

Chesapeake UTC Summit
October 14, 2014

Integrating UTC into Water Quality Goals

**Baltimore County's Watershed Implementation Plan
.... and more**



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Tree Canopy & WIP Planting Goals



In April 2013, County Executive Kamenetz announced tree canopy goals:

By 2025, achieve and maintain:

- 50% tree canopy County-wide & for the 3 drinking water reservoir watersheds
- 40% tree canopy within the URDL & each of the 30 Census-Designated Places

Our County Phase II WIP planting target is 1,500 acres, or 120 acres/year for 13 years (2013-2025)

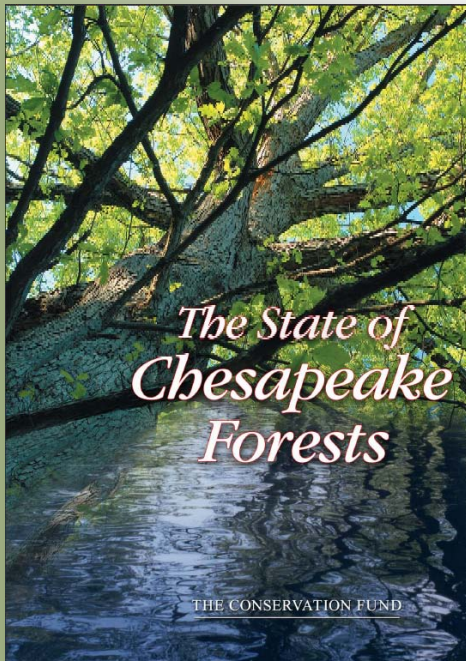
2007 Canopy Cover:

(1 m NAIP)

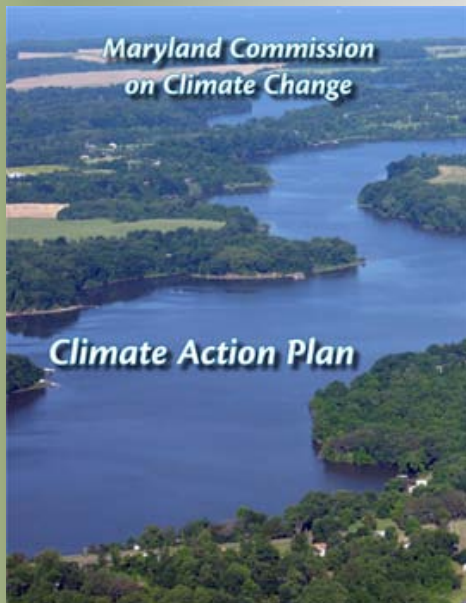
- 48.7% County-wide
- 38.4% urban/URDL
- 5,060 ac. total gap

- 40 ac/year for citizen-initiated projects
- 80 ac/year for EPS contractual planting

Trees are the Best BMPs



"Forests are the most beneficial land use for promoting and maintaining clean water...."
(2006)



"Healthy forests and trees are our single most cost-effective tool for mitigating for climate change."
(2008)



Trees are accruing assets!

Ecosystems – air & water quality, habitat, climate change mitigation

Community – shading & cooling, enhanced property values, aesthetics, forest products

How Will We Plant 1,500 Acres by 2025?



- urban and rural areas, public and private land
- grants, stormwater remediation fees (“rain tax”), leverage capital & operating budgets
- used stormwater fees to hire 2 staff and secure 6 on-call contractors; \$666,000/yr for projects
- project types:
 - “Cool Trees” Energy Efficiency grant
 - MD Governor’s Stream Restoration Challenge grant
 - CBT Green Streets, Jobs, Towns grant
 - Citizen projects (Policy & Guidelines process)
 - BigTrees Sales
 - Urban managed grounds (business & institutional)
 - Community street tree projects
 - BCPS CLIPs
 - County open lands
 - Rural easements and larger properties
 - Rural residential “turf-to-trees”

