

Draft

*2007 Comprehensive
Water and Sewerage Plan
Policies and Maps*

Presented to the Board of County Commissioners

April 24, 2007

Action Requested:

Direct staff to proceed with map changes and to complete the draft of the plan based on policies discussed today.

Consultant: LSA



In 2002, the County hired LSA to assist in the preparation of a new Plan. The Consultant prepared a draft and presented it at public forums. Since then laws have changed and there have been new requests for data which were beyond the scope of the contract. In this presentation, staff reports on the latest progress in completing the Plan.

Presentation Outline

- Why a Comprehensive Water and Sewerage Plan?
- What is its Relationship to the Comprehensive Plan?
- What Previous Policies Are Carried Forward into New Plan?
- What New Changes are Being Proposed?
- What is the Next Step?

Water Quality is Important



A new land ethic is needed to maintain and protect the land and waters around us.

Potable Water is Important



John Romano, USDA, with tap water from public water systems in the Western U.S.



Mike Casey, holding a corroded pipe in D.C.

2004 Comprehensive Plan

WASTE MANAGEMENT OBJECTIVES

1. Ensure the safe and environmentally sound disposal of solid waste, wastewater, and hazardous waste generated in Calvert County.
2. Reduce nutrient pollution from sewage treatment facilities and septic systems.
3. Promote conservation of resources; e.g., solid waste source reduction, reuse and recycling of waste, and water conservation.
4. Allow for sewage treatment facilities for town centers.
5. Identify and locate town center utility and sewerage systems.

PUBLIC FACILITIES AND GENERAL SERVICES

1. Provide public facilities to support town center growth.
2. Ensure that new public buildings and grounds are built with multiple public uses in mind.
3. Ensure that public facilities are energy and cost efficient and easy to maintain.
4. Whenever appropriate, locate public buildings in town centers.
5. Provide and/or plan the development of infrastructure, such as roads, communications, water and sewer, sidewalks, etc., to enable designated towns to develop.



"The county planning agency shall certify that the plan, revision, or amendment is consistent with the county comprehensive plan"

One of the visions of the Comprehensive Plan is that:

“Our Town Centers are attractive, convenient, and interesting places to live, work, and shop”



Threats to the Vision:

- Lack of adequate roads, sidewalks, public water and sewer.
- High development costs.
- Inability to attract households representing a broad range of incomes

Action Highlights:

- Provide planned roads, sidewalks, public water and sewer in major town centers.
- Remove unnecessary impediments to growth.
- Provide parks, community centers, and public amenities.

Town center plans have been prepared for all of the town centers and each has a public facilities section.



What Plan Policies Are Being Carried Forward?

- Maintain an aggressive water conservation Program.
- Cap abandoned wells.
- Place First Priority on Land Application of Sewerage – Avoid any new Direct Discharges into the Bay or its Tributaries.
- Provide Tertiary Treatment.
- Provide Water and Sewer Systems in Town Centers, as Called for in Town Center Plans.

What New Additions were Requested by MDE and MDP for this update?

- Water and Sewer Allocation Plans Policies are being added.
- Priority Funding Areas are being added to the maps.
- Watersheds are being added to the maps.

Changes That Will Be Required To the Comprehensive Plan and Water and Sewer Plan By October, 2009.

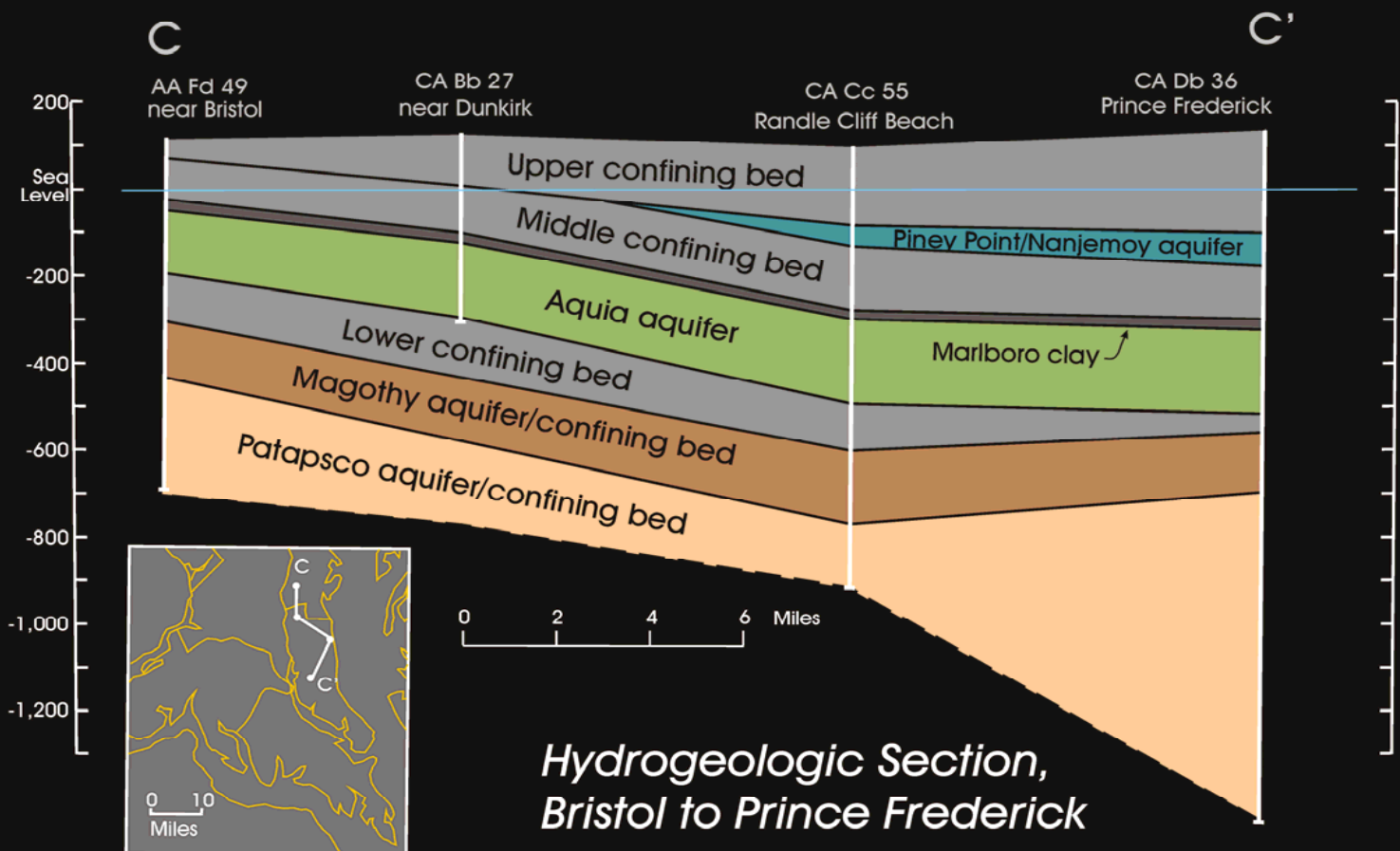
- Add Water Resources Element to the Comprehensive Plan, to include:
 - water supply and infrastructure limitations and pollution susceptibility
 - nutrient caps and point source Total Maximum Daily Load (TMDL) allocations
 - water body assimilative capacity and total TMDLs
- Amend the Water and Sewer Plan to implement new policies in the Comprehensive Plan

