Appendix D

Federal Facility Contributions to Maryland's Phase II WIP

This appendix contains:

1. **"Draft Federal Water Quality Programmatic Milestones" for January 2012 through December 2013, which presents EPA and other federal agencies' programmatic (non-facility) milestones for the Executive Order 13508 Restore Clean Water goal area.**

2. **A compilation of Department of Defense Phase II WIP narrative reports from the U.S. Air Force, U.S. Navy, U.S. Army, and U.S. Army National Guard, in that order, for numerous federal facilities across the State, submitted to MDE in support of Maryland's Phase II WIP**

3. **A Phase II WIP narrative report from the U.S.DA. Beltsville Agricultural Research Center (BARC) in Prince George's County, submitted to MDE in support of Maryland's Phase II WIP**

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Federal Water Quality Two-Year Milestones – The Executive Order 13508 Strategy calls upon federal agencies to join the Chesapeake Bay watershed jurisdictions in establishing two-year milestones, many of which are designed to support the Bay watershed jurisdictions in meeting their water quality milestones (EO Strategy p. 121). This first set of federal two-year milestones covers calendar years 2012 and 2013. The list below presents EPA and other federal agencies' programmatic (non-facility) milestones for the EO 13508 Restore Clean Water goal area. The milestones below were selected to represent the activities that have the potential to have significant environmental outcomes, that require significant resources, or that directly support the jurisdictions in meeting Watershed Implementation Plan commitments. These milestones will be tracked through the Chesapeake Bay Program's tracking and accountability system.

Draft Federal Water Quality Programmatic Milestones
January 2012 through December 2013

Target Date 2012/2013 progress	**Draft Federal Milestones** (EO Strategy page reference where applicable; EPA is the lead agency unless otherwise indicated)
TMDL/Watershed Implementation Plans (WIPs)	
January 2012 – February 2012	Evaluate and announce federal and jurisdiction **2012-2013 two-year milestones**. (p. 24)
January 2012 – June 2012	Evaluate Draft and **Final Phase 2 WIP's** (p. 24)
June 2012	Assessment of progress made to implement the **May 2009 – December 2011 two-year milestones** (p. 24)
October 2012	**Technical Amendments to the 2010 Bay TMDL** as needed
May 2013	Provide mid-term evaluation of **2012 milestones progress to jurisdictions**
Stormwater	
November 2012	Final action on revisions to the national **stormwater rule** (p. 27)
Agriculture	
June 2012	Propose revisions to the national **CAFO rule.** (p. 27)
July 2012	Develop and implement **tracking, reporting, and verification mechanisms for voluntary conservation practices** and other best management practices installed on agricultural lands. (p. 37)

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Target Date 2012/2013 progress	**Draft Federal Milestones** (EO Strategy page reference where applicable; EPA is the lead agency unless otherwise indicated)
December 2013	EPA/USDA Co-lead Apply 540,000 **acres of conservation practices** in priority watersheds by the end of 2013 (p. 34) USDA
Onsite (Septic) Systems	
June 2013	Develop a **model state program** with general recommendations for activities to reduce pollution from onsite (septic) systems (p. 29)
Atmospheric – Rules, Deposition, Allocations	
January 2012 May 2012 March 2012 2012 2012 March 2012 December 2013	Significantly reduce nitrogen deposition to the Bay and watershed by 2020 (p. 29) • **Cross State Air Pollution Rule -** Annual NOx control requirements begin • **Cross State Air Pollution Rule -** Seasonal NOx control requirements begin • **NOxSOx Secondary NAAQS finalized** • EPA/DOT 2017–2025 Model Year **Light-Duty Vehicle GHG Emissions and CAFÉ Standards** final rule • Tier 3 **Light-Duty Vehicle Emission and Fuel Standards** final rule (criteria and toxic pollutants) • New **air deposition modeling** for the Chesapeake watershed incorporating the most recent finalized rules with significant NOx reductions • **Air deposition load reduction** to tidal surface waters of 316,000 pounds of nitrogen. (18 percent of the required load reductions from 2009 to achieve the 15.7 million pound air deposition load allocation to tidal waters based on interpolation of 2009 and 2020 CMAQ scenarios)
Toxic Contaminants	

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Target Date 2012/2013 progress	**Draft Federal Milestones** (EO Strategy page reference where applicable; EPA is the lead agency unless otherwise indicated)
November 2012	**Issue a report** after **e**xamining monitoring information, and comparing existing toxicity benchmarks (p. 37) DOI/EPA co-lead
November 2012	Conduct and report on **assessment of progress** on the Chesapeake Bay Basinwide Toxins Reduction and Prevention Strategy. (p. 37)
December 2013	Work with DOI, the Bay states, the District and stakeholders to **develop toxic contaminant reduction goals.** (p. 38)
Oversight and Enforcement	
December 2012 December 2012 and 2013 December 2012 and 2013	**Permit and Enforcement Oversight** – Stormwater, Wastewater, Agriculture, Trading/Offsets, Air • **Review Chesapeake Bay states' technical standards** for nutrient management to ensure that they meet **CAFO regulations** (p. 26) • **NPDES Permit Reviews** – Report annually on number of permits reviewed and objections • **Inspections and Case Development** – Report annually on results and/or status
Monitoring and Science Support	
December 2012 December 2012 December 2012	Implement year-2 **expansion (20 sites) of the non-tidal monitoring network** to support TMDL (p. 40) EPA/USGS co-lead **Evaluate water-quality changes and progress** to adjust management actions in support of the TMDL/WIPs and milestone progress evaluation. (p. 41) EPA/USGS/ NOAA co-lead • USGS issue an **annual update of trends** based on CBP **non-tidal** monitoring network to assess progress toward reductions • EPA and NOAA will provide an **annual update of trends** in **estuary** monitoring data to assess progress toward water-quality standards including using NOAA CBIBS data.
EPA Grant Support to States and the District	
FY 2012 FY 2013	Provide **financial support to the jurisdictions** by maintaining funding, as authorized, through EPA's assistance programs including CWA S 319, SRF, CBIG, and CBRAP

Joint Base Andrews Input to Prince George's County, Maryland and Maryland Department of Environment Watershed Implementation Plan Phase II As of 15 November 2011

I. Joint Base Andrews

The mission of the 11th Wing, the host wing at JBA, is to defend national leaders, deploy combat ready Airmen, showcase the United States Air Force (USAF), provide presidential support to Airmen and their families, and to foster joint teamwork within and around the wing. The 11th Wing oversees the operations of the Air Force Band, Honor Guard, and Chaplaincy and is host to more than 60 separate organizations, including the 89th Airlift Wing (responsible for providing safe, reliable, worldwide airlift and logistical support for the president of the United States, vice president, Cabinet members and other high-ranking U.S. and foreign government officials), and units for the Army, Navy, Marine Corps, Air Force Reserve, and National Guard. It also performs high priority airlift and emergency medical evacuation in the Washington, D.C. area.

JBA controls three distinct parcels of land: the main base and two geographically separated units (GSUs). The main base is located within Prince George's County, Maryland, and five miles southeast of Washington, D.C. Nearby Maryland communities include Camp Springs, Clinton, and Morningside. Primary access to the main base is via Interstate 95/495 (the Capital Beltway) with additional access via Maryland Route 4 and Maryland Route 5. More than 18,000 people live and work at JBA. The annual payroll is approximately $295 million. Nearly 6,000 dependents live off base, and 4,400 are housed on base. More than 25,000 military retirees live in the area and use base services.

The main base at JBA is 4,062 acres and divided into western and eastern sections, separated by the airfield that runs north-south. The western portion of the main base contains the majority of land area and includes a large outdoor recreation/golf course facility, most of the community facilities, all accompanied and unaccompanied housing, and the Malcolm Grow Medical Center. The majority of the industrial activities are located in the eastern portion of the main base. Both sections house mission and administrative facilities.

On-base stormwater drains both east and west to the Patuxent River Area (Sub-basin 02-13-11) and to the Washington Metropolitan Area (Sub-basin 02-14-02), respectively, as defined by the MDE in COMAR 26.08.02.08. The use designation for both of the drainage areas for these sub-basins is I-P. Use designation I-P is for water contact recreation, protection of aquatic life and public water supply.

Tributaries to several major waterways originate on JBA, including Piscataway Creek, Meetinghouse Creek, Tinker's Creek, Payne's Branch, Henson Creek, and Cabin and Western Branches. The base is divided into 8 drainage areas; five of those areas drain 3,671 acres to the Potomac River segment-shed (POTTF), while the remaining three drain 391 acres to the Patuxent River segment-shed (PAXTF).

JBA controls two remote communications sites. The Davidsonville Transmitter Station (Davidsonville) is an 836-acre parcel of land located in Anne Arundel County, approximately 12 miles northeast of JBA, just northwest of the intersection of U.S. Route 50 and Maryland Route 424 and adjacent to the Patuxent River. Davidsonville drains to the west to Ropers Branch and southward to an unnamed, intermittent stream to the Patuxent River segment-shed (PAXTF). The Brandywine Receiver Station (Brandywine) is a 1,592-acre site located in Prince George's County, approximately 6 miles south of JBA, east of U.S. Route 5, and north of the town of Mattawoman. It is bounded by railroad tracks to the west and northeast, and Cedarville Road to the South. The site is located entirely in the Mattawoman Creek Watershed. Stormwater runoff exits the property via four natural drainage pathways. All outfalls discharge water into tributaries of the Mattawoman Creek segment-shed (MATTF).

Joint Base Andrews Input to Prince George's County, Maryland and Maryland Department of Environment Watershed Implementation Plan Phase II As of 15 November 2011

JBA Baseline Loadings November 2011*:

Municipality: JBA
County: Prince George's
Total Urban Acres identified by MDE: 4,031

Initial Loads (lbs)				
2010 No Action Urban Land use acres	2010 No Action Total Nitrogen Load EOS	2010 No Action Total Phosphorus Load EOS	2010 No Action Total Nitrogen Load DEL	2010 No Action Total Phosphorus Load DEL
4,031	25,597	2,726	23,253	2,608

After Implementation (lbs)				
Urban Land use acres	Total Nitrogen Load EOS	Total Phosphorus Load EOS	Total Nitrogen Load DEL	Total Phosphorus Load DEL
3,628	18,533	1,826	16,836	1,747

Urban Reduction Required			Urban Reduction Achieved	
2020 Total Nitrogen Load Allocation (DEL)	2020 Total Phosphorus Load Allocation (DEL)		2020 Total Nitrogen Load Allocation	2020 Total Phosphorus Load Allocation
16,405	1,383		16,836	1,747
Percent Reduction from Baseline (%)			**Percent reduction Achieved (%)**	
Nitrogen	Phosphorus		Nitrogen	Phosphorus
29	47	Percent Urban Area Treated	28	33

URBAN BMP IMPLEMENTATION	
Tree Planting	**
Urban Nutrient Management	**
Filtering Practices	**
Infiltration Practices	**
Wet Ponds	**
Dry Extended Detention Ponds	**
Dry Ponds	**
"Retrofit BMP"	**

*.*Although there was a TSS allocation in the spreadsheet, since phosphorus tends to bind to sediments, no calculator was provided to DoD for meeting the TSS allocations. We are operating under the assumption that the TSS allocations will be achieved via the required reductions for phosphorus and subsequent BMP implementation (MDE response).*

*** Data currently unavailable, Spreadsheet and WIP will be updated once calculations are performed and data become available*

Joint Base Andrews Input to Prince George's County, Maryland and Maryland Department of Environment Watershed Implementation Plan Phase II
As of 15 November 2011

Municipality: Davidsonville Transmitter Site (JBA GSU)
County: Anne Arundel
Total Urban Acres identified by MDE: 9

Initial Loads (lbs)				
2010 No Action Urban Land use acres	2010 No Action Total Nitrogen Load EOS	2010 No Action Total Phosphorus Load EOS	2010 No Action Total Nitrogen Load DEL	2010 No Action Total Phosphorus Load DEL
9	130	10	125	7

After Implementation (lbs)				
Urban Land use acres	Total Nitrogen Load EOS	Total Phosphorus Load EOS	Total Nitrogen Load DEL	Total Phosphorus Load DEL
8	94	7	90	5

Urban Reduction Required			Urban Reduction Achieved	
2020 Total Nitrogen Load Allocation (DEL)	2020 Total Phosphorus Load Allocation (DEL)		2020 Total Nitrogen Load Allocation	2020 Total Phosphorus Load Allocation
97	5		90	5
Percent Reduction from Baseline (%)			Percent reduction Achieved (%)	
Nitrogen	Phosphorus		Nitrogen	Phosphorus
22	29	Percent Urban Area Treated	28	33

URBAN BMP IMPLEMENTATION	
Tree Planting	**
Urban Nutrient Management	**
Filtering Practices	**
Infiltration Practices	**
Wet Ponds	**
Dry Extended Detention Ponds	**
Dry Ponds	**
"Retrofit BMP"	**

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Municipality: Brandywine Receiver Site (JBA GSU)
County: Prince George's
Total Urban Acres identified by MDE: 11

Initial Loads (lbs)				
2010 No Action Urban Land use acres	2010 No Action Total Nitrogen Load EOS	2010 No Action Total Phosphorus Load EOS	2010 No Action Total Nitrogen Load DEL	2010 No Action Total Phosphorus Load DEL
11	85	8	34	6

After Implementation (lbs)				
Urban Land use acres	Total Nitrogen Load EOS	Total Phosphorus Load EOS	Total Nitrogen Load DEL	Total Phosphorus Load DEL
9	61	5	25	4

Urban Reduction Required			Urban Reduction Achieved	
2020 Total Nitrogen Load Allocation (DEL)	2020 Total Phosphorus Load Allocation (DEL)		2020 Total Nitrogen Load Allocation	2020 Total Phosphorus Load Allocation
28	4		25	4
Percent Reduction from Baseline (%)			Percent reduction Achieved (%)	
Nitrogen	Phosphorus		Nitrogen	Phosphorus
17	39	Percent Urban Area Treated	28	33

URBAN BMP IMPLEMENTATION	
Tree Planting	**
Urban Nutrient Management	**
Filtering Practices	**
Infiltration Practices	**
Wet Ponds	**
Dry Extended Detention Ponds	**
Dry Ponds	**
"Retrofit BMP"	**

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Municipality: Brandywine DRMO (JBA GSU)
County: Prince George's
Total Urban Acres identified by MDE: 4

Initial Loads (lbs)				
2010 No Action Urban Land use acres	2010 No Action Total Nitrogen Load EOS	2010 No Action Total Phosphorus Load EOS	2010 No Action Total Nitrogen Load DEL	2010 No Action Total Phosphorus Load DEL
4	32	3	13	2

After Implementation (lbs)				
Urban Land use acres	Total Nitrogen Load EOS	Total Phosphorus Load EOS	Total Nitrogen Load DEL	Total Phosphorus Load DEL
4	23	2	9	1

Urban Reduction Required			Urban Reduction Achieved	
2020 Total Nitrogen Load Allocation (DEL)	2020 Total Phosphorus Load Allocation (DEL)		2020 Total Nitrogen Load Allocation	2020 Total Phosphorus Load Allocation
11	1		9	1
Percent Reduction from Baseline (%)			Percent reduction Achieved (%)	
Nitrogen	Phosphorus		Nitrogen	Phosphorus
17	39	Percent Urban Area Treated	28	33

URBAN BMP IMPLEMENTATION	
Tree Planting	**
Urban Nutrient Management	**
Filtering Practices	**
Infiltration Practices	**
Wet Ponds	**
Dry Extended Detention Ponds	**
Dry Ponds	**
"Retrofit BMP"	**

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II. JBA Programmatic Two Year Milestones 2012-2013:

AGRICULTURAL

JBA does not have agricultural land use although MDE has stated that JBA has been assigned agricultural acreage in EPA's current model run using the Version 5.3.2 Model. JBA will work with MDE to validate and correct the land use in 2017 progress runs.

URBAN STORMWATER MANAGEMENT RETROFITS

- JBA working with the United States Corps of Engineers (USACE) recently completed an installation-wide BMP inventory and assessment. USACE is developing a BMP Inventory database for reporting tracking and accountability. JBA will provide a copy of the inventory to capture BMPs not already accounted for

- JBA, in conjunction with the Air Force Center for Engineering and the Environment (AFCEE), conducted a comprehensive Storm Water Pollution Prevention Opportunity Assessment (SWPPOA). The SWPPOA identified stormwater pollution prevention opportunities and evaluated potential storm water retrofits for 363 facilities. Based on the results of the SWPPOA, JBA planned improvements to management of stormwater runoff from existing buildings, parking lots, hangars, and other site features. These improvements will be implemented as funding becomes available.

- Implement environmental site design to the maximum extent practicable

- Implement Section 438 of the Energy Independence and Security Act (EISA) of 2007 to the maximum extent technically feasible

- Construct qualifying new facilities to a minimum LEED Silver standard

- The JBA General Plan, similar in use to a county or state master plan, has been updated to include the possibility of numerous storm water retrofits

SEPTIC SYSTEM UPGRADES

JBA has no septic systems on the main base or at either of the GSUs.

WASTEWATER TREATMENT PLANT DATA

JBA does not own or operate any wastewater treatment plants at any of its facilities. The main base discharges both industrial and domestic wastewater and is connected to the Washington Suburban Sanitary Commission (WSSC) sewage collection system. The sewage is treated at two publicly-owned treatment works (POTWs) owned and operated by WSSC. The main base is considered a significant industrial user (SIU) and operates under a discharge authorization permit (DAP) issued by WSSC. Davidsonville sewage is collected in a holding tank and pumped as needed by an authorized wastewater hauler. Brandywine discharges only domestic sewage and is connected to the WSSC sewage collection systems and treated at a POTW. No DAP is required for Brandywine.

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PROGRAMMATIC 2-YEAR MILESTONES

- JBA is working with the U.S. Army Regional Environmental Coordinator (REC) and the National Defense Center for Energy and the Environment (NDCEE) on an extensive assessment project that will help JBA identify applicable Chesapeake Bay TMDL requirements and prepare JBA to meet them.

- USACE to finalize numerous management projects aimed at improving the storm water management program at JBA, including (1) a programmatic environmental assessment of eight major storm water retrofit projects; (2) preparation of a storm water infrastructure and maintenance program;

- Continue to support applicable watershed jurisdictions Phase II WIP processes in 2012 and 2013.

- Implement Air Force Policy for Sustainable Design and Development (SDD), LEED certification and Low Impact Development (LID) under the Energy Independence and Security Act of 2007 (EISA) as a means to manage storm water for all construction and maintenance projects.

- Advocate for funding in order to implement water program projects in fiscal years 2012 and 2013

- Continue to integrate storm water management features into all facility construction projects on JBA

III. Successes:

In order to better identify, assess, prioritize, fund, and sustain infrastructure needs and requirements, the U.S. Air Force reconfigured its Civil Engineering Squadrons to focus on Asset Management. Under this new mindset, storm water infrastructure is viewed as a utility, in the same way it views water, sewer, electricity, and natural gas systems. Programmatic planning is now used for storm water compliance instead of reactionary compliance.

In preparation of the impending implementation of the Chesapeake Bay TMDL, JBA has teamed up with the USACE, AFCEE and several contractors to execute several projects over the last three years in order to obtain data, determine its compliance standing, and develop potential retrofit and compliance projects. These projects include the following efforts:

a. Stormwater Assessment for GSUs
   - Developed comprehensive stormwater system mapping for JBA GSUs
   - Completed existing-conditions hydrologic modeling to establish baseline hydrologic conditions for stormwater flow exiting GSUs
   - Conducted a watercourse characterization to identify the types of watercourses (perennial, intermittent, or ephemeral)
   - Determined the compliance status of these locations as it pertains to the Maryland Department of the Environment (MDE) stormwater discharge general permit

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b. Wetland Delineation for GSUs
   - Created planning level composite mapping of potentially regulated wetlands and waters at JBA geographically separated units (GSUs)
   - Surveyed Brandywine Receiver and Davidsonville Transmitter Stations
   - Collected and synthesized existing wetland and waters information
   - Field verified preliminary wetland mapping based on collected data
   - Prepared wetland maps for each GSU based on findings in the field
   - Consulted the U.S. Army Corps of Engineers (USACE) Regulatory Division

c. Floodplain Analysis
   - Determined impacts of West Runway Rehabilitation on the 1-percent annual chance floodplain (Referred to as 100-year floodplain)
   - Completed hydrologic and hydraulic modeling for existing and proposed conditions
   - Mapped floodplain areas and areas of increased flooding as a result of the project
   - Prepared report

d. Storm Water Pollution Prevention Plan
   - Updated JBA Stormwater Pollution Prevention Plan (SWPPP) on a regular basis
   - Included the Davidsonville and Brandywine GSUs
   - Merge various regulatory requirements into single guidance document; complies with requirements from both MDE Industrial Multi-Sector General Permit (MSGP) and Municipal Separate Storm Sewer System (MS4) General Permit
   - Included information concerning potential pollution sources within stormwater drainage areas
   - Described BMPs to be implemented to reduce or eliminate pollutants in stormwater runoff

e. Institutional Management Plan
   - Storm water master planning; address all likely future stormwater management compliance requirements for future development (Short-Term 5-Years and Long-Term 25-Years)
   - Multi-phased project with various sub-tasks reviewing various aspects of storm water management
   - Phase 2 focused on JBA Watershed #3
     - Developed a hydrologic model to determine peak discharges for existing and future land use conditions for Watershed 3
     - Estimated the required storage volumes to meet the MDE regulations
     - Recommended stormwater management devices to meet the storage volume requirements
     - Developed conceptual design cost estimates for each proposed regional stormwater management device

f. Best Management Plan (BMP) Inventory
   - Compiled data on existing stormwater BMPs
   - Created a BMP database and GIS layer
   - Collected of existing information and field survey preparation,
   - Conducted field survey and visual condition assessment,
   - Developed database and digital mapping layer,

- Developed detailed statements of work and costs estimates to restore 8 BMPS, and
- Data collected has assisted JBA in meeting measurable goals outlined in NPDES permits and has provided a foundation for operation, maintenance, and management of stormwater BMPs
- Documented findings and data

g. Storm Water System Survey
   - Conducted a survey and assessment of the stormwater collection system on JBA
   - Produced Geographic Information System (GIS) database and connectivity layer
   - Included stormwater features such as inlets, manholes, and pipes in the final GIS database
   - Documented findings and data

h. Storm Water Programmatic Planning
   - Further developed information and data derived from previous stormwater studies
   - Compared the results of those studies with JBA regulatory and permit requirements
   - Identified projects to renovate/restore storm water infrastructure to operational condition that complies with regulatory mandates
   - Developed durable recurring maintenance program for stormwater infrastructure
   - Conducted a Programmatic Environmental Assessment to renovate and restore stormwater infrastructure
   - Prepared Stormwater Planning and Programming Documentation for up to 12 environmental sustainment, restoration, and modernization (SRM) projects
   - Will establish storm water, stream restoration, and wetlands mitigation banking systems

i. Developed or updated and implemented the following wastewater management plans:
   - Fats, Oils & Grease (FOG) Management Plan: brought base into compliance with WSSC FOG regulations and implemented FOG BMPs
   - Toxic Organic Management Plan (TOMP): allowed JBA to obtain a total toxic organic (TTO) monitoring exemption from WSSC
   - Oil-Water Separator Management Plan: tied OWS to processes; indentified OWS for repair, renovation or removal
   - Spill Prevention, Contingency, and Countermeasures (SPCC) Plan and Facility Response Plan (FRP): combined two plans into Integrated Facility Response Plan

j. Stream and BMP restoration designs for the following streams
   - Meetinghouse Creek; 1,000 ft segment in and around Malcolm Grow medical complex
   - Combat Arms Training & Maintenance (CATM) Range storm water pond

k. Established active Natural Resources Management Program
   - Set up programs to monitor rare, threatened ad endangered (RTE) and invasive species
   - Set aside nature and biodiversity trails and sites
   - Established numerous public outreach, education, and participation programs

l. Upgraded Installation Restoration Program
- Signed Federal facilities Agreement (FFA). Established framework for management and restoration of CERCLA sites on base
- Executed $28M, 9-year Performance-Based Contract to manage all IRP sites on base; better, more focused, cost-effective management and closure of these sites

m. Firmed up leadership, management and accountability programs
- Implemented Base Environmental Management Plan (EMS) to include wastewater and storm water environmental management plans (EMPs)
- Established Water Subcommittee: Led by the base Mission Support Group Deputy Commander, meets to discuss & act on water, wastewater, & stormwater issues; it helps to inform and coordinate various activities with the many base agencies that affect or have responsibilities with these media; reports to the base's Environmental, Safety, and Occupational Health (ESOHC) Committee, which is chaired by the base vice wing commander.
- Instituted new environmental audit program; established three-tiered assessment process, from quarterly shop-level review, to annual installation review, to external review every three years

JBA has briefed its storm water projects at various DoD conferences and training sessions, and portions of it have been adopted by other military facilities.

IV. Challenges:

- The successful execution of the projects identified herein is contingent upon authorization and appropriation of funds in accordance with appropriate statutes. This includes the U.S. Congress, Department of Defense, Department of the Air Force and Air Force District of Washington validating and funding each project in the applicable fiscal year. While JBA will make every effort to complete these projects, failure of funding to be provided due to changes in priorities or budget constraints would mean a project or projects may not be executed as planned. Funding is expected to be exceptionally lean in fiscal years 2012 and 2013.

- Need to acquire JBA BMP data in order to provide it to MDE so that they can properly update their model. The current model does not contain all required information; but JBA data is not centrally located or readily available. It will take a great deal of time and effort to acquire this data in time for it to be useful for the MDE model. Contract resources may be needed to collect and collate the data into a useful form, but FY 2012 funding is extremely limited.

- Coordination with the Prince George's County Phase II WIP authority has been difficult to non-existent. The County made it clear that it wanted JBA participation in its WIP development, but JBA has not heard for the PG County representative since February 2011. This lack of coordination may complicate efforts to meet difficult to determine whether TMDL goals have been met across the watershed.

- MDE provided DoD with a spreadsheet to input its BMPs and calculate load reductions. The spreadsheet is somewhat complicated, and is limited to urban land use and urban BMPs only. JBA is most concerned with the location of the urban acres relative to the BMPs. JBA has implemented BMPs outside of the urban area, which is also contributing to load reductions that are currently not being captured.

- The architecture of the GIS systems used by EPA and DoD are different and may be incompatible with each other. JBA attempted to overlay its GIS data onto the GIS data provided by MDE, but the two systems showed different land uses and metadata. The various systems and data must be reconciled with each other in order to accurately portray land use, BMP effects, and pollutant discharge rates.

- The MAST tool that calculates total percentage area treated using the total federal land use was not a viable option for DoD facilities to use. Recommendations contained in the lessons learned from the JBA pilot may assist MDE in making improvements to the MAST tool for future use.

- Military facilities, such as JBA, do not use the same zoning restrictions used by municipalities and counties. Therefore, various types of land uses may be packed close together. The low resolution (10,000 sq ft grid cell size) may diminish the effects of BMPs used on the mostly small construction projects done on JBA

- The Brandywine DRMO Annex is an Installation Restoration site covered under the Comprehensive Environmental Restoration and Liability Act (CERCLA). This site is on the National Priorities List (NPL), therefore storm water reduction opportunities for the purposes of this effort will be limited.

V. Inaccuracies:

- The WIP Phase II Federal Information and reductions calculator contain no information or data for BMPs constructed on JBA from January 1, 2006 to present. While the exact treated acreage is not known at this time, JBA estimates BMPs treating about 100 - 125 acres are not included in the database and model run.

- The WIP Phase II Federal Information and Reductions Calculator does not take into account demolition projects that has restored formerly impervious area to pervious condition on JBA since January 1, 2006 to present. While the exact treated acreage is not known at this time, JBA estimates the surface area in question to be about 25 - 50 acres that was not included in the database and model run.

- During this JBA pilot facility urban acreages were used, but a substantial amount of understanding about GIS, land use data and modeling was needed to be able to validate urban areas, number of urban acres treated, load per acre of reduction, etc. There was no manual for how to use the spreadsheet, and therefore inaccuracies may result in how this information is calculated and entered into the spreadsheet.

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- The GIS grid cell used by the EPA model to classify land use is 100 ft x 100 ft or 10,000 square feet. The resolution of the spatial reference is not fine enough to accurately depict proper land use classification on JBA. Due to mission requirements and noise restrictions, JBA often groups various land uses very close together. Since a grid cell is assigned an overall land use based on which detailed land use is the largest component, other land uses may be hidden by the model. A comparison of the GIS data provided by MDE with GID data used by JBA shows numerous land use mismatches.

- Most construction projects on JBA are small-scale, usually less than one acre. The low GIS resolution mentioned above may hide the effect of the BMPs installed on these small sites, especially if the land use is classified differently as noted above. While individual BMPs may have small effect on pollutant discharge rates, collectively they could have a greater impact. However, the low grid cell resolution could cause the effects of the BMPs to minimized or hidden – dropped off as a calculation rounding error. JBA suggests that grid cell resolution be increased to 10 ft x 10 ft, or 100 square feet, grid size.

- There are land use inequalities between the different federal facilities. For example, the National Park Service's (NPS) Suitland Parkway, a limited access expressway consisting of four traffic lanes and paved shoulders, is depicted as Low Density. On the other hand, residential cul-de-sacs on JBA, whose residential units were demolished over 5 years ago, are shown as High Density, even though these areas are less-developed than the Suitland Parkway. The problem lies with the large grid cell size and the way in which the Parkway transects these grids as compared to the housing areas on JBA.

- Areas of the airfield on JBA are depicted as areas of high and low density development, although these areas are actually mowed grass, seven inches in height.

- Areas of Brandywine are depicted as areas of high and low density development, while they are actually areas covered by scrub pine.

- Satellite imagery used by the EPA model is pre-2007. It indicates paved areas and structures on JBA that no longer exist, including whole housing areas on the east side of base that were demolished prior to 2006.

- No BMP data exists for Joint Base Andrews, even though many new BMPs were installed on JBA after the MDE cutoff date of January 1, 2006. At least a dozen large new office buildings were constructed or renovated after that date as a part of significant Base Realignment and Closure (BRAC) actions. JBA is also in the process of renovating its west runway to ESD standards, which may not have been captured in the model.

- The acreage assigned JBA and its GSUs by MDE does not match JBA's GIS data. JBA will work with MDE to update/correct acreages for the future use.

NSF Carderock Submission to Maryland Department of Environment Watershed Implementation Plan Phase II

Site Description

NSF Carderock is a 184 acre research facility located near Bethesda, Maryland. The facility is dedicated to the research, development and engineering of hull, mechanical and electrical systems for Navy vessels. NSF Carderock includes research facilities, laboratories, machine shops, a maintenance garage, supply warehouses and other support facilities.

Implementation Action and Programmatic Milestones for 2012 - 2013

AGRICULTURAL

- N/A. NSF Carderock does not have agricultural land use.

STORMWATER MANAGEMENT RETROFITS

- NSF Carderock will pursue funding for an installation-wide improvement plan for stormwater management. NSF Carderock will provide a copy of the inventory to capture BMPs not already accounted for since the 2006 Baseline.
- Implement Dept of Navy Low Impact Development (LID) Policy for Storm Water Management.

SEPTIC SYSTEM UPGRADES

- N/A. NSF Carderock has no septic systems.

WASTEWATER TREATMENT PLANT DATA

- N/A. NSF Carderock does not have a waste water treatment plant.

PROGRAMMATIC 2-YEAR MILESTONES

- NSF Carderock is working with NAVFAC/Department of Navy to identify opportunities for stormwater retrofits (2013).
- Continue to support applicable watershed jurisdictions Phase II WIP processes in 2012 and 2013.
- Continue to implement Dept of Navy Low Impact Development (LID) Policy for Storm Water Management and the Energy Independence and Security Act of 2007 (EISA) as a means to manage storm water for all construction and maintenance projects in 2012 and 2013.

Site Challenges

- Funding – To comply with the Chesapeake Bay TMDL, stormwater funding budget requests regionally have increased substantially over the last two years without significant appropriation increases making it difficult for the Dept of Navy to financially support the TMDL compliance efforts.
- High uncertainty – State and federal rules and procedures are still developing for the Chesapeake Bay TMDL making it difficult to plan for expenditures and staffing needs as well as establish the facility procedures and projects needed to initiate and report our efforts to comply with the regulations.
- Low model resolution – The low resolution of the watershed model and the resulting ambiguity of the load allocations, hampers our ability to coordinate reductions on a site specific basis. All federal lands are aggregated together at a county level in both the planning tools and models supplied by Maryland.
- Lack of clear design standards/criteria for structural BMPs makes it difficult to insure that BMPs being designed will be accepted by regulators, increasing the risk that funds spent on designing the BMPs will be wasted. Since cost of construction is based on design, planning for the estimated cost of construction is equally difficult.
- MDE provided DOD with a spreadsheet to input its BMPs and calculate load reductions. The spreadsheet is somewhat complicated, and is limited to urban land use and a subset of urban BMPs only. There is not a way to evaluate the total load reduction at a site for all sectors/BMPs with this spreadsheet. In order to evaluate our actions and the subsequent reductions, we will need to develop a tracking tool which is not a trivial undertaking. The installation has implemented BMPs over several decades in multiple sectors which reduce loads but are not currently being captured in the tool.
- The MAST tool that calculates total percentage area treated using the total federal land use was not a viable option for DOD facilities due to the aggregation of federal facility lands at a county level.
- In the reduction calculator provided by Maryland, urban acreages were used, but a substantial amount of understanding about GIS, land use data and modeling will be needed to be able to validate urban areas, # urban acres treated, load per acre of reduction, etc. There was no manual for how to use the spreadsheet, and therefore inaccuracies may result in how this information is calculated and entered into the spreadsheet.

NAS Patuxent River Submission to Maryland Department of Environment Watershed Implementation Plan Phase II

Site Description

Naval Air Station Patuxent River located in southern Maryland at the mouth of the Patuxent River. Naval Air Station Patuxent River occupies approximately 7,400 acres, including its Webster Field Annex and Solomons Recreation Center and is the host of more than 50 tenant activities, including the Naval Air Systems Command and the Naval Air Warfare Center Aircraft Division. NAS Patuxent River is home to the full spectrum of research, development, acquisition, test & evaluation (RDAT&E) for all of naval aviation.

