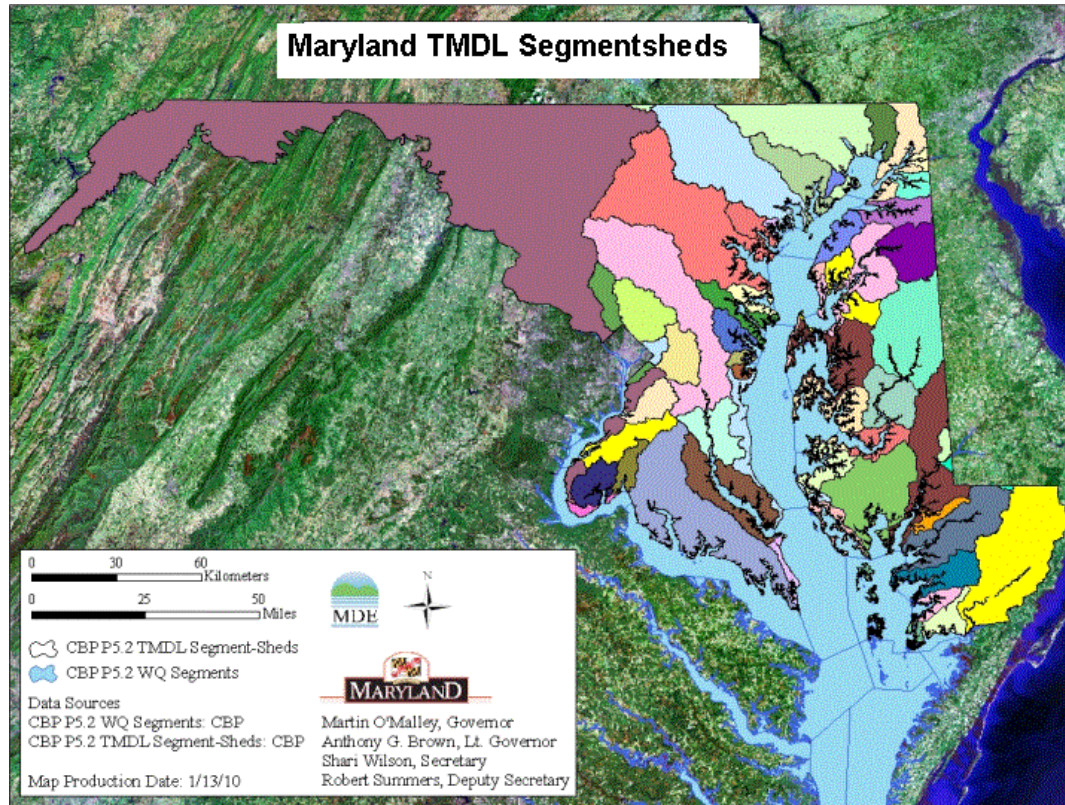


# Phase II WIP Background & Development Process



February 2011

# Presentation Overview

- Basic Background on Clean Water Act and Total Maximum Daily Loads (TMDLs)
- Background on the Bay TMDL and Watershed Implementation Plans (WIPs)
- Introduction to the Phase II WIP Development Process

# Basic TMDL Background

1972 federal Clean Water Act Requires:

- Water Quality Standards
- Assessment (monitoring) of Waters
- Identification of Waters that Violate Standards
  - 303(d) List of Impaired Waters
  - Identify Pollutant(s) Causing Impaired Waters
- Set Limits on Pollutants: Total Maximum Daily Load
- Write Permits to be Consistent with TMDLs

