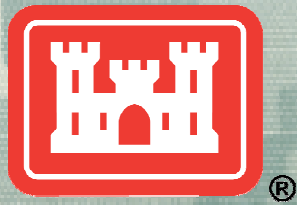


Environmental Management at DoD Facilities in the Chesapeake Bay Region

Sharon Madden
U.S. Corps of Engineers
Baltimore District

NCER



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Baltimore District Military Support

- Provides planning, environmental, design and construction assistance to military and DoD installations in the region to support the Army's commitment to sustainability and environmental stewardship

- Military Environmental Support includes:
 - Facility Planning
 - Site Screening and Selection Studies
 - **Environmental Constraints Analysis**
 - GIS mapping and analysis
 - **Water Resources Planning**
 - **Watershed Management Analysis and Planning**
 - **TMDL Analysis**
 - **LID Planning**
 - **Stormwater Management Plans**
 - **Wetland Delineations**
 - **Hydrologic Modeling**
 - Environmental Management and Regulatory Compliance
 - National Environmental Policy Act (NEPA)
 - **Integrated Natural Resources Management Plans**
 - Threatened and Endangered Species Surveys
 - Cultural Resources
 - Archeological Investigations and Data Recovery
 - Integrated Cultural Resource Management Plans



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Executive Order 13508: Strategy for Protecting and Restoring the Chesapeake Bay Watershed

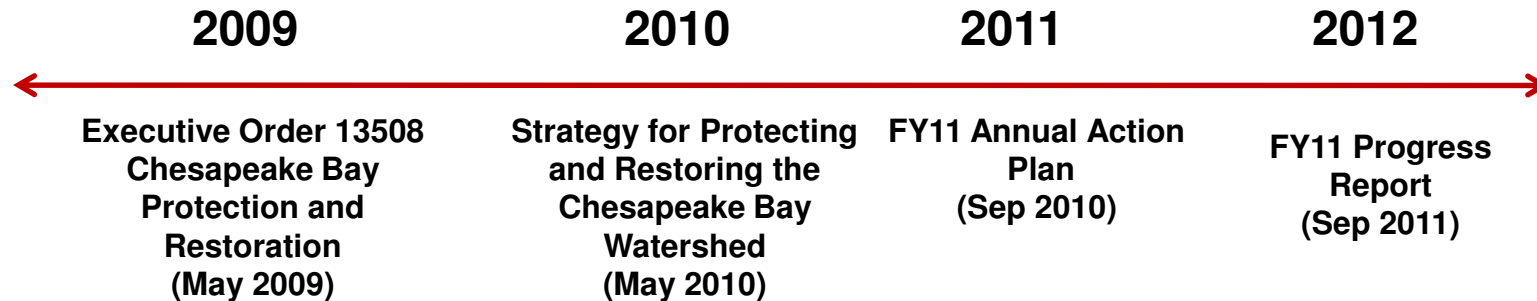
“The Department of Defense shall lead on storm water management practices at Federal facilities and on Federal lands”

- Strengthen storm water management practices at Federal facilities and on Federal lands within the Chesapeake Bay watershed and develop storm water best practices guidance
- Reduce water pollution from Federal lands and facilities



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DoD and the Chesapeake Bay Program