Implementation Action and Programmatic Milestones for 2012 - 2013

AGRICULTURAL

The Maryland Department of the Agriculture (MDA) will submit the information to the Maryland Department of the Environment (MDE) on behalf of NAS Patuxent River.

STORMWATER MANAGEMENT RETROFITS

- NAS Patuxent River is working with the Navy Region to complete an installation-wide Stormwater BMP inventory and assessment.
- Continue to execute Coastal Zone consistency program.
- Continue to implement environmental site design.
- Perform Shoreline stabilization (pending funding).
- Retrofit traditional asphalt parking lot pavement with pervious pavements.

SEPTIC SYSTEM UPGRADES

- Perform a Septic system investigation to confirm the location of septic systems, confirm the systems were properly abandoned, and propose solutions (removal or nutrient removal) and cost estimates for any remaining systems on the base property.

WASTEWATER TREATMENT PLANT DATA

- The Webster Field Sewer plant upgrade was completed. The system is equipped with additional nitrogen and phosphorus treatment.

PROGRAMMATIC 2-YEAR MILESTONES

- NAS Patuxent River is currently working to develop a Stormwater Management Implementation Plan (SWIP) for the entire NAS Patuxent River Complex. This plan will identify retrofit locations, additional best management practices (bmps) and the associated construction and maintenance costs.
- Continue to support applicable watershed jurisdictions Phase II WIP processes in 2012 and 2013.
- Continue to implement Low Impact Development (LID) under the Energy Independence and Security Act of 2007 (EISA) as a means to manage storm water for all construction and maintenance projects (2012).
- Continue to follow Navy LID Policy implemented in 2007.
- Continue to carry out and track the Facilities Reduction Program (20 buildings to be demolished in upcoming FY returning footprints to pervious areas)

Site Challenges

- Funding – To comply with the Chesapeake Bay TMDL, stormwater funding budget requests regionally have increased substantially over the last two years without significant appropriation increases making it difficult for the Dept of Navy to financially support the TMDL compliance efforts.
- High uncertainty – State and federal rules and procedures are still developing for the Chesapeake Bay TMDL making it difficult to plan for expenditures and staffing needs as well as establish the facility procedures and projects needed to initiate and report our efforts to comply with the regulations.
- Low model resolution – The low resolution of the watershed model and the resulting ambiguity of the load allocations, hampers our ability to coordinate reductions on a site specific basis. All federal lands are aggregated together at a county level in both the planning tools and models supplied by Maryland.
- Lack of clear design standards/criteria for structural BMPs makes it difficult to insure that BMPs being designed will be accepted by regulators, increasing the risk that funds spent on designing the BMPs will be wasted. Since cost of construction is based on design, planning for the estimated cost of construction is equally difficult.
- MDE provided DOD with a spreadsheet to input its BMPs and calculate load reductions. The spreadsheet is somewhat complicated, and is limited to urban land use and a subset of urban BMPs only. There is not a way to evaluate the total load reduction at a site for all sectors/BMPs with this spreadsheet. In order to evaluate our actions and the subsequent reductions, we will need to develop a tracking tool which is not a trivial undertaking. The installation has implemented BMPs over several decades in multiple sectors which reduce loads but are not currently being captured in the tool.
- The MAST tool that calculates total percentage area treated using the total federal land use was not a viable option for DOD facilities due to the aggregation of federal facility lands at a county level.

- In the reduction calculator provided by Maryland, urban acreages were used, but a substantial amount of understanding about GIS, land use data and modeling will be needed to be able to validate urban areas, # urban acres treated, load per acre of reduction, etc. There was no manual for how to use the spreadsheet, and therefore inaccuracies may result in how this information is calculated and entered into the spreadsheet.

NSA Annapolis Submission to Maryland Department of Environment Watershed Implementation Plan Phase II

Site Description

NSA Annapolis is comprised of the US Naval Academy and the North Severn Complex. The US Naval Academy is approximately 320 acres in size. It houses the Brigade of Midshipmen, the campus, public works and maintenance facilities. North Severn Complex is approximately 900 acres in size, and lies directly across the Severn River from the Naval Academy. North Severn complex includes: a small craft repair shop, docks for Yard Patrol boats, two marinas, supply warehouse, rifle ranges, housing units, recreational facilities, wastewater treatment plant, Navy exchange, a school and day care, administrative buildings, public services, and small businesses.

Implementation Action and Programmatic Milestones for 2012 - 2013

AGRICULTURAL

- N/A. NSA Annapolis does not have agricultural land use.

STORMWATER MANAGEMENT RETROFITS

- NSA Annapolis is in the process of completing an installation-wide BMP inventory and assessment including an improvement plan for storm water management. NSA Annapolis will provide a copy of the inventory to capture BMPs not already accounted for since the 2006 Baseline.
- NSA Annapolis will continue to follow MDE Stormwater Management Act of 2007.
- NSA Annapolis will continue to implement Energy Independence & Security Act (EISA) Section 438 stormwater requirements for projects with footprints over 5000 sf.
- NSA Annapolis will continue to implement Dept of Navy Low Impact Development (LID) Policy for Storm Water Management.

SEPTIC SYSTEM UPGRADES

- NSA Annapolis has 1 septic system. The septic system is located at the campground on North Severn Complex. NSA Annapolis is considering future options including potential upgrades to the septic system.

WASTEWATER TREATMENT PLANT DATA

The NSA Annapolis wastewater treatment facility is scheduled to receive a denitrification upgraded in 2015 and will likely receive major upgrades in 2018 or 2020.

PROGRAMMATIC 2-YEAR MILESTONES

- NSA Annapolis is working with NAVFAC/Department of Navy to develop an Opportunity Assessment (2012).
- Continue to support applicable watershed jurisdictions Phase II WIP processes in 2012 and 2013.
- Continue to implement Dept of Navy Low Impact Development (LID) Policy for Storm Water Management and the Energy Independence and Security Act of 2007 (EISA) as a means to manage storm water for all construction and maintenance projects in 2012 and 2013.
- NSA Annapolis will continue to follow MDE Stormwater Management Act of 2007.

Site Challenges

- Funding – To comply with the Chesapeake Bay TMDL, stormwater funding budget requests regionally have increased substantially over the last two years without significant appropriation increases making it difficult for the Dept of Navy to financially support the compliance efforts.
- High uncertainty – State and federal rules and procedures are still developing for the Chesapeake Bay TMDL making it difficult to plan for expenditures and staffing needs as well as establish the facility procedures and projects needed to initiate and report our efforts to comply with the regulations.
- Low model resolution – The low resolution of the watershed model and the resulting ambiguity of the wasteload allocations, makes it difficult to plan and coordinate reductions on a site basis. All federal lands are aggregated together at a county level in both the planning tools and models supplied by Maryland.
- Lack of clear design standards/criteria for structural BMPs makes it difficult to ensure that BMPs being designed will be accepted by regulators, increasing the risk that funds spent on designing the BMPs will be wasted. Since cost of construction is based on design, planning for the estimated cost of construction is equally difficult.
- MDE provided DOD with a spreadsheet to input its BMPs and calculate load reductions. The spreadsheet is somewhat complicated, and is limited to urban land use and a subset of urban BMPs only. There is not a way to evaluate the total load reduction at a site for all sectors/BMPs with this spreadsheet. In order to evaluate our actions and the subsequent reductions, we will need to develop a tracking tool which is not a trivial undertaking. The installation has implemented BMPs over several decades in multiple sectors which reduce loads but are not currently being captured in the tool.

- The MAST tool that calculates total percentage area treated using the total federal land use was not a viable option for DOD facilities due to the aggregation of federal facility lands at a county level.
- In the reduction calculator provided by Maryland, urban acreages were used, but a substantial amount of understanding about GIS, land use data and modeling will be needed to be able to validate urban areas, # urban acres treated, load per acre of reduction, etc. There was no manual for how to use the spreadsheet, and therefore inaccuracies may result in how this information is calculated and entered into the spreadsheet.
- USNA is a densely occupied area which faces many site restriction, highly limiting the ability to implement stormwater BMPs on that portion of the site:

  It is densely occupied, meaning there is limited land for potential BMP use.

  It is a registered historic district, meaning use and aesthetics are limited.

  It is an active military training site, so many open spaces are often required for training/marching and can not be converted to BMPs or forested.

  The water table is very high. Most MDE approved in-ground treatment facilities require more clearance than is available between facility and groundwater. Structures (such as concrete) have to be built to withstand upheaval due to the water table, creating large, expensive facilities.

  A good portion of the USNA soil is dredge material from the Severn River in the mid 1950's. This soil is poorly drained, and limits the feasibility of in-ground BMP use.
- North Severn all ready has a somewhat large forested area. However, many invasives are present. Planting natives after a large invasives removal is generally considered "self mitigation".

  North Severn is an active military site, so many open spaces are often required for training/marching or other military uses and cannot be converted to BMPs or forested.

  The calculators provide BMPs only in terms of percentage of land. We are lucky to plant forest as mitigation requirements at increments of 0.5 to 1.5 acres. If this is to be put into the calculators as percentages, rather than as acres, we are going to be dealing with small numbers (0.0004%).

NSF Suitland Submission to Maryland Department of Environment Watershed Implementation Plan Phase II

Site Description

NSF Suitland is a 41 acre site located in Suitland, Maryland. The facility is involved in the collection, storage and security of data related to naval operations. NSF Suitland has two stormwater outfalls that discharge to an on-site stormwater retention pond.

AGRICULTURAL

- N/A. NSF Suitland does not have agricultural land use.

STORMWATER MANAGEMENT RETROFITS

- NSF Suitland will complete an installation-wide BMP inventory and assessment including an improvement plan for storm water management. NSF Suitland will provide a copy of the inventory to capture BMPs not already accounted for since the 2006 Baseline.
- Implement Dept of Navy Low Impact Development (LID) Policy for Storm Water Management

SEPTIC SYSTEM UPGRADES

- N/A. NSF Suitland has no septic systems.

WASTEWATER TREATMENT PLANT DATA

- N/A. NSF Suitland does not have a waste water treatment plant.

PROGRAMMATIC 2-YEAR MILESTONES

- NSF Suitland is working with NAVFAC/DON to develop an Opportunity Assessment (2012)
- Continue to support applicable watershed jurisdictions Phase II WIP processes in 2012 and 2013.
- Continue to implement Dept of Navy Low Impact Development (LID) Policy for Storm Water Management and the Energy Independence and Security Act of 2007 (EISA) as a means to manage storm water for all construction and maintenance projects in 2012 and 2013.

Site Challenges

- Funding – To comply with the Chesapeake Bay TMDL, stormwater funding budget requests regionally have increased substantially over the last two years without significant appropriation increases making it difficult for the Dept of Navy to financially support the TMDL compliance efforts.
- High uncertainty – State and federal rules and procedures are still developing for the Chesapeake Bay TMDL making it difficult to plan for expenditures and staffing needs as well as establish the facility procedures and projects needed to initiate and report our efforts to comply with the regulations.
- Low model resolution – The low resolution of the watershed model and the resulting ambiguity of the load allocations, hampers our ability to coordinate reductions on a site specific basis. All federal lands are aggregated together at a county level in both the planning tools and models supplied by Maryland.
- Lack of clear design standards/criteria for structural BMPs makes it difficult to insure that BMPs being designed will be accepted by regulators, increasing the risk that funds spent on designing the BMPs will be wasted. Since cost of construction is based on design, planning for the estimated cost of construction is equally difficult.
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Chesapeake Bay Detachment Submission to Maryland Department of Environment Watershed Implementation Plan Phase II

Site Description

The Chesapeake Bay Detachment occupies a 168-acre site near Chesapeake Beach, Maryland, and provides facilities and support services for research in radar, electronic warfare, optical devices, materials, communications, and fire research. Because of its location high above the Chesapeake Bay on the western shore, unique experiments can be performed in conjunction with the Tilghman Island site 16 km across the bay from CBD. Basic research is also conducted in radar antenna properties, testing of radar remote sensing concepts, use of radar to sensor ocean waves, and laser propagation. CBD also hosts facilities of the Navy Technology Center for Safety and Survivability, which conducts fire research on simulated carrier, surface, and submarine platforms.

Implementation Action and Programmatic Milestones for 2012 - 2013

AGRICULTURAL

- N/A. Chesapeake Bay Detachment does not have agricultural land use.

STORMWATER MANAGEMENT RETROFITS

- Chesapeake Bay Detachment will complete an installation-wide BMP inventory and assessment including an improvement plan for storm water management. Chesapeake Bay Detachment will provide a copy of the inventory to capture BMPs not already accounted for since the 2006 Baseline.
- Implement Dept of Navy Low Impact Development (LID) Policy for Storm Water Management.

SEPTIC SYSTEM UPGRADES

- N/A. Chesapeake Bay Detachment has no septic systems.

WASTEWATER TREATMENT PLANT DATA

- N/A. Chesapeake Bay Detachment does not have a waste water treatment plant.

PROGRAMMATIC 2-YEAR MILESTONES

- Chesapeake Bay Detachment is working with NAVFAC/Department of Navy to develop an Opportunity Assessment (2012).

- Continue to support applicable watershed jurisdictions Phase II WIP processes in 2012 and 2013.
- Continue to implement Dept of Navy Low Impact Development (LID) Policy for Storm Water Management and the Energy Independence and Security Act of 2007 (EISA) as a means to manage storm water for all construction and maintenance projects in 2012 and 2013.

Site Challenges

- Funding – To comply with the Chesapeake Bay TMDL, stormwater funding budget requests regionally have increased substantially over the last two years without significant appropriation increases making it difficult for the Dept of Navy to financially support the TMDL compliance efforts.
- High uncertainty – State and federal rules and procedures are still developing for the Chesapeake Bay TMDL making it difficult to plan for expenditures and staffing needs as well as establish the facility procedures and projects needed to initiate and report our efforts to comply with the regulations.
- Low model resolution – The low resolution of the watershed model and the resulting ambiguity of the load allocations, hampers our ability to coordinate reductions on a site specific basis. All federal lands are aggregated together at a county level in both the planning tools and models supplied by Maryland.
- Lack of clear design standards/criteria for structural BMPs makes it difficult to insure that BMPs being designed will be accepted by regulators, increasing the risk that funds spent on designing the BMPs will be wasted. Since cost of construction is based on design, planning for the estimated cost of construction is equally difficult.
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- The MAST tool that calculates total percentage area treated using the total federal land use was not a viable option for DOD facilities due to the aggregation of federal facility lands at a county level.
- In the reduction calculator provided by Maryland, urban acreages were used, but a substantial amount of understanding about GIS, land use data and modeling will be needed to be able to validate urban areas, # urban acres treated, load per acre of reduction, etc. There was no manual for how to use the spreadsheet, and therefore inaccuracies may result in how this information is calculated and entered into the spreadsheet.

Naval Support Activity Bethesda Submission to Maryland Department of Environment Watershed Implementation Plan Phase II

Site Description

Naval Support Activity Bethesda (NSAB) is located in Bethesda, Maryland, about three miles north of Washington, DC. The site lies on the east side of Rockville Pike and is bound by Interstate Route 495, Jones Bridge Road and the School of the Sacred Heart. Located adjacent to the site are residential housing areas, a golf course, and the National Institutes of Health. Primary tenants at the facility include: Walter Reed National Military Medical Center, Uniformed Services University Health Services (USUHS), National Naval Dental Center (NNDC), Naval School of Health Sciences (NSHS), and the Navy Exchange. NSAB primarily hosts medical and research institutions. It is one of many major federal research and development installations in Montgomery County, Maryland. Major goods and services provided at the NNMC include housing for on-site military personnel, public works functions, commissary, officer/enlisted clubs, gym/pool, vehicle maintenance, and a bowling alley.

Implementation Action and Programmatic Milestones for 2012 - 2013

AGRICULTURAL

- N/A. Naval Support Activity Bethesda does not have agricultural land use.

STORMWATER MANAGEMENT RETROFITS

- Naval Support Activity Bethesda will complete an installation-wide BMP inventory and assessment including an improvement plan for storm water management. Naval Support Activity Bethesda will provide a copy of the inventory to capture BMPs not already accounted for since the 2006 Baseline.
- Implement Dept of Navy Low Impact Development (LID) Policy for Storm Water Management.

SEPTIC SYSTEM UPGRADES

- N/A. Naval Support Activity Bethesda has no septic systems.

WASTEWATER TREATMENT PLANT DATA

- N/A. Naval Support Activity Bethesda does not have a waste water treatment plant.

PROGRAMMATIC 2-YEAR MILESTONES

- Naval Support Activity Bethesda is working with NAVFAC/Department of Navy to develop an Opportunity Assessment (2012).
- Continue to support applicable watershed jurisdictions Phase II WIP processes in 2012 and 2013.
- Continue to implement Dept of Navy Low Impact Development (LID) Policy for Storm Water Management and the Energy Independence and Security Act of 2007 (EISA) as a means to manage storm water for all construction and maintenance projects in 2012 and 2013.

Site Challenges

- Funding – To comply with the Chesapeake Bay TMDL, stormwater funding budget requests regionally have increased substantially over the last two years without significant appropriation increases making it difficult for the Dept of Navy to financially support the TMDL compliance efforts.
- High uncertainty – State and federal rules and procedures are still developing for the Chesapeake Bay TMDL making it difficult to plan for expenditures and staffing needs as well as establish the facility procedures and projects needed to initiate and report our efforts to comply with the regulations.
- Low model resolution – The low resolution of the watershed model and the resulting ambiguity of the load allocations, hampers our ability to coordinate reductions on a site specific basis. All federal lands are aggregated together at a county level in both the planning tools and models supplied by Maryland.
- Lack of clear design standards/criteria for structural BMPs makes it difficult to insure that BMPs being designed will be accepted by regulators, increasing the risk that funds spent on designing the BMPs will be wasted. Since cost of construction is based on design, planning for the estimated cost of construction is equally difficult.
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- The MAST tool that calculates total percentage area treated using the total federal land use was not a viable option for DOD facilities due to the aggregation of federal facility lands at a county level.
- In the reduction calculator provided by Maryland, urban acreages were used, but a substantial amount of understanding about GIS, land use data and modeling will be needed to be able to validate urban areas, # urban acres treated, load per acre of

reduction, etc. There was no manual for how to use the spreadsheet, and therefore inaccuracies may result in how this information is calculated and entered into the spreadsheet.

NSF Indian Head, MD Submission to Maryland Department of Environment Watershed Implementation Plan Phase II

Site Description

NSFIH's mission is the research & development, test & evaluation, manufacturing technology, and manufacture of energetic chemicals, explosives, pyrotechnics, warheads, propellants and other ordnance devices. Over 3,300 people work at NSFIH, including 1,950 civilians and military personnel, 300 contractors, and 900 military and civilian tenants. The largest supported command is the Marine Corps Chemical Biological Incident Response Force (CBIRF). The 3,148-acre facility is located 25 miles south of Washington, DC, in Charles County, Maryland. The facility covers the Indian Head Peninsula and Stump Neck Annex, as well as three undeveloped islands, and is bordered by the Potomac River, Mattawoman Creek and Chicamuxen Creek. Founded in 1890, NSFIH is the oldest continuously running ordnance facility in the United States.

Implementation Action and Programmatic Milestones for 2012 - 2013

AGRICULTURAL

- N/A. NSF Indian Head does not have agricultural land use.

STORMWATER MANAGEMENT RETROFITS

- NSF Indian Head will complete an installation-wide BMP inventory and assessment including an improvement plan for storm water management. NSF Indian Head will provide a copy of the inventory to capture BMPs not already accounted for since the 2006 Baseline.
- Implement Dept of Navy Low Impact Development (LID) Policy for Storm Water Management.
- Perform Shoreline Stabilization
- Continue to execute Coastal Zone consistency program.

SEPTIC SYSTEM UPGRADES

- N/A. NSF Indian Head has no septic systems.

WASTEWATER TREATMENT PLANT DATA

- The NSF Indian Head WWTP was upgraded in 2011 to Enhanced Nutrient Removal (ENR).

PROGRAMMATIC 2-YEAR MILESTONES

- NSF Indian Head is working with NAVFAC/Department of Navy to develop an Opportunity Assessment (2012).
- Continue to support applicable watershed jurisdictions Phase II WIP processes in 2012 and 2013.
- Continue to implement Dept of Navy Low Impact Development (LID) Policy for Storm Water Management and the Energy Independence and Security Act of 2007 (EISA) as a means to manage storm water for all construction and maintenance projects in 2012 and 2013.
- Continue with Urban Nutrient Management practices facility wide.
- Continue to carry out and track the Facilities Reduction Program, demolition of buildings returning their footprint to pervious area where mission permits.

Site Challenges

- Funding – To comply with the Chesapeake Bay TMDL, stormwater funding budget requests regionally have increased substantially over the last two years without significant appropriation increases making it difficult for the Dept. of Navy to financially support the TMDL compliance efforts.
- High uncertainty – State and federal rules and procedures are still developing for the Chesapeake Bay TMDL making it difficult to plan for expenditures and staffing needs as well as establish the facility procedures and projects needed to initiate and report our efforts to comply with the regulations.
- Low model resolution – The low resolution of the watershed model and the resulting ambiguity of the load allocations hampers our ability to coordinate reductions on a site specific basis. All federal lands are aggregated together at a county level in both the planning tools and models supplied by Maryland.
- Lack of clear design standards/criteria for structural BMPs makes it difficult to insure that BMPs being designed will be accepted by regulators, increasing the risk that funds spent on designing the BMPs will be wasted. Since cost of construction is based on design, planning for the estimated cost of construction is equally difficult.
- MDE provided DOD with a spreadsheet to input its BMPs and calculate load reductions. The spreadsheet is somewhat complicated, and is limited to urban land use and a subset of urban BMPs only. There is not a way to evaluate the total load reduction at a site for all sectors/BMPs with this spreadsheet. In order to evaluate our actions and the subsequent reductions, NSFIH will need to develop a tracking tool, which is a significant undertaking. The installation has implemented BMPs over several decades in multiple sectors that reduce loads but are not currently being captured in the Federal Information and Reduction Calculator supplied by MDE.
- The MAST tool that calculates total percentage area treated using the total federal land use was not a viable option for DOD facilities due to the aggregation of federal facility lands at a county level.

- In the reduction calculator provided by Maryland, urban acreages were used, but a substantial amount of understanding about GIS, land use data and modeling will be needed to be able to validate urban areas, # urban acres treated, load per acre of reduction, etc. There was no information on how the existing loads for federal lands were calculated, what land uses were used, or what existing BMP's/LID features (if any) were considered. It is therefore difficult to determine the accuracy of the State's input data and resulting calculations. Also, a manual explaining how to use the spreadsheet was not provided. Therefore, information entered into the calculator tool as well as the resulting calculations may be inaccurate.
- NSFIH has a significant amount of historic, cultural and installation restoration areas which limit the ability to use or add BMPs.

Maryland WIP Phase II: A Summary of Army Successes, Challenges and Inaccuracies

Successes:

The Army recognizes several key successes derived from the WIP Phase II process:

- Fort Meade and the Army National Guard were active participants in the Anne Arundel Pilot Program for the WIP Process. Their participation in the program provided lessons learned that were used to assist other Army Installations within the Watershed.

- The Watershed Implementation Plan (WIP) Phase II process required collaborative involvement from Maryland, the Army, Installations, the National Defense Center for Energy and Environment (NDCEE) and the U.S. Army Corps of Engineers to ensure pollutant load reductions as well as current and future BMP implementation levels fulfill the federal share of the needed reductions for Nitrogen, Phosphorous and Sediment pollutants. In an effort to meet WIP II timelines, two year milestones and critical progress milestones in 2017 and 2020, Army garrisons and facilities conducted comprehensive assessments of BMPs to ensure the data listed below was accurate.
  - Accurate latitude and longitude locations for each BMP
  - Number of acres treated for each BMP
  - Date of BMP installation
  - Condition of BMP

- Additionally, in October the Services and MDE selected APG as a pilot submission to MDE, which resulted in a summary of lessons learned that can ultimately be used to assist other Installations, Services and Federal agencies in completing the Maryland urban BMP input deck for each facility. Going forward this federal-state-local partnership will prove to be instrumental in meeting the long term restoration plan for the Chesapeake Bay as well as improve credibility and accountability for Department of Defense, a Federal agency leading by example.

Challenges:

The Army experienced several major challenges throughout the WIP Phase II process:

- Funding for projects needed to reduce loading from the garrison is contingent upon authorization and appropriation of funds in accordance with appropriate statutes. This includes the U.S. Congress, Department of Defense, Department of the Army, the Army National Guard, the Army Reserve Command and the Installation Management Command. These requirements will be competing for funding against all of the Army's other requirements and there is no guarantee that funding will be available. The Army will make every effort to obtain necessary funding, but changes in priorities or budget

constraints would mean a project or projects may not be executed as planned. Funding is expected to be exceptionally lean in fiscal years 2012 and 2013.

- The Army used the load reduction calculation spreadsheet provided by MDE to address effectiveness calculations for urban BMPs on urban land use. In order to use the spreadsheet garrisons needed to calculate load per acre. This required a substantial amount of understanding about GIS, land use data and modeling in order to validate urban areas, # urban acres treated, load per acre of reduction, etc. There was no manual for how to use the spreadsheet, and therefore inaccuracies or inconsistencies may result in how this information is calculated and entered into the spreadsheet. A step by step user manual may be helpful going forward.

- The Army is concerned with the location of the urban acres relative to the BMPs. Our installations have implemented BMPs outside of the urban area, which also contribute to load reductions that are currently not being captured. Limiting our BMP inventory to urban acres treated does not represent the full scope and scale of load reductions achieved at Army installations and facilities.

- For each installation, the Army used a spreadsheet model (exported coefficients from the CB model) to validate base loadings. All loads were within a range of acceptable limits to the loads provided by MDE. However, specifically at Aberdeen Proving Ground (APG) a number of complexities arose as a result of the installation's geographical location and drainage area; that is extending over a number of CB model segments. This required a separate model export coefficients be applied to differing areas to apply our model in order to run the CB model approach. It was challenging to show these model runs in a simple, summary spreadsheet. Transferability of how to perform this function seems at best difficult for other Federal agencies.

- Coordination with multiple Bay jurisdictions made it difficult to apply one agency approach to meeting the required load reductions. For the Services this required additional resources in order to understand what each jurisdiction's expectations are, and these inconsistencies may result in long term load inaccuracies when determining whether TMDL goals have been met across the watershed. The MAST tool that calculates total percentage area treated using the total federal land use was not a viable option for DoD facilities to use. Recommendations contained in the lessons learned from the APG pilot may assist MDE in making improvements to the MAST tool for future use.

Maryland WIP Phase II: A Summary of Army Successes, Challenges and Inaccuracies

Inaccuracies:

The Army reported several issues that may result in various quantitative inaccuracies throughout the WIP Phase II process:

- MDE land use (USGS) and the AA County land use in GIS and the AA County land use is more refined and accurate while the MDE land use (USGS) is general. For the purposes of this exercise, when you overlay the MDE and AA County the MDE appears to be similar and accurate enough as far as urbanized area (pervious and impervious), however this may result in some inaccuracies with urban land use acres. This may be due to the architecture of the GIS systems used by EPA and Army facilities. Attempts to overlay its GIS data onto the GIS data provided by MDE, but the two systems showed different land uses and metadata. The various systems and data must be reconciled with each other in order to accurately portray land use, BMP effects, and pollutant discharge rates. Army coordination with EPA, USGS and MDE is essential before the next model run in 2017 to ensure that reported installation and facility changes to land use land cover layers, BMP effectiveness, etc. are incorporated into EPA's CB model.

- APG does not have agricultural land use although MDE informed APG that 661 acres were assigned as agricultural in EPA's current model run of the 5.3.2 Model. Agricultural land is also incorporated into Forest Glen Annex, when in reality there is no agricultural land use at the facility. The Army will work with MDE to validate and correct the land use in 2017 progress runs.

- The boundary data used by MDE does not reflect the recent annex's from the General Services Administration GSA to Adelphi Laboratory Center (ALC), which increased ALC acreage from approx 68 acres to 155 acres. Montgomery County went from 15 acres to 75 acres and Prince George's County went from 26 acres to 79 acres. These inaccuracies may result in changes to the expected load reductions.

- Army installations and facilities do not use the same zoning restrictions used by municipalities and counties. Therefore, various types of land uses are packed close together. The low resolution (10,000 sq ft grid cell size) may diminish the effects of BMPs and cause inaccuracies mostly on small construction projects.

- Maryland does not have a current list of BMPs for Army installations and facilities. The Army will provide information on BMPs not already accounted for since the 2006 Baseline.

Maryland WIP Phase II: A Summary of Army Successes, Challenges and Inaccuracies

99th Reserve Command to
Maryland Department of Environment
Watershed Implementation Plan Phase II

I. 99th Reserve Command Center (RSC)

The Maryland Department of Environment (MDE) requested that each federal facility input loading and BMP information into a load reduction calculator (an excel spreadsheet) for urban land use to calculate required load reductions needed to meet local area targets. The Army did not receive boundary data or land cover data for the Reserve properties.

The following Sections provide a summary of the Reserve property information, base loading data for Nitrogen, Phosphorous, Sediment and the revised calculations after crediting the facilities for BMPs using the Chesapeake Bay BMP efficiency table. The 99th Reserve Command has 13 facilities (one combined) in the State of Maryland. Some Army Reserve facilities serve as tenant activities and their contribution will be represented by the host installation.

II. Baseline Loadings

Facility Information			
Facility	Acres	County	City
1SG Adam S Brandt Memorial USARC/AMSA #83 (M) (Curtis Bay)	42.06	Anne Arundel	Baltimore, MD
Annapolis USARC	6.85	Anne Arundel	Annapolis, MD
Prince George's County Memorial USARC	5.95	Prince George	Riverdale Park, MD
Southern Maryland USARC	5.12	Prince George	Upper Marlboro, MD
Sheridan USARC	3.45	Baltimore	Baltimore, MD
Jecelin USARC #1	5.68	Baltimore City	Baltimore, MD
MG BL Hunton Memorial USARC	19.99	Montgomery	Gaithersburg, MD
Jachman USARC	10.56	Baltimore City	Baltimore, MD
Carroll County Memorial USARC	4.50	Carroll	Westminster, MD
Maus-Warfield USARC	2.69	Montgomery	Rockville, MD
Allegany Co. Soldiers Memorial USARC	4.89	Allegany	Cumberland, MD
Abingdon USAR Center	7.58	Harford	Abingdon, MD
Facility Baseline Loads			
Facility	N(lbs)	P(lbs)	S(tons)
1SG Adam S Brandt Memorial USARC/AMSA #83 (M) (Curtis Bay)	242.22	28.46	3.15
Annapolis USARC	26.45	2.2	0.36
Prince George's County Memorial USARC	77.16	8.81	1.18
Southern Maryland USARC	41.89	4.41	0.621
Sheridan USARC	19.84	2.2	0.283
Jecelin USARC #1	37.48	4.41	0.56
MG BL Hunton Memorial USARC	35.27	4.41	0.44
Jachman USARC	57.32	6.61	0.085

Carroll County Memorial USARC	22.05	2.2	0.31
Maus-Warfield USARC	19.84	2.2	0.3
Allegany Co. Soldiers Memorial USARC	37.48	4.41	0.57
Abingdon USAR Center	63.93	6.61	0.97
***Reduction Goals (Baseline Loads with BMPs)**			
Baseline Loadings	N(lbs)	P(lbs)	S(tons)
1SG Adam S Brandt Memorial USARC/AMSA #83 (M) (Curtis Bay)	236.17	27.58	3.04
Prince George's County Memorial USARC	77.15	8.81	1.18
Jachman USARC	37.47	4.41	0.56
*only included facilities that have BMPs			

III. 99th RSC Programmatic Milestones (2012-2013)

AGRICULTURAL

Not Applicable.

STORMWATER MANAGEMENT RETROFITS

The following list of stormwater retrofits resulted in efficiencies (and therefore credits) for the following facilities:

- AMSA 83W - Infiltration Practice - 1 acre treated
- Brandt - Wet Pond - 2 acres treated
- Jachman - Dry Pond - .002 acres treated
- Prince George County Memorial - Filtering Practice - .002 acres treated

SEPTIC SYSTEM UPGRADES

Not Applicable.

WASTEWATER TREATMENT PLANT DATA

Not Applicable.

IV. Successes:

The Watershed Implementation Plan (WIP) Phase II process required collaborative involvement from MDE and the Army. MDE's direct involvement with the Army and the Services played a critical role in assisting the Army with delivering accurate property information and timely loading and programmatic information as part of this WIP Phase

II process. Going forward this federal-state partnership example will prove to be instrumental in meeting the long term restoration plan for the Chesapeake Bay demonstrating future benchmarks for progress in 2017 and 2025.

V. Challenges:

- Funding for projects needed to reduce loading from the facilities is contingent upon authorization and appropriation of funds in accordance with appropriate statutes. This includes the U.S. Congress, Department of Defense and Department of the Army.
- MDE did not provide any facility loading information to the Army for these facilities which made it difficult to calculate future actions.

VI. Inaccuracies:

The Army Reserve sites are very small in comparison to other Federal properties. Submittal of Reserve properties should further assist MDE in establishing a complete federal inventory for the Chesapeake Bay watershed and may alter current loadings for other feral agencies.

Aberdeen Proving Ground Input to Harford County, Maryland
and Maryland Department of Environment
Watershed Implementation Plan Phase II
DRAFT

I. Aberdeen Proving Ground

Aberdeen Proving Ground (APG) is a U.S. Army Garrison managed by the U.S. Army Installation Management Command. It is located in Maryland, at the northern end of the Chesapeake Bay, and occupies approximately 72,500 acres of land and water. The majority of the Installation is located within Harford County, while two small sections, Graces Quarters and Carroll Island, are located in Baltimore County. APG is divided by the Bush River into two non-contiguous land areas: the Aberdeen Area (APG-AA) to the northeast and the Edgewood Area (APG-EA) to the southwest. APG drains to five subwatersheds in four counties within the Chesapeake Bay. Subwatershed CB1TF is in Harford and Cecil County, subwatershed BSOH is in Harford County, subwatershed GUNOH is in Harford and Baltimore County, subwatershed MIDOH is in Baltimore County, and CB2OH is in Harford and Kent County. Together, the APG-AA and APG-EA make up approximately 37,450 acres of the total land area. The remaining acreage is comprised mostly of surface water. Kent County lies across the Bay to the east and Cecil County is across the Bay to the north.