# Total Maximum Daily Load

## Main Concepts of a TMDL:

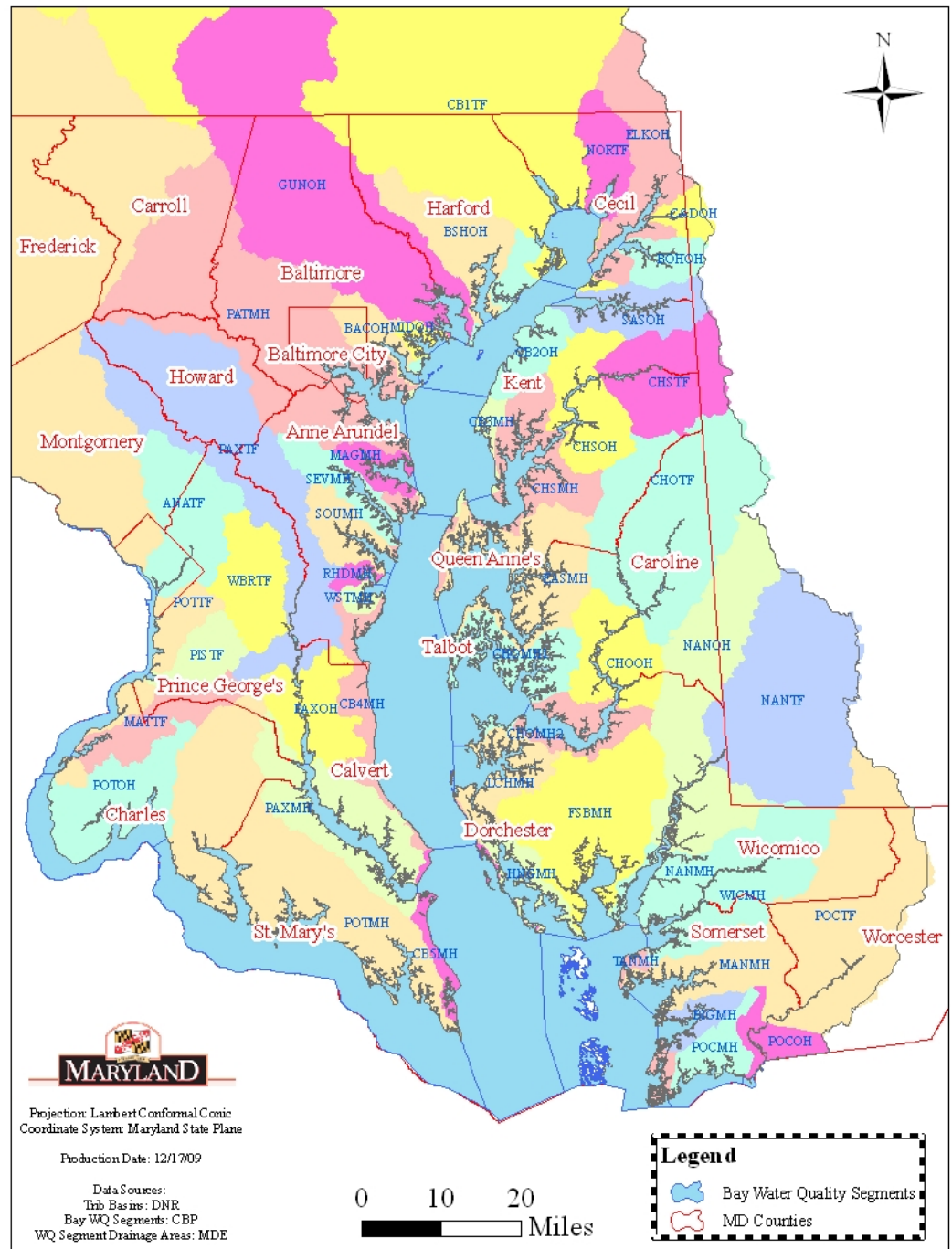
- TMDL: Maximum amount of pollutant that can be received by a water body and still meet standards.
- TMDL Allocates loads among sources and geographic areas.
- $TMDL = WLA + LA + MOS$ 
  - WLA: Sources with Permits (point sources)
  - LA: Sources without Permits (nonpoint sources)
  - MOS: Margin of Safety, protective of environment.
- TMDL is usually determined by a scientific study of the water body, often using computer models.

# Bay TMDL Background

- Court Settlement: Required Chesapeake Bay TMDLs to be completed by December 2010
- EPA Led a Regional TMDL Development Process
  - Sets limits, by State, on Nutrient & Sediment Pollution
- EPA Required “Watershed Implementation Plans”:
  - Allow States to Allocate Loads
  - Support “Reasonable Assurance” of Implementation
  - Part of new federal “Accountability Framework” to Ensure Results
- 58 Separate Segments have TMDLs in Maryland

Maps with more detail are available via MDE's Website:

- Appendix B2 of Phase I WIP
- Phase II WIP Development Support Web Page (Guidance Binder)



# What is Different than Previous Bay Restoration Efforts?

- Federal “Accountability Framework”
  - Clean Water Act: Bay TMDLs
  - Watershed Implementation Plans
  - 2-Year Implementation Milestones
  - Tracking & Evaluating Progress
  - Federal “Consequences”

# Federal Consequences

- Events that could Trigger Consequences include failure to do any of the following:
  - Develop and submit Phase I, II and III WIPs;
  - Develop two-year milestones;
  - Achieve two-year milestones;
  - Develop National Pollutant Discharge Elimination System (NPDES) permits consistent with the waste load allocations of the Bay TMDL; and
  - Develop appropriate mechanisms to ensure that non-point source load allocations are achieved.