What Are We doing to Maintain A Potable Supply of Water?

- Participating with Tri-County Council to study aquifers in the region.
- Cutting future residential development by 50%.
- Maintaining an aggressive water conservation Program.
- Requiring abandoned wells to be capped.
- Addressing new arsenic standards.

What Is Our Source of Potable Water?

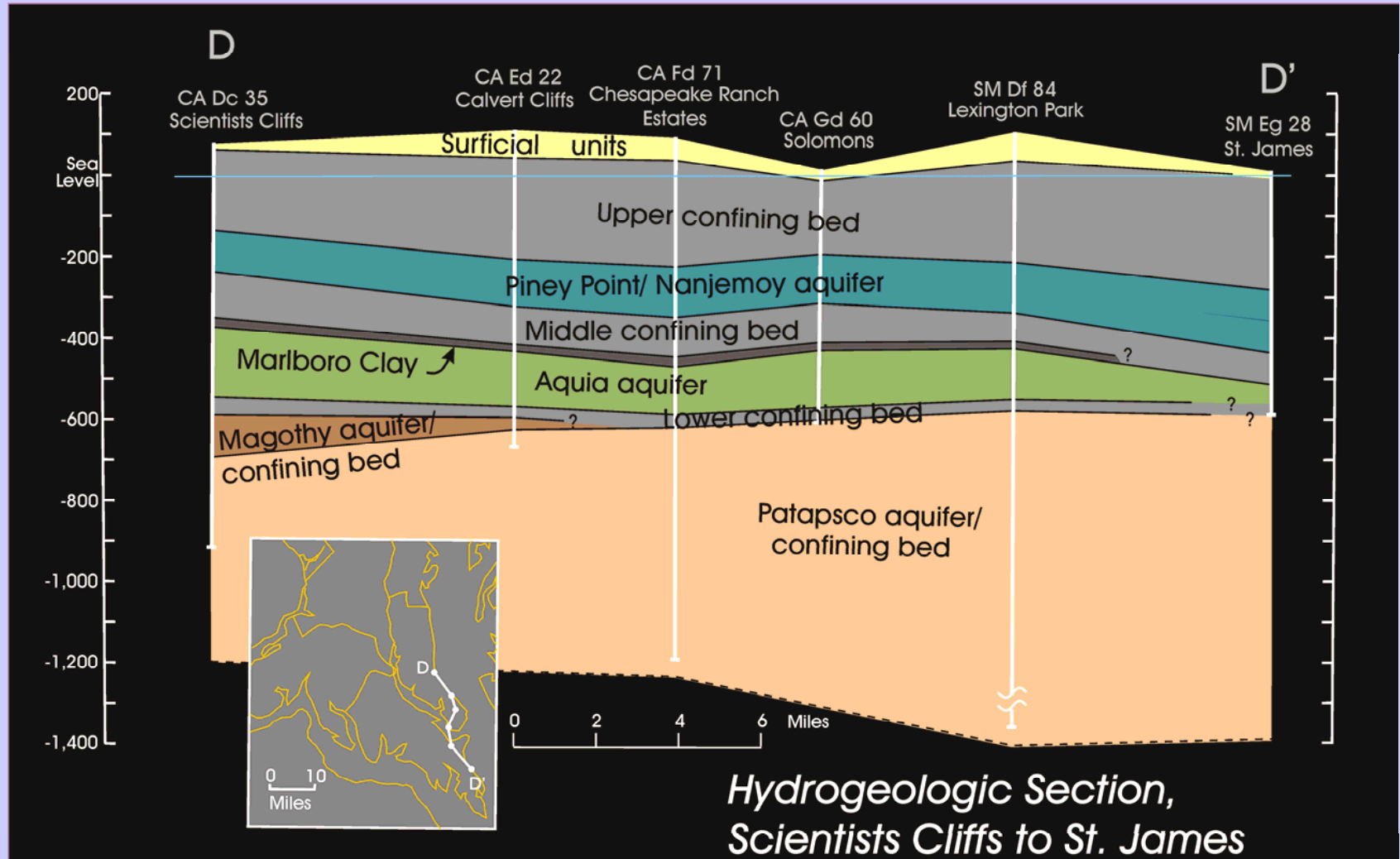
Calvert County Aquifers –North County



*Hydrogeologic Section,
Bristol to Prince Frederick*

There is Adequate Capacity Through 2030

Calvert County Aquifers –South County



What Are We Doing To Properly Dispose Of Wastewater?