Showing Federal Leadership by Example

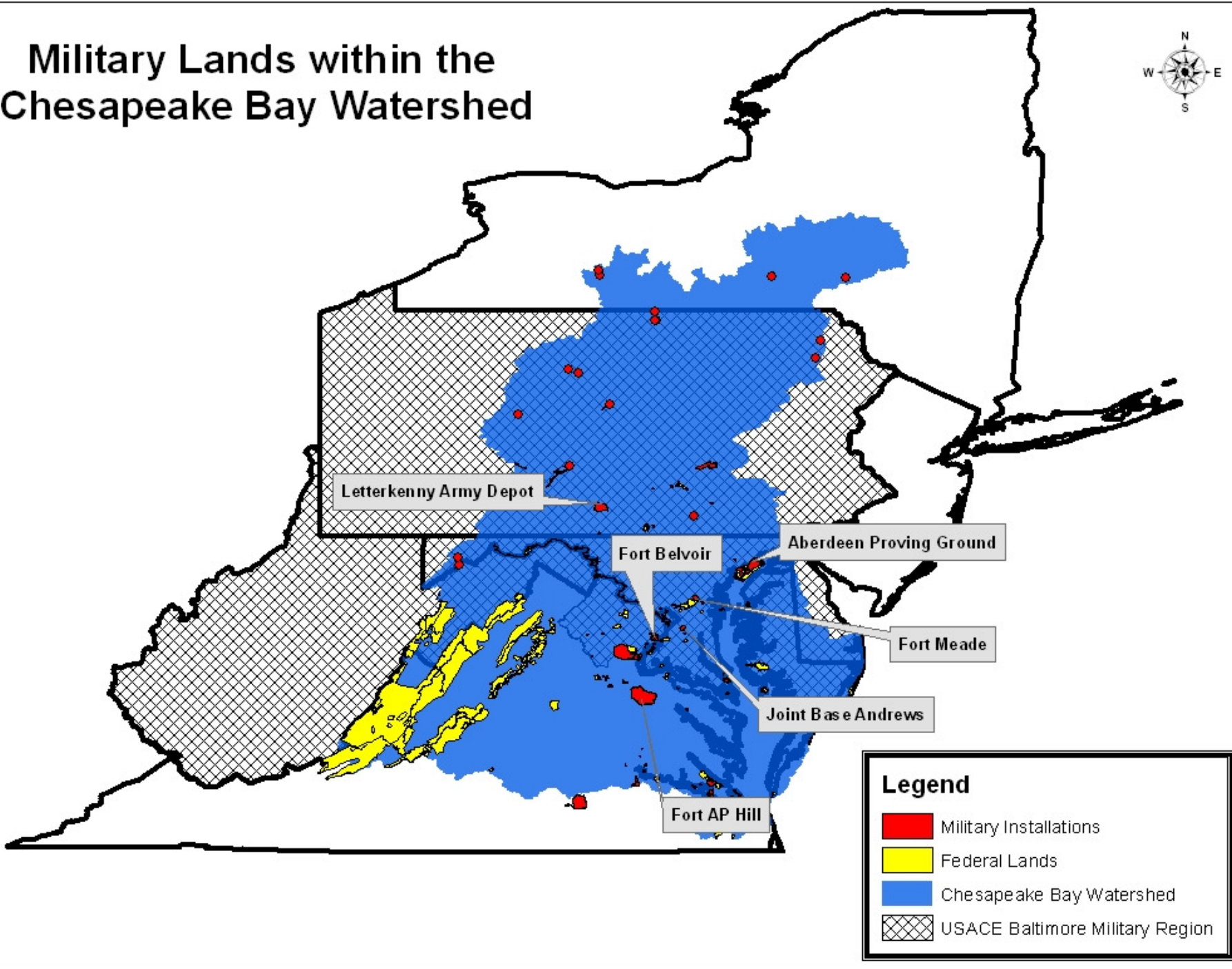
Executive Order 13058

- **Added Federal Leadership Committee Roles**

- Oversee development, coordination and implementation of new federal programs and activities for Chesapeake Bay restoration.
- Collaborate with state partners to create a new, coordinated strategy.
- Define environmental goals, indicators and milestones.
- Track and report restoration activities and spending.
- Publish Annual Action Plan describing how federal funding will be used.
- Publish an Annual Progress Report on environmental health and restoration efforts.
- Utilize independent evaluation to strengthen accountability.
- Establish a process for practicing adaptive management.



