 %	-0.46 %

EIFS REPORT

PROJECT NAME

Aberdeen Proving Ground, BRAC EIS – Operations: Proposed Action, Net Change in Annual Impacts
(Seven-County/City of Baltimore ROI)

STUDY AREA– Secondary Region of Influence

24003	Anne Arundel County, MD
24005	Baltimore County, MD
24013	Carroll County, MD
24015	Cecil County, MD
24025	Harford County, MD
24027	Howard County, MD
24035	Queen Anne's County, MD
24510	City of Baltimore, MD

FORECAST INPUT

Change In Local Expenditures	$0
Change In Civilian Employment	7574
Average Income of Affected Civilian	$80,000
Percent Expected to Relocate	100
Change In Military Employment	-3171
Average Income of Affected Military	$21,000
Percent of Military Living On-post	93

FORECAST OUTPUT

Employment Multiplier	4.96	**RTV**
Income Multiplier	4.96	
Sales Volume - Direct	$467,787,800	
Sales Volume - Induced	$1,852,439,000	
Sales Volume - Total	$2,320,226,800	1.95%
Income - Direct	$539,329,000	
Income - Induced	$358,710,800	
Income - Total(place of work)	$898,039,800	1.25%
Employment - Direct	6,448	
Employment - Induced	8,098	
Employment - Total	14,546	.98%
Local Population	18,859	
Local Off-base Population	18,859	0.73%

RTV SUMMARY

	Sales Volume	Income	Employment	Population
Positive RTV	11.57 %	10.51 %	2.97 %	1.02 %
Negative RTV	-4.8 %	-4.54 %	-3.1 %	-0.46 %

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APPENDIX E

DRAFT ENVIRONMENTAL IMPACT STATEMENT COMMENTS

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Comment	BRAC Actions	EUL	Both or Not Specified	Not Applicable to the EIS	Request for Detail	Cumulative Effects	Scoping	Land Use	Geology and Soils	Air Quality	Noise	Water Resources	Biological Resources	Cultural resources	Aesthetics and Visual Res.	Socioeconomics	Transportation	Utilities	Hazardous and Toxic Sub.	Response
Public																				
118 . A) Traffic Analysis is inaccurate and perhaps deceptive. B) Traffic impacts will also be significantly higher than the EIS predicts for another reason beyond ignoring the EUL. The traffic survey is incorrectly done and therefore grossly misleading because: No complete surveys were done on either the Aberdeen Area (AA) or Edgewood Area (EA) gates. Both areas have multiple entrances, and survey data was taken months apart for the gates leading into each one. APG-EA's had 2 gates sampled, one in May 2004 and one in July 2004. One of APG-AA's gates was sampled 1-7 March 2004 and 1-5 September 2004 while the second was sampled 29 March – 1 April 2004. This pattern of data acquisition cannot accurately total the number of vehicle entries into the post because it's adding apples and oranges. All gates for an Area (EA or AA) should be surveyed simultaneously. What matters are PEAK traffic counts, not daily averages or even "morning averages" and "evening averages". Any commuter knows the probability of traffic jams can change significantly in only 15 minutes – leave for work 15 minutes late and you can easily arrive 30 minutes late. Data should be provided daily and in 15-minute increments from about 6:30am to 10:00am for incoming traffic in the morning, and similarly from about 3:00pm to 6:30pm for exiting traffic. C) Calculations of Total Predicted Inbound Trips Per Day are based on truly absurd averages that significantly underestimate the actual traffic on a normal workday. The samples on 1-5 September 2004 were from Wednesday before Labor Day weekend through that Sunday, with Monday being a federal holiday. This is a grossly unrealistic sample since only Wednesday and Thursday were likely to be "normal" commuting days. The two EA samples were both 8 days long and included 2-day weekends, and another AA sample also included a full weekend in its count. One EA sample was taken in late July during a peak week for vacations. There is no regular commuter traffic on Saturday and Sunday so including Saturday and Sunday in these counts and using these days to create an average daily volume drastically underestimates actual commuter traffic. Fridays are often atypical of normal work traffic due to compressed work weeks. Only non-holiday data from Monday through Thursday is realistic, and therefore, the traffic surveys must be redone. Current estimates are much too low. The number of additional trips per day is also underestimated and the impact of the new commuters will be significantly greater than the EIS admits. Table 2.2.2 shows 2,908 Student/Trainees presently on post. The vast majority of students stay on post and do not contribute to commuter traffic, so their departure does not offset the traffic impacts of an equivalent number of new BRAC-related civilians and contractors. It's not the net population change that matters, it's the net change in commuters. Once new traffic surveys have been completed, the number of current commuters should be compared to the number of cars currently entering APG. This ratio of commuters-to-cars should then be multiplied by the number of new, BRAC commuters to predict the number of additional cars due to BRAC.	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	A) Comment noted. B) As discussed in Section 4.11.1.1, the Critical Lane Volume method used to analyze traffic "…utilizes peak hour turning movement counts, intersection geometry, lane assignments, and special operating characteristics." Table 4.11.2 presents current AM Peak and PM Peak Level of Service values for 17 off-post intersections. Table 4.11.3 presents current AM Peak and PM Peak Level of Service values for 8 on-post intersections. Table 4.11.4 presents AM Peak and PM Peak trip generation estimates. Table 4.11.5 presents existing and predicted Level of Service values for AM Peak and PM Peak conditions. C) Predicted trips were based on anticipated land uses and numbers of employees anticipated to use certain areas on-post. An assumption was made in the traffic analysis that accounted for on-post, non-commuting students vs. off-post, commuting employees. The DEIS identified a potential significant impact to traffic - adding more predicted trips to the analysis would not result in a different outcome.
119 . A) In regard to Section 4.11.1 which is Off-Post Roadways and Existing Traffic Conditions. The Table on page 4-97 on Level of Service Values at Selected Off-Post Intersections didn't appear to reflect what I see as the actual conditions currently existing. One particular roadway that's familiar to me on the northern peninsula is Short Lane, MD 715 at Old Philadelphia Road is represented as existing conditions of A. And I find that there are problems on that road that aren't accounted for in the Draft EIS. After talking to some of the experts who worked on this document, I understand that the level of service represents the condition found at the intersection. B) And the concern I have is that it doesn't really represent what is happening on Old Philadelphia Road in between the intersections at Route 40 and Short Road. There are traffic problems currently existing on that stretch of road that are of a concern now and will be a concern as more traffic comes into the 715 gate with the arrival of additional people as part of BRAC.	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	A) Comment noted. As discussed in the EIS, "The methods used to determine LOS are described by the Department of Transportation Research Board's Highway Capacity Manual (HCM) (TRB 2000)." B) No lane segments' traffic is expected to change independent of the change in conditions at the intersections at either end of individual segments.
120 . Will the new construction use low impact development techniques?	☑	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	To the extent practicable for military construction, and as fiscal and manpower resources are available, low impact development techniques will be used in preparing designs for the Proposed Action.

Comment	BRAC Actions	EUL	Both or Not Specified	Not Applicable to the EIS	Request for Detail	Cumulative Effects	Scoping	Land Use	Geology and Soils	Air Quality	Noise	Water Resources	Biological Resources	Cultural resources	Aesthetics and Visual Res.	Socioeconomics	Transportation	Utilities	Hazardous and Toxic Sub.	Response
121 . Highly recommend the RFP for building construction include requirements for green buildings (Spirit/LEED), low impact development, and Chesapeake Bay 2000 agreement.	☑	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	To the extent practicable for military construction, and as fiscal and manpower resources are available, green building technology, low impact development techniques, and provisions of the Chesapeake Bay 2000 Agreement will be used in preparing designs for the Proposed Action.
122 . A) I would like to see how the entire BRAC process ties into the Chesapeake Bay Agreement of 2000. The DOD signed onto this agreement then, and it should now follow through with the goals and BMPs that were outlined in the agreement. B) Particularly, impacts to water quality by using low impact development techniques and the reduction of impervious surfaces through other BMPs.	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	A) The DOD stands by its commitments as a signatory to the Chesapeake Bay 2000 Agreement. B) To the extent practicable for military construction, and as fiscal and manpower resources are available, low impact development techniques and the reduction of impervious surfaces will be utilized in the Proposed Action.
123 . The EIS is very general, so it is difficult to comment on BRAC and its impacts. Example of this is the range of potential wetland loss in the Northern Penn. of 1-10 acres with none identified in the Southern Peninsula.	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	Comment noted. As discussed in Section 4.8.2.2, the Corps of Engineers is currently in the process of delineating the actual acreages of jurisdictional wetlands in areas potentially affected by the Proposed Action. Text edited to reflect the current level of design and development and the ongoing Clean Water Act Section 404 regulatory process.
124 . I hope Lauderick Creek will continue to be a dead issue. With the unknown factor of what is lurking underground on that site, it would be foolhardy and possibly dangerous to do any type of excavation. Not only could there be UXO's but there could also be toxic chemicals in the soil. To disturb the soil could release those chemicals into the air and would cause harm to the neighboring community. However, with all of those variables in place, I hope there is a way of continuing to safely monitor the site, and keeping an eye on its stability.	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Comment noted. The Lauderick Creek EUL is analyzed as a reasonably foreseeable future action in section 4.14 Cumulative Effects Summary. At this time, no current active planning is taking place for the Lauderick Creek EUL. As discussed in section 1.3 Scope, should the Lauderick Creek EUL be developed to the point of environmental analysis, that project will be assessed in a separate NEPA document.
125 . Impacts of Enhanced Use Lease (EUL) Areas are not considered. The Lauderick Creek EUL (in the Edgewood Area) was dropped from APG's BRAC EIS because its impacts, although substantial, have not yet been studied. The EIS promises: "Once the Lauderick Creek EUL development process matures to the point of environmental analysis, it will be assessed in a separate NEPA document. That NEPA document will evaluate the cumulative impacts of its proposed action combined with the impacts of the BRAC Proposed Action addressed in this document." This is an honest statement with which I have no problem. What is a problem, however, is the Maryland Avenue EUL (in the "Northern Peninsula" or "Aberdeen Area"). This EUL seems to have been totally ignored in this DEIS. The EIS considers traffic data from 2004 and environmental data from 2005 to be the "baseline" against which BRAC changes are being measured. However, the EUL's impacts, which occur concurrent with or prior to the BRAC, are neither part of the baseline nor are they included as BRAC impacts. The result is that cumulative impacts of BRAC plus this Aberdeen Area EUL are not being provided nor assessed. This is a significant concern since the EIS' transportation analysis already concludes: "Without structural improvements to affected intersections, the Proposed Action will result in significant impacts at selected intersections leading to access to APG's Northern Peninsula." The EUL only makes the impacts worse. It is imperative that the Aberdeen Area EUL be included in EIS analyses.	☑	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	Comment noted. In section 4.11.2 Consequences, the EIS states, "Much of the on-post and gate traffic information is drawn directly from the Draft Planning Study [that includes the Maryland Boulevard EUL]. The study analyzed potential impacts resulting from the Proposed Action, and included predicted traffic volumes for the Maryland Boulevard EUL project, an APG project unrelated to this BRAC EIS." The Maryland Boulevard EUL is also identified as a reasonably foreseeable future action in section 4.14 Cumulative Effects Summary.
146 . Air quality, traffic and water issues concern me most. Page 4-19, Table 4.4-5, is predicting unacceptable levels of carbon monoxide and nitrogen dioxide by 2009. By year 2011 this will include volatile organic compounds as well. Our area is already a non-attainment area for air quality. I am concerned that this will impact workers on past and the immediate area with increased respiratory problems, missed workdays and poorer school attendance.	☑	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	Comment noted. The Clean Air Act Conformity Analysis has been completed and has been sent to the State for approval and inclusion in the State Implementation Plan. Comment noted.
147 . Increased traffic and predicted conditions at intersections (pp 4-103 and 104, table 4.11-6) is alarming. Getting to work and school, doing errands will become a nightmare. Route 22 in the Northern Peninsula region will not handle the volume of traffic expected. The quality of life will be severely impacted by this action.	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	Comment noted. Section 4.11.3 Suggested Transportation Network Improvements presents measures to alleviate traffic impacts included in the Draft BRAC Facilities, Infrastructure, and Environmental/HTRW Planning Study (USACE Baltimore 2006) and the Maryland Department of Planning BRAC study (MDP 2006b).

Comment	BRAC Actions	EUL	Both or Not Specified	Not Applicable to the EIS	Request for Detail	Cumulative Effects	Scoping	Land Use	Geology and Soils	Air Quality	Noise	Water Resources	Biological Resources	Cultural resources	Aesthetics and Visual Res.	Socioeconomics	Transportation	Utilities	Hazardous and Toxic Sub.	Response
148 . Deer Creek Water may be limited in withdrawal even with a 3 MGD permit since on average days only 1.02 MGD is used now. There have been problems in the past with the permit. Rules regarding this should be checked with the SRBC.	☑	☐	☐		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	Water users have a designated amount under the water use permit and an authorized withdrawal amount. The user can only withdraw, up to the permitted amount, what they have an alternate source for (i.e., 1:1 basis). APG's 1.5 MGD authorized withdrawal amount is based on a 1.5 MGD supply contract they have with Harford County. In order to meet the projected increase in demand under BRAC they (or City of Aberdeen) would need to increase their backup amount or identify an additional source for backup. Based on background information provided by the County, the County has included this projected increase (an additional 1.5 MGD) in their water planning.
151 . Frederick Ward Associates (FWA) is writing this letter as a response specifically to the Transportation subsection for the Draft EIS published in March 2007. As you may be aware, FWA drafted a transportation study for the Army Alliance in November 2005. The findings in that report were subsequently echoed in both State and County reports. However the DEIS does not logically address all of the key intersections off-post that will be adversely impacted by the on-post growth. Specific intersections which should be included in the study are: •MD-715 at US-40 •MD-7 at US-40 (east and west of MD-715) •MD-152 at Trimble Road •MD-152 at US-40 •MD-152 at MD-7 A) There are other intersections that will undoubtedly be impacted by the job growth on-post. However, the above listed intersections, in addition to the ones already referenced in the DEIS, cover all of the arterial connections for access to the post. Most notably MD-715 where more than five million square feet of office and lab space will distribute most of there traffic is excluded. B) In fact, the MD Boulevard EUL site is inconsistently computed as existing for the on-post baseline, and predicted (future) for the off-post. The MD Boulevard EUL should be calculated in a consistent manner with the other BRAC related growth and the C4ISR project that will share the MD-715 gate. C) On the Southern Peninsula there was not distribution of traffic to the Magnolia Road (MD-152) gate and the proposed expansion of the Waste-to-Energy plant, which will serve APG growth. The Wise Road (MD-755) gate is also the location of the Edgewood MARC train stop, which is presently being upgraded. This improvement is not recognized in the DEIS, which will add background traffic to Edgewood Road and the Wise Road gate intersection. There should also be some reference to the Lauderick Creek EUL that will exclusively use the Wise Road gate. D) In closing, we would recommend revising the DEIS to address the intersections that connect commuting traffic to the arterial road network. It is important to address these additional intersections due to the mixing of heavy truck traffic with automobile traffic. Additionally, FWA would be pleased to assist by providing our report for the Army Alliance, as well as reports and data from surrounding jurisdictions. Most of the affected off-post intersections have been analyzed in one form or another in recent years.	☑	☐	☐		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	A) The preparers of the DEIS used an area of analysis and a selection of intersections appropriate to the scope of the Proposed Action. The intersections that were assessed adequately reflect the potential off-post traffic impacts. B) Predicted traffic resulting from the Maryland Boulevard was mistakenly identified as having been included in the baseline condition for on-post traffic. Text in section 4.11.1 edited to delete, "The Draft Planning Study included both the existing and predicted Maryland Boulevard EUL traffic as its baseline on-post traffic volume." Text edited to state, "The on-post and off-post traffic evaluations in this section include the Maryland Boulevard EUL in the predicted traffic volume." C) The DEIS identified a potential significant impact to traffic - adding more predicted trips to the analysis would not result in a different outcome. The Lauderick Creek EUL is included as a reasonably foreseeable future action in section 4.14 Cumulative Effects Summary. D) Comment noted.

Comment	BRAC Actions	EUL	Both or Not Specified	Not Applicable to the EIS	Request for Detail	Cumulative Effects	Scoping	Land Use	Geology and Soils	Air Quality	Noise	Water Resources	Biological Resources	Cultural resources	Aesthetics and Visual Res.	Socioeconomics	Transportation	Utilities	Hazardous and Toxic Sub.	Response
USEPA Region III																				
142 . A) The document states on page 4 that "the EIS shows areas where potential construction and/or renovations may occur: however, the exact footprint, in many cases has not yet been determined." The document also states on page 3-3 that "minor shifts in the mix of new construction and reutilized facilities would not produce drastically different environmental results." The document should include a table that describes the environmental impacts in each of the proposed construction areas. More information should be provided on the specific impacts that are expected to occur within each area i.e. acres of wetlands, acres of forests, and linear feet of stream impacted etc. B) Potentially each site is large enough to accommodate different build scenarios. However, without building design plans it is difficult to assess what the actual environmental impacts may be. This does offer the opportunity for the Army to reduce impacts on site by incorporating good design techniques when planning the layout.	☑	☐	☐		☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	A) We agree. A table (Table 4.1.4.2) has been added that summarizes acres of wetlands, acres of forest, and linear feet of stream affected by project site. B) We agree. Impact analyses now reflect the scope of the potential effects to wetlands at section 4.8.2.2 and Table 4.14.2. Site specific impacts are included in the FEIS. Since publication of the DEIS, the Army has developed more site-specific and resource-specific impact discussions. All efforts are being made to minimize impacts.
150 . This project also presents an excellent opportunity to implement the President's Executive Order 13423, Strengthening Federal Environmental, Energy and transportation management by incorporating energy efficiency into the retrofit or construction efforts for this project. Attached to this letter is information that we recommend the Army considers when planning the construction phase of this project.	☑	☐	☐		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	We agree. The Army is required to implement the EO to the extent practicable and will do so.

Comment	BRAC Actions	EUL	Both or Not Specified	Not Applicable to the EIS	Request for Detail	Cumulative Effects	Scoping	Land Use	Geology and Soils	Air Quality	Noise	Water Resources	Biological Resources	Cultural resources	Aesthetics and Visual Res.	Socioeconomics	Transportation	Utilities	Hazardous and Toxic Sub.	Response
Maryland Department of Planning, Clearinghouse																				
144 . A) This Department stated that the Draft Environmental Impact Statement provides the assessment of potential transportation impacts of the proposed BRAC actions at APG. The assessment concludes that the proposed BRAC actions at APG will have some significant, traffic impacts on roadways that lead to both the APG Northern and Southern Peninsulas. The Army and this Department agree that coordinated efforts by various government agencies are required to mitigate the transportation impacts. A BRAC Subcabinet chaired by Lieutenant Governor Anthony Brown is being established to coordinate the implementation of actions, including addressing transportation impacts, to support the missions of BRAC actions in Maryland. B) The Army's support of State and local efforts in improving roadway, transit, and pedestrian and bicycle access to APG would be appreciated. It is strongly encouraged that the Army consider implementing Transportation Demand Management (TDM) practices to reduce single-occupancy vehicles traveling in/out of APG. TDM measure (i.e. hiring a transportation coordinator to manage a TDM program; implementing flex work hours; encouraging car pools; using transit; improving pedestrian/bicycle access; and providing shuttles from/to transit stops and park and ride lots) will help to improve transportation access to APG. TDM measure will also help to reduce vehicle emissions, and improve air quality.	☑	☐	☐		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	A) Comment noted. APG has a transportation integrator working with state, county, and local officials to help resolve transportation and traffic issues. Various options are being reviewed to help alleviate the increased demand on transportation systems on and around APG. B) Comment noted.
149 . A) The proposed BRAC actions at APG will significantly benefit the State, and local economies. However, the BRAC actions could also have adverse, cumulate land-use effects. Such effects could impact Harford County's agricultural and rural areas, where in recent years residential developments have been increasing considerably. It is anticipated that the BRAC actions will bring high-end housing in these rural areas which would be particularly attractive to high-paid workers. Therefore, housing demands from the BRAC actions may put more growth pressures on these rural areas and facilitate the transformation of rural landscapes to more housing developments. The DEIS should point out such cumulative, land-use effects. Nevertheless, localities, in coordination with the regional and state agencies, are ultimately responsible for taking actions to reduce such adverse land-use effects. B) The Maryland Department of Business and Economic Development, and the Maryland Emergency Management Agency found this project to be consistent with their plans, programs, and objectives.	☑	☐	☐		☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	A) We agree that localities, in coordination with the regional and state agencies, are ultimately responsible for taking actions to reduce such adverse land-use effects. B) Comment noted.

Comment	BRAC Actions	EUL	Both or Not Specified	Not Applicable to the EIS	Request for Detail	Cumulative Effects	Scoping	Land Use	Geology and Soils	Air Quality	Noise	Water Resources	Biological Resources	Cultural resources	Asthetics and Visual Res.	Socioeconomics	Transportation	Utilities	Hazardous and Toxic Sub.	Response
Maryland Department of Planning, Historic Trust																				
131 . The Army notified the Trust of its intent to use the DEIS documentation for Section 106 consultation purposes, in accordance with 36 CFR 800.8(c). The DEIS presents summary descriptions of the anticipated actions, provides preliminary information on the Army's efforts to identify and evaluate historic properties (including archeological and architectural resources) in the area of potential effects based on existing information, and offers an initial assessment of the potential impacts of planned BRAC Actions on historic properties at Aberdeen Proving Ground (APG). The DEIS affirms that planning and engineering analyses are still underway for the proposed actions and states that: The EIS shows areas where potential construction and/or renovation will occur; however, the exact footprint, in many cases, has not yet been determined. The DEIS acknowledges that the proposed BRAC actions have the potential to adversely affect historic properties (architectural and archeological resources), including resources that have not yet been identified or evaluated for eligibility in the National Register of Historic Places. The Army confirms the need for ongoing coordination with the Trust to fulfill its Section 106 responsibilities for the planned BRAC undertakings at APG. Based on the documentation presented in the DEIS, the Trust concurs with the Army's determination that BRAC actions at APG may adversely affect historic properties While the DEIS contains useful information on the anticipated actions, the Army will need to provide the Trust with more detailed, project-specific documentation in order to fully assess the potential effects on historic properties, as project planning progresses. Specifically, the Army should submit the following materials for each action to the Trust, when available: •Detailed project description (new construction, alteration of existing facilities, etc.); •Clearly identify the undertaking as a BRAC action; •Accompany maps and plans for the action; •The results of the Army's efforts to identify and evaluate historic properties that may be affected by that action (with accompany draft survey reports and Determination of Eligibility (DOE) forms, as applicable); •The Army's assessment of effect, with appropriate justification, for that action; •A discussion of the Army's proposed measures to avoid, minimize, or mitigate any adverse effects on historic properties; and •Any other relevant documentation We encourage the Army to implement its related Section 106 consultation with the Trust and relevant parties early in the planning processes for these actions, to allow sufficient time to effectively avoid and resolve any adverse effects well in advance of construction.	☑	☐	☐		☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	We agree to continue Section 106 consultation with the Trust and relevant parties early in the planning processes for these actions, to allow sufficient time to effectively avoid and resolve any adverse effects well in advance of construction.

Comment	BRAC Actions	EUL	Both or Not Specified	Not Applicable to the EIS	Request for Detail	Cumulative Effects	Scoping	Land Use	Geology and Soils	Air Quality	Noise	Water Resources	Biological Resources	Cultural resources	Aesthetics and Visual Res.	Socioeconomics	Transportation	Utilities	Hazardous and Toxic Sub.	Response
Maryland Department of Natural Resources																				
126 . It appears that the development activity proposed at the Aberdeen Proving Ground will be partially located in the Chesapeake Bay Critical Area. The information submitted indicates that the applicable Critical Area criteria are those of the Areas of Intense Development designation. The Critical Area Commission staff has the following comments. A) The Critical Area 10% Rule Guidance Manual explains the pollution reduction calculations for development within the IDA of the Critical Area. The applicant should provide the calculations of Worksheet A of the manual, and document how the proposed action will meet the 10% pollution reduction criteria. 2.As required by the Critical Area criteria, a Buffer shall be established 100 feet landward from the mean high water line of tidal waters, tributary streams and tidal wetlands. The Buffer should be expanded beyond 100 feet to include contiguous, sensitive areas, such as steep slopes, hydric soils, or highly erodible soils, whose development or disturbance may impact streams, wetland, or other aquatic environments. In order to document that the Buffer has been accurately established, please submit a site plan with the proposed limits of disturbance, which also shows the location of tidal and non-tidal wetlands, topography, streams and soil types. No new development activities are permitted within the 100-foot Buffer except water dependant facilities. 3. Our records indicate that the northern peninsula site may be within a sensitive species project review area. Please contact Lori Byrne with the Maryland DNR Natural Heritage Division, at (410) 260-8573 to determine the type of habitat that may be located on this site. Once this information has been received from DNR, please forward a copy to our office. Thank you for the opportunity to provide comments on this project. If you have any additional questions please contact me (Marshall Johnson) at 410-260-3479.	☑	☐	☐		☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	A) The development and design of the Proposed Action projects is an on-going process. When the process advances to the point where regulatory procedures, e.g. providing the calculations of Worksheet A, are called for APG will comply with all applicable regulatory procedures and requirements. B) As discussed in section 4.8.2.2, "No construction or other activities would occur in aquatic habitats (SAV) or within the 100-foot Critical Area buffer." The development and design of the Proposed Action projects is an on-going process. When the process advances to the point where site plans are available, APG will comply with all applicable regulatory procedures and requirements. C) Resolution of comment pending response from Maryland DNR Natural Heritage Division.
152 . A) The State's Forest Conservation Act requires that before the issuance of a grading or sediment control permit, the applicant shall have an approved Forest Conservation Plan and Forest Stand Delineation (Nat. Res. Art. 5-1601-5-16122, Annotated Code of Maryland). The Department's Forest Service recommends that a forest conservation plan be submitted to the state or local jurisdiction with planning and zoning authority when the applicant's preliminary site plan is submitted for review to the local jurisdiction. The Act provides for the retention of forested areas in sensitive areas on the subject property as one method of mitigation. B) Any tree that originates within a public road right-of-way is considered a roadside tree under the Maryland Roadside Tree Care Law (NRA 5-406) and Regulations (COMAR 08.07.02) and any plans to remove, trim, or plant trees within the public right-of-way are required to obtain a permit from the Maryland Department of Natural Resources Forest Service.	☑	☐	☐		☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	A) We agree. A Forest Conservation Plan and Forest Stand Delineation are discussed in the DEIS at section 4.8.2.2. B) Comment noted.
153 . Aberdeen Proving Ground is located in Maryland's Upper Western Shore (UWS) tributary strategy basin, which includes the Bush and Gunpowder Rivers. The Bush and Gunpowder Rivers 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 and because the Rivers fail to support a full biological community. The Department of Natural Resources has developed water quality models that estimate nutrient and sediment loads based on the implementation of various management strategies. According to model output, nitrogen, phosphorus and sediment loadings have decreased in the UWS tributary strategy basin since 1985; however, the basin is not meeting its water quality goals for nutrients or sediments and substantial annual reductions will be needed to meet those goals. The Final EIS should provide a comprehensive assessment of the direct and indirect short-term and long-term nutrient and sediment impacts to the UWS tributary strategy basin and specifically to the Bush and Gunpowder Rivers. This project should be required to prevent any addition of nutrients and sediments generated by direct and indirect activities through the implementation of best management or low impact development efforts in the project area and through out the basin as part of the expected development due to increased population resulting from BRAC actions.	☑	☐	☐		☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	APG has a Nutrient Management Plan (2005) in place. To the extent practicable for military construction, and as fiscal and manpower resources are available, best management practices and low impact development techniques will be used in preparing designs the Proposed Action. The Army, however, has no control over off-post development.

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154 . The Department is concerned about the potential impacts of this project on submerged aquatic vegetation (SAV) in the Bush and Gunpowder Rivers and the surrounding areas. SAV beds provide food, shelter and foraging habitat for many species of finfish, invertebrates and water birds as well as serving as nursery grounds for juvenile finfish. Small fish species, as well as the juveniles of larger fish species seek refuge from predators in SAV. A variety of finfish food sources such as algae, eggs and small invertebrates are found in SAV beds. In addition to providing habitat for the Bay's living resources; SAV helps to improve water quality by absorbing nutrients from the water, removing suspended sediments from the water column, reducing re-suspension of sediments and by retarding shore line erosion by reducing wave energy. The Bush River has met its SAV goals for the past three years; however, the Gun Powder has not.	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	Submerged aquatic vegetation is discussed in the DEIS at sections 4.8.1.1.3 and 4.8.2.2.
155 . The Department of Natural Resources has monitored water quality on the Bush and Gunpowder Rivers for nutrients, chlorophyll, and total suspended solids on a monthly basis from 1985 to the present. The Department has also collected temporally and spatially intensive data on both rivers from 2003 through 2005. These data could serve to establish pre-BRAC action baseline conditions and is available on request.	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	Comment noted. As discussed in the DEIS, an agency coordination meeting was held in Aberdeen, Maryland on June 6, 2006. The intent of this meeting was to address the project with key federal, state, and local agencies early in the EIS process. Also in June 2006, a scoping material request and request for scoping comments was mailed to Maryland DNR. Maryland DNR's scoping response letter of July 18, 2006 is included in Appendix A of the DEIS.
156 . According to the DEIS, APG owns and operates a wastewater treatment plant (WWTP) serving the Southern Peninsula which discharges to the Bush River. Although the WWTP has adequate permitted capacity, the plant is not currently designed to remove nitrogen. The WWTP should be upgraded to perform enhanced nutrient removal to decrease the nitrogen concentration in the effluent as part of the BRAC actions. The DEIS also states that sewage overflows have been a recurring problem on APG. The Final EIS should address actions to be taken as part of the BRAC project to address the problem with sewage overflows.	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	APG is aware of the nitrogen and sewage overflow issues associated with the WWTP. The issues are not a result of the BRAC actions. Adequate solutions to correct both conditions are being and will continue to be pursued by APG.
157 . The DEIS states that APG contracts for its Northern Peninsula potable water supply with the City of Aberdeen. Potable water to the Southern Peninsula is supplied from the Van Bibber impoundment on Winters Run but supply from this location is not possible during drought conditions when low flow permit conditions do not allow a withdrawal. During these times in the past, potable water was supplied by Harford County although there is no formal agreement for the County to do so. The DEIS projects a 14% increase in water demand by 2012 over the current baseline use rate and that sufficient excess design capacity currently exists to meet the projected demand in 2012. The Final EIS should address the water needs of APG beyond 2012 and the impact of the expected development due to increased population resulting from BRAC actions on the regional water supply. In performing that analysis, APG should be aware that Deer Creek, which currently supplies water to the Northern Peninsula, is designated by the State as a Scenic River which may limit the potential to increase water withdrawal from Deer Creek.	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	Comment noted. The discussion of environmental consequences addresses resources that could potentially be affected by the proposed construction projects, maintenance and operation of the proposed facilities, and future development associated with the presence of new organizations at APG. The DEIS acknowledges that the current physical condition of many potable water system facilities is such that upgrades may be required to supply the projected demand.
158 . As noted in the DEIS, APG contains significant population of both Federal and State listed rare, threatened and endangered species. The Department's Wildlife and Heritage Service currently is reviewing the information in the DEIS regarding RTE species. The results of their review will be provided to you upon its completion.	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	Resolution to comment pending response from the Department's Wildlife and Heritage Service.
159 . Opportunities to minimize future or retrofit existing indirect impacts to water resources through increases in stormwater runoff and reductions in groundwater recharge exist. It is recommended that renovation and new project construction not only meet the standards of the Maryland Stormwater Design Manual, but go beyond by implementing other low impact design stormwater management practices. These practices can be designed to increase infiltration, such as bioretention ponds and rain gardens, and to encourage removing connections between rooftop stormwater collection points and stormwater discharge points. More information on environmentally sensitive building and site-design techniques that should be considered for the planning and design phase of this project can be found on-line at http://www.dnr.state.md.us/ed/.	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	We agree. To the extent practicable for military construction, and as fiscal and manpower resources are available, standards of the Maryland Stormwater Design Manual and low impact design stormwater management techniques will be used in preparing designs for the Proposed Action.