- Using land application community sewer systems, where feasible.
- For septic systems, requiring two back-up fields.
- Conducting watershed studies on water quality.
- Applying for (and receiving) a state grant for nitrogen removing septic systems.
- Assisting the Environmental Commission with the “Pump for the Bay” contest.

Shown here is a lagoon being constructed for a 'land application system



Land application systems are the best for the environment.

Two of three of the County's large systems are "land application" systems.



Calvert will need to reduce N

- We don't have large point sources
- We have little industry
- Our farmers already use BMPs
- Our sewer systems already do tertiary treatment including land application
- Diffuse sources are the problem
 - Atmospheric deposition, stormwater runoff, lawn fertilizers and **septic systems**

Queensberry – Surface Water Sampling Site



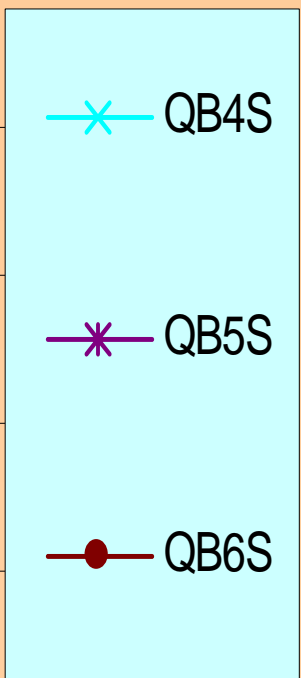
Queensberry – Conventional Septic Area – Shallow Well Site



Queensberry - Traditional Septic Area (Shallow Wells)

NO₂+NO₃ Concentration

NO₂+NO₃ (mg/L)



