


L.E.A.P



Linganore Environmental Action Plan

Logan Bellinger, Will Gray, Pat Herlihy, John Rudy, David Verdia, and Whitney Vos
UAPP411: Regional Watershed Management



The ultimate goal of L. E.A.P is to ensure that the Linganore Watershed continues to provide quality municipal drinking water for this quickly growing community by restoring the rapidly shrinking capacity of the reservoir and reaching swimmable, class B, water standard by 2040.

Mission Statement



History of Linganore

- 1960s Vacation Development
- Bankruptcy and Empty Lake/Creek
- Rapid Random Development
- Mid 2000s Frederick City Municipal
- Agriculture Impact

History

- 1972- establishment of dam across Linganore creek, creating Lake Linganore
- 1983 & 1987- Chesapeake Bay Agreement
 - VA, MD, PA concurrence of modifications to watersheds entering the Chesapeake
- 1992- *Maryland Economic Growth Resource Protection and Planning act*
 - location of sensitive areas in Linganore watershed by Frederick County

History

- 1998- Countywide Environmental Resource Policies
 - Comprehensive Plan- ongoing tests and studies done on the watershed to estimate what needs to be done
- 2006-2007- The Maryland Department of Agriculture (MDA) & Maryland Agriculture Cost Share Program
 - teamed up with local farmer
 - corrected issues contributing to sediment erosion and phosphorus levels

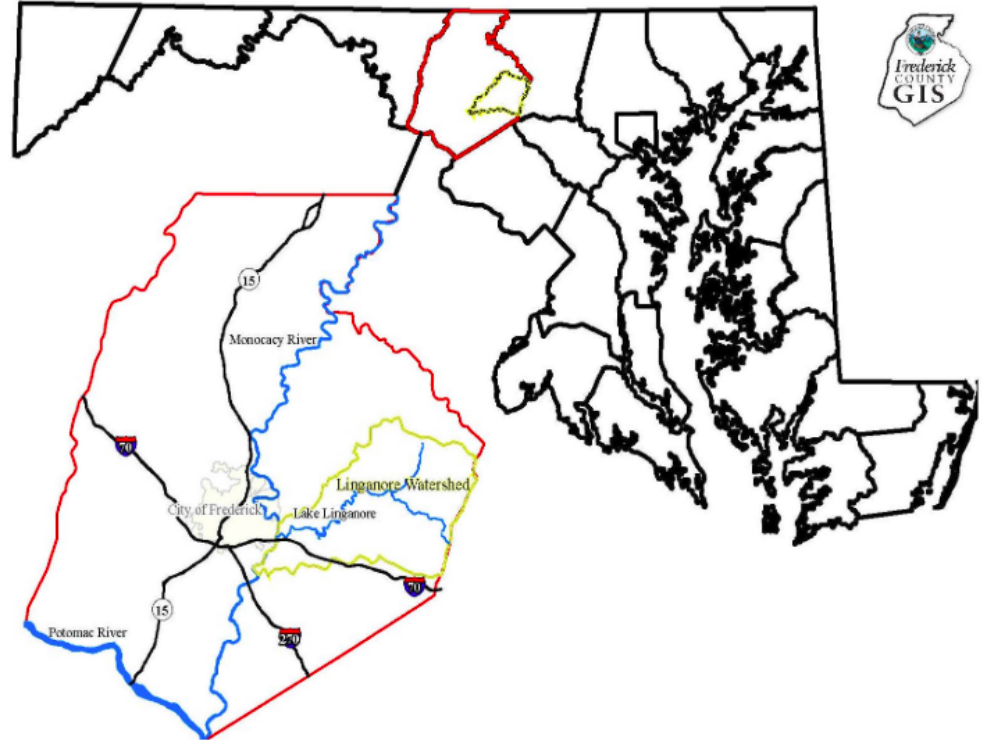
History

- 2012-2013- Town of Mount Airy
 - Put together tree planting project in upper Linganore watershed area
 - goal was to create lawns into wooded lots for better buffer and uptake
 - help funded by- Maryland Agriculture Cost Share Program