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160 . Other indirect impacts to water resources will arise through the increase in water use, water treatment and wastewater discharge as a result of the increases in population. DNR encourages Aberdeen Proving Ground to work closely with Harford County government to address these concerns through the enhanced comprehensive planning process required by HB1141 legislation passed in 2006. HB1141 requires plans to incorporate a water resources element by 2009. This plan identifies expansion of water supply and treatment services. These expansions and assessments of capacity should be weighted against demands and potential water quality impacts of projected growth. Guidelines will be released in 2007 that fully articulate how the water resource element should be incorporated. However, this plan could perform a preliminary analysis on the balance between projected supply and demand for 2020 and the potential water quality impacts to the Bay.	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	We agree that APG should work with Harford County and other units of government to address issues of water use, water treatment, and wastewater discharge.
161 . State identified Green Infrastructure has been identified within the planning area and outside of the planning area. Maryland's Green Infrastructure is a network of interconnected hubs (large patches of forests and wetlands) that are connected to each other by corridors. Conserving the Green Infrastructure Network is a State priority because these lands are critical to protecting the State's biodiversity and provide the bulk of the State's natural support system. Within the Green Infrastructure Network are land areas that are ideal for restoration that are identified as "Gaps". These gaps, if restored, have a significant benefit for strengthening the Green Infrastructure Network.	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	Comment noted.
162 . Impacts to existing Green Infrastructure in the BRAC project areas appear to be evaluated in the EIS and few impacts were noted. Although there are very few direct impacts to Green Infrastructure, the future condition of these resources could be addressed. Measures to protect Green Infrastructure resources on Aberdeen Proving Grounds should be put in place through the facility and land management plan. Restoration efforts, either implemented voluntarily or through mitigation efforts should be focused on restoring the gaps identified within the Green Infrastructure and on other sensitive areas, such as waterways and riparian zones, needing restoration. More information on the Green Infrastructure Assessment can be found at: http://www.dnr.state.md.us/greenwavs/gilcidoc/gidoc.html. Other on-line Green Infrastructure Assessment resources include interactive mapping services (httu://www.mdmerlin.net/) and GIS data download options (http://www.dnr.state.md.us/gis/)	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	We agree that there are very few direct impacts to Green Infrastructure. Revisions to, or implementation of, facility and land management plans are outside the scope of the Proposed Action. Mitigation required as a result of impacts of the Proposed Action is discussed in the DEIS in section 4.15.

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Harford County - Office of Economic Development																				
140 . RE: BRAC position numbers Harford County Government has been using the total number of net new BRAC positions coming to APG as 8,200. The DEIS indicates that there is "a net gain of 4,403 personnel coming to APG." Furthermore, the Maryland Department of Business and Economic Development's recent 2005 BRAC State of Maryland Impact Analysis 2006-2020 Executive Summary states there are between 8,000 - 9,000 jobs coming into APG. Therefore, the number used in the Draft EIS is only half of what has been known to Harford County and the State of Maryland. The current 4,403 number stated in the DEIS has significant impact regarding off-Post infrastructure planning needs on Harford County and Cecil County as part of the Primary Region of Influence, as well as, surrounding counties and city indicated as part of the Secondary Region of Influence. The 8,200 number used by Harford County Government was generated by the BRAC Transformation Office and has been used publicly by the Garrison. Why isn't the 8,200 number used in the DEIS study?	☑	☐	☐		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	The DEIS, in Table 2.2.2, identifies 8,774 new positions to be staffed at APG. Table 2.2.2 also identifies a loss of 4,371 current positions from APG. The result (8,774 minus 4,371) is -net- increase of 4,403 positions. The State of Maryland and the DEIS are consistent in citing over 8,000 new positions to be staffed at APG. The EIS recogonizes that the mix of military personnel vs. civilian personnel at APG will change with implementation of the BRAC actions. This will result in a functionally different mix of pay grades and commuter origins and destinations. Assumptions were made in the economic modeling (EIFS) and analysis and traffic anaylsis to account for these differences.
141 . RE: Traffic and Transportation Analysis A) The EUL impacts, both at the APG Northern and Southern Peninsulas, were not taken into account when traffic counts and analyses were conducted. B) Additionally there is significant growth that will occur in the Perryman peninsula area that will directly support the APG BRAC Actions and this impact was not taken into consideration regarding the traffic counts and further transportation analysis that is off-Post.	☑	☐	☐		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	A) In section 4.11.2 Consequences, the EIS states, "Much of the on-post and gate traffic information is drawn directly from the Draft Planning Study. The study analyzed potential impacts resulting from the Proposed Action, and included predicted traffic volumes for the Maryland Boulevard EUL project, an APG project unrelated to this BRAC EIS." Because the Lauderick Creek EUL was removed from consideration as part of the Proposed Action, traffic counts resulting from its implementation were not included. B) The Maryland Boulevard EUL, Lauderick Creek EUL, and continued development along interstates, highways, and roads around the installation are also identified and assessed as reasonably foreseeable future actions that would contribute to traffic effects in section 4.14 Cumulative Effects Summary. Detailed analysis of off-post traffic engineering is the responsibility of local and State agencies.
Harford County - Health Department																				
143 . Follow best management practices and comply with all environmental regulations, as specified in the DEIS, during building demolitions, site development, and construction of facilities.	☑	☐	☐		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	Comment noted. As stated in section 1.5 Regulatory Framework for Realignment, "In addressing environmental considerations, APG is guided by relevant statutes (and their implementing regulations) and Executive Orders (EO) that establish standards and provide guidance on environmental and natural resources management and planning."

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U.S. Department of Interior																				
127 . A) Aesthetics and Visual Resources. The Department is not familiar with the Aberdeen Proving Ground Installation Design Guide (IDG), with which the DEIS states that construction of all new buildings, structures, landscape, and parking areas shall be in accordance. Pertinent information from this document should be included in the Final Environmental Impact Statement. B) The DEIS states that "A long-term beneficial impact would occur with landscape plantings associated with installation design guidelines and design objectives for new building construction." We are supportive, provided the guidelines specify planting species native to Maryland, promoting native pollinators, and enhancing infiltration with rain gardens. Please clarify the landscape design specifications, and if needed, amend them to current conservation standards such as the "Draft Conservation Landscaping for Federal Facilities: A Guide to Beneficial Landscaping in the Chesapeake Bay Watershed," developed by the multi-agency Chesapeake Bay Program. We recognize that the Department of the Army is an active partner in implementing the restoration goals of the Chesapeake Bay Program. C) The DEIS does state, on page 4-54, that temporarily disturbed areas would be vegetated with project-specific landscape plans, and that "only regionally native trees and shrubs suitable for the site would be planted." We advise vigilance in writing and enforcing contract specifications for native plant species of Maryland (not regional Mid-Atlantic species). For questions or further coordination concerning these comments, please contact Ms. Janet Norman at the FWS Chesapeake Bay Field Office, Annapolis, Maryland, phone 410-573-4533.	☑	☐	☐		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	A) The Aberdeen Proving Ground Installation Design Guide is incorporated by reference in the DEIS and will be included in the Administrative Record. The IDG provides guidance for the improvement of APG's visual environment and sets standards and criteria that are integrated into construction and renovation activities at APG. B) To the extent practicable for military construction, and as fiscal and manpower resources are available, conservation standards such as the Draft Conservation Landscaping for Federal Facilities: A Guide to Beneficial Landscaping in the Chesapeake Bay Watershed will be implemented. C) Comment noted.
128 . A) Water and Biological Resources. Increased impervious surface area from new buildings and roadways will present challenges for maintaining water infiltration and managing stormwater. New development on APG should not increase the contaminant load to nearby rivers and wetlands, and decrease biotic integrity of the aquatic community. 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 throughout the new construction designs at APG. In addition, the Department recommends a ban on the use of coal-tar sealants on the installation. B) These parking lot recommendations could serve to meet the Army's "requirements for minimizing watershed disturbance and adverse affects on water quality" within the state designated Critical Area (mentioned on page 4-13, Anadromous Fish spawning waters), as well as on other lands that drain into the Chesapeake Bay. C) APG 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. For questions or further coordination concerning these comments, please contact Ms. Janet Norman at the FWS Chesapeake Bay Field Office, Annapolis, Maryland, phone 410-573-4533.	☑	☐	☐		☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☑	☐	☐	A) Section 4.15.2 discusses BMPs. To the extent practicable for military construction, and as fiscal and manpower resources are available, conservation measures such as pursuing alternatives to reduce impervious surface of parking lots, such as the use of porous pavers, should be used throughout the new construction designs at APG. In addition, alternatives to coal tar sealants will be investigated. B) Comment noted. C) Comment noted.

Comment	BRAC Actions	EUL	Both or Not Specified	Not Applicable to the EIS	Request for Detail	Cumulative Effects	Scoping	Land Use	Geology and Soils	Air Quality	Noise	Water Resources	Biological Resources	Cultural resources	Aesthetics and Visual Res.	Socioeconomics	Transportation	Utilities	Hazardous and Toxic Sub.	Response
129 . A) Potential Impacts to Federally listed Species. The bald eagle (Haliaeetus leucocephalus) is a federally threatened species and is locally abundant at the U.S. Army Aberdeen Proving Ground (APG). To address the growing bald eagle population and compliance with the Endangered Species Act (ESA), the Army in collaboration with the U.S. Fish and Wildlife Service (FWS) developed the APG Bald Eagle Management Plan (BEMP) to protect nesting and communal roosting bald eagles. The BEMP is part of the installation's comprehensive Integrated Natural Resources Management Plan, developed under the Sikes Act to protect and manage natural resources on Department of Defense (DoD) lands. B) The Army continues to coordinate and consult with the FWS to ensure DOD mission objectives are in compliance with ESA regulations to protect listed species, such as the bald eagle. The recent BRAC initiative will result in new construction, renovation, and re-use of existing infrastructure. At this time, it does not appear that either BRAC missions or their resulting land use changes will negatively impact habitats of nesting or communal roosting bald eagles at APG. C) The FWS anticipates delisting the bald eagle as a protected species under ESA in 2007, which then will no longer involve federal coordination under Section 7. However, the bald eagle will continue to be protected under other federal regulations such as the Bald and Golden Eagle Protection Act (BGEPA) and the Migratory Bird Treaty Act. For questions or further coordination concerning these comments, please contact Ms. Janet Norman at the FWS Chesapeake Bay Field Office, Annapolis, Maryland, phone 410-573-4533.	☑	☐	☐		☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	A) Comment noted. B) Comment noted. C) Comment noted.
130 . A) The addition of approximately 4,403 personnel at the installation, raising the total estimated APG personnel level to 21, 008 after the proposed action, will have consequences for APG lands and waters beyond the construction of buildings. Some of these new personnel will take advantage of consumptive and non-consumptive recreational opportunities outdoors at APG. In order to better integrate the workforce to the unique APG environment on which they perform their duties, construction planning should also consider the human scale of daily interactions with the outdoor world. Walking paths connecting buildings, native gardens and lunch tables, fishing piers, 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. B) Outdoors experiences have been shown to reduce stress and promote better health and creative development in children and adults. The Department recommends that additional opportunities for disabled hunting, fishing, and nature walks be created as part of the restructuring construction, as many veterans often move into civilian defense contracting positions, such as those generated at APG. For questions or further coordination concerning these comments, please contact Ms. Janet Norman at the FWS Chesapeake Bay Field Office, Annapolis, Maryland, phone 410-573-4533.	☑	☐	☐		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	A) Comment noted. The Installation Design Guide provides guidance for the improvement of APG's aesthetic environment and sets standards and criteria that are integrated into construction and renovation activities at APG. B) Comment noted.

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Harford County - Department of Public Works																				
132 . The report briefly discusses the County's Well Head Protection Area. The location of the new facilities is shown at the perimeter of the wells recharge area and therefore should have a minimal impact on the water supply, however awareness of the wells proximity along with precautions for future hazardous materials handling are important issues to highlight for future site planning and design.	☑	☐	☐		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	Comment noted. Protection of the Well Head Protection Area will continue to be a planning and design consideration.
133 . On page 4-110, third paragraph. The document indicates that the Deer Creek water appropriation is 3.5 mgd. It is our understanding that the water appropriation permit (which requires approvals from both the SRBC and MDE) is limited to the amount of emergency back-up supply available to the City. It is also our understanding that the amount of backup supply that is currently secured is 1.5 mgd. It should be noted that the Draft EIS considers only the impact of BRAC and does not include the impact of the EUL development.	☑	☐	☐		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	Water users have a designated amount under the water use permit and an authorized withdrawal amount. The 3.5 MGD amount is for both the City and APG. The user can only withdraw, up to the permitted amount, what they have an alternate source for (i.e., 1:1 basis). APG's 1.5 MGD authorized withdrawal amount is based on a 1.5 MGD supply contract they have with Harford County. As discussed in the DEIS, the City has a contracted backup amount of 0.5 MGD with the County, plus a wellfield capacity of up to 2 MGD. Therefore, on paper backup supply equals 4 MGD. Comment noted. The Maryland Boulevard EUL and the Lauderick Creek EUL are identified and assessed as reasonably foreseeable future actions in section 4.14 Cumulative Effects Summary.
134 . § 4.12.6, P. 4-113 In the discussion of Incineration, it should be noted that the Harford Waste To Energy, referred to as the Harford County Resource Recovery Facility, is currently operating at full capacity and may not be able to accommodate increased loading. Harford County is currently working with the Northeast Maryland Solid Waste Disposal Authority to develop additional capacity for waste disposal and energy production at the facility. The statement is also made that the Harford County Waste Disposal Center (HWDC) is projected to handle the County's landfill needs for decades. While the County's plan is to utilize the HWDC for decades, the current permitted capacity of the landfill is nearly exhausted. The County is actively pursuing a permit for expansion of the landfill; however, the Maryland Department of the Environment has not yet made a determination regarding issuance of the required permit. The increased disposal capacity at the landfill is expected to be available approximately 18 to 24 months after the approved permit is received.	☑	☐	☐		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	"Harford County Resource Recovery Facility" has been changed to "Harford Waste to Energy facility". Text edited to state, "The HWEF is currently operating at full capacity. Harford County is currently working with the Northeast Maryland Solid Waste Disposal Authority to develop additional capacity for waste disposal and energy production at the facility." Text edited to add, "Because the HWDC is reaching its permitted capacity, the County is actively pursuing permitting for expansion of the landfill."
135 . §4.12.2.2.6, P. 4-115 In the discussion of direct impacts from Solid Waste, the effects of the increased generation of solid waste by on-post activities on the available capacity of Harford County's facilities are not considered. The County is currently working to increase the capacity of the pertinent facilities, but the availability of those facilities is dependent, in part, on regulatory approval and adequate funding.	☑	☐	☐		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	Text edited to state, "Harford County is currently working to increase the capacity of relevant solid waste disposal facilities. The availability of those facilities is dependent on regulatory approval and adequate funding."
136 . § 4.12.2.2.7, P. 4-116 In the discussion of indirect impacts, the effects of increased solid waste generation by increased off-post residential and non-residential development are not considered. Harford County is working to quantify and address the increased loading on the solid waste disposal system. This increase will have a permanent impact on required facilities.	☑	☐	☐		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	Text edited to state, "Increased solid waste generation by increased off-post residential and non-residential development would result in a long-term impact to the regional solid waste disposal system.
137 . Table 14.14.1, P. 4-132 The portion of the table addressing Utilities only mentions impacts to solid waste disposal capacity from facility demolition, and states that all utilities have sufficient capacity for the Proposed Action. Harford County's current solid waste management program does not have adequate capacity to address the long-term impacts of the Proposed Action. Harford County is working to develop the necessary capacity at the Harford Waste Disposal Center landfill and the Harford Waste To Energy plant; however, the availability of increased capacity at those facilities depends on regulatory approvals and adequate funding.	☑	☐	☐		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	Table text edited to state, "Existing regional solid waste disposal system does not have adequate capacity to address the long-term impacts of the Proposed Action. Additional capacity within this system is dependent on regulatory approval and adequate funding.

Comment	BRAC Actions	EUL	Both or Not Specified	Not Applicable to the EIS	Request for Detail	Cumulative Effects	Scoping	Land Use	Geology and Soils	Air Quality	Noise	Water Resources	Biological Resources	Cultural resources	Aesthetics and Visual Res.	Socioeconomics	Transportation	Utilities	Hazardous and Toxic Sub.	Response
138 . I find that what they have generated is acceptable according to typical traffic impact analysis standards for the Maryland State Highway Administration. They analyzed the intersections using the critical lane volume (CLV) and they generated and distributed traffic in accordance with the ITE Trip Generation Manual. Based upon their analysis and an even distribution of traffic between the two Aberdeen Area main gates, they have determined that impacts were not significant and could be handled with intersection upgrades only, primarily at the following MD22 intersections: Post Road, US40 and MD462. A few areas of concern are noted as follows: A) The document repeatedly says that the EUL is a separate issue and not part of this EIS, but then it states on page 4-92 that the off-post evaluation includes the Maryland Boulevard EUL traffic volumes. When looking at the off-post estimated traffic volumes and LOS impacts, it is evident that they did not include the EUL volumes as this would have more then doubled the anticipated increase in traffic (from an estimated increase of 1,255 PM trips at the MD 715 gate to an estimated increase of 2,410 trips). B) Analysis of any new developments in this area without including EUL and the Perryman peninsula is short-sighted and will not give a true and complete impact of the new development. C) The MD715 analysis stops at Old Philadelphia Road. This should be extended to include, at the very minimum, the US40 / MD715 and the US40 / MD7 intersections. D) The EIS identifies the Maryland Department of Planning's BRAC study and all of the projects supported by that study including the MD715 extension, MD22 widening, and the MD543 and MD136 upgrades; but they are being mentioned in the context of the EIS study, not as a recommendation. If the study supports the MDP's suggested improvements based upon long term build-out of APG with EUL, then it should state that in the text. E) Critical Lane Volume was utilized as an analysis method as part of this study for an intersection LOS. Although not required by the Maryland SHA, Harford County prefers to use the Highway Capacity Manual (HCM) when we require the analysis of an intersection. The HCM will provide a LOS for each directional approach to an intersection and, as a result, give a better idea of what the specific impacts are.	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	Note that the DEIS identified significant adverse impacts to traffic in section 4.11.2.2. A) The Draft BRAC Facilities, Infrastructure, and Environmental/HTRW Planning Study (USACE Baltimore 2006) that the EIS authors used a primary source for traffic analysis included the development of the Maryland Boulevard EUL. B) Comment noted. C) The preparers of the DEIS used an area of analysis for the traffic assessment appropriate to the scope of the Proposed Action to include both the Northern and Southern Peninsulas. D) Based on the analysis performed by the preparers of the DEIS, it is not in the scope of the DEIS to take a position on MDP's recommendations. E) Comment noted.

Comment	BRAC Actions	EUL	Both or Not Specified	Not Applicable to the EIS	Request for Detail	Cumulative Effects	Scoping	Land Use	Geology and Soils	Air Quality	Noise	Water Resources	Biological Resources	Cultural resources	Asthetics and Visual Res.	Socioeconomics	Transportation	Utilities	Hazardous and Toxic Sub.	Response
The Army Alliance, Inc.																				
139 . The number of jobs used as the basis of calculation in the Draft EIS is only half that used in other public statements. The DEIS identifies a net of 4,400 positions coming to APG. The State of Maryland and the APG Garrison have widely used and published a figure of 8,200 positions. Why does the DEIS not use the more commonly accepted number? What is the impact on the EIS conclusions and recommendations when the more accurate figure is used?	☑	☐	☐		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	The DEIS, in Table 2.2.2, identifies 8,774 new positions to be staffed at APG. Table 2.2.2 also identifies a loss of 4,371 current positions from APG. The result (8,774 minus 4,371) is a -net- increase of 4,403 positions. The State of Maryland and the DEIS are consistent in citing over 8,000 new positions to be staffed at APG. The EIS recogonizes that the mix of military personnel vs. civilian personnel at APG will change with implementation of the BRAC actions. This will result in a functionally different mix of pay grades and commuter origins and destinations. Assumptions were made in the economic modeling (EIFS) and analysis and traffic anaylsis to account for these differences.
Harford County - Department of Planning and Zoning																				
145 . Include commitments of Chesapeake 2000 Agreement; use of Low Impact Development Practices; Description of impacts to wetlands was very general.	☑	☐	☐		☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	To the extent practicable for military construction, and as fiscal and manpower resources are available, provisions of the Chesapeake 2000 agreement and low impact development techniques will be used in carrying out the Proposed Action. Comment noted. Impact analyses now reflect the scope of the potential effects to wetlands at section 4.8.2.2 and Table 4.14.2. Site specific impacts are included in the FEIS. Since publication of the DEIS, the Army has developed more site-specific and resource-specific impact discussions.

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Maryland Department of Transportation																				
163 . 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.	☑	☐	☐		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	The EIS describes the current regional transportation system serving APG. It indicates that current transit usage has little impact on reducing negative traffic impacts near APG. Although it is not possible to accurately predict the future transit ridership (Maryland Department of Planning BRAC Study, 2006), it should be noted that ridership would have to substantially increase to minimally reduce the volume of privately owned vehicles entering APG. Potential mitigation measures are discussed in section 4.11.3, and include agreement by the Army to participate with state and regional agencies to further study and implement future transportation and transit improvements, including increased use of mass transit alternatives. The Army agrees to work with the state and regional agencies to address alternative funding mechanisms for these capital and operational improvements, including the Defense Access Roads program. The Defense Access Roads (DAR) program, authorized in 23 U.S.C. 210, provides a means by which the federal government may pay its fair share of the cost of highway improvements needed for adequate highway service to defense and defense-related installations. Administered jointly with the Federal Highway Administration (FHWA), the DAR program provides a means for DoD to work with state and local authorities who execute the projects. Funding for DAR projects is obtained through Military Construction Program funds appropriated by Congress. APG will coordinate with MDOT to identify future transportation projects that may be funded under the DAR program to mitigate the traffic impacts due to BRAC implementation.
164 . The document's evaluation of the transportation impacts to both highway and transit systems and needed mitigation, both within and outside the base, remains unfinished.	☑	☐	☐		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	The transportation section of the EIS addresses direct and indirect impacts to on- and off-post regional traffic resulting from the Proposed Action. The impacts were evaluated using the data from regional highway and transit systems available during preparation of the EIS. The impacts include a worsening of the LOS at selected intersections near APG. To address these impacts, the EIS provides examples mitigation activities and recommendations for transportation improvements provided in Army and Maryland Department of Planning studies. The Army commits to participation with state and regional agencies to review transit alternatives, including shuttle service for APG employees from mass transit hubs.
165 . 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 Socioeconomics section of the EIS provides detailed descriptions of the likely socioeconomic demographic changes and impacts resulting from the Proposed Action. The Biological Resources section evaluates likely impacts to the natural environment from the Proposed Action. The Transportation section of the EIS considers the traffic impacts from both the Maryland Road EUL and the Proposed Action. The Lauderick Creek EUL has been removed from the Proposed Action and was not evaluated in the EIS. The cumulative impacts from the Proposed Action and the Maryland Road EUL are addressed in the EIS.
166 . All transportation discussion and analysis are weighted towards highway impacts with minimal discussion concerning potential public transportation impacts or recommendation for needed transit to support the BRAC growth.	☑	☐	☐		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	Existing public transportation options are described in the EIS. No firm planned transit alternatives were provided by state agencies. Transit planning and mitigation remain the primary responsibility of state agencies.
167 . There is no identification of specific transit impacts and corresponding mitigation recommendations. Please identify this in the DEIS.	☑	☐	☐		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	Existing public transportation options are described in the EIS and indicate minimal use of regional transit to APG. Given the low ridership volume and minimal impact of the BRAC actions on current transit systems, the predicted future impacts are minimal. Interviews with transit officials revealed no current planned transit alternatives that would reduce the impacts on transportation networks. The Army will participate with state and regional agencies to further study transportation and transit planning alternatives. Some alternatives are described in the EIS as provided in Army and Maryland Department of Planning reports.
168 . The transit recommendations given are broad and not tied to any proposed numbers/ridership projections, as evidenced by their listing below (DEIS pp. 4-107 to 108): • Improve regional bus and/or rail service from Baltimore • Increase MARC service • Investigate relocation of Aberdeen MARC station • Investigation potential MARC maintenance & striate facility • Construction Middle River multi-modal station • Commuter rail into Cecil Co. • Expand local bus service in the US 40 corridor • Explore shuttle service to base from Aberdeen MARC station"	☑	☐	☐		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	The transportation section of the EIS describes current MARC ridership to and from APG. The ridership numbers provided by MARC are small and were not a factor in the evaluation of impacts from the Proposed Action. APG is committed to interaction with state and regional transit authorities to address the viability of potential future transportation and transit alternatives, including shuttle services.

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169 . No mention of funding contributions towards needed transportation improvements as a result of BRAC expansion related to APG.	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	The Defense Access Roads (DAR) program, authorized in 23 U.S.C. 210, provides a means by which the federal government may pay its fair share of the cost of highway improvements needed for adequate highway service to defense and defense-related installations. Administered jointly with the Federal Highway Administration (FHWA), the DAR program provides a means for DoD to work with state and local authorities who execute the projects. Funding for DAR projects is obtained through Military Construction Program funds appropriated by Congress. APG will coordinate with MDOT to identify future transportation projects that may be funded under the DAR program to mitigate the traffic impacts due to BRAC implementation.
170 . There needs to be more upfront discussion regarding proposed security measures and the need for seamless transit connections at he gates between on-Post and off-Post transit services.	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	All entrance/exit gates on APG have planned renovations to enhance security, reduce waiting times, and provide smoother traffic flow on and off post. The Maryland Blvd Gate will undergo extensive changes, including a larger number of incoming security inspection lanes as well as a new visitor pass center. The Army is committed to participation with state and regional agencies to plan and integrate transit options, including shuttle services at some gate locations. For security reasons, the EIS will not discuss existing or planned security processes or procedures related to vehicular access to APG.
171 . No mention of financial impact to local and State funding sources.	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	The Defense Access Roads (DAR) program, authorized in 23 U.S.C. 210, provides a means by which the federal government may pay its fair share of the cost of highway improvements needed for adequate highway service to defense and defense-related installations. Administered jointly with the Federal Highway Administration (FHWA), the DAR program provides a means for DoD to work with state and local authorities who execute the projects. Funding for DAR projects is obtained through Military Construction Program funds appropriated by Congress. APG will coordinate with MDOT to identify future transportation projects that may be funded under the DAR program to mitigate the traffic impacts due to BRAC implementation.
172 . p ES-7, The first paragraph states that “coordinated efforts will be needed to evaluate and maintain roadway integrity, intersection optimization, and roadway improvements”. There needs to be mention of the surrounding transit system here as well.	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	The Defense Access Roads (DAR) program, authorized in 23 U.S.C. 210, provides a means by which the federal government may pay its fair share of the cost of highway improvements needed for adequate highway service to defense and defense-related installations. Administered jointly with the Federal Highway Administration (FHWA), the DAR program provides a means for DoD to work with state and local authorities who execute the projects. Funding for DAR projects is obtained through Military Construction Program funds appropriated by Congress. APG will coordinate with MDOT to identify future transportation projects that may be funded under the DAR program to mitigate the traffic impacts due to BRAC implementation.
173 . p ES-14, Table ES-2 (Summary of Potential Environmental Consequences): There is no mention of transit within the entire table.	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	Comment Noted.
174 . Pg 9, Table EIS-2, Concern that the land use impacts are not adequately assessed given that the influx of the jobs and development associated with the Enhanced Use Leases will undoubtedly bring about land use changes (and its associated socio-economic and natural environmental impacts) leading to the installation that have not been adequately accounted for. Page 4-69 mentions the “IMPLAN (Impact Analysis for Planning) economic model was used for this economic impact analysis. The 4,400 additional jobs should be used to estimate potential induced land use growth to the APG expansion.	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	Section 2 of the EIS provides descriptions of the current planned new construction and renovations on-post necessary to accommodate the incoming staff. The Socioeconomics section of the EIS provides detailed descriptions of the likely socioeconomic impacts, including housing demand, likely to result from the Proposed Action. The Transportation section of the EIS considers the traffic impacts from both the Maryland Road EUL and the Proposed Action. The Lauderick Creek EUL has been removed from the Proposed Action: The potential impacts from the Lauderick Creek EUL development were not included in this EIS.
175 . p 1-7 • Figure 1.1-1 is not referenced in the text of the document. Consider referencing this in the document and include other State routes, such as principle arterials and minor arterials, not just US routes. • The symbology for Cities is incorrect for the larger map. These locations are unincorporated communities. • The map is missing the segment of I-695 south of I-95	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	Comment Noted.
176 . On page 1-7, it is stated, “Once the Lauderick Creek EUL development process matures to the point of environmental analysis, is will be assessed in a separate NEPA document.” When will the Lauderick Creek EUL be available for review?	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	If prepared, any NEPA documentation for the Lauderick Creek EUL will be advertised in local and regional newspapers of record. The public will be available to read the document(s).
177 . p 4-92, Beginning in the second paragraph and throughout the document there are references to the Draft Planning Study as the source of numbers for trips to and from APG. Please note when this study is anticipated to be complete. The final EIS for APG should reference the final study.	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	If the Draft Planning Study is finalized prior to the publication of the Final APG BRAC EIS, the reference will be changed.

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178 . p 4-92, As previously stated in the second paragraph the Maryland Boulevard Enhanced Use Lease (EUL) is not part of the Proposed Action, however, this paragraph appears to state that EUL traffic is included in the off-Post evaluations. The analysis of transportation impacts appears to be based on a study that includes EUL numbers, but these numbers are not actually specified. Please include these numbers in a table in the Appendix.	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	The data will be provided in text as a table 4.11.1.
179 . p 4-92, Paragraph 6 states that “the most recent data” from the MSHA was used to survey off-Post traffic patterns. The reference section does not appear to contain a reference for MSHA traffic data. Please include this reference and the date for the data used for the traffic analysis of current conditions.	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	The text revised to "Data to survey off-post traffic patterns for Harford County’s network of highways and roads was downloaded in July 2006 from the Maryland State Highway Administration (SHA) website at http://www.sha.state.md.us/tmsreports."
180 . Page 4-100, states that much of the on-Post and gate traffic impact information is drawn directly from the Draft Planning Study. We have concerns that this information is subject to change.	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	Comment Noted.
181 . p 4-98, Please provide information on the traffic entering the main gates on the northern peninsula. The Existing Conditions section only includes traffic volumes entering the southern peninsula at the two main gates.	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	Table G-5 in Appendix G provides these data.
182 . p 4-99, The first paragraph, end of the 3rd sentence – add the following wording “but only Route 2 connects to the APG Southern Peninsula area and without a direct connection to the Edgewood MARC Station nor the adjacent APG gate. It does, however serve the housing area along McCann St (APG grounds), but at a rate of only once an hour.”; 4th sentence – reword as follows” “In addition, the Maryland Transit Administration (MTA) operates a commuter bus Route 420) to and from Baltimore along U.S. 40.	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	Text will revised to "Only Route 2 connects to APG’s Southern Peninsula and does not have a direct connection to the Edgewood MARC Station or the adjacent APG gate. It does, however serve the housing area along McCann Street at a rate of once an hour."
183 . p 4-99, in the 2nd paragraph, second sentence – replace “five” with “three”	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	Ttext will be revised as suggested.
184 . p 4-99, There should be a figure showing the existing transit service adjacent to APG, similar to Figures 4.11-1 and 4.11-2 (Major State Highways).	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	Comment Noted.
185 . p 4-100, Please provide more information regarding the Draft Planning Study, including lead agency.	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	Page 8-6 References provides details requested.
186 . p 4-102, Table 4.11.4 shows that the Proposed Action would result in the generation of 17,604 daily trips, with 2,088 inbound trips during the AM peak period and 2,225 outbound trips during the PM peak period. How will these trips be applied to each of the three gates: the Harford Gate (MD 22/Hardord Blvd), the Maryland Gate (MD 715/Short Lane or Maryland Boulevard) and the Aberdeen Gate (Bel Air Blvd.)?	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	New inbound/outbound trips were allocated to the northern and southern gates proportionally to the existing percentage split.
187 . p 4-102, Table 4.11.4: Is there any modal split data from the USACE Baltimore 2005 source or any other sources, that would help to determine estimated transit tips as a result of the BRAC Action?	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	No.
188 . p 4-102, The document says that existing trips are split 50/50 between Harford Boulevard and Maryland Boulevard. Specify in the text that the DEIS recommends utilization of the Aberdeen Gap to alleviate predicted traffic volumes.	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	Use of the Aberdeen Gate is not part of the proposed action. APG officials are considering whether continued use of the Aberdeen gate meets safety and security requirements.
189 . p 4-105, The Suggested Improvements section recommends utilizing the Aberdeen Gate for incoming traffic in the AM peak and outgoing traffic in the PM peak. Please indicate how utilization of this gate affects predicted traffic volumes. If utilization of the Aberdeen Gate were deemed necessary, please identify when the installation of the necessary security processing facilities will take place.	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	The suggested use of the Aberdeen Gate is offered as a potential local traffic mitigation, however no studies have been done to validate the suggestion. APG officials are considering whether continued use of the Aberdeen gate meets safety and security requirements.
190 . 4-106, In the section that begins, “For APG’s Northern Peninsula,” the Army suggests improving two intersections along MD22 (Aberdeen Throughway), Post Road and the ramps at US 40. What are the specific recommendations for the geometric improvement?	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	The DEIS does not make any recommendations for any geometric alterations at any off post intersection.
191 . p 4-106, Section 4.11-3 one of the on-Post suggestions is to re-route traffic onto Rodman Road to remove the Maryland Boulevard EUL traffic from Maryland Boulevard. What is the anticipated EUL traffic volume that will be removed from Maryland Boulevard?	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	No specific traffic rerouting studies have been conducted by APG.