“Cool Trees” Project

- part of \$7.4 million DoE Energy Efficiency block grant (2010 Stimulus \$)
- \$500,000 for planting 3” caliber trees to shade & reduce L/T air conditioning costs
- planted 957 trees at 75 County facilities:
 - 3 CCBC campuses (152), 48 County schools (605),
 - 24 facilities - libraries, senior/community centers, police/fire (200)
- planted 14 species; 583 oaks (61%)
- included 2-yr warranty & maintenance
- conserve 4.5 million kW-hr of electricity (\$345,000) over 30 years
- absorb >140 million gals of stormwater (\$1.4 million)
- 63 lb N, 2.3 lb P, 1078 lb sediment reduced
- sequester >15 million lbs. of CO₂
- total benefits >\$2 million; 15 yr. payback



North Point Library

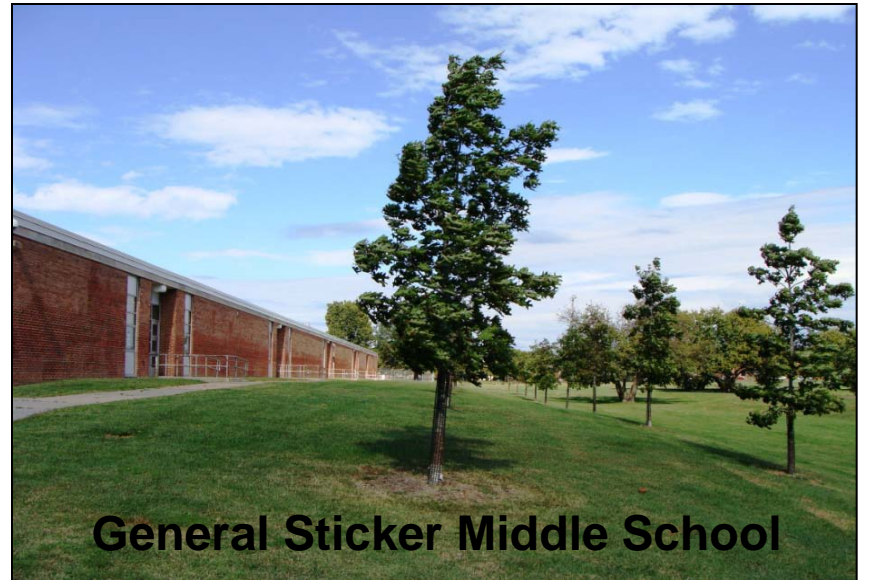
Top: April 2011, Bottom: October 2014



“Cool Trees” Projects



Catonsville Senior Center



General Sticker Middle School



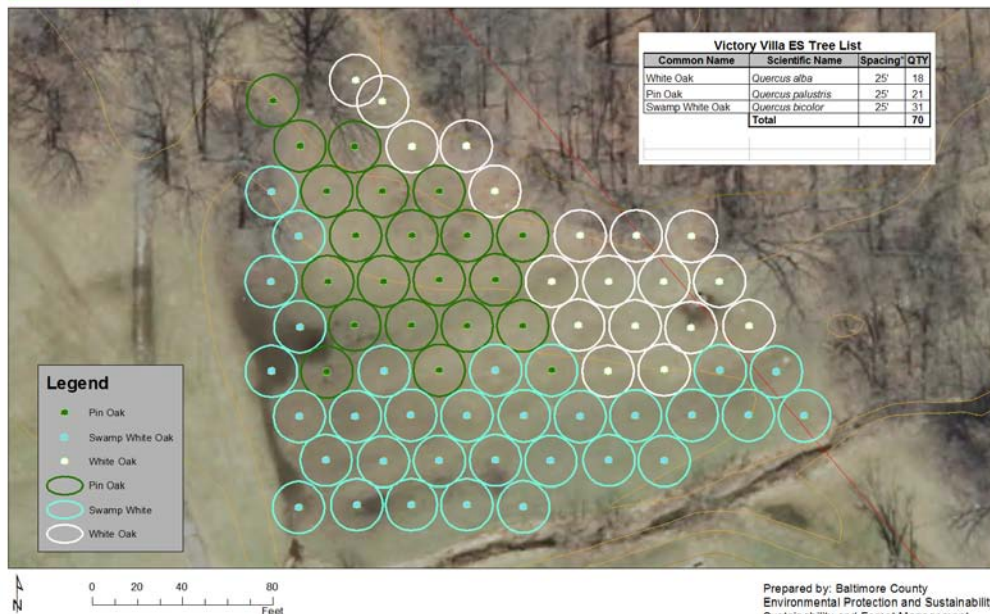
SRCG Victory Villa ES Planting Plan



Prepared by: Baltimore County
Environmental Protection and Sustainability,
Sustainability and Forest Management