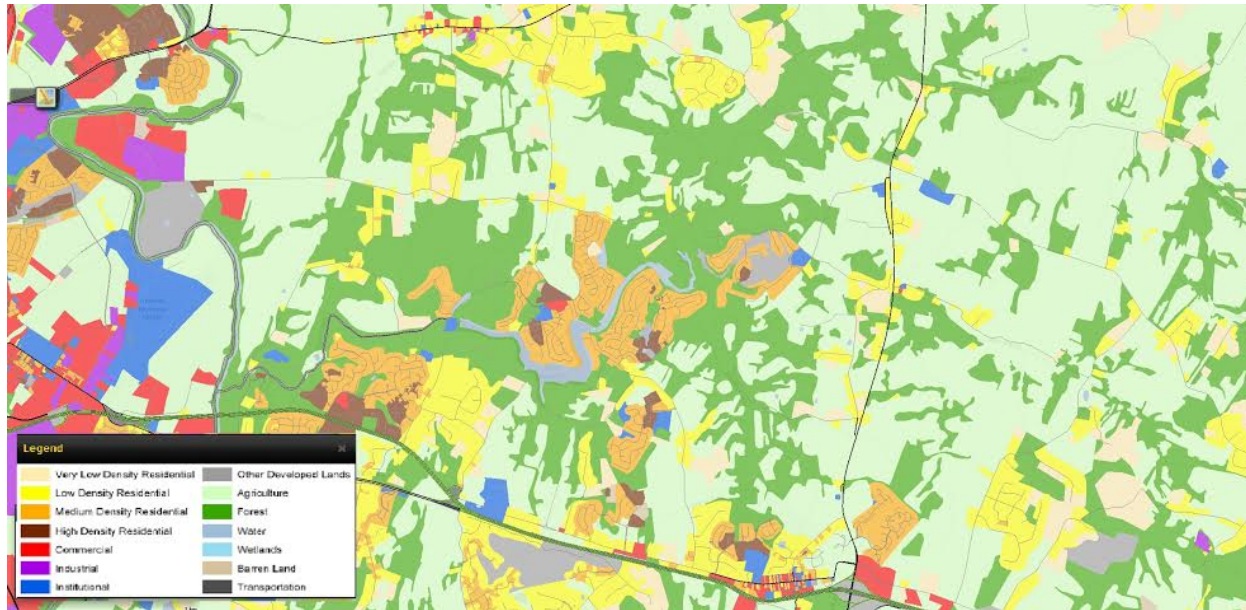
Current Linganore

Table 1: Average Climatology

Average Annual High Temperature	66.6 F
Average Annual Low Temperature	45.9 F
Average Annual Rainfall	40.59 inches
Average Annual Snowfall	18.7 inches



Current Linganore



Land Use:

-65% Agriculture -47,000 acres -833 million gallons - population 25,000

-35% Neighborhood tracts and small business zoning

Current Linganore

Water Use

- Municipal Drinking Water
- Recreation (boating)
- Fishing

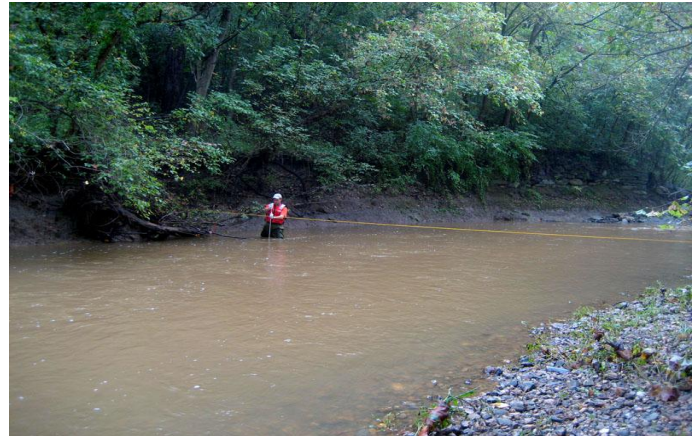


Coldstream Beach

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Water Impairment

- Temperature measurements indicate normal readings for cold-water streams
- Biodiversity was also on a level field with other regional watersheds, reflecting the region's agricultural lands and recent urbanization as Frederick county grows.
- Turbidity readings during spring months after ice and snow thaw, are average for the region, but during summer months there is a dramatic increase