Military Lands within the Chesapeake Bay Watershed



TMDL Analysis at Chesapeake Bay Military Installations

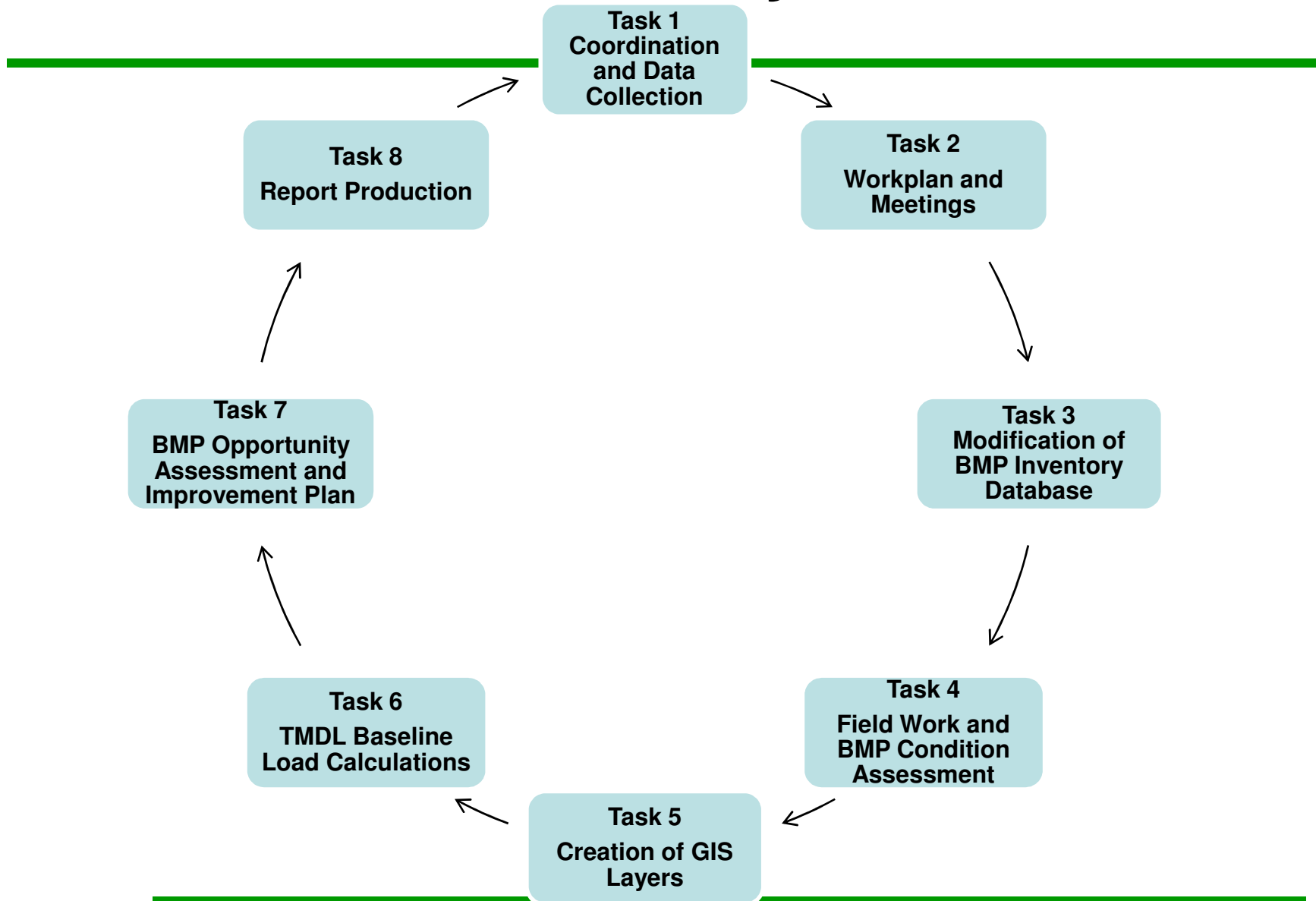
Federal agencies are expected to work with the Bay jurisdictions to:

- Identify federal lands and facilities
 - Fort Meade, Aberdeen Proving Ground, Fort Belvoir, Army National Guard, 99th US Army Reserves;
- Estimate nitrogen, phosphorus and sediment loads from those federal lands and facilities;
- Identify potential pollutant reductions from point and nonpoint sources associated with federal lands and facilities by providing information on property boundaries, land cover, land-use, and implementation of management practices;
- Commit to actions, programs, policies, and resources necessary through 2017 to reduce nitrogen, phosphorus, and sediment pollutant loads associated with federal lands and facilities by specific dates; and
- Provide information to the Bay jurisdictions on those actions, programs, policies, and resources that are or will be necessary to achieve federal-facility specific load reduction targets in jurisdictions' Phase II WIPs.



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TMDL Analysis



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Stormwater BMP Database

BMP Database

Open Inventory
Form

Open Inspection
Form

Open
Concept/Permitting
Form

Open
Construction Form



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BMP Database:

Select by SWM ID: **CBKS_F4**

SWM ID: CBKS_F4
 Alternate ID:
 Inventory Date: 4/28/2011
 Field Surveyor: Thomas/Rinker
 General BMP Type: Filtration

IMCOM Stormwater BMP Inventory Database

Open Record in Form
 Inspection Construction
 Concept/Permitting
 Record Operation
 Add Record Delete Record
 Exit Database

GENERAL

Filtration Type: Bioretention Status: Complete
 Project No: As-Built Plans? Source: Design Build
 PPMS No: BMP retrofit potential:

MAINTENANCE **LOCATIONAL**

Maintained By: Carlisle Water body BMP discharges into: Letork Creek
 Maintenance Partner: Latitude: Acres treated:
 Maintenance/Inspection cycle: Longitude: Jurisdiction:
 Maintenance Agreement? Location: AMEC

Comments/Notes:



Inspection Form:

Select by SWM ID: **CBKS_F4**

SWM ID: CBKS_F4
 Alternate ID:
 Inspection date: 4/28/2011

Stormwater BMP Inspection Database

Open Record in Form
 Concept/Permitting Delete Inspection
 Construction Open Report
 Inventory Exit Database

Add New Inspection

Inventory Information

General

Inventory date: 4/28/2011
 General BMP type: Filtration
 Field surveyor: Thomas/Rin
 Status: Complete
 Project no:
 PPMS no:
 Source: Design Build

Location

AMEC
 Latitude: Longitude:

General Information

Maintained by:
 Maintenance partner: Carlisle
 Jurisdiction:
 Maintenance agreement?
 Comments/Notes: As-Built plans?

Filtration Maintenance

Filtration Type: Bioretention Rating: B Rating Help

Accessibility
 Inaccessible

Debris
 Area full of debris
 Facility full of debris
 Inlet/outlet debris

Vegetation
 Erosion of vegetation
 Area not mowed
 Area unstable

Clogging
 Clogging

Structural Components
 Structural deterioration
 Damaged gates
 Cracks or spalling
 Perforated inlet not functioning

Outlets/Overflow Structures
 Outlet erosion
 Grate full of debris
 Poor grate
 Pinn settling

Sediment Deposition
 Basin full of sediment
 Sediment in chamber

Plants
 Planting erosion
 Thin mulch
 Poor mulch
 Dead/diseased plants
 Plant stress
 Deficient stress

Overall Function of Facility
 Flow bypass
 Standing water
 Odor
 Shoreline erosion
 Failed pumps

Roof
 Flood membrane malfunction
 Drainage layer flow paths blocked

Notes: now construction, planting have not fully taken root



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Army LID Program Support

- In support of the Office of the Assistant Chief of Staff for Installation Management initiative to integrate LID into all Military Construction projects, the Baltimore District is leading a LID Program Support effort to develop a LID Technical User Guide and Training Materials for Military installations and Corps of Engineers planners, designers and engineers to meet the requirements of the Energy Independence Security Act Section 438.
- Baltimore District is also overseeing LID demonstration projects at three installations within the Chesapeake Bay watershed.
- The goal of these efforts is to provide Military Installations with a guide, examples and training that will help them understand and integrate LID into the programming, planning and execution of their projects in order to meet the regulatory requirements.