- Possible Consequences:
  - Expand NPDES permit coverage to currently unregulated sources;
  - Object to NPDES permits, increase program oversight;
  - Require net improvement offsets;
  - Establish finer scale allocations in the Bay TMDL;
  - Require additional reductions from point sources;
  - Increase and target federal enforcement and compliance assurance;
  - Condition or redirect EPA grants; and
  - Federal promulgation of local nutrient water quality standards.

## Three-Phased Planning Process:

- Phase I Plans - 2010
  - Nutrient and sediment target loads by sector and impaired segment
  - Statewide strategies for reducing loads in each source sector
  - Starting Point for Phase II Plans
- Phase II Plans – 2011/12
  - Refined EPA Watershed Model Results
  - Divide loads by smaller geographic areas
  - More detailed strategy to meet 2017 Interim Target - 70% reduction
  - 2-Year Milestone actions for 2012-2013
- Phase III Plans – 2017
  - Modification of TMDL and allocations, if necessary
  - Identify changes needed to meet Final Target loads

# Highlights of Phase I WIP

- Continue Upgrades of Major WWTPs
- Leaves Room in WWTPs for Smart Growth
- Upgrade Septic Systems in Critical Area
- Reduction Deadlines for Phase I & Phase II MS4 Stormwater Permits plus New Flexibility
- Many new Agricultural Practices.
- Offset Program for Septic & Development Loads by 2013 (account for growth in loads)

# Accounting for Growth in Loads

1. Power Plant Atmos. Cap Strategy (In Place)
2. Wastewater Cap Strategy (In Place)
3. Phase I WIP Reduction Strategies Account for Projected Future Loads
4. Phase I WIP Commitment to Offset Loads:
  - a. Loads from New Land Development
  - b. Loads from New Septic Systems

# Phase I WIP

## Commitment to Offset NPS Loads

- Conceptual Approach:
  - Incentives to Promote Smart Growth
  - Proposes Three Types of Geographic Areas:
    - Offsets tighter in lower density areas, that is, areas of high per-capita loads.
- Option for Local Alternative Approach
- Trading System is Essential Element
- Being Developed via Statewide Workgroup Parallel to, but separate from, Phase II WIP.
- Schedule Envisions 2013 Implementation

# Phase II WIP Development Process

The following introduction to the Phase II WIP development process provides an overview and initial steps. Additional guidance and schedules will be provided that lay out more details regarding future steps.

# Phase II: Bottom Line

**To avoid getting lost in the details...**

**... lets boil it down to the basics:**

- **Allocations:** For the major source sectors
- **2-Year Milestone Commitments for 2012 & 2013:**
  - Implementation Actions
  - Program Development Actions
- **2017 Interim Strategy:** Plausible actions for achieving 70% of the Final Target by 2017.
  - Implementation Actions
  - Program Development Actions

# Break it Down by Sector

- **Agriculture:** Expanding & Adding Programs
- **Municipal Wastewater:**
  - Major ENR upgrades
  - Minor Upgrades? Some have been proposed.
- **Stormwater:**
  - Phase I & II MS4s: Target has been set in Phase I WIP
  - Opportunities for alternative reductions in near term
- **Septic Systems:**
  - An approach has been proposed in Phase I WIP
  - Consider alternative reductions
- **Other:** Industrial sources, Atmospheric...