Comment	BRAC Actions	EUL	Both or Not Specified	Not Applicable to the EIS	Request for Detail	Cumulative Effects	Scoping	Land Use	Geology and Soils	Air Quality	Noise	Water Resources	Biological Resources	Cultural resources	Aesthetics and Visual Res.	Socioeconomics	Transportation	Utilities	Hazardous and Toxic Sub.	Response
192 . p 4-107, The first bullet states that, "Maryland is in the process of studying the implementation of improvements including "managed lanes" for Section 200 and 300 of I-95…" Suggest rewording to read "The Maryland Transportation Authority (MdTA) is currently conducting a project planning study for I-95 Section 200 from north of MD 43 to north of MD 22. One of the alternatives under consideration, the Express Toll Lanes (ETL's) Alternative, includes ETL's from north of MD 43 to MD 543."	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	Text will be revised as suggested.
193 . p 4-107, In the last bullet revise the end of the first sentence as follows "…from both the existing and proposed new Aberdeen MARC stations."; simplify the second sentence as follows: "…service on and off-Post which would utilize current technologies helping to reduce dwell times."; remove the ending of the third sentence after the word "service".	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	Text revised to "Develop proximate and efficient transfer to base grounds from the existing and the proposed new Aberdeen MARC stations. Explore a secure shuttle distribution service on and off post that would utilize current technologies to help reduce dwell times. Improve and/or develop bicycle and pedestrian access at the station, between the station and base, and at the secure transfer point to on-base circulator service."
194 . p 4-124, Section 4.14 – Cumulative Effects Summary, the DEIS does not adequately attempt to predict the Indirect and Cumulative Effects 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.	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	Comment Noted.
195 . p 4-124, Figure G-12, Northern Peninsula – Predicted New Trips Off post – AM (PM) Peak, on page 15 of Appendix G, shows minimal southbound trips using West Bel Air Ave (MD 132) toward the Aberdeen Gate. What would be the trips generated along MD 132 if APG utilizes the Aberdeen Gate for incoming Traffic in the AM peak and outgoing traffic in the PM Peak as suggested in the DEIS on page 4-105?	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	The suggested use of the Aberdeen Gate is offered as a potential local traffic mitigation, however no studies have been done to validate the suggestion. APG officials are considering whether continued use of the Aberdeen gate meets safety and security requirements.
196 . Page 5-1, Findings and Conclusions: 1st paragraph, 2nd sentence – "Direct" and add "Adverse" after ;significant'; 2nd paragraph – reference Appendix D following mention of the EIFS model and spell out the acronym.	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	Comment Noted.
197 . p 5-1, Findings and Conclusions: This section should have an additional subheading that discusses Next Steps of Follow-Up Documentation.	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	Comment Noted.
198 . Appendices E and F should be removed since there is no information or data.	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	Comment Noted.
199 . Appendix G – Any modal split data should be included here.	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	Comment Noted.
201 . p 4-107, The second bullet: Replace 'MDOT' with "MTA" and remove the existing "MTA" from that sentence. Add a sentence to the end of the bullet that states "Coordination and cooperation from Amtrak and CSX is imperative."; 3rd bullet – replace the existing sentence with the following – "Continue ongoing feasibility studies for both a new Aberdeen South MARC station and a new rail storage, operations and maintenance facility."	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	Text will be revised as suggested.

Memorandum

Date: April 3, 2007

To: Ray C. Dintaman, Jr., Director, Environmental Review Unit

Re: U.S. Army, Draft Environmental Impact Statement for BRAC 2005 Actions at Aberdeen Proving Ground, Maryland

Dear Mr. Dintaman:

Thank you for sending notice of the above referenced project. This proposed federal action will be reviewed by the Critical Area Commission staff for consistency of federal action with the State Coastal Zone Management Program. It appears that the development activity proposed at the Aberdeen Proving Ground will be partially located in the Chesapeake Bay Critical Area. The information submitted indicates that the applicable Critical Area criteria are those of the Areas of Intense Development designation. The Critical Area Commission staff has the following comments.

1. The Critical Area 10% Rule Guidance Manual explains the pollution reduction calculations for development within the IDA of the Critical Area. The applicant should provide the calculations of Worksheet A of the manual, and document how the proposed action will meet the 10% pollution reduction criteria.

2. As required by the Critical Area criteria, a Buffer shall be established 100 feet landward from the mean high water line of tidal waters, tributary streams and tidal wetlands. The Buffer should be expanded beyond 100 feet to include contiguous, sensitive areas, such as steep slopes, hydric soils, or highly erodible soils, whose development or disturbance may impact streams, wetland, or other aquatic environments. In order to document that the Buffer has been accurately established, please submit a site plan with the proposed limits of disturbance, which also shows the location of tidal and non-tidal wetlands, topography, streams and soil types. No new development activities are permitted within the 100-foot Buffer except water dependant facilities.

3. Our records indicate that the northern peninsula site may be within a sensitive species project review area. Please contact Lori Byrne with the Maryland DNR Natural Heritage Division, at (410) 260-8573 to determine the type of habitat that may be located on this site. Once this information has been received from DNR, please forward a copy to our office.

Thank you for the opportunity to provide comments on this project. If you have any additional questions please contact me at 410-260-3479.

Sincerely,

Marshall Johnson
Natural Resources Planner

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

IN REPLY REFER TO:

April 25, 2007

ER 07/239

Mr. Buddy Keesee
Department of the Army
Directorate of Safety, Health and Environment
Attention IMNE-APG-SHE-R
Building 5650,
Aberdeen Proving Ground, MD 21005-5001

Re: DEIS for BRAC Preferred Action at Aberdeen Proving Ground, Maryland

Dear Mr. Keesee:

The U.S. Department of the Interior (Department) has reviewed the Draft Environmental Impact Statement (DEIS) for Base Realignment and Closure (BRAC) Preferred Action at Aberdeen Proving Ground, Maryland, dated March, 2007. We submit the following comments under the National Environmental Policy Act, and the Endangered Species Act.

In general, we found the DEIS to be informative, well written, and well documented as to the resources present on the installation, and some of the goals to avoid impact to higher quality habitats. We agree with the emphasis of steering new development to areas with existing infrastructure and existing developed or mowed lands.

Aesthetics and Visual Resources

The Department is not familiar with the Aberdeen Proving Ground Installation Design Guide (IDG), with which the DEIS states that construction of all new buildings, structures, landscape, and parking areas shall be in accordance. Pertinent information from this document should be included in the Final Environmental Impact Statement.

The DEIS states that "A long-term beneficial impact would occur with landscape plantings associated with installation design guidelines and design objectives for new building construction." We are supportive, provided the guidelines specify planting species native to Maryland, promoting native pollinators, and enhancing infiltration with rain gardens. Please clarify the landscape design specifications, and if needed, amend them to current conservation standards such as the "Draft Conservation Landscaping for Federal Facilities: A Guide to Beneficial Landscaping in the Chesapeake Bay Watershed," developed by the multi-agency Chesapeake Bay Program. We recognize that the Department of the Army is an active partner in implementing the restoration goals of the Chesapeake Bay Program.

The DEIS does state, on page 4-54, that temporarily disturbed areas would be vegetated with project-specific landscape plans, and that "only regionally native trees and shrubs suitable for the

site would be planted." We advise vigilance in writing and enforcing contract specifications for native plant species of Maryland (not regional Mid-Atlantic species).

Water and Biological Resources

Increased impervious surface area from new buildings and roadways will present challenges for maintaining water infiltration and managing stormwater. New development on APG should not increase the contaminant load to nearby rivers and wetlands, and decrease biotic integrity of the aquatic community. 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 throughout the new construction designs at APG. In addition, the Department recommends a ban on the use of coal-tar sealants on the installation.

These parking lot recommendations could serve to meet the Army's "requirements for minimizing watershed disturbance and adverse affects on water quality" within the state designated Critical Area (mentioned on page 4-13, Anadromous Fish spawning waters), as well as on other lands that drain into the Chesapeake Bay.

APG 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.

Potential Impacts to Federally listed Species

The bald eagle (*Haliaeetus leucocephalus)* is a federally threatened species and is locally abundant at the U.S. Army Aberdeen Proving Ground (APG). To address the growing bald eagle population and compliance with the Endangered Species Act (ESA), the Army in collaboration with the U.S. Fish and Wildlife Service (FWS) developed the APG Bald Eagle Management Plan (BEMP) to protect nesting and communal roosting bald eagles. The BEMP is part of the installation's comprehensive Integrated Natural Resources Management Plan, developed under the Sikes Act to protect and manage natural resources on Department of Defense (DoD) lands.

The Army continues to coordinate and consult with the FWS to ensure DOD mission objectives are in compliance with ESA regulations to protect listed species, such as the bald eagle. The recent BRAC initiative will result in new construction, renovation, and re-use of existing infrastructure. At this time, it does not appear that either BRAC missions or their resulting land use changes will negatively impact habitats of nesting or communal roosting bald eagles at APG.

The FWS anticipates delisting the bald eagle as a protected species under ESA in 2007, which then will no longer involve federal coordination under Section 7. However, the bald eagle will continue to be protected under other federal regulations such as the Bald and Golden Eagle Protection Act (BGEPA) and the Migratory Bird Treaty Act.

Socioeconomics

The addition of approximately 4, 403 personnel at the installation, raising the total estimated APG personnel level to 21, 008 after the proposed action, will have consequences for APG lands and waters beyond the construction of buildings. Some of these new personnel will take advantage of consumptive and non-consumptive recreational opportunities outdoors at APG. In order to better integrate the workforce to the unique APG environment on which they perform their duties, construction planning should also consider the human scale of daily interactions with the outdoor world. Walking paths connecting buildings, native gardens and lunch tables, fishing piers, 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.

Outdoors experiences have been shown to reduce stress and promote better health and creative development in children and adults. The Department recommends that additional opportunities for disabled hunting, fishing, and nature walks be created as part of the restructuring construction, as many veterans often move into civilian defense contracting positions, such as those generated at APG.

For questions or further coordination concerning these comments, please contact Ms. Janet Norman at the FWS Chesapeake Bay Field Office, Annapolis, Maryland, phone 410-573-4533.

Thank you for the opportunity to review the DEIS.

Sincerely,

Michael T. Chezik
Regional Environmental Officer

cc:
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.

Maryland Department of Planning
Maryland Historical Trust

Martin O'Malley
Governor

Anthony G. Brown
Lt. Governor

Richard Eberhart Hall
Secretary

Matthew J. Power
Deputy Secretary

April 27, 2007

Mr. Bud Keesee, Project Manager
Department of the Army
Commander USAG-APG
Directorate of Safety, Health, and Environment
ATTN: IMNE-APG-SHE-R (Bud Keesee)
Building 5650
Aberdeen Proving Ground, MD 21005-5001

Re: DEIS – BRAC Actions at Aberdeen Proving Ground
Harford and Baltimore Counties, Maryland
State Clearinghouse No. 20070321-0224

Dear Mr. Keesee:

Thank you for providing the Maryland Historical Trust (Trust) with a copy of the above-referenced DEIS, for review and comment. We also received a copy of the draft document through the Maryland State Clearinghouse for Intergovernmental Assistance. The Trust, as Maryland's State Historic Preservation Office, is reviewing the proposed BRAC actions for their effects on historic properties, pursuant to Section 106 of the National Historic Preservation Act of 1966, as amended, and its implementing regulations 36 CFR Part 800. We offer the following comments as part of our ongoing Section 106 coordination efforts with the Army.

The Army notified the Trust of its intent to use the DEIS documentation for Section 106 consultation purposes, in accordance with 36 CFR 800.8(c). The DEIS presents summary descriptions of the anticipated actions, provides preliminary information on the Army's efforts to identify and evaluate historic properties (including archeological and architectural resources) in the area of potential effects based on existing information, and offers an initial assessment of the potential impacts of planned BRAC actions on historic properties at Aberdeen Proving Ground (APG). The DEIS affirms that planning and engineering analyses are still underway for the proposed actions and states that: *The EIS shows areas where potential construction and/or renovation will occur; however, the exact footprint, in many cases, has not yet been determined.* The DEIS acknowledges that the proposed BRAC actions have the potential to adversely affect historic properties (architectural and archeological resources), including resources that have not yet been identified or evaluated for eligibility in the National Register of Historic Places. The Army confirms the need for ongoing coordination with the Trust to fulfill its Section 106 responsibilities for the planned BRAC undertakings at APG.

Based on the documentation presented in the DEIS, the Trust concurs with the Army's determination that BRAC actions at APG may adversely affect historic properties. While the DEIS contains useful information on the anticipated actions, the Army will need to provide the Trust with more detailed, project-specific documentation in order to fully assess the potential effects on historic properties, as project planning progresses. Specifically, the Army should submit the following materials for each action to the Trust, when available:

- Detailed project description (new construction, alteration of existing facilities, etc.);
- Clearly identify the undertaking as a BRAC action;
- Accompanying maps and plans for the action;

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Internet: www.marylandhistoricaltrust.net

- The results of the Army's efforts to identify and evaluate historic properties that may be affected by that action (with accompanying draft survey reports and Determination of Eligibility (DOE) forms, as applicable);
- The Army's assessment of effect, with appropriate justification, for that action;
- A discussion of the Army's proposed measures to avoid, minimize, or mitigate any adverse effects on historic properties; and
- Any other relevant documentation.

We encourage the Army to implement its related Section 106 consultation with the Trust and relevant parties early in the planning processes for these actions, to allow sufficient time to effectively avoid and resolve any adverse effects well in advance of construction.

Finally, we note that the current DEIS does not include any actions at the Lauderick Creek Expanded Use Lease. The document states that the Lauderick Creek EUL will be addressed in a separate NEPA document. We await consultation on those actions in the future to address any associated Section 106 issues for that effort.

We look forward to further consultation with the Army, and other relevant parties, to successfully complete the Section 106 review of this important initiative at Aberdeen Proving Ground as project planning proceeds. If you have questions or require further assistance, please contact Beth Cole of my staff at 410-514-7631 or bcole@mdp.state.md.us. Thank you for providing this opportunity for comment.

Sincerely,

J. Rodney Little
Director/State Historic Preservation Officer

JRL/EJC/200700920
cc: Kenneth Stachiw (Army APG)
Ruth Golding (Army APG)
Scott Watson (COE)
Mike Paone (MDP)
Bob Rosenbush (MDP)

MDP
Maryland Department of Planning

Martin O'Malley
Governor
Anthony G. Brown
Lt. Governor

Richard Eberhart Hall
Secretary
Matthew J. Power
Deputy Secretary

April 27, 2007

Post-it® Fax Note 7671	Date 4-30-07	# of pages ▶ 7
To Mr. Buddy Keesee	From Bob Rosenbush	
Co./Dept. APG	Co. MDP	
Phone #	Phone # 410-767-4487	
Fax # 410-278-6779	Fax # As requested	

Mr. Bud Keesee
Directorate of Safety, Health and Environment
Department of the Army, Aberdeen Proving Ground
ATTN: IMNE-APG-SHE-R
Building 5650
Aberdeen Proving Ground, MD 21005-5001

STATE CLEARINGHOUSE RECOMMENDATION

State Application Identifier: MD20070321-0224
Applicant: Department of the Army, Aberdeen Proving Ground (APG)
Project Description: Draft Environmental Impact Statement (DEIS): Base Realignment And Closure (BRAC) 2005 Actions: consider the "Proposed" and "No Action" alternatives
Project Location: Harford County
Approving Authority: U.S. Department of Defense
Recommendation: **Consistent with Qualifying Comments and Contingent Upon Certain Actions**

Dear Mr. Keesee:

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 State Police, Business and Economic Development, the Environment, Transportation, Natural Resources, the Maryland Emergency Management Agency, Harford County, and the Maryland Department of Planning, including the Maryland Historical Trust. As of this date, the Maryland Departments of Transportation, Natural Resources, and the Environment 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 State Police had no comments.

The Maryland Historical Trust (the Trust) stated that their findings of consistency are contingent upon the Applicant taking these actions. The Trust offered the following comments as part of its ongoing Section 106 coordination efforts with the Army.

The Army notified the Trust of its intent to use the DEIS documentation for Section 106 consultation purposes, in accordance with 36 CFR 800.8(c). The DEIS presents summary descriptions of the anticipated actions, provides preliminary information on the Army's efforts to identify and evaluate historic properties (including archeological and architectural resources) in the area of potential effects based on existing information, and offers an initial assessment of the potential impacts of planned BRAC actions on historic properties at Aberdeen Proving Ground (APG).

301 West Preston Street • Suite 1101 • Baltimore, Maryland 21201-2305
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The DEIS affirms that planni g and engineering analyses are still underway for the proposed actions and states that: "the EIS shows areas where p tential construction and/or renovation will occur; however, the exact footprint, in many cases, has not yet been etermined." The DEIS acknowledges that the proposed BRAC actions have the potential to adversely affect h storic properties (architectural and archeological resources), including resources that have not yet been identified o evaluated for eligibility in the National Register of Historic Places. The Army confirms the need for ongoin coordination with the Trust to fulfill its Section 106 responsibilities for the planned BRAC undertakings at APG.

Based on the documentation p esented in the DEIS, the Trust concurs with the Army's determination that BRAC actions at APG may adversel affect historic properties. While the DEIS contains useful information on the anticipated actions, the Army vill need to provide the Trust with more detailed, project-specific documentation in order to fully assess the poter ial effects on historic properties, as project planning progresses. Specifically, the Army should submit the follo ving materials for each action to the Trust, when available:

- detailed, project desc iption (new construction, alteration of existing facilities, etc.);
- clearly identify the u dertaking as a BRAC action;
- accompanying maps nd plans for the action;
- the results of the Arm 's efforts to identify and evaluate historic properties that may be affected by that action (with accompa ying draft survey reports and Determination of Eligibility (DOE) forms, as applicable);
- the Army's assessme of effect, with appropriate justification, for that action;
- a discussion of the A ny's proposed measures to avoid, minimize, or mitigate any adverse effects on historic properties; ar
- any other relevant do umentation.

The Trust encouraged the Ar y to implement its related Section 106 consultation with the Trust and relevant parties early in the planning p ocesses for these actions: to allow sufficient time to effectively avoid and resolve any adverse effects, well in advan e of construction.

The Trust noted that the curre t DEIS does not include any actions at the Lauderick Creek Expanded Use Lease (EUL) area. The document s tes that the Lauderick Creek EUL will be addressed in a separate National Environmental Policy Act do ument. The Trust awaits consultation on those actions in the future to address any associated Section 106 issues or that effort.

The Maryland Historical Trus is looking forward to further consultation with the Army, and other relevant parties, to successfully complete the S ection 106 review of this important initiative at Aberdeen Proving Ground as project planning proceeds.

Harford County, and this Dep rtment found this project to be generally consistent with their plans, programs, and objectives, but included certa qualifying comments summarized below.

Harford County addressed iss es relating to: solid, and hazardous waste management; protection of, and the amount of the local water supply; pro ction of wetlands, and the Chesapeake Bay; and compliance with environmental regulations during the constru tion process. See the attached comments, and response form.

This Department stated that the Draft Environmental Impact Statement provides the assessment of potential transportation impacts of the proposed BRAC actions at APG. The assessment concludes that the proposed BRAC actions at APG will have some significant, traffic impacts on roadways that lead to both the APG Northern and Southern Peninsulas. The Army and this Department agree that coordinated efforts by various government agencies are required to mitigate the transportation impacts. A BRAC Subcabinet chaired by Lieutenant Governor Anthony Brown is being established to coordinate the implementation of actions, including addressing transportation impacts, to support the missions of BRAC actions in Maryland.

The Army's support of State and local efforts in improving roadway, transit, and pedestrian and bicycle access to APG would be appreciated. It is strongly encouraged that the Army consider implementing Transportation Demand Management (TDM) practices to reduce single-occupancy vehicles traveling in/out of APG. TDM measures (i.e. hiring a transportation coordinator to manage a TDM program; implementing flex work hours; encouraging car pools; using transit; improving pedestrian/bicycle access; and providing shuttles from/to transit stops and park and ride lots) will help to improve transportation access to APG. TDM measures will also help to reduce vehicle emissions, and improve air quality.

The proposed BRAC actions at APG will significantly benefit the State, and local economies. However, the BRAC actions could also have adverse, cumulative land-use effects. Such effects could impact Harford County's agricultural and rural areas, where in recent years residential developments have been increasing considerably. It is anticipated that the BRAC actions will bring high-end housing in these rural areas which would be particularly attractive to high-paid workers. Therefore, housing demands from the BRAC actions may put more growth pressures on these rural areas, and facilitate the transformation of rural landscapes to more housing developments. The DEIS should point out such cumulative, land-use effects. Nevertheless, localities, in coordination with the regional and state agencies, are ultimately responsible for taking actions to reduce such adverse land-use effects.

The Maryland Department of Business and Economic Development, and the Maryland Emergency Management Agency found this project to be consistent with their plans, programs, and objectives.

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 <u>must</u> 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

Linda C. Janey, J.D., Assistant Secretary
for Clearinghouse and Communications

LCJ:BR
Enclosures
* indicates attachments
cc: Beth Cole - MHT
William Ebare - MDSP
Tammy Edwards – DBED*
Joane Mueller - MDE
Cindy Johnson - MDOT
Ray Dintaman - DNR
Ruth Mascari - MEMA
Denise Lynch - HRFD
Mike Paone – MDPLS*

07-0224_CRR.CLS.doc

Please Complete Your Review & Recommendation Before April 26, 2007

Return Completed Form To: Linda C. Janey, J.D., Director, Maryland State Clearinghouse for Intergovernmental Assistance, Maryland Department of Planning, 301 West Preston Street, Room1104, Baltimore, MD 21201-2305
Phone: 410-767-4490 Fax: 410-767-4480

State Application Identifier: MD20070321-0224	**Clearinghouse Contact:** Bob Rosenbush, 410-767-4490 brosenbush@mdp.state.md.us

Location: HRFD

Applicant: Department of the Army, Aberdeen Proving Ground

Description: Draft Environmental Impact Statement: BRAC 2005 Actions: consider the "Proposed" and "No Action" alternatives

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: ☐
	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.

Attach additional comments if necessary OR use theses spaces: _____

Name: C. Pete Gutwald Director
Organization: Harford County Planning & Zoning
Address: 220 South Main St.
Bel Air, MD 21014

Signature: C. Pete Gutwald
Phone: (410) 638-3228
Date Completed: 4/26/07

☐ **Check here if comments are attached.**

MDPCH-1A

The following a: comments fro the Harford County Department of Public Works, Division of Env: onmental Affairs regarding the "Draft Environmental Impact Statement, BRAC Actions : Aberdeen Proving Ground, Harford and Baltimore Counties, Maryland, March 2007":

§ 4.12.6, P. 4-1 In the discussion of **Incineration**, it should be noted that the Harford Wa: e To Energy, referred to as the Harford County Resource Recovery Facility, is curre tly operating at full capacity and may not be able to accommodate increased loadin . Harford County is currently working with the Northeast Maryland Solid Waste Dis osal Authority to develop additional capacity for waste disposal and energy producti n at the facility. The statement is also made that the Harford County Waste Disposal Center (HWDC) is projected to handle the County's landfill needs for decades. While he County's plan is to utilize the HWDC for decades, the current permitted capac ty of the landfill is nearly exhausted. The County is actively pursuing a permit for expa ion of the landfill; however, the Maryland Department of the Environment ha not yet made a determination regarding issuance of the required permit. The increased d posal capacity at the landfill is expected to be available approximately 18 to 24 months after the approved permit is received.

§4.12.2.2.6, P. 4-115 In the discussion of direct impacts from **Solid Waste**, the effects of the in reased generation of solid waste by on-post activities on the available capacity of Har rd County's facilities are not considered. The County is currently working to incr se the capacity of the pertinent facilities, but the availability of those facilities is dep dent, in part, on regulatory approval and adequate funding.

§ 4.12.2.2.7, P. 4-116 In the discussion of indirect impacts, the effects of increased solid aste generation by increased off-post residential and non-residential development ar not considered. Harford County is working to quantify and address the increased loadi g on the solid waste disposal system. This increase will have a permanent impa t on required facilities.

Table 14.14.1, P. 4-132 The portion of the table addressing **Utilities** only mentions impacts to solid waste disposal capacity from facility demolition, and states that all utilities have su ficient capacity for the Proposed Action. Harford County's current solid waste managem nt program does not have adequate capacity to address the long-term impacts of the P oposed Action. Harford County is working to develop the necessary capacity at the H arford Waste Disposal Center landfill and the Harford Waste To Energy plant; however, he availability of increased capacity at those facilities depends on regulatory appr vals and adequate funding.

04/30/2007 16:11 FAX 006/007

MARYLAND STA E CLEARINGHOUSE
AGENCY RESPON SE TO THE CLEARINGHOUSE

State Application I entifier: MD20070321-0224

Description: Draft Environmental Impact Statement: BRAC 2005 Actions

Applicant: Dept. of the Army, Aberdeen Proving Ground

COMMENTS: The report briefly discusses the County's Well Head Protection Area. The location of the new facilities i shown at the perimeter of the wells recharge area and therefore should have a minimal impact on the water supply. However, awareness of the well's proximity, along with precautions for futur hazardous materials handling, are important issues to highlight for future site planning and design. On page 4-110, third paragraph, the document indicates that the Deer Creek water appropriation i 3.5 mgd. It is our understanding that the water appropriation permit (which requires approvals fr m both the SRBC and MDE) is limited to the amount of emergency back-up supply available to t e City. It is also our understanding that the amount of back-up supply that is currently secured is .5 mgd.

COMMENTS SUB MITTED BY:

Joel Caudill, Dep ty Director, Water and Sewer
Harford County Dep rtment of Public Works

COMMENTS: Foll w best management practices and comply with all environmental regulations, as specified in the DI S, during building demolitions, site development and construction of facilities

COMMENTS SUB MITTED BY:

Susan Kelly, Dire tor, Environmental Health
Harford County Hea h Department

COMMENTS: Inc ude commitments of Chesapeake 2000 Agreement; use of Low Impact Development Practic s; Description of impacts to wetlands was very general.

COMMENTS SUB MITTED BY:

Patricia Pudelkew z, Chief, GIS and Environmental Planning
Harford County Dep rtment of Planning and Zoning

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
1650 Arch Street
Philadelphia, Pennsylvania 19103-2029

April 30, 2007

John T. Wright
Colonel, US Army Garrison Commander
Department of the Army
Building 5650
Aberdeen Proving Ground, MD 21005-5001

Attn: Bud Keesee, IMNE-APG-SHE-R

RE: Draft Environmental Impact Statement for the Base Realignment and Closure Actions at US Army Garrison Aberdeen Proving Ground (DEIS)

Dear Colonel Wright:

The United Stated Environmental Protection Agency (EPA) has reviewed the above mention DEIS for the Base Realignment and Closure Actions (BRAC) at Aberdeen Proving Ground (APG) in accordance with the National Environmental Policies Act (NEPA) and Section 309 of the Clean Air Act. The Proposed Action includes the realignment of assets and staff from a number of Army command level, administrative, and research and development activities. The net population at APG will increase by about 4,400 military, civilian and contractor staff.

The Proposed Action is to implement all BRAC Commission recommendations through a combination of new construction and reuse of existing facilities to accommodate incoming BRAC missions. The document uses a no action alternative as a baseline for comparison as required by NEPA. In accordance with NEPA, EPA is rating the Proposed Action as Environmental Concerns (EC), Insufficient Information (2) because of it potential impacts to environmental resources. For more information on our rating guidelines go to: www.epa.gov/compliance/nepa/comments/ratings.html

The document states on page 4 that "the EIS shows areas where potential construction and/or renovations may occur: however, the exact footprint, in many cases has not yet been determined." The document also states on page 3-3 that "minor shifts in the mix of new construction and reutilized facilities would not produce drastically different environmental results." The document should include a table that describes the environmental impacts in each of the proposed construction areas. More information should be provided on the specific impacts that are expected to occur within each area i.e. acres of wetlands, acres of forests, and linear feet of stream impacted etc.

Potentially each site is large enough to accommodate different build scenarios. However, without building design plans it is difficult to assess what the actual environmental impacts may be. This does offer the opportunity for the Army to reduce impacts on site by incorporating good

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design techniques when planning the layout.

This project also presents an excellent opportunity to implement the President's Executive Order 13423, Strengthening Federal Environmental, Energy and transportation management by incorporating energy efficiency into the retrofit or construction efforts for this project. Attached to this letter is information that we recommend the Army considers when planning the construction phase of this project. .

Thank you for the opportunity to provide comments to this document. If you have any questions regarding our comments please contact Jamie Davis at 215-814-5569 or by email at davis.jamie@epa.gov.

Sincerely,

William Arguto
NEPA Team Leader
Office of Environmental Programs

Attachment
Energy efficiency

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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 13423 (E.O.), 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 E.O. 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 "Strengthening Federal Environmental, Energy, and Transportation Management" 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 ESPCs and UESCs, 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.2
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.

Procurment
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 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 EPEAT-registered electronic products.
• Alternative fuel vehicles and alternative fuels required by EPAct.
• Products with low or no toxic or hazardous constituents, consistent with section VIII.A of these instructions.
• 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 agrees 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**
  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.

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

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DeMartino, Dawn

From: Keesee, Buddy L Mr USAGAPG [Buddy.Keesee@us.army.mil]
Sent: Monday, April 30, 2007 10:31 AM
To: DeMartino, Dawn; Montroy, Leo
Cc: Kirk.E.Bargerhuff@usace.army.mil)
Subject: FW: Comment on Draft EIS for BRAC 2005 Actions at Aberdeen Proving Ground (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

Leo, Dawn,

Here are comments from the Army Alliance. I talked to this gentlemen earlier today. He was also the one to bring up this issue at the meeting.
He just wants clarification (in simple terms) per reading about gaining 8000 plus employees but only a net of 4400. I explained that 8000 plus new jobs will be coming to APG. We are losing approx. 4000 with the bulk being soldiers. The net of new peiole being 4400. However there will be 8000 plus new jobs to fill. There will be 4000 (new jobs) replacing the ones that are leaving and over 4000 additional jobs. Again, he just wanted it stated in simple terms. Not sure what else to say at the moment. Maybe a small table?

Buddy

-----Original Message-----
From: Colclasure, Wyett [mailto:colclasure_wyett@bah.com]
Sent: Monday, April 30, 2007 8:36 AM
To: buddy.keesee@us.army.mil
Subject: Comment on Draft EIS for BRAC 2005 Actions at Aberdeen Proving Ground

The Army Alliance, Inc., submits the following comment for inclusion in final EIS.

The number of jobs used as the basis of calculation in the Draft EIS is only half that used in other public statements. The DEIS identifies a net of 4,400 positions coming to APG. The State of Maryland and the APG Garrison have widely used and published a figure of 8,200 positions.

Why does the DEIS not use the more commonly accepted number?

What is the impact on the EIS conclusions and recommendations when the more accurate figure is used?

Wyett H. Colclasure II
President
Army Alliance
Classification: UNCLASSIFIED
Caveats: NONE

Mr. Keesee:

Please see comments below from the Harford County Office of Economic Development regarding the Draft Environmental Impact Statement for BRAC Actions at APG, MD:

RE: BRAC position numbers

Harford County Government has been using the total number of net new BRAC positions coming to APG as 8,200. The DEIS indicates that there is "a net gain of 4,403 personnel coming to APG." Furthermore, the Maryland Department of Business and Economic Development's recent *2005 BRAC State of Maryland Impact Analysis 2006-2020 Executive Summary* states there are between 8,000 - 9,000 jobs coming into APG. Therefore, the number used in the Draft EIS is only half of what has been known to Harford County and the State of Maryland. The current 4,403 number stated in the DEIS has significant impact regarding off-Post infrastructure planning needs on Harford County and Cecil County as part of the Primary Region of Influence, as well as, surrounding counties and city indicated as part of the Secondary Region of Influence.