SRCG Victory Villa Elementary School Planting Plan



Prepared by: Baltimore County
Environmental Protection and Sustainability,
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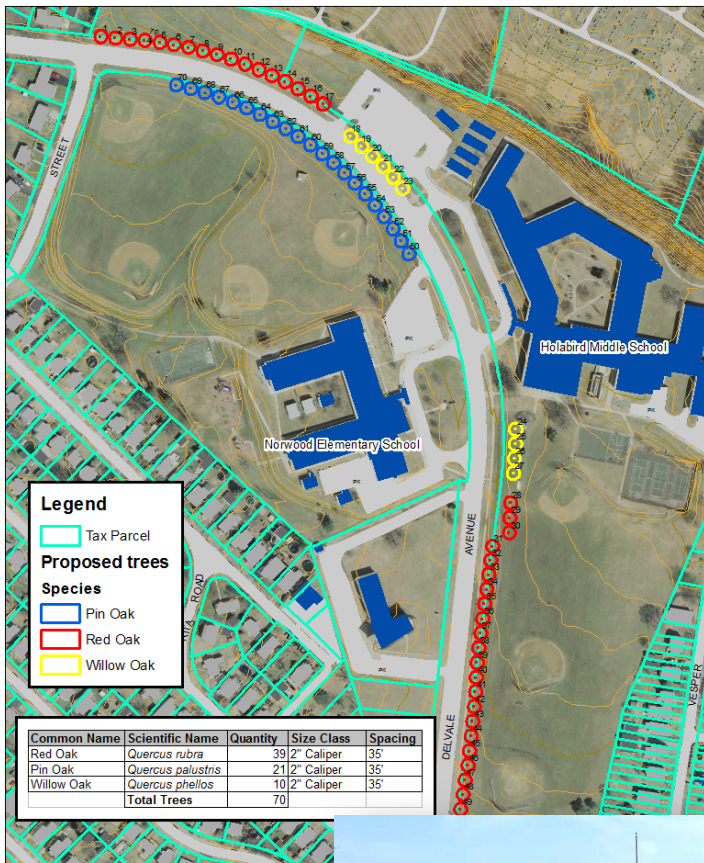
MD Governor's Stream Restoration Challenge Grant

- \$97,450 grant from MD DNR
- plant 16.8 acres on 18 County schools
- provide service hours and learning opportunities for students
- grant funds 1 F/T staff for 2 years plus trees & supplies
- 6 projects starting in fall 2014
- BCPS environmental science & naturalist staff developed special curriculum for schools
- EPS design of projects (25' spacing)

Delvale Ave. Street Trees

CBT Green Streets, Green Jobs & Green Towns grant

- CBT 3G grant in 2014 for \$15,000
- grant and stormwater fees each fund half of the 67 large caliper street trees
- trees front Holabird MS and Norwood ES in Dundalk
- partnering with the Dundalk Renaissance Corporation – will design an informational sign



Delvale Avenue Proposed Streetscape

70 trees
Holabird Middle and Norwood Elementary Schools
Prepared by: Baltimore County
Department of Environmental Protection and Sustainability
Sustainability and Forest Management

*Existing and
proposed
views with
CanVis
simulation*



Citizen Plantings on County Land



- some planting projects supported by EPS grants to watershed organizations
- citizens apply to plant on public sites < 1 acre
- projects reviewed under Policy & Guidelines (2012); EPS coordinates with 6 County agencies
- Guidelines focus on species selection, planting density, maintenance (3 yrs); “success is WIP-able”
- 80% canopy species; 50% oaks
- 62 projects (1,433 trees) approved; 12 sites pending