14.000
12.000
10.000
8.000
6.000
4.000
2.000
0.000

9/1/2000

9/1/2001

9/1/2002

9/1/2003

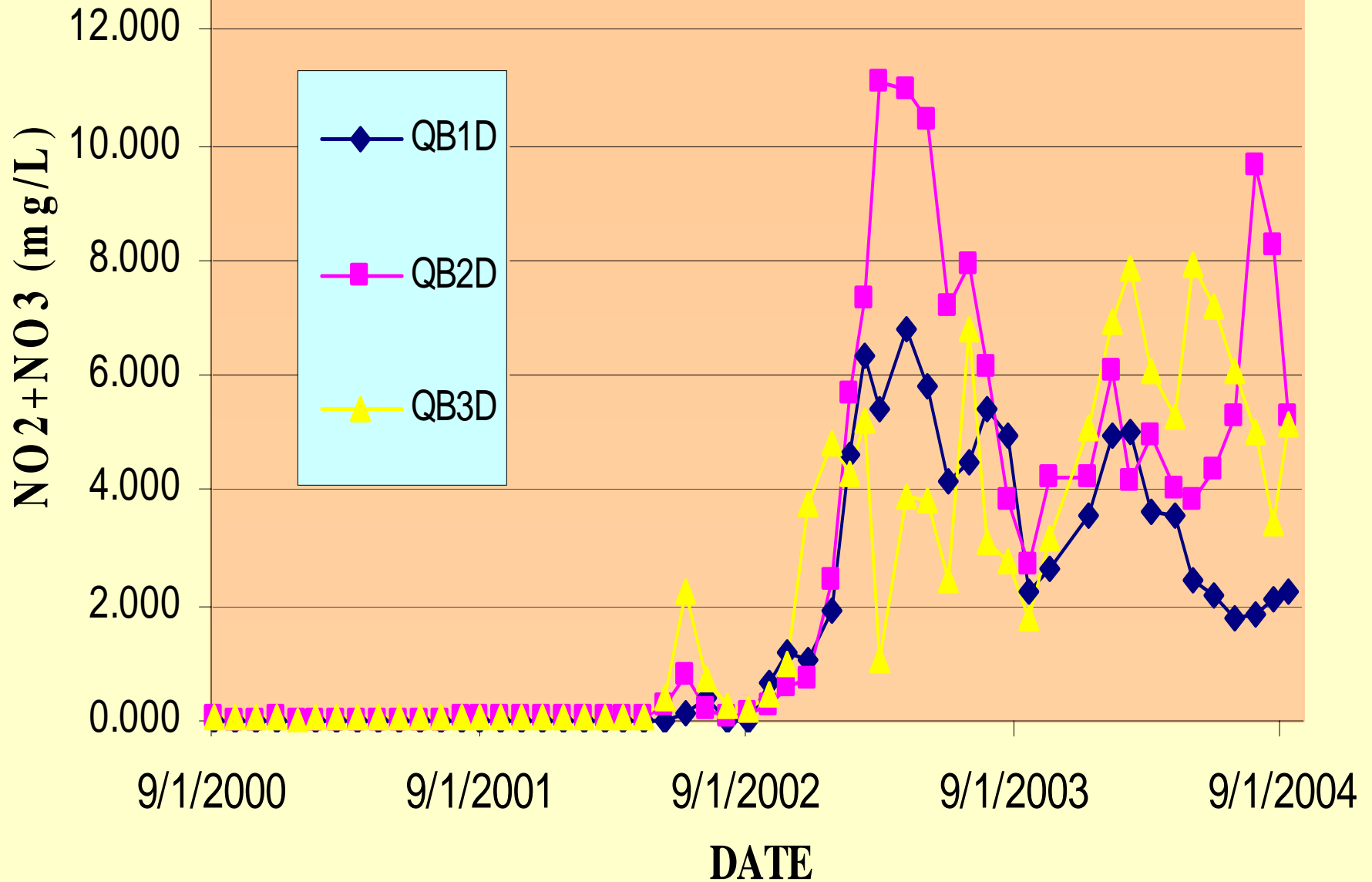
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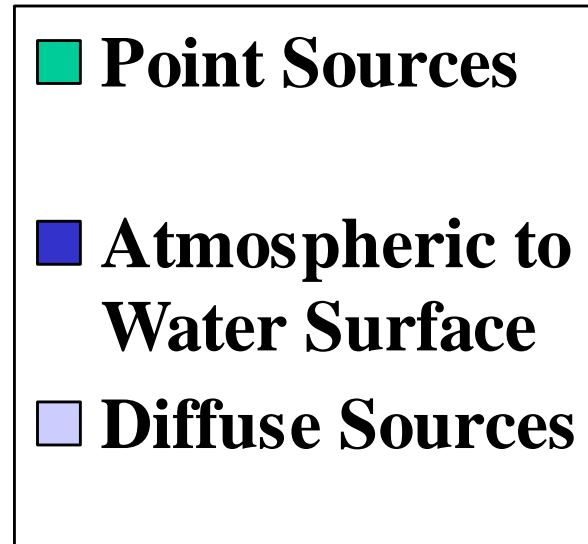
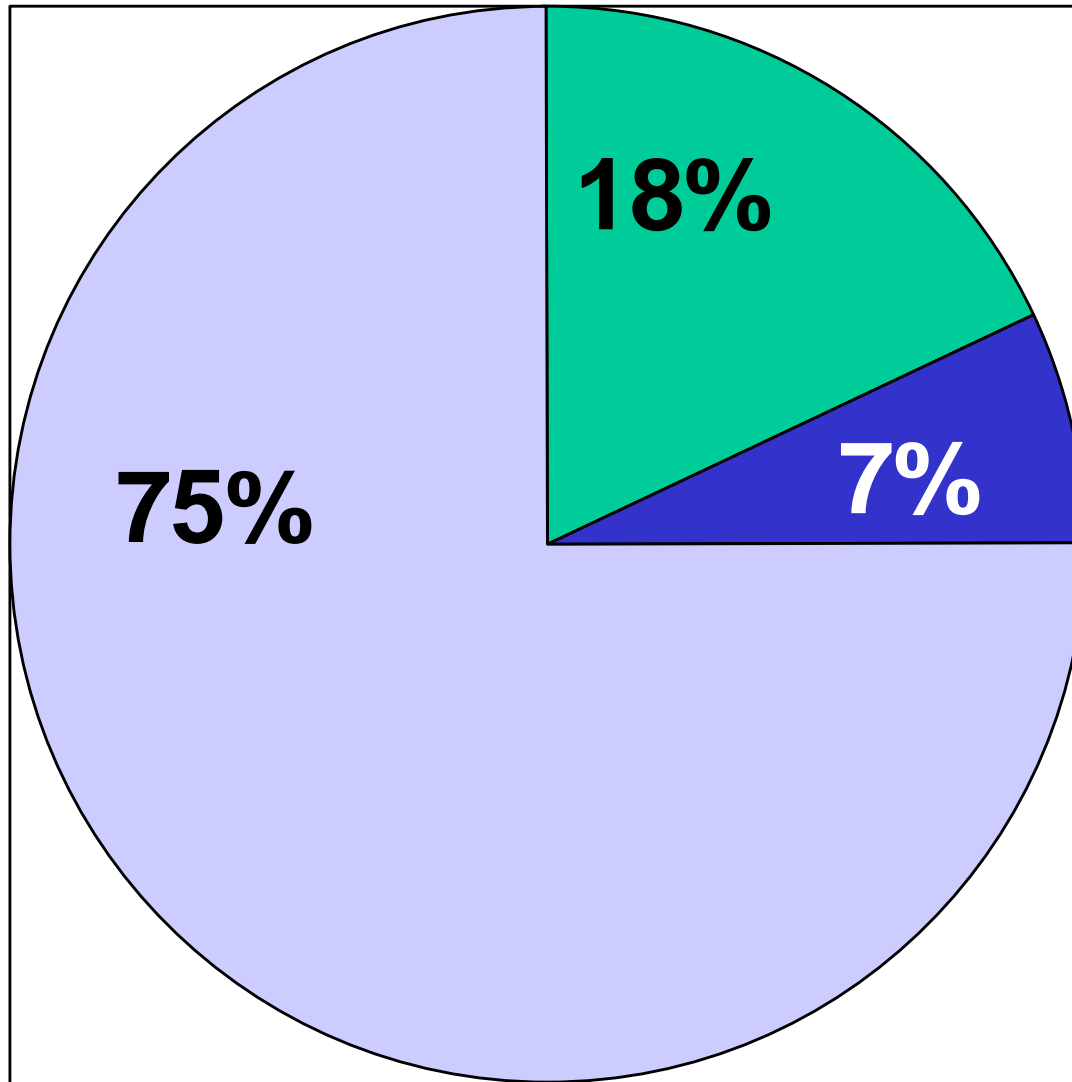


Queensberry - Traditional Septic Area (Deep Wells)

NO₂+NO₃ Concentration



Current Nitrogen Sources to the Patuxent River Estuary



Approximately 25% of diffuse sources originates from septic systems in Calvert.