The 8,200 number used by Harford County Government was generated by the BRAC Transformation Office and has been used publicly by the Garrison. Why isn't the 8,200 number used in the DEIS study?

RE: Traffic and Transportation Analysis

The EUL impacts, both at the APG Northern and Southern Peninsulas, were not taken into account when traffic counts and analyses were conducted.

Additionally there is significant growth that will occur in the Perryman peninsula area that will directly support the APG BRAC Actions and this impact was not taken into consideration regarding the traffic counts and further transportation analysis that is off-Post.

Thank you for the opportunity to bring these issues to your attention.

Denise B. Carnaggio

Denise B. Carnaggio
Technology Development Manager
Harford County Office of Economic Development
220 S. Main Street
Bel Air, MD 21014

410.638.3059
www.harfordbusiness.org
www.marylandready.com

DeMartino, Dawn

From: Keesee, Buddy L Mr USAGAPG [Buddy.Keesee@us.army.mil]
Sent: Monday, April 30, 2007 10:16 AM
To: DeMartino, Dawn; Montroy, Leo
Cc: Teague, Suzanne USAGAPG; Kirk.E.Bargerhuff@usace.army.mil)
Subject: FW: Harford County DPW comments on the DEIS for BRAC Actions at APG, MD (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

Here are more comments from Harford County. I think we may get some more from another office in the County probably through the Clearinghouse.

buddy

-----Original Message-----
From: cooper, bob [mailto:rbcooper@harfordcountymd.gov]
Sent: Friday, April 27, 2007 3:57 PM
To: Buddy.Keesee@usag.apg.army.mil
Cc: caudill, joel; henderson, frank; pazdersky, dan; myers, hudson; stratmeyer, jeff; Richardson, James; carnaggio, denise
Subject: Harford County DPW comments on the DEIS for BRAC Actions at APG, MD

Buddy, attached are the comments from the Harford County Department of Public Works concerning the Draft Environmental Impact Statement for BRAC Actions at APG, MD. These comments have also been forward to the MD State Clearing House.

Bob Cooper

The Following are Harford County's Division of Water and Sewer Comments to the Aberdeen Proving Ground BRAC Action Draft Environmental Impact
Statement:

The project should be categorized as Item #2 - Generally consistent with our plans...

The report briefly discusses the County's Well Head Protection Area. The location of the new facilities is shown at the perimeter of the wells recharge area and therefore should have a minimal impact on the water supply, however awareness of the wells proximity along with precautions for future hazardous materials handling are important issues to highlight for future site planning and design.

On page 4-110, third paragraph. The document indicates that the Deer Creek water appropriation is 3.5 mgd. It is our understanding that the water appropriation permit (which requires approvals from both the SRBC and MDE) is limited to the amount of emergency back-up supply available to the City.
It is also our understanding that the amount of backup supply that is currently secured is 1.5 mgd.

It should be noted that the Draft EIS considers only the impact of BRAC and does not include the impact of the EUL development.

The following are comments fro the Harford County Department of Public Works, Division of Environmental Affairs regarding the "Draft Environmental Impact Statement, BRAC Actions at Aberdeen Proving Ground, Harford and Baltimore Counties, Maryland, March 2007":

§ 4.12.6, P. 4-113 In the discussion of Incineration, it should be noted that the Harford Waste To Energy, referred to as the Harford County Resource Recovery Facility, is currently operating at full capacity and may not be able to accommodate increased loading. Harford County is currently working with the Northeast

Maryland Solid Waste Disposal Authority to develop additional capacity for waste disposal and energy production at the facility. The statement is also made that the Harford County Waste Disposal Center (HWDC) is projected to handle the County's landfill needs for decades. While the County's plan is to utilize the HWDC for decades, the current permitted capacity of the landfill is nearly exhausted. The County is actively pursuing a permit for expansion of the landfill; however, the Maryland Department of the Environment has not yet made a determination regarding issuance of the required permit. The increased disposal capacity at the landfill is expected to be available approximately 18 to 24 months after the approved permit is received.

§4.12.2.2.6, P. 4-115 In the discussion of direct impacts from Solid Waste, the effects of the increased generation of solid waste by on-post activities on the available capacity of Harford County's facilities are not considered. The County is currently working to increase the capacity of the pertinent facilities, but the availability of those facilities is dependent, in part, on regulatory approval and adequate funding.

§ 4.12.2.2.7, P. 4-116 In the discussion of indirect impacts, the effects of increased solid waste generation by increased off-post residential and non-residential development are not considered. Harford County is working to quantify and address the increased loading on the solid waste disposal system. This increase will have a permanent impact on required facilities.

Table 14.14.1, P. 4-132 The portion of the table addressing Utilities only mentions impacts to solid waste disposal capacity from facility demolition, and states that all utilities have sufficient capacity for the Proposed Action. Harford County's current solid waste management program does not have adequate capacity to address the long-term impacts of the Proposed Action. Harford County is working to develop the necessary capacity at the Harford Waste Disposal Center landfill and the Harford Waste To Energy plant; however, the availability of increased capacity at those facilities depends on regulatory approvals and adequate funding.

These are the comments from the Traffic Engineering Section in the Highways Division of Public Works for Harford County.

I find that what they have generated is acceptable according to typical traffic impact analysis standards for the Maryland State Highway Administration. They analyzed the intersections using the critical lane volume (CLV) and they generated and distributed traffic in accordance with the ITE Trip Generation Manual. Based upon their analysis and an even distribution of traffic between the two Aberdeen Area main gates, they have determined that impacts were not significant and could be handled with intersection upgrades only, primarily at the following MD22 intersections:
Post Road, US40 and MD462.

A few areas of concern are noted as follows:

1. The document repeatedly says that the EUL is a separate issue and not part of this EIS, but then it states on page 4-92 that the off-post evaluation includes the Maryland Boulevard EUL traffic volumes. When looking at the off-post estimated traffic volumes and LOS impacts, it is evident that they did not include the EUL volumes as this would have more then doubled the anticipated increase in traffic (from an estimated increase of 1,255 PM trips at the MD 715 gate to an estimated increase of 2,410 trips).

2. Analysis of any new developments in this area without including EUL and the Perryman peninsula is short-sighted and will not give a true and complete impact of the new development.

3. The MD715 analysis stops at Old Philadelphia Road. This should be extended to include, at the very minimum, the US40 / MD715 and the US40 / MD7 intersections.

4. The EIS identifies the Maryland Department of Planning's BRAC study and all of the projects supported by that study including the MD715 extension, MD22 widening, and the MD543 and MD136 upgrades; but they are being mentioned in the context of the EIS study, not as a recommendation. If the study supports the MDP's

suggested improvements based upon long term build-out of APG with EUL, then it should state that in the text.

5. Critical Lane Volume was utilized as an analysis method as part of this study for an intersection LOS. Although not required by the Maryland SHA, Harford County prefers to use the Highway Capacity Manual (HCM) when we require the analysis of an intersection. The HCM will provide a LOS for each directional approach to an intersection and, as a result, give a better idea of what the specific impacts are.

Classification: UNCLASSIFIED
Caveats: NONE

MARYLAND
DEPARTMENT OF
NATURAL RESOURCES

Martin O'Malley, Governor
Anthony G. Brown, Lt. Governor
John R. Griffin, Secretary
Eric Schwaab, Deputy Secretary

May 2, 2007

Department of the Army
Directorate of Safety, Health, and Environment
ATTN: IMNE-APG-SHE-R (Bud Keesee)
Building 5650
Aberdeen Proving Ground, MD 21005-5001

Re: **Draft Environmental Impact Statement (DEIS) fro BRAC 2005 Actions at Aberdeen Proving Ground, Maryland**

Dear Mr. Keesee:

Thank you for the opportunity to provide comments regarding the above referenced document. The Environmental Review Unit of the Department of Natural Resources has conducted an intra-Departmental review of the DEIS and the following comments are based on our review of the document or were provided to us by other agencies within the Department.

1. The proposed federal action will be reviewed by the Critical Area Commission staff for consistency of federal action with the State Coastal Zone Management Program. It appears that the development activity proposed at Aberdeen Proving Ground (APG) will be partially located in the Chesapeake Bay Critical Area. The information reviewed indicates that the applicable Critical Area criteria are those of the Areas of Intense Development designation.

2. The Critical Area 10% Rule Guidance Manual explains the pollution reduction calculations for development within the Intense Development Area of the Critical Area. For activities in the IDA, it will be necessary to provide the Critical Area staff with the calculations of Worksheet A of the manual and document how the proposed action will meet the 10% pollution reduction criteria.

3. As required by the Critical Area criteria, a Buffer shall be established 100 feet landward from the mean high water line of tidal waters, tributary streams and tidal wetlands. The Buffer should be expanded beyond the 100 feet to include contiguous sensitive areas, such as steep slopes, hydric soils, or highly erodible soils, whose development or disturbance may impact streams, wetland, or aquatic environments. In order to document that the Buffer has been accurately established, site plans for any activity in the Critical Area should be submitted to the Critical Area staff. The site plans should show the proposed limits of disturbance and include the location of tidal and non-tidal wetlands, topography,

streams and soil types. No new development activities are permitted within the 100-foot Buffer except water dependent facilities.

4. Any disturbances to threatened or endangered species or species in need of conservation habitats that are inside the Critical Area require coordination with the Critical Area Commission and the Department of Natural Resources' Wildlife and Heritage Service.

5. The State's Forest Conservation Act requires that before the issuance of a grading or sediment control permit, the applicant shall have an approved Forest Conservation Plan and Forest Stand Delineation (Nat. Res. Art. 5-1601–5-16122, Annotated Code of Maryland). The Department's Forest Service recommends that a forest conservation plan be submitted to the state or local jurisdiction with planning and zoning authority when the applicant's preliminary site plan is submitted for review to the local jurisdiction. The Act provides for the retention of forested areas in sensitive areas on the subject property as one method of mitigation.

6. Any tree that originates within a public road right-of-way is considered a roadside tree under the Maryland Roadside Tree Care Law (NRA 5-406) and Regulations (COMAR 08.07.02) and any plans to remove, trim, or plant trees within the public right-of-way are required to obtain a permit from the Maryland Department of Natural Resources Forest Service.

7. Aberdeen Proving Ground is located in Maryland's Upper Western Shore (UWS) tributary strategy basin, which includes the Bush and Gunpowder Rivers. The Bush and Gunpowder Rivers 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 and because the Rivers fail to support a full biological community. The Department of Natural Resources has developed water quality models that estimate nutrient and sediment loads based on the implementation of various management strategies. According to model output, nitrogen, phosphorus and sediment loadings have decreased in the UWS tributary strategy basin since 1985; however, the basin is not meeting its water quality goals for nutrients or sediments and substantial annual reductions will be needed to meet those goals. The Final EIS should provide a comprehensive assessment of the direct and indirect short-term and long-term nutrient and sediment impacts to the UWS tributary strategy basin and specifically to the Bush and Gunpowder Rivers. This project should be required to prevent any addition of nutrients and sediments generated by direct and indirect activities through the implementation of best management or low impact development efforts in the project area and through out the basin as part of the expected development due to increased population resulting from BRAC actions.

8. The Department is concerned about the potential impacts of this project on submerged aquatic vegetation (SAV) in the Bush and Gunpowder Rivers and the

surrounding areas. SAV beds provide food, shelter and foraging habitat for many species of finfish, invertebrates and waterbirds as well as serving as nursery grounds for juvenile finfish. Small fish species, as well as the juveniles of larger fish species seek refuge from predators in SAV. A variety of finfish food sources such as algae, eggs and small invertebrates are found in SAV beds. In addition to providing habitat for the Bay's living resources; SAV helps to improve water quality by absorbing nutrients from the water, removing suspended sediments from the water column, reducing resuspension of sediments and by retarding shore line erosion by reducing wave energy. The Bush River has met its SAV goals for the past three years; however, the Gunpowder has not.

9. The Department of Natural Resources has monitored water quality on the Bush and Gunpowder Rivers for nutrients, chlorophyll, and total suspended solids on a monthly basis from 1985 to the present. The Department has also collected temporally and spatially intensive data on both rivers from 2003 through 2005. These data could serve to establish pre-BRAC action baseline conditions and is available on request.

10. According to the DEIS, APG owns and operates a wastewater treatment plant (WWTP) serving the Southern Peninsula which discharges to the Bush River. Although the WWTP has adequate permitted capacity, the plant is not currently designed to remove nitrogen. The WWTP should be upgraded to perform enhanced nutrient removal to decrease the nitrogen concentration in the effluent as part of the BRAC actions. The DEIS also states that sewage overflows have been a recurring problem on APG. The Final EIS should address actions to be taken as part of the BRAC project to address the problem with sewage overflows.

11. The DEIS states that APG contracts for its Northern Peninsula potable water supply with the City of Aberdeen. Potable water to the Southern Peninsula is supplied from the Van Bibber impoundment on Winters Run but supply from this location is not possible during drought conditions when low flow permit conditions do not allow a withdrawal. During these times in the past, potable water was supplied by Harford County although there is no formal agreement for the County to do so. The DEIS projects a 14% increase in water demand by 2012 over the current baseline use rate and that sufficient excess design capacity currently exists to meet the projected demand in 2012. The Final EIS should address the water needs of APG beyond 2012 and the impact of the expected development due to increased population resulting from BRAC actions on the regional water supply. In performing that analysis, APG should be aware that Deer Creek, which currently supplies water to the Northern Peninsula, is designated by the State as a Scenic River which may limit the potential to increase water withdrawal from Deer Creek.

12. As noted in the DEIS, APG contains significant population of both Federal and State listed rare, threatened and endangered species. The Department's Wildlife and Heritage Service currently is reviewing the information in the DEIS regarding

RTE species. The results of their review will be provided to you upon its completion.

13. Opportunities to minimize future or retrofit existing indirect impacts to water resources through increases in stormwater runoff and reductions in groundwater recharge exist. It is recommended that renovation and new project construction not only meet the standards of the Maryland Stormwater Design Manual, but go beyond by implementing other low impact design stormwater management practices. These practices can be designed to increase infiltration, such as bioretention ponds and rain gardens, and to encourage removing connections between rooftop stormwater collection points and stormwater discharge points. More information on environmentally sensitive building and site-design techniques that should be considered for the planning and design phase of this project can be found on-line at http://www.dnr.state.md.us/ed/.

14. Other indirect impacts to water resources will arise through the increase in water use, water treatment and wastewater discharge as a result of the increases in population. DNR encourages Aberdeen Proving Ground to work closely with Harford County government to address these concerns through the enhanced comprehensive planning process required by HB1141 legislation passed in 2006. HB1141 requires plans to incorporate a water resources element by 2009. This plan identifies expansion of water supply and treatment services. These expansions and assessments of capacity should be weighted against demands and potential water quality impacts of projected growth. Guidelines will be released in 2007 that fully articulate how the water resource element should be incorporated. However, this plan could perform a preliminary analysis on the balance between projected supply and demand for 2020 and the potential water quality impacts to the Bay.

15. State identified Green Infrastructure has been identified within the planning area and outside of the planning area. Maryland's Green Infrastructure is a network of interconnected hubs (large patches of forests and wetlands) that are connected to each other by corridors. Conserving the Green Infrastructure Network is a State priority because these lands are critical to protecting the State's biodiversity and provide the bulk of the State's natural support system. Within the Green Infrastructure Network are land areas that are ideal for restoration that are identified as "Gaps". These gaps, if restored, have a significant benefit for strengthening the Green Infrastructure Network.

16. Impacts to existing Green Infrastructure in the BRAC project areas appear to be evaluated in the EIS and few impacts were noted. Although there are very few direct impacts to Green Infrastructure, the future condition of these resources could be addressed. Measures to protect Green Infrastructure resources on Aberdeen Proving Grounds should be put in place through the facility and land management plan. Restoration efforts, either implemented voluntarily or through mitigation efforts should be focused on restoring the gaps identified within the

Green Infrastructure and on other sensitive areas, such as waterways and riparian zones, needing restoration. More information on the Green Infrastructure Assessment can be found at http://www.dnr.state.md.us/greenways/gi/gidoc/gidoc.html. Other on-line Green Infrastructure Assessment resources include interactive mapping services (http://www.mdmerlin.net/) and GIS data download options (http://www.dnr.state.md.us/gis/).

Again, thank you for the opportunity to review and comment on the draft Environmental Impact Statement. If you should have questions concerning our comments, please contact Roland Limpert of my staff at 410-260-8333.

Sincerely,

Ray C. Dintaman Jr

Ray C. Dintaman, Jr., Director
Environmental Review Unit

cc: Frank Dawson, DNR-OOS
Mike Slattery, DNR-OOS
Ken Miller, DNR-WS
Tim Larney, DNR-WHS
Ren Serey, DNR-CAC
Marion Honeczy, DNR-FORS
William Romano, DNR-RAS

MDP
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 ▶ 9
To Mr. Bud Keesee	From Bob Rosenbush	
Co./Dept. APG Directorate Safety	Co. Health & Environment	
Phone #	Phone # MDP/410 767 4487	
Fax # 410-278-6779	Fax #	

Mr. Bud Keesee
Directorate of Safety, Health and Environment
Department of the Army, Aberdeen Proving Ground
ATTN: IMNE-APG-SHE-R
Building 5650
Aberdeen Proving Ground, MD 21005-5001

STATE CLEARINGHOUSE REVIEW – ADDITIONAL REVIEWER COMMENTS RECEIVED

State Application Identifier: MD20070321-0224
Project Description: Draft Environmental Impact Statement: BRAC 2005 Actions: consider the "Proposed" and "No Action" alternatives
Project Location: Harford County
Clearinghouse Contact: Bob Rosenbush

Dear Mr. Keesee:

For your information, we are forwarding the comments made by the 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.

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

Linda C. Janey, J.D., Assistant Secretary
for Clearinghouse and Communications

LCJ:BR
Enclosures (Comments Received)
cc: Denise Lynch - HRFD
Mike Paone - MDPLS
Cindy Johnson - MDOT
Rich Hall - MDPL

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 Comp ete Your Review & Recommendation Before April 26, 2007

Return Completed Form To: Lind C. Janey, J.D., Director, Maryland State Clearinghouse for Intergovernmental Assistance, Mary nd Department of Planning, 301 West Preston Street, Room1104, Baltimore, MD 21201-2305
Phon : 410-767-4490 Fax: 410-767-4480

State Application Identifier: MD20 0321-0224	**Clearinghouse Contact:** Bob Rosenbush, 410-767-4490 brosenbush@mdp.state.md.us

Location: HRED

Applicant: Department of the Army, berdeen Proving Ground

Description: Draft Environmental Impa t Statement: BRAC 2005 Actions: consider the "Proposed" and "No Action" alternatives

Based on a Review of the Inf mation Provided, We Have Checked (●) the Appropriate Determination Below

CONSIS NT RESPONSES (For Use By State Agencies Only)

	C1	It is Consistent with our plan , programs, and objectives
	C2	It is Consistent with the polic s contained in Executive Order 01.01.1992.27 (Maryland Economic Growth, Resource Protection, and Planning Act of 1992), E cutive Order 01.01.1998.04 (Smart Growth and Neighborhood Conservation Policy), and our plans, programs, and objectiv s.
	C3	(MHT ONLY) It has been det mined that the project will have "no effect" on historic properties and that the federal and/or State historic preservation requirem nts have been met.
	C4	(DNR ONLY) It has been det mined 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 ith the requirements of State Finance and Procurement Article 5-7B-02; 03; 04 and 05 Smart Growth and Neighborhood C nservation (Priority Funding Areas).

CONSISTENT ESPONSES (For Use By County & Local Agencies Only)

	C5	It is Consistent with our plan , programs, and objectives.
	C6	It is Consistent with the Eco mic Growth, Resource Protection, and Planning Visions (Planning Act of 1992), State Finance and Procurement Article 5-7B – S art Growth and Neighborhood Conservation (Priority Funding Areas), and our plans, programs, and objectives.

OTHER RESPONSES (Could Be By All)

	R1	GENERALLY CONSISTENT WITH QUALIFYING COMMENTS: It is generally Consistent with our plans, programs and objectives, but the attached c alifying comment is submitted for consideration.
	R2	CONTINGENT UPON CERT IN ACTIONS: It is generally Consistent with our plans, programs and objectives contingent upon certain actions being taken a noted in the attached comment(s).
	R3	NOT CONSISTENT: It raise problems concerning compatibility with our plans, programs, objectives, or Planning Act visions/policies; or it may du icate existing program activities, as indicated in the attached comment(s). If a meeting with the applicant is requested, pleas check here: ☐
✓	R4	ADDITIONAL INFORMATIO REQUESTED: Additional information is required to complete the review. The information needed is identified below. If an exte sion of the review period is requested, please check here: ☐
	R5	FURTHER INTEREST: Due o further interest/questions concerning this project, we request that the Clearinghouse set up a conference with the applican .
	R6	SUPPORTS: Supports "Sm t Growth" and Federal Executive Order 12072 (Federal Space Management), which directs federal agencies to locate facilities i urban areas.

Attach additional comments if necess ry OR use theses spaces:

Name: Jamie Lake
Organization: MDOT
Address: 7201 C rporate Center Dr
Hanover MD 21076

Signature: Jamie Lake
Phone: (410) 865-1284
Date Completed: May 22, 2007

☐ Check here if comments are attached.

MDPCH-1A

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., Director
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's Comments on the March 2007 Draft Environmental Impact Statement (DEIS) for BRAC Actions at Aberdeen Proving Ground - Maryland State Clearinghouse State Application Identifier number: MD20070321-0224

Thank you for providing the Maryland Department of Transportation (MDOT) with the opportunity to comment on the March 2007 DEIS for BRAC Actions at Aberdeen Proving Ground - Maryland State Clearinghouse State Application Identifier number: MD20070321-0224. 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.

- The document s evaluation of the transportation impacts to both highway and transit systems and n eded mitigation, both within and outside the base, remains unfinished.

- The DEIS doe not adequately attempt to predict the Indirect and Cumulative Effects (ICE) of the cl nges in demographics on and around the base. The influx of the jobs and development a sociated with the Enhanced Use Leases will undoubtedly bring about land use and travel hanges (and its associated socio-economic and natural environmental impacts) leadi g to the installation that have not been adequately accounted for. Specific traffic and env ronmental mitigation must be identified in the Final EIS.

- All transportat on discussion and analysis are weighted towards highway impacts with minimal discu sion concerning potential public transportation impacts or recommendati ns for needed transit to support the BRAC growth

- There is no ide tification of specific transit impacts and corresponding mitigation recommendati ns. Please identify this in the DEIS

- The transit rec nmendations given are broad and not tied to any proposed numbers/ ridership proje ions, as evidenced by their listing below (DEIS pp. 4-107 to 108):
  - Improve re ional bus and/or rail service from Baltimore
  - Increase M RC service
  - Investigate elocation of Aberdeen MARC station
  - Investigate otential MARC maintenance & storage facility
  - Construct M iddle River multi-modal station
  - Commuter ail into Cecil Co.
  - Expand loc l bus service in the US 40 corridor
  - Explore sh tle service to base from Aberdeen MARC station

- No mention of unding contributions towards needed transportation improvements as a result of BRA(expansion related to APG.

- There needs to e more upfront discussion regarding proposed security measures and the need for seaml ss transit connections at the gates between on-Post and off- Post transit services.

- No mention of inancial impact to local and State funding sources.

Specific Comments

Page ES-7

- The first parag aph states that "coordinated efforts will be needed to evaluate and maintain roadv ay integrity, intersection optimization, and roadway improvements". There needs to e mention of the surrounding transit system here as well.

Page ES-14

- Table ES-2 (S :mmary of Potential Environmental Consequences): There is no mention of transit withi : the entire table.

Page 9

- Table EIS-2, C :ncern that the land use impacts are not adequately assessed given that the influx of the jc :s and development associated with the Enhanced Use Leases will undoubtedly b ing about land use changes (and its associated socio-economic and natural environmental .mpacts) leading to the installation that have not been adequately accounted for. Page 4-69 mentions the "IMPLAN (Impact Analysis for Planning) economic mod :l was used for this economic impact analysis. The 4,400 additional jobs should be used lo estimate potential induced land use growth to the APG expansion.

Page 1-7. Figure 1 |-1

- Figure 1.1-1 is :ot referenced in the text of the document. Consider referencing this in the document a :d include other State routes, such as principle arterials and minor arterials, not ju : US routes.

- The symbolog for Cities is incorrect for the larger map. These locations are unincorporated :ommunities.

- The map is mis ing the segment of I-695 south of I-95

Page 1-7

- On page 1-7, it : stated, "Once the Lauderick Creek EUL development process matures to the point of : vironmental analysis, it will be assessed in a separate NEPA document." When will the I auderick Creek EUL be available for review?

Page 4-92

- Beginning in th : second paragraph and throughout the document there are references to the *Draft Plann ng Study* as the source of numbers for trips to and from APG. Please note when this : tudy is anticipated to be complete. The final EIS for APG should reference the fi al study.

- As previously s ated in the second paragraph the *Maryland Boulevard Enhanced Use Lease (EUL)* is :ot part of the Proposed Action, however, this paragraph appears to state that EUL traffi is included in the off- Post evaluations. The analysis of transportation impacts appear to be based on a study that includes EUL numbers, but these numbers are not actually spe :ified. Please include these numbers in a table in the *Appendix*.

- Paragraph 6 states that "the most recent data" from the MSHA was used to survey off-Post traffic patterns. The reference section does not appear to contain a reference for MSHA traffic data. Please include this reference and the date for the data used for the traffic analysis of current conditions.

Page 4-100

- Page 4-100, states that much of the on- Post and gate traffic impact information is drawn directly from the Draft Planning Study. We have concerns that this information is subject to change

Page 4-98

- Please provide information on the traffic entering the main gates on the northern peninsula. The *Existing Conditions* section only includes traffic volumes entering the southern peninsula at the two main gates.

Page 4-99

- The first paragraph, end of the 3rd sentence - add the following wording "but only Route 2 connects to the APG Southern Peninsula area and without a direct connection to the Edgewood MARC Station nor the adjacent APG gate. It does, however serve the housing area along McMann St (APG grounds), but at a rate of only once an hour."; 4th sentence – reword as follows: "In addition, the Maryland Transit Administration (MTA) operates a commuter bus (Route 420) to and from Baltimore along U.S. 40."

- In the 2nd paragraph, second sentence – replace "five" with "three"

- There should be a figure showing the existing transit service adjacent to APG, similar to Figures 4.11-1 and 4.11-2 (Major State Highways)

Page 4-100

- Please provide more information regarding the Draft Planning Study, including lead agency.

Page 4-102

- Table 4.11.4 shows that the Proposed Action would result in the generation of 17,604 daily trips, with 2,088 inbound trips during the AM peak period and 2,225 outbound trips during the PM peak period. How will these trips be applied to each of the three gates: the Harford Gate (MD 22/Harford Blvd), the Maryland Gate (MD 715/Short Lane or Maryland Boulevard) and the Aberdeen Gate (Bel Air Blvd.)?

- Table 4.11.4: Is there any modal split data from the USACE Baltimore 2005 source or any other sources, that would help to determine estimated transit trips as a result of the BRAC action?

- The document says that existing trips are split 50/50 between Harford Boulevard and Maryland Boulevard. Specify in the text that the DEIS recommends utilization of the Aberdeen Gate to alleviate predicted traffic volumes.

Page 4-105

- The *Suggested Improvements* section recommends utilizing the Aberdeen Gate for incoming traffic in the AM peak and outgoing traffic in the PM peak. Please indicate how utilization of this gate affects predicted traffic volumes. If utilization of the Aberdeen Gate were deemed necessary, please identify when the installation of the necessary security processing facilities will take place.

Page 4-106

- In the section that begins, "For APG's Northern Peninsula," the Army suggests improving two intersections along MD 22 (Aberdeen Throughway), Post Road and the ramps at US 40. What are the specific recommendations for the geometric improvement?

- Section 4.11-3 one of the on- Post suggestions is to re-route traffic onto Rodman Road to remove the Maryland Boulevard EUL traffic from Maryland Boulevard. What is the anticipated EUL traffic volume that will be removed from Maryland Boulevard?

Page 4-107

- The first bullet states that, "Maryland is in the process of studying the implementation of improvements including "managed lanes" for Section 200 and 300 of I-95..." Suggest rewording to read" The Maryland Transportation Authority (MdTA) is currently conducting a project planning study for I-95 Section 200 from north of MD 43 to north of MD 22. One of the alternatives under consideration, the Express Toll Lanes (ETL's) Alternative, includes ETL's from north of MD 43 to MD 543."

- The second bullet: Replace 'MDOT' with "MTA" and remove the existing "MTA" from that sentence. Add a sentence to the end of the bullet that states "Coordination and cooperation from Amtrak and CSX is imperative."; 3rd bullet – replace the existing sentence with the following – "Continue ongoing feasibility studies for both a new Aberdeen South MARC station and a new rail storage, operations and maintenance facility."

Page 4-108

- In the last bullet, revise the end of the first sentence as follows "....from both the existing and proposed new Aberdeen MARC stations."; simplify the second sentence as follows:"....service on and off- Post which would utilize current technologies helping to reduce dwell times."; remove the ending of the third sentence after the word "service".

Page 4-124

- Section 4.14 - Cumulative Effects Summary, the DEIS does not adequately attempt to predict the Indirect and Cumulative Effects 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.

- Figure G-12, *Northern Peninsula – Predicted New Trips Off Post – AM (PM) Peak*, on page 15 of Appendix G, shows minimal southbound trips using West Bel Air Ave (MD 132) toward the Aberdeen Gate. What would be the trips generated along MD 132 if APG utilizes the Aberdeen Gate for incoming traffic in the AM peak and outgoing traffic in the PM peak, as suggested in the DEIS on page 4-105?

Page 5-1

- Page 5-1, Findings and Conclusions: 1st paragraph, 2nd sentence – remove "Direct" and add "adverse" after 'significant'; 2nd paragraph – reference Appendix D following mention of the CIFS model and spell out the acronym.

- This section should have an additional subheading that discusses Next Steps or Follow-Up Documentation.

Appendices

- Appendices E and F should be removed since there is no information or data.

- Appendix G – Any modal split data should be included here.

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 Aberdeen Proving Ground. 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. Freeland, Executive Secretary, Maryland Transportation Administration

bcc: Ms. Mary Die z, Assistant Chief, SHA
Ms. Kellie Ga er, Deputy Director of Planning, MDOT
Mr. Michael J Haley, Chief, SHA
Mr. Jamie M. ake, Regional Planner, MDOT
Mr. Paul Ober e, Manager of Multi-Modal Studies, MDOT
Ms. Diane Rat liff, Acting Director, Maryland Transit Administration
Mr. Robert Ro enbush, Maryland Department of Planning
Mr. Michael N xon, Manager of Regional Planning, MDOT
Mr. Raja Veer nachaneni, Director, Planning and Preliminary Engineering, SHA
Mr. Douglas F. Simmons, Deputy Administrator, SHA
Mr. Dennis Su pson, Deputy Director, MdTA
Ms. Melissa W illiams, Planning Manager, MdTA

Mr. Keesee,

Below are my comments on the DEIS for BRAC Actions at APG, MD, for consideration in preparing the Final EIS.

Harford County and Maryland government agencies may be relying on the information in this EIS to decide what roads and other support should be provided to APG. The EIS is thus not just a document for Army-only use. It is important that the EIS be accurate and complete because it is likely to be cited and used by non-Army planners.

Regards,
Morita C. Bruce
507 Millwood Drive
Fallston, MD 21047
410-877-7146

Impacts of Enhanced Use Lease (EUL) Areas are not considered.

The Lauderick Creek EUL (in the Edgewood Area) was dropped from APG's BRAC EIS because its impacts, although substantial, have not yet been studied. The EIS promises: "Once the Lauderick Creek EUL development process matures to the point of environmental analysis, it will be assessed in a separate NEPA document. That NEPA document will evaluate the cumulative impacts of its proposed action combined with the impacts of the BRAC Proposed Action addressed in this document." This is an honest statement with which I have no problem.

What is a problem, however, is the Maryland Avenue EUL (in the "Northern Peninsula" or "Aberdeen Area"). This EUL seems to have been totally ignored in this DEIS. The EIS considers traffic data from 2004 and environmental data from 2005 to be the "baseline" against which BRAC changes are being measured. However, the EUL's impacts, which occur concurrent with or prior to the BRAC, are neither part of the baseline nor are they included as BRAC impacts. The result is that cumulative impacts of BRAC *plus* this Aberdeen Area EUL are not being provided nor assessed. This is a significant concern since the EIS' transportation analysis already concludes: "Without structural improvements to affected intersections, the Proposed Action will result in significant impacts at selected intersections leading to access to APG's Northern Peninsula." The EUL only makes the impacts worse. <u>It is imperative that the Aberdeen Area EUL be included in EIS analyses.</u>

Traffic Analysis is inaccurate and perhaps deceptive.