*Before & after
Guidelines*

BigTrees Sales

- trees for citizens to plant in yards
- replaced Growing Home (2006-11)
- saplings grown by EPS from seed or purchased wholesale
- mostly native canopy species offered, including 8 species of oak
- mostly 3-8 foot, 3-gal potted saplings at \$20-\$30
- promoted via electronic media; on-line ordering system & 3 early pick-up days
- 10 spring & fall sales since 2009
- 2,455 trees sold thru spring 2014, 80% to County residents
- report reforestation credit at 100 trees/acre
- proceeds go back into program



Tracking Creditable Progress for BigTrees Sales

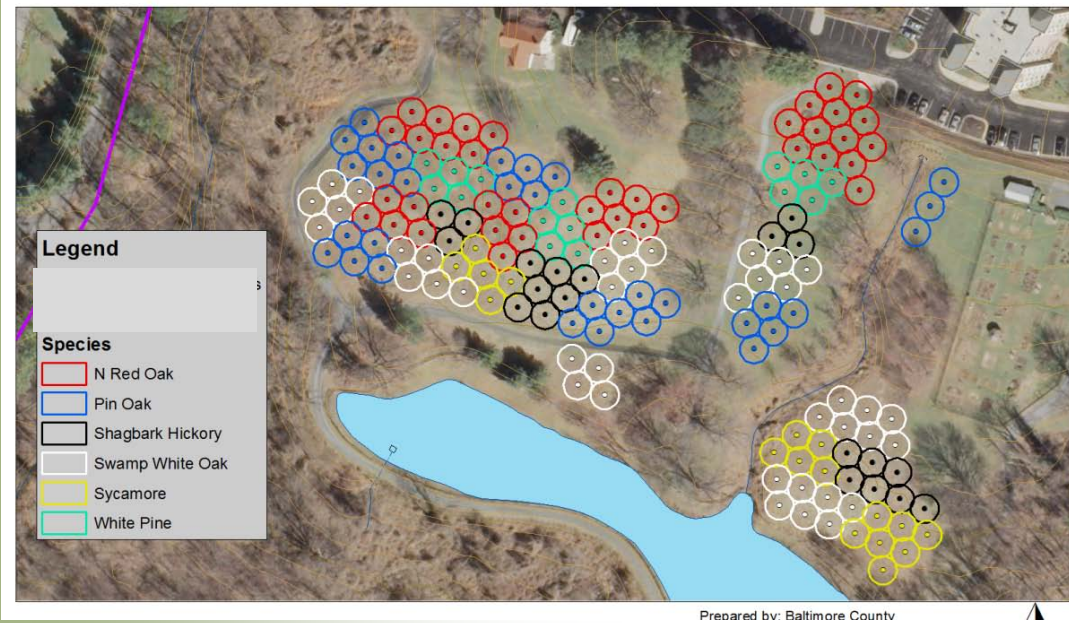
8 Digit Watershed	2009	2010	Total	N Red	P Red	Sed Red	Imp Ac Eq
Deer Creek	0	5	5	0.4	0.0	10.3	
Prettyboy	3	1	4	0.4	0.0	6.0	
Loch Raven	92	72	164	14.4	0.4	256.3	
Lower Gun	12	1	13	1.1	0.0	24.6	
Little Gun	0	0	0	-	-	-	
Bird River	0	0	0	-	-	-	
Gunpowder River	0	0	0	-	-	-	
Middle River	0	0	0	-	-	-	
Liberty	0	11	11	1.0	0.0	17.8	
Patapsco	4	5	9	0.6	0.0	10.8	
Gwynns Falls	3	8	11	1.0	0.0	21.8	
Jones Falls	0	3	3	0.3	0.0	3.1	
Back River	0	0	0	-	-	-	
Baltimore Harbor	0	0	0	-	-	-	
Totals	114	106	220	19.2	0.4	350.7	0.8