APG is home to nine major commands and over 100 garrison supported organizations. The Installation provides facilities for performing research, development, testing and evaluation of Army materiel. Facilities include laboratories for research investigations, state-of-the-art ranges and engineering test courses for wheeled and tracked vehicles. The Installation also supports a wide variety of training associated with mechanical maintenance, health promotion and preventive medicine, and chemical and biological defense and chemical casualty care.

Aberdeen Proving Ground Input to Harford County, Maryland
and Maryland Department of Environment
Watershed Implementation Plan Phase II
DRAFT

II. APG Baseline Loadings November 2011*:

Basin: Gunpowder
County: Harford and Baltimore Counties
Total Urban Acres identified by MDE are only located in Harford County: 6,284

Initial Loads (lbs)				
2010 No Action Urban Land use acres	2010 No Action Total Nitrogen Load EOS	2010 No Action Total Phosphorus Load EOS	2010 No Action Total Nitrogen Load DEL	2010 No Action Total Phosphorus Load DEL
6,284	60,100	4,803	60,088	4,802

After Implementation (lbs)				
Urban Land use acres	Total Nitrogen Load EOS	Total Phosphorus Load EOS	Total Nitrogen Load DEL	Total Phosphorus Load DEL
6,284	57,926	4,517	57,915	4,516

Urban Reduction Required			Urban Reduction Achieved	
2020 Total Nitrogen Load Allocation (DEL)	2020 Total Phosphorus Load Allocation (DEL)		2020 Total Nitrogen Load Allocation	2020 Total Phosphorus Load Allocation
34,359	1,995		57,915	4,516
Percent Reduction from Baseline (%)			Percent reduction Achieved (%)	
Nitrogen	Phosphorus		Nitrogen	Phosphorus
43	58	Percent Urban Area Treated	4	6

URBAN BMP IMPLEMENTATION	
Tree Planting	0
Urban Nutrient Management	0
Filtering Practices	3
Infiltration Practices	1
Wet Ponds	6
Dry Extended Detention Ponds	1
Dry Ponds	5
"Retrofit BMP"	0

*.*Although there was a TSS allocation in the spreadsheet, since phosphorus tends to bind to sediments, no calculator was provided to DoD for meeting the TSS allocations. We are operating under the assumption that the TSS allocations will be achieved via the required reductions for phosphorus and subsequent BMP implementation (MDE response).*

Aberdeen Proving Ground Input to Harford County, Maryland
and Maryland Department of Environment
Watershed Implementation Plan Phase II
DRAFT

III. APG Programmatic Two Year Milestones 2012-2013:

AGRICULTURAL

APG does not have agricultural land use although Maryland Department of the Environment (MDE) informed APG that 661 acres were assigned in EPA's current model run of the 5.3.2 Model. APG will work with MDE to validate and correct the land use.

URBAN STORMWATER MANAGEMENT RETROFITS

- APG working with the United States Corps of Engineers (USACE) recently completed an installation-wide BMP inventory and assessment. USACE is developing a BMP Inventory database for reporting tracking and accountability. APG will provide a copy of the inventory to capture BMPs not already accounted for.
- Execute Coastal Zone consistency program
- Execute Coastal Zone afforestation projects
- Implement environmental site design
- Perform Shoreline stabilization (pending funding)

SEPTIC SYSTEM UPGRADES

N/A. APG has no septic systems. Remote site holding tanks are pumped on a regular weekly, bi-weekly, monthly, bi-monthly, annual and as needed.

WASTEWATER TREATMENT PLANT DATA

The Army is conducting a Feasibility Study to determine the most efficient and cost effective treatment upgrade for the Edgewood Area Wastewater Treatment Plant. The Army is pursuing funding for upgrading the facility in 2012 or 2013.

PROGRAMMATIC 2-YEAR MILESTONES

- APG is working with USACE to develop an Opportunity Assessment outlining APG plan by two year increments toward 2020 (2012)
- Continue to support applicable watershed jurisdictions Phase II WIP processes in 2012 and 2013.

- Implement Army Policy for Sustainable Design and Development (SDD) and Low Impact Development (LID) under the Energy Independence and Security Act of 2007 (EISA) as a means to manage storm water for all construction and maintenance projects. (2012).
- Implement APG Specific LID Policy signed by Garrison Commander on 7 June 2011.
- Carry out Facilities Reduction Program (56 buildings scheduled for demolition in FY12 returning footprints to pervious areas)

IV. Successes:

The Watershed Implementation Plan (WIP)Phase II process required collaborative involvement from MDE, APG and the U.S. Army Corps of Engineers to ensure pollutant load reductions as well as current and future BMP implementation levels fulfill the federal share of the needed reductions for Nitrogen, Phosphorous and Sediment pollutants. In an effort to meet WIP II timelines, two year milestones and critical progress milestones in 2017 and 2020, APG successfully conducted a comprehensive assessment of each BMP on the Installation to ensure the data listed below was accurate and submitted to local jurisdictions in a timely manner.

- Accurate latitude and longitude locations for each BMP
- Number of acres treated for each BMP
- Date of BMP installation
- Condition of BMP

Additionally, in October the Services and MDE selected APG as a pilot, which resulted in a summary of lessons learned that can ultimately be used to assist other Installations, Services and Federal agencies in completing the Maryland urban BMP input deck for each facility. Going forward this federal-state-local partnership will prove to be instrumental in meeting the long term restoration plan for the Chesapeake Bay as well as improve credibility and accountability for Department of Defense, a Federal agency leading by example.

V. Challenges:

- Coordination with multiple Bay jurisdictions made it difficult to apply one agency approach to meeting the required load reductions. For the Services this required additional resources in order to understand what each jurisdiction's expectations are, and these inconsistencies may result in long term load inaccuracies when determining whether TMDL goals have been met across the watershed.
- MDE provided DoD with a spreadsheet to input its BMPs and calculate load reductions. The spreadsheet is somewhat complicated, and is limited to urban land use and urban BMPs only. APG is most concerned with the location of the urban acres relative to the BMPs. APG has implemented BMPs outside of the urban area, which is also contributing to load reductions that are currently not being captured.

- The MAST tool that calculates total percentage area treated using the total federal land use was not a viable option for DoD facilities to use. Recommendations contained in the lessons learned from the APG pilot may assist MDE in making improvements to the MAST tool for future use.
- APG extends over a number of CB model segments and this requires separate model export coefficients be applied to differing areas to apply our model runs using the CB model approach. It was difficult to show these model runs in a simple, summary spreadsheet.

VI. Inaccuracies:

- During this APG pilot facility urban acreages were used, but a substantial amount of understanding about GIS, land use data and modeling was needed to be able to validate urban areas, # urban acres treated, load per acre of reduction, etc. There was no manual for how to use the spreadsheet, and therefore inaccuracies may result in how this information is calculated and entered into the spreadsheet.
- APG does not have agricultural land use although MDE informed APG that 661 acres were assigned as agricultural in EPA's current model run of the 5.3.2 Model. APG will work with MDE to validate and correct the land use in 2017 progress runs.

Adelphi Laboratory Center Input to
Prince George's and Montgomery Counties
and Maryland Department of Environment
Watershed Implementation Plan Phase II

I. Adelphi Laboratory Center

The Adelphi Laboratory Center (ALC) is a U.S. Army Garrison managed by the U.S. Army Installation Management Command. The Installation is located approximately 12 miles northeast of downtown Washington D.C. The northern boundary of ALC is shared with the General Services Administration (GSA), formerly the Naval Surface Warfare Center. The southern boundaries include Powder Mill Road, a former Naval Reserve Training Center, and the Paint Branch. The Installation is bounded to the east and west by both residential and institutional properties. ALC is bisected by two Maryland counties and occupies approximately 110 acres in Prince George's County and approximately 97 acres in Montgomery County. The Garrison is also responsible for the Blossom Point Research Facility, which is located in Charles County. A separate summary will be provided for that facility.

On-base stormwater drains to Anacostia River Area (Sub-basin 02-14-02), as defined by the MDE in COMAR 26.08.02.08. The use designation for both of the drainage areas for these sub-basins is I-P. Use designation I-P is for water contact recreation, protection of aquatic life and public water supply.

Adelphi Laboratory Center Input to
Prince George's and Montgomery Counties
and Maryland Department of Environment
Watershed Implementation Plan Phase II

II. Adelphi Laboratory Center Baseline Loadings November 2011*:

Municipality: Adelphi Laboratory Center

County: Prince George's County

Total Urban Acres identified by MDE in Prince George's County: 27 acres

Initial Loads (lbs)				
2010 No Action Urban Land use acres	2010 No Action Total Nitrogen Load EOS	2010 No Action Total Phosphorus Load EOS	2010 No Action Total Nitrogen Load DEL	2010 No Action Total Phosphorus Load DEL
27	281	16	255	12

After Implementation (lbs)				
Urban Land use acres	Total Nitrogen Load EOS	Total Phosphorus Load EOS	Total Nitrogen Load DEL	Total Phosphorus Load DEL
27	252	14	229	11

Urban Reduction Required			Urban Reduction Achieved	
2020 Total Nitrogen Load Allocation (DEL)	2020 Total Phosphorus Load Allocation (DEL)		2020 Total Nitrogen Load Allocation	2020 Total Phosphorus Load Allocation
179	6		229	11
Percent Reduction from Baseline (%)			Percent reduction Achieved (%)	
Nitrogen	Phosphorus		Nitrogen	Phosphorus
30	49	Percent Urban Area Treated	10	16

URBAN BMP IMPLEMENTATION	
Tree Planting	0
Urban Nutrient Management	0
Filtering Practices	24
Infiltration Practices	0
Wet Ponds	0
Dry Extended Detention Ponds	0
Dry Ponds	17
"Retrofit BMP"	0

*.*Although there was a TSS allocation in the spreadsheet, since phosphorus tends to bind to sediments, no calculator was provided to DoD for meeting the TSS allocations. We are operating under the assumption that the TSS allocations will be achieved via the required reductions for phosphorus and subsequent BMP implementation (MDE response).*

Adelphi Laboratory Center Input to Prince George's and Montgomery Counties and Maryland Department of Environment Watershed Implementation Plan Phase II

Municipality: Adelphi Laboratory Center

County: Montgomery County

Total Urban Acres identified by MDE in Montgomery County: 15 acres

Initial Loads (lbs)				
2010 No Action Urban Land use acres	2010 No Action Total Nitrogen Load EOS	2010 No Action Total Phosphorus Load EOS	2010 No Action Total Nitrogen Load DEL	2010 No Action Total Phosphorus Load DEL
15	164	8	149	6

After Implementation (lbs)				
Urban Land use acres	Total Nitrogen Load EOS	Total Phosphorus Load EOS	Total Nitrogen Load DEL	Total Phosphorus Load DEL
15	114	3	103	2

Urban Reduction Required			Urban Reduction Achieved	
2020 Total Nitrogen Load Allocation (DEL)	2020 Total Phosphorus Load Allocation (DEL)		2020 Total Nitrogen Load Allocation	2020 Total Phosphorus Load Allocation
103	3		103	2
Percent Reduction from Baseline (%)			Percent reduction Achieved (%)	
Nitrogen	Phosphorus		Nitrogen	Phosphorus
31	47	Percent Urban Area Treated	31	64

URBAN BMP IMPLEMENTATION	
Tree Planting	0
Urban Nutrient Management	0
Filtering Practices	12
Infiltration Practices	0
Wet Ponds	133
Dry Extended Detention Ponds	0
Dry Ponds	12
"Retrofit BMP"	0

*.*Although there was a TSS allocation in the spreadsheet, since phosphorus tends to bind to sediments, no calculator was provided to DoD for meeting the TSS allocations. We are operating under the assumption that the TSS allocations will be achieved via the required reductions for phosphorus and subsequent BMP implementation (MDE response).*

Adelphi Laboratory Center Input to
Prince George's and Montgomery Counties
and Maryland Department of Environment
Watershed Implementation Plan Phase II

III. Adelphi Laboratory Center Programmatic Two Year Milestones 2012-2013:

AGRICULTURAL

ALC does not have agricultural land use. However, for purposes of wildlife management, there are designated (posted) buffer areas along Floral Drive, predominantly in Prince George's County, that are not mowed.

STORMWATER MANAGEMENT RETROFITS

- The Garrison, working with the United States Corps of Engineers (USACE), recently completed an installation-wide BMP inventory and assessment. USACE is developing a BMP Inventory database for reporting tracking and accountability. ALC will provide a copy of the inventory to capture BMPs not already accounted for.
- Implement environmental site design
- The Garrison completed Phase III of a sanitary sewer retrofit project, whereby approximately 200' of televised 8" sewer line breaks were repaired and two sanitary manholes were rebuilt.

SEPTIC SYSTEM UPGRADES

N/A. ALC has no septic systems.

WASTEWATER TREATMENT PLANT DATA

ALC purchases all water and wastewater services directly from the Washington Suburban Sanitary Commission (WSSC). All wastewater is treated by the Blue Plains Wastewater Treatment Facility, which is owned and operated by the District of Columbia Water and Sewer Authority. The Installation's Industrial Wastewater Discharge Permit is with the WSSC, and ALC wastewater must meet stringent pretreatment standards.

ALC operates several pH neutralization pretreatment systems and one batch metals pretreatment system. The facility has maintained an excellent record of wastewater pretreatment compliance for more than 15 years.

PROGRAMMATIC 2-YEAR MILESTONES

- ALC is working with USACE to develop an Opportunity Assessment outlining their plan by two year increments toward 2020 (2012)
- Continue to support applicable watershed jurisdictions Phase II WIP processes in 2012 and 2013.
- Implement Army Policy for Sustainable Design and Development (SDD) and Low Impact Development (LID) under the Energy Independence and Security Act of 2007 (EISA) as a means to manage storm water for all construction and maintenance projects. (2012).

Adelphi Laboratory Center Input to
Prince George's and Montgomery Counties
and Maryland Department of Environment
Watershed Implementation Plan Phase II

IV. Successes:

The Watershed Implementation Plan (WIP) Phase II process required collaborative involvement from MDE, the Army and the U.S. Army Corps of Engineers to ensure pollutant load reductions as well as current and future BMP implementation levels fulfill the federal share of the needed reductions for Nitrogen, Phosphorous and Sediment pollutants. In an effort to meet WIP II timelines, two year milestones and critical progress milestones in 2017 and 2020, Adelphi Laboratory Center successfully conducted a comprehensive assessment of each BMP on the Installation to ensure the data listed below was accurate.

- Accurate latitude and longitude locations for each BMP
- Number of acres treated for each BMP
- Date of BMP installation
- Condition of BMP

V. Challenges:

- Funding for projects needed to reduce loading from the garrison is contingent upon authorization and appropriation of funds in accordance with appropriate statutes. This includes the U.S. Congress, Department of Defense, Department of the Army and the Army's Installation Management Command. ALC will be competing for funding against all of the Army's other requirements and there is no guarantee that funding will be available. ALC will make every effort to obtain necessary funding, but changes in priorities or budget constraints would mean a project or projects may not be executed as planned. Funding is expected to be exceptionally lean in fiscal years 2012 and 2013.

- ALC used the load reduction calculation spreadsheet provided by MDE to address effectiveness calculations for urban BMPs on urban land use. In order to use the spreadsheet the Garrison needed to calculate load per acre. This required a substantial amount of understanding about GIS, land use data and modeling in order to validate urban areas, # urban acres treated, load per acre of reduction, etc.

- Coordination with multiple Bay jurisdictions made it difficult to apply one agency approach to meeting the required load reductions. For the Services this required additional resources in order to understand what each jurisdiction's expectations are, and these inconsistencies may result in long term load inaccuracies when determining whether TMDL goals have been met across the watershed. The MAST tool that calculates total percentage area treated using the total federal land use was not a viable option for DoD facilities to use.

VI. Inaccuracies:

The boundary data used by MDE does not reflect the recent annex's from GSA to ALC, which increased ALC acreage from approx 68 acres to 155 acres. Montgomery County went from 15 acres to 75 acres and Prince George's County went from 26 acres to 79 acres. These inaccuracies may result in changes to the expected load reductions.

Blossom Point Research Facility Input to Charles County and Maryland Department of Environment Watershed Implementation Plan Phase II

I. Blossom Point Research Facility:

Blossom Point Research Facility (BPRF) is a satellite facility under the leadership of the U.S. Army Garrison, Adelphi Laboratory Center. Located in Cedar Point Neck in southern Charles County, Maryland, BPRF is bounded on three sides by bodies of water, including Nanjemoy Creek on the west side, the Potomac River to the south, and Port Tobacco River on the east side. BPRF occupies approximately 1,600 acres of land. It is classified as a range and is closed to the public. The primary mission of BPRF is to "field test fuze, explosives, and pyrotechnic devices and electronic telemetry systems. Also present at BPRF is a facility run by the Naval Research Laboratory for research and activities related to satellites.

II. Blossom Point Research Facility Baseline Loadings November 2011*:

Municipality: Blossom Point Research Facility

County: Charles County

Total Urban Acres identified by MDE in Charles County: 5 acres

Initial Loads (lbs)				
2010 No Action Urban Land use acres	2010 No Action Total Nitrogen Load EOS	2010 No Action Total Phosphorus Load EOS	2010 No Action Total Nitrogen Load DEL	2010 No Action Total Phosphorus Load DEL
5	41	7	41	7

After Implementation (lbs)				
Urban Land use acres	Total Nitrogen Load EOS	Total Phosphorus Load EOS	Total Nitrogen Load DEL	Total Phosphorus Load DEL
5	39	7	39	7

Urban Reduction Required			Urban Reduction Achieved	
2020 Total Nitrogen Load Allocation (DEL)	2020 Total Phosphorus Load Allocation (DEL)		2020 Total Nitrogen Load Allocation	2020 Total Phosphorus Load Allocation
30	4		39	7
Percent Reduction from Baseline (%)			Percent reduction Achieved (%)	
Nitrogen	Phosphorus		Nitrogen	Phosphorus
27	42	Percent Urban Area Treated	4	4

Blossom Point Research Facility Input to Charles County and Maryland Department of Environment Watershed Implementation Plan Phase II

URBAN BMP IMPLEMENTATION	
Tree Planting	4
Urban Nutrient Management	
Filtering Practices	
Infiltration Practices	
Wet Ponds	
Dry Extended Detention Ponds	
Dry Ponds	
"Retrofit BMP"	

*.*Although there was a TSS allocation in the spreadsheet, since phosphorus tends to bind to sediments, no calculator was provided to DoD for meeting the TSS allocations. We are operating under the assumption that the TSS allocations will be achieved via the required reductions for phosphorus and subsequent BMP implementation (MDE response).*

III. BPRF Programmatic Two Year Milestones 2012-2013:

AGRICULTURAL

Several acres are planted annually to provide food for the local deer herd. The herd is thinned annually through managed deer hunts.

STORMWATER MANAGEMENT RETROFITS

- BPRF installed 600' revetment along the Nanjemoy Creek shoreline to prevent bluff erosion.
- BPRF planted 8,500 square feet of trees as Critical Area mitigation.

SEPTIC SYSTEM

- BPRF has two septic tanks with sand mounds.
- The tenant, Naval Research Labs, has two septic tank systems with tile fields.

WASTEWATER TREATMENT PLANT DATA

NA

PROGRAMMATIC 2-YEAR MILESTONES

- BPRF is working with USACE to develop an Opportunity Assessment outlining their plan by two year increments toward 2020 (2012)
- Continue to support applicable watershed jurisdictions Phase II WIP processes in 2012 and 2013.

- Implement Army Policy for Sustainable Design and Development (SDD) and Low Impact Development (LID) under the Energy Independence and Security Act of 2007 (EISA) as a means to manage storm water for all construction and maintenance projects. (2012).

IV. Challenges:

- Funding for projects needed to reduce loading from the garrison is contingent upon authorization and appropriation of funds in accordance with appropriate statutes. This includes the U.S. Congress, Department of Defense, Department of the Army and the Army's Installation Management Command. BPRF and US Army Garrison Adelphi Laboratory Center will be competing for funding against all of the Army's other requirements and there is no guarantee that funding will be available. BPRF will make every effort to obtain necessary funding, but changes in priorities or budget constraints would mean a project or projects may not be executed as planned. Funding is expected to be exceptionally lean in fiscal years 2012 and 2013.

- BPRF used the load reduction calculation spreadsheet provided by MDE to address effectiveness calculations for urban BMPs on urban land use. In order to use the spreadsheet the Garrison needed to calculate load per acre. This required a substantial amount of understanding about GIS, land use data and modeling in order to validate urban areas, # urban acres treated, load per acre of reduction, etc.

- Coordination with multiple Bay jurisdictions made it difficult to apply one agency approach to meeting the required load reductions. For the Services this required additional resources in order to understand what each jurisdiction's expectations are, and these inconsistencies may result in long term load inaccuracies when determining whether TMDL goals have been met across the watershed. The MAST tool that calculates total percentage area treated using the total federal land use was not a viable option for DoD facilities to use.

Forest Glen Annex Input to Montgomery County and Maryland Department of Environment Watershed Implementation Plan Phase II

I. Forest Glen Annex

The Walter Reed Hospital Annex is now referred to as Forest Glen Annex. U.S. Army installation Forest Glen Annex is located in Silver Spring, Montgomery County, Maryland. The Forest Glen Annex (132 acres) was transferred to Fort Detrick on 1 October 2008 from the Walter Reed Army Medical Center (WRAMC) campus. The Forest Glen Annex is home to the Medical Biological Defense Research Program of Walter Reed Army Institute of Research (WRAIR), and the Naval Medical Research Center. U.S. Army Garrison (USAG) Fort Detrick is responsible for stormwater compliance for Army operations and for tenants located at Forest Glen Annex. Fort Detrick also has command and control of Glen Haven Housing Area (20 acres) in Montgomery County, Maryland. No urban acreage was identified at the Glen Haven Housing Area.

Forest Glen Annex is located within the Rock Creek sub-basin, a sub-basin of the Potomac River basin. In the Phase 5.3 model, Forest Glen is located in the POTTF_DC basin, and A24031PL1_4460_4780 land-river segment. Runoff from the Forest Glen Annex discharges to unnamed tributaries to Rock Creek, which flows into the Potomac River and ultimately the Chesapeake Bay. Rock Creek is 33 miles long with the last 9.3 miles running through the District of Columbia (DC). Only the last quarter mile of the Creek is tidally influenced. Rock Creek discharges into the Potomac River in DC, approximately 108 miles upstream of the Chesapeake Bay.

Forest Glen Annex Input to Montgomery County and Maryland Department of Environment Watershed Implementation Plan Phase II

II. **Forest Glen Annex: Loaded in November 2011*:**

Municipality: Federal Government

County: Montgomery County

Total Urban Acres identified by MDE located in Montgomery County: 123

Initial Loads (lbs)				
2010 No Action Urban Land use acres	2010 No Action Total Nitrogen Load EOS	2010 No Action Total Phosphorus Load EOS	2010 No Action Total Nitrogen Load DEL	2010 No Action Total Phosphorus Load DEL
123	1,617	86	592	43
After Implementation (lbs)				
Urban Land use acres	Total Nitrogen Load EOS	Total Phosphorus Load EOS	Total Nitrogen Load DEL	Total Phosphorus Load DEL
123	1,502	78	550	39
Urban Reduction Required			**Urban Reduction Achieved**	
2020 Total Nitrogen Load Allocation (DEL)	2020 Total Phosphorus Load Allocation (DEL)		2020 Total Nitrogen Load Allocation	2020 Total Phosphorus Load Allocation
487	27		550	39
Percent Reduction from Baseline (%)			**Percent reduction Achieved (%)**	
Nitrogen	Phosphorus		Nitrogen	Phosphorus
18	37	Percent Urban Area Treated	7	10

URBAN BMP IMPLEMENTATION	
Tree Planting	0
Urban Nutrient Management	37
Filtering Practices	1
Infiltration Practices	0
Wet Ponds	0
Dry Extended Detention Ponds	0
Dry Ponds	10
"Retrofit BMP"	0

Forest Glen Annex Input to Montgomery County and Maryland Department of Environment Watershed Implementation Plan Phase II

*.*Although there was a TSS allocation in the spreadsheet, since phosphorus tends to bind to sediments, no calculator was provided to DoD for meeting the TSS allocations. We are operating under the assumption that the TSS allocations will be achieved via the required reductions for phosphorus and subsequent BMP implementation (MDE response).*

III. Forest Glen Annex Programmatic Two Year Milestones 2012-2013:

AGRICULTURAL

Not applicable - Forest Glen Annex does not have agricultural land use.

URBAN STORMWATER MANAGEMENT RETROFITS

Forest Glen Annex participated in the "Army Chesapeake Bay Total Maximum Daily Load Pilots" which was completed under the National Defense Center for Energy and Environment (NDCEE). Under this Task, a TMDL Baseline Assessment was completed for Forest Glen Annex. This Baseline Assessment documented/confirmed land use categories and activities that would be relevant to the TMDL. The results of this assessment are documented in the "Final TMDL Baseline Assessment Report for Fort Detrick" (August 19, 2011). In addition, this Task created an inventory of current Best Management Practices (BMPs) in place at Forest Glen, which included their geographical locations, the treatment areas for the BMPs, and detailed descriptions for type of BMP. The results of this BMP inventory and assessment are documented in the "Final Watershed Implementation Plan Model and TMDL Monitoring Strategy for Fort Detrick" (August 23, 2011).

The treatment area acreage associated with identified BMPs, including three dry detention ponds, a filtering practice, and urban nutrient management practices, was determined using geographical information system (GIS) data. A total of 46 pervious urban acres are subjected to urban nutrient management. The three dry detention ponds combined treat a total of six pervious urban acres, and seven impervious urban acres. The filtering practice treats approximately an acre of urban land. This data yield 37% treated urban area by urban nutrient management, 10% treated urban area by dry detention ponds, and 1% treated area by a filtering practice.

SEPTIC SYSTEM UPGRADES

Not applicable - Forest Glen Annex does not have any septic systems.

WASTEWATER TREATMENT PLANT DATA

Not applicable - Forest Glen Annex does not have a waste water treatment plant.

PROGRAMMATIC 2-YEAR MILESTONES

Fort Detrick, who is responsible for Forest Glen, has funded the following two projects:

- Identification of potential stormwater BMPs at Fort Detrick and Forest Glen to improve water quality
- Preparation of Federal Facility Opportunity Assessments for Fort Detrick and Forest Glen

Forest Glen Annex Input to Montgomery County and Maryland Department of Environment Watershed Implementation Plan Phase II

The first project will expand on the BMP assessment already completed at Forest Glenn, by providing a Concept Plan that will evaluate the feasibility of implementing water quality improvements, in the form of BMPs, to minimize pollutants discharged in stormwater runoff. The Plan will include concept designs of the BMPs with costs and maintenance schedules. The Concept Plan completion date is March 10, 2012.

The second listed project is to develop a Federal Facility Opportunity Assessment for Forest Glen Annex. This document will be prepared in accordance with the April 2011"Guide for Federal Lands and Facilities' Role in Chesapeake Bay Jurisdictions' Phase II Watershed Implementation Plans". The project completion date is September 30, 2012.

IV. Successes:

- Forest Glen Annex has developed an inventory of the existing BMPs, and has collected the necessary information to determine the current loads as required for the Chesapeake Bay TMDL. Funding has already been committed to two TMDL-related projects, which will expand on the previous TMDL efforts completed at Forest Glen Annex, in order to provide conceptual designs for future BMPs; and to develop a Federal Facility Opportunity Assessment which will be used to communicate TMDL-related information to the regulatory community.

V. Challenges:

- The land use data provided by the Phase 5.3 Model is of a broad nature and does not contain the detail that is included in the land use data available for Forest Glen Annex. The broad resolution of Phase 5.3 Model land use designations often results in inaccurate land use data, especially for smaller facilities.
- The MDE Reduction Calculator does not account for a street sweeping BMP and simplifies reduction efficiencies. Reduction efficiencies vary with parameter, soil type, and underdrain presence and this is not captured by the Reduction Calculator.
- Funding for projects needed to reduce loading from the garrison is contingent upon authorization and appropriation of funds in accordance with appropriate statutes. This includes the U.S. Congress, Department of Defense, Department of the Army and the Army's Installation Management Command. Fort Detrick will be competing for funding against all of the Army's other requirements and there is no guarantee that funding will be available. Fort Detrick will make every effort to obtain necessary funding, but changes in priorities or budget constraints would mean a project or projects may not be executed as planned. Funding is expected to be exceptionally lean in fiscal years 2012 and 2013.

VI. Inaccuracies:

- This Forest Glen Annex site, referred to as Walter Reed Hospital Annex in the USEPA GIS layer and corresponding Federal target loads calculator, should now be referred to as Forest Glen Annex.
- In calculation of the BMP treatment area land use, the facility specific GIS landuse information was used instead of the Phase 5.3 Model land use which cannot be geospatially analyzed.
- Several BMPs entered in the Urban_Summary_Sheet of the Reduction Calculator also treat some non-urban acreage. Therefore the total treated acreage and reductions are higher than shown in the Reduction Calculator, which only considers urban acreage.

Forest Glen Annex Input to Montgomery County and Maryland Department of Environment Watershed Implementation Plan Phase II

- The property boundary for the Forest Glen Annex from the Phase 5.3 Chesapeake Bay Watershed Model (Phase 5.3 Model) federal facility segmentation is not consistent with the actual property boundary.
- Agricultural land is incorporated into Forest Glen Annex, when in reality there is no agricultural land use at the facility.
- Work recently completed at Forest Glen Annex created an inventory of current BMPs, and categorized the existing BMPs into those installed in 2005 to 2011 and those installed in 1985 to 2004. Urban acres treated for both BMPs installed in 2005 to 2011 and BMPs installed in 1985 to 2004 were added to the "Percentage Applied" section of the Urban_Summary_Sheet of the MDE Reduction Calculator. No BMPs were included on the "Current BMP Acres" tab in the MDE Reduction Calculator. Only treated urban acreage was included in the Urban_Summary_Sheet even though several of these BMPs treat non-urban acreage as well.

Fort Detrick Input to Frederick County and Maryland Department of Environment Watershed Implementation Plan Phase II

I. Fort Detrick

Fort Detrick is a U.S. Army Garrison (USAG) managed by the U.S. Army Installation Management Command. Fort Detrick includes non-contiguous land parcels designated as Areas A, B and C. Area A is approximately 730 acres in area and is the most developed portion of Fort Detrick. Area A includes the U.S. Army Garrison offices, most of the infrastructure and support facilities, housing areas, and a majority of the tenant or mission partners' offices and facilities. Area B is situated west-southwest of Area A and west of Rosemont Avenue. Area B is approximately 400 acres in area and contains most of the installation's unimproved or semi-improved land. Pastures and forest blocks are the predominant features in Area B, although it also includes a limited number of tenant facilities. Area B is primarily utilized for agricultural research and animal grazing and maintenance. This area is primarily surrounded by tract development. Area B also contains the Fort Detrick Municipal Landfill. Area C is classified as industrial and consists of two small parcels located along the west bank of the Monocacy River, approximately 1 mile east of Area A. The northern tract of Area C is approximately 7 acres in area and contains the Fort Detrick water treatment plant (WTP). The southern tract lies one quarter mile downstream from the WTP, is approximately 9 acres in area, and contains the Fort Detrick wastewater treatment plant (WWTP). Areas A, B, and C, are located within Frederick County, Maryland. Within Frederick County, Fort Detrick-Frederick encompasses approximately 1,212 acres. The USAG, Fort Detrick, has command and control of approximately 1,143, and the National Cancer Institute at Frederick (NCI-Frederick) has command and control of approximately 69 acres. The NCI-Frederick is "on" Fort Detrick, yet it is not on Army-controlled land. USAG also has command and control of the Forest Glen Annex (132 acres) and Glen Haven Housing Area (20 acres) in Montgomery County, Maryland. Forest Glen Annex (Walter Reed Hospital Annex) provided input in a separate document because it is identified as a separate entity by the U.S. EPA and it is located in a different county. No urban acreage was identified at the Glen Haven Housing Area.

Fort Detrick is located within the Monocacy River drainage basin, a sub-basin of the Middle River Potomac basin and is within the subwatershed POTTF_MD. The Monocacy River basin covers approximately 800 square miles within the 14,000 square mile Potomac River watershed. The Monocacy River originates at the Maryland-Pennsylvania border and flows southerly to the east of Fort Detrick, and is the largest tributary of the Potomac River, which in turn is the second largest tributary of the Chesapeake Bay. Several major streams (Carroll Creek, Tuscarora Creek) are located in the vicinity of Fort Detrick and flow to the Monacacy River. Fort Detrick's subwatersheds include Carroll Creek and the Monocacy River.

The USAG, Fort Detrick provides sustainable base operations support, quality of life programs, and environmental stewardship to facilitate the sustainment of vital national interests. The USAG, Fort Detrick supports five cabinet-level agencies: The Department of Defense, Department of Veteran Affairs, Department of Agriculture, Department of Homeland Security and Department of Health and Human Services. Within the DoD, Fort Detrick supports elements of all four military services. The primary missions of Fort Detrick-Frederick include biomedical research and development, medical logistics and materiel management, and global DoD telecommunications. Fort Detrick-Frederick is home to the U.S. Army Medical Research and Materiel Command (USAMRMC), the National Interagency Confederation for Biological Research (NICBR), the NCI-Frederick, and 37 other mission partners.