Traffic impacts will also be significantly higher than the EIS predicts for another reason beyond ignoring the EUL. The traffic survey is incorrectly done and therefore grossly misleading because:

- No complete surveys were done on either the Aberdeen Area (AA) or Edgewood Area (EA) gates. Both areas have multiple entrances, and survey data was taken months apart for the gates leading into each one. APG-EA's had 2 gates sampled, one in May 2004 and one in July 2004. One of APG-AA's gates was sampled 1-7 March 2004 and 1-5 September 2004 while the second was sampled 29 March – 1 April 2004. This pattern of data acquisition cannot accurately total

the number of vehicle entries into the post because it's adding apples and oranges. All gates for an Area (EA or AA) should be surveyed simultaneously.

- What matters are PEAK traffic counts, not daily averages or even "morning averages" and "evening averages". Any commuter knows the probability of traffic jams can change significantly in only 15 minutes – leave for work 15 minutes late and you can easily arrive 30 minutes late. Data should be provided daily and in 15-minute increments from about 6:30am to 10:00am for incoming traffic in the morning, and similarly from about 3:00pm to 6:30pm for exiting traffic.

- Calculations of Total Predicted Inbound Trips Per Day are based on truly absurd averages that significantly underestimate the actual traffic on a normal workday. The samples on 1-5 September 2004 were from Wednesday before Labor Day weekend through that Sunday, with Monday being a federal holiday. This is a grossly unrealistic sample since only Wednesday and Thursday were likely to be "normal" commuting days. The two EA samples were both 8 days long and included 2-day weekends, and another AA sample also included a full weekend in its count. One EA sample was taken in late July during a peak week for vacations. There is no regular commuter traffic on Saturday and Sunday so including Saturday and Sunday in these counts and using these days to create an average daily volume drastically underestimates actual commuter traffic. Fridays are often atypical of normal work traffic due to compressed work weeks. Only non-holiday data from Monday through Thursday is realistic, and therefore, the traffic surveys must be redone. Current estimates are much too low.

- The number of additional trips per day is also underestimated and the impact of the new commuters will be significantly greater than the EIS admits. Table 2.2.2 shows 2,908 Student/Trainees presently on post. The vast majority of students stay on post and do not contribute to commuter traffic, so their departure does not offset the traffic impacts of an equivalent number of new BRAC-related civilians and contractors. It's not the net *population* change that matters, it's the net change in *commuters*. Once new traffic surveys have been completed, the number of current *commuters* should be compared to the number of cars currently entering APG. This ratio of commuters-to-cars should then be multiplied by the number of new, BRAC commuters to predict the number of additional cars due to BRAC.

DeMartino, Dawn

From: Keesee, Buddy L Mr USAGAPG [Buddy.Keesee@us.army.mil]
Sent: Monday, April 30, 2007 7:20 AM
To: DeMartino, Dawn; Montroy, Leo
Subject: FW: Comments (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

Here are comments from Carolyn Hicks.

-----Original Message-----
From: APOLLO6732@aol.com [mailto:APOLLO6732@aol.com]
Sent: Sunday, April 29, 2007 10:05 AM
To: Buddy.Keesee@us.army.mil
Subject: Comments

Hi Buddy,

Here's my comments re: the DEIS. I hope Lauderick Creek will continue to be a dead issue. With the unknown factor of what is lurking underground on that site, it would be foolhardy and possibly dangerous to do any type of excavation. Not only could there be UXO's but there could also be toxic chemicals in the soil. To disturb the soil could release those chemicals into the air and would cause harm to the neighboring community.

However, with all of those variables in place, I hope there is a way of continuing to safely monitor the site, and keeping an eye on its stability.

Thanks for having the meetings to keep the community informed.

Sincerely,
Carolyn Hicks
1404 Old Joppa Rd.
Joppa, MD 21085

****
See what's free at http://www.aol.com.
Classification: UNCLASSIFIED
Caveats: NONE

FREDERICK WARD ASSOCIATES

ARCHITECTS ENGINEERS PLANNERS SURVEYORS

P.O. Box 727, 5 South Main Street
Bel Air, Maryland 21014-0727
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410-893-1243 fax

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April 30, 2007

Department of the Army
Directorate of Safety, Health, and Environment
ATTN: IMNE-APG-SHE-R (Bud Keesee)
Building 5650
Aberdeen Proving Ground, MD 21005-5001

Re: Draft Environmental Impact Statement
BRAC Actions at APG
Section 4.11 Transportation

Dear Mr. Keesee:

Frederick Ward Associates (FWA) is writing this letter as a response specifically to the Transportation subsection of the Draft EIS published in March 2007. As you may be aware, FWA drafted a transportation study for the Army Alliance in November 2005. The findings in that report were subsequently echoed in both State and County reports. However the DEIS does not logically address all of the key intersections off-post that will be adversely impacted by the on-post growth.

Specific intersections which should be included in the study are:

- MD-715 at US-40
- MD-7 at US-40 (east and west of MD-715)
- MD-7 at MD-159
- MD-152 at Trimble Rd.
- MD-152 at US-40
- MD-152 at MD-7

There are other intersections that will undoubtedly be impacted by the job growth on-post. However, the above listed intersections, in addition to the ones already referenced in the DEIS, cover all of the arterial connections for access to the post. Most notably MD-715 where more than five million square feet of office and lab space will distribute most of their traffic is excluded. In fact the MD Boulevard EUL site is inconsistently computed as existing for the on-post baseline, and predicted (future) for the off-post. The MD Boulevard EUL should be calculated in a consistent manner with the other BRAC related growth and, the C4ISR project that will share the MD-715 gate.

On the southern peninsula there was no distribution of traffic to the Magnolia Road (MD-152) gate and the proposed expansion of the Waste-to-Energy plant, which will serve APG growth. The Wise Road (MD-755) gate is also the location of the Edgewood MARC train stop, which is presently being upgraded. This improvement is not recognized in the

DEIS, which will add background traffic to Edgewood Road and the Wise Road gate intersection. There should also be some reference to the Lauderick Creek EUL that will exclusively use the Wise Road gate.

In closing, we would recommend revising the DEIS to address the intersections that connect commuting traffic to the arterial road network. It is important to address these additional intersections due to the mixing of heavy truck traffic with automobile traffic. Additionally, FWA would be pleased to assist by providing our report for the Army Alliance, as well as reports and data from surrounding jurisdictions. Most of the affected off-post intersections have been analyzed in one form or another in recent years.

Thank you for your time. If you should have any questions, please feel free to contact me.

Sincerely,

FREDERICK WARD ASSOCIATES, INC.

Edward M. Steere, AICP
Senior Planner/Project Manager

COMMENTS FOR
ABERDEEN PROVING GROUND (APG)
BASE REALIGNMENT AND CLOSURE (BRAC) ACTIONS
DRAFT ENVIRONMENTAL IMPACT STATEMENT (DEIS)

The Draft Environmental Impact Statement (DEIS) of March 2007 is both comprehensive and detailed. It reflects quality work of many individuals over a period of time.

Air quality, traffic and water issues concern me most. Page 4-19 of the DEIS, table 4.15 is predicting unacceptable levels of carbon monoxide and Nitrogen Dioxide by 2009. By year 2011 this will include Volatile Organic Compounds (VOC) as well.

Our area is already a non-attainment area for airquality. I am concerned that this will impact workers on post and the immediate area with increased respiratory problems, missed workdays and poorer school attendance.

Increased traffic and predicted conditions at intersections (pp. 4-103 & 104, table 4.11.6 is alarming. Getting to work and school, doing errands will become a nightmare. Route 22 in the Northern Pennsylva Region will not handle the volumn of traffic expected. The quality of life will be severely impacted by this action.

Finally, Deer Creek Water may be limited in withdrawl even with a 3 MGD permit since on average days only 1.02 MGD is used now. There have been problems in the past with the permit. Rules regarding this should be checked with the SRBC.

INCLUSION OF PERSONAL INFORMATION IS OPTIONAL (anonymous comments will be fully considered)

YOUR NAME: Ruth Ann Young

MAILING ADDRESS: 415 Doris Circle
Aberdeen, MD 21001

EMAIL ADDRESS:

☐ ***Check here if you do NOT want to be included in APG EIS mailings.***

COMMENTS RECEIVED BY APRIL 30, 2007 WILL BE CONSIDERED IN THE FINAL EIS.
COMMENTS RECEIVED AFTER THAT DATE WILL BE CONSIDERED TO THE EXTENT PRACTICABLE.

COMMENTS FOR
ABERDEEN PROVING GROUND (APG)
BASE REALIGNMENT AND CLOSURE (BRAC) ACTIONS
DRAFT ENVIRONMENTAL IMPACT STATEMENT (DEIS)

Will the new construction use low impact development techniques?

INCLUSION OF PERSONAL INFORMATION IS OPTIONAL *(anonymous comments will be fully considered)*

YOUR NAME: _____

MAILING ADDRESS: _____

_____

EMAIL ADDRESS: _____

☐ *Check here if you do **NOT** want to be included in APG EIS mailings.*

COMMENTS RECEIVED BY APRIL 30, 2007 WILL BE CONSIDERED IN THE FINAL EIS.
COMMENTS RECEIVED AFTER THAT DATE WILL BE CONSIDERED TO THE EXTENT PRACTICABLE.

COMMENTS FOR
ABERDEEN PROVING GROUND (APG)
BASE REALIGNMENT AND CLOSURE (BRAC) ACTIONS
DRAFT ENVIRONMENTAL IMPACT STATEMENT (DEIS)

- I WOULD LIKE TO SEE HOW THE ENTIRE BRAC PROCESS TIES IN TO THE CHESAPEAKE BAY AGREEMENT OF 2000. THE DOD SIGNED ON TO THIS AGREEMENT THEN, AND IT SHOULD NOW FOLLOW THROUGH WITH THE GOALS AND BMP'S THAT WERE OUTLINED IN THE AGREEMENT. PARTICULARLY IMPACTS TO WATER QUALITY BY USING LOW IMPACT DEVELOPMENT TECHNIQUES AND THE REDUCTION OF IMPERVIOUS SURFACES THROUGH OTHER BMP'S.

- THE EIS IS VERY GENERAL, SO IT IS DIFFICULT TO COMMENT ON BRAC AND ITS IMPACTS. EXAMPLE OF THIS IS THE RANGE OF POTENTIAL WETLAND LOSS IN THE NORTHERN PENN. OF 1-10 ACRES. WITH NONE IDENTIFIED IN THE SOUTHERN PENNINSULA.

INCLUSION OF PERSONAL INFORMATION IS OPTIONAL *(anonymous comments will be fully considered)*

YOUR NAME: MATT KROPP

MAILING ADDRESS: 220 S. MAIN ST
BEL AIR MD 21014

EMAIL ADDRESS: MTKROPP@HARFORDCOUNTYMD.GOV

☐ *Check here if you do **NOT** want to be included in APG EIS mailings.*

COMMENTS RECEIVED BY APRIL 30, 2007 WILL BE CONSIDERED IN THE FINAL EIS.
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COMMENTS FOR
ABERDEEN PROVING GROUND (APG)
BASE REALIGNMENT AND CLOSURE (BRAC) ACTIONS
DRAFT ENVIRONMENTAL IMPACT STATEMENT (DEIS)

HIGHLY RECCOMEND THE RFP FOR BUILDING CONSTRUCTION INCLUDE REQUIREMENTS FOR GREEN BUILDINGS (Spirit/LEED), LOW IMPACT DEVELOPMENT, AND CHESAPEAKE BAY 2000 AGREEMENT.

INCLUSION OF PERSONAL INFORMATION IS OPTIONAL *(anonymous comments will be fully considered)*

YOUR NAME: Rosemary Queen

MAILING ADDRESS: 614 Locksley Manor Dr.
ABERDEEN, MD 21001

EMAIL ADDRESS: jerryandrosemaryqueen@comcast.net

☐ *Check here if you do **NOT** want to be included in APG EIS mailings.*

COMMENTS RECEIVED BY APRIL 30, 2007 WILL BE CONSIDERED IN THE FINAL EIS.
COMMENTS RECEIVED AFTER THAT DATE WILL BE CONSIDERED TO THE EXTENT PRACTICABLE.

1 IN THE MATTER OF
2 PUBLIC MEETING FOR
3 DRAFT ENVIRONMENTAL IMPACT STATEMENT (DEIS)
4 FOR BRAC ACTIONS AT
5 ABERDEEN PROVING GROUND, MARYLAND
6 * * * * * * * * * * * * * *
7
8 A Public Meeting was held on Tuesday,
9 April 10, 2007, commencing at 6:00 p.m., at the Ramada
10 Inn Conference Center, 1700 Van Bibber Road, Edgewood,
11 Maryland 21040, before Sandra A. Judd, a Notary Public.
12
13 * * * * * * * * * * * * * *
14
15
16
17
18
19
20 Reported by:
21 Sandra A. Judd

1 PROCEEDINGS

2 - - - - - - -

3 (Presentation begins at 7:03 p.m.)

4 GEORGE MERCER: Good evening. I'm George

5 Mercer. I'm the Public Affairs Officer for Aberdeen

6 Proving Ground. And unaccustomed as I am speaking in

7 public, I'm going to do that anyway. I want to welcome

8 you to our what I'll call a session tonight and tell

9 you I'm speaking personally here, and I guess it's for

10 the Proving Ground itself but also on a personal level.

11 It is very important to us to have public

12 input into what we do. We've learned sometimes the

13 hard way, but often just out of practice that if we

14 have community support for what we do, if we have

15 community input for what we do, it not only makes our

16 life easier and has less angry neighbors, but it also

17 improves our process. It helps us get our job done

18 better.

19 So this process is in part for us to

20 present to the public, but equally as important and in

21 a lot of ways more important why we're here is to get

1 your input into what we're doing. And I'm told that
2 nobody has signed up to be a speaker, and that's fine.
3 If you do have comments, though, we do have a recorder
4 here who will be taking -- will be glad to take your
5 comments after the presentation.
6 If you have questions, there are lots of
7 what we call subject matter experts, people who can
8 answer specific questions about what we have on the
9 posters here or things that we don't have on the
10 posters.
11 We're here to try to address your concerns
12 and issues and to get your input in the process. There
13 are lots of people here from Harford County who are
14 here in their official capacity. I'm not going to try
15 to identify them, and -- but I'd take advantage of
16 their presence if you wish to speak to them.
17 We have lots of people from the Aberdeen
18 Proving Ground Corps of Engineers and all sorts of
19 different people here in their official capacity.
20 Please take advantage of their expertise and their
21 interest in your concerns.

1 And we're going to have very brief
2 presentation from the Aberdeen Proving Ground
3 Directorate of Safety, Health, and Environment, and I'm
4 going to turn that over to Mr. Bud Keesee.
5 BUD KEESEE: Thank you, George.
6 Welcome everyone. I'm just going to give
7 you a brief presentation, a little bit on NEPA and just
8 to give you a quick overview of the BRAC here at A.P.G.
9 Again, as George said, we have a lot of posters here
10 with some more detailed information and a lot of staff
11 here that can help you with that.
12 But I just want to go over the NEPA process
13 quickly. National Environment Policy Act, also known
14 as NEPA, that's what's driving this E.I.S. If you
15 notice here it requires Environment -- the National
16 Environmental Policy Act requires environmental
17 analysis of Federal actions. Whether you're going to
18 build a brand-new multi-million dollar lab or you're
19 going to put a shovel in the ground, you have to have
20 Federal -- we have to do an analysis on that to check
21 for any impact to the environment. This is a decision

1 document.

2 NEPA has basically three main components.

3 One of them is -- with a NEPA document is public

4 involvement. The second one is alternatives; you want

5 to check whatever your proposed action is. You want to

6 have alternatives to that because the third is going to

7 be consequences to your actions. You're going to do

8 some environmental analysis to find out what the

9 consequences would be. And at that time once you have

10 some public involvement, you know your alternatives,

11 you know what the consequences will be, then you can

12 make a better decision on what avenue you want to go

13 to.

14 In the Environmental Impact Statement here

15 that's for actions -- that document is for actions with

16 significant impacts. We know we're going to have some

17 significant impacts. Other documents, they're not so

18 significant.

19 Can I have the next one, please? Thanks.

20 To go a little bit on this E.I.S., we had a

21 kickoff meeting a year ago tomorrow, and that was

1 internally, to get this process started. We had our
2 scoping meeting. Some of you might have been here for
3 those last June, two days last June here in the
4 Aberdeen area. We released -- just released the Draft
5 E.I.S. to the public the 16th of March. Besides a
6 mailing list, you could also -- there was a website you
7 can view it on, and if you are still interested in
8 that, let us know. Of course, we have the public
9 meetings going on now.
10 And the next step with this would be we
11 have a final draft of the E.I.S. that's going to be
12 coming out probably in around the July time frame. And
13 then the final step would be a Record of Decision,
14 better known as a ROD, and that would -- once that's
15 signed, that would be completing the process.
16 And once all the analysis is in, once we
17 have public comments, internal reviews and so on with
18 Army personnel and staff and State agencies, other
19 Federal agencies, then we can make a better
20 determination of how we want to proceed.
21 And I just brought up a couple maps. This

1 is, of course, the A.P.G. area. This is the counties
2 surrounding A.P.G. This is the Aberdeen area where
3 this could be effects here. You see this area in red,
4 this is a pretty big area, the 5400 block. This area
5 right here coming out, that's the 715 gate going right
6 out to Route 40 that probably a lot of you pass. And
7 this right here is the 22 gate that would go through
8 Aberdeen all the way to Bel Air.
9 So this is basically just to give you some
10 kind of knowledge of the area we're talking about that
11 would be affected here. This is some of the ordnance
12 school down here. This is the 5400 block. And this is
13 the Edgewood area. And as you can see, this is the
14 Joint Program Executive Office, a lab right here.
15 One of the areas we think that's going to
16 be impacted is right here. This is a -- the 4400 block
17 in Edgewood is permanent World War I facilities,
18 supposedly the only one in the nation left. But
19 anyway, they might be mothballed because that's where
20 the Army Environmental Center is being housed right now
21 -- or excuse me, it's Army Environmental Command right

1 now. And they'll be leaving eventually to Fort Sam
2 Houston, and with that they will be mothballing the
3 buildings, which could be an adverse effect to the
4 historic buildings. Okay.
5 And A.P.G. impacts we have possible
6 significant impacts to cultural resources, just like
7 the 4400 block I was telling you about. Other impacts,
8 we know we are going to have natural resources, water,
9 air, solid waste, sediment erosion because of
10 construction, infrastructures, inroads, buildings that
11 we're going to have to deal with on Post. We don't
12 look at these as being significant. Okay.
13 And then off-Post impacts, we have possible
14 significant impacts, but we know that most of the
15 impacts are going to be to Harford County. I'm not
16 saying they're not going to be significant to Baltimore
17 or Cecil County, but we know right now that Harford
18 County is going to probably have the most impacts.
19 Utilities, roads, transportation, we know that this is
20 going to be an impact of all those. And
21 socioeconomics, housing, medical services,

1 transportation. There's going to be more businesses
2 and job opportunities and the need for more commercial
3 goods and services.
4 So, you know, we're -- I'm going to be
5 leaving out a few things here, but basically you get an
6 idea of what we know is going to probably be happening
7 here with the BRAC. And I think that's it. Okay.
8 George?
9 GEORGE MERCER: Would any member of the
10 community -- public, private citizens like to make
11 comments or --
12 CAROLYN HICKS: Question.
13 GEORGE MERCER: -- statements? A question?
14 CAROLYN HICKS: Yes.
15 Mr. Keesee said that the 4400 block in
16 Edgewood is going to be transferring to Fort Sam
17 Houston, that it's going to be put in mothballs?
18 GEORGE MERCER: The Army and -- well, you
19 can clarify. The Army Environmental Command will be
20 moving under BRAC. They will moving to Fort Sam
21 Houston, Texas.

1 CAROLYN HICKS: Um-hum.
2 GEORGE MERCER: The building -- some of the
3 buildings they currently are occupying will be
4 vacated --
5 CAROLYN HICKS: Um-hum.
6 GEORGE MERCER: -- and be mothballed.
7 BUD KEESEE: Yes, mothballed.
8 CAROLYN HICKS: Okay. What will happen to
9 those buildings, and do they have asbestos in them?
10 BUD KEESEE: Right now they're just
11 being -- they'll be sealed up.
12 CAROLYN HICKS: Um-hum.
13 BUD KEESEE: Right -- there is a
14 possibility they could be reused.
15 CAROLYN HICKS: Um-hum.
16 BUD KEESEE: It just depends on quite a few
17 things. If it would come down to a demolition
18 eventually, there's a lot of work to be done with the
19 State Historic Preservation Office if that would
20 happen.
21 CAROLYN HICKS: Um-hum.

1 BUD KEESEE: But we would follow all the
2 proper guidelines to get rid of, say, lead paint and
3 asbestos --
4 CAROLYN HICKS: Okay.
5 BUD KEESEE: -- and so on.
6 CAROLYN HICKS: Okay. Thank you.
7 GEORGE MERCER: Any other comments or
8 questions, concerns, issues, speeches?
9 (No hands raised.)
10 GEORGE MERCER: Anybody from other
11 government agencies or -- who would like to make a
12 statement or a comment that's relevant to this?
13 (No hands raised.)
14 GEORGE MERCER: Well, then I will --
15 MICHAEL EARLY: George, can I ask a couple
16 of questions or --
17 GEORGE MERCER: Yes, you may.
18 MICHAEL EARLY: -- comment -- or questions,
19 I guess? There's very little -- you know, there's some
20 impact on the installation of -- at the end we talked
21 with one of the gentlemen about, for example, for water

1 and possibly sources of water are coming out of the
2 Susquehanna and coming out of Deer Creek. Someone even
3 said Loch Raven. Those are also places where the City
4 of Baltimore draws water, and I didn't see that
5 mentioned in the E.I.S.
6 TIM MCNAMARA: Could I --
7 GEORGE MERCER: Go ahead.
8 TIM MCNAMARA: Could I try to take that on,
9 please?
10 GEORGE MERCER: Yeah.
11 TIM MCNAMARA: We don't know that there's
12 going to be a net increase in the use of water because
13 of BRAC. And it's quite possible we'll have a net
14 decrease in use for this reason: The folks that are
15 currently the big water users on Post are the soldiers.
16 They live in barracks; they shower several times a day;
17 they draw their meals, and all that. That population
18 is moving in and --
19 MICHAEL EARLY: They're going to --
20 TIM MCNAMARA: -- they're going away, and
21 we are going to be bringing in --

1 MICHAEL EARLY: People that take showers on
2 Post --
3 TIM MCNAMARA: -- people who -- right, but
4 they're only there during the daytime population. So,
5 from a water use on Post, where we get our water for --
6 MICHAEL EARLY: Okay.
7 TIM MCNAMARA: That's probably going to be
8 less. Now, that doesn't mean that there's not going to
9 be a water increase in the county itself, but I think
10 the growth that we're talking about, while it may be a
11 bit accelerated --
12 MICHAEL EARLY: Yeah.
13 TIM MCNAMARA: -- it's within the growth
14 that was planned for the county.
15 MICHAEL EARLY: Because D.E.I.S. doesn't
16 have to address the water requirement for the county,
17 or we --
18 TIM MCNAMARA: Well, I think they've
19 attempted to identify what all those impacts may be.
20 MICHAEL EARLY: Yeah, but the --
21 TIM MCNAMARA: Tried to modify it --

1 MICHAEL EARLY: They should --
2 TIM MCNAMARA: -- without knowing how many
3 people are going to live in there.
4 MICHAEL EARLY: The same would go with
5 solid waste then?
6 TIM MCNAMARA: Correct.
7 MICHAEL EARLY: The same logic would follow
8 with solid waste?
9 TIM MCNAMARA: Um-hum.
10 (Hand raised.)
11 GEORGE MERCER: Yes?
12 DENISE CARNAGGIO: I have a question or a
13 clarification. You talk about on this information
14 paper they have 4,400 new positions at A.P.G., but you
15 also talk about 4,400 people. Which is it? Positions?
16 People? I'm just looking for a clarification because
17 they're two different terminologies.
18 BUD KEESEE: I would think they're
19 basically the same thing.
20 GEORGE MERCER: Yeah.
21 DENISE CARNAGGIO: I --

1 GEORGE MERCER: 4,400 people filling 4,400
2 positions.
3 DENISE CARNAGGIO: All right.
4 GEORGE MERCER: But again, I'm speculating.
5 DENISE CARNAGGIO: All right. I just want
6 to make sure that we're --
7 GEORGE MERCER: I don't know the official
8 answer to that. We can try to get that answer for you.
9 MICHAEL EARLY: Can I take a shot at that?
10 GEORGE MERCER: Please do.
11 MICHAEL EARLY: I -- there will be a --
12 there's a migration diagram in the Army plan, and the
13 Army will move 8,800 positions. The fate -- we used to
14 talk about faces and spaces, so it will be those spaces
15 will come in. Not all of those faces will show up from
16 Fort Monmouth.
17 DENISE CARNAGGIO: Right.
18 MICHAEL EARLY: So -- and you have to look
19 at the net change. You've got like 4,000 soldiers
20 coming out and civilians coming -- predominantly
21 civilians coming in.

1 DENISE CARNAGGIO: Okay.
2 GEORGE MERCER: Okay. Other questions,
3 concerns?
4 TIM MCNAMARA: George, could you just -- or
5 Buddy, one of you just clarify for people what happens
6 from this point forward? I know that --
7 GEORGE MERCER: I'm just going to ask --
8 TIM MCNAMARA: When do they need to get any
9 comments or --
10 BUD KEESEE: Oh, okay. It would be the
11 30th of April. You can either have written comments
12 here. You could go to the recorder if you would like
13 to just talk to the recorder. You could take the
14 mailing instructions with you and just go home if you
15 want to think about it at home and send them -- you
16 know, send them in, whatever you feel comfortable with.
17 But basically the 30th -- if it's postmarked by the
18 30th, we'll accept all comments.
19 Right now if we don't have any more
20 questions, then we want to open up -- we're still going
21 to be here at the posters in case you have any other

1 specific questions about anything.
2 GEORGE MERCER: And I very seriously
3 recommend you take advantage of all these people that
4 are here if -- while they're here. Or if you have
5 something that you think of later, please take
6 advantage of our comment period. Let us know what
7 either your concerns are or questions you might have.
8 And we'll do what we can to help.
9 And if that's -- if there's nothing else
10 that publicly needs to be said, I do recommend taking
11 advantage of our recorder for writing down whatever you
12 need to say.
13 That will conclude official end of it on my
14 end. Thank you all for coming. It's greatly
15 appreciated.
16 (Presentation concluded at 7:19 p.m.)
17
18
19
20
21

1 State of Maryland
2 County of Harford, to wit:
3
4 I, Sandra A. Judd, a Notary Public of
5 the State of Maryland, County of Harford, do hereby
6 certify that the within-named proceedings took place
7 before me at the time and place herein set out.
8 I further certify that the proceedings
9 were recorded stenographically by me and this
10 transcript is a true record of the proceedings.
11 I further certify that I am not of
12 counsel to any of the parties, nor an employee of
13 counsel, no related to any of the parties, nor in
14 any way interested in the outcome of this action.
15 As witness my hand and notarial seal
16 this 24th day of April, 2007.
17
18 Sandra A. Judd
19 Sandra A. Judd
Notary Public
20 My Commission Expires:
21 August 1, 2009

1 INDEX

2 Public Meeting

3 April 10, 2007

4

5

6 Presentation by: Page

7 Bud Keesee 2

8

9 (Exhibits -- None Marked)

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1 IN THE MATTER OF
2 PUBLIC MEETING FOR
3 DRAFT ENVIRONMENTAL IMPACT STATEMENT (DEIS)
4 FOR BRAC ACTIONS AT
5 ABERDEEN PROVING GROUND, MARYLAND
6 * * * * * * * * * * * * * *
7
8 A Public Meeting was held on Wednesday,
9 April 11, 2007, commencing at 6:00 p.m., at the Holiday
10 Inn Chesapeake House, 1007 Beards Hill Road, Aberdeen,
11 Maryland 21001, before Sandra A. Judd, a Notary Public.
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13 * * * * * * * * * * * * * *
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17
18
19
20 Reported by:
21 Sandra A. Judd

1 PROCEEDINGS

2 - - - - - - -

3 (Presentation begins at 7:02 p.m.)

4 GEORGE MERCER: Good evening. I'm George

5 Mercer. I'm the Public Affairs Officer for Aberdeen

6 Proving Ground, and my role here is just to explain

7 what we're doing and to welcome you. And then we'll

8 get down to the nitty-gritty.

9 This meeting is to bring to you information

10 about the Environmental Impact Statement process here

11 for BRAC activities at Aberdeen Proving Ground and

12 also -- and I'm going to read this to make sure I say

13 it correctly -- to introduce the Clean Air Act

14 Conformity Analysis Determination, both of which are

15 very important. I will add a personal note as -- just

16 because that's what I do.