# Basic Expectations of WIP

- **Interim & Final Target Loads**
- **Strategies to Meet Targets**
  - Strategy Narrative
  - Load Reduction Analysis (& Gap Analysis)
  - Cost Estimate & Strategy to Address Funding Gap
  - Schedule for “Program Development” (Including Funding)
- **Contingency Strategies**
- **Tracking, Reporting and Verification**
- **Accounting for Growth in Loads**
- **Capacity Analysis & 2-Year Milestones**

# Overview of Phase II Process

- Set up Local Teams
- Spring Activities before Numbers are Available\*
- Orientation to Load Analysis Tools
- Assess Revised Phase I Allocations & Strategies
- Discuss & Refine Strategies and Target Loads
  - Reach Consensus, Use State Default or Hybrid
- Validate Revised Strategies via EPA Models
- Finish Writing Phase II Document
- Finalize 2-yr Milestones by end of 2011
- Public Review & Revise WIP (likely to fall into 2012)

\* Described in Next Slide

# Let's Get Tangible

**New Numbers are not Ready until early Summer...  
... but there is plenty to be done in advance.**

## **Winter/Spring WIP Development Activities:**

- Get Oriented (Study the Background Materials)
- Form Local Teams (Identify Local Primary Contacts)
- Local Governments: Setup Internal Coordination
- Determine “Current Capacity” for Implementation
- Begin Developing 2-Year Milestones
- Describe Tracking & Reporting (Current & Aspirations)
- Start WIP Report Documentation
- Prepare for Analyzing “the Numbers”
- Prepare for Trading and Offsetting Future Loads

# Phase I Interim Targets

## Nitrogen Reductions by 2017

Source	Reduction (lbs)	Primary Strategy
<b>Agriculture</b>	1,100,000	Many Practices
<b>Wastewater</b>	5,651,000	ENR Upgrades
<b>Stormwater</b>	448,000	Retrofit 20% - 30% of Developed land w/o Stormwater Controls
<b>Septic Systems</b>	290,000	Upgrade about 70% of the systems

# Current Capacity Assessment

- Predict the pace of implementation in the future  
Based on "current resources" (capacity)
- Worksheets will Standardize Information Request:

## Section I: Point Source Implementation Plan

WWTP	Water Shed		Permitted Flow MGD	Current Avg Daily Flow MGD	Existing Limits		Strategies/Plans	Barriers/Solutions	Tech Assistance Needed	New Initiatives	Tracking & Monitoring	Stakeholder Roles in Implementations
	Town - T	County - C			Nitrogen	Phosphorus						
Millington	T	Upper Chester	0.105									
Worton	C	Middle Chester (Morgan Creek)	0.15									
Kennedyville	C	Middle Chester (Morgan Creek)	0.05									
Tolchester	C	Still Pond-Fairlee	0.265									
Chestertown	T	Middle Chester	0.9									
Betterton	T	Cassatras River	0.2									

### Section II D: Watershed Restoration and Education Programs

#### Current Programs Implementing the Strategy:

The following table is adapted from "A Users Guide to Watershed Planning in Maryland" which provides a framework for how programs and policies could be aligned to protect and restore watersheds. In addition, this format also mirrors an approach outlined in Maryland Department of the Environment's recently released TMDL Implementation Guidance. For more information

[http://www.mde.state.md.us/Programs/WaterPrograms/TMDL/TMDL\\_implementation\\_2006\\_guidance\\_document.asp](http://www.mde.state.md.us/Programs/WaterPrograms/TMDL/TMDL_implementation_2006_guidance_document.asp)

Watershed Protection Tool
Stormwater Management for new development
Maintenance of existing stormwater infrastructure