Fort Detrick Input to Frederick County and Maryland Department of Environment Watershed Implementation Plan Phase II

II. **Fort Detrick Municipality: Fort Detrick**

Urban Baseline Loadings November 2011*:

County: Frederick County

Total Urban Acres identified by MDE located in Frederick County: 396

Table 1. Urban Land Initial and Current Loads and Urban Reductions Required and Achieved from MDE Reduction Calculator

Initial Loads (lbs)				
2010 No Action Urban Land use acres	2010 No Action Total Nitrogen Load EOS	2010 No Action Total Phosphorus Load EOS	2010 No Action Total Nitrogen Load DEL	2010 No Action Total Phosphorus Load DEL
396	8,570	481	5,038	225
After Implementation (lbs)				
Urban Land use acres	Total Nitrogen Load EOS	Total Phosphorus Load EOS	Total Nitrogen Load DEL	Total Phosphorus Load DEL
396	7,016	349	4,125	164
Urban Reduction Required			**Urban Reduction Achieved**	
2020 Total Nitrogen Load Allocation (DEL)	2020 Total Phosphorus Load Allocation (DEL)		2020 Total Nitrogen Load Allocation	2020 Total Phosphorus Load Allocation
4,031	154		4,125	164
Percent Reduction from Baseline (%)			**Percent reduction Achieved (%)**	
Nitrogen	Phosphorus		Nitrogen	Phosphorus
20	32	Percent Urban Area Treated	18	27
URBAN BMP IMPLEMENTATION				
Tree Planting		0		
Urban Nutrient Management		76		
Filtering Practices		2		
Infiltration Practices		0		
Wet Ponds		25		
Dry Extended Detention Ponds		0		
Dry Ponds		4		
"Retrofit BMP"		0		

Fort Detrick Input to Frederick County and Maryland Department of Environment Watershed Implementation Plan Phase II

**Although there was a TSS allocation in the spreadsheet, since phosphorus tends to bind to sediments, no calculator was provided to DoD for meeting the TSS allocations. We are operating under the assumption that the TSS allocations will be achieved via the required reductions for phosphorus and subsequent BMP implementation (MDE response).*

III. Fort Detrick Programmatic Two Year Milestones 2012-2013:

AGRICULTURAL

Fort Detrick has experimental agricultural lands and lands dedicated to boarding of animals. Fort Detrick contains several areas used for animal boarding. Animal litter and bedding (approximately 5% manure, 95% bedding) is the only fertilizer used on these fields, which is applied about three times per year. Fort Detrick boards a variety of grazing animals, including goats, horses, and alpaca. For all of these boarded animals, agricultural pasture land use is considered a nonpoint source.

URBAN STORMWATER MANAGEMENT RETROFITS

Fort Detrick participated in the "Army Chesapeake Bay Total Maximum Daily Load Pilots", which was completed under the National Defense Center for Energy and Environment (NDCEE). Under this Task, a TMDL Baseline Assessment was completed for Fort Detrick to identify and document all TMDL-relevant data. This Baseline Assessment documented/confirmed land use categories and activities that would be relevant to the TMDL. The results of this assessment are documented in the "Final TMDL Baseline Assessment Report for Fort Detrick" (August 19, 2011). In addition, this Task created an inventory of current Best Management Practices (BMPs) in place at Fort Detrick, which includes their geographical locations, the treatment areas for the BMPs, and detailed descriptions for type of BMP. The results of this BMP inventory and assessment are documented in the "Final Watershed Implementation Plan Model and TMDL Monitoring Strategy for Fort Detrick" (August 23, 2011).

SEPTIC SYSTEM UPGRADES

Fort Detrick has a major wastewater treatment plant (WWTP) which services a majority of the installation. There are six septic systems that contain either holding tanks or leach fields at Fort Detrick. Most of these septic tanks are pumped on an on-call or as needed basis, although the Area B tanks are used and pumped less often.

WASTEWATER TREATMENT PLANT DATA

The Fort Detrick WWTP (NPDES permit MD0020877) is located on a 9-acre tract of Area C, on the west bank of the Monocacy River. As part of the NPDES permit, monitoring (Outfall 001) is required for various TMDL-relevant parameters, including total suspended solids (TSS), total Kjeldahl nitrogen (TKN), and TP twice per week, as well as TN, ammonia, nitrite plus nitrate, organic nitrogen, and ortho-phosphorus twice per month. The monitoring results are documented in Discharge Monitoring Reports (DMRs), which are submitted monthly to MDE. The WWTP is one of 68 significant WWTPs in Maryland based on capacity and as such, is subject to the Enhanced Nutrient Removal (ENR) goals of the 2000 Chesapeake Bay Agreement. The WWTP was upgraded (July 2011) to include Enhanced Nutrient Reduction and is discharging IAW with the permit limits.

PROGRAMMATIC 2-YEAR MILESTONES

Fort Detrick has funded the following three projects:

Fort Detrick Input to Frederick County and Maryland Department of Environment Watershed Implementation Plan Phase II

- Identification of potential stormwater BMPs at Fort Detrick and Forest Glen to improve water quality
    - This project will expand on the BMP assessment already completed at Fort Detrick, by providing a Concept Plan that will evaluate the feasibility of implementing water quality improvements, in the form of BMPs, to minimize pollutants discharged in stormwater runoff. The Plan will include concept designs of the BMPs with costs and maintenance schedules. The Concept Plan completion date is March 10, 2012.
- Preparation of Federal Facility Opportunity Assessments for Fort Detrick and Forest Glen
    - This project is to develop a Federal Facility Opportunity Assessment for Fort Detrick and Forest Glen Annex. This document will be prepared in accordance with the April 2011"Guide for Federal Lands and Facilities' Role in Chesapeake Bay Jurisdictions' Phase II Watershed Implementation Plans". The project completion date is September 30, 2012.
- Preparation of a Storm Water Master Plan for Areas A and B at Fort Detrick.
    - This project is to develop a Storm Water Master Plan that covers Areas A and B at Fort Detrick to establish a revised baseline for stormwater management planning and to streamline compliance with MDE stormwater regulations, as well as the ongoing TMDL efforts.

IV. Successes:

- Fort Detrick has developed an inventory of its existing BMPs, and has collected the necessary information to determine the current loads as required for the Chesapeake Bay TMDL. Funding has already been committed to three TMDL-related projects, which will expand on the previous TMDL efforts completed at Fort Detrick, in order to provide conceptual designs for future BMPs; to develop a document which communicates TMDL-related information to the regulatory community; and, to develop a Storm Water Master Plan which will maintain all stormwater data in one central location, which will assist Fort Detrick in achieving compliance with the recent Chesapeake Bay TMDL regulations.

V. Challenges:

- The land use data provided by the Phase 5.3 Model is of a broad nature and does not contain the detail that is representative of the actual land use data available for Fort Detrick. The broad resolution of Phase 5.3 Model land use designations often results in inaccurate land use data.
- The MDE Reduction Calculator does not account for a street sweeping BMP and simplifies reduction efficiencies. Reduction efficiencies vary with parameter, soil type, and underdrain presence and this is not captured by the Reduction Calculator.
- Funding for projects needed to reduce loading from the garrison is contingent upon authorization and appropriation of funds in accordance with appropriate statutes. This includes the U.S. Congress, Department of Defense, Department of the Army and the Army's Installation Management Command. Fort Detrick will be competing for funding against all of the Army's other requirements and there is no guarantee that funding will be available. Fort Detrick will make every effort to obtain necessary funding, but changes in priorities or budget constraints would mean a project or projects may not be executed as planned. Funding is expected to be exceptionally lean in fiscal years 2012 and 2013.

VI. Inaccuracies:

Fort Detrick Input to Frederick County and Maryland Department of Environment Watershed Implementation Plan Phase II

- In calculation of the BMP treatment area land use, the facility specific GIS landuse information was used instead of the Phase 5.3 Model land use which cannot be geospatially analyzed. However, in the case of urban nutrient management, a ratio of pervious urban land treated using the facility specific GIS landuse information was used to represent treated acreage.
- Several BMPs entered in the Urban_Summary_Sheet of the Reduction Calculator also treat some non-urban acreage. Therefore the total treated acreage and reductions are higher than shown in the Reduction Calculator, which only considers urban acreage.
- Work recently completed at Fort Detrick to complete an inventory of current BMPs categorized the existing BMPs into those installed in 2005 to 2011 and those installed in 1985 to 2004. Only the urban acres treated for BMPs installed in 2005 to 2011 were added to the "Percentage Applied" section of the Urban_Summary Sheet of the MDE Reduction Calculator. It was assumed that the "Current BMP Acres" tab in the MDE Reduction Calculator was meant to capture the BMPs installed in 1985 to 2004, however the 53.1 acres of wet pond and wetland is not accurate. For the BMPs installed in 1985 to 2004, Fort Detrick actually installed and maintains the BMP types listed in the table below. Total treated urban acreage only is shown even though several of these BMPs treat non-urban acreage as well.

BMP Type	Pervious Urban Acres Treated	Impervious Urban Acres Treated
Dry Ponds/Stormceptors	26.97	47.63
Filtering	32.8	137.2
Wet Pond/Wetland	28.7	55.5

- The reduction calculator includes 53.1 acres of Wet Ponds and Wetland acres. Per guidance from MDE, the 53.1 acres were subtracted from Wet Ponds acres identified for the period of 2005 to 2011. The lack of resources to identify the BMPs inputs used in the model calibration leads to inaccuracies in the reduction calculations.

Fort Meade Input to Anne Arundel County
and Maryland Department of Environment
Watershed Implementation Plan Phase II

I. Fort George G. Meade

Fort George G. Meade is a U.S. Army Garrison managed by the U.S. Army Installation Management Command. Fort Meade located entirely in Anne Arundel County, Maryland. The 5,315-acre post is situated halfway between two metropolitan areas, 17 miles southwest of Baltimore and 24 miles northeast of Washington, D.C. Approximately 412 acres in the northeast portion of Fort Meade drains to the Severn River Watershed, while the remaining acres drain to the Little Patuxent River Watershed. The Architect of the Capital, located at Fort Meade, is a landowner with about 100 acres.

Fort Meade provides a wide range of services to 95 partner organizations from the Army, Navy, Air Force, Marines and Coast Guard, as well as to several federal agencies including the National Security Agency, the U.S. Army Recruiting Command, the Defense Information School, the Defense Courier Service, the U.S. Army Field Band, the U.S. Cyber Command, and the Architect of the Capital.

On-base stormwater drains both northeast to the Severn River (Sub-basin 02-13-10) and south to the Little Patuxent River Area (Sub-basin 02-13-11), as defined by the MDE in COMAR 26.08.02.08. Approximately 85% of the base drains into the Little Patuxent while the rest drains into the Severn. The use designation for both of the drainage areas for these sub-basins is I-P. Use designation I-P is for water contact recreation, protection of aquatic life and public water supply.

II. Fort Meade Baseline Loadings November 2011*:

Municipality: Fort Meade

County: Anne Arundel County (AA County)

Total Urban Acres identified by MDE are only located in Anne Arundel County: 3,748 acres

Initial Loads (lbs)				
2010 No Action Urban Land use acres	2010 No Action Total Nitrogen Load EOS	2010 No Action Total Phosphorus Load EOS	2010 No Action Total Nitrogen Load DEL	2010 No Action Total Phosphorus Load DEL
3,748	50,895	3,365	41,100	2,523

After Implementation (lbs)				
Urban Land use acres	Total Nitrogen Load EOS	Total Phosphorus Load EOS	Total Nitrogen Load DEL	Total Phosphorus Load DEL
3,748	47,041	2,835	37,988	2,126

Urban Reduction Required		Urban Reduction Achieved

Fort Meade Input to Anne Arundel County and Maryland Department of Environment Watershed Implementation Plan Phase II

2020 Total Nitrogen Load Allocation (DEL)	2020 Total Phosphorus Load Allocation (DEL)		2020 Total Nitrogen Load Allocation	2020 Total Phosphorus Load Allocation
33,258	1,716		37,988	2,126
Percent Reduction from Baseline (%)			Percent reduction Achieved (%)	
Nitrogen	Phosphorus		Nitrogen	Phosphorus
19	32	Percent Urban Area Treated	8	16
URBAN BMP IMPLEMENTATION				
Tree Planting		0		
Urban Nutrient Management		0		
Filtering Practices		1		
Infiltration Practices		1		
Wet Ponds		32		
Dry Extended Detention Ponds		0		
Dry Ponds		1		
"Retrofit BMP"		0		

*.*Although there was a TSS allocation in the spreadsheet, since phosphorus tends to bind to sediments, no calculator was provided to DoD for meeting the TSS allocations. We are operating under the assumption that the TSS allocations will be achieved via the required reductions for phosphorus and subsequent BMP implementation (MDE response).*

III. Fort Meade Programmatic Two Year Milestones 2012-2013:

AGRICULTURAL

Fort Meade does not have agricultural land use.

URBAN STORMWATER MANAGEMENT RETROFITS

- Fort Meade, working with the United States Corps of Engineers (USACE), recently completed an installation-wide BMP inventory and assessment. USACE is developing a BMP Inventory database for reporting tracking and accountability. Fort Meade will provide a copy of the inventory to capture BMPs not already accounted for.
- Implement environmental site design requirements for new construction.
- Fort Meade completed a design to daylight a stream at the golf course. The plan is to divert existing stream flow, remove elliptical corrugated pipe, remove two concrete head walls, regrade/reconstruct stream channel and plant native plants.

Fort Meade Input to Anne Arundel County
and Maryland Department of Environment
Watershed Implementation Plan Phase II

SEPTIC SYSTEM UPGRADES

N/A. Fort Meade has no septic systems.

WASTEWATER TREATMENT PLANT DATA

Fort Meade's wastewater treatment plant is privatized; the permit was transferred in August of 2010 to American Water Operations and Maintenance, Inc.

PROGRAMMATIC 2-YEAR MILESTONES

- Fort Meade is working with USACE to develop an Opportunity Assessment outlining Fort Meade plan by two year increments toward 2020 (2012) that will aim to meet the expected complete load reduction over time.
- Continue to support applicable watershed jurisdictions Watershed Implementation Plan (WIP) Phase II processes in 2012 and 2013.
- Implement Army Policy for Sustainable Design and Development (SDD) and Low Impact Development (LID) under the Energy Independence and Security Act of 2007 (EISA) as a means to manage storm water for all future construction and maintenance projects. (2012).

IV. Successes:

The WIP Phase II process required collaborative involvement from Maryland Department of Environment (MDE), Fort Meade and the U.S. Army Corps of Engineers to ensure pollutant load reductions as well as current and future BMP implementation levels fulfill the federal share of the needed reductions for Nitrogen, Phosphorous and Sediment pollutants. In an effort to meet WIP II timelines, two year milestones and critical progress milestones in 2017 and 2020, Fort Meade successfully conducted a comprehensive assessment of each BMP on the Installation to ensure the data listed below was accurate.

- Accurate latitude and longitude locations for each BMP
- Number of acres treated for each BMP
- Date of BMP installation
- Condition of BMP

Additionally, Fort Meade was an active participant in the Anne Arundel Pilot Program for the WIP Process. Their participation in the program provided lessons learned that were used to assist other Army Installations within the Watershed. Going forward with this federal-state-local partnership will prove to be instrumental in meeting the long term restoration plan for the Chesapeake Bay as well as improve credibility and accountability for Department of Defense, a Federal agency leading by example.

Fort Meade Input to Anne Arundel County
and Maryland Department of Environment
Watershed Implementation Plan Phase II

Approximately 1,052 acres of Fort Meade's property drains to Burba Lake, 66-acre feet or 21.4 million gallons of water storage. In 2007, Fort Meade recently added 12 aerators in the lake to improve water quality.

V. Challenges:

- Funding for projects needed to reduce loading from the garrison is contingent upon authorization and appropriation of funds in accordance with appropriate statutes. This includes the U.S. Congress, Department of Defense, Department of the Army and the Army's Installation Management Command. Fort Meade will be competing for funding against all of the Army's other requirements and there is no guarantee that funding will be available. Fort Meade will make every effort to obtain necessary funding, but changes in priorities or budget constraints would mean a project or projects may not be executed as planned. Funding is expected to be exceptionally lean in fiscal years 2012 and 2013.
- Fort Meade used the load reduction calculation spreadsheet provided by MDE to address effectiveness calculations for urban BMPs on urban land use. In order to use the spreadsheet Fort Meade needed to calculate load per acre. This required a substantial amount of understanding about GIS, land use data and modeling in order to validate urban areas, # urban acres treated, load per acre of reduction, etc. There was no manual for how to use the spreadsheet, and therefore inaccuracies or inconsistencies may result in how this information is calculated and entered into the spreadsheet. A step by step user manual may be helpful going forward.

VI. Inaccuracies:

- MDE land use (USGS) and the AA County land use in GIS and the AA County land use is more refined and accurate while the MDE land use (USGS) is general. For the purposes of this exercise, when you overlay the MDE and AA County the MDE appears to be similar and accurate enough as far as urbanized area (pervious and impervious), however this may result in some inaccuracies with urban land use acres.
- The Architect of the Capital isn't a tenant but a landowner with about 100 acres. This could result in inaccuracies or changes to urban land use acres for Fort Meade.

ID	Facility	Official Name (per Website)	County	Address	In Bay Model?	Bay Model Acreage	Original NGB Acreage	Final Accurate Acreage	Boundary Done per MDARNG POC	Boundary Notes
24401	Olney Military Reservation	COL Henry A. Cole Reservation	Montgomery	5115 Riggs Road Gaithersburg, Maryland 20882-8455	Yes	7.16	8		No	MDARNG Researching
24503	Adelphi Armory	Adelphi Armory	Montgomery	2600 Powder Mill Road Adelphi, Maryland 20783-1197	**NO**		4		**Yes**	MDARNG 11-4-11: MDARNG Real Property records and plat maps checked, but when coordinates were COGO'd, the resulting polygon does not exist in correct space. Also checked CFMO servers & flat files and PG County parcel data with data found. MDARNG is using USACE provided polygon since it is "best available", but boundary is QUESTIONABLE.
24890	Fort Ritchie	MG Boyd M. Cook Armory	Washington	13817 Ritchie Road Cascade, Maryland 21719	Yes	19.83	22	18.85	**Yes**	Site visit complete.
24891	Laurel Armory	PVT Henry Costin Armory	Prince Georges	8601 Odell Road Laurel, Maryland 20708-3531	Yes	7.39	23		No	MDARNG Researching
24A05	MD Freestate Challenge Academy**	MD Freestate Challenge Academy**	Harford	Aberdeen Maryland 21005-5001	**NO**			0.32	**Yes**	MDARNG 11-4-11: MDARNG has no Real Property record on file. Only building lease, NO LAND.
24A10	Annapolis Armory	LTC (MD) E. Leslie Medford Armory	Anne Arundel	18 Willow Street Annapolis, Maryland 21401-3113	Yes	4.51	6		No	MDARNG Researching
24A15	Fifth Regiment	Fifth Regiment Armory	Baltimore City	29th Division Street Baltimore, Maryland 21201-2288	Yes	5.02	5		No	MDARNG Researching
24A20	Cade Armory	LTC Melvin H. Cade Armory	Baltimore City	2620 Winchester Street Baltimore, Maryland 21216-4499	Yes	4.77	4		No	MDARNG Researching
24A30	LTG (MD) Milton A. Reckord	***THIS SITE NO LONGER OWNED BY NGB PER CONVERSATIONS 10-28. REMOVED***	Harford	37 N MAIN ST Bel Air Maryland 21014-3587	Yes	1.06			n/a	MDARNG 11-4-11: Disposed
24A40	Catonsville Armory	MG William J. Witte Armory	Baltimore	130 Mellor Avenue Catonsville, Maryland 21228-5142	Yes	2.21	8		No	MDARNG Researching
24A45	Cheltenham Armory	Congressman Steny Hoyer Armory	Prince Georges	9900 Surratts Road Cheltenham, Maryland 20623	Yes	9.81	14		No	MDARNG Researching
24A50	Chestertown Armory	SFC John H. Newman Armory	Kent	509 Cross Street Chestertown, Maryland 21620-9510	Yes	1.88	4		No	MDARNG 11-4-11: Pending Disposal per MDARNG

ID	Facility	Official Name (per Website)	County	Address	In Bay Model?	Bay Model Acreage	Original NGB Acreage	Final Accurate Acreage	Boundary Done per MDARNG POC	Boundary Notes
24A55	MG (MD) Maurice D. Tawes	***THIS SITE NO LONGER OWNED BY NGB PER CONVERSATIONS 10-28. REMOVED***	Somerset	8 E MAIN ST Crisfield Maryland 21817-0551	Yes	1.5			No	MDARNG 11-4-11: Pending Disposal per MDARNG
24A60	Cumberland Armory	CPT Thomas Price Armory	Allegany	1100 Brown Avenue Cumberland, Maryland 21502-3499	Yes	12.41	9		No	MDARNG Researching
24A70	Dundalk Armory	CSM Gerome M. Grollman Armory	Baltimore	2101 North Point Boulevard Dundalk, Maryland 21222-1621	Yes	4.64	8		No	MDARNG Researching
24A75	Easton Armory	BG Louis G. Smith Armory	Talbot	7111 Ocean Gateway Easton, Maryland 21601-9471	Yes	12.44	12		No	MDARNG Researching
24A83	Phillips Army Airfield (APG)**	Phillips Army Airfield (APG)**	Harford	Aberdeen Maryland 21005-5001	**NO**		NP	0.82	**Yes**	MDARNG 11-4-11: MDARNG has no Real Property record on file. Only building lease, NO LAND.
24A85	Edgewood Armory	Edgewood Armory	Harford	Aberdeen Proving Ground (EA), Bldng. E4305 Aberdeen, Maryland 21012-5420	**NO**		99	112.73	**Yes**	MDARNG 11-4-11: MDARNG Real Property records do not contain a proper map or record to map. Legacy data used in conjunction with random other sources as best available data.
24A87	Lauderick Creek Training Site	Lauderick Creek Training Site	Harford	2624 Fairview Point Road Edgewood, Maryland 21040	Yes	1076.57	1530	1176.60	**Yes**	MDARNG 11-4-11: MDARNG Real Property records do not contain a proper map or records to map. Legacy data used in conjunction with random other sources as best available data.
24A90	Elkton Armory	LTC James Victor McCool Armory	Cecil	101 Railroad Avenue Elkton, Maryland 21921-5535	Yes	1.17	1	1.17	No	MDARNG Researching
24A95	Ellicott City Armory	BG Thomas B. Baker Armory	Howard	4244 Montgomery Road Ellicott City, Maryland 21043-6096	Yes	6.07	6	5.57	**Yes**	Site visit complete.
24A99	Frederick Armory	CPT Michael Cresap Armory	Frederick	8501 Baltimore Road Frederick, Maryland 21701-6758	Yes	14.05	18	13.80	**Yes**	Site visit complete.
24B15	Gunpowder Military Reservation (and Purnell Armory)	Gunpowder Military Reservation (and Purnell Armory)	Baltimore	10901 Notchcliff Road Glen Arm, Maryland 21057-9998	Yes	243.32	253	253.97	**Yes**	MDARNG 11-4-11: MDARNG Real Property records and plat maps checked - Original plat map does not have an origin coordinate. GIS boundary is an amalgamation of original plat map and MD Parcel Map iMap layer; there is also a 2008 additional lease area that is correctly COGO'd from the new reordation map and tied to the old data. Overall, boundary is approximate.
24B20	Glen Burnie Armory	First Regiment Armory	Anne Arundel	14 Dorsey Road Glen Burnie, Maryland 21061-3203 Baltimore, Maryland 21201-2288	Yes	3.16	4		No	MDARNG Researching

ID	Facility	Official Name (per Website)	County	Address	In Bay Model?	Bay Model Acreage	Original NGB Acreage	Final Accurate Acreage	Boundary Done per MDARNG POC	Boundary Notes
24B25	Greenbelt Armory	MG (Brevet) John R. Kenly Armory	Prince Georges	7100 Greenbelt Road Greenbelt, Maryland 20770-3398	Yes	6.2	8		No	MDARNG Researching
24B31	Hagerstown Armory	BG (MD) Randolph Millholland & CW4 Lloyd May Arm.	Washington	18500 Roxbury Road Hagerstown, Maryland 21740-9538	Yes	14.66	25		No	MDARNG Researching
24B33	Lil-Aaron Straus Wilderness Area	BG Thomas B. Baker Training Site	Allegany	11110 Ziegler Road Hancock, Maryland 21750-9999	Yes	407.28	2280	913.50	**Yes**	MDARNG 11-4-11: MDARNG Real Property records and plat maps checked - boundary digitized from "Exhibit A; Sideling Hill WMA" map. Result - changes to legacy (unknown origin) GIS boundary; boundary is approximate, not sureveyed.
24B35	Havre de Grace Military Reservation	Havre de Grace Military Reservation	Harford	301 Old Bay Lane Have de Grace, Maryland 21078-4094	Yes	4.08	76	75.88	**Yes**	MDARNG 11-4-11: COGO'd HdG Boundary Survey 10/2006, EBA Engineering. Boundary accurate, except MDARNG Real Property manager notified on 11/2 that there is an old lease change with the city that was not properly executed, so this map may not reflect that and may need to be updated.
24B40	Highfield*	***THIS SITE NO LONGER OWNED BY NGB PER CONVERSATIONS 10-28. REMOVED***	Hagerstown	25510 WARREN AVE Highfield Maryland 21719-9645	NO		1		n/a	MDARNG 11-4-11: Disposed
24B55	La Plata Armory	BG William Smallwood Armory	Charles	14 West Hawthorne Drive La Plata, Maryland 20646-9801	Yes	4.22	4		No	MDARNG Researching
24B65	Fort Geo G Meade**	Fort Geo G Meade**	Anne Arundel	2253 Huber Road RD Fort Meade Maryland 20755-5101	**NO**		NP	0.46	**Yes**	MDARNG 11-4-11: MDARNG has no Real Property record on file. Only building lease, NO LAND.
24B80	Parkville Armory	CW4 Melvin Sherr Armory	Baltimore	3727 Putty Hill Avenue Baltimore, Maryland 21236-3509	Yes	8.51	16		No	MDARNG Researching
24B85	PAX River Armory	Patuxent River Readiness Center	St. Mary's	48000 Pine Hill Run Road Lexington Park, Maryland 20653	Yes	13.05	12	12.43	**Yes**	11-4-11: MDARNG Real Property file contains "National Guard Readiness Center Patuxent River Naval Air Station : Civil Grading & Drainage Plan" June 8, 2004 with property survey boundary which was COGO'd. Boundary Accurate.
24B90	Pikesville Military Reservation	110th Reg./BG (MD) John S. Edwards Admin. Bldg.	Baltimore	610 Reisterstown Road Baltimore, Maryland 21208-5197	Yes	10.93	15	14.13	**Yes**	11-4-11:MDARNG Real Property records do not contain a proper map or records to map. An old site plan CAD file was georeferenced to aerial photography and the boundary assumed from this. Data is not accurate, but best available.
24C00	Prince Frederick Armory	Comptroller Louis L. Goldstein Armory	Calvert	Box 6, Old State Road Prince Frederick, MD 20678-0006	Yes	3.86	4		No	MDARNG 11-4-11: Pending Disposal per MDARNG
24C03	Camp Fretterd Training Site	Camp Fretterd Training Site	Baltimore	5526 Rue Saint Lo Drive Reisterstown, Maryland 21136	Yes	586.62	587	587.33	**Yes**	MDARNG 11-4-11: MDARNG Real Property Records contain nothing; MDARNG engineering flat files contain "CFMR Boundary Retracement Survey" August 2006 which was used to COGO the installation boundary. Boundary accurate.

ID	Facility	Official Name (per Website)	County	Address	In Bay Model?	Bay Model Acreage	Original NGB Acreage	Final Accurate Acreage	Boundary Done per MDARNG POC	Boundary Notes
24C05	Queen Anne Armory	COL Victor P. Gillespe Armory	Queen Annes	3011 Starr Road Queen Anne, Maryland 21657-0188	Yes	19.48	14		No	MDARNG Researching
24C10	Salisbury Armory	CSM Blair Lee Crocket Armory	Wicomico	28722 Ocean Gateway Salisbury, Maryland 21801-8904	Yes	9.62	11		No	MDARNG Researching
24C20	Ruhl Armory	MG (MD) Harry C. Ruhl & CSM James Peacock Armory	Baltimore	1035 York Road Towson, Maryland 21204-2517	Yes	7.28	7		No	MDARNG Researching
24C21	Towson (Old) Armory	Towson (Old) Armory	Baltimore	307 Washington Avenue Towson, Maryland 21204-4765	Yes	0.81	1		No	MDARNG Researching
24C31	Westminster Armory	MG Henry C. Evans Armory	Carroll	350 Hahn Road Westminster, Maryland 21157-4699	Yes	9.35	10	9.35	**Yes**	Site visit complete.
24C33	Webster Field	Webster Field	St. Mary's	Bldg. 3315 Lexington Park, Maryland 20653	**NO**		NP	3.56	**Yes**	MDARNG 11-4-11: MDARNG Real Property records do not contain a proper map or record to map. MDARNG is planning construction of a building on land leased from Patuxent Naval Air Station. Installation_area polygon created based on planning maps internal, but should be reviewed if proper lease maps are received.
24C35	White Oak Armory	MG George M. Gelston Armory	Montgomery	12200 Cherry Hill Road Silver Spring, Maryland 20904-1690	Yes	12.08	14		No	MDARNG Researching
24C04	SFRO-Reisterstown, MD**	SFRO-Reisterstown, MD**	Baltimore	10 N FRANKLIN BOULEVARD Reisterstown Maryland 21136	**NO**		NP	0.12	Yes	MDARNG 11-4-11: MDARNG has no Real Property record on file. Only building lease, NO LAND.

Adelphi Armory (24503, Adelphi Armory)
Input to Maryland Department of Environment
Watershed Implementation Plan Phase II
DRAFT

I. Adelphi Army National Guard Armory

Adelphi Armory (24503, Adelphi Armory) is located along Powder Mill Road in Montgomery County, Maryland, just outside of College Park, Maryland. It is a component of Adelphi Laboratory.

Land use and verification of accurate facility boundary and acreage data to be determined from future field assessment.

II. Adelphi Armory Baseline Loadings November 2011:

To be determined.

III. Programmatic Two Year Milestones 2012-2013:

- **Agricultural-** Not Applicable.
- **Stormwater Management Retrofits-** To be determined.
- **Septic System Upgrades-** Not Applicable.
- **Wastewater Treatment Plant Data-** Not Applicable.
- **Accounting for Future Growth**-
    - The Adelphi Armory will continue to support Maryland Department of Environment (MDE) Watershed Implementation Plan (WIP) Phase II processes in 2012 and 2013.
    - The Adelphi Armory will continue to implement the Army Policy for Sustainable Design and Development (SDD), October 2010 and Low Impact Development (LID) under the Energy Independence and Security Act of 2007 (EISA) as a means to manage stormwater for all future construction and maintenance projects. Currently it is unknown if any new construction projects are scheduled through 2018.

IV. Successes:

The WIP Phase II process required collaborative involvement from MDE, the Adelphi Armory and the U.S. Army Corps of Engineers to ensure pollutant load reductions as well as current and future BMP implementation levels fulfill the federal share of the needed reductions for Nitrogen, Phosphorous and Sediment pollutants. In an effort to meet WIP Phase II timelines, two year milestones and critical progress milestones in 2017 and 2020, Adelphi Armory will conduct a comprehensive assessment of boundary data and land use/land cover data on the facility. Providing more accurate data will enable the facility to better assess the load runoff and appropriate BMPs for minimizing or reducing the loads.

MDE and the Services held several meetings. The meetings were helpful and productive. Going forward this federal-state-local partnership will prove to be instrumental in meeting the long term restoration plan for the Chesapeake Bay as well as improve credibility and accountability for Department of Defense (DoD), a Federal agency leading by example.

Adelphi Armory (24503, Adelphi Armory)
Input to Maryland Department of Environment
Watershed Implementation Plan Phase II
DRAFT

V. Challenges:

- Coordination with multiple Bay jurisdictions made it difficult to apply one agency approach to meeting the required load reductions. For the Services this required additional resources in order to understand what each jurisdiction's expectations are, and these inconsistencies may result in long term load inaccuracies when determining whether TMDL goals have been met across the watershed.
- It was critical that all boundary and land use cover be verified. Facilities of this size have limited GIS data. Therefore, it took an additional amount of resources and technical capability to create shapefiles in order to verify boundaries and land use data.

VI. Inaccuracies:

- MDE included Adelphi Armory as independent entity when in fact it is a component of Adelphi Laboratory. Recognize there is potential for inaccuracies as MDE identified the wrong ownership for this property and when accounted for under Adelphi Laboratory, this could result in duplication of load reductions at Adelphi Laboratory. Information for this facility will be provided to Adelphi Laboratory.
- Additional inaccuracies will be determined.

Olney Military Reservation (24401, COL Henry A. Cole Reservation)
Input to Maryland Department of Environment
Watershed Implementation Plan Phase II
DRAFT

I. Olney Military Reservation

Olney Military Reservation (24401, COL Henry A. Cole Reservation) is located along Ridge Road in Montgomery County, Maryland, approximately 2 miles east of Laytonsville.

Land use and verification of accurate facility boundary and acreage data to be determined from future field assessment.

II. Olney Military Reservation Baseline Loadings November 2011:

To be determined.

III. Programmatic Two Year Milestones 2012-2013:

- **Agricultural-** Not Applicable.
- **Stormwater Management Retrofits-** To be determined.
- **Septic System Upgrades-** Not Applicable.
- **Wastewater Treatment Plant Data-** Not Applicable.
- **Accounting for Future Growth**-
    - The Olney Military Reservation will continue to support Maryland Department of Environment (MDE) Watershed Implementation Plan (WIP) Phase II processes in 2012 and 2013.
    - The Olney Military Reservation will continue to implement the Army Policy for Sustainable Design and Development (SDD), October 2010 and Low Impact Development (LID) under the Energy Independence and Security Act of 2007 (EISA) as a means to manage stormwater for all future construction and maintenance projects. Currently it is unknown if any new construction projects are scheduled through 2018.

IV. Successes:

The WIP Phase II process required collaborative involvement from MDE, the Olney Military Reservation and the U.S. Army Corps of Engineers to ensure pollutant load reductions as well as current and future BMP implementation levels fulfill the federal share of the needed reductions for Nitrogen, Phosphorous and Sediment pollutants. In an effort to meet WIP Phase II timelines, two year milestones and critical progress milestones in 2017 and 2020, Olney Military Reservation will conduct a comprehensive assessment of boundary data and land use/land cover data on the facility. Providing more accurate data will enable the facility to better assess the load runoff and appropriate BMPs for minimizing or reducing the loads.

MDE and the Services held several meetings. The meetings were helpful and productive. Going forward this federal-state-local partnership will prove to be instrumental in meeting the long term restoration plan for the Chesapeake Bay as well as improve credibility and accountability for Department of Defense (DoD), a Federal agency leading by example.