17 Our experience over the years has been that

18 public participation, public interest, and public

19 cooperation with what we do not only enhances our

20 relationship with the community, but helps us do our

21 jobs better on the Proving Ground, that by getting your

1 input, your concerns, your issues, that helps us do our
2 job better. And this is a very important thing. I've
3 been around a long time and I've seen it time and time
4 again where the citizens' input into our activities
5 here is important. And I just want to make sure that
6 you all understand that from our perspective.
7 At tonight's meeting, gathering, we have a
8 recorder here. And we will after a brief presentation
9 from Aberdeen Proving Ground's Directorate of Safety,
10 Health, and Environment, we will open it up for
11 comments. And if you have a comment you would like to
12 make publicly, you can come up here and do that. If
13 you do so, I'll ask you to please give your name
14 because it is being recorded and it does help if --
15 that we can address the comment if we know who you are.
16 And if you have questions or -- and things
17 you want to know specifically about a specific issue,
18 that can be addressed, but we have lots of subject
19 matter experts here. After we do the comment period,
20 please feel free to interact with them, talk with them.
21 There are people here who will be glad to try to answer

1 any questions. If they can't, they'll get back with
2 you. But the purpose for tonight's meeting is to get
3 your comments.
4 And I think that's pretty much my
5 introduction. I could go on, but I won't. You're all
6 lucky for that. And with that, I'm going to turn this
7 over to Buddy Keesee. He's the Directorate of Safety,
8 Health, and Environment. He is the installations
9 expert on the NEPA process, and it is -- in overseeing
10 a lot of what we're doing here. And I'll just leave it
11 to Buddy.
12 BUD KEESEE: Okay. Thank you, George.
13 And thanks all for coming tonight.
14 I'm just going to do a real quick
15 presentation of the NEPA process and also a little
16 about the BRAC. And as George said, if you have any
17 questions, this is a gathering where we want to have
18 your comments. We want to take this in, the comments
19 in as part of our -- part of the process to get your
20 input so we can add that to the E.I.S. If you have any
21 questions or if you want to make remarks here, just

1 please say your name, and our recorder will take them.
2 You can either then talk to our subject matter experts
3 or we will get back with you with any answers that you
4 need.
5 Today we're going to talk about the
6 Environmental Impact Statement and a little bit about
7 NEPA. National Environmental Policy Act, better known
8 as NEPA, it requires environmental analysis of Federal
9 actions. That could be if you're going to build a
10 multi-million lab or if you're going to put a shovel in
11 the ground, whatever, it still needs environmental
12 analysis to see what the consequences are of the
13 action.
14 This is a decision document, and basically
15 NEPA has -- NEPA documents have three major components.
16 One of them is public participation. The other one is
17 alternatives to the preferred action. We want to have
18 different alternatives, so at the end of the document
19 once our analysis is done, we can make a better
20 decision as to which way we -- which direction we want
21 to go. And the third part of it is the consequences

1 section. We want to do environmental analysis to find
2 out what your consequences of -- environmental
3 consequences of the actions will be.
4 So, if you take those three components and,
5 you know, the public involvement, your alternatives,
6 the consequences of your action, it will help you make
7 a better decision on what direction you want to go.
8 Environmental Impact Statements are NEPA
9 documents that are -- have significant or possibly
10 significant impacts. And we know in this case we're
11 probably going to have some very significant impacts.
12 Okay.
13 Just to give you a little rundown on the
14 history, you're here today. We had an internal kickoff
15 meeting with all the government agencies involved to
16 get it started. We had our public scoping meetings
17 that probably a lot of you attended back in June of
18 '06. We just recently released a Draft E.I.S. on the
19 16th of March to the public. We have a 45-day comment
20 period. That comment period is going to end the 30th
21 of April, so if -- if you have all your comments in by

1 that time, if you're going to mail them in, just have
2 them postmarked by the 30th, and we'll able to address
3 them.
4 The -- we have different avenues here. If
5 you want to talk to the recorder, you could, or you can
6 just write your comments down. Or you could, after
7 today, if you want talk to people and everything, you
8 can take some of the mailing instructions home and just
9 think about it then and write them down and mail them
10 to us. Or as we said here, you can also come to the
11 podium or you can sit there and make comments which
12 will be recorded. Then, of course, we have our public
13 meeting today.
14 And next we have a final draft which could
15 be sometime in June maybe or early July that we hope to
16 complete by then. And then the final part of this is
17 the Record of Decision which basically tells what our
18 decision is, what direction we're going to go or what
19 alternative we have decided to take. Okay.
20 And I just put a map in here, as you can
21 see, of some the counties surrounding A.P.G. There's

1 going to be impacts. We believe the largest impact is
2 going to be to Harford County, although we're not
3 saying it's not going to have significant impact to
4 others, but we know that Harford County will be
5 impacted. Okay.
6 And this is the Aberdeen area which is
7 going to be some of the impact here. Just to kind of
8 give you an idea of where you're at, this is the 715
9 gate going right out to Route 40, out this way. And
10 out here is the 22 gate going this direction.
11 The red areas -- there's a big one right
12 here you can see -- are areas that are going to be
13 possibly impacted. This area, this is the C4ISR,
14 that's several agencies from Fort Monmouth coming down,
15 should occupy this area. Okay.
16 And this is Edgewood area. Basically up in
17 here we have the Point Program Executive Office that
18 would be here, this area. One area that could be
19 impacted right here, not that we're moving anybody in
20 or doing any restoration, this is the Edgewood area,
21 the 4400 block. That is permanent World War I

1 facilities. We think it's the only one in the country.
2 So we have a historic district right here.
3 And right at the moment, Army Environmental
4 Command is occupying those buildings. They will be
5 eventually moving to Fort Sam Houston. And when that
6 happens, we're probably going to mothball those
7 buildings for now. Could occupy them depending on if
8 we need more space, that but that's what would happen.
9 If we do mothball them, try to keep them intact as much
10 as possible and everything. They could be a
11 significant to cultural -- okay.
12 And possible impacts -- the possible
13 significant impacts was, as I mentioned, to cultural
14 resources. That may be one. Other impacts we know
15 we're going to have: Natural resources, air, water,
16 because of increased population to A.P.G. Solid waste,
17 construction, sediment erosion. All that construction
18 -- we'll have changes in roads and buildings. Okay.
19 The next one is off-Post impacts. Possibly
20 significant impacts -- we know most of the impacts will
21 be to Harford County. That is not to say that Cecil

1 County, Baltimore County, or even could be into
2 Delaware is not -- could -- may have some significant
3 impact. But we know Harford County is going to be
4 impacted probably the most. Of course, infrastructure,
5 roads, transportation, and utilities needed will be an
6 impact to Harford County.
7 And socioeconomics, housing, you know,
8 medical services needed, and transportation. It could
9 be roads, more businesses and job opportunities should
10 be in the area, but also the need for more commercial
11 goods and services. So the whole realm of things that
12 could be impacted to local counties.
13 That's the end of the presentation. Again,
14 I just want to remind you that this is also for air
15 conformity determination. If you have any questions
16 about that, Mr. -- or Dr. Hazoor Khan is here, who is
17 the air specialist, and you can talk to him about that.
18 We also -- again, the 30th of April is the
19 public review period. Okay.
20 GEORGE MERCER: And with that, we open it
21 up for comments from the general public. Would anybody

1 like to come up make a comment? Would anybody like to
2 do that? Or you can just make them directly to the
3 recorder or mail them in. It's up to you. Anybody
4 interested in making comments?
5 RUTH ELLIOTT: I have a question.
6 GEORGE MERCER: Yes.
7 RUTH ELLIOTT: You talked about air and
8 commercial services and all of that. Oh, by the way,
9 I'm Ruth Elliott. I'm a council member of the City of
10 Aberdeen. Is BRAC in any way related to the use of the
11 -- the joint use of Phillips Army Airfield? Does that
12 have any relation to the -- the --
13 GEORGE MERCER: No. BRAC --
14 RUTH ELLIOTT: -- the BRAC project?
15 GEORGE MERCER: BRAC is an independent
16 action, and the restricted joint use proposal --
17 RUTH ELLIOTT: It doesn't have anything to
18 do with the --
19 GEORGE MERCER: They're not --
20 RUTH ELLIOTT: I was concerned when you
21 talk about the air --

1 GEORGE MERCER: Uh --
2 RUTH ELLIOTT: -- and environmental --
3 GEORGE MERCER: Obviously, the -- anything
4 -- any action that takes place with the Phillips Air
5 Field will have to go -- undergo all the same
6 procedures and studies and what have you, but they're
7 not a related -- they're not attached.
8 RUTH ELLIOTT: Not attached at all?
9 GEORGE MERCER: No, no.
10 Comments? Any or --
11 (Hand raised.)
12 GEORGE MERCER: Yes, sir?
13 KEN SHANNON: My name is Ken Shannon, and
14 this may be more of a question than a comment. But
15 when I look at the -- on the levels of service
16 described in the traffic section of the Draft E.I.S.,
17 I'm not sure I understand how these -- the assignment
18 of these grades for level of service are derived. And
19 there's particular roads that approach A.P.G. that
20 don't seem to be graded in a way that reflects what I
21 find to be the actual situation on those roads.

1 One in particular is Old Philadelphia Road
2 as it approaches Short Lane, and that's shown in here
3 as a C.L.V. of 1,000 or less, a level of service of A.
4 And I find that it's difficult to travel on that road
5 at this time before the -- the -- you know, before the
6 changes that BRAC is going to bring have taken place.
7 So, I guess that's my question and comment
8 is that the -- I'm not sure if they method used to
9 represent traffic flow on some of the roads that are
10 close to A.P.G. represents the actual circumstances
11 that are now encountered.
12 GEORGE MERCER: The comment is taken; it's
13 been recorded. And if necessary, after the meeting you
14 can talk to some of the folks back here and maybe they
15 can answer your question. If not, it will be addressed
16 as part of the process.
17 KEN SHANNON: Okay. Thank you.
18 GEORGE MERCER: Okay.
19 Other comments?
20 (No hands raised.)
21 GEORGE MERCER: Well, we're here, and I

1 encourage people if they do have comments either
2 tonight or afterwards to make them here. Please make
3 them to the recorder. Also, if you want to take -- I
4 encourage you to take the materials home. And if you
5 want to have comments sent in, please do that. There's
6 mailing instructions and information.
7 We -- the process itself demands that we
8 actually address those comments and concerns, and I
9 encourage people to take advantage of our subject
10 matter experts back here and interact with them. And
11 if you have specific questions, they will try to answer
12 what they can. If they can't, they will get back to
13 you. And I will remind you again that the comment
14 period ends April 30th.
15 And thank you all for coming, and it's
16 greatly appreciated.
17 (Presentation concluded at 7:17 p.m.)
18 (Verbal comment begins at 7:53 p.m.)
19 KEN SHANNON: My name is Ken Shannon, and
20 the comment that I'm making is in regard to
21 Section 4.11.1 which is Off-Post Roadways and Existing

1 Traffic Conditions. The Table on page 4-97 on Level of
2 Service Values at Selected Off-Post Intersections
3 didn't appear to reflect what I see as the actual
4 conditions currently existing.
5 One particular roadway that's familiar to
6 me on the northern peninsula is Short Lane, MD 715 at
7 Old Philadelphia Road is represented as existing
8 conditions of A. And I find that there's problems on
9 that road that aren't accounted for in the Draft E.I.S.
10 The -- after talking to some of the experts
11 who worked on this document, I understand that the
12 level of service represents the condition found at the
13 intersection. And the concern I have is that it
14 doesn't really represent what is happening
15 on Old Philadelphia Road in between the intersections
16 at Route 40 and Short Road. There are traffic problems
17 currently existing on that stretch of road that are of
18 a concern now and will be a concern as more traffic
19 comes into the 715 gate with the arrival of additional
20 people as part of BRAC.
21 I'm concluded.
(Verbal comment concluded at 7:57 p.m.)

1 State of Maryland
2 County of Harford, to wit:
3
4 I, Sandra A. Judd, a Notary Public of
5 the State of Maryland, County of Harford, do hereby
6 certify that the within-named proceedings took place
7 before me at the time and place herein set out.
8 I further certify that the proceedings
9 were recorded stenographically by me and this
10 transcript is a true record of the proceedings.
11 I further certify that I am not of
12 counsel to any of the parties, nor an employee of
13 counsel, no related to any of the parties, nor in
14 any way interested in the outcome of this action.
15 As witness my hand and notarial seal
16 this 25th day of April, 2007.
17
18 Sandra A. Judd
19 Sandra A. Judd
Notary Public
20 My Commission Expires:
21 August 1, 2009

1 INDEX

2 BRAC Public Meeting

3 April 11, 2007

4

5

6 Presentation by: Page

7 Bud Keesee 2

8

9 Comment by:

10 Ken Shannon 14

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12 (Exhibits -- None Marked)

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APPENDIX F

CULTURAL RESOURCES COORDINATION

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DEPARTMENT OF THE ARMY
U.S. ARMY GARRISON, ABERDEEN PROVING GROUND
2201 ABERDEEN BOULEVARD
ABERDEEN PROVING GROUND, MARYLAND 21005-5001

REPLY TO
ATTENTION OF

March 7, 2006

Directorate of Safety,
Health and Environment

Chairwoman Deborah Doxtator
Oneida Tribe of Wisconsin
P.O. Box 365
Oneida, Wisconsin 54155

Dear Madam:

The US Army, Aberdeen Proving Ground, write to continue consultation per the requirements of Federal law. Our current Cultural Resource Manager, Mr. Mark Gallihue, continues this consultation, originally coordinated by Mr. David Blick. Our historical research indicates that your tribal government may have an interest in consulting with this federal facility and we welcome your participation in that conversation.

Two documents are available that may interest you. These documents have been offered in the past. Due to possible changes in circumstances, we would like to offer them to you again. First, a report on previous consultations has been summarized in a report prepared by the Mandatory Center of Expertise for the Curation and Management of Archaeological Collections, US Army Corps of Engineers, St. Louis District. This document involved considerable research and is available should you indicate interest. In addition, we have prepared a Section V inventory report on remains in our custody per the Native American Graves Protection and Repatriation Act, (NAGPRA). Should you indicate an interest, we will provide you with a copy of this document.

Please contact our Cultural Resource Manager, Mr. Mark Gallihue, for any additional information that you may require in this matter. He can be reached at 410-278-6756, or email mark.gallihue@apg.army.mil. Thank you.

Sincerely,

Kenneth P. Stachiw

Kenneth P. Stachiw
Chief, Environmental Conservation
and Restoration Division

DEPARTMENT OF THE ARMY
U.S. ARMY GARRISON, ABERDEEN PROVING GROUND
2201 ABERDEEN BOULEVARD
ABERDEEN PROVING GROUND, MARYLAND 21005-5001

REPLY TO
ATTENTION OF

March 7, 2006

Directorate of Safety,
Health and Environment

Chief Irving Powless
Onondaga Nation of New York
P.O. Box 319B
Nedrow, New York 13120

Dear Sir:

The US Army, Aberdeen Proving Ground, write to continue consultation per the requirements of Federal law. Our current Cultural Resource Manager, Mr. Mark Gallihue, continues this consultation, originally coordinated by Mr. David Blick. Our historical research indicates that your tribal government may have an interest in consulting with this federal facility and we welcome your participation in that conversation.

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Sincerely,

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U.S. ARMY GARRISON, ABERDEEN PROVING GROUND
2201 ABERDEEN BOULEVARD
ABERDEEN PROVING GROUND, MARYLAND 21005-5001

REPLY TO
ATTENTION OF

March 7, 2006

Directorate of Safety,
Health and Environment

Chief Jerry Dilliner
Seneca-Cayuga Tribe of Oklahoma
P.O. Box 1283
Miami, Oklahoma 74355

Dear Sir:

The US Army, Aberdeen Proving Ground, write to continue consultation per the requirements of Federal law. Our current Cultural Resource Manager, Mr. Mark Gallihue, continues this consultation, originally coordinated by Mr. David Blick. Our historical research indicates that your tribal government may have an interest in consulting with this federal facility and we welcome your participation in that conversation.

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U.S. ARMY GARRISON, ABERDEEN PROVING GROUND
2201 ABERDEEN BOULEVARD
ABERDEEN PROVING GROUND, MARYLAND 21005-5001

REPLY TO
ATTENTION OF

March 7, 2006

Directorate of Safety,
Health and Environment

President Michael Schindler
Seneca Nation of New York
P.O. Box 231
Salamanca, New York 14779

Dear Sir:

The US Army, Aberdeen Proving Ground, write to continue consultation per the requirements of Federal law. Our current Cultural Resource Manager, Mr. Mark Gallihue, continues this consultation, originally coordinated by Mr. David Blick. Our historical research indicates that your tribal government may have an interest in consulting with this federal facility and we welcome your participation in that conversation.

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2201 ABERDEEN BOULEVARD
ABERDEEN PROVING GROUND, MARYLAND 21005-5001

REPLY TO
ATTENTION OF

March 7, 2006

Directorate of Safety,
Health and Environment

Chairman Emerson Webster
Tonawanda Band of Seneca Indians of New York
7027 Meadville Road
Basom, New York 14013

Dear Sir:

The US Army, Aberdeen Proving Ground, write to continue consultation per the requirements of Federal law. Our current Cultural Resource Manager, Mr. Mark Gallihue, continues this consultation, originally coordinated by Mr. David Blick. Our historical research indicates that your tribal government may have an interest in consulting with this federal facility and we welcome your participation in that conversation.

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U.S. ARMY GARRISON, ABERDEEN PROVING GROUND
2201 ABERDEEN BOULEVARD
ABERDEEN PROVING GROUND, MARYLAND 21005-5001

REPLY TO
ATTENTION OF

March 7, 2006

Directorate of Safety,
Health and Environment

Mr. Leo Henry, Chief
2006 Mt. Hope Road
Tuscarora Nation
Lewiston, New York 14092

Dear Sir:

The US Army, Aberdeen Proving Ground, write to continue consultation per the requirements of Federal law. Our current Cultural Resource Manager, Mr. Mark Gallihue, continues this consultation, originally coordinated by Mr. David Blick. Our historical research indicates that your tribal government may have an interest in consulting with this federal facility and we welcome your participation in that conversation.

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Chief, Environmental Conservation
and Restoration Division

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U.S. ARMY GARRISON, ABERDEEN PROVING GROUND
2201 ABERDEEN BOULEVARD
ABERDEEN PROVING GROUND, MARYLAND 21005-5001

REPLY TO
ATTENTION OF

March 7, 2006

Directorate of Safety,
Health and Environment

Ms. Alma Ransom, Ms. Hilda Smoke, and Mr. Paul Thompson
St. Regia Mohawk Tribe
412 State Route 37
Akwesasne, New York 13655

Dear Ms. Ransom, Ms. Smoke, and Mr. Thompson:

The US Army, Aberdeen Proving Ground, write to continue consultation per the requirements of Federal law. Our current Cultural Resource Manager, Mr. Mark Gallihue, continues this consultation, originally coordinated by Mr. David Blick. Our historical research indicates that your tribal government may have an interest in consulting with this federal facility and we welcome your participation in that conversation.

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U.S. ARMY GARRISON, ABERDEEN PROVING GROUND
2201 ABERDEEN BOULEVARD
ABERDEEN PROVING GROUND, MARYLAND 21005-5001

REPLY TO
ATTENTION OF

March 7, 2006

Directorate of Safety,
Health and Environment

Chief Dee Ketchum
Delaware Tribe of Indians, Oklahoma
108 S. Seneca
Bartlesville, Oklahoma 74003

Dear Madam:

The US Army, Aberdeen Proving Ground, write to continue consultation per the requirements of Federal law. Our current Cultural Resource Manager, Mr. Mark Gallihue, continues this consultation, originally coordinated by Mr. David Blick. Our historical research indicates that your tribal government may have an interest in consulting with this federal facility and we welcome your participation in that conversation.

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U.S. ARMY GARRISON, ABERDEEN PROVING GROUND
2201 ABERDEEN BOULEVARD
ABERDEEN PROVING GROUND, MARYLAND 21005-5001

REPLY TO
ATTENTION OF

March 7, 2006

Directorate of Safety,
Health and Environment

Mr. Neil Patterson Jr.
Tuscarora Environment Program
Tuscarora Nation
2045 Upper Mountain Road
Sanborn, New York 14132

Dear Sir:

The US Army, Aberdeen Proving Ground, write to continue consultation per the requirements of Federal law. Our current Cultural Resource Manager, Mr. Mark Gallihue, continues this consultation, originally coordinated by Mr. David Blick. Our historical research indicates that your tribal government may have an interest in consulting with this federal facility and we welcome your participation in that conversation.

Two documents are available that may interest you. These documents have been offered in the past. Due to possible changes in circumstances, we would like to offer them to you again. First, a report on previous consultations has been summarized in a report prepared by the Mandatory Center of Expertise for the Curation and Management of Archaeological Collections, US Army Corps of Engineers, St. Louis District. This document involved considerable research and is available should you indicate interest. In addition, we have prepared a Section V inventory report on remains in our custody per the Native American Graves Protection and Repatriation Act, (NAGPRA). Should you indicate an interest, we will provide you with a copy of this document.

Please contact our Cultural Resource Manager, Mr. Mark Gallihue, for any additional information that you may require in this matter. He can be reached at 410-278-6756, or email mark.gallihue@apg.army.mil. Thank you.

Sincerely,

Kenneth P. Stachiw

Kenneth P. Stachiw
Chief, Environmental Conservation
and Restoration Division

DEPARTMENT OF THE ARMY
U.S. ARMY GARRISON, ABERDEEN PROVING GROUND
2201 ABERDEEN BOULEVARD
ABERDEEN PROVING GROUND, MARYLAND 21005-5001

REPLY TO
ATTENTION OF

March 7, 2006

Directorate of Safety,
Health and Environment

Mr. Clint Halftown
Heron Clan Representative
Cayuga Nation, P.O. Box 11
Versailles, New York 14168

Dear Sir:

The US Army, Aberdeen Proving Ground, write to continue consultation per the requirements of Federal law. Our current Cultural Resource Manager, Mr. Mark Gallihue, continues this consultation, originally coordinated by Mr. David Blick. Our historical research indicates that your tribal government may have an interest in consulting with this federal facility and we welcome your participation in that conversation.

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Kenneth P. Stachiw
Chief, Environmental Conservation
and Restoration Division

DEPARTMENT OF THE ARMY
U.S. ARMY GARRISON, ABERDEEN PROVING GROUND
2201 ABERDEEN BOULEVARD
ABERDEEN PROVING GROUND, MARYLAND 21005-5001

REPLY TO
ATTENTION OF

March 7, 2006

Directorate of Safety,
Health and Environment

President Lawrence F. Snake
Delaware Tribe of Western Oklahoma
P. O. Box 825
Anadarko, Oklahoma 73005

Dear Sir:

The US Army, Aberdeen Proving Ground, write to continue consultation per the requirements of Federal law. Our current Cultural Resource Manager, Mr. Mark Gallihue, continues this consultation, originally coordinated by Mr. David Blick. Our historical research indicates that your tribal government may have an interest in consulting with this federal facility and we welcome your participation in that conversation.

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Sincerely,

Kenneth P. Stachiw

Kenneth P. Stachiw
Chief, Environmental Conservation
and Restoration Division

DEPARTMENT OF THE ARMY
U.S. ARMY GARRISON, ABERDEEN PROVING GROUND
2201 ABERDEEN BOULEVARD
ABERDEEN PROVING GROUND, MARYLAND 21005-5001

REPLY TO
ATTENTION OF

March 7, 2006

Directorate of Safety,
Health and Environment

Mr. Raymond Halbritter
Oneida Nations of New York
223 Genessee Street
Oneida, New York 13421

Dear Sir:

The US Army, Aberdeen Proving Ground, write to continue consultation per the requirements of Federal law. Our current Cultural Resource Manager, Mr. Mark Gallihue, continues this consultation, originally coordinated by Mr. David Blick. Our historical research indicates that your tribal government may have an interest in consulting with this federal facility and we welcome your participation in that conversation.

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Please contact our Cultural Resource Manager, Mr. Mark Gallihue, for any additional information that you may require in this matter. He can be reached at 410-278-6756, or email mark.gallihue@apg.army.mil. Thank you.

Sincerely,

Kenneth P. Stachiw

Kenneth P. Stachiw
Chief, Environmental Conservation
and Restoration Division

Ltr to Chief Larry Brooks

DEPARTMENT OF THE ARMY
US ARMY GARRISON ABERDEEN PROVING GROUND
2201 ABERDEEN BOULEVARD
ABERDEEN PROVING GROUND, MD 21005-5001

REPLY TO
ATTENTION OF

September 12, 2006

Directorate of Safety,
Health and Environment

Mr. Larry Joe Brooks, Chief
Delaware Tribe
220 NW Virginia
Bartlesville, Oklahoma 74003

Dear Chief Brooks,

The US Army, Aberdeen Proving Ground, wishes to continue consultation with you, per the requirements of Federal law. Our current Cultural Resource Manager, Mr. Mark Gallihue, continues this consultation, originally coordinated by Mr. David Blick. Our historical research indicates that your tribal government may have an interest in consulting with this federal facility and we welcome your participation in that conversation.

Two documents are available that may interest you. These documents have been offered in the past. Due to possible changes in circumstances, we would like to offer them to you again. First, a report on previous consultations has been summarized in a report prepared by the Mandatory Center of Expertise for the Curation and Management of Archaeological collections, US Army Corps of Engineers, St. Louis District. This document involved considerable research and is available should you indicate interest. In addition, we have prepared a Section V inventory report on remains in our custody per the Native American Graves Protection and Repatriation Act, (NAGPRA). Should you indicate an interest, we will provide you with a copy of this document.

Please contact our Acting Cultural Resource Manager, Ms. Ruth Golding, for any additional information that you may require in this matter. She can be reached at 410-436-2651, or email ruth.golding@apg.army.mil. Thank you.

Sincerely,

Kenneth P. Stachiw

Kenneth P. Stachiw
Chief, Environmental Conservation
and Restoration Division

106 LTR BRAC EIS

DEPARTMENT OF THE ARMY
US ARMY INSTALLATION MANAGEMENT COMMAND
US ARMY GARRISON ABERDEEN PROVING GROUND
2201 ABERDEEN BOULEVARD
ABERDEEN PROVING GROUND MARYLAND 21005-5001

REPLY TO
ATTENTION OF

April 5, 2007

Directorate of Safety, Health
and Environment

Ms. Elizabeth J. Cole
Administrator, Project Review/Compliance
State Historic Preservation Office
Maryland Historical Trust
100 Community Place
Crownsville, MD 21032-2023

Dear Ms. Cole,

This letter is in reference to the Environmental Impact Statement (EIS) for the Department of the Army Base Realignment and Closure (BRAC) activities at Aberdeen Proving Ground (APG), Maryland.

The Mobile District Corps of Engineers is preparing the EIS for the realignment of certain Department of Defense activities to APG. Your office was contacted during the public scoping process via a June 2006 letter in order to initiate the consultation on historic resources (State Clearinghouse No. MD20060621-0661). Thank you for your letter dated July 19, 2006 (see enclosure) which included your preliminary comments as well as your acknowledgement of the initiation of the Section 106 process with your office.

The draft EIS was released for public comment on March 16, 2007 (State Clearinghouse No. MD20070321-0224). In accordance with the 2000 revised regulations, 36 CFR 800.8(c), this draft EIS will serve as the Determination of Effect for cultural resources under Section 106 of the National Historic Preservation Act. We look forward to working through the Section 106 process with you.

Feel free to address any questions or comments to our point of contact, Ms. Ruth Golding, P.E., Environmental Conservation and Restoration Division, 410-436-2651, ruth.golding@usag.apg.army.mil. Thank you for your assistance in this matter.

Sincerely,

Kenneth P. Stachiw
Chief, Environmental Conservation
and Restoration Division

Enclosure

Maryland Department of Planning
Maryland Historical Trust

Robert L. Ehrlich, Jr.
Governor

Michael S. Steele
Lt. Governor

Audrey E. Scott
Secretary

Florence B. Burian
Deputy Secretary

July 19, 2006

Mr. Bud Keesee, Project Manager
Department of the Army
Commander USAG-APG
Directorate of Safety, Health, and Environment
ATTN: IMNE-APG-SHA-R (Bud Keesee) Building 5650
Aberdeen Proving Ground, MD 21005-5001

Re: Request for scoping comments – EIS for Department of the Army Base Realignment and Closure (BRAC) 2005 Actions and Lauderick Creek EUL at Aberdeen Proving Ground, Harford County, Maryland
State Clearinghouse No. MD20060621-0661

Dear Mr. Keesee:

Thank you for your recent letter, dated 20 June 2006 and received by the Maryland Historical Trust (Trust) on 22 June 2006 informing our agency of the above-referenced action and requesting scoping comments on the undertaking. We also received notification of the proposed action through the Maryland State Clearinghouse for Intergovernmental Assistance. The Trust, as Maryland's State Historic Preservation Office, will be reviewing the proposed undertaking for effects on historic properties, pursuant to Section 106 of the National Historic Preservation Act of 1966, as amended, and its implementing regulations 36 CFR Part 800. We offer the following preliminary comments.

The proposed EIS will address consequences resulting from implementing the various BRAC 2005 realignment activities at Aberdeen Proving Ground and development of the Lauderick Creek Enhanced Use Lease (EUL). Aberdeen Proving Ground contains numerous known historic properties (including buildings, structures, districts, and archeological sites) eligible for inclusion in the National Register of Historic Places, and undoubtedly includes additional properties that have not yet been identified. As part of planning for the BRAC 2005 activities and Lauderick Creek EUL, the Army must consider and address the effects of the actions on historic properties and fulfill compliance with Section 106 in consultation with the Trust. The EIS should include a thorough description and evaluation of potential impacts to historic and archeological properties resulting from the proposed action and a discussion of the Section 106 process. We look forward to further consultation with the Army, and other relevant parties, to successfully complete the Section 106 review of this important initiative at Aberdeen Proving Ground as project planning proceeds.

If you have questions or require further assistance, please contact Beth Cole of my staff at 410-514-7631 or bcole@mdp.state.md.us. Thank you for providing this opportunity to present early comments.

Sincerely,

J. Rodney Little
Director/State Historic Preservation Officer

JRL:EJC/200602070
cc: Kenneth Stachiw (Army APG)
Bob Rosenbush (MDP)

Enclosure 1

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APPENDIX G

TRANSPORTATION RESOURCES

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This Appendix contains detailed information on traffic data, traffic volume, and intersection turning movements that were used to prepare the Transportation Section in the APG EIS.

The following off-post intersections on the Northern Peninsula were evaluated for this EIS.

Aberdeen Throughway (MD 22) at Beards Hill Road (MD 132A)

Aberdeen Throughway (MD 22) at Paradise Road (MD 462)

Aberdeen Throughway (MD 22) at US 40

Aberdeen Throughway (MD 22) at Post Road

W. Bel Air Ave (MD 132) at Beards Hill Road (MD 132A)

W. Bel Air Ave (MD 132) at Paradise Road (MD 462)

W. Bel Air Ave (MD 132) at US 40

Short Lane (Maryland Boulevard) (MD 715) at Old Philadelphia Road

The following off-post intersections on the Southern Peninsula were evaluated for this EIS.

Edgewood Road (MD 755) at Philadelphia Road (MD 7)

Edgewood Road (MD 755) at US 40

Edgewood Road (MD 755) at Emmorton Road (MD 24)

Edgewood Road (MD 755) at Hanson Road

Edgewood Road (MD 755) at Willoughby Beach Road

Emmorton Road (MD 24) at Philadelphia Road (MD 7)

Emmorton Road (MD 24) at Otter Creek Road

Emmorton Road (MD 24) at Hanson Road

Emmorton Road (MD 24) at Trimble Road

Figure G-1 shows the AM and PM peak hour volumes on routes with direct access to APG's three security gates on the Northern Peninsula. The *Draft Planning Study* assumed that the Aberdeen gate would be more accessible since it represents the best scenario for reducing the potential impact resulting from the Proposed Action. The AM Peak traffic volumes were noted at the Harford and Maryland Road gates.

Figure G-2 shows AM and PM peak existing LOS calculations for the off-post intersections providing access to APG's Northern Peninsula.

Figure G-3 shows the AM and PM peak hour volumes on off-post routes with direct access to APG's Southern Peninsula's two security gates. The Magnolia Road security gate was not included because of limited access to public traffic.

Figure G-4 shows AM and PM peak existing LOS calculations for the off-post intersections providing access to APG's Southern Peninsula.

Figure G-5 shows the AM and PM peak hour volumes for on-post routes on the Northern Peninsula.

Figure G-6 shows AM and PM peak existing LOS calculations for the on-post intersections on the Northern Peninsula.

Figure G-7 shows the AM and PM peak hour volumes for on-post routes on the Southern Peninsula.

Figure G-8 shows AM and PM peak existing LOS calculations for the on-post intersections on the Southern Peninsula.

Figure G-9 shows the predicted AM and PM peak hour vehicle trips for on-post routes on the Northern Peninsula.

These projected trips and their distribution are shown in Figure G-9. As noted on Figure G-9, it was assumed that the main entrance for the New Campus was on Boothby Hill Avenue opposite Darlington Street and that a new signal would be installed at this location.

Figure G-10 shows the predicted AM and PM peak hour volume for on-post routes on the Northern Peninsula.

Figure G-11 shows the predicted AM and PM peak hour LOS for on-post routes on the Northern Peninsula.

Figure G-10 shows the additional trips added to the on-post roadway network from the Proposed Action, and Figure G-11 shows the resulting on-post LOS. The PM Peak LOS at the on-post signalized intersections are generally LOS D, indicating intersections have a high density, though stable, traffic flow.

Figure G-12 shows the predicted AM and PM peak hour vehicle trips for off-post routes on the Northern Peninsula.

Figure G-13 shows the AM and PM peak hour volumes for off-post routes on the Northern Peninsula.

Figure G-14 shows the predicted AM and PM peak LOS for off-post routes on the Northern Peninsula.

Figure G-12 shows the new off-post trips generated by the Proposed Action: Figure G-13 shows the corresponding new traffic volume (existing plus Proposed Action traffic), and Figure G-14 provides the resulting levels of service for off-post intersections in APG's Northern Peninsula.

Figure G-15 shows the predicted AM and PM peak hour vehicle trips for off-post routes on the Southern Peninsula.

Figure G-16 shows the predicted AM and PM peak hour volumes for off-post routes on the Southern Peninsula.

Figure G-17 shows the predicted AM and PM peak LOS for off-post routes on the Southern Peninsula.

Figure G-15 shows the additional trips added to the roadway network, and Figure G-16 shows the resulting new traffic volume of baseline flow plus the new volume. These results were calculated by using the trip generation rate and the following gate access patterns (USACE Baltimore District 2006). Figure G-17 shows the resulting level of service for off-post intersections in APG's Southern Peninsula.