Goals, Problems, and Solutions

Goals:	Problems:	Solutions:
G1: Reduction in sediment deposition by 90%	P1: Runoff from farm lands and urban developments erodes sediment into Linganore Watershed	S 1.1: Installation of riparian buffer zones
G2: Land being development and used for agriculture are subject to review and necessary enforcement as master plan moves forward.	P2: Rapid urban development, surrounding historical agricultural lands, is being poorly planned according to its impact possible.	S 2.1: Agricultural lands will be required to install natural buffers and properly manage their flow of water on their lands S 2.2: Proposed future developments will require significant analysis of master planning for drainage and land use
G3: Engage the community in lifestyle changes regarding their water usage	P3: Current public outreach programs are ineffective at engaging the public	S3: Plan and build a public outreach project that engages the community (2,500 of the community's youth will use the park for learning)

Problem #1

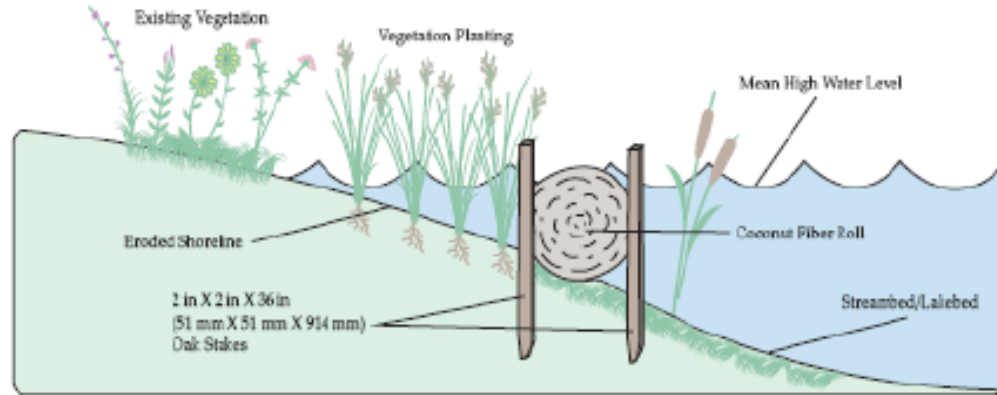
Issues with sedimentation and erosion

- Steep slope of banks and lake bed drop off
- Large amounts of sediment in ag and urban runoff
- Reduced water storage capacity with this sedimentation increase



Solution #1

Coconut Fiber Roll



- Riparian Buffer Zones, Forebays, and Dredging
- Regrading of the land, vegetation