Calvert County Septic Systems

- 90% Residents with On-Site Septic Disposal Systems (OSDS)
- 24,341 septic systems/ 4,832 in Critical Area
- Calvert County is well suited for OSDS

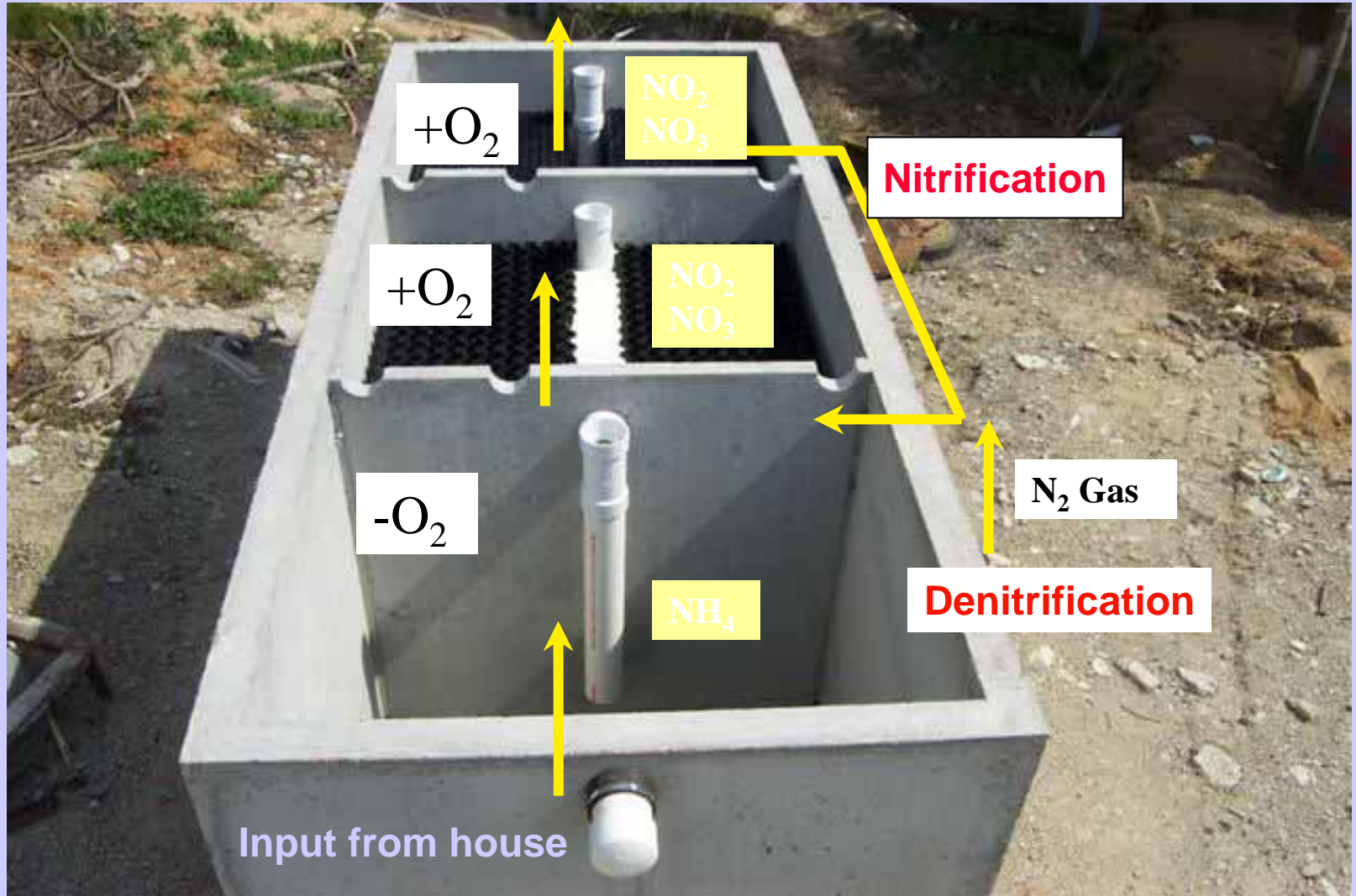
Septic System Benefits

- Recharges ground water.
- Eliminates point discharges.
- Requires less infrastructure.
- Requires less maintenance.
- Protects public health.
- Provides long term solutions as long as there are adequate back up fields.

Septic System Disadvantages

- ❖ All systems must be maintained – replacing a failed traditional system = \$5,000 to \$15,000, often without warning.
- ❖ Traditional systems don't remove nitrogen
- ❖ Current technologies only reduce nitrogen by 60%.
- ❖ Nitrogen removing systems must be maintained and monitored.