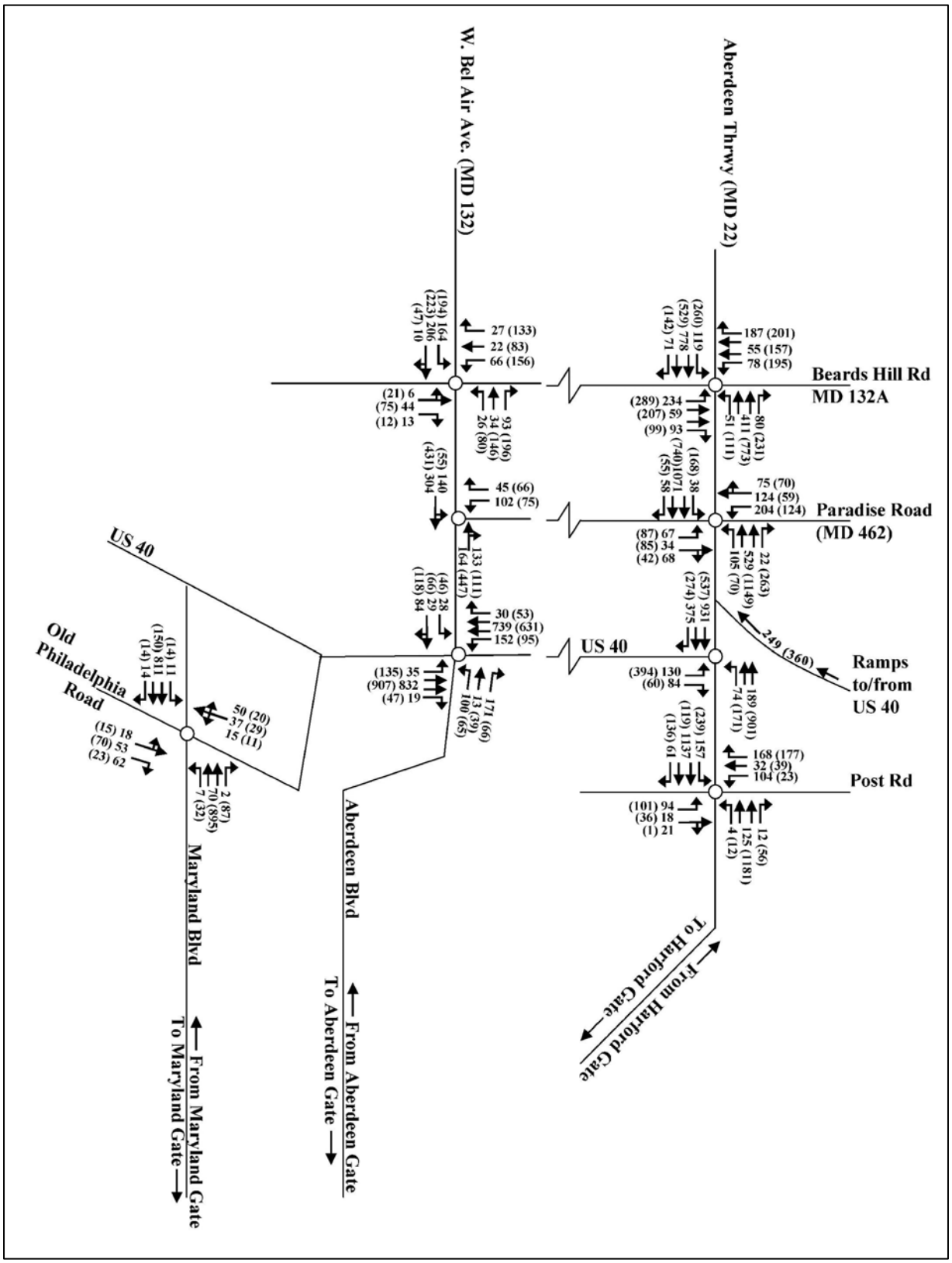


Figure G-1 Northern Peninsula – Existing Conditions off Post – AM(PM) Peak Hour Traffic Volume

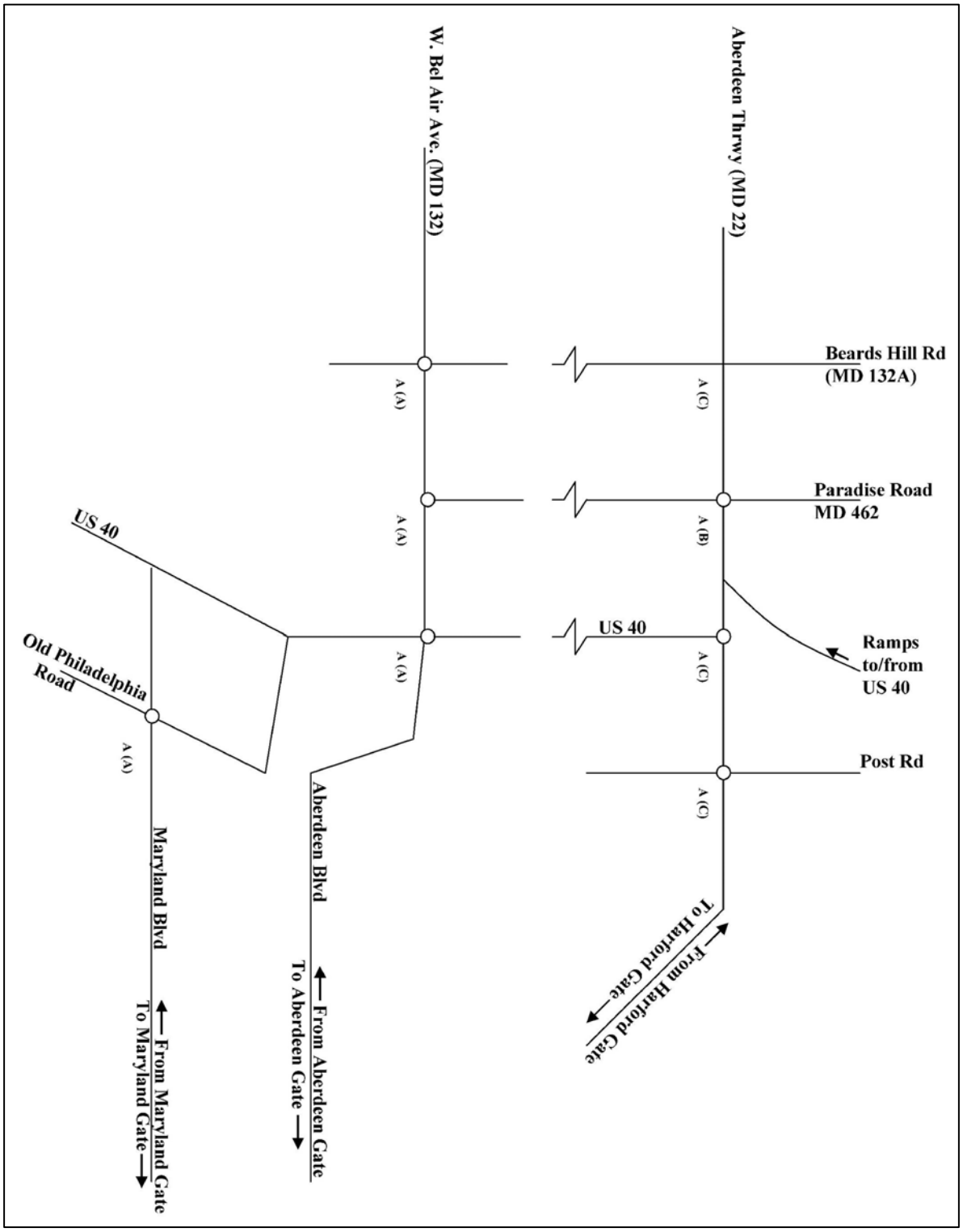


Figure G-2 Northern Peninsula – Existing Conditions off Post – AM(PM) Peak Hour Level of Service

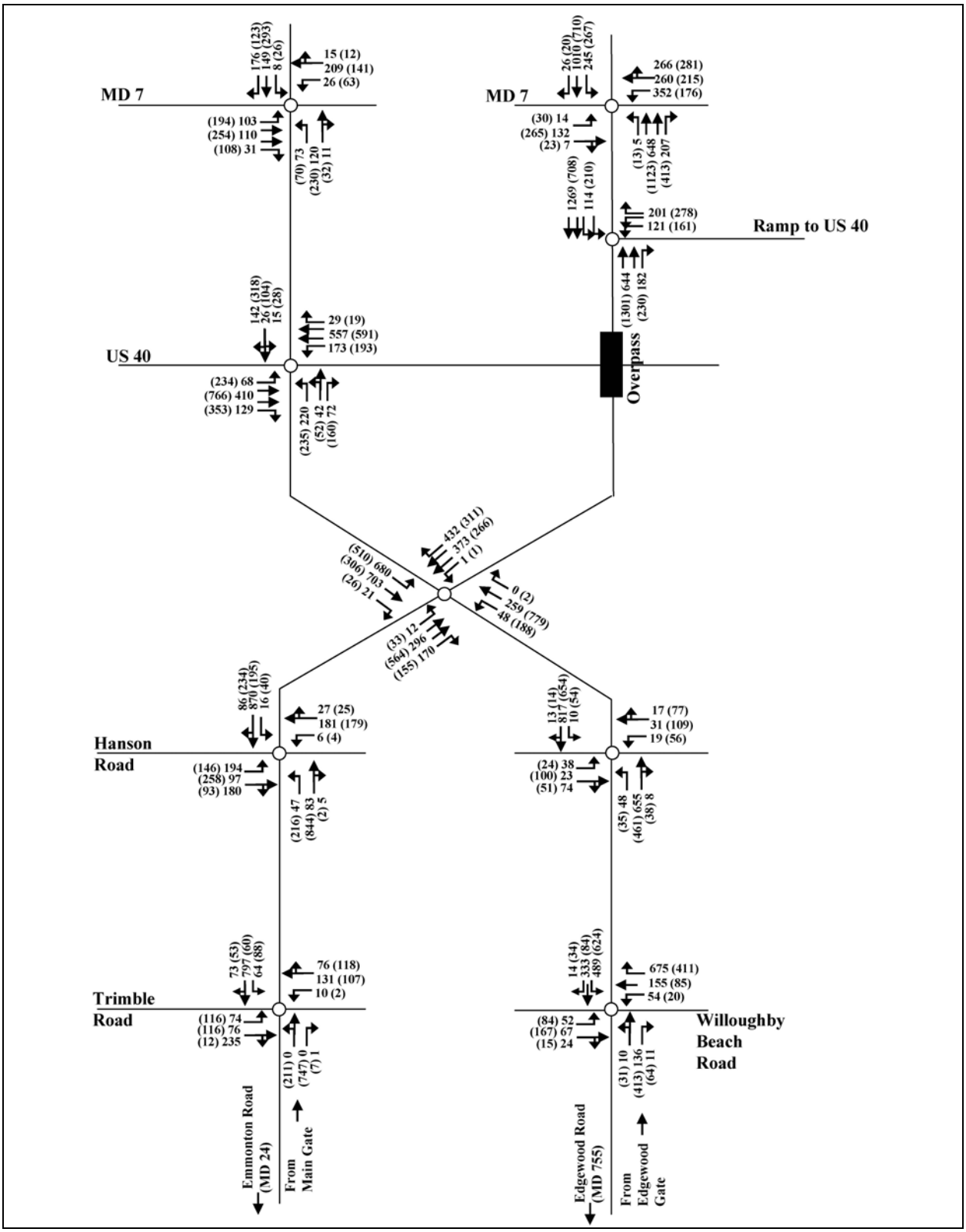


Figure G-3 Southern Peninsula – Existing Conditions off Post – AM(PM) Peak Hour Traffic Volume

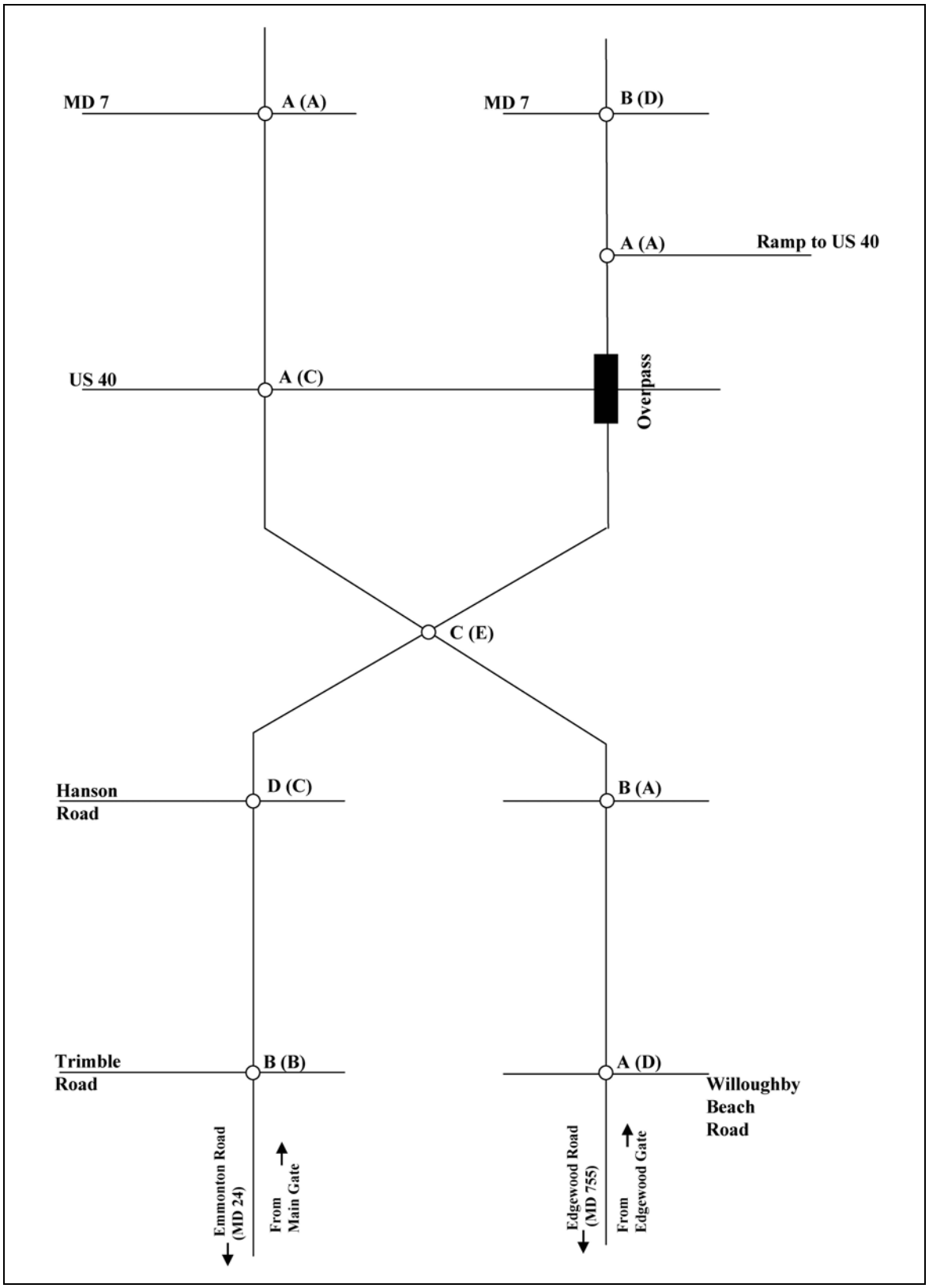


Figure G-4 Southern Peninsula – Existing Conditions off Post – AM(PM) Peak Hour Level of Service

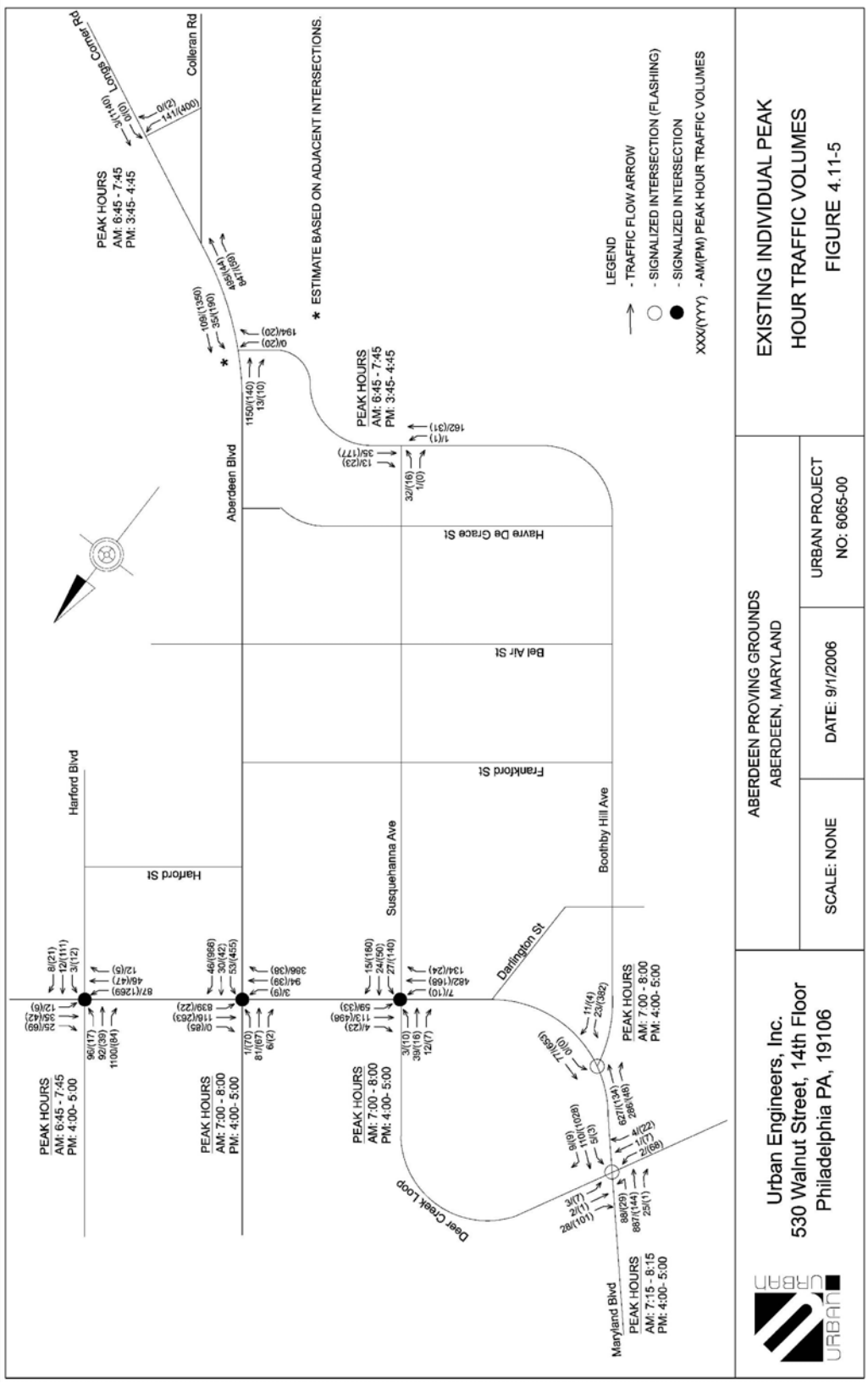


Figure G-5 Northern Peninsula – Existing Conditions on Post – AM(PM) Peak Hour Traffic Volume

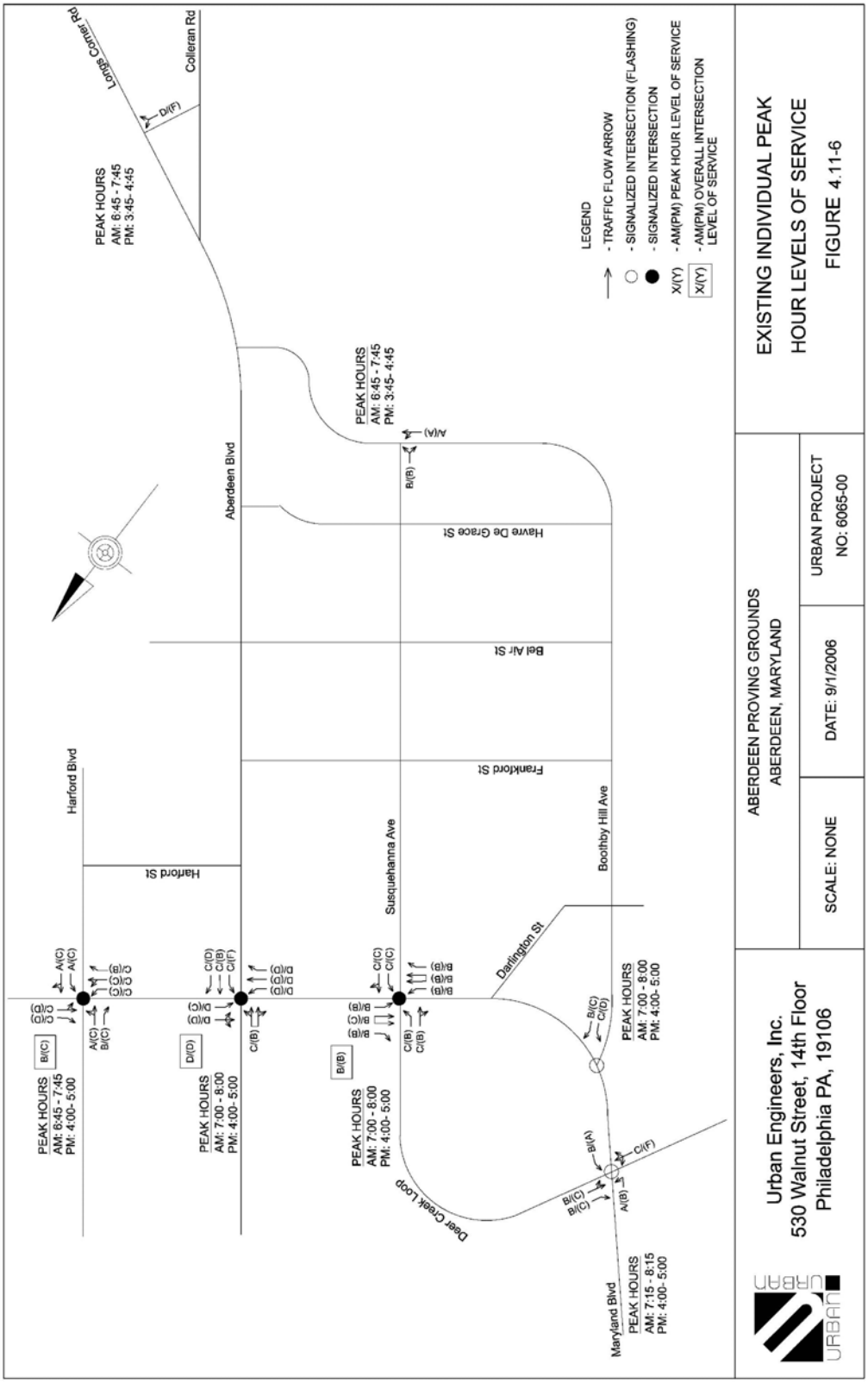


Figure G-6 Northern Peninsula – Existing Conditions on Post – AM(PM) Peak Hour Level of Service

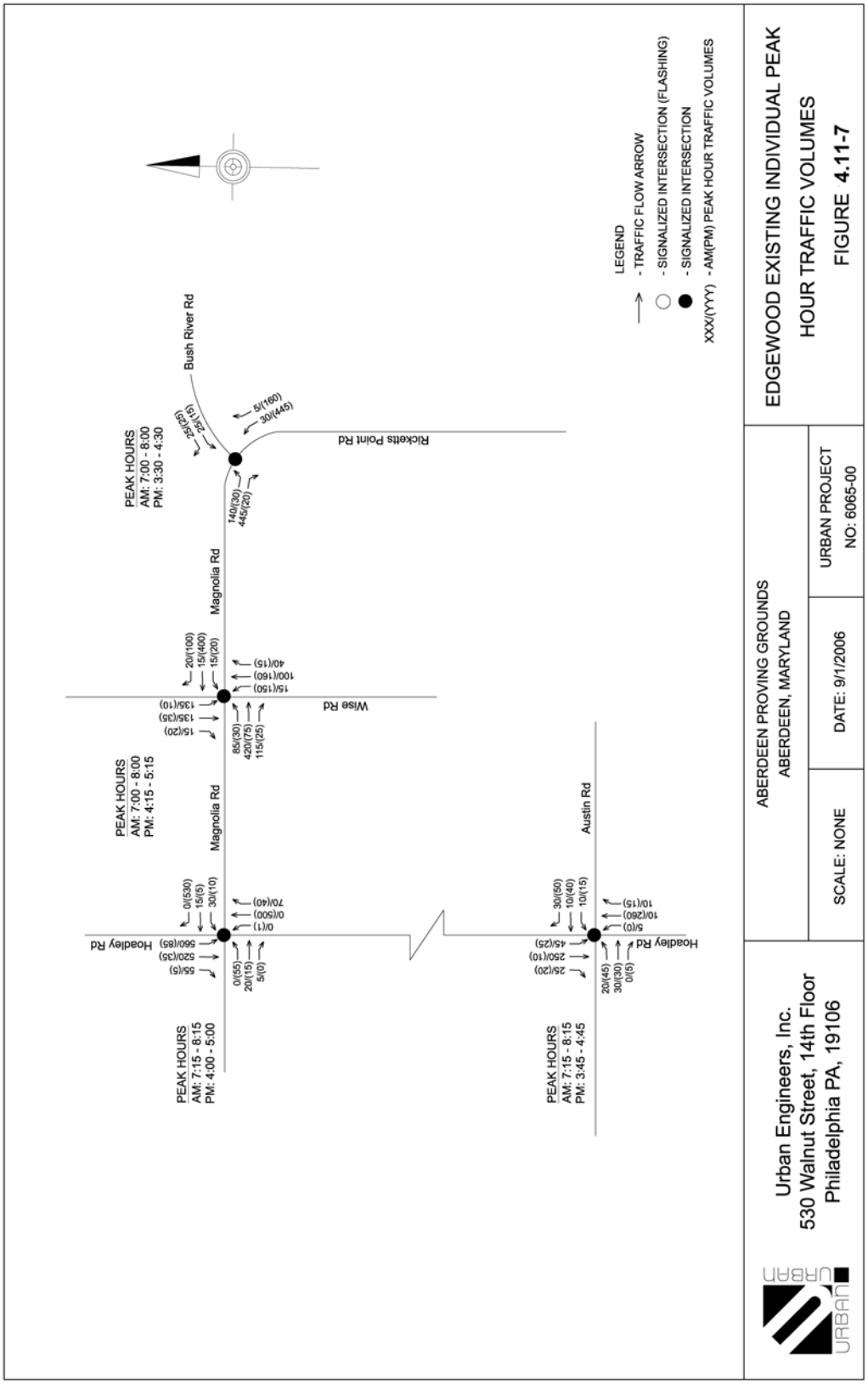
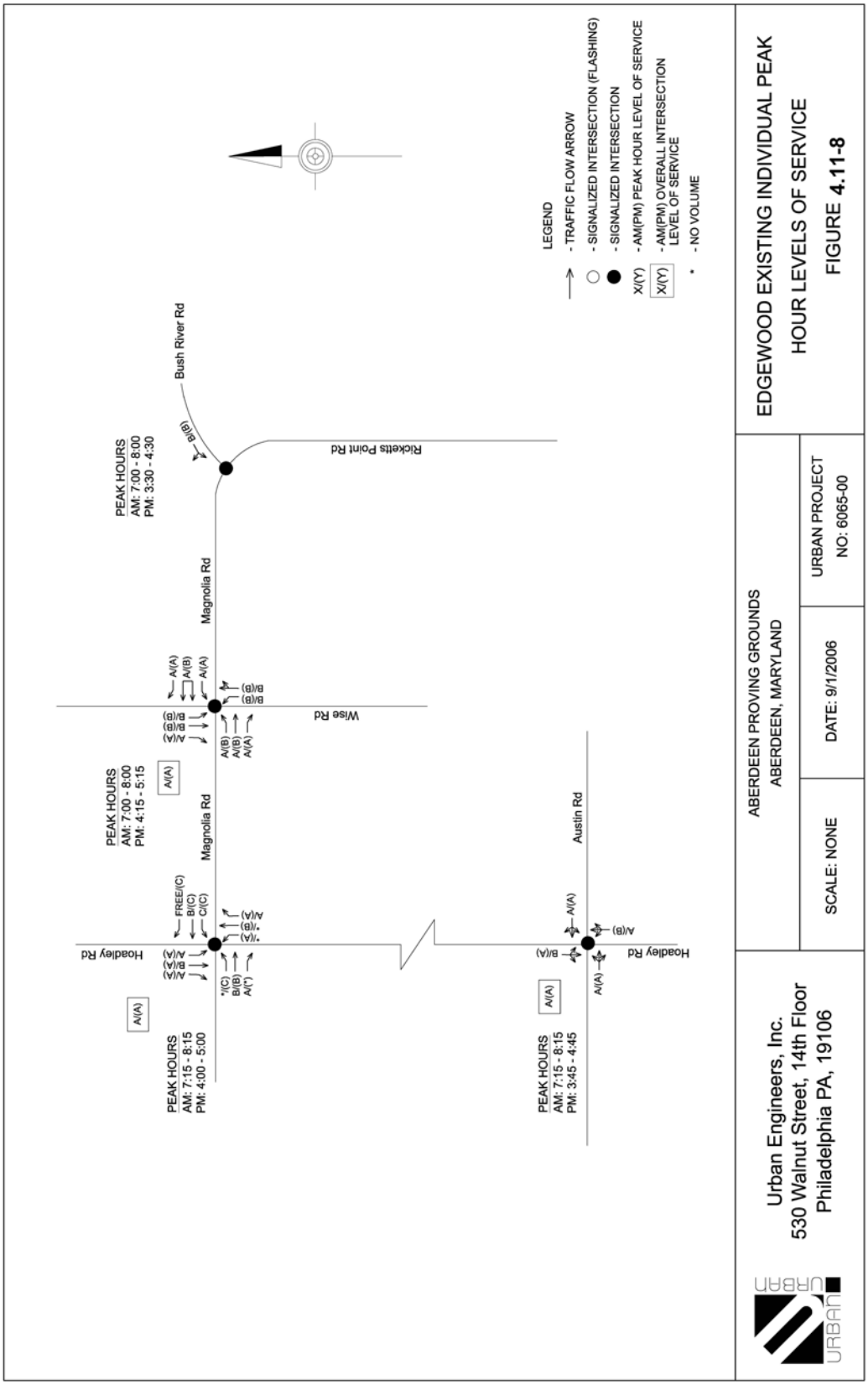


Figure G-7 Southern Peninsula – Existing Conditions on Post – AM(PM) Peak Hour Traffic Volume


LEGEND
- TRAFFIC FLOW ARROW
- SIGNALIZED INTERSECTION (FLASHING)
- SIGNALIZED INTERSECTION
X/(Y) - AM(PM) PEAK HOUR LEVEL OF SERVICE
X/(Y) - AM(PM) OVERALL INTERSECTION LEVEL OF SERVICE
* - NO VOLUME
Bush River Rd
Ricketts Point Rd
Magnolia Rd
Wise Rd
Austin Rd
Hoadley Rd
PEAK HOURS
AM: 7:00 - 8:00
PM: 3:30 - 4:30
PEAK HOURS
AM: 7:00 - 8:00
PM: 4:15 - 5:15
PEAK HOURS
AM: 7:15 - 8:15
PM: 4:00 - 5:00
PEAK HOURS
AM: 7:15 - 8:15
PM: 3:45 - 4:45
A/(A)
B/(B)
B/(B)
A/(A)
A/(A)
A/(B)
A/(A)
A/(A)
A/(A

