

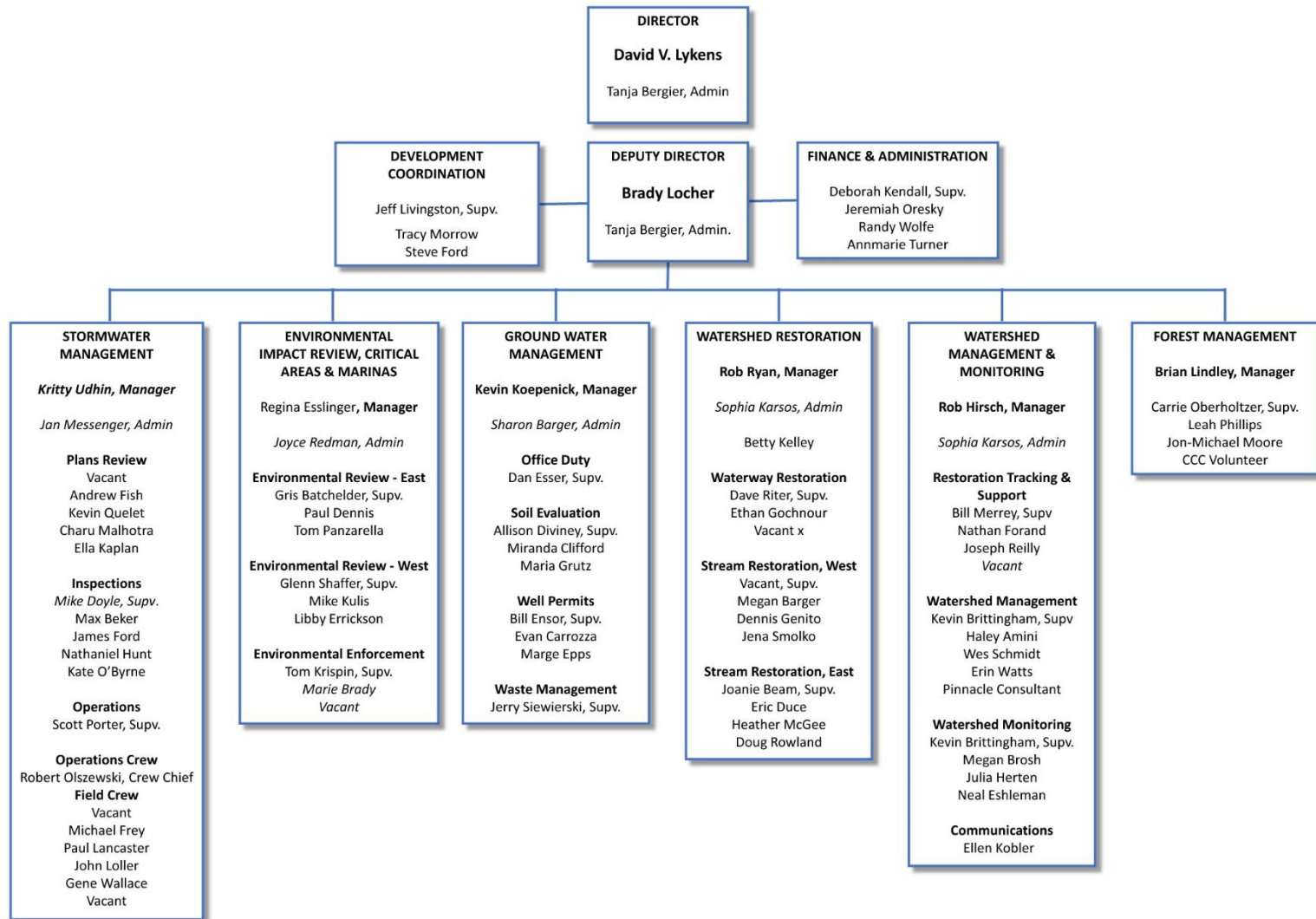
Department of Environmental Protection & Sustainability

An aerial photograph of a large body of water, likely a bay or estuary, with a long dam or bridge structure crossing it. The surrounding land is covered in dense green forest. The sky is blue with scattered white clouds.

Director: David V. Lykens

(Image Credit: Will Parson @ Chesapeake Bay Program)

Environmental Permitting & Implementation Functions



Capital Program Drivers

- MS4/NPDES Permits
 - New MS4 Permit issued November 2021, 2026 expiration
- Impervious Surface Restoration (