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LID Definition

Low impact development (LID) is a term used to describe a land planning and engineering design approach to managing storm water runoff. LID emphasizes conservation and use of on-site natural features to protect water quality.

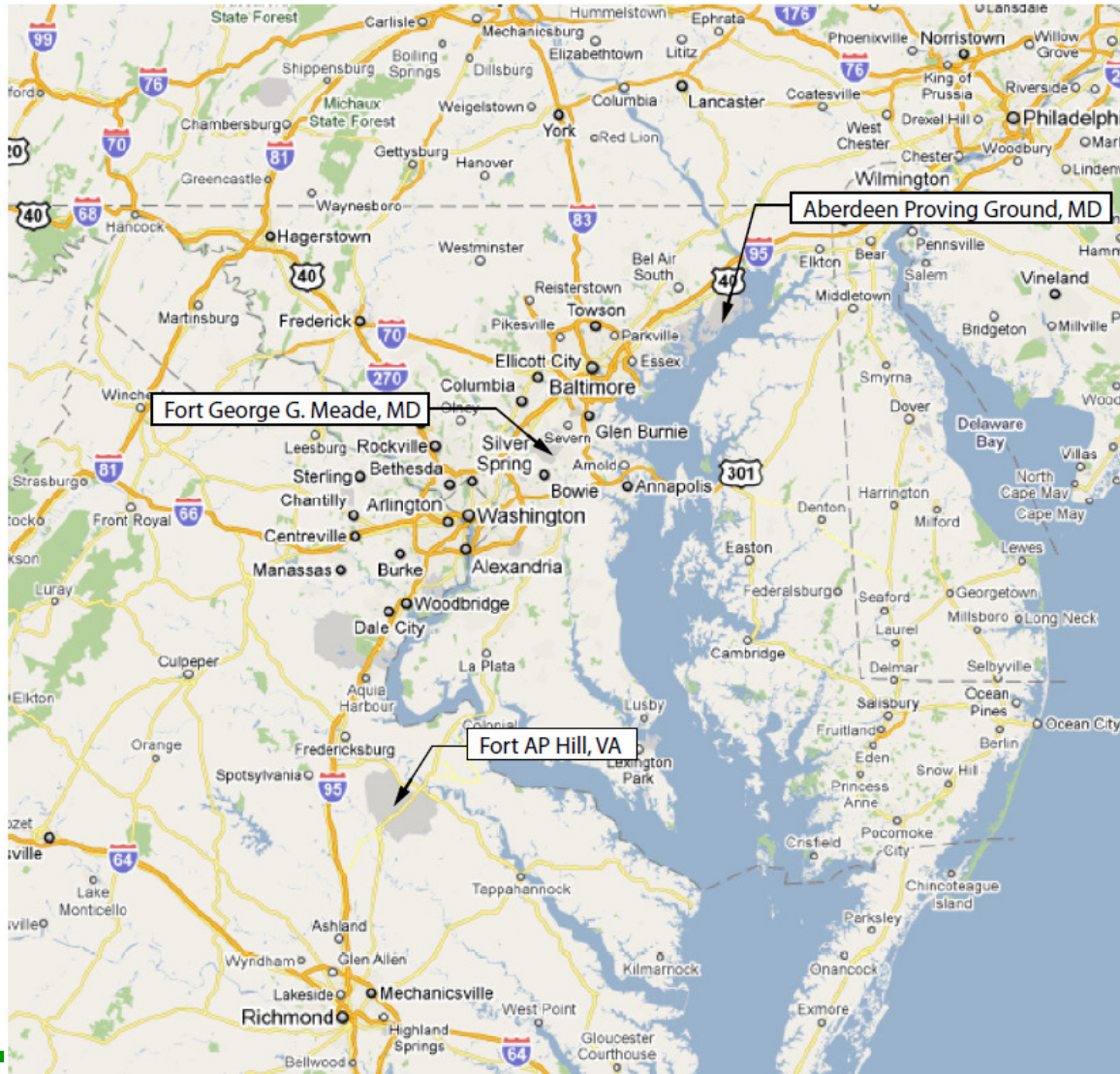
The primary goal of LID is to mimic a site's pre-development hydrology by managing runoff close to its source through:

- infiltration
- filtration
- storage
- evaporation
- detention



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LID Demonstration Project Locations



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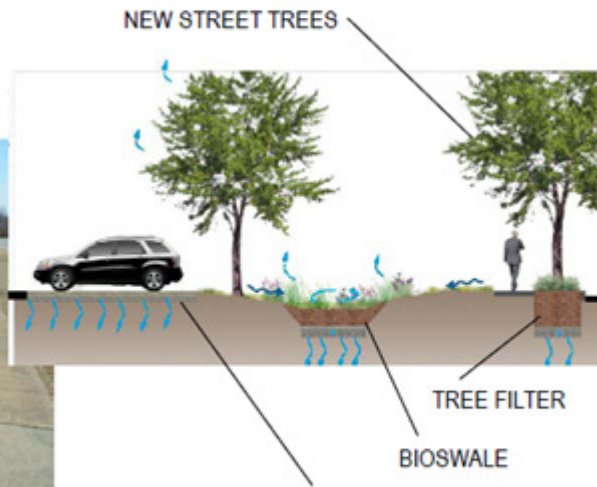
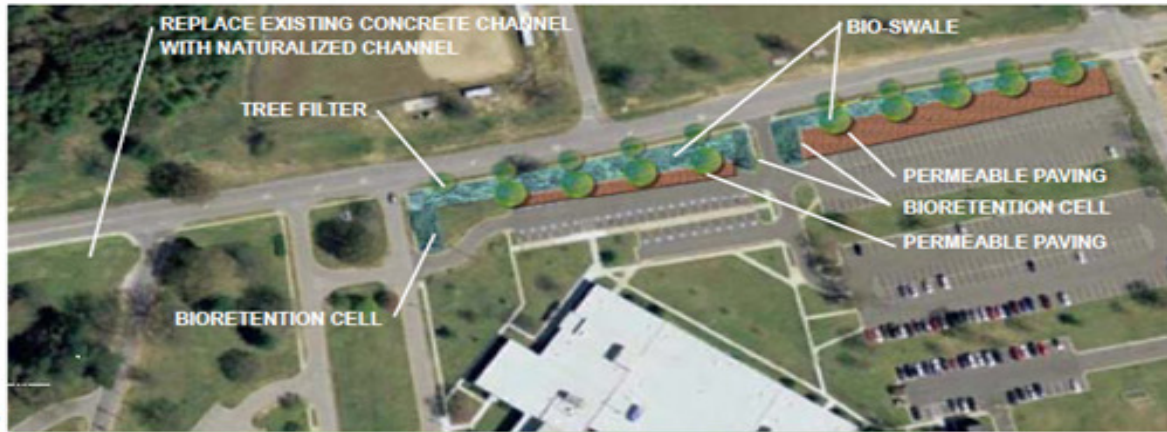
Fort George G. Meade, MD

- **Hospital Parking Area & Trapezoidal Channels**
 - Remove asphalt and install permeable parking strip parallel to channel
 - Replace concrete channel with a swale constructed with a 2-foot depth of bioretention soil with under drain
 - Install check dams in the swale to dissipate energy
 - Plant channel with native grass and shrubs
 - Install two tree box filter
- **Golf Course Stream Daylighting**
 - Unearth and remove 480 linear feet of corrugated metal pipe
 - Remove two concrete headwalls
 - Create a natural stream channel/plant native plants and connect to existing stream channel