Maryland's Stormwater Management Program 2009 Urban Acres Restored and Planned as reported in National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer System Annual Reports												
Permitted Jurisdictions			County and Municipal Baseline Impervious Acres					Chesapeake Bay Program Urban Acres (Impervious and Pervious)			Budget (Thousands)	
County Municipality	Permit Issuance	Total Land Area (Acres)	Untreated Impervious Area (Acres) <sup>1</sup>	Restored	Percent Restored	Restoration Required Thru Current Permit Term (Acres)	Restoration Required Thru Current Permit Term %	Total Urban Land in County <sup>2</sup>	Equivalent Urban Watershed Acres Restored <sup>3*</sup>	Equivalent Urban Watershed Acres Restoration Permit Requirement	Operating	Capital
Allegany	11/8/2004	265,477	45,172	1,094	2.4%	4,517	10%	130,081	5,414	22,356	\$9,894	\$7,217
Baltimore	1/3/2005	51,418	23,373	1,659	7.1%	4,675	20%	48,407	8,210	23,135	\$9,442	\$3,491
Baltimore	6/15/2005	280,060	31,090	6,616	21.3%	3,109	10%	158,831	32,743	15,387	\$7,646	\$8,879
Baltimore	7/5/2001	324,552	25,800	1,007	3.9%	0	0%	155,518	4,983	0	\$7,933	\$6,021
Baltimore	10/13/2004	311,680	35,712	661	1.9%	3,571	10%	153,107	3,271	17,674	\$24,415	\$17,816
Calvert	7/14/2005	289,280	11,344	669	5.9%	1,134	10%	71,451	3,308	5,614	\$344	\$2,776
Chesapeake	7/31/2002	289,011	2,607	45	1.7%	0	0%	47,225	223	0	\$355	\$472
Chesapeake	3/11/2002	424,141	6,725	729	10.8%	0	0%	87,435	3,608	0	\$643	\$247
Chesapeake	11/1/2004	286,490	8,308	256	3.1%	831	10%	74,393	1,267	4,112	\$1,300	\$1,600
Chesapeake	6/20/2005	160,640	11,704	255	2.2%	1,170	10%	72,459	1,262	5,792	\$3,049	\$2,682
Chesapeake	10/21/2005	incorporated	20,720	302	1.5%	414	2%	incorporated	1,494	2,051	\$2,865	\$2,865
<b>Total:</b>		<b>2,682,748</b>	<b>201,835</b>	<b>13,292</b>	<b>6.6%</b>	<b>19,422</b>	<b>9.6%</b>	<b>998,907</b>	<b>65,784</b>	<b>96,122</b>	<b>\$67,886</b>	<b>\$54,065</b>

storm drain clean outs, etc

# Example: Stormwater

- Phase I MS4 Jurisdiction Retrofit Goals

Maryland's Stormwater Management Program 2009 Urban Acres Restored and Planned as reported in National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer System Annual Reports												
Permitted Jurisdictions			County and Municipal Baseline Impervious Acres					Chesapeake Bay Program Urban Acres (Impervious and Pervious)			Budget (Thousands)	
County Municipality	Permit Issuance	Total Land Area (Acres)	Untreated Impervious Area (Acres) <sup>1</sup>	Restored	Percent Restored	Restoration Required Thru Current Permit Term (Acres)	Restoration Required Thru Current Permit Term %	Total Urban Land in County <sup>2</sup>	Equivalent Urban Watershed Acres Restored <sup>3,4</sup>	Equivalent Urban Watershed Acres Restoration Permit Requirement	Operating	Capital
Anne Arundel	11/8/2004	265,477	45,177	1,094	2.4%	4,517	10%	130,081	5,414	22,356	\$9,894	\$7,217
Baltimore City	1/3/2005	51,418	23,378	1,659	7.1%	4,675	20%	48,407	8,210	23,135	\$9,442	\$3,491
Baltimore Co.	6/15/2005	280,060	31,090	6,616	21.3%	3,109	10%	158,831	32,743	15,387	\$7,646	\$8,879
Montgomery	7/5/2001	324,552	25,800	1,007	3.9%	0	0%	155,518	4,983	0	\$7,933	\$6,021
Prince George's	10/13/2004	311,680	35,712	661	1.9%	3,571	10%	153,107	3,271	17,674	\$24,415	\$17,816
Carroll	7/14/2005	289,280	11,314	669	5.9%	1,134	10%	71,451	3,308	5,614	\$344	\$2,776
Charles	7/31/2002	289,011	2,617	45	1.7%	0	0%	47,225	223	0	\$355	\$472
Frederick	3/11/2002	424,141	6,715	729	10.8%	0	0%	87,435	3,608	0	\$643	\$247
Harford	11/1/2004	286,490	8,308	256	3.1%	831	10%	74,393	1,267	4,112	\$1,300	\$1,600
Howard	6/20/2005	160,640	11,701	255	2.2%	1,170	10%	72,459	1,262	5,792	\$3,049	\$2,682
Wicomico	10/21/2005	incorporated	20,720	302	1.5%	414	2%	incorporated	1,494	2,051	\$2,865	\$2,865
<b>Total:</b>		<b>2,682,748</b>	<b>201,835</b>	<b>13,292</b>	<b>6.6%</b>	<b>19,422</b>	<b>9.6%</b>	<b>998,907</b>	<b>65,784</b>	<b>96,122</b>	<b>\$67,886</b>	<b>\$54,065</b>