Olney Military Reservation (24401, COL Henry A. Cole Reservation)
Input to Maryland Department of Environment
Watershed Implementation Plan Phase II
DRAFT

V. Challenges:

- Coordination with multiple Bay jurisdictions made it difficult to apply one agency approach to meeting the required load reductions. For the Services this required additional resources in order to understand what each jurisdiction's expectations are, and these inconsistencies may result in long term load inaccuracies when determining whether TMDL goals have been met across the watershed.
- It was critical that all boundary and land use cover be verified. Facilities of this size have limited GIS data. Therefore, it took an additional amount of resources and technical capability to create shapefiles in order to verify boundaries and land use data.

VI. Inaccuracies:

To be determined.

White Oak Armory (24C35, MG George M. Gelston Armory)
Input to Maryland Department of Environment
Watershed Implementation Plan Phase II
DRAFT

I. White Oak National Guard Armory

White Oak Armory (24C35, MG George M. Gelston Armory) is located along Cherry Hill Road in Montgomery County, Maryland, approximately 3 miles northeast of College Park.

Land use and verification of accurate facility boundary and acreage data to be determined from future field assessment.

II. White Oak Armory Baseline Loadings November 2011:

To be determined.

III. Programmatic Two Year Milestones 2012-2013:

- **Agricultural-** Not Applicable.
- **Stormwater Management Retrofits-** To be determined.
- **Septic System Upgrades-** Not Applicable.
- **Wastewater Treatment Plant Data-** Not Applicable.
- **Accounting for Future Growth**-
    - The White Oak Armory will continue to support Maryland Department of Environment (MDE) Watershed Implementation Plan (WIP) Phase II processes in 2012 and 2013.
    - The White Oak Armory will continue to implement the Army Policy for Sustainable Design and Development (SDD), October 2010 and Low Impact Development (LID) under the Energy Independence and Security Act of 2007 (EISA) as a means to manage stormwater for all future construction and maintenance projects. Currently it is unknown if any new construction projects are scheduled through 2018.

IV. Successes:

The WIP Phase II process required collaborative involvement from MDE, the White Oak Armory and the U.S. Army Corps of Engineers to ensure pollutant load reductions as well as current and future BMP implementation levels fulfill the federal share of the needed reductions for Nitrogen, Phosphorous and Sediment pollutants. In an effort to meet WIP Phase II timelines, two year milestones and critical progress milestones in 2017 and 2020, White Oak Armory will conduct a comprehensive assessment of boundary data and land use/land cover data on the facility. Providing more accurate data will enable the facility to better assess the load runoff and appropriate BMPs for minimizing or reducing the loads.

MDE and the Services held several meetings. The meetings were helpful and productive. Going forward this federal-state-local partnership will prove to be instrumental in meeting the long term restoration plan for the Chesapeake Bay as well as improve credibility and accountability for Department of Defense (DoD), a Federal agency leading by example.

White Oak Armory (24C35, MG George M. Gelston Armory)
Input to Maryland Department of Environment
Watershed Implementation Plan Phase II
DRAFT

V. Challenges:

- Coordination with multiple Bay jurisdictions made it difficult to apply one agency approach to meeting the required load reductions. For the Services this required additional resources in order to understand what each jurisdiction's expectations are, and these inconsistencies may result in long term load inaccuracies when determining whether TMDL goals have been met across the watershed.
- It was critical that all boundary and land use cover be verified. Facilities of this size have limited GIS data. Therefore, it took an additional amount of resources and technical capability to create shapefiles in order to verify boundaries and land use data.

VI. Inaccuracies:

To be determined.

Elkton Armory (24A90, LTC James Victor McCool Armory)
Input to Maryland Department of Environment
Watershed Implementation Plan Phase II
DRAFT

I. Elkton Army National Guard Armory

Elkton Armory (24A90, LTC James Victor McCool Armory) is located in the Town of Elkton, Cecil County, Maryland. The 1.17 acre facility is located northeast of the intersection of Bow Street and Railroad Avenue. The building on this site was constructed in 1915. Drainage from the roof of the building flows directly to the impervious parking area on the northern and eastern sections of the building via downspouts. Runoff from the western and southern end of the building drains to pervious lawn area via downspouts. There is a small stormwater system in the southeast corner of the property which outfalls into the Town of Elkton stormwater system.

Based upon field reconnaissance, 57-percent of the 1.17 acre site (0.67 acres) is categorized as high intensity impervious urban land cover. This includes building rooftops, roads, parking areas, and sidewalks. 43-percent of the site (0.50 acres) is categorized as high intensity pervious urban land cover, or lawns.

II. Elkton Armory Baseline Loadings November 2011:

To be determined.

III. Programmatic Two Year Milestones 2012-2013:

- **Agricultural-** Not Applicable.
- **Stormwater Management Retrofits-** There are no existing stormwater BMPs at this site based upon field reconnaissance. Retrofit opportunities will be determined after baseline loadings are established. These results will be incorporated into our next round of two year milestones.
- **Septic System Upgrades-** Not Applicable.
- **Wastewater Treatment Plant Data-** Not Applicable.
- **Accounting for Future Growth**-
    - The Elkton Armory will continue to support Maryland Department of Environment (MDE) Watershed Implementation Plan (WIP) Phase II processes in 2012 and 2013.
    - The Elkton Armory will continue to implement the Army Policy for Sustainable Design and Development (SDD), October 2010 and Low Impact Development (LID) under the Energy Independence and Security Act of 2007 (EISA) as a means to manage stormwater for all future construction and maintenance projects. Currently there are no new construction projects scheduled through 2018.

IV. Successes:

The WIP Phase II process required collaborative involvement from MDE, the Elkton Armory and the U.S. Army Corps of Engineers to ensure pollutant load reductions as well as current and future BMP implementation levels fulfill the federal share of the needed reductions for Nitrogen, Phosphorous and Sediment pollutants. In an effort to meet WIP Phase II timelines, two year milestones and critical progress milestones in 2017 and 2020,

Elkton Armory (24A90, LTC James Victor McCool Armory)
Input to Maryland Department of Environment
Watershed Implementation Plan Phase II
DRAFT

Elkton Armory successfully conducted a comprehensive assessment of boundary data and land use/land cover data on the facility to ensure the data listed below was accurate and submitted to MDE in a timely manner. Providing more accurate data will enable the facility to better assess the load runoff and appropriate BMPs for minimizing or reducing the loads.

- Accurate latitude and longitude locations for each BMP (no BMPs located at Elkton Armory)
- Number of acres treated for each BMP (Not Applicable)
- Date of BMP installation (Not Applicable)
- Condition of BMP (Not Applicable)

MDE and the Services held several meetings. The meetings were helpful and productive. Going forward this federal-state-local partnership will prove to be instrumental in meeting the long term restoration plan for the Chesapeake Bay as well as improve credibility and accountability for Department of Defense (DoD), a Federal agency leading by example.

V. Challenges:

- Coordination with multiple Bay jurisdictions made it difficult to apply one agency approach to meeting the required load reductions. For the Services this required additional resources in order to understand what each jurisdiction's expectations are, and these inconsistencies may result in long term load inaccuracies when determining whether TMDL goals have been met across the watershed.
- Due to the small size of the Elkton facility it was critical that all boundary and land use cover be verified. Facilities of this size have limited GIS data. Therefore, it took an additional amount of resources and technical capability to create shapefiles in order to verify boundaries and land use data.

VI. Inaccuracies:

All boundary data is correct for the Elkton Armory. The percentage of impervious cover, however, on the site being used by MDE is inaccurate based upon field reconnaissance. MDE lists 0.47 acres of high intensity impervious urban land on the site, when the actual acreage is 0.67. This may result in inaccurate expected load reductions for the site.

Westminster Armory (24C31, MG Henry C. Evans Armory)
Input to Maryland Department of Environment
Watershed Implementation Plan Phase II
DRAFT

I. Westminster Army National Guard Armory

Westminster Armory (24C31, MG Henry C. Evans Armory) is located in the City of Westminster, Carroll County, Maryland. The 9.35 acre facility is on Hahn Road west of Maryland Route 27 and north of Maryland Route 140. Based upon field reconnaissance, drainage from the building rooftop enters a sand filter and then a stormwater dry pond located in the eastern portion of the site. Drainage from the remaining portions of the site goes directly to the stormwater dry pond via stormwater inlets or overland flow. A portion of the site drains directly to the City of Westminster stormwater system via overland flow.

Based upon field reconnaissance, 22-percent of the 9.35 acre site (2.09 acres) is categorized as high intensity impervious urban land cover. This includes building rooftops, roads, parking areas, and sidewalks. 78-percent of the site (7.26 acres) is categorized as high intensity pervious urban land cover, which includes lawns and shrubs.

II. Westminster Armory Baseline Loadings November 2011:

To be determined.

III. Programmatic Two Year Milestones 2012-2013:

- **Agricultural-** Not Applicable.
- **Stormwater Management Retrofits-** There are two existing stormwater BMPs at this site based upon field reconnaissance. A sand filter is located at the northeast corner of the building that captures runoff from the building and portions of the parking area. This sand filter was noted as being in poor condition during the field survey. A stormwater dry pond is located at the eastern portion of the site. This pond is in good condition and captures runoff from the majority of the site. Opportunities for retrofits will be determined after baseline loadings are complete.
- **Septic System Upgrades-** Not Applicable.
- **Wastewater Treatment Plant Data-** Not Applicable.
- **Accounting for Future Growth**-
    - The Westminster Armory will continue to support Maryland Department of Environment (MDE) Watershed Implementation Plan (WIP) Phase II processes in 2012 and 2013.
    - The Westminster Armory will continue to implement the Army Policy for Sustainable Design and Development (SDD), October 2010 and Low Impact Development (LID) under the Energy Independence and Security Act of 2007 (EISA) as a means to manage stormwater for all future construction and maintenance projects. Based upon conversations with on-site personnel, expansion to the building is planned in the next several years.

IV. Successes:

The WIP Phase II process required collaborative involvement from MDE, the Westminster Armory and the U.S. Army Corps of Engineers to ensure pollutant load reductions as well as current and future BMP implementation

levels fulfill the federal share of the needed reductions for Nitrogen, Phosphorous and Sediment pollutants. In an effort to meet WIP Phase II timelines, two year milestones and critical progress milestones in 2017 and 2020, Westminster Armory successfully conducted a comprehensive assessment of boundary data and land use/land cover data on the facility to ensure the data listed below was accurate and submitted to MDE in a timely manner. Providing more accurate data will enable the facility to better assess the load runoff and appropriate BMPs for minimizing or reducing the loads.

- Accurate latitude and longitude locations for each BMP
- Number of acres treated for each BMP (to be determined)
- Date of BMP installation (to be determined)
- Condition of BMP

MDE and the Services held several meetings. The meetings were helpful and productive. Going forward this federal-state-local partnership will prove to be instrumental in meeting the long term restoration plan for the Chesapeake Bay as well as improve credibility and accountability for Department of Defense (DoD), a Federal agency leading by example.

V. Challenges:

- Coordination with multiple Bay jurisdictions made it difficult to apply one agency approach to meeting the required load reductions. For the Services this required additional resources in order to understand what each jurisdiction's expectations are, and these inconsistencies may result in long term load inaccuracies when determining whether TMDL goals have been met across the watershed.
- Due to the small size of the Westminster facility it was critical that all boundary and land use cover be verified. Facilities of this size have limited GIS data. Therefore, it took an additional amount of resources and technical capability to create shapefiles in order to verify boundaries and land use data.

VI. Inaccuracies:

- MDE is using a total acreage for this site of 8.0 acres. The actual acreage is 9.35.
- The percentage of impervious cover on the site being used by MDE is inaccurate based upon field reconnaissance. MDE lists 1.1 acres of high intensity impervious urban land on the site, when the actual acreage is 2.09.
- The two BMPs that were identified on this site were not included by MDE in the TMDL load calculations for the site. This will result in a lower expected load reduction once the BMP effectiveness has been applied to the load calculations.

PAX River Armory (24B85, Patuxent River Readiness Center)
Input to Maryland Department of Environment
Watershed Implementation Plan Phase II
DRAFT

I. PAX River Army National Guard Armory

PAX River Armory (24B85, Patuxent River Readiness Center) is located in St. Mary's County, Maryland, approximately 12 miles east of Leonardtown. The 12.4 acre facility is located on Pine Hill Run Road just south of the Naval Support Facility-Patuxent.

Land use and verification of accurate facility boundary and acreage data to be determined from future field assessment.

II. PAX River Armory Baseline Loadings November 2011:

To be determined.

III. Programmatic Two Year Milestones 2012-2013:

- **Agricultural-** Not Applicable.
- **Stormwater Management Retrofits-** To be determined.
- **Septic System Upgrades-** Not Applicable.
- **Wastewater Treatment Plant Data-** Not Applicable.
- **Accounting for Future Growth**-
    - The PAX River Armory will continue to support Maryland Department of Environment (MDE) Watershed Implementation Plan (WIP) Phase II processes in 2012 and 2013.
    - The PAX River Armory will continue to implement the Army Policy for Sustainable Design and Development (SDD), October 2010 and Low Impact Development (LID) under the Energy Independence and Security Act of 2007 (EISA) as a means to manage stormwater for all future construction and maintenance projects. Currently it is unknown if any new construction projects are scheduled through 2018.

IV. Successes:

The WIP Phase II process required collaborative involvement from MDE, the PAX River Armory and the U.S. Army Corps of Engineers to ensure pollutant load reductions as well as current and future BMP implementation levels fulfill the federal share of the needed reductions for Nitrogen, Phosphorous and Sediment pollutants. In an effort to meet WIP Phase II timelines, two year milestones and critical progress milestones in 2017 and 2020, PAX River Armory will conduct a comprehensive assessment of boundary data and land use/land cover data on the facility. Providing more accurate data will enable the facility to better assess the load runoff and appropriate BMPs for minimizing or reducing the loads.

MDE and the Services held several meetings. The meetings were helpful and productive. Going forward this federal-state-local partnership will prove to be instrumental in meeting the long term restoration plan for the

Chesapeake Bay as well as improve credibility and accountability for Department of Defense (DoD), a Federal agency leading by example.

V. Challenges:

- Coordination with multiple Bay jurisdictions made it difficult to apply one agency approach to meeting the required load reductions. For the Services this required additional resources in order to understand what each jurisdiction's expectations are, and these inconsistencies may result in long term load inaccuracies when determining whether TMDL goals have been met across the watershed.
- It was critical that all boundary and land use cover be verified. Facilities of this size have limited GIS data. Therefore, it took an additional amount of resources and technical capability to create shapefiles in order to verify boundaries and land use data.

VI. Inaccuracies:

To be determined.

Webster Field (24C33)
Input to Maryland Department of Environment
Watershed Implementation Plan Phase II
DRAFT

I. Webster Field

Webster Field (24C33) consists of a currently vacant 3.56 acre parcel on the Naval Air Station Patuxent Webster Field Annex. It is located in St. Mary's County, Maryland, approximately 15 miles southeast of Leonardtown. This site consists of a 3.56 acre vacant parcel in which MDARNG plans to build on in the future.

Webster Field is not an independent entity per MDE. It was included as a component of Naval Air Station Patuxent Webster Field Annex. Land use and verification of accurate facility boundary and acreage data to be determined from future field assessment.

II. Webster Field Baseline Loadings November 2011:

To be determined.

III. Programmatic Two Year Milestones 2012-2013:

- **Agricultural-** Not Applicable.
- **Stormwater Management Retrofits-** To be determined.
- **Septic System Upgrades-** Not Applicable.
- **Wastewater Treatment Plant Data-** Not Applicable.
- **Accounting for Future Growth**-
    - Webster Field will continue to support Maryland Department of Environment (MDE) Watershed Implementation Plan (WIP) Phase II processes in 2012 and 2013.
    - Webster Field will continue to implement the Army Policy for Sustainable Design and Development (SDD), October 2010 and Low Impact Development (LID) under the Energy Independence and Security Act of 2007 (EISA) as a means to manage stormwater for all future construction and maintenance projects. Currently it is unknown if any new construction projects are scheduled through 2018.

IV. Successes:

The Watershed WIP Phase II process required collaborative involvement from MDE, Webster Field and the U.S. Army Corps of Engineers to ensure pollutant load reductions as well as current and future BMP implementation levels fulfill the federal share of the needed reductions for Nitrogen, Phosphorous and Sediment pollutants. In an effort to meet WIP Phase II timelines, two year milestones and critical progress milestones in 2017 and 2020, Webster Field will conduct a comprehensive assessment of boundary data and land use/land cover data on the facility. Providing more accurate data will enable the facility to better assess the load runoff and appropriate BMPs for minimizing or reducing the loads.

Webster Field (24C33)
Input to Maryland Department of Environment
Watershed Implementation Plan Phase II
DRAFT

MDE and the Services held several meetings. The meetings were helpful and productive. Going forward this federal-state-local partnership will prove to be instrumental in meeting the long term restoration plan for the Chesapeake Bay as well as improve credibility and accountability for Department of Defense (DoD), a Federal agency leading by example.

V. Challenges:

- Coordination with multiple Bay jurisdictions made it difficult to apply one agency approach to meeting the required load reductions. For the Services this required additional resources in order to understand what each jurisdiction's expectations are, and these inconsistencies may result in long term load inaccuracies when determining whether TMDL goals have been met across the watershed.
- It was critical that all boundary and land use cover be verified. Facilities of this size have limited GIS data. Therefore, it took an additional amount of resources and technical capability to create shapefiles in order to verify boundaries and land use data.

VI. Inaccuracies:

- MDE included Webster Field as an independent entity when in fact it is a component of Naval Air Station Patuxent Webster Field Annex. Recognize there is potential for inaccuracies as MDE identified the wrong ownership for this property and when accounted for under Naval Air Station Patuxent Webster Field Annex, this could result in duplication of load reductions at Naval Air Station Patuxent Webster Field Annex. Information for this facility will be provided to the Navy- Naval Air Station Patuxent Webster Field Annex.
- Additional inaccuracies to be determined.

Ellicott City Armory (24A95, BG Thomas B. Baker Armory)
Input to Maryland Department of Environment
Watershed Implementation Plan Phase II
DRAFT

I. Ellicott City Army National Guard Armory

Ellicott City Armory (24A95, BG Thomas B. Baker Armory) is located in Howard County, Maryland. The 5.57 acre facility is located on Montgomery Road just east of U.S Route 29. There are several stormwater inlets on the site which convey runoff into the Howard County stormwater system. Based upon field reconnaissance, there are no stormwater BMPs located at this site.

Based upon field reconnaissance, 53-percent of the 5.57 acre site (2.94 acres) is categorized as high intensity impervious urban land cover. This includes building rooftops, roads, parking areas, and sidewalks. 40-percent of the site (2.25 acres) is categorized as high intensity pervious urban land cover, or lawns, and 7-percent (0.38) acres are forested.

II. Ellicott City Armory Baseline Loadings November 2011:

To be determined.

III. Programmatic Two Year Milestones 2012-2013:

- **Agricultural-** Not Applicable.
- **Stormwater Management Retrofits-** There are no existing stormwater BMPs at this site based upon field reconnaissance. Retrofit opportunities will be determined after baseline loadings are established.
- **Septic System Upgrades-** Not Applicable.
- **Wastewater Treatment Plant Data-** Not Applicable.
- **Accounting for Future Growth**-
    - The Ellicott City Armory will continue to support Maryland Department of Environment (MDE) Watershed Implementation Plan (WIP) Phase II processes in 2012 and 2013.
    - The Ellicott City Armory will continue to implement the Army Policy for Sustainable Design and Development (SDD), October 2010 and Low Impact Development (LID) under the Energy Independence and Security Act of 2007 (EISA) as a means to manage stormwater for all future construction and maintenance projects. Currently there are no new construction projects scheduled through 2018.

IV. Successes:

The WIP Phase II process required collaborative involvement from MDE, the Ellicott City Armory and the U.S. Army Corps of Engineers to ensure pollutant load reductions as well as current and future BMP implementation levels fulfill the federal share of the needed reductions for Nitrogen, Phosphorous and Sediment pollutants. In an effort to meet WIP Phase II timelines, two year milestones and critical progress milestones in 2017 and 2020, Ellicott City Armory successfully conducted a comprehensive assessment of boundary data and land use/land cover data on the facility to ensure the data listed below was accurate and submitted to MDE in a timely

manner. Providing more accurate data will enable the facility to better assess the load runoff and appropriate BMPs for minimizing or reducing the loads.

- Accurate latitude and longitude locations for each BMP (no BMPs located at Ellicott City Armory)
- Number of acres treated for each BMP (Not Applicable)
- Date of BMP installation (Not Applicable)
- Condition of BMP (Not Applicable)

MDE and the Services held several meetings. The meetings were helpful and productive. Going forward this federal-state-local partnership will prove to be instrumental in meeting the long term restoration plan for the Chesapeake Bay as well as improve credibility and accountability for Department of Defense (DoD), a Federal agency leading by example.

V. Challenges:

- Coordination with multiple Bay jurisdictions made it difficult to apply one agency approach to meeting the required load reductions. For the Services this required additional resources in order to understand what each jurisdiction's expectations are, and these inconsistencies may result in long term load inaccuracies when determining whether TMDL goals have been met across the watershed.
- Due to the small size of the Ellicott City facility it was critical that all boundary and land use cover be verified. Facilities of this size have limited GIS data. Therefore, it took an additional amount of resources and technical capability to create shapefiles in order to verify boundaries and land use data.

VI. Inaccuracies:

- MDE uses a site size of 6.07 acres while the actual size of the site is 5.56 acres.
- The percentage of impervious cover on the site being used by MDE is inaccurate based upon field reconnaissance. MDE lists 2.5 acres of high intensity impervious urban land on the site, when the actual acreage is 2.94. These inaccuracies may result in changes to the expected load reductions for this facility.

Fort Ritchie (24890, MG Boyd M. Cook Armory)
Input to Maryland Department of Environment
Watershed Implementation Plan Phase II
DRAFT

I. Fort Ritchie Army National Guard Armory

Fort Ritchie (24890, MG Boyd M. Cook Armory) is located in Washington County, Maryland. The 18.85 acre facility is on Ritchie Road approximately 5 miles northeast of Smithsburg. Based upon field reconnaissance, drainage from the majority of the site runs to the southwest corner of the property via stormwater pipes and open channels, into a stormwater wet pond.

Based upon field reconnaissance, 10-percent of the 18.85 acre site (1.82 acres) is categorized as low intensity impervious urban land cover. This includes building rooftops, roads, parking areas, and sidewalks. 16-percent of the site (2.97 acres) is categorized as low intensity pervious urban land cover, which includes lawns. The remaining 74-percent of the site (14.04 acres) is forested or is open water associated with the stormwater wet pond.

II. Fort Ritchie Armory Baseline Loadings November 2011:

To be determined.

III. Programmatic Two Year Milestones 2012-2013:

- **Agricultural-** Not Applicable.
- **Stormwater Management Retrofits-** There is one existing stormwater BMP at this site based upon field reconnaissance. A stormwater wet pond is located at the southwest corner of the site. This pond is in good condition and captures runoff from the majority of the site. Opportunities for retrofits will be determined after baseline loadings are complete.
- **Septic System Upgrades-** Not Applicable.
- **Wastewater Treatment Plant Data-** Not Applicable.
- **Accounting for Future Growth**-
    - The Fort Ritchie Armory will continue to support Maryland Department of Environment (MDE) Watershed Implementation Plan (WIP) Phase II processes in 2012 and 2013.
    - The Fort Ritchie Armory will continue to implement the Army Policy for Sustainable Design and Development (SDD), October 2010 and Low Impact Development (LID) under the Energy Independence and Security Act of 2007 (EISA) as a means to manage stormwater for all future construction and maintenance projects.

IV. Successes:

The WIP Phase II process required collaborative involvement from MDE, the Fort Ritchie Armory and the U.S. Army Corps of Engineers to ensure pollutant load reductions as well as current and future BMP implementation levels fulfill the federal share of the needed reductions for Nitrogen, Phosphorous and Sediment pollutants. In an effort to meet WIP Phase II timelines, two year milestones and critical progress milestones in 2017 and 2020, Fort Ritchie Armory successfully conducted a comprehensive assessment of boundary data and land use/land cover data on the facility to ensure the data listed below was accurate and submitted to MDE in a timely

manner. Providing more accurate data will enable the facility to better assess the load runoff and appropriate BMPs for minimizing or reducing the loads.

- Accurate latitude and longitude locations for each BMP
- Number of acres treated for each BMP (to be determined)
- Date of BMP installation (to be determined)
- Condition of BMP

MDE and the Services held several meetings. The meetings were helpful and productive. Going forward this federal-state-local partnership will prove to be instrumental in meeting the long term restoration plan for the Chesapeake Bay as well as improve credibility and accountability for Department of Defense (DoD), a Federal agency leading by example.

V. Challenges:

- Coordination with multiple Bay jurisdictions made it difficult to apply one agency approach to meeting the required load reductions. For the Services this required additional resources in order to understand what each jurisdiction's expectations are, and these inconsistencies may result in long term load inaccuracies when determining whether TMDL goals have been met across the watershed.
- It was critical that all boundary and land use cover be verified. Facilities of this size have limited GIS data. Therefore, it took an additional amount of resources and technical capability to create shapefiles in order to verify boundaries and land use data.

VI. Inaccuracies:

- MDE is using a total acreage for this site of 19.83 acres. The actual acreage is 18.85.
- The percentage and type (high intensity vs. low intensity) of impervious cover on the site being used by MDE is inaccurate based upon field reconnaissance. MDE lists 1.94 acres of high intensity impervious urban land on the site, when the actual acreage is 1.82 of low intensity impervious urban land. The MDE data also overestimates the type and amount of pervious cover on the site. MDE lists 5.72 acres of high intensity pervious urban land, when the actual value is 2.97 acres of low intensity pervious urban land. Thus, there is more forested area on the site than is listed in the MDE data.
- The BMP that was identified on this site was not included by MDE in the TMDL load calculations for the site. These inaccuracies may result in changes to the expected load reduction for this facility.

Hagerstown Armory (24B31, BG (MD) Randolph Millholland & CW4 Lloyd May Arm.)
Input to Maryland Department of Environment
Watershed Implementation Plan Phase II
DRAFT

I. Hagerstown National Guard Armory

Hagerstown Armory (24B31, BG (MD) Randolph Millholland & CW4 Lloyd May Arm.) is located in Washington County, Maryland, approximately 3 miles south of the City of Hagerstown, along Roxbury Road.

Land use and verification of accurate facility boundary and acreage data to be determined from future field assessment.

II. Hagerstown Armory Baseline Loadings November 2011:

To be determined.

III. Programmatic Two Year Milestones 2012-2013:

- **Agricultural-** Not Applicable.
- **Stormwater Management Retrofits-** To be determined.
- **Septic System Upgrades-** Not Applicable.
- **Wastewater Treatment Plant Data-** Not Applicable.
- **Accounting for Future Growth**-
    - The Hagerstown Armory will continue to support Maryland Department of Environment (MDE) Watershed Implementation Plan (WIP) Phase II processes in 2012 and 2013.
    - The Hagerstown Armory will continue to implement the Army Policy for Sustainable Design and Development (SDD), October 2010 and Low Impact Development (LID) under the Energy Independence and Security Act of 2007 (EISA) as a means to manage stormwater for all future construction and maintenance projects. Currently it is unknown if any new construction projects are scheduled through 2018.

IV. Successes:

The WIP Phase II process required collaborative involvement from MDE, the Hagerstown Armory and the U.S. Army Corps of Engineers to ensure pollutant load reductions as well as current and future BMP implementation levels fulfill the federal share of the needed reductions for Nitrogen, Phosphorous and Sediment pollutants. In an effort to meet WIP Phase II timelines, two year milestones and critical progress milestones in 2017 and 2020, Hagerstown Armory will conduct a comprehensive assessment of boundary data and land use/land cover data on the facility. Providing more accurate data will enable the facility to better assess the load runoff and appropriate BMPs for minimizing or reducing the loads.

MDE and the Services held several meetings. The meetings were helpful and productive. Going forward this federal-state-local partnership will prove to be instrumental in meeting the long term restoration plan for the Chesapeake Bay as well as improve credibility and accountability for Department of Defense (DoD), a Federal agency leading by example.

Hagerstown Armory (24B31, BG (MD) Randolph Millholland & CW4 Lloyd May Arm.)
Input to Maryland Department of Environment
Watershed Implementation Plan Phase II
DRAFT

V. Challenges:

- Coordination with multiple Bay jurisdictions made it difficult to apply one agency approach to meeting the required load reductions. For the Services this required additional resources in order to understand what each jurisdiction's expectations are, and these inconsistencies may result in long term load inaccuracies when determining whether TMDL goals have been met across the watershed.
- It was critical that all boundary and land use cover be verified. Facilities of this size have limited GIS data. Therefore, it took an additional amount of resources and technical capability to create shapefiles in order to verify boundaries and land use data.

VI. Inaccuracies:

To be determined.

Frederick Armory (24A99, CPT Michael Cresap Armory)
Input to Maryland Department of Environment
Watershed Implementation Plan Phase II
DRAFT

I. Frederick Army National Guard Armory

Frederick Armory (24A99, CPT Michael Cresap Armory) is located in Frederick County, Maryland. The 13.80 acre facility is located on Old National Pike near the west bank of the Monocacy River. Runoff from the site sheet flows into a large grass area surrounding the entire site.

Based upon field reconnaissance, 17-percent of the 13.80 acre site (2.33 acres) is categorized as low intensity impervious urban land cover. This includes building rooftops, roads, parking areas, and sidewalks. 76-percent of the site (10.44 acres) is categorized as low intensity pervious urban land cover, or lawns. 5-percent (0.75 acres) of the site are forested, and the remaining 2-percent (0.28 acres) is unfertilized grass, or brush.

II. Frederick Armory Baseline Loadings November 2011:

To be determined.

III. Programmatic Two Year Milestones 2012-2013:

- **Agricultural-** Not Applicable.
- **Stormwater Management Retrofits-** There are no existing stormwater BMPs at this site based upon field reconnaissance. Retrofit opportunities will be determined after baseline loadings are established.
- **Septic System Upgrades-** Not Applicable.
- **Wastewater Treatment Plant Data-** Not Applicable.
- **Accounting for Future Growth**-
    - The Frederick Armory will continue to support Maryland Department of Environment (MDE) Watershed Implementation Plan (WIP) Phase II processes in 2012 and 2013.
    - The Frederick Armory will continue to implement the Army Policy for Sustainable Design and Development (SDD), October 2010 and Low Impact Development (LID) under the Energy Independence and Security Act of 2007 (EISA) as a means to manage stormwater for all future construction and maintenance projects. Currently there are no new construction projects scheduled through 2018.

IV. Successes:

The WIP Phase II process required collaborative involvement from MDE, the Frederick Armory and the U.S. Army Corps of Engineers to ensure pollutant load reductions as well as current and future BMP implementation levels fulfill the federal share of the needed reductions for Nitrogen, Phosphorous and Sediment pollutants. In an effort to meet WIP Phase II timelines, two year milestones and critical progress milestones in 2017 and 2020, Frederick Armory successfully conducted a comprehensive assessment of boundary data and land use/land cover data on the facility to ensure the data listed below was accurate and submitted to MDE in a timely manner. Providing more accurate data will enable the facility to better assess the load runoff and appropriate BMPs for minimizing or reducing the loads.

- Accurate latitude and longitude locations for each BMP (no BMPs located at Frederick Armory)
- Number of acres treated for each BMP (Not Applicable)
- Date of BMP installation (Not Applicable)
- Condition of BMP (Not Applicable)

MDE and the Services held several meetings. The meetings were helpful and productive. Going forward this federal-state-local partnership will prove to be instrumental in meeting the long term restoration plan for the Chesapeake Bay as well as improve credibility and accountability for Department of Defense (DoD), a Federal agency leading by example.

V. Challenges:

- Coordination with multiple Bay jurisdictions made it difficult to apply one agency approach to meeting the required load reductions. For the Services this required additional resources in order to understand what each jurisdiction's expectations are, and these inconsistencies may result in long term load inaccuracies when determining whether TMDL goals have been met across the watershed.
- It was critical that all boundary and land use cover be verified. Facilities of this size have limited GIS data. Therefore, it took an additional amount of resources and technical capability to create shapefiles in order to verify boundaries and land use data.

VI. Inaccuracies:

- MDE uses a site size of 14.05 acres while the actual size of the site is 13.80 acres.
- The percentage of impervious cover on the site being used by MDE as well as the type of impervious land (high intensity vs. low intensity) is inaccurate based upon field reconnaissance. MDE lists 1.17 acres of high intensity impervious urban land on the site, when the actual acreage is 2.33 of low intensity impervious urban land. These inaccuracies could result in changes to the expected load reductions.

Laurel Armory (24891, PVT Henry Costin Armory)
Input to Maryland Department of Environment
Watershed Implementation Plan Phase II
DRAFT

I. Laurel Army National Guard Armory

Laurel Armory (24891, PVT Henry Costin Armory) is located along Odell Road in Prince George's County County, Maryland, approximately 3 miles southeast of Laurel.

Land use and verification of accurate facility boundary and acreage data to be determined from future field assessment.

II. Laurel Armory Baseline Loadings November 2011:

To be determined.

III. Programmatic Two Year Milestones 2012-2013:

- **Agricultural-** Not Applicable.
- **Stormwater Management Retrofits-** To be determined.
- **Septic System Upgrades-** Not Applicable.
- **Wastewater Treatment Plant Data-** Not Applicable.
- **Accounting for Future Growth**-
    - The Laurel Armory will continue to support Maryland Department of Environment (MDE) Watershed Implementation Plan (WIP) Phase II processes in 2012 and 2013.
    - The Laurel Armory will continue to implement the Army Policy for Sustainable Design and Development (SDD), October 2010 and Low Impact Development (LID) under the Energy Independence and Security Act of 2007 (EISA) as a means to manage stormwater for all future construction and maintenance projects. Currently it is unknown if any new construction projects are scheduled through 2018.