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Fort George G. Meade, MD Hospital Parking Area/Trapezoidal Channel



PERMEABLE PAVING



HOSPITAL PARKING AREA/TRAPEZOIDAL CHANNEL



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Fort George G. Meade, MD Golf Course Stream Daylighting

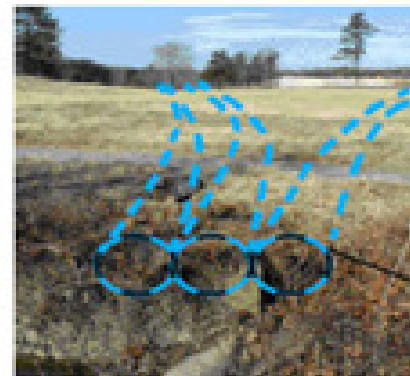


PROPOSED

PERMEABLE PAVEMENT TRAIL

ESTABLISH RIPARIAN BUFFER

600 FT. OF EXISTING PIPED STREAM
TO BE DAYLIGHTED AND RIPARIAN
BUFFER TO BE RESTORED



EXISTING

EXISTING TRIPLE 42"
CULVERT

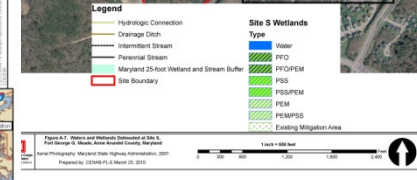
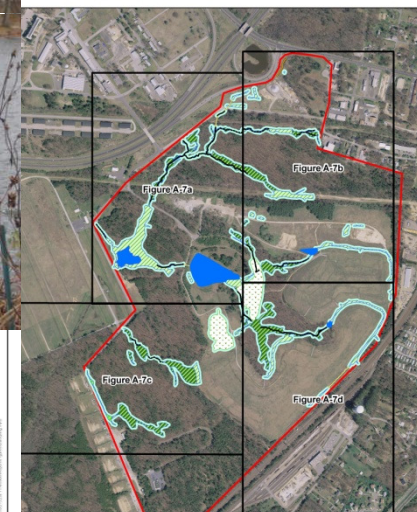
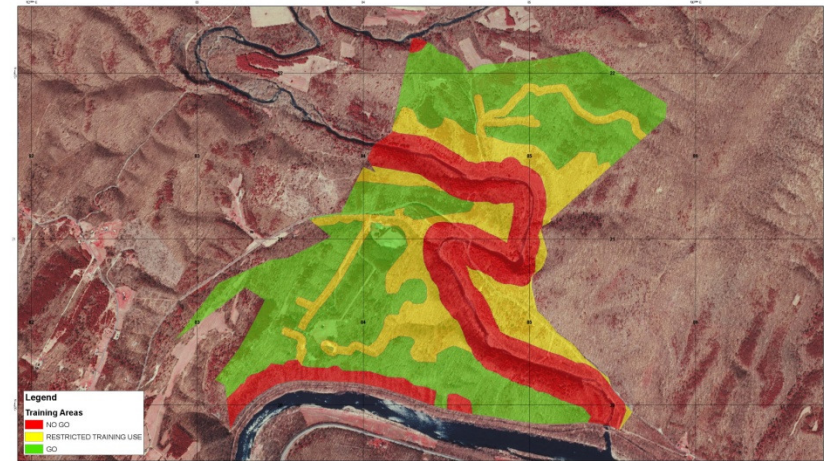
GOLF COURSE STREAM DAYLIGHTING



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Natural Resource Management

- Integrated Natural Resource Management Plan
- Training Area Mapping
- Fort Meade Stream Assessment
- Wetland Delineations



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Questions



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