Data reflect trees sold to Baltimore County resident addresses only

8 Digit Watershed	Totals 2011-FY13	N Red	P Red	Sed Red	Imp Ac Eq
Deer Creek	9	0.8	0.0	18.5	0.0
Prettyboy	32	2.8	0.1	47.5	0.1
Loch Raven	523	45.9	1.4	817.3	2.0
Lower Gun	32	2.8	0.1	60.6	0.1
Little Gun	38	3.3	0.1	72.9	0.1
Bird River	35	1.7	0.1	2.5	0.1
Gunpowder River	6	0.3	0.0	4.8	0.0
Middle River	14	0.7	0.0	10.0	0.1
Liberty	22	1.9	0.1	35.6	0.1
Patapsco	31	2.2	0.1	37.2	0.1
Gwynns Falls	7	0.6	0.0	13.9	0.0
Jones Falls	208	18.3	0.5	213.4	0.8
Back River	126	6.1	0.3	65.8	0.5
Baltimore Harbor	6	0.3	0.0	3.7	0.0
Totals	1,089	87.7	2.8	1,4232.7	4.1

- tree sales data geocoded by address of citizen who orders trees
- trees ordered by County citizens selected
- trees delineated by watershed
- nutrient and sediment reduction efficiencies applied
- data reported in NPDES MS4 annual reports
- methods do not account for tree growth

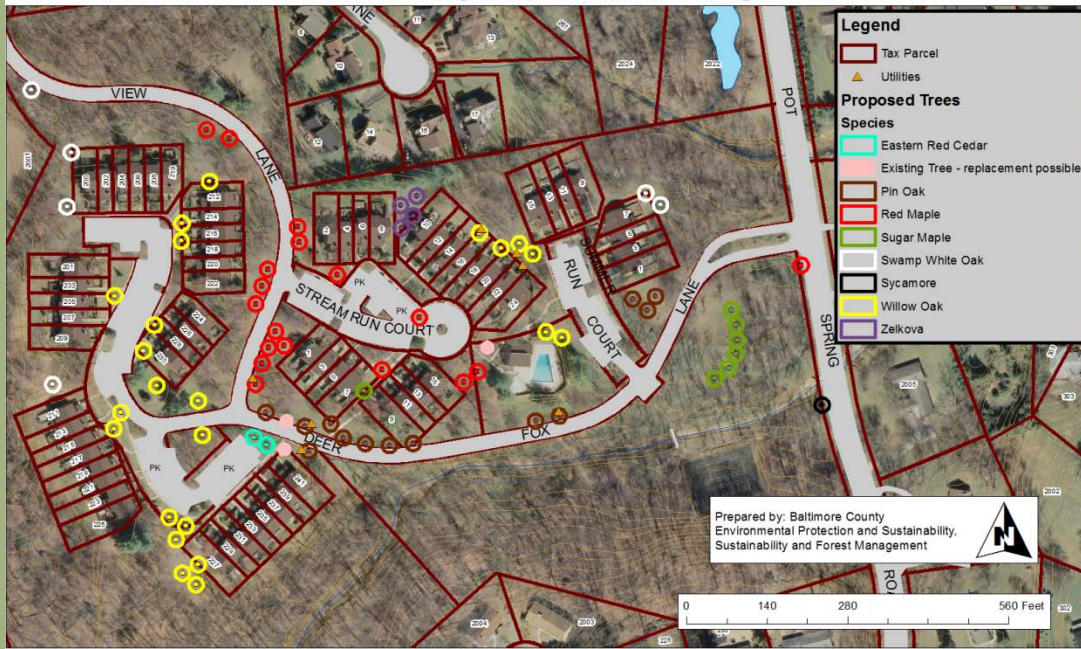
Urban Managed Grounds



- working with private institutions and business facilities with professional grounds maintenance
- apartments and condos, corporate campuses, private institutions
- projects designed by EPS and installed and maintained by contractors (1 year)
- funded by stormwater fees
- example:
 - Towson area retirement community – 161 trees