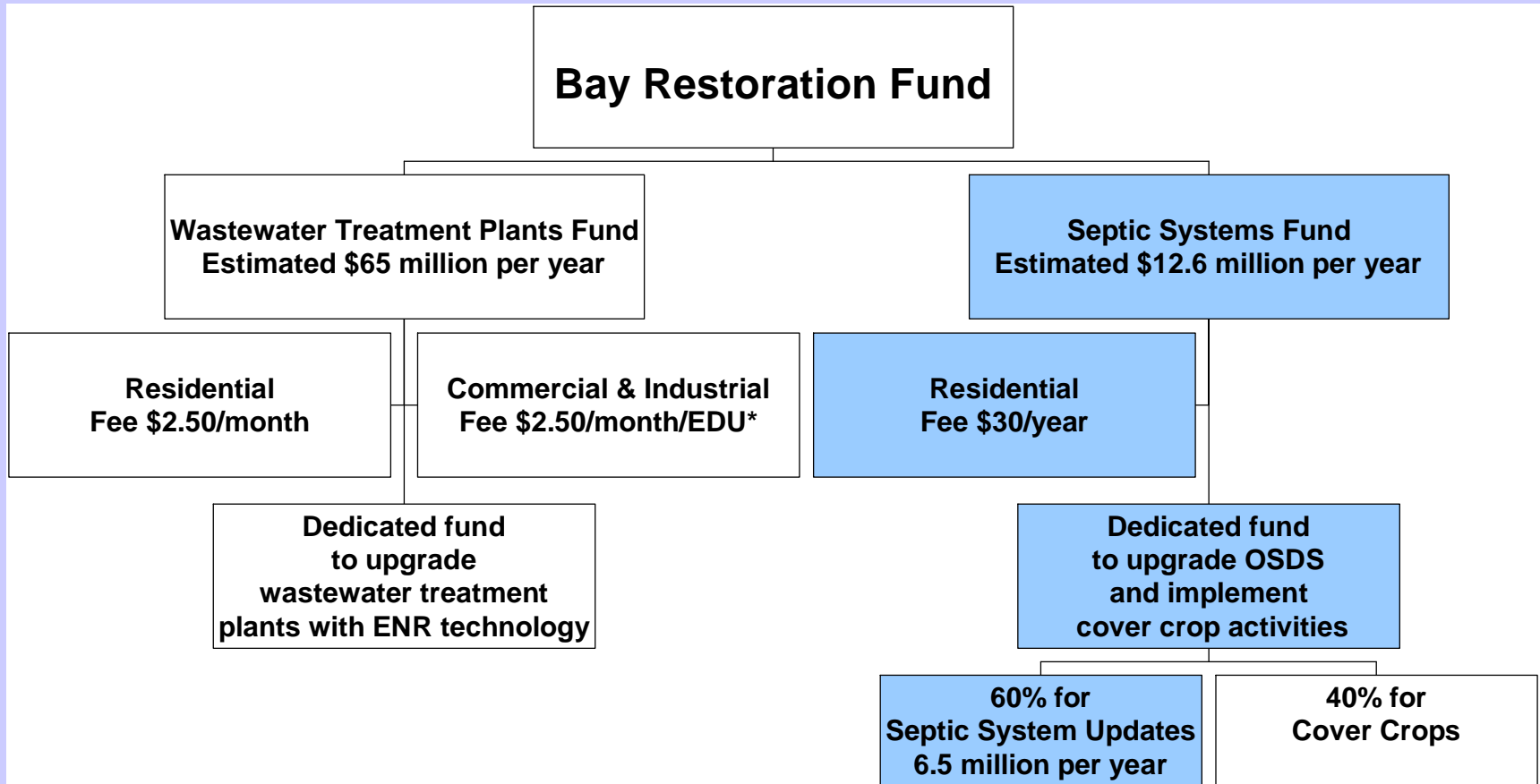
Nitrogen-removing System



Maryland's Bay Restoration Fund



BRF and Fees



*Equivalent Dwelling Units – 250 gallons per day per home

Obligated Bay Restoration Funds *

Total Obligated \$9,002,000

Anne Arundel County
\$2,644,000

Calvert County
\$933,000

Charles County
\$604,000

Frederick County
\$712,000

Kent County
\$597,000

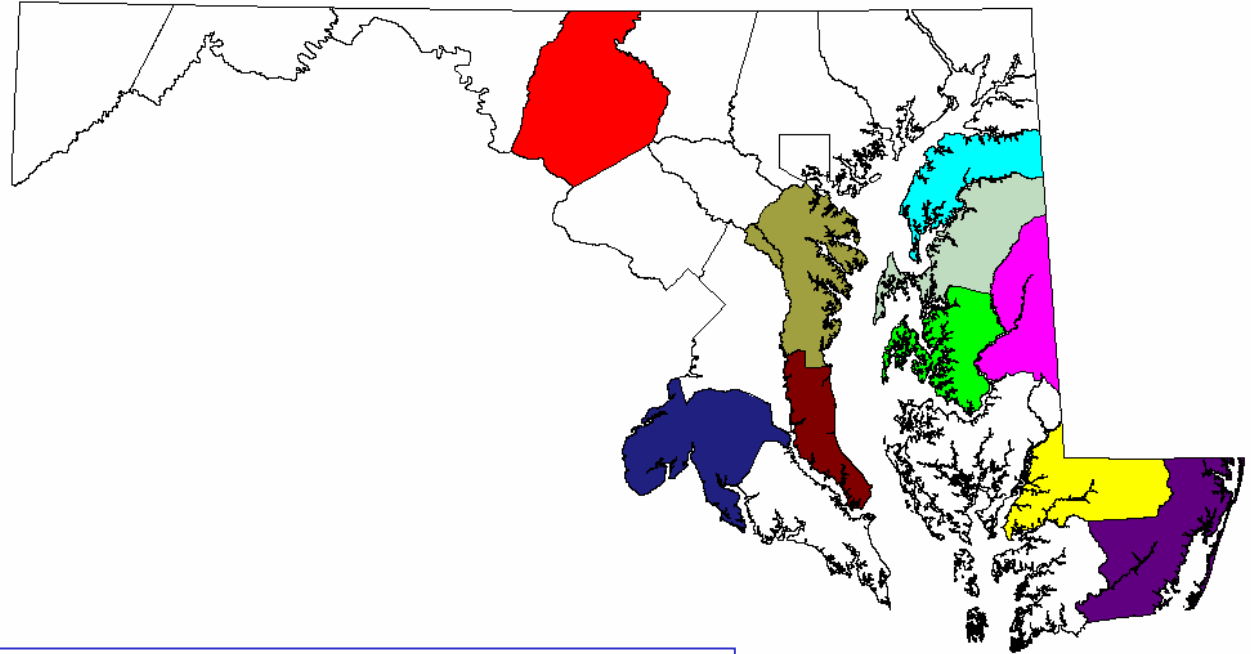
Queen Anne's County