IV. Successes:

The WIP Phase II process required collaborative involvement from MDE, the Laurel Armory and the U.S. Army Corps of Engineers to ensure pollutant load reductions as well as current and future BMP implementation levels fulfill the federal share of the needed reductions for Nitrogen, Phosphorous and Sediment pollutants. In an effort to meet WIP Phase II timelines, two year milestones and critical progress milestones in 2017 and 2020, Laurel Armory will conduct a comprehensive assessment of boundary data and land use/land cover data on the facility. Providing more accurate data will enable the facility to better assess the load runoff and appropriate BMPs for minimizing or reducing the loads.

MDE and the Services held several meetings. The meetings were helpful and productive. Going forward this federal-state-local partnership will prove to be instrumental in meeting the long term restoration plan for the Chesapeake Bay as well as improve credibility and accountability for Department of Defense (DoD), a Federal agency leading by example.

Laurel Armory (24891, PVT Henry Costin Armory)
Input to Maryland Department of Environment
Watershed Implementation Plan Phase II
DRAFT

V. Challenges:

- Coordination with multiple Bay jurisdictions made it difficult to apply one agency approach to meeting the required load reductions. For the Services this required additional resources in order to understand what each jurisdiction's expectations are, and these inconsistencies may result in long term load inaccuracies when determining whether TMDL goals have been met across the watershed.
- It was critical that all boundary and land use cover be verified. Facilities of this size have limited GIS data. Therefore, it took an additional amount of resources and technical capability to create shapefiles in order to verify boundaries and land use data.

VI. Inaccuracies:

To be determined.

Cheltenham Armory (24A45, Congressman Steny Hoyer Armory)
Input to Maryland Department of Environment
Watershed Implementation Plan Phase II
DRAFT

I. Cheltenham National Guard Armory

Cheltenham Armory (24A45, Congressman Steny Hoyer Armory) is located in Prince George's County, Maryland along Surratts Road, approximately 7 miles southwest of Upper Marlboro.

Land use and verification of accurate facility boundary and acreage data to be determined from future field assessment.

II. Cheltenham Armory Baseline Loadings November 2011:

To be determined.

III. Programmatic Two Year Milestones 2012-2013:

- **Agricultural-** Not Applicable.
- **Stormwater Management Retrofits-** To be determined.
- **Septic System Upgrades-** Not Applicable.
- **Wastewater Treatment Plant Data-** Not Applicable.
- **Accounting for Future Growth**-
    - The Cheltenham Armory will continue to support Maryland Department of Environment (MDE) Watershed Implementation Plan (WIP) Phase II processes in 2012 and 2013.
    - The Cheltenham Armory will continue to implement the Army Policy for Sustainable Design and Development (SDD), October 2010 and Low Impact Development (LID) under the Energy Independence and Security Act of 2007 (EISA) as a means to manage stormwater for all future construction and maintenance projects. Currently it is unknown if any new construction projects are scheduled through 2018.

IV. Successes:

The WIP Phase II process required collaborative involvement from MDE, the Cheltenham Armory and the U.S. Army Corps of Engineers to ensure pollutant load reductions as well as current and future BMP implementation levels fulfill the federal share of the needed reductions for Nitrogen, Phosphorous and Sediment pollutants. In an effort to meet WIP Phase II timelines, two year milestones and critical progress milestones in 2017 and 2020, Cheltenham Armory will conduct a comprehensive assessment of boundary data and land use/land cover data on the facility. Providing more accurate data will enable the facility to better assess the load runoff and appropriate BMPs for minimizing or reducing the loads.

MDE and the Services held several meetings. The meetings were helpful and productive. Going forward this federal-state-local partnership will prove to be instrumental in meeting the long term restoration plan for the Chesapeake Bay as well as improve credibility and accountability for Department of Defense (DoD), a Federal agency leading by example.

Cheltenham Armory (24A45, Congressman Steny Hoyer Armory)
Input to Maryland Department of Environment
Watershed Implementation Plan Phase II
DRAFT

V. Challenges:

- Coordination with multiple Bay jurisdictions made it difficult to apply one agency approach to meeting the required load reductions. For the Services this required additional resources in order to understand what each jurisdiction's expectations are, and these inconsistencies may result in long term load inaccuracies when determining whether TMDL goals have been met across the watershed.
- It was critical that all boundary and land use cover be verified. Facilities of this size have limited GIS data. Therefore, it took an additional amount of resources and technical capability to create shapefiles in order to verify boundaries and land use data.

VI. Inaccuracies:

To be determined.

Greenbelt Armory (24B25, MG (Brevet) John R. Kenly Armory)
Input to Maryland Department of Environment
Watershed Implementation Plan Phase II
DRAFT

I. Greenbelt National Guard Armory

Greenbelt Armory (24B25, MG (Brevet) John R. Kenly Armory) is located in Prince George's County, Maryland just northwest of the Baltimore-Washington Parkway (Route 295) and Greenbelt Road (MD Route 193) interchange.

Land use and verification of accurate facility boundary and acreage data to be determined from future field assessment.

II. Greenbelt Armory Baseline Loadings November 2011:

To be determined.

III. Programmatic Two Year Milestones 2012-2013:

- **Agricultural-** Not Applicable.
- **Stormwater Management Retrofits-** To be determined.
- **Septic System Upgrades-** Not Applicable.
- **Wastewater Treatment Plant Data-** Not Applicable.
- **Accounting for Future Growth**-
    - The Greenbelt Armory will continue to support Maryland Department of Environment (MDE) Watershed Implementation Plan (WIP) Phase II processes in 2012 and 2013.
    - The Greenbelt Armory will continue to implement the Army Policy for Sustainable Design and Development (SDD), October 2010 and Low Impact Development (LID) under the Energy Independence and Security Act of 2007 (EISA) as a means to manage stormwater for all future construction and maintenance projects. Currently it is unknown if any new construction projects are scheduled through 2018.

IV. Successes:

The WIP Phase II process required collaborative involvement from MDE, the Greenbelt Armory and the U.S. Army Corps of Engineers to ensure pollutant load reductions as well as current and future BMP implementation levels fulfill the federal share of the needed reductions for Nitrogen, Phosphorous and Sediment pollutants. In an effort to meet WIP Phase II timelines, two year milestones and critical progress milestones in 2017 and 2020, Greenbelt Armory will conduct a comprehensive assessment of boundary data and land use/land cover data on the facility. Providing more accurate data will enable the facility to better assess the load runoff and appropriate BMPs for minimizing or reducing the loads.

MDE and the Services held several meetings. The meetings were helpful and productive. Going forward this federal-state-local partnership will prove to be instrumental in meeting the long term restoration plan for the

Chesapeake Bay as well as improve credibility and accountability for Department of Defense (DoD), a Federal agency leading by example.

V. Challenges:

- Coordination with multiple Bay jurisdictions made it difficult to apply one agency approach to meeting the required load reductions. For the Services this required additional resources in order to understand what each jurisdiction's expectations are, and these inconsistencies may result in long term load inaccuracies when determining whether TMDL goals have been met across the watershed.
- It was critical that all boundary and land use cover be verified. Facilities of this size have limited GIS data. Therefore, it took an additional amount of resources and technical capability to create shapefiles in order to verify boundaries and land use data.

VI. Inaccuracies:

To be determined.

Maryland Freestate Challenge Academy (24A05)
Input to Maryland Department of Environment
Watershed Implementation Plan Phase II
DRAFT

I. Maryland Freestate Challenge Academy

Maryland Freestate Challenge Academy (24A05) consists of a single building located on Aberdeen Proving Ground. The footprint of the building is 0.32 acres in size. All drainage from the building flows into the Aberdeen Proving Ground stormwater system.

This site consists of a single building, which is 0.32 acres of high intensity impervious urban land cover. Maryland Freestate Challenge Academy is not an independent entity per MDE. It is a component of Aberdeen Proving Ground (APG).

II. Maryland Freestate Challenge Academy Baseline Loadings November 2011:

To be determined.

III. Programmatic Two Year Milestones 2012-2013:

- **Agricultural-** Not Applicable.
- **Stormwater Management Retrofits-** To be determined.
- **Septic System Upgrades-** Not Applicable.
- **Wastewater Treatment Plant Data-** Not Applicable.
- **Accounting for Future Growth**-
    - The Maryland Freestate Challenge Academy will continue to support Maryland Department of Environment (MDE) Watershed Implementation Plan (WIP) Phase II processes in 2012 and 2013.
    - The Maryland Freestate Challenge Academy will continue to implement the Army Policy for Sustainable Design and Development (SDD), October 2010 and Low Impact Development (LID) under the Energy Independence and Security Act of 2007 (EISA) as a means to manage stormwater for all future construction and maintenance projects. Currently it is unknown if any new construction projects are scheduled through 2018.

IV. Successes:

The WIP Phase II process required collaborative involvement from MDE, the Maryland Freestate Challenge Academy and the U.S. Army Corps of Engineers to ensure pollutant load reductions as well as current and future BMP implementation levels fulfill the federal share of the needed reductions for Nitrogen, Phosphorous and Sediment pollutants. In an effort to meet WIP Phase II timelines, two year milestones and critical progress milestones in 2017 and 2020, Maryland Freestate Challenge Academy will conduct a comprehensive assessment of boundary data and land use/land cover data on the facility. Providing more accurate data will enable the facility to better assess the load runoff and appropriate BMPs for minimizing or reducing the loads.

MDE and the Services held several meetings. The meetings were helpful and productive. Going forward this federal-state-local partnership will prove to be instrumental in meeting the long term restoration plan for the

Chesapeake Bay as well as improve credibility and accountability for Department of Defense (DoD), a Federal agency leading by example.

V. Challenges:

- Coordination with multiple Bay jurisdictions made it difficult to apply one agency approach to meeting the required load reductions. For the Services this required additional resources in order to understand what each jurisdiction's expectations are, and these inconsistencies may result in long term load inaccuracies when determining whether TMDL goals have been met across the watershed.
- It was critical that all boundary and land use cover be verified. Facilities of this size have limited GIS data. Therefore, it took an additional amount of resources and technical capability to create shapefiles in order to verify boundaries and land use data.

VI. Inaccuracies:

- MDE included Maryland Freestate Challenge Academy as independent entity when in fact it is a component of Aberdeen Proving Ground (APG). Recognize there is potential for inaccuracies as MDE identified the wrong ownership for this property and when accounted for under APG, this could result in duplication of load reductions at APG. Information for this facility will be provided to APG.
- Additional inaccuracies to be determined.

Havre De Grace Military Reservation (24B35)
Input to Maryland Department of Environment
Watershed Implementation Plan Phase II
DRAFT

I. Havre de Grace Military Reservation

Havre de Grace Military Reservation (24B35) is located in Havre de Grace, Harford County, Maryland on Old Bay Lane east of Pulaski Highway. The site is 75.88 acres in size.

Land use and verification of accurate facility boundary and acreage data to be determined from future field assessment.

II. Havre de Grace Military Reservation Baseline Loadings November 2011:

To be determined.

III. Programmatic Two Year Milestones 2012-2013:

- **Agricultural-** Not Applicable.
- **Stormwater Management Retrofits-** To be determined.
- **Septic System Upgrades-** Not Applicable.
- **Wastewater Treatment Plant Data-** Not Applicable.
- **Accounting for Future Growth**-
    - The Havre de Grace Military Reservation will continue to support Maryland Department of Environment (MDE) Watershed Implementation Plan (WIP) Phase II processes in 2012 and 2013.
    - The Havre de Grace Military Reservation will continue to implement the Army Policy for Sustainable Design and Development (SDD), October 2010 and Low Impact Development (LID) under the Energy Independence and Security Act of 2007 (EISA) as a means to manage stormwater for all future construction and maintenance projects. Currently it is unknown if any new construction projects are scheduled through 2018.

IV. Successes:

The WIP Phase II process required collaborative involvement from MDE, the Havre de Grace Military Reservation and the U.S. Army Corps of Engineers to ensure pollutant load reductions as well as current and future BMP implementation levels fulfill the federal share of the needed reductions for Nitrogen, Phosphorous and Sediment pollutants. In an effort to meet WIP Phase II timelines, two year milestones and critical progress milestones in 2017 and 2020, Havre de Grace Military Reservation will conduct a comprehensive assessment of boundary data and land use/land cover data on the facility. Providing more accurate data will enable the facility to better assess the load runoff and appropriate BMPs for minimizing or reducing the loads.

MDE and the Services held several meetings. The meetings were helpful and productive. Going forward this federal-state-local partnership will prove to be instrumental in meeting the long term restoration plan for the Chesapeake Bay as well as improve credibility and accountability for Department of Defense (DoD), a Federal agency leading by example.

Havre De Grace Military Reservation (24B35)
Input to Maryland Department of Environment
Watershed Implementation Plan Phase II
DRAFT

V. Challenges:

- Coordination with multiple Bay jurisdictions made it difficult to apply one agency approach to meeting the required load reductions. For the Services this required additional resources in order to understand what each jurisdiction's expectations are, and these inconsistencies may result in long term load inaccuracies when determining whether TMDL goals have been met across the watershed.
- It was critical that all boundary and land use cover be verified. Facilities of this size have limited GIS data. Therefore, it took an additional amount of resources and technical capability to create shapefiles in order to verify boundaries and land use data.

VI. Inaccuracies:

To be determined.

Phillips Army Airfield (24A83)
Input to Maryland Department of Environment
Watershed Implementation Plan Phase II
DRAFT

I. Phillips Army Airfield

Phillips Army Airfield (24A83) consists of a single building located on Aberdeen Proving Ground (APG). The footprint of the building is 0.82 acres in size. All drainage from the building flows into the Aberdeen Proving Ground stormwater system.

This site consists of a single building, which is 0.82 acres of high intensity impervious urban land cover. Phillips Army Airfield is not an independent entity per MDE. It was included as a component of Aberdeen Proving Ground.

II. Phillips Army Airfield Baseline Loadings November 2011:

To be determined.

III. Programmatic Two Year Milestones 2012-2013:

- **Agricultural-** Not Applicable.
- **Stormwater Management Retrofits-** To be determined.
- **Septic System Upgrades-** Not Applicable.
- **Wastewater Treatment Plant Data-** Not Applicable.
- **Accounting for Future Growth**-
    - Phillips Army Airfield will continue to support Maryland Department of Environment (MDE) Watershed Implementation Plan (WIP) Phase II processes in 2012 and 2013.
    - Phillips Army Airfield will continue to implement the Army Policy for Sustainable Design and Development (SDD), October 2010 and Low Impact Development (LID) under the Energy Independence and Security Act of 2007 (EISA) as a means to manage stormwater for all future construction and maintenance projects. Currently it is unknown if any new construction projects are scheduled through 2018.

IV. Successes:

The WIP Phase II process required collaborative involvement from MDE, Phillips Army Airfield and the U.S. Army Corps of Engineers to ensure pollutant load reductions as well as current and future BMP implementation levels fulfill the federal share of the needed reductions for Nitrogen, Phosphorous and Sediment pollutants. In an effort to meet WIP Phase II timelines, two year milestones and critical progress milestones in 2017 and 2020, Phillips Army Airfield will conduct a comprehensive assessment of boundary data and land use/land cover data on the facility. Providing more accurate data will enable the facility to better assess the load runoff and appropriate BMPs for minimizing or reducing the loads.

Phillips Army Airfield (24A83)
Input to Maryland Department of Environment
Watershed Implementation Plan Phase II
DRAFT

MDE and the Services held several meetings. The meetings were helpful and productive. Going forward this federal-state-local partnership will prove to be instrumental in meeting the long term restoration plan for the Chesapeake Bay as well as improve credibility and accountability for Department of Defense (DoD), a Federal agency leading by example.

V. Challenges:

- Coordination with multiple Bay jurisdictions made it difficult to apply one agency approach to meeting the required load reductions. For the Services this required additional resources in order to understand what each jurisdiction's expectations are, and these inconsistencies may result in long term load inaccuracies when determining whether TMDL goals have been met across the watershed.
- It was critical that all boundary and land use cover be verified. Facilities of this size have limited GIS data. Therefore, it took an additional amount of resources and technical capability to create shapefiles in order to verify boundaries and land use data.

VI. Inaccuracies:

- Since MDE has not provided a specific loading for this ARNG facility it is assumed that the required load reductions are associated with APG. Information for this facility will be provided to APG in order to avoid duplication.
- Additional inaccuracies to be determined.

Lauderick Creek Training Site (24A87)
Input to Maryland Department of Environment
Watershed Implementation Plan Phase II
DRAFT

I. Lauderick Creek Training Site

Lauderick Creek Training Site (24A87) is an 1176.60 acre site located in Harford County, Maryland, on Aberdeen Proving Ground.

Land use and verification of accurate facility boundary and acreage data to be determined from future field assessment.

II. Lauderick Creek Training Site Baseline Loadings November 2011:

To be determined.

III. Programmatic Two Year Milestones 2012-2013:

- **Agricultural-** Not Applicable.
- **Stormwater Management Retrofits-** To be determined.
- **Septic System Upgrades-** Not Applicable.
- **Wastewater Treatment Plant Data-** Not Applicable.
- **Accounting for Future Growth**-
    - Lauderick Creek Training Site will continue to support MDE Watershed Implementation Plan (WIP) Phase II processes in 2012 and 2013.
    - Lauderick Creek Training Site will continue to implement the Army Policy for Sustainable Design and Development (SDD), October 2010 and Low Impact Development (LID) under the Energy Independence and Security Act of 2007 (EISA) as a means to manage stormwater for all future construction and maintenance projects. Currently it is unknown if any new construction projects are scheduled through 2018.

IV. Successes:

The Watershed Implementation Plan (WIP) Phase II process required collaborative involvement from MDE, Lauderick Creek Training Site and the U.S. Army Corps of Engineers to ensure pollutant load reductions as well as current and future BMP implementation levels fulfill the federal share of the needed reductions for Nitrogen, Phosphorous and Sediment pollutants. In an effort to meet WIP Phase II timelines, two year milestones and critical progress milestones in 2017 and 2020, Lauderick Creek Training Site will conduct a comprehensive assessment of boundary data and land use/land cover data on the facility. Providing more accurate data will enable the facility to better assess the load runoff and appropriate BMPs for minimizing or reducing the loads.

MDE and the Services held several meetings. The meetings were helpful and productive. Going forward this federal-state-local partnership will prove to be instrumental in meeting the long term restoration plan for the Chesapeake Bay as well as improve credibility and accountability for Department of Defense (DoD), a Federal agency leading by example.

Lauderick Creek Training Site (24A87)
Input to Maryland Department of Environment
Watershed Implementation Plan Phase II
DRAFT

V. Challenges:

- Coordination with multiple Bay jurisdictions made it difficult to apply one agency approach to meeting the required load reductions. For the Services this required additional resources in order to understand what each jurisdiction's expectations are, and these inconsistencies may result in long term load inaccuracies when determining whether TMDL goals have been met across the watershed.
- It was critical that all boundary and land use cover be verified. Facilities of this size have limited GIS data. Therefore, it took an additional amount of resources and technical capability to create shapefiles in order to verify boundaries and land use data.

VI. Inaccuracies:

To be determined.

Edgewood Armory (24A85)
Input to Maryland Department of Environment
Watershed Implementation Plan Phase II
DRAFT

I. Edgewood Army National Guard Armory

Edgewood Armory (24A85) is a 112.73 acre site located on Aberdeen Proving Ground (APG). The site contains an administration building, several small out-buildings, parking area, and runway.

Edgewood Armory is not an independent entity per MDE. It was included as a component of Aberdeen Proving Ground. Land use for this site to be determined.

II. Edgewood Armory Baseline Loadings November 2011:

To be determined.

III. Programmatic Two Year Milestones 2012-2013:

- **Agricultural-** Not Applicable.
- **Stormwater Management Retrofits-** To be determined.
- **Septic System Upgrades-** Not Applicable.
- **Wastewater Treatment Plant Data-** Not Applicable.
- **Accounting for Future Growth**-
    - Edgewood Armory will continue to support Maryland Department of Environment (MDE) Watershed Implementation Plan (WIP) Phase II processes in 2012 and 2013.
    - Edgewood Armory will continue to implement the Army Policy for Sustainable Design and Development (SDD), October 2010 and Low Impact Development (LID) under the Energy Independence and Security Act of 2007 (EISA) as a means to manage stormwater for all future construction and maintenance projects. Currently it is unknown if any new construction projects are scheduled through 2018.

IV. Successes:

The WIP Phase II process required collaborative involvement from MDE, Edgewood Armory and the U.S. Army Corps of Engineers to ensure pollutant load reductions as well as current and future BMP implementation levels fulfill the federal share of the needed reductions for Nitrogen, Phosphorous and Sediment pollutants. In an effort to meet WIP Phase II timelines, two year milestones and critical progress milestones in 2017 and 2020, Edgewood Armory will conduct a comprehensive assessment of boundary data and land use/land cover data on the facility. Providing more accurate data will enable the facility to better assess the load runoff and appropriate BMPs for minimizing or reducing the loads.

MDE and the Services held several meetings. The meetings were helpful and productive. Going forward this federal-state-local partnership will prove to be instrumental in meeting the long term restoration plan for the Chesapeake Bay as well as improve credibility and accountability for Department of Defense (DoD), a Federal agency leading by example.

Edgewood Armory (24A85)
Input to Maryland Department of Environment
Watershed Implementation Plan Phase II
DRAFT

V. Challenges:

- Coordination with multiple Bay jurisdictions made it difficult to apply one agency approach to meeting the required load reductions. For the Services this required additional resources in order to understand what each jurisdiction's expectations are, and these inconsistencies may result in long term load inaccuracies when determining whether TMDL goals have been met across the watershed.
- It was critical that all boundary and land use cover be verified. Facilities of this size have limited GIS data. Therefore, it took an additional amount of resources and technical capability to create shapefiles in order to verify boundaries and land use data.

VI. Inaccuracies:

- Since MDE has not provided a specific loading for this ARNG facility it is assumed that the required load reductions are associated with APG. Information for this facility will be provided to APG in order to avoid duplication.
- Additional inaccuracies to be determined.

Fort George G. Meade (24B65)
Input to Maryland Department of Environment
Watershed Implementation Plan Phase II
DRAFT

I. Fort George G. Meade

Fort George G. Meade (24B65) consists of a single building located on Fort George G. Meade in Anne Arundel County, Maryland. The footprint of the building is 0.46 acres in size. All drainage from the building flows into the Fort George G. Meade stormwater system.

This site consists of a single building, which is 0.46 acres of high intensity impervious urban land cover. The Fort George G. Meade Army National Guard Site is not an independent entity per MDE. It was included as a component of Fort George G. Meade.

II. Fort George G. Meade Baseline Loadings November 2011:

To be determined.

III. Programmatic Two Year Milestones 2012-2013:

- **Agricultural-** Not Applicable.
- **Stormwater Management Retrofits-** To be determined.
- **Septic System Upgrades-** Not Applicable.
- **Wastewater Treatment Plant Data-** Not Applicable.
- **Accounting for Future Growth**-
    - Fort George G. Meade will continue to support Maryland Department of Environment (MDE) Watershed Implementation Plan (WIP) Phase II processes in 2012 and 2013.
    - Fort George G. Meade will continue to implement the Army Policy for Sustainable Design and Development (SDD), October 2010 and Low Impact Development (LID) under the Energy Independence and Security Act of 2007 (EISA) as a means to manage stormwater for all future construction and maintenance projects. Currently it is unknown if any new construction projects are scheduled through 2018.

IV. Successes:

The WIP Phase II process required collaborative involvement from MDE, Fort George G. Meade and the U.S. Army Corps of Engineers to ensure pollutant load reductions as well as current and future BMP implementation levels fulfill the federal share of the needed reductions for Nitrogen, Phosphorous and Sediment pollutants. In an effort to meet WIP Phase II timelines, two year milestones and critical progress milestones in 2017 and 2020, Fort George G. Meade will conduct a comprehensive assessment of boundary data and land use/land cover data on the facility. Providing more accurate data will enable the facility to better assess the load runoff and appropriate BMPs for minimizing or reducing the loads

MDE and the Services held several meetings. The meetings were helpful and productive. Going forward this federal-state-local partnership will prove to be instrumental in meeting the long term restoration plan for the Chesapeake Bay as well as improve credibility and accountability for Department of Defense (DoD), a Federal agency leading by example.

Fort George G. Meade (24B65)
Input to Maryland Department of Environment
Watershed Implementation Plan Phase II
DRAFT

V. Challenges:

- Coordination with multiple Bay jurisdictions made it difficult to apply one agency approach to meeting the required load reductions. For the Services this required additional resources in order to understand what each jurisdiction's expectations are, and these inconsistencies may result in long term load inaccuracies when determining whether TMDL goals have been met across the watershed.
- It was critical that all boundary and land use cover be verified. Facilities of this size have limited GIS data. Therefore, it took an additional amount of resources and technical capability to create shapefiles in order to verify boundaries and land use data.

VI. Inaccuracies:

- Since MDE has not provided a specific loading for this ARNG facility it is assumed that the required load reductions are associated with Fort Meade. Information for this facility will be provided to Fort Meade in order to avoid duplication.
- Additional inaccuracies to be determined.

Annapolis Armory (24A10, LTC (MD) E. Leslie Medford Armory)
Input to Maryland Department of Environment
Watershed Implementation Plan Phase II
DRAFT

I. Annapolis National Guard Armory

Annapolis Armory (24A10, LTC (MD) E. Leslie Medford Armory) is located along Willow Street in Annapolis, Anne Arundel County, Maryland, just southeast of the U.S. Route 50 and Solomon's Island Road interchange.

Land use and verification of accurate facility boundary and acreage data to be determined from future field assessment.

II. Annapolis Armory Baseline Loadings November 2011:

To be determined.

III. Programmatic Two Year Milestones 2012-2013:

- **Agricultural-** Not Applicable.
- **Stormwater Management Retrofits-** To be determined.
- **Septic System Upgrades-** Not Applicable.
- **Wastewater Treatment Plant Data-** Not Applicable.
- **Accounting for Future Growth**-
    - The Annapolis Armory will continue to support Maryland Department of Environment (MDE) Watershed Implementation Plan (WIP) Phase II processes in 2012 and 2013.
    - The Annapolis Armory will continue to implement the Army Policy for Sustainable Design and Development (SDD), October 2010 and Low Impact Development (LID) under the Energy Independence and Security Act of 2007 (EISA) as a means to manage stormwater for all future construction and maintenance projects. Currently it is unknown if any new construction projects are scheduled through 2018.

IV. Successes:

The WIP Phase II process required collaborative involvement from MDE, the Annapolis Armory and the U.S. Army Corps of Engineers to ensure pollutant load reductions as well as current and future BMP implementation levels fulfill the federal share of the needed reductions for Nitrogen, Phosphorous and Sediment pollutants. In an effort to meet WIP Phase II timelines, two year milestones and critical progress milestones in 2017 and 2020, Annapolis Armory will conduct a comprehensive assessment of boundary data and land use/land cover data on the facility. Providing accurate data will enable the facility to better assess the load runoff and appropriate BMPs for minimizing or reducing the loads

MDE and the Services held several meetings. The meetings were helpful and productive. Going forward this federal-state-local partnership will prove to be instrumental in meeting the long term restoration plan for the Chesapeake Bay as well as improve credibility and accountability for Department of Defense (DoD), a Federal agency leading by example.

Annapolis Armory (24A10, LTC (MD) E. Leslie Medford Armory)
Input to Maryland Department of Environment
Watershed Implementation Plan Phase II
DRAFT

V. Challenges:

- Coordination with multiple Bay jurisdictions made it difficult to apply one agency approach to meeting the required load reductions. For the Services this required additional resources in order to understand what each jurisdiction's expectations are, and these inconsistencies may result in long term load inaccuracies when determining whether TMDL goals have been met across the watershed.
- It was critical that all boundary and land use cover be verified. Facilities of this size have limited GIS data. Therefore, it took an additional amount of resources and technical capability to create shapefiles in order to verify boundaries and land use data.

VI. Inaccuracies:

To be determined.

Glen Burnie Armory (24B20, First Regiment Armory)
Input to Maryland Department of Environment
Watershed Implementation Plan Phase II
DRAFT

I. Glen Burnie National Guard Armory

Glen Burnie Armory (24B20, First Regiment Armory) is located along Dorsey Road in Glen Burnie, Anne Arundel County, Maryland, just west of the Dorsey Road and Baltimore Annapolis Boulevard intersection.

Land use and verification of accurate facility boundary and acreage data to be determined from future field assessment.

II. Glen Burnie Armory Baseline Loadings November 2011:

To be determined.

III. Programmatic Two Year Milestones 2012-2013:

- **Agricultural-** Not Applicable.
- **Stormwater Management Retrofits-** To be determined.
- **Septic System Upgrades-** Not Applicable.
- **Wastewater Treatment Plant Data-** Not Applicable.
- **Accounting for Future Growth**-
    - The Glen Burnie Armory will continue to support Maryland Department of Environment (MDE) Watershed Implementation Plan (WIP) Phase II processes in 2012 and 2013.
    - The Glen Burnie Armory will continue to implement the Army Policy for Sustainable Design and Development (SDD), October 2010 and Low Impact Development (LID) under the Energy Independence and Security Act of 2007 (EISA) as a means to manage stormwater for all future construction and maintenance projects. Currently it is unknown if any new construction projects are scheduled through 2018.

IV. Successes:

The WIP Phase II process required collaborative involvement from MDE, the Glen Burnie Armory and the U.S. Army Corps of Engineers to ensure pollutant load reductions as well as current and future BMP implementation levels fulfill the federal share of the needed reductions for Nitrogen, Phosphorous and Sediment pollutants. In an effort to meet WIP Phase II timelines, two year milestones and critical progress milestones in 2017 and 2020, Glen Burnie Armory will conduct a comprehensive assessment of boundary data and land use/land cover data on the facility. Providing more accurate data will enable the facility to better assess the load runoff and appropriate BMPs for minimizing or reducing the loads

MDE and the Services held several meetings. The meetings were helpful and productive. Going forward this federal-state-local partnership will prove to be instrumental in meeting the long term restoration plan for the Chesapeake Bay as well as improve credibility and accountability for Department of Defense (DoD), a Federal agency leading by example.

Glen Burnie Armory (24B20, First Regiment Armory)
Input to Maryland Department of Environment
Watershed Implementation Plan Phase II
DRAFT

V. Challenges:

- Coordination with multiple Bay jurisdictions made it difficult to apply one agency approach to meeting the required load reductions. For the Services this required additional resources in order to understand what each jurisdiction's expectations are, and these inconsistencies may result in long term load inaccuracies when determining whether TMDL goals have been met across the watershed.
- It was critical that all boundary and land use cover be verified. Facilities of this size have limited GIS data. Therefore, it took an additional amount of resources and technical capability to create shapefiles in order to verify boundaries and land use data.

VI. Inaccuracies:

To be determined.

Fifth Regiment Armory (24A15)
Input to Maryland Department of Environment
Watershed Implementation Plan Phase II
DRAFT

I. Fifth Regiment National Guard Armory

Fifth Regiment Armory (24A15) is located in the City of Baltimore at the intersection of North Howard Street and Dolphin Street.

Land use and verification of accurate facility boundary and acreage data to be determined from future field assessment.

II. Fifth Regiment Armory Baseline Loadings November 2011:

To be determined.

III. Programmatic Two Year Milestones 2012-2013:

- **Agricultural-** Not Applicable.
- **Stormwater Management Retrofits-** To be determined.
- **Septic System Upgrades-** Not Applicable.
- **Wastewater Treatment Plant Data-** Not Applicable.
- **Accounting for Future Growth**-
    - The Fifth Regiment Armory will continue to support Maryland Department of Environment (MDE) Watershed Implementation Plan (WIP) Phase II processes in 2012 and 2013.
    - The Fifth Regiment Armory will continue to implement the Army Policy for Sustainable Design and Development (SDD), October 2010 and Low Impact Development (LID) under the Energy Independence and Security Act of 2007 (EISA) as a means to manage stormwater for all future construction and maintenance projects. Currently it is unknown if any new construction projects are scheduled through 2018.

IV. Successes:

The WIP Phase II process required collaborative involvement from MDE, the Fifth Regiment Armory and the U.S. Army Corps of Engineers to ensure pollutant load reductions as well as current and future BMP implementation levels fulfill the federal share of the needed reductions for Nitrogen, Phosphorous and Sediment pollutants. In an effort to meet WIP Phase II timelines, two year milestones and critical progress milestones in 2017 and 2020, Fifth Regiment Armory will conduct a comprehensive assessment of boundary data and land use/land cover data on the facility. Providing more accurate data will enable the facility to better assess the load runoff and appropriate BMPs for minimizing or reducing the loads.

MDE and the Services held several meetings. The meetings were helpful and productive. Going forward this federal-state-local partnership will prove to be instrumental in meeting the long term restoration plan for the Chesapeake Bay as well as improve credibility and accountability for Department of Defense (DoD), a Federal agency leading by example.

Fifth Regiment Armory (24A15)
Input to Maryland Department of Environment
Watershed Implementation Plan Phase II
DRAFT

V. Challenges:

- Coordination with multiple Bay jurisdictions made it difficult to apply one agency approach to meeting the required load reductions. For the Services this required additional resources in order to understand what each jurisdiction's expectations are, and these inconsistencies may result in long term load inaccuracies when determining whether TMDL goals have been met across the watershed.
- It was critical that all boundary and land use cover be verified. Facilities of this size have limited GIS data. Therefore, it took an additional amount of resources and technical capability to create shapefiles in order to verify boundaries and land use data.

VI. Inaccuracies:

To be determined.

Cade Armory (24A20, LTC Melvin H. Cade Armory)
Input to Maryland Department of Environment
Watershed Implementation Plan Phase II
DRAFT

I. Cade National Guard Armory

Cade Armory (24A20, LTC Melvin H. Cade Armory) is located in the City of Baltimore at the intersection of Winchester Street and Braddish Avenue.

Land use and verification of accurate facility boundary and acreage data to be determined from future field assessment.

II. Cade Armory Baseline Loadings November 2011:

To be determined.

III. Programmatic Two Year Milestones 2012-2013:

- **Agricultural-** Not Applicable.
- **Stormwater Management Retrofits-** To be determined.
- **Septic System Upgrades-** Not Applicable.
- **Wastewater Treatment Plant Data-** Not Applicable.
- **Accounting for Future Growth**-
    - The Cade Armory will continue to support Maryland Department of Environment (MDE) Watershed Implementation Plan (WIP) Phase II processes in 2012 and 2013.
    - The Cade Armory will continue to implement the Army Policy for Sustainable Design and Development (SDD), October 2010 and Low Impact Development (LID) under the Energy Independence and Security Act of 2007 (EISA) as a means to manage stormwater for all future construction and maintenance projects. Currently it is unknown if any new construction projects are scheduled through 2018.