# Current Capacity: Stormwater

## Example Estimate: Average Annual Pace of Implementation

2007      622 acres  
 2008      930 acres  
 2009    + 712 acres  
 Total    2,274 acres / 3 yrs =  
           ~ **758 ac/year**

Permitted Jurisdiction	
County Municipality	Permit Issuance
Anne Arundel	11/8/2004
Baltimore City	1/3/2005
Baltimore Co.	6/15/2005
Montgomery	7/5/2001
Prince George's	10/13/2004
Carroll	7/14/2005
Charles	7/31/2002
Fredricks	3/11/2002
Harford	11/1/2004
Howard	6/20/2005
St. Mary's	10/21/2005
<b>Total:</b>	

## Other Considerations:

- Current Capital Budget
- Status of Projects in the Pipeline
- Local Knowledge

Urban Acres (Equivalent Urban Watershed Acres Restoration Permit Requirement)	Budget (Thousands)	
	Operating	Capital
22,356	\$9,894	\$7,217
23,135	\$9,442	\$3,491
15,387	\$7,646	\$8,879
0	\$7,933	\$6,021
17,674	\$24,415	\$17,816
5,614	\$344	\$2,776
0	\$355	\$472
0	\$643	\$247
4,112	\$1,300	\$1,600
5,792	\$3,049	\$2,682
2,051	\$2,865	\$2,865
<b>96,122</b>	<b>\$67,886</b>	<b>\$54,065</b>

# 2-Year Milestone: Stormwater

**Example Estimate:  
Average Annual Pace of Implementation**

2007 622 acres  
 2008 930 acres  
 2009 + 712 acres  
 Total 2,274 acres / 3 yrs =  
**~ 758 ac/year**

**Initial Estimate of 2-Year Milestone**

Permitted Jurisdiction	
County Municipality	Permit Issuance
Allegany	11/8/2004
Baltimore City	1/3/2005
Chesapeake Bay	6/15/2005
Frederick	7/5/2005
Prince Georges	10/13/2004
St. Marys	7/14/2005
Talbot	7/31/2002
Washington	3/11/2002
Worcester	11/1/2004
Howard	6/20/2005
Prince Georges	10/21/2005
<b>Total:</b>	