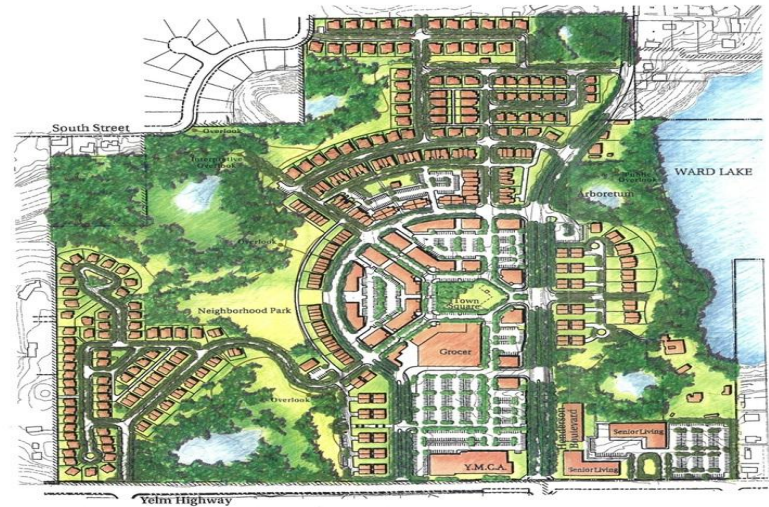
Problem #2

Rapid urban development, surrounding historically agricultural lands, is being poorly planned in accordance with its possible environmental impacts.



Solution #2

- Agricultural lands will be required to install natural buffers and properly manage their flow of water on their lands
- Proposed future developments will require significant analysis of master planning for drainage and land use



Problem #3

-The public in the Linganore watershed lacks the appropriate awareness and sense of urgency regarding the current and future state of its home watershed.

-Public Outreach and Education Programs in the Linganore region are ineffective at changing homeowner attitudes and practices that affect water quality



Solution #3

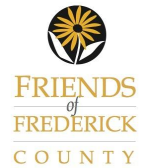
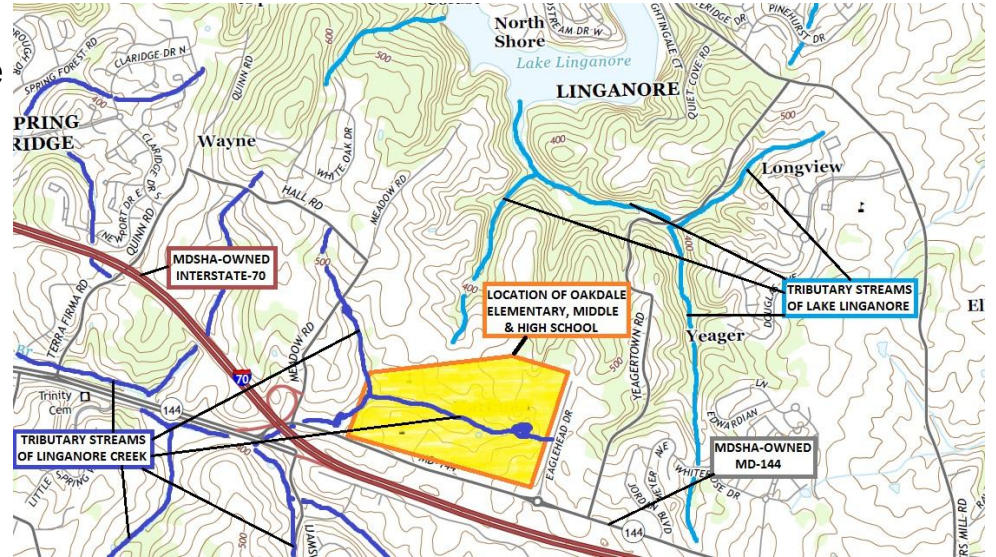
Establish a plan for the construction of a stormwater park at Oakdale High School

- Combined Enrollment 2013: **2,401 (NCES)**
- Over a dozen Linganore Tributaries within a mile
- Several acres of impervious roof, parking lot
- Runoff from I-70 and MD-144 roadways

The Oakdale Stormwater Park will consist of:

- a series of water quality BMP structures that treat runoff.
- pathways, benches, and a small amphitheater
- educational signs and markers corresponding to the plants and wildlife in the park that are native to the Linganore Watershed

Park will serve as a small model for effective watershed practices



Conclusion

-Historically unregulated development and agricultural industry

-Contributed to Current Problems:

~Erosion and Sedimentation

~Rapid Urban Development and Agricultural Activity

~Unengaged Community

Recommended Solutions:

~Combat sedimentation through infrastructure and maintenance
(Dredging, Forebays)

~Management and Enforcement of development and agricultural practices
(runoff, etc.)

~Outreach and Public Engagement through Oakdale High School Project



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