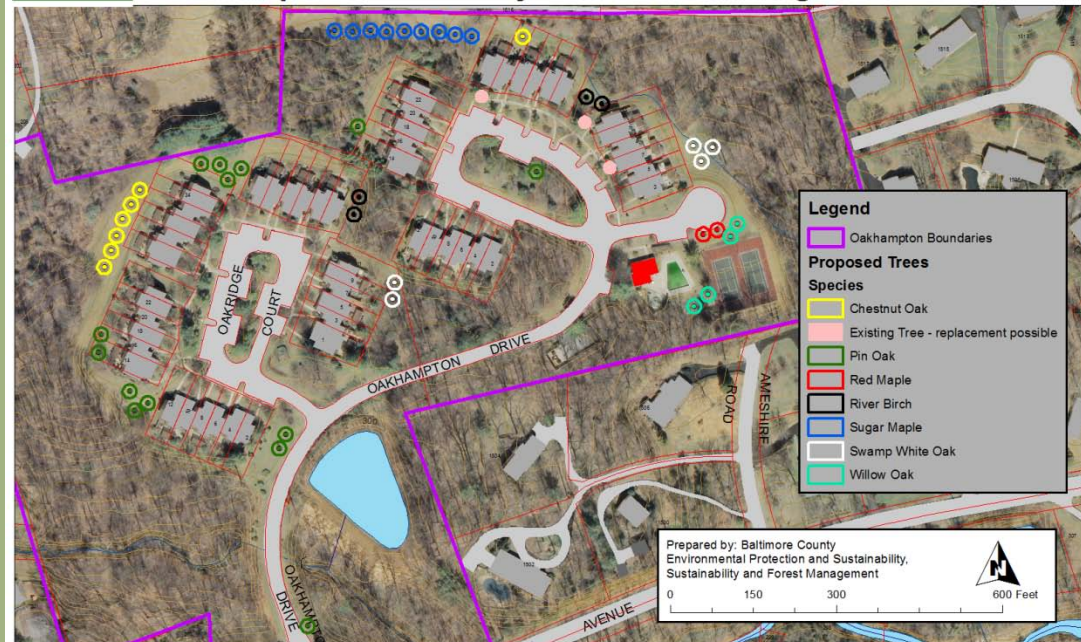
Deer Fox Community Potential Planting Areas



Community Street Trees

- community-wide trees along streets and in open spaces
- work with community's grounds management staff and community association leadership
- projects designed by EPS and installed and maintained by contractors
- funded by stormwater fees
- examples:
 - Deer Fox – 70 trees
 - Oakhampton – 45 trees

Oakhampton Community Potential Planting Areas



Comprehensive Landscape Improvement Project (CLIP)

BCPS-EPS Collaboration



Proposed Tree Planting and Grounds Management Overview



Total proposed meadow mow area: 1.7 acres
Proposed landscape trees: 36
Proposed reforestation trees: 25

The Best Part about Working with Schools!



Overall, more than 125 acres have been identified as having potential for reforestation on County school sites, in addition to 21 acres of potential riparian buffers.

Planting Open County Lands



- 12.8 acre County-owned coastal property at Lower Back River
- aggressive sweetgum succession on abandoned farmland
- sweetgum sprayed and mowed
- site planted in spring 2014 with mixed oak and sycamore
- planted and sheltered in 1 day each
- 3 types of shelters to be evaluated
- maintenance 3x/yr for 3 years
- about 95% survival after 1st growing season
- cost \$8,050/acre

In fall 2014, 21 acres will be planted at Cloverland Park adjacent to Loch Raven Reservoir

Planting Private Rural Properties

- use stormwater remediation fee contractors
- EPS designs projects
- contractor: site preparation, planting & sheltering, monitoring & maintenance for 3 years
- 90% survival required each year
- example: 9 ac.abandoned field with invasives
- cleared and planted in spring 2014 with mixed oaks
- 95% survival after 1st growing season



“Turf to Trees”

- GIS analysis of >28,000 parcels classified as rural residential
- 20,300 ac (33% of 60,000 ac) is grass
- 7,150 ac (12%) is excess grass
- “excess grass” is existing grass area in excess of 1 acre of grass on a parcel
- potential increase in forest by 19.4%



Rural Residential Stewardship Initiative

- planted 17.44 acres (12 lots)

Valleys Reforestation Initiative

- planted 26.3 acres (8 parcels)