IV. Successes:

The WIP Phase II process required collaborative involvement from MDE, the Cade Armory and the U.S. Army Corps of Engineers to ensure pollutant load reductions as well as current and future BMP implementation levels fulfill the federal share of the needed reductions for Nitrogen, Phosphorous and Sediment pollutants. In an effort to meet WIP Phase II timelines, two year milestones and critical progress milestones in 2017 and 2020, Cade Armory will conduct a comprehensive assessment of boundary data and land use/land cover data on the facility. Providing more accurate data will enable the facility to better assess the load runoff and appropriate BMPs for minimizing or reducing the loads.

MDE and the Services held several meetings. The meetings were helpful and productive. Going forward this federal-state-local partnership will prove to be instrumental in meeting the long term restoration plan for the Chesapeake Bay as well as improve credibility and accountability for Department of Defense (DoD), a Federal agency leading by example.

Cade Armory (24A20, LTC Melvin H. Cade Armory)
Input to Maryland Department of Environment
Watershed Implementation Plan Phase II
DRAFT

V. Challenges:

- Coordination with multiple Bay jurisdictions made it difficult to apply one agency approach to meeting the required load reductions. For the Services this required additional resources in order to understand what each jurisdiction's expectations are, and these inconsistencies may result in long term load inaccuracies when determining whether TMDL goals have been met across the watershed.
- It was critical that all boundary and land use cover be verified. Facilities of this size have limited GIS data. Therefore, it took an additional amount of resources and technical capability to create shapefiles in order to verify boundaries and land use data.

VI. Inaccuracies:

To be determined.

Gunpowder Military Reservation and Purnell Armory (24B15)
Input to Maryland Department of Environment
Watershed Implementation Plan Phase II
DRAFT

I. Gunpowder Military Reservation and Purnell National Guard Armory

Gunpowder Military Reservation and Purnell Armory (24B15) is a 253.97 acre site located in Baltimore County, Maryland, along Notchcliff Road in Glen Arm.

Land use and verification of accurate facility boundary and acreage data to be determined from future field assessment.

II. Gunpowder Mil. Res. and Purnell Armory Baseline Loadings November 2011:

To be determined.

III. Programmatic Two Year Milestones 2012-2013:

- **Agricultural-** Not Applicable.
- **Stormwater Management Retrofits-** To be determined.
- **Septic System Upgrades-** Not Applicable.
- **Wastewater Treatment Plant Data-** Not Applicable.
- **Accounting for Future Growth**-
    - Gunpowder Military Reservation and Purnell Armory will continue to support Maryland Department of Environment (MDE) Watershed Implementation Plan (WIP) Phase II processes in 2012 and 2013.
    - Gunpowder Military Reservation and Purnell Armory will continue to implement the Army Policy for Sustainable Design and Development (SDD), October 2010 and Low Impact Development (LID) under the Energy Independence and Security Act of 2007 (EISA) as a means to manage stormwater for all future construction and maintenance projects. Currently it is unknown if any new construction projects are scheduled through 2018.

IV. Successes:

The WIP Phase II process required collaborative involvement from MDE, Gunpowder Military Reservation and Purnell Armory and the U.S. Army Corps of Engineers to ensure pollutant load reductions as well as current and future BMP implementation levels fulfill the federal share of the needed reductions for Nitrogen, Phosphorous and Sediment pollutants. In an effort to meet WIP Phase II timelines, two year milestones and critical progress milestones in 2017 and 2020, Gunpowder Military Reservation and Purnell Armory will conduct a comprehensive assessment of boundary data and land use/land cover data on the facility. Providing more accurate data will enable the facility to better assess the load runoff and appropriate BMPs for minimizing or reducing the loads

MDE and the Service held several meetings. The meetings were helpful and productive. Going forward this federal-state-local partnership will prove to be instrumental in meeting the long term restoration plan for the Chesapeake Bay as well as improve credibility and accountability for Department of Defense (DoD), a Federal agency leading by example.

Gunpowder Military Reservation and Purnell Armory (24B15)
Input to Maryland Department of Environment
Watershed Implementation Plan Phase II
DRAFT

V. Challenges:

- Coordination with multiple Bay jurisdictions made it difficult to apply one agency approach to meeting the required load reductions. For the Services this required additional resources in order to understand what each jurisdiction's expectations are, and these inconsistencies may result in long term load inaccuracies when determining whether TMDL goals have been met across the watershed.
- It was critical that all boundary and land use cover be verified. Facilities of this size have limited GIS data. Therefore, it took an additional amount of resources and technical capability to create shapefiles in order to verify boundaries and land use data.

VI. Inaccuracies:

To be determined.

SFRO-Reisterstown (24C04)
Input to Maryland Department of Environment
Watershed Implementation Plan Phase II
DRAFT

I. SFRO-Reisterstown

SFRO-Reisterstown (24C04) consists of a single building located at the intersection of Franklin Boulevard and Reisterstown Road in Baltimore County, Maryland. The footprint of the building is 0.12 acres in size. All drainage from the building flows into the Baltimore County stormwater system.

This site consists of a single building, which is 0.12 acres of high intensity impervious urban land cover. SFRO-Reisterstown is not an independent entity per MDE. It was included as a component of Baltimore County.

II. SFRO-Reisterstown Baseline Loadings November 2011:

To be determined.

III. Programmatic Two Year Milestones 2012-2013:

- **Agricultural-** Not Applicable.
- **Stormwater Management Retrofits-** To be determined.
- **Septic System Upgrades-** Not Applicable.
- **Wastewater Treatment Plant Data-** Not Applicable.
- **Accounting for Future Growth**-
    - SFRO-Reisterstown will continue to support Maryland Department of Environment (MDE) Watershed Implementation Plan (WIP) Phase II processes in 2012 and 2013.
    - SFRO-Reisterstown will continue to implement the Army Policy for Sustainable Design and Development (SDD), October 2010 and Low Impact Development (LID) under the Energy Independence and Security Act of 2007 (EISA) as a means to manage stormwater for all future construction and maintenance projects. Currently it is unknown if any new construction projects are scheduled through 2018.

IV. Successes:

The WIP Phase II process required collaborative involvement from MDE, SFRO-Reisterstown and the U.S. Army Corps of Engineers to ensure pollutant load reductions as well as current and future BMP implementation levels fulfill the federal share of the needed reductions for Nitrogen, Phosphorous and Sediment pollutants. In an effort to meet WIP Phase II timelines, two year milestones and critical progress milestones in 2017 and 2020, SFRO-Reisterstown will conduct a comprehensive assessment of boundary data and land use/land cover data on the facility. Providing more accurate data will enable the facility to better assess the load runoff and appropriate BMPs for minimizing or reducing the loads.

MDE and the Services held several meetings. The meetings were helpful and productive. Going forward this federal-state-local partnership will prove to be instrumental in meeting the long term restoration plan for the

Chesapeake Bay as well as improve credibility and accountability for Department of Defense (DoD), a Federal agency leading by example.

V. Challenges:

- Coordination with multiple Bay jurisdictions made it difficult to apply one agency approach to meeting the required load reductions. For the Services this required additional resources in order to understand what each jurisdiction's expectations are, and these inconsistencies may result in long term load inaccuracies when determining whether TMDL goals have been met across the watershed.
- It was critical that all boundary and land use cover be verified. Facilities of this size have limited GIS data. Therefore, it took an additional amount of resources and technical capability to create shapefiles in order to verify boundaries and land use data.

VI. Inaccuracies:

- This site did not appear on the Federal facility spreadsheet provided by MDE. This could result in potential inaccuracies as this property has not been accounted for as Federal or is accounted for by another property owner.
- To be determined.

Catonsville Armory (24A40, MG William J. Witte Armory)
Input to Maryland Department of Environment
Watershed Implementation Plan Phase II
DRAFT

I. Catonsville National Guard Armory

Catonsville Armory (24A40, MG William J. Witte Armory) is located in Baltimore County, Maryland at the intersection of Muller Avenue and Pullen Avenue.

Land use and verification of accurate facility boundary and acreage data to be determined from future field assessment.

II. Catonsville Armory Baseline Loadings November 2011:

To be determined.

III. Programmatic Two Year Milestones 2012-2013:

- **Agricultural-** Not Applicable.
- **Stormwater Management Retrofits-** To be determined.
- **Septic System Upgrades-** Not Applicable.
- **Wastewater Treatment Plant Data-** Not Applicable.
- **Accounting for Future Growth**-
    - The Catonsville Armory will continue to support Maryland Department of Environment (MDE) Watershed Implementation Plan (WIP) Phase II processes in 2012 and 2013.
    - The Catonsville Armory will continue to implement the Army Policy for Sustainable Design and Development (SDD), October 2010 and Low Impact Development (LID) under the Energy Independence and Security Act of 2007 (EISA) as a means to manage stormwater for all future construction and maintenance projects. Currently it is unknown if any new construction projects are scheduled through 2018.

IV. Successes:

The WIP Phase II process required collaborative involvement from MDE, the Catonsville Armory and the U.S. Army Corps of Engineers to ensure pollutant load reductions as well as current and future BMP implementation levels fulfill the federal share of the needed reductions for Nitrogen, Phosphorous and Sediment pollutants. In an effort to meet WIP Phase II timelines, two year milestones and critical progress milestones in 2017 and 2020, Catonsville Armory will conduct a comprehensive assessment of boundary data and land use/land cover data on the facility. Providing more accurate data will enable the facility to better assess the load runoff and appropriate BMPs for minimizing or reducing the loads.

MDE and the Services held several meetings. The meetings were helpful and productive. Going forward this federal-state-local partnership will prove to be instrumental in meeting the long term restoration plan for the Chesapeake Bay as well as improve credibility and accountability for Department of Defense (DoD), a Federal agency leading by example.

Catonsville Armory (24A40, MG William J. Witte Armory)
Input to Maryland Department of Environment
Watershed Implementation Plan Phase II
DRAFT

V. Challenges:

- Coordination with multiple Bay jurisdictions made it difficult to apply one agency approach to meeting the required load reductions. For the Services this required additional resources in order to understand what each jurisdiction's expectations are, and these inconsistencies may result in long term load inaccuracies when determining whether TMDL goals have been met across the watershed.
- It was critical that all boundary and land use cover be verified. Facilities of this size have limited GIS data. Therefore, it took an additional amount of resources and technical capability to create shapefiles in order to verify boundaries and land use data.

VI. Inaccuracies:

To be determined.

Dundalk Armory (24A70, CSM Gerome M. Grollman Armory)
Input to Maryland Department of Environment
Watershed Implementation Plan Phase II
DRAFT

I. Dundalk National Guard Armory

Dundalk Armory (24A70, CSM Gerome M. Grollman Armory) is located in Baltimore County, Maryland, along Northpoint Road.

Land use and verification of accurate facility boundary and acreage data to be determined from future field assessment.

II. Dundalk Armory Baseline Loadings November 2011:

To be determined.

III. Programmatic Two Year Milestones 2012-2013:

- **Agricultural-** Not Applicable.
- **Stormwater Management Retrofits-** To be determined.
- **Septic System Upgrades-** Not Applicable.
- **Wastewater Treatment Plant Data-** Not Applicable.
- **Accounting for Future Growth**-
    - The Dundalk Armory will continue to support Maryland Department of Environment (MDE) Watershed Implementation Plan (WIP) Phase II processes in 2012 and 2013.
    - The Dundalk Armory will continue to implement the Army Policy for Sustainable Design and Development (SDD), October 2010 and Low Impact Development (LID) under the Energy Independence and Security Act of 2007 (EISA) as a means to manage stormwater for all future construction and maintenance projects. Currently it is unknown if any new construction projects are scheduled through 2018.

IV. Successes:

The WIP Phase II process required collaborative involvement from MDE, the Dundalk Armory and the U.S. Army Corps of Engineers to ensure pollutant load reductions as well as current and future BMP implementation levels fulfill the federal share of the needed reductions for Nitrogen, Phosphorous and Sediment pollutants. In an effort to meet WIP Phase II timelines, two year milestones and critical progress milestones in 2017 and 2020, Dundalk Armory will conduct a comprehensive assessment of boundary data and land use/land cover data on the facility. Providing more accurate data will enable the facility to better assess the load runoff and appropriate BMPs for minimizing or reducing the loads.

MDE and the Services held several meetings. The meetings were helpful and productive. Going forward this federal-state-local partnership will prove to be instrumental in meeting the long term restoration plan for the Chesapeake Bay as well as improve credibility and accountability for Department of Defense (DoD), a Federal agency leading by example.

Dundalk Armory (24A70, CSM Gerome M. Grollman Armory)
Input to Maryland Department of Environment
Watershed Implementation Plan Phase II
DRAFT

V. Challenges:

- Coordination with multiple Bay jurisdictions made it difficult to apply one agency approach to meeting the required load reductions. For the Services this required additional resources in order to understand what each jurisdiction's expectations are, and these inconsistencies may result in long term load inaccuracies when determining whether TMDL goals have been met across the watershed.
- It was critical that all boundary and land use cover be verified. Facilities of this size have limited GIS data. Therefore, it took an additional amount of resources and technical capability to create shapefiles in order to verify boundaries and land use data.

VI. Inaccuracies:

To be determined.

Pikesville Military Reservation (24B90, 110th Reg./BG (MD) John S. Edwards Admin. Bldg.)
Input to Maryland Department of Environment
Watershed Implementation Plan Phase II
DRAFT

I. Pikesville Military Reservation

Pikesville Military Reservation (24B90, 110th Reg./BG (MD) John S. Edwards Admin. Bldg.) is a 14.13 acre site located in Baltimore County, Maryland, along Reisterstown Road north of the intersection with Milford Mill Road.

Land use and verification of accurate facility boundary and acreage data to be determined from future field assessment.

II. Pikesville Military Reservation Baseline Loadings November 2011:

To be determined.

III. Programmatic Two Year Milestones 2012-2013:

- **Agricultural-** Not Applicable.
- **Stormwater Management Retrofits-** To be determined.
- **Septic System Upgrades-** Not Applicable.
- **Wastewater Treatment Plant Data-** Not Applicable.
- **Accounting for Future Growth**-
    - Pikesville Military Reservation will continue to support Maryland Department of Environment (MDE) Watershed Implementation Plan (WIP) Phase II processes in 2012 and 2013.
    - Pikesville Military Reservation will continue to implement the Army Policy for Sustainable Design and Development (SDD), October 2010 and Low Impact Development (LID) under the Energy Independence and Security Act of 2007 (EISA) as a means to manage stormwater for all future construction and maintenance projects. Currently it is unknown if any new construction projects are scheduled through 2018.

IV. Successes:

The WIP Phase II process required collaborative involvement from MDE, Pikesville Military Reservation and the U.S. Army Corps of Engineers to ensure pollutant load reductions as well as current and future BMP implementation levels fulfill the federal share of the needed reductions for Nitrogen, Phosphorous and Sediment pollutants. In an effort to meet WIP Phase II timelines, two year milestones and critical progress milestones in 2017 and 2020, Pikesville Military Reservation will conduct a comprehensive assessment of boundary data and land use/land cover data on the facility. Providing more accurate data will enable the facility to better assess the load runoff and appropriate BMPs for minimizing or reducing the loads.

MDE and the Services held several meetings. The meetings were helpful and productive. Going forward this federal-state-local partnership will prove to be instrumental in meeting the long term restoration plan for the

Chesapeake Bay as well as improve credibility and accountability for Department of Defense (DoD), a Federal agency leading by example.

V. Challenges:

- Coordination with multiple Bay jurisdictions made it difficult to apply one agency approach to meeting the required load reductions. For the Services this required additional resources in order to understand what each jurisdiction's expectations are, and these inconsistencies may result in long term load inaccuracies when determining whether TMDL goals have been met across the watershed.
- It was critical that all boundary and land use cover be verified. Facilities of this size have limited GIS data. Therefore, it took an additional amount of resources and technical capability to create shapefiles in order to verify boundaries and land use data.

VI. Inaccuracies:

To be determined.

Parkville Armory (24B80, CW4 Melvin Sherr Armory)
Input to Maryland Department of Environment
Watershed Implementation Plan Phase II
DRAFT

I. Parkville National Guard Armory

Parkville Armory (24B80, CW4 Melvin Sherr Armory) is located in Baltimore County, Maryland along Putty Hill Avenue near U.S. Route 695 (Baltimore Beltway).

Land use and verification of accurate facility boundary and acreage data to be determined from future field assessment.

II. Parkville Armory Baseline Loadings November 2011:

To be determined.

III. Programmatic Two Year Milestones 2012-2013:

- **Agricultural-** Not Applicable.
- **Stormwater Management Retrofits-** To be determined.
- **Septic System Upgrades-** Not Applicable.
- **Wastewater Treatment Plant Data-** Not Applicable.
- **Accounting for Future Growth**-
    - The Parkville Armory will continue to support Maryland Department of Environment (MDE) Watershed Implementation Plan (WIP) Phase II processes in 2012 and 2013.
    - The Parkville Armory will continue to implement the Army Policy for Sustainable Design and Development (SDD), October 2010 and Low Impact Development (LID) under the Energy Independence and Security Act of 2007 (EISA) as a means to manage stormwater for all future construction and maintenance projects. Currently it is unknown if any new construction projects are scheduled through 2018.

IV. Successes:

The WIP Phase II process required collaborative involvement from MDE, the Parkville Armory and the U.S. Army Corps of Engineers to ensure pollutant load reductions as well as current and future BMP implementation levels fulfill the federal share of the needed reductions for Nitrogen, Phosphorous and Sediment pollutants. In an effort to meet WIP Phase II timelines, two year milestones and critical progress milestones in 2017 and 2020, Parkville Armory will conduct a comprehensive assessment of boundary data and land use/land cover data on the facility. Providing more accurate data will enable the facility to better assess the load runoff and appropriate BMPs for minimizing or reducing the loads.

MDE and the Services held several meetings. The meetings were helpful and productive. Going forward this federal-state-local partnership will prove to be instrumental in meeting the long term restoration plan for the Chesapeake Bay as well as improve credibility and accountability for Department of Defense (DoD), a Federal agency leading by example.

Parkville Armory (24B80, CW4 Melvin Sherr Armory)
Input to Maryland Department of Environment
Watershed Implementation Plan Phase II
DRAFT

V. Challenges:

- Coordination with multiple Bay jurisdictions made it difficult to apply one agency approach to meeting the required load reductions. For the Services this required additional resources in order to understand what each jurisdiction's expectations are, and these inconsistencies may result in long term load inaccuracies when determining whether TMDL goals have been met across the watershed.
- It was critical that all boundary and land use cover be verified. Facilities of this size have limited GIS data. Therefore, it took an additional amount of resources and technical capability to create shapefiles in order to verify boundaries and land use data.

VI. Inaccuracies:

To be determined.

Camp Fretterd Training Site (24C03)
Input to Maryland Department of Environment
Watershed Implementation Plan Phase II
DRAFT

I. Camp Fretterd Training Site

Camp Fretterd Training Site (24C03) is a 587.33 acre site located in Baltimore County, Maryland, along Hanover Pike (MD Route 30), approximately 7 miles south of Hampstead.

Land use and verification of accurate facility boundary and acreage data to be determined from future field assessment

II. Camp Frettered Training Site Baseline Loadings November 2011:

To be determined.

III. Programmatic Two Year Milestones 2012-2013:

- **Agricultural-** Not Applicable.
- **Stormwater Management Retrofits-** To be determined.
- **Septic System Upgrades-** Not Applicable.
- **Wastewater Treatment Plant Data-** Not Applicable.
- **Accounting for Future Growth**-
    - Camp Fretterd Training Site will continue to support Maryland Department of Environment (MDE) Watershed Implementation Plan (WIP) Phase II processes in 2012 and 2013.
    - Camp Fretterd Training Site will continue to implement the Army Policy for Sustainable Design and Development (SDD), October 2010 and Low Impact Development (LID) under the Energy Independence and Security Act of 2007 (EISA) as a means to manage stormwater for all future construction and maintenance projects. Currently it is unknown if any new construction projects are scheduled through 2018.

IV. Successes:

The WIP Phase II process required collaborative involvement from MDE, Camp Fretterd Training Site and the U.S. Army Corps of Engineers to ensure pollutant load reductions as well as current and future BMP implementation levels fulfill the federal share of the needed reductions for Nitrogen, Phosphorous and Sediment pollutants. In an effort to meet WIP Phase II timelines, two year milestones and critical progress milestones in 2017 and 2020, Camp Fretterd Training Site will conduct a comprehensive assessment of boundary data and land use/land cover data on the facility. Providing more accurate data will enable the facility to better assess the load runoff and appropriate BMPs for minimizing or reducing the loads.

MDE and the Services held several meetings. The meetings were helpful and productive. Going forward this federal-state-local partnership will prove to be instrumental in meeting the long term restoration plan for the Chesapeake Bay as well as improve credibility and accountability for Department of Defense (DoD), a Federal agency leading by example.

Camp Fretterd Training Site (24C03)
Input to Maryland Department of Environment
Watershed Implementation Plan Phase II
DRAFT

V. Challenges:

- Coordination with multiple Bay jurisdictions made it difficult to apply one agency approach to meeting the required load reductions. For the Services this required additional resources in order to understand what each jurisdiction's expectations are, and these inconsistencies may result in long term load inaccuracies when determining whether TMDL goals have been met across the watershed.
- It was critical that all boundary and land use cover be verified. Facilities of this size have limited GIS data. Therefore, it took an additional amount of resources and technical capability to create shapefiles in order to verify boundaries and land use data.

VI. Inaccuracies:

To be determined.

Ruhl Armory (24C20, MG (MD) Harry C. Ruhl & CSM James Peacock Armory)
Input to Maryland Department of Environment
Watershed Implementation Plan Phase II
DRAFT

I. Ruhl National Guard Armory

Ruhl Armory (24C20, MG (MD) Harry C. Ruhl & CSM James Peacock Armory) is located in Baltimore County, Maryland at the York Road and U.S. Route 695 (Baltimore Beltway) interchange.

Land use and verification of accurate facility boundary and acreage data to be determined from future field assessment.

II. Ruhl Armory Baseline Loadings November 2011:

To be determined.

III. Programmatic Two Year Milestones 2012-2013:

- **Agricultural-** Not Applicable.
- **Stormwater Management Retrofits-** To be determined.
- **Septic System Upgrades-** Not Applicable.
- **Wastewater Treatment Plant Data-** Not Applicable.
- **Accounting for Future Growth**-
    - The Ruhl Armory will continue to support Maryland Department of Environment (MDE) Watershed Implementation Plan (WIP) Phase II processes in 2012 and 2013.
    - The Ruhl Armory will continue to implement the Army Policy for Sustainable Design and Development (SDD), October 2010 and Low Impact Development (LID) under the Energy Independence and Security Act of 2007 (EISA) as a means to manage stormwater for all future construction and maintenance projects. Currently it is unknown if any new construction projects are scheduled through 2018.

IV. Successes:

The WIP Phase II process required collaborative involvement from MDE, the Ruhl Armory and the U.S. Army Corps of Engineers to ensure pollutant load reductions as well as current and future BMP implementation levels fulfill the federal share of the needed reductions for Nitrogen, Phosphorous and Sediment pollutants. In an effort to meet WIP Phase II timelines, two year milestones and critical progress milestones in 2017 and 2020, Ruhl Armory will conduct a comprehensive assessment of boundary data and land use/land cover data on the facility. Providing more accurate data will enable the facility to better assess the load runoff and appropriate BMPs for minimizing or reducing the loads.

MDE and the Services held several meetings. The meetings were helpful and productive. Going forward this federal-state-local partnership will prove to be instrumental in meeting the long term restoration plan for the Chesapeake Bay as well as improve credibility and accountability for Department of Defense (DoD), a Federal agency leading by example.

Ruhl Armory (24C20, MG (MD) Harry C. Ruhl & CSM James Peacock Armory)
Input to Maryland Department of Environment
Watershed Implementation Plan Phase II
DRAFT

V. Challenges:

- Coordination with multiple Bay jurisdictions made it difficult to apply one agency approach to meeting the required load reductions. For the Services this required additional resources in order to understand what each jurisdiction's expectations are, and these inconsistencies may result in long term load inaccuracies when determining whether TMDL goals have been met across the watershed.
- It was critical that all boundary and land use cover be verified. Facilities of this size have limited GIS data. Therefore, it took an additional amount of resources and technical capability to create shapefiles in order to verify boundaries and land use data.

VI. Inaccuracies:

To be determined.

Towson (Old) Armory (24C21)
Input to Maryland Department of Environment
Watershed Implementation Plan Phase II
DRAFT

I. Towson (Old) National Guard Armory

Towson (Old) Armory (24C21) is located in Baltimore County, Maryland at the intersection of West Chesapeake Avenue and Washington Avenue.

Land use and verification of accurate facility boundary and acreage data to be determined from future field assessment.

II. Towson (Old) Armory Baseline Loadings November 2011:

To be determined.

III. Programmatic Two Year Milestones 2012-2013:

- **Agricultural-** Not Applicable.
- **Stormwater Management Retrofits-** To be determined.
- **Septic System Upgrades-** Not Applicable.
- **Wastewater Treatment Plant Data-** Not Applicable.
- **Accounting for Future Growth**-
    - The Towson (Old) Armory will continue to support Maryland Department of Environment (MDE) Watershed Implementation Plan (WIP) Phase II processes in 2012 and 2013.
    - The Towson (Old) Armory will continue to implement the Army Policy for Sustainable Design and Development (SDD), October 2010 and Low Impact Development (LID) under the Energy Independence and Security Act of 2007 (EISA) as a means to manage stormwater for all future construction and maintenance projects. Currently it is unknown if any new construction projects are scheduled through 2018.

IV. Successes:

The WIP Phase II process required collaborative involvement from MDE, the Towson (Old) Armory and the U.S. Army Corps of Engineers to ensure pollutant load reductions as well as current and future BMP implementation levels fulfill the federal share of the needed reductions for Nitrogen, Phosphorous and Sediment pollutants. In an effort to meet WIP Phase II timelines, two year milestones and critical progress milestones in 2017 and 2020, Towson (Old) Armory will conduct a comprehensive assessment of boundary data and land use/land cover data on the facility. Providing more accurate data will enable the facility to better assess the load runoff and appropriate BMPs for minimizing or reducing the loads.

MDE and the Services held several meetings. The meetings were helpful and productive. Going forward this federal-state-local partnership will prove to be instrumental in meeting the long term restoration plan for the Chesapeake Bay as well as improve credibility and accountability for Department of Defense (DoD), a Federal agency leading by example.

Towson (Old) Armory (24C21)
Input to Maryland Department of Environment
Watershed Implementation Plan Phase II
DRAFT

V. Challenges:

- Coordination with multiple Bay jurisdictions made it difficult to apply one agency approach to meeting the required load reductions. For the Services this required additional resources in order to understand what each jurisdiction's expectations are, and these inconsistencies may result in long term load inaccuracies when determining whether TMDL goals have been met across the watershed.
- It was critical that all boundary and land use cover be verified. Facilities of this size have limited GIS data. Therefore, it took an additional amount of resources and technical capability to create shapefiles in order to verify boundaries and land use data.

VI. Inaccuracies:

To be determined.

Cumberland Armory (24A60, CPT Thomas Price Armory)
Input to Maryland Department of Environment
Watershed Implementation Plan Phase II
DRAFT

I. Cumberland National Guard Armory

Cumberland Armory (24A60, CPT Thomas Price Armory) is located in the City of Cumberland, Allegany County, Maryland just southeast of the U.S. Route 68 and U.S. Route 220 interchange.

Land use and verification of accurate facility boundary and acreage data to be determined from future field assessment.

II. Cumberland Armory Baseline Loadings November 2011:

To be determined.

III. Programmatic Two Year Milestones 2012-2013:

- **Agricultural-** Not Applicable.
- **Stormwater Management Retrofits-** To be determined.
- **Septic System Upgrades-** Not Applicable.
- **Wastewater Treatment Plant Data-** Not Applicable.
- **Accounting for Future Growth**-
    - The Cumberland Armory will continue to support Maryland Department of Environment (MDE) Watershed Implementation Plan (WIP) Phase II processes in 2012 and 2013.
    - The Cumberland Armory will continue to implement the Army Policy for Sustainable Design and Development (SDD), October 2010 and Low Impact Development (LID) under the Energy Independence and Security Act of 2007 (EISA) as a means to manage stormwater for all future construction and maintenance projects. Currently it is unknown if any new construction projects are scheduled through 2018.

IV. Successes:

The WIP Phase II process required collaborative involvement from MDE, the Cumberland Armory and the U.S. Army Corps of Engineers to ensure pollutant load reductions as well as current and future BMP implementation levels fulfill the federal share of the needed reductions for Nitrogen, Phosphorous and Sediment pollutants. In an effort to meet WIP Phase II timelines, two year milestones and critical progress milestones in 2017 and 2020, Cumberland Armory will conduct a comprehensive assessment of boundary data and land use/land cover data on the facility. Providing more accurate data will enable the facility to better assess the load runoff and appropriate BMPs for minimizing or reducing the loads.

MDE and the Services held several meetings. The meetings were helpful and productive. Going forward this federal-state-local partnership will prove to be instrumental in meeting the long term restoration plan for the Chesapeake Bay as well as improve credibility and accountability for Department of Defense (DoD), a Federal agency leading by example.

Cumberland Armory (24A60, CPT Thomas Price Armory)
Input to Maryland Department of Environment
Watershed Implementation Plan Phase II
DRAFT

V. Challenges:

- Coordination with multiple Bay jurisdictions made it difficult to apply one agency approach to meeting the required load reductions. For the Services this required additional resources in order to understand what each jurisdiction's expectations are, and these inconsistencies may result in long term load inaccuracies when determining whether TMDL goals have been met across the watershed.
- It was critical that all boundary and land use cover be verified. Facilities of this size have limited GIS data. Therefore, it took an additional amount of resources and technical capability to create shapefiles in order to verify boundaries and land use data.

VI. Inaccuracies:

To be determined.

Lil-Aaron Strauss Wilderness Area (24B33, BG Thomas B. Baker Training Site)
Input to Maryland Department of Environment
Watershed Implementation Plan Phase II
DRAFT

I. Lil-Aaron Strauss Wilderness Area

Lil-Aaron Strauss Wilderness Area (24B33, BG Thomas B. Baker Training Site) is located in Allegany and Washington Counties, Maryland on the north bank of the Potomac River. The 913.50 acre site is located along Ziegler Road approximately 9 miles southwest of Hancock.

Land use and verification of accurate facility boundary and acreage data to be determined from future field assessment.

II. Lil-Aaron Strauss Wilderness Area Baseline Loadings November 2011:

To be determined.

III. Programmatic Two Year Milestones 2012-2013:

- **Agricultural-** Not Applicable.
- **Stormwater Management Retrofits-** To be determined.
- **Septic System Upgrades-** Not Applicable.
- **Wastewater Treatment Plant Data-** Not Applicable.
- **Accounting for Future Growth**-
    - The Lil-Aaron Strauss Wilderness Area will continue to support Maryland Department of Environment (MDE) Watershed Implementation Plan (WIP) Phase II processes in 2012 and 2013.
    - The Lil-Aaron Strauss Wilderness Area will continue to implement the Army Policy for Sustainable Design and Development (SDD), October 2010 and Low Impact Development (LID) under the Energy Independence and Security Act of 2007 (EISA) as a means to manage stormwater for all future construction and maintenance projects. Currently it is unknown if any new construction projects are scheduled through 2018.

IV. Successes:

The WIP Phase II process required collaborative involvement from MDE, the Lil-Aaron Strauss Wilderness Area and the U.S. Army Corps of Engineers to ensure pollutant load reductions as well as current and future BMP implementation levels fulfill the federal share of the needed reductions for Nitrogen, Phosphorous and Sediment pollutants. In an effort to meet WIP Phase II timelines, two year milestones and critical progress milestones in 2017 and 2020, Lil-Aaron Strauss Wilderness Area will conduct a comprehensive assessment of boundary data and land use/land cover data on the facility. Providing more accurate data will enable the facility to better assess the load runoff and appropriate BMPs for minimizing or reducing the loads

MDE and the Services held several meetings. The meetings were helpful and productive. Going forward this federal-state-local partnership will prove to be instrumental in meeting the long term restoration plan for the

Chesapeake Bay as well as improve credibility and accountability for Department of Defense (DoD), a Federal agency leading by example.

V. Challenges:

- Coordination with multiple Bay jurisdictions made it difficult to apply one agency approach to meeting the required load reductions. For the Services this required additional resources in order to understand what each jurisdiction's expectations are, and these inconsistencies may result in long term load inaccuracies when determining whether TMDL goals have been met across the watershed.
- It was critical that all boundary and land use cover be verified. Facilities of this size have limited GIS data. Therefore, it took an additional amount of resources and technical capability to create shapefiles in order to verify boundaries and land use data.

VI. Inaccuracies:

To be determined.

Easton Armory (24A75, BG Louis G. Smith Armory)
Input to Maryland Department of Environment
Watershed Implementation Plan Phase II
DRAFT

I. Easton National Guard Armory

Easton Armory (24A75, BG Louis G. Smith Armory) is located in the Town of Easton, Talbot County, Maryland, along Ocean Gateway.

Land use and verification of accurate facility boundary and acreage data to be determined from future field assessment.

II. Easton Armory Baseline Loadings November 2011:

To be determined.

III. Programmatic Two Year Milestones 2012-2013:

- **Agricultural-** Not Applicable.
- **Stormwater Management Retrofits-** To be determined.
- **Septic System Upgrades-** Not Applicable.
- **Wastewater Treatment Plant Data-** Not Applicable.
- **Accounting for Future Growth**-
    - The Easton Armory will continue to support Maryland Department of Environment (MDE) Watershed Implementation Plan (WIP) Phase II processes in 2012 and 2013.
    - The Easton Armory will continue to implement the Army Policy for Sustainable Design and Development (SDD), October 2010 and Low Impact Development (LID) under the Energy Independence and Security Act of 2007 (EISA) as a means to manage stormwater for all future construction and maintenance projects. Currently it is unknown if any new construction projects are scheduled through 2018.