**Other Considerations:**

- Current Capital Budget
- Status of Projects in the Pipeline
- Local Knowledge

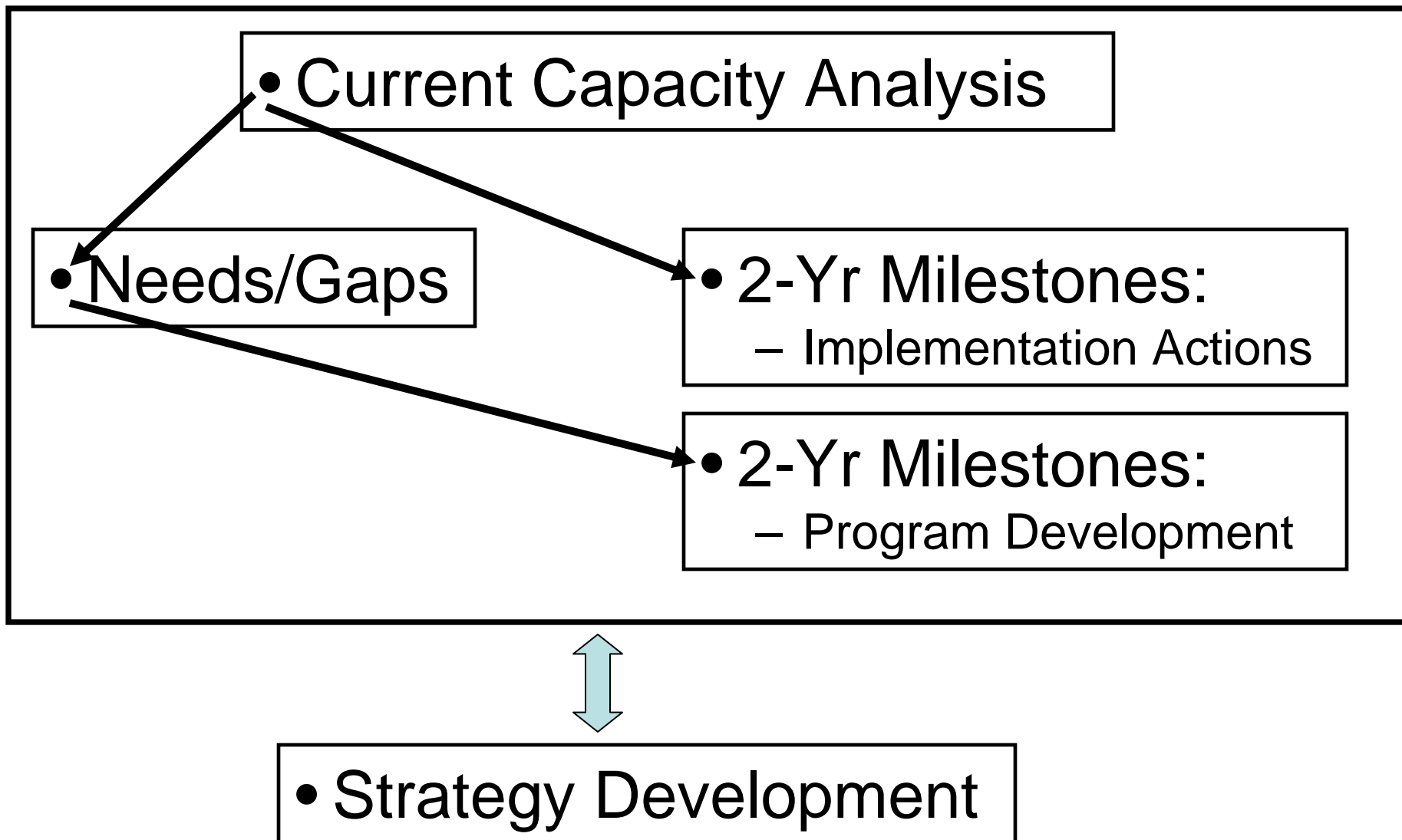
Equivalent Urban Watershed Acres Restoration Permit Requirement	Budget (Thousands)	
	Operating	Capital
22,356	\$9,894	\$7,217
23,135	\$9,442	\$3,491
15,387	\$7,646	\$8,879
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2,051	\$2,865	\$2,865
<b>96,122</b>	<b>\$67,886</b>	<b>\$54,065</b>



- **Legal & Regulatory**
- **Financial**
- **Staffing**
- **Technical**
- **Programmatic**

- 
- Narratives:
    - Current Programs
    - Identify Barriers, Needs, Gaps

# Connecting the Dots



# State Liaisons

State staff will be assigned to serve as liaisons between each local team and the State agencies. The liaison's functions are outlined below.

- **Coordinate Local Team Meetings:**
  - Schedule Meeting, Set Agenda, Etc.
- **Facilitate Meeting Discussions**
- **Explain and Guide the Process:**
  - Timelines, Goals, Outcomes/Products
- **Liaison is NOT a WIP Expert:**
  - Coordinate Between Local Team & State Agencies:
    - Seek answers to local questions
    - Bring in subject area experts
    - Facilitate other State & federal technical assistance

# Next Steps

<b>Month</b>	<b>Activities</b>
<b>Jan/Feb</b>	<ul style="list-style-type: none"> <li>• Form Local Team</li> <li>• Study Introductory Material</li> <li>• <u>Info. Request</u> for “Current Capacity”</li> </ul>
<b>March</b>	<ul style="list-style-type: none"> <li>• Next Local Team Meetings:               <ul style="list-style-type: none"> <li>– Affirm Local Team Composition</li> <li>– Follow-up Introductory Materials</li> <li>– Initial Responses to <u>Info. Request</u></li> <li>– Start Documenting Tracking Systems</li> </ul> </li> </ul>

# Contacts:

**MDE: Tom Thornton – 410 537-3656**  
**[TThornton@mde.state.md.us](mailto:TThornton@mde.state.md.us)**

**DNR: Catherine Shanks – 410 260-8717**  
**[CShanks@dnr.state.md.us](mailto:CShanks@dnr.state.md.us)**

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**[horseyea@mda.state.md.us](mailto:horseyea@mda.state.md.us)**

**MDP: Jason Dubow – 410 767-3370**  
**[JDubow@mdp.state.md.us](mailto:JDubow@mdp.state.md.us)**