\$287,000

Caroline County
\$144,000

Talbot County
\$1,168,000

Wicomico County
\$771,000

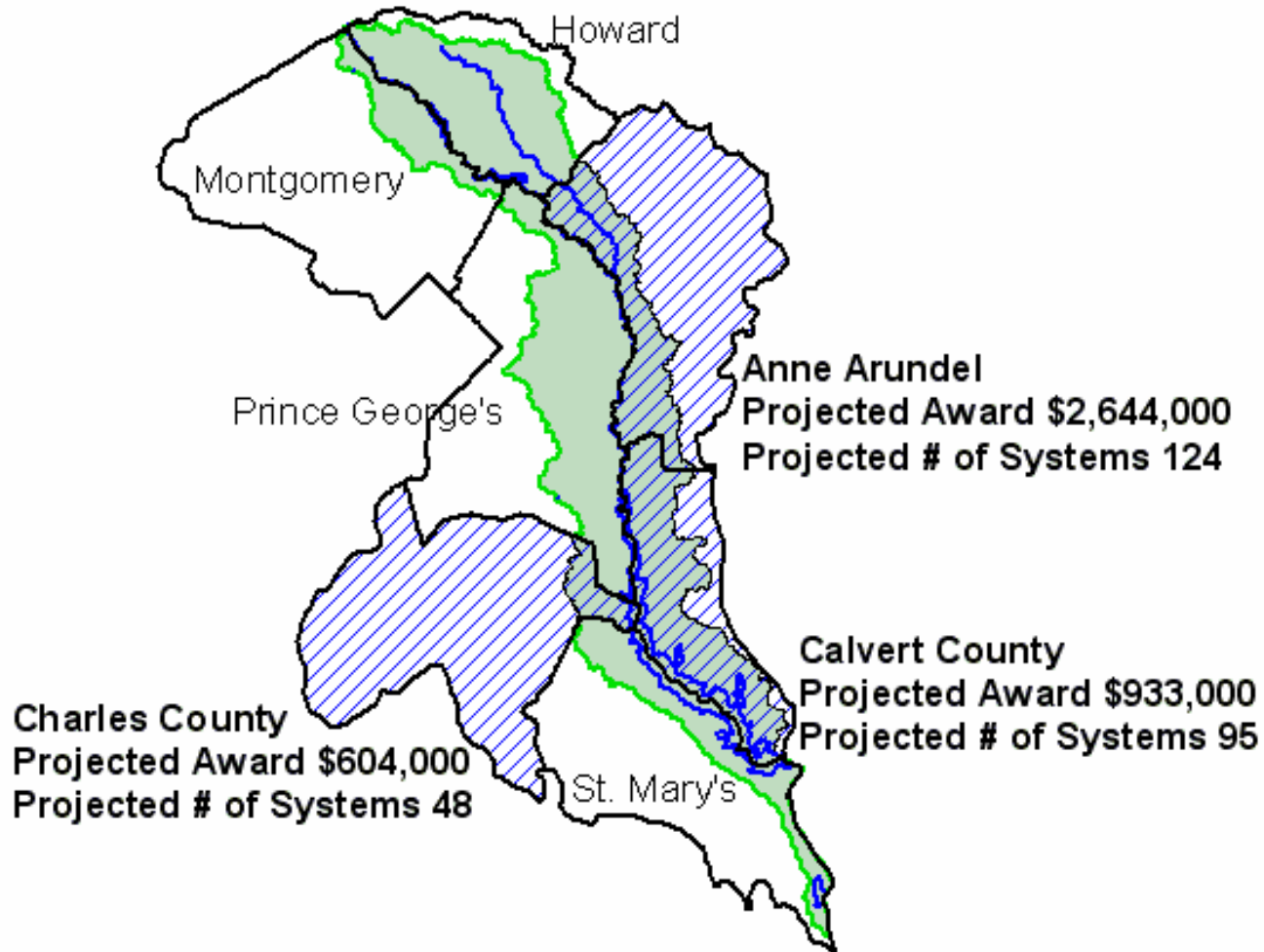
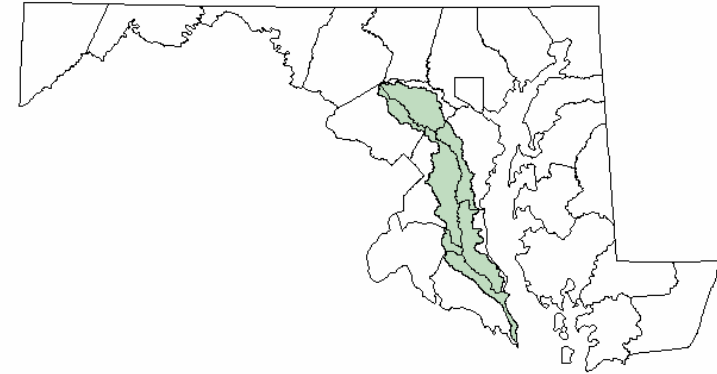
Worcester County
\$1,142,000



Approximate Number of
Systems to be installed: 772

Patuxent River Watershed County BRF Allocations*

- Total Obligated to Counties in Patuxent Watershed* : \$4,181,000 (47% of total)
- Projected Number of Systems : 267