Addressed landowner barriers to reforestation

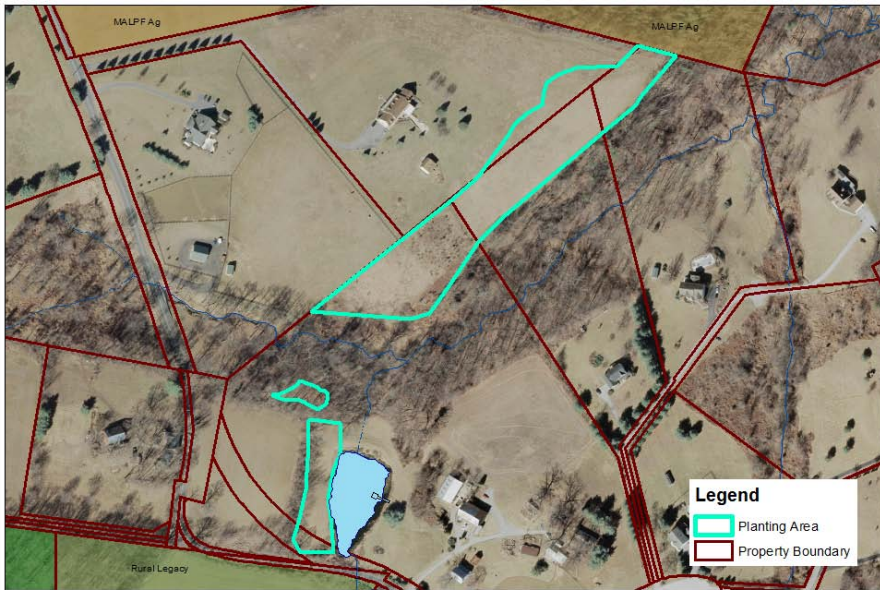
Reforested sites in return for landowner maintenance

Case study available: A Sustainable Chesapeake: Better Models for Conservation (www.conservationfund.org)

Rural Residential Reforestation Projects



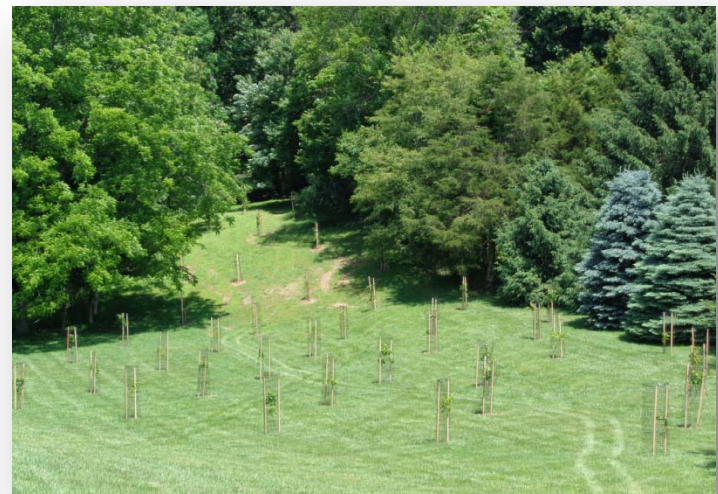
Foreston Neighbors Reforestation Proposal



Prepared by: Baltimore County
Environmental Protection and Sustainability,
Sustainability and Forest Management



- improve habitat & water quality by expanding stream buffers and contiguous forest
- educate landowners and improve stewardship capacity
- reduce barriers and provide incentives to landowners for conversion of mowed, “excess lawn” areas to new forests
- aggregate parcels where possible to increase project efficiencies



Recommendations for Local Governments



- Include trees as part of the Bay WIP and other environmental mandates
- Use a “trees first” strategy where possible (more effective than “rain gardens” for example).
- Leverage local funds and grants
- Develop partnerships with others outside government
- Reduce barriers to citizens and the private sector for planting – e.g., *do not require easements*
- Assure a minimum of 3 years of maintenance
- Space trees to allow for growth of healthy tree crowns (25’ minimum)
- Plant oaks! (read Tallamy)