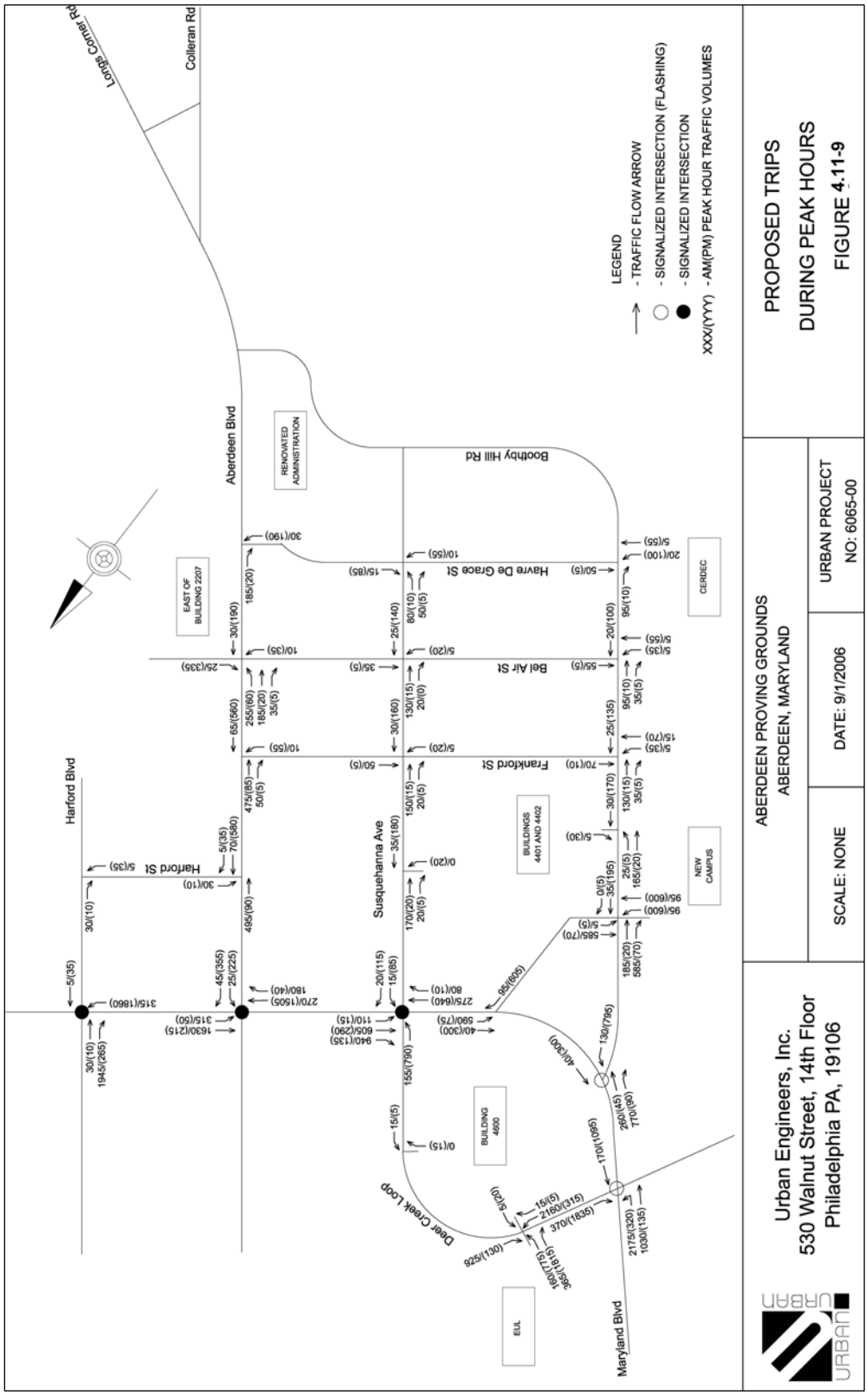


Figure G-9 Northern Peninsula – Predicted New Trips On Post – AM(PM) Peak Hour

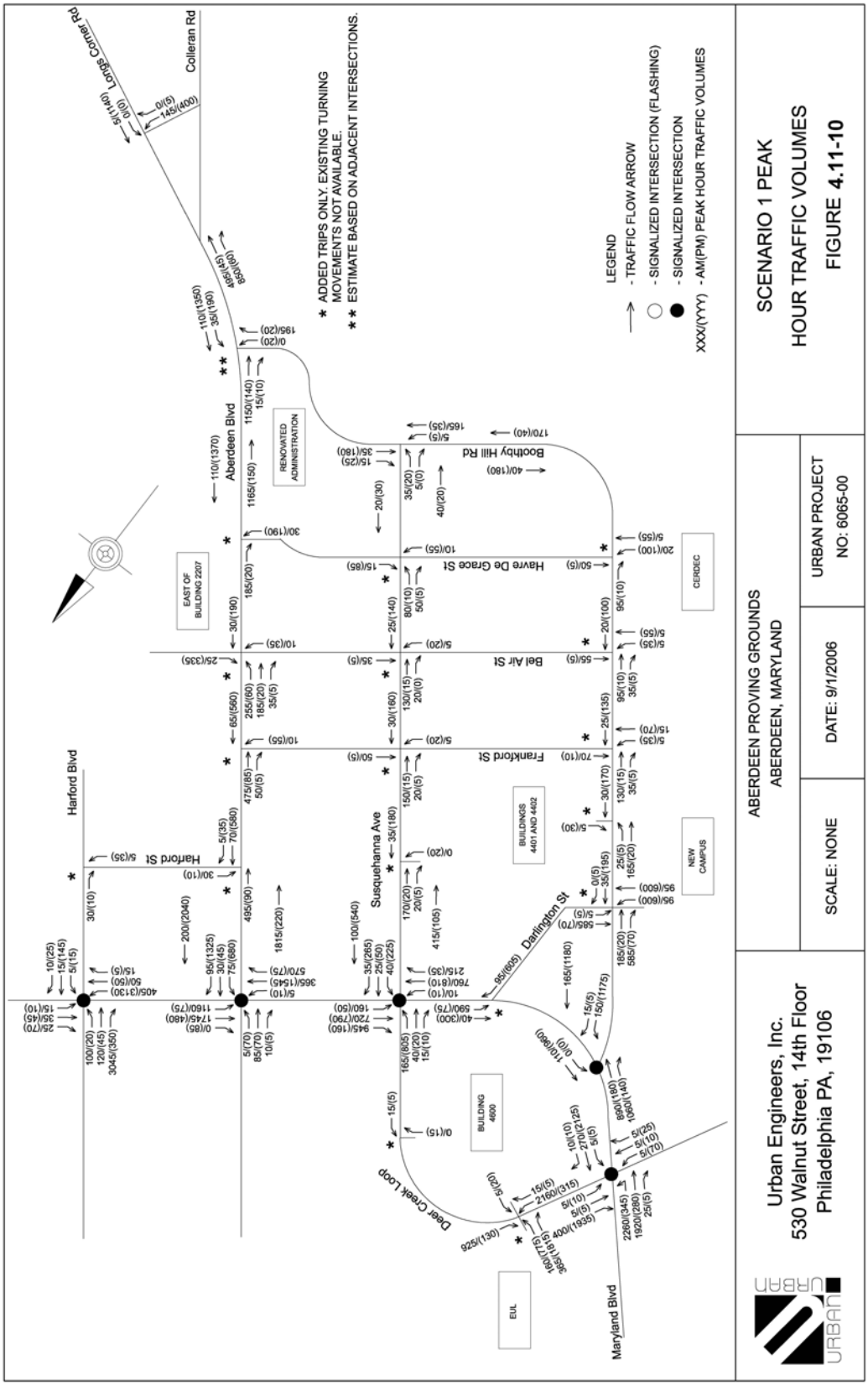


Figure G-10 Northern Peninsula – Predicted On Post – AM(PM) Peak Hour Traffic Volume

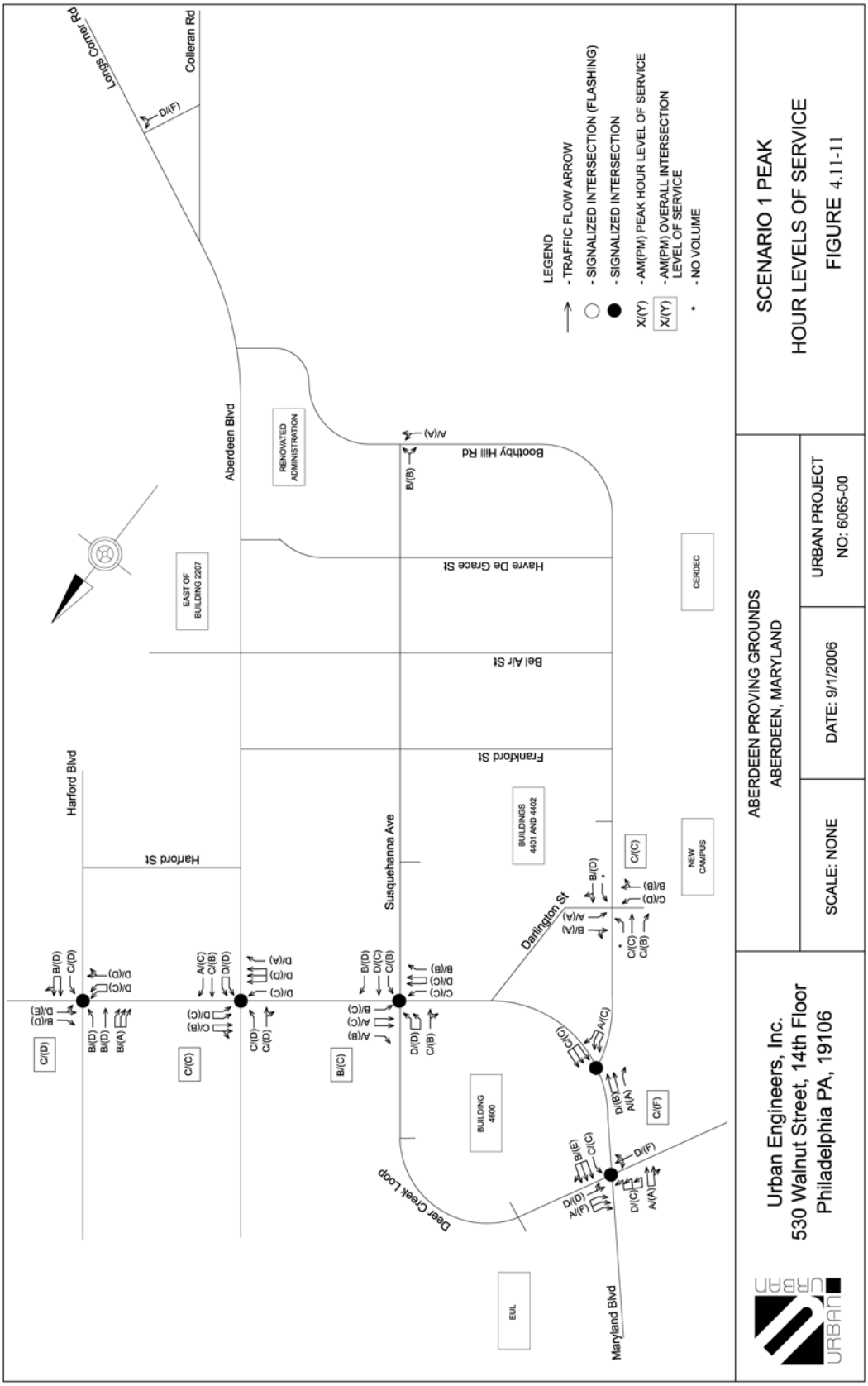


Figure G-11 Northern Peninsula – Predicted On Post – AM(PM) Peak Level of Service

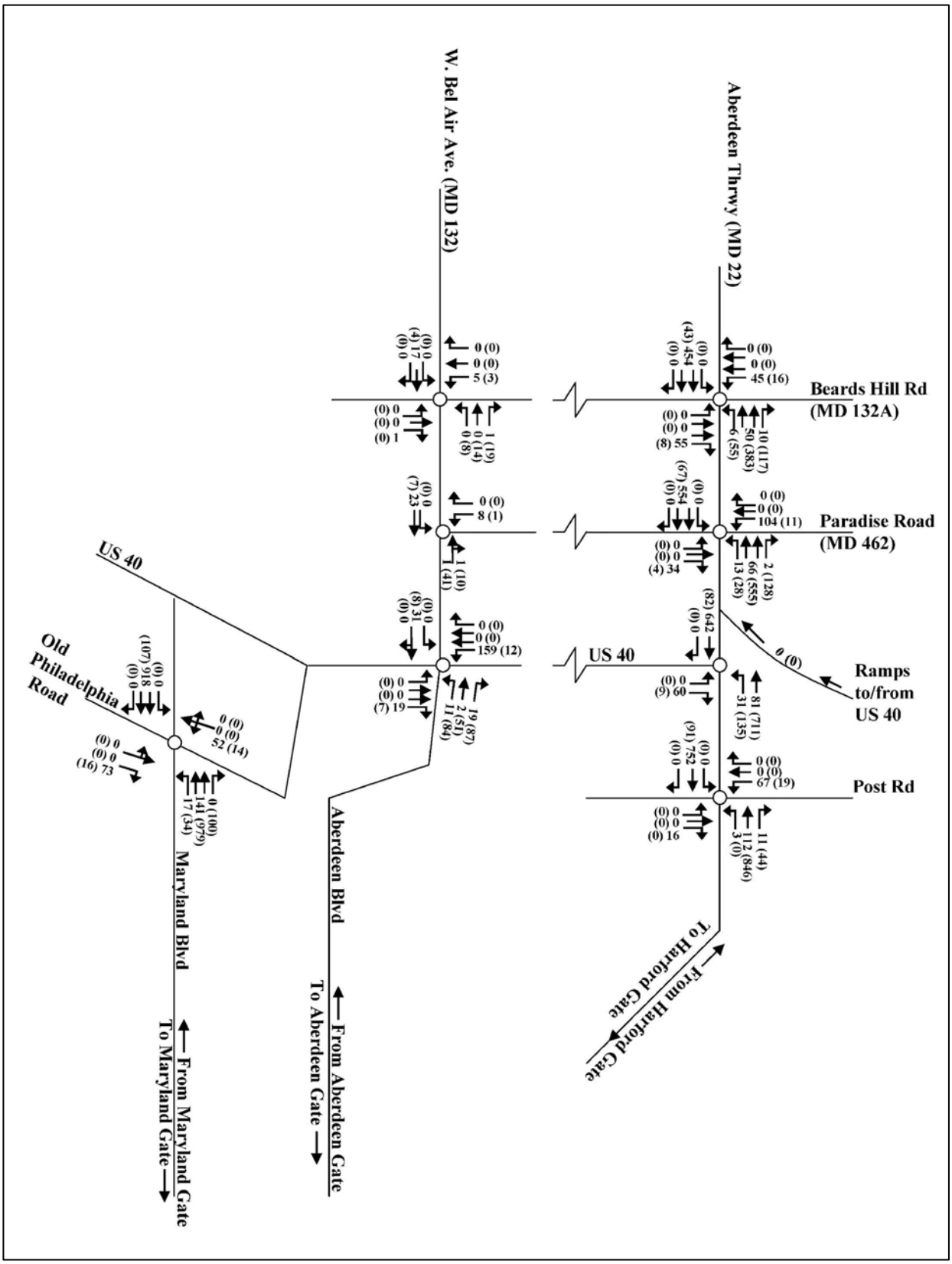


Figure G-12 Northern Peninsula – Predicted New Trips Off Post – AM(PM) Peak

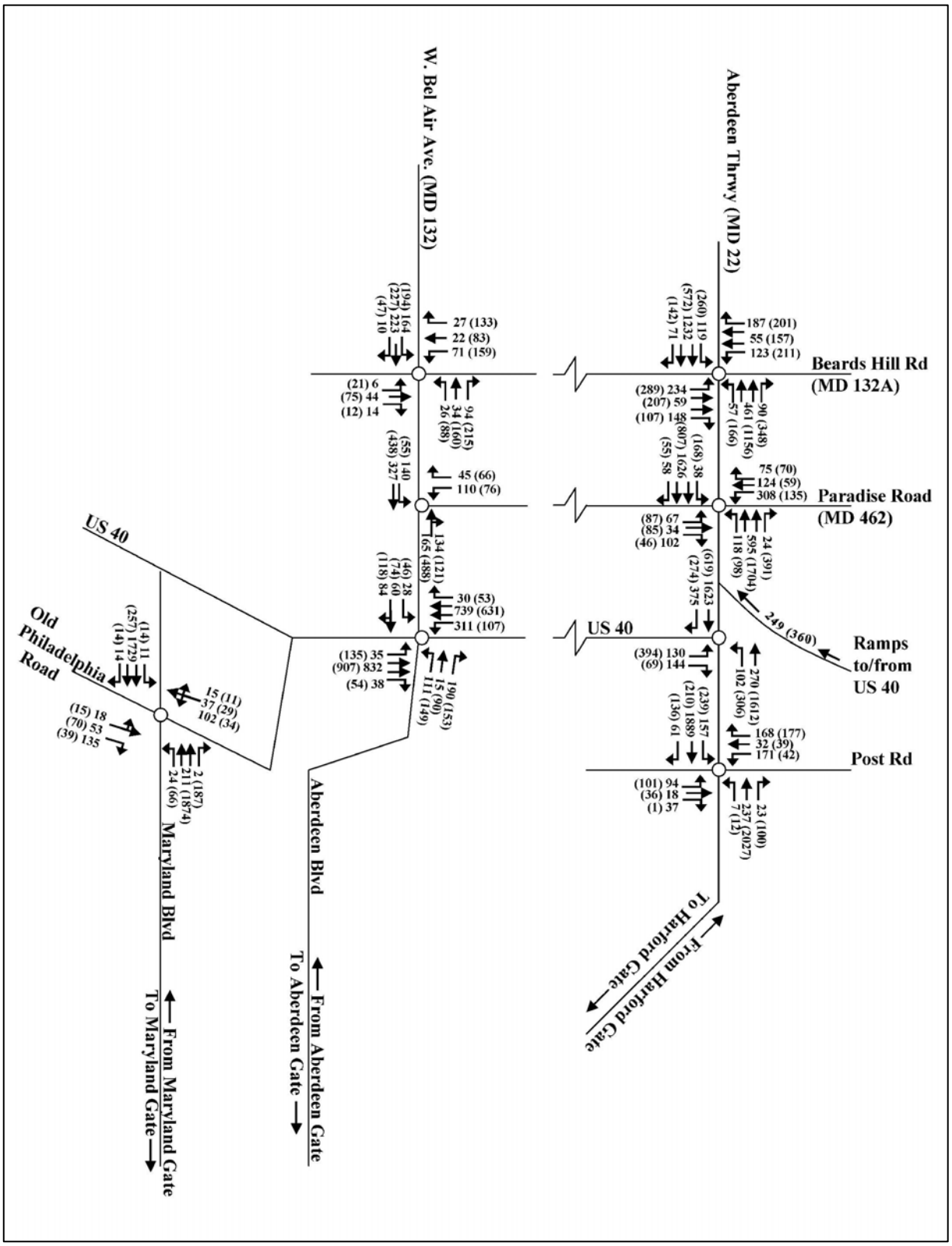


Figure G-13 Northern Peninsula – Predicted Off Post – AM(PM) Peak Hour Traffic Volume

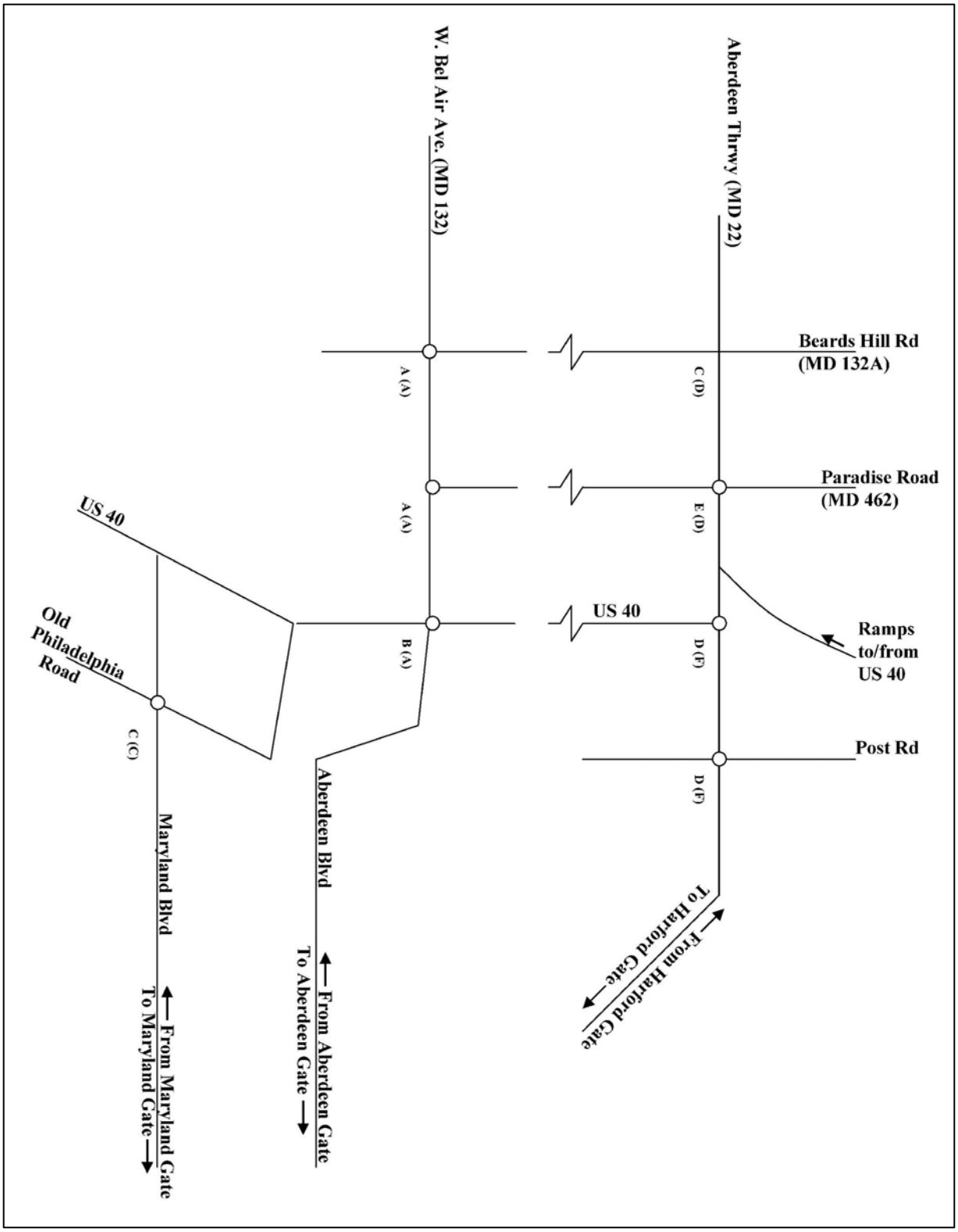


Figure G-14 Northern Peninsula – Predicted Off Post – AM(PM) Peak Level of Service

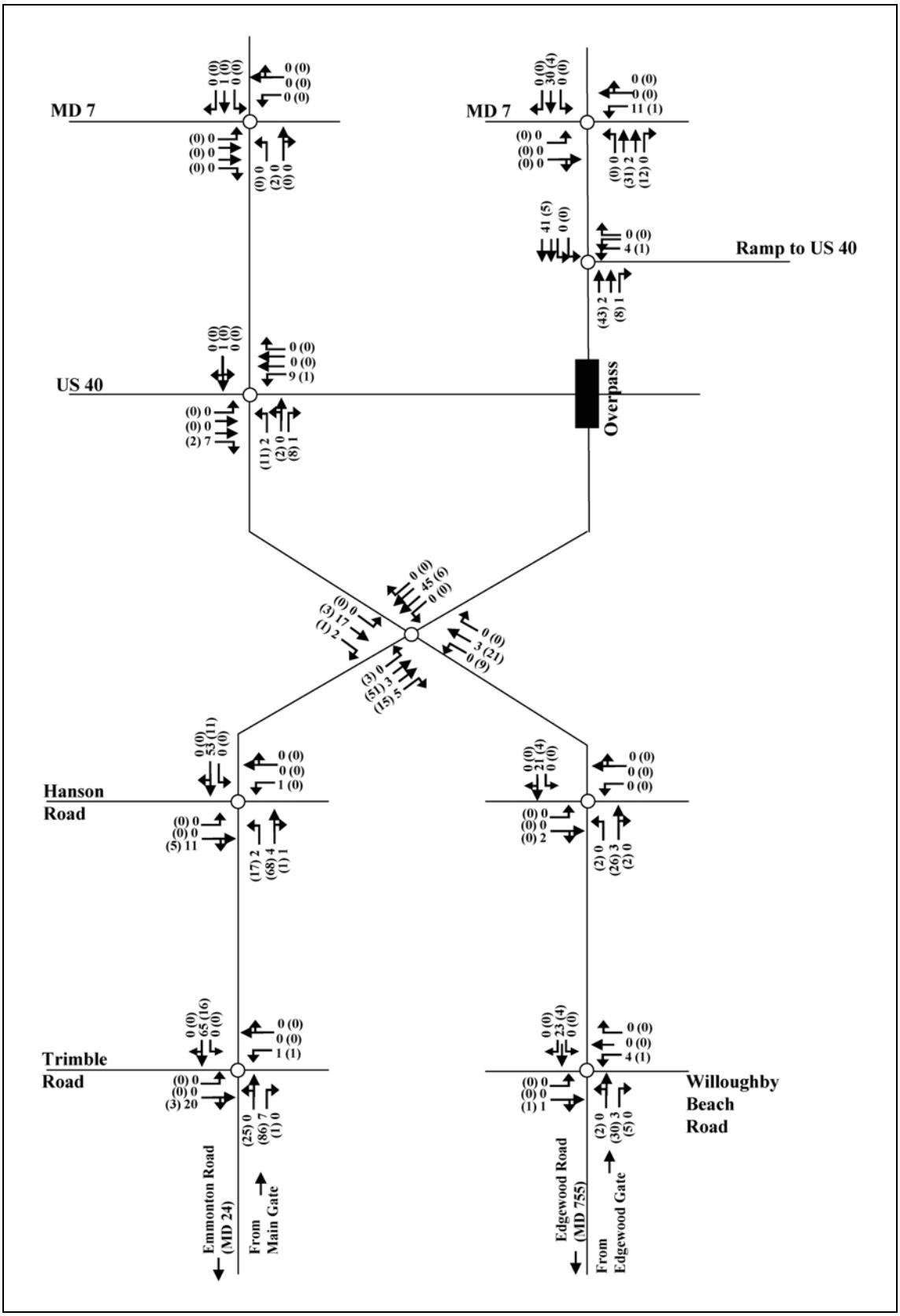


Figure G-15 Southern Peninsula – Predicted New Trips Off Post – AM(PM) Peak Hour

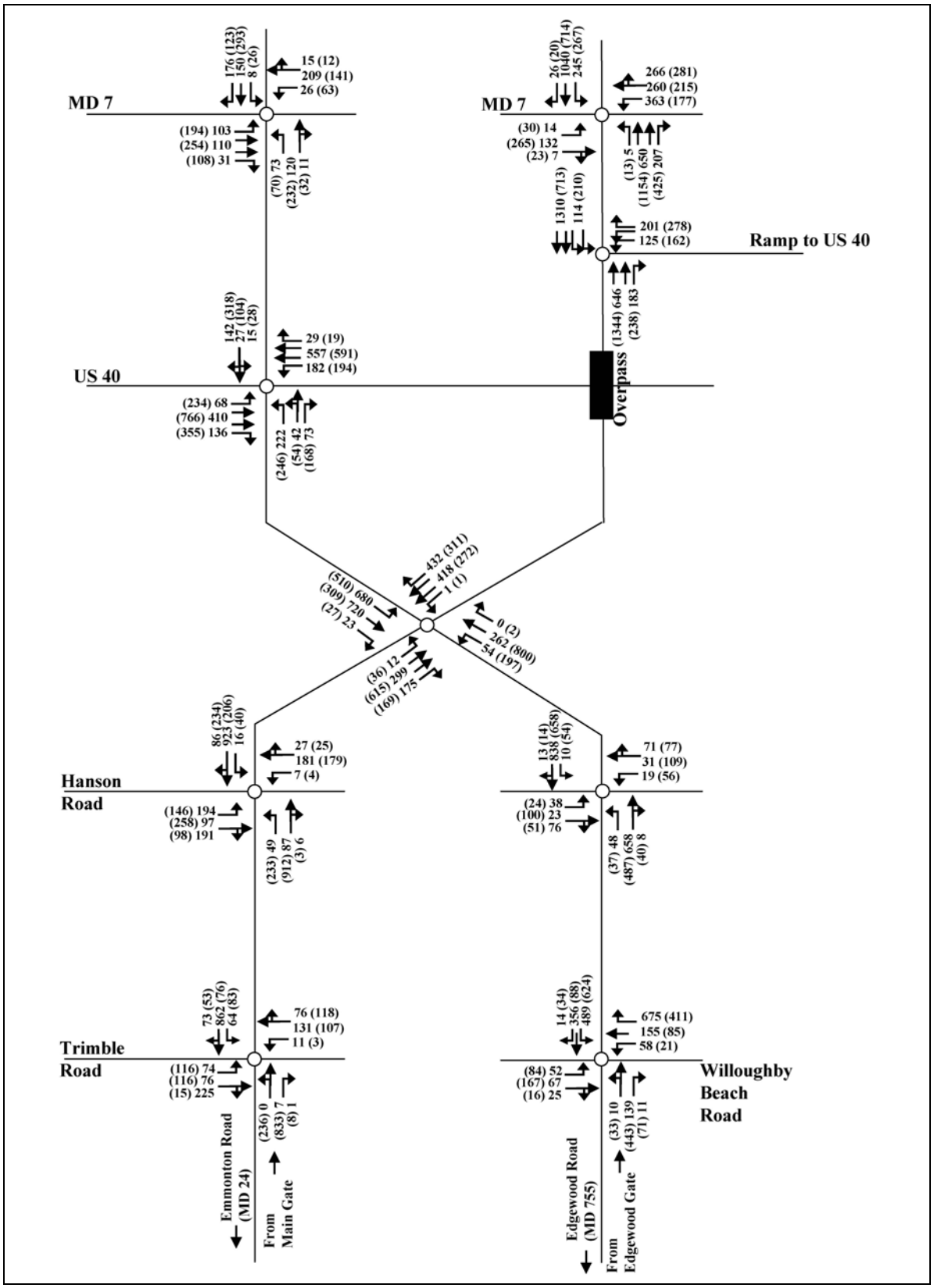


Figure G-16 Southern Peninsula – Predicted Off Post – AM(PM) Peak Hour Traffic Volume

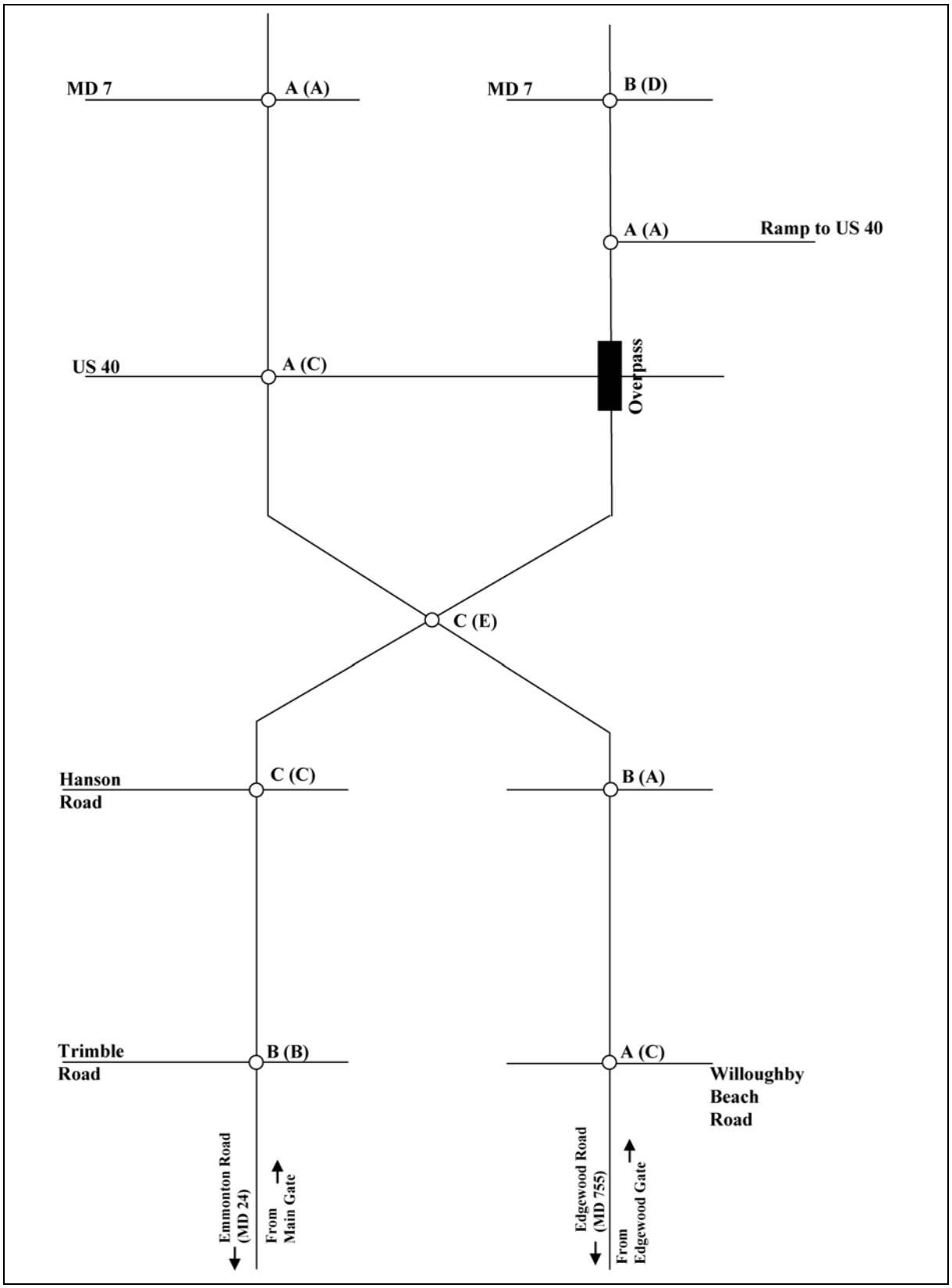


Figure G-17 Southern Peninsula – Predicted Off Post – AM(PM) Peak Level of Service

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