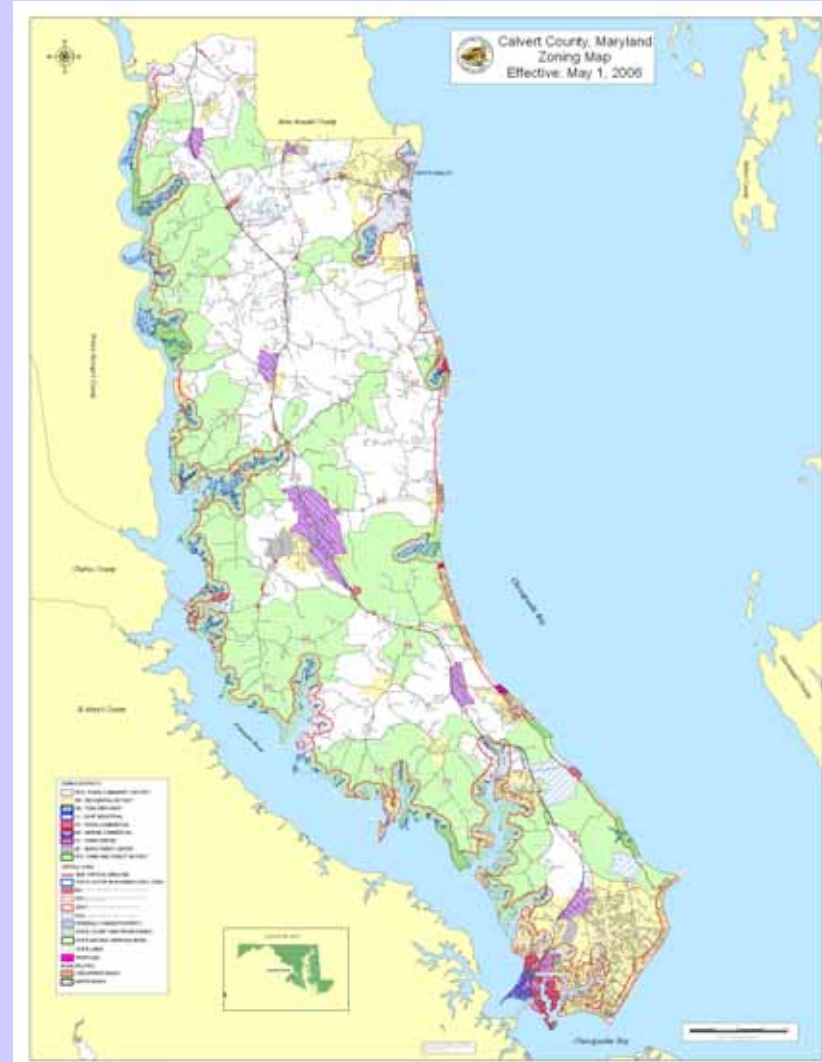
* Subject to Board of Public Works Approval

Calvert County's BRF Plan

- Initially open to any applicant
- Requires MDE authorized technology
- Priority given to failed systems in the Critical Area
- Hope to install 45 systems per year
- Will require Operation & Maintenance contracts – first five years paid for by BRF, homeowner responsible thereafter
- Will require remote monitoring

Proposed Policies For New Plan

- Facilitate installation of Community Water and Sewer Systems in **Priority Funding Areas (e.g. Town Centers)**, where feasible and consistent with area plans.*
- Do Not Install New Community Water or Sewer Systems in **Priority Protections Areas (the Farm and Forest District)**.
- Do Not Install Community Sewer Systems in **Rural Community Districts**.
- Consider mandatory nitrogen-removing septic systems for new development on septic systems.



* The Commissioners asked for definitions and information on what 'area plans' currently say.

Existing And/Or Potential Water Service Areas (W-1 to W-6)

- **Town Centers**
- **Industrial and Employment Center Zones**
- All “**Rural Villages** (also PFAs)”, which includes the Chesapeake Ranch Estate, Drum Point, Long Beach, Dares Beach and other communities which the state criteria
- New communities adjacent to existing systems in Rural Villages.
- New communities which are 50 lots/units or more



Potential Sewer Service Areas (S-1 to S-6)

- **Town Centers**
- **Industrial And Employment Center Districts**
- Multi-use systems for commercial and institutional uses
- Residential District (RD) lands within a one-mile radius of TCs (as per section 2.10.02) if there is a 'public benefit'.*
- Service for areas with failed septic systems where no other viable alternative exists, but no additional connections.



* The Commissioners asked for more information on this

Proposed

Calvert County, Md.
Proposed Water Service Areas
SCALE: 1" = 3000'
2007

Calvert County, Md.
Proposed Sewer Service Areas
SCALE: 1" = 3000'
2007

Service Area	Color
Water	Blue
Watershed	Green
Priority Protection Area	Yellow
Priority Funding Area	Orange
Water System	Grey

Service Area	Color
Water	Blue
Watershed	Green
Priority Protection Area	Yellow
Priority Funding Area	Orange
Water System	Grey

LEGEND

EASTERN WATER SERVICE AREA

- Water
- Watershed
- Priority Protection Area
- Priority Funding Area
- Water System

LEGEND

PROPOSED SEWER SERVICE AREA

- Water
- Watershed
- Priority Protection Area
- Priority Funding Area
- Water System

* These maps are posted at the Department of Planning and Zoning

Timeline for Completion of Water and Sewer Plan

Stage	Task	Responsible	Month
Present documents for review	Planning and Zoning and Public Works to complete the documents	P & Z and PW	April
Complete review of draft Plan	Meet with Planning Commission to complete Review	P & Z	April/ May
Complete draft of Plan	Meet with Board of County Commissioners	P & Z	May
Public Forums	Invite citizens for one more set of meetings.	P & Z	June
Public Hearing	Hold Public Hearing with BOCC and PC	P & Z	July

The timeline is contingent on staff satisfactorily addressing concerns raised at 4/24/07 meeting.

Decisions for Today

- Are the maps OK to take to public forum?
- Are the policies OK to take to public forum?

Most of the proposed policies and mapping standards were accepted. Staff is to address several points and meet again with the Commissioners in May.