IV. Successes:

The WIP Phase II process required collaborative involvement from MDE, the Easton Armory and the U.S. Army Corps of Engineers to ensure pollutant load reductions as well as current and future BMP implementation levels fulfill the federal share of the needed reductions for Nitrogen, Phosphorous and Sediment pollutants. In an effort to meet WIP Phase II timelines, two year milestones and critical progress milestones in 2017 and 2020, Easton Armory will conduct a comprehensive assessment of boundary data and land use/land cover data on the facility. Providing more accurate data will enable the facility to better assess the load runoff and appropriate BMPs for minimizing or reducing the loads.

MDE and the Services held several meetings. The meetings were helpful and productive. Going forward this federal-state-local partnership will prove to be instrumental in meeting the long term restoration plan for the Chesapeake Bay as well as improve credibility and accountability for Department of Defense (DoD), a Federal agency leading by example.

Easton Armory (24A75, BG Louis G. Smith Armory)
Input to Maryland Department of Environment
Watershed Implementation Plan Phase II
DRAFT

V. Challenges:

- Coordination with multiple Bay jurisdictions made it difficult to apply one agency approach to meeting the required load reductions. For the Services this required additional resources in order to understand what each jurisdiction's expectations are, and these inconsistencies may result in long term load inaccuracies when determining whether TMDL goals have been met across the watershed.
- It was critical that all boundary and land use cover be verified. Facilities of this size have limited GIS data. Therefore, it took an additional amount of resources and technical capability to create shapefiles in order to verify boundaries and land use data.

VI. Inaccuracies:

To be determined.

La Plata Armory (24B55, BG William Smallwood Armory)
Input to Maryland Department of Environment
Watershed Implementation Plan Phase II
DRAFT

I. La Plata National Guard Armory

La Plata Armory (24B55, BG William Smallwood Armory) is located in La Plata, Charles County, Maryland just west of the intersection of Crain Highway (U.S. Route 301) and Hawthorne Drive.

Land use and verification of accurate facility boundary and acreage data to be determined from future field assessment.

II. La Plata Armory Baseline Loadings November 2011:

To be determined.

III. Programmatic Two Year Milestones 2012-2013:

- **Agricultural-** Not Applicable.
- **Stormwater Management Retrofits-** To be determined.
- **Septic System Upgrades-** Not Applicable.
- **Wastewater Treatment Plant Data-** Not Applicable.
- **Accounting for Future Growth**-
    - The La Plata Armory will continue to support Maryland Department of Environment (MDE) Watershed Implementation Plan (WIP) Phase II processes in 2012 and 2013.
    - The La Plata Armory will continue to implement the Army Policy for Sustainable Design and Development (SDD), October 2010 and Low Impact Development (LID) under the Energy Independence and Security Act of 2007 (EISA) as a means to manage stormwater for all future construction and maintenance projects. Currently it is unknown if any new construction projects are scheduled through 2018.

IV. Successes:

The WIP Phase II process required collaborative involvement from MDE, the La Plata Armory and the U.S. Army Corps of Engineers to ensure pollutant load reductions as well as current and future BMP implementation levels fulfill the federal share of the needed reductions for Nitrogen, Phosphorous and Sediment pollutants. In an effort to meet WIP Phase II timelines, two year milestones and critical progress milestones in 2017 and 2020, La Plata Armory will conduct a comprehensive assessment of boundary data and land use/land cover data on the facility. Providing more accurate data will enable the facility to better assess the load runoff and appropriate BMPs for minimizing or reducing the loads.

MDE and the Services held several meetings. The meetings were helpful and productive. Going forward this federal-state-local partnership will prove to be instrumental in meeting the long term restoration plan for the Chesapeake Bay as well as improve credibility and accountability for Department of Defense (DoD), a Federal agency leading by example.

La Plata Armory (24B55, BG William Smallwood Armory)
Input to Maryland Department of Environment
Watershed Implementation Plan Phase II
DRAFT

V. Challenges:

- Coordination with multiple Bay jurisdictions made it difficult to apply one agency approach to meeting the required load reductions. For the Services this required additional resources in order to understand what each jurisdiction's expectations are, and these inconsistencies may result in long term load inaccuracies when determining whether TMDL goals have been met across the watershed.
- It was critical that all boundary and land use cover be verified. Facilities of this size have limited GIS data. Therefore, it took an additional amount of resources and technical capability to create shapefiles in order to verify boundaries and land use data.

VI. Inaccuracies:

To be determined.

Queen Anne Armory (24C05, COL Victor P. Gillespe Armory)
Input to Maryland Department of Environment
Watershed Implementation Plan Phase II
DRAFT

I. Queen Anne National Guard Armory

Queen Anne Armory (24C05, COL Victor P. Gillespe Armory) is located in Queen Anne's County, Maryland, northeast of the intersection of Queen Anne's Highway (MD Route 404) and Starr Road, just north of Queen Anne.

Land use and verification of accurate facility boundary and acreage data to be determined from future field assessment.

II. Queen Anne Armory Baseline Loadings November 2011:

To be determined.

III. Programmatic Two Year Milestones 2012-2013:

- **Agricultural-** Not Applicable.
- **Stormwater Management Retrofits-** To be determined.
- **Septic System Upgrades-** Not Applicable.
- **Wastewater Treatment Plant Data-** Not Applicable.
- **Accounting for Future Growth**-
    - The Queen Anne Armory will continue to support Maryland Department of Environment (MDE) Watershed Implementation Plan (WIP) Phase II processes in 2012 and 2013.
    - The Queen Anne Armory will continue to implement the Army Policy for Sustainable Design and Development (SDD), October 2010 and Low Impact Development (LID) under the Energy Independence and Security Act of 2007 (EISA) as a means to manage stormwater for all future construction and maintenance projects. Currently it is unknown if any new construction projects are scheduled through 2018.

IV. Successes:

The WIP Phase II process required collaborative involvement from MDE, the Queen Anne Armory and the U.S. Army Corps of Engineers to ensure pollutant load reductions as well as current and future BMP implementation levels fulfill the federal share of the needed reductions for Nitrogen, Phosphorous and Sediment pollutants. In an effort to meet WIP Phase II timelines, two year milestones and critical progress milestones in 2017 and 2020, Queen Anne Armory will conduct a comprehensive assessment of boundary data and land use/land cover data on the facility. Providing more accurate data will enable the facility to better assess the load runoff and appropriate BMPs for minimizing or reducing the loads.

MDE and the Services held several meetings. The meetings were helpful and productive. Going forward this federal-state-local partnership will prove to be instrumental in meeting the long term restoration plan for the

Chesapeake Bay as well as improve credibility and accountability for Department of Defense (DoD), a Federal agency leading by example.

V. Challenges:

- Coordination with multiple Bay jurisdictions made it difficult to apply one agency approach to meeting the required load reductions. For the Services this required additional resources in order to understand what each jurisdiction's expectations are, and these inconsistencies may result in long term load inaccuracies when determining whether TMDL goals have been met across the watershed.
- It was critical that all boundary and land use cover be verified. Facilities of this size have limited GIS data. Therefore, it took an additional amount of resources and technical capability to create shapefiles in order to verify boundaries and land use data.

VI. Inaccuracies:

To be determined.

Salisbury Armory (24C10, CSM Blair Lee Crocket Armory)
Input to Maryland Department of Environment
Watershed Implementation Plan Phase II
DRAFT

I. Salisbury National Guard Armory

Salisbury Armory (24C10, CSM Blair Lee Crocket Armory) is located in Wicomico County, Maryland, at the intersection of West Salisbury Boulevard and Booth Street, just north of Salisbury.

Land use and verification of accurate facility boundary and acreage data to be determined from future field assessment.

II. Salisbury Armory Baseline Loadings November 2011:

To be determined.

III. Programmatic Two Year Milestones 2012-2013:

- **Agricultural-** Not Applicable.
- **Stormwater Management Retrofits-** To be determined.
- **Septic System Upgrades-** Not Applicable.
- **Wastewater Treatment Plant Data-** Not Applicable.
- **Accounting for Future Growth**-
    - The Salisbury Armory will continue to support Maryland Department of Environment (MDE) Watershed Implementation Plan (WIP) Phase II processes in 2012 and 2013.
    - The Salisbury Armory will continue to implement the Army Policy for Sustainable Design and Development (SDD), October 2010 and Low Impact Development (LID) under the Energy Independence and Security Act of 2007 (EISA) as a means to manage stormwater for all future construction and maintenance projects. Currently it is unknown if any new construction projects are scheduled through 2018.

IV. Successes:

The WIP Phase II process required collaborative involvement from MDE, the Salisbury Armory and the U.S. Army Corps of Engineers to ensure pollutant load reductions as well as current and future BMP implementation levels fulfill the federal share of the needed reductions for Nitrogen, Phosphorous and Sediment pollutants. In an effort to meet WIP Phase II timelines, two year milestones and critical progress milestones in 2017 and 2020, Salisbury Armory will conduct a comprehensive assessment of boundary data and land use/land cover data on the facility. Providing more accurate data will enable the facility to better assess the load runoff and appropriate BMPs for minimizing or reducing the loads.

MDE and the Services held several meetings. The meetings were helpful and productive. Going forward this federal-state-local partnership will prove to be instrumental in meeting the long term restoration plan for the Chesapeake Bay as well as improve credibility and accountability for Department of Defense (DoD), a Federal agency leading by example.

Salisbury Armory (24C10, CSM Blair Lee Crocket Armory)
Input to Maryland Department of Environment
Watershed Implementation Plan Phase II
DRAFT

V. Challenges:

- Coordination with multiple Bay jurisdictions made it difficult to apply one agency approach to meeting the required load reductions. For the Services this required additional resources in order to understand what each jurisdiction's expectations are, and these inconsistencies may result in long term load inaccuracies when determining whether TMDL goals have been met across the watershed.
- It was critical that all boundary and land use cover be verified. Facilities of this size have limited GIS data. Therefore, it took an additional amount of resources and technical capability to create shapefiles in order to verify boundaries and land use data.

VI. Inaccuracies:

To be determined.

Chesterstown Armory (24A50, SFC John H. Newman Armory)
Input to Maryland Department of Environment
Watershed Implementation Plan Phase II
DRAFT

I. Chesterstown National Guard Armory

Chesterstown Armory (24A50, SFC John H. Newman Armory) is located along Quaker Neck Road in Chesterstown, Kent County, Maryland. This site is in the process of being disposed by the MDARNG.

Land use and verification of accurate facility boundary and acreage data to be determined from future field assessment.

II. Chesterstown Armory Baseline Loadings November 2011:

To be determined.

III. Programmatic Two Year Milestones 2012-2013:

- **Agricultural-** Not Applicable.
- **Stormwater Management Retrofits-** To be determined.
- **Septic System Upgrades-** Not Applicable.
- **Wastewater Treatment Plant Data-** Not Applicable.
- **Accounting for Future Growth**-
    - The Chesterstown Armory will continue to support Maryland Department of Environment (MDE) Watershed Implementation Plan (WIP) Phase II processes in 2012 and 2013.
    - The Chesterstown Armory will continue to implement the Army Policy for Sustainable Design and Development (SDD), October 2010 and Low Impact Development (LID) under the Energy Independence and Security Act of 2007 (EISA) as a means to manage stormwater for all future construction and maintenance projects. Currently it is unknown if any new construction projects are scheduled through 2018.

IV. Successes:

The WIP Phase II process required collaborative involvement from MDE, the Chesterstown Armory and the U.S. Army Corps of Engineers to ensure pollutant load reductions as well as current and future BMP implementation levels fulfill the federal share of the needed reductions for Nitrogen, Phosphorous and Sediment pollutants. In an effort to meet WIP Phase II timelines, two year milestones and critical progress milestones in 2017 and 2020, Chesterstown Armory will conduct a comprehensive assessment of boundary data and land use/land cover data on the facility. Providing more accurate data will enable the facility to better assess the load runoff and appropriate BMPs for minimizing or reducing the loads.

MDE and the Services held several meetings. The meetings were helpful and productive. Going forward this federal-state-local partnership will prove to be instrumental in meeting the long term restoration plan for the

Chesapeake Bay as well as improve credibility and accountability for Department of Defense (DoD), a Federal agency leading by example.

V. Challenges:

- Coordination with multiple Bay jurisdictions made it difficult to apply one agency approach to meeting the required load reductions. For the Services this required additional resources in order to understand what each jurisdiction's expectations are, and these inconsistencies may result in long term load inaccuracies when determining whether TMDL goals have been met across the watershed.
- It was critical that all boundary and land use cover be verified. Facilities of this size have limited GIS data. Therefore, it took an additional amount of resources and technical capability to create shapefiles in order to verify boundaries and land use data.

VI. Inaccuracies:

To be determined.

MG (MD) Maurice D. Tawes Armory (24A55)
Input to Maryland Department of Environment
Watershed Implementation Plan Phase II
DRAFT

I. MG (MD) Maurice D. Tawes National Guard Armory

MG (MD) Maurice D. Tawes Armory (24A55) is located along Main Street in Crisfield, Somerset County, Maryland. This site is in the process of being disposed by the MDARNG.

Land use and verification of accurate facility boundary and acreage data to be determined from future field assessment.

II. MG (MD) Maurice D. Tawes Armory Baseline Loadings November 2011:

To be determined.

III. Programmatic Two Year Milestones 2012-2013:

- **Agricultural-** Not Applicable.
- **Stormwater Management Retrofits-** To be determined.
- **Septic System Upgrades-** Not Applicable.
- **Wastewater Treatment Plant Data-** Not Applicable.
- **Accounting for Future Growth**-
    - The MG (MD) Maurice D. Tawes Armory will continue to support Maryland Department of Environment (MDE) Watershed Implementation Plan (WIP) Phase II processes in 2012 and 2013.
    - The MG (MD) Maurice D. Tawes Armory will continue to implement the Army Policy for Sustainable Design and Development (SDD), October 2010 and Low Impact Development (LID) under the Energy Independence and Security Act of 2007 (EISA) as a means to manage stormwater for all future construction and maintenance projects. Currently it is unknown if any new construction projects are scheduled through 2018.

IV. Successes:

The WIP Phase II process required collaborative involvement from MDE, the MG (MD) Maurice D. Tawes Armory and the U.S. Army Corps of Engineers to ensure pollutant load reductions as well as current and future BMP implementation levels fulfill the federal share of the needed reductions for Nitrogen, Phosphorous and Sediment pollutants. In an effort to meet WIP Phase II timelines, two year milestones and critical progress milestones in 2017 and 2020, MG (MD) Maurice D. Tawes Armory will conduct a comprehensive assessment of boundary data and land use/land cover data on the facility. Providing more accurate data will enable the facility to better assess the load runoff and appropriate BMPs for minimizing or reducing the loads.

MDE and the Services held several meetings. The meetings were helpful and productive. Going forward this federal-state-local partnership will prove to be instrumental in meeting the long term restoration plan for the Chesapeake Bay as well as improve credibility and accountability for Department of Defense (DoD), a Federal agency leading by example.

MG (MD) Maurice D. Tawes Armory (24A55)
Input to Maryland Department of Environment
Watershed Implementation Plan Phase II
DRAFT

V. Challenges:

- Coordination with multiple Bay jurisdictions made it difficult to apply one agency approach to meeting the required load reductions. For the Services this required additional resources in order to understand what each jurisdiction's expectations are, and these inconsistencies may result in long term load inaccuracies when determining whether TMDL goals have been met across the watershed.
- It was critical that all boundary and land use cover be verified. Facilities of this size have limited GIS data. Therefore, it took an additional amount of resources and technical capability to create shapefiles in order to verify boundaries and land use data.

VI. Inaccuracies:

To be determined.

Prince Frederick Armory (24C00, Comptroller Louis L. Goldstein Armory)
Input to Maryland Department of Environment
Watershed Implementation Plan Phase II
DRAFT

I. Prince Frederick National Guard Armory

Prince Frederick Armory (24C00, Comptroller Louis L. Goldstein Armory) is located along Armory Road in Calvert County, Maryland, approximately 5 miles east of Eagle Harbor. This site is in the process of being disposed by the MDARNG.

Land use and verification of accurate facility boundary and acreage data to be determined from future field assessment.

II. Prince Frederick Armory Baseline Loadings November 2011:

To be determined.

III. Programmatic Two Year Milestones 2012-2013:

- **Agricultural-** Not Applicable.
- **Stormwater Management Retrofits-** To be determined.
- **Septic System Upgrades-** Not Applicable.
- **Wastewater Treatment Plant Data-** Not Applicable.
- **Accounting for Future Growth**-
    - The Prince Frederick Armory will continue to support Maryland Department of Environment (MDE) Watershed Implementation Plan (WIP) Phase II processes in 2012 and 2013.
    - The Prince Frederick Armory will continue to implement the Army Policy for Sustainable Design and Development (SDD), October 2010 and Low Impact Development (LID) under the Energy Independence and Security Act of 2007 (EISA) as a means to manage stormwater for all future construction and maintenance projects. Currently it is unknown if any new construction projects are scheduled through 2018.

IV. Successes:

The WIP Phase II process required collaborative involvement from MDE, the Prince Frederick Armory and the U.S. Army Corps of Engineers to ensure pollutant load reductions as well as current and future BMP implementation levels fulfill the federal share of the needed reductions for Nitrogen, Phosphorous and Sediment pollutants. In an effort to meet WIP Phase II timelines, two year milestones and critical progress milestones in 2017 and 2020, Prince Frederick Armory will conduct a comprehensive assessment of boundary data and land use/land cover data on the facility. Providing more accurate data will enable the facility to better assess the load runoff and appropriate BMPs for minimizing or reducing the loads.

MDE and the Services held several meetings. The meetings were helpful and productive. Going forward this federal-state-local partnership will prove to be instrumental in meeting the long term restoration plan for the

Chesapeake Bay as well as improve credibility and accountability for Department of Defense (DoD), a Federal agency leading by example.

V. Challenges:

- Coordination with multiple Bay jurisdictions made it difficult to apply one agency approach to meeting the required load reductions. For the Services this required additional resources in order to understand what each jurisdiction's expectations are, and these inconsistencies may result in long term load inaccuracies when determining whether TMDL goals have been met across the watershed.
- It was critical that all boundary and land use cover be verified. Facilities of this size have limited GIS data. Therefore, it took an additional amount of resources and technical capability to create shapefiles in order to verify boundaries and land use data.

VI. Inaccuracies:

- This site is in the process of being disposed by the MDARNG. Discussions may need to be had as to who the new property owner will be and at what timeframe this property will transfer into new ownership.

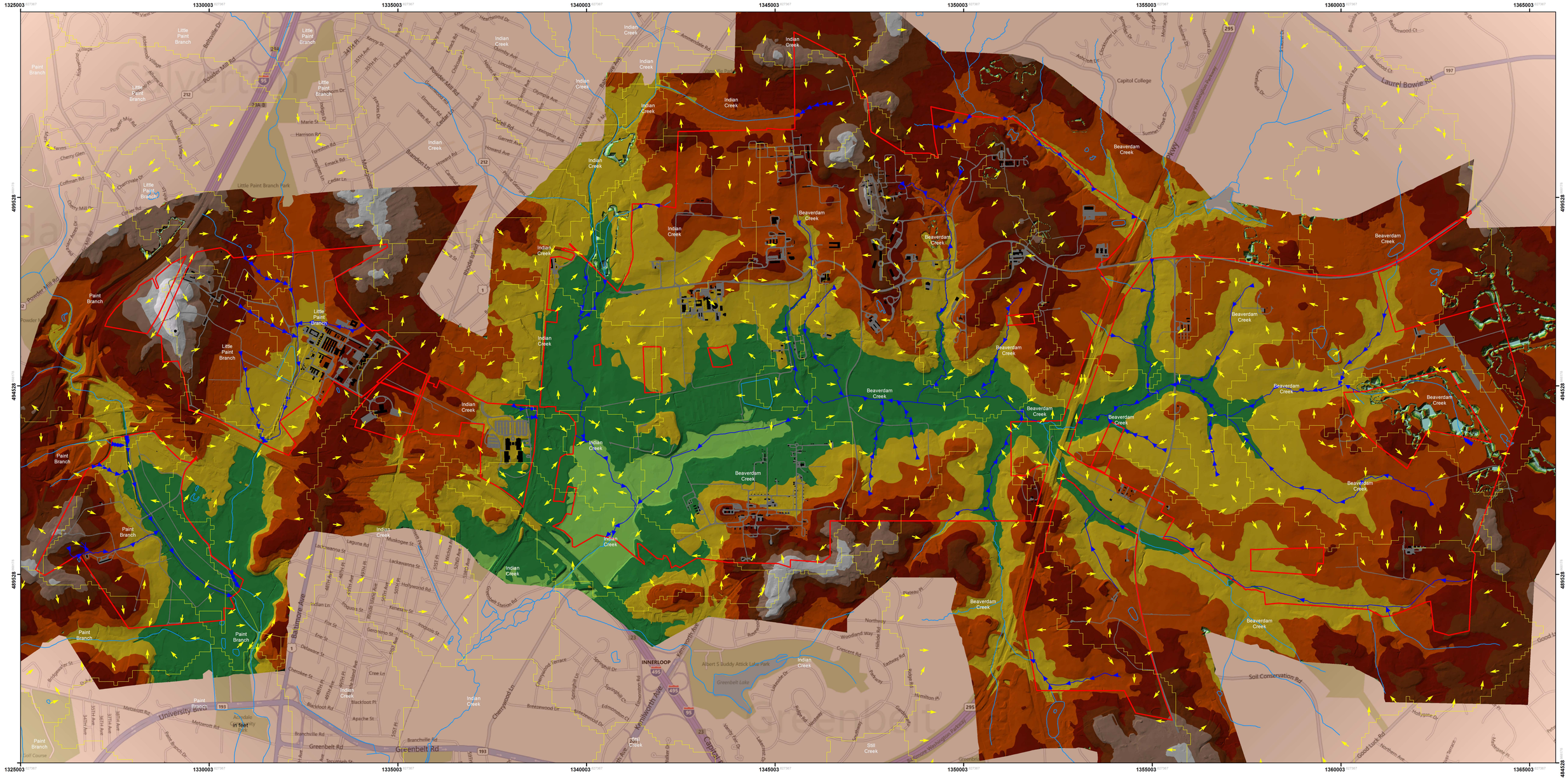
- To be determined.

Beltsville Agricultural Research Center Stormwater BMPs			
BMP	**Description**	**Acreage**	**Projected Completion**
Nutrient Management Plan	All crop acreage is included in the BARC Nutrient Management Plan and/or the University of Maryland Plan dependent on party responsible for the cropping program.	1621	100% incorporated as of 2011
Continuous No-till	All Nutrient Management acreage is continuous no-till except where research requirements/protocol requires tillage.	1350	100% incorporated as of 2011
Conservation Plans	350 acres of crop land is contoured or strip cropped to minimize soil erosion and nutrient loss. Most areas were initially designed by NCRS with some expansion through in-house design and construction.	350	100% incorporated as of 2011
Increase in Forest cover	In the last several years BARC has worked with Washington Metropolitan Council of Governments (WMCOG) to replant 10 acres of open/minimal forested areas.	10	100% incorporated as of 2011
Forest Buffers	BARC has 22.58 miles of streams with various amounts of forest cover. An estimated 16.90 miles of stream has a buffer area between 35' to 100' between the crop area and stream. Acreage shown does not include forest buffer that extends beyond 100' from the stream. Acreage shown does include some wetlands.	466	100% incorporated as of 2011
Grass Buffer/ Waterways	BARC has an estimated 47 acres of grass buffers. Buffers are defined as a sodded area (no minimum or maximum measurement) that filters run off from cropped acreage.	47	100% incorporated as of 2011
Decision Agriculture	Soil samples are taken annually on all crop acreage. Management decisions concerning the fertility program for each field are based on the fertility level, the crop to be grown and the projected yield of the field.	Agricultural land use	100% incorporated as of 2011
Commodity Crop	Commodity crops acreage varies depending on the need for grain, forages and straw. The average for the last several years includes:	Wheat (275) Barley (110) Ryegrass forage (120)	100% incorporated as of 2011
Cover Crop	Cropped acreage that does not receive a commodity crop for the winter months receives one of various cover crops. The goal is to have 100% of cropland covered with vegetation during winter months.	Rye (430) Wheat (150) Radishes (35) Triticale (25) Ryegrass (150) Vetch (5)	100% incorporated as of 2011
Alternative Watering Facility	There are three livestock watering troughs located in cattle herd pastures.		100% incorporated as of 2011
Animal Waste Management	All waste from the lactating dairy cows (110 cows) and 25% of the waste from replacement heifers (130 heifers) is pumped to a solids separator. The solids (+-8%) are moved to the Composting site. The liquid is pumped to the long range concrete holding tank until conditions and timing are acceptable for application to the cropping program.		100% incorporated as of 2011
Compost Site	All non-liquid bedding from the remaining BARC livestock population plus the separated solids from the Dairy operation is accumulated with greenhouse materials and excess organic materials from the Road and Grounds Unit at the BARC composting site. The composting process reduces the estimated volume of 1000 yards to 500 yards. The final product is spread on cropped acreage and/or used in the Roads and Grounds Unit as a soil amendment.		

BMP	Description	Acreage	Projected Completion
Barnyard Runoff	Most animal facilities include practices that minimizes/reduces clean water from moving through barnyards. This includes installation of gutters and diverting clean water away from the barnyard areas.		
Dairy Precision Feeding and Forage Management	Phosphorous levels in the dairy herd rations are formulated at a reduced level of less than 110% of NRC guidelines.		
Turfgrass in Building areas and field boarders	Fertilizer is no longer applied to turfgrass surrounding the facilities except research plots per protocols.		
Forestry area	500 trees have been planted annually in the turfgrass areas during the past several years		
Integrated Pest Management	All crop acreage uses IPM to minimize chemical usage with the exception of acreage that has research protocols requiring otherwise.		
Pervious surfaces verses impervious surfaces	As shown on attached map 96.1 % of the 6454 acres located at BARC consist of pervious surfaces leaving 3.9% of impervious surfaces.	6195.84 impervious surface	100% incorporated as of 2011
Land usage retirement	36 acres of crop land is being taken out of crop production and planted to trees as part of the ICC Reforestation Project.	36	Projected completion FY 2012-13
Increase in Forest cover	In addition to land retirement, 42 acres of open/minimal forested area is being repopulated (ICC Reforestation Project) to provide a full covered forested area.	42	Projected completion FY 2012-13
Wetland Restoration/ Creation	26.3 acres of wetlands is being created with a watershed of 450 acres of crop land plus 33 acres of laboratory, office and animal facilities. An additional project is in the design stage (ICC Project) with amount of wetlands to be created undetermined at this time.	26 acres wetlands created, with watershed of 450 acres of crop land and 33 acres of Facilities.	Projected completion FY 2012-13
Barnyard Runoff	The above noted wetlands being created will filter the runoff from the dairy facilities and the outside hog lots located at the B-200 Swine Facilities		Projected completion FY 2012-13
Dairy Precision Feeding and Forage Management	Future efforts are being made to reduce the Nitrogen levels in the dairy rations to less than 110% of the NRC guidelines.		Projected completion FY 2012-13

Beltsville Agricultural Research Center

Watershed



Legend

- BARC Boundary - 6454.95 Acres
- BARC Roads
- BARC Buildings
- Anacostia Streams - (WMCOG)
- BARC Streams - 26.08 Miles
- Watersheds - (WMCOG)

Elevation in Feet

250 - 275	100 - 125
225 - 250	75 - 100
200 - 225	50 - 75
175 - 200	25 - 50
150 - 175	0 - 25
125 - 150	

0 1,500 3,000 6,000 9,000 Feet

Bing Road Map 2010-11

Coordinate System: NAD 1983 StatePlane Maryland FIPS 1900 Feet
Projection: Lambert Conformal Conic
Datum: North American 1983
False Easting: 1,312,333.3333
False Northing: 0.0000
Central Meridian: -77.0000
Standard Parallel 1: 38.3000
Standard Parallel 2: 39.4500
Latitude Of Origin: 37.6667
Units: Foot US

Data:
Tom Callsen
Cary Coppeck
Keith Hummel
George Meyers

Map: George Meyers
Date Saved: 11/16/2011
Path: C:\GIS\Landuse\WatershedPrint.mxd
Research Support Services
301-504-5562

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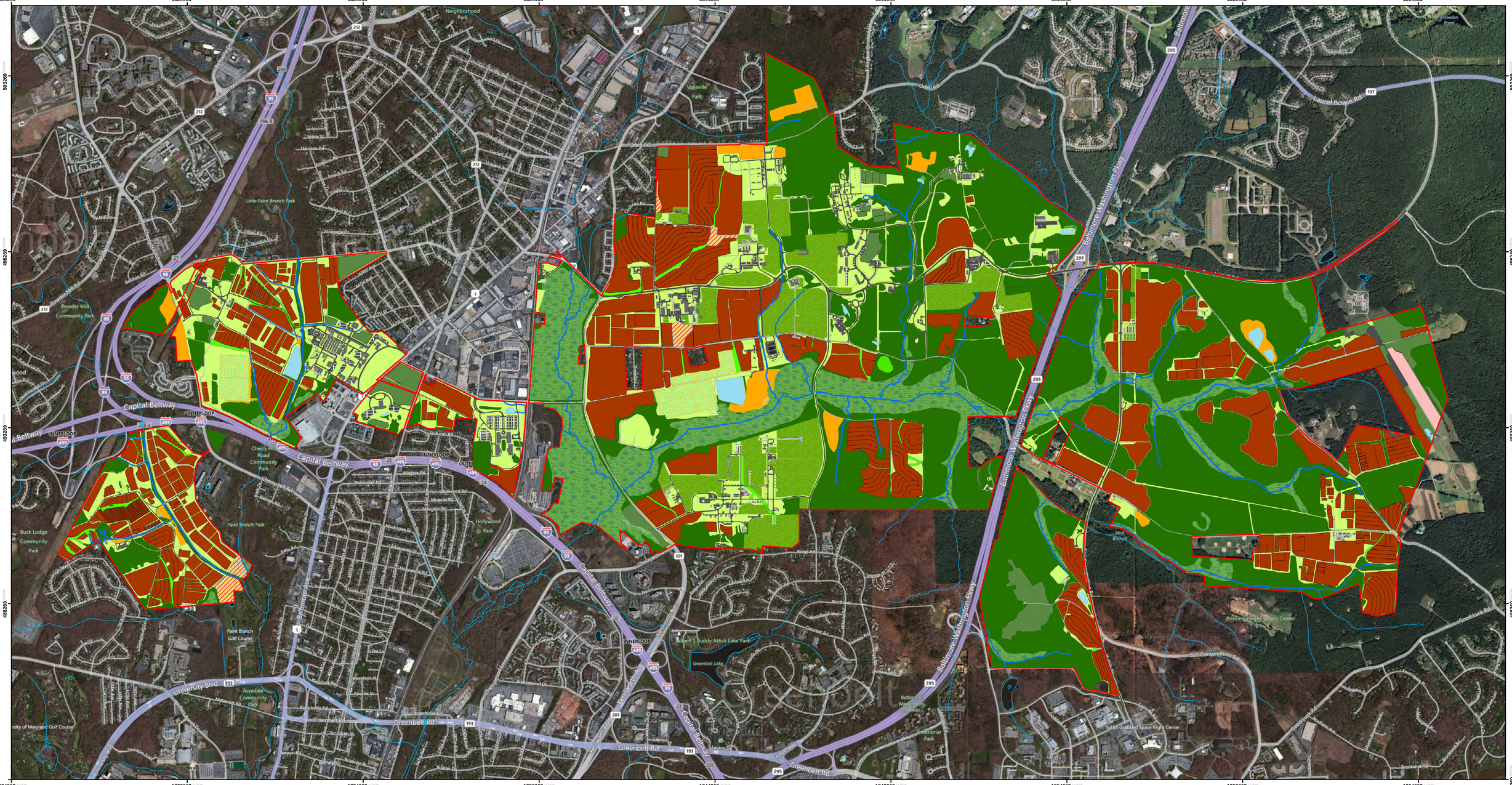
Beltsville Agricultural Research Center

Landuse



Pervious 6205.91 Acres- 96.15%

- BARC Boundary - 6454.95 Acres
- Anacostia Streams (WMCOG)
- BARC Streams - 26.08 Miles
- Wetlands - 672.46 Acres (ENTECH)
- Forest - 2883.28 Acres
- Old Landfill - 3.56 Acres
- Ponds - 30.56 Acres
- Reforested/Scheduled - 88.65 Acres
- Future Stormwater Management - 26.36 Acres
- Production; Research - 1621.33 Acres
- Pasture 351.08 - Acres
- Meadow; Low Maintence - 172.26 Acres
- Old Effluent Fields - 68.17 Acres
- Sludge Field - 18.09 Acres
- Mow- 888.07 Acres
- Waterway - 49.06 Acres

Impervious 249.04 Acres - 3.85 %

- Asphalt - 130.79 Acres
- Parking Lots -27.10 Acres
- Bridges - 0.14 Acres
- Concrete - 2.06 Acres
- Dirt - 4.18 Acres
- Gravel - 41.56 Acres
- Buildings - 43.21 Acres

0 1,500 3,000 6,000 9,000 Feet

Streams / Forest Buffers:

26.08 miles = total miles of stream on BARC.
22.58 miles = total with some forest cover.
5.68 miles = 35 feet or less forest cover.
16.90 miles = 35 - 100 feet or more forest cover. (466.22 Acres)

Aerial Photo/Roads: Bing Maps 2010-11

Coordinate System: NAD 1983 StatePlane Maryland FIPS 1900 Feet
Projection: Lambert Conformal Conic
Datum: North American 1983
False Easting: 1,312,333.3333
False Northing: 0.0000
Central Meridian: -77.0000
Standard Parallel 1: 38.3000
Standard Parallel 2: 39.4500
Latitude Of Origin: 37.6667
Units: Foot US

Data:
Tom Callsen
Cary Coppeck
Keith Hummel
George Meyers

Map: George Meyers

Date Saved: 11/16/2011

Path: C:\GIS\Landuse\LandUsePrint.mxd

Research Support Services
301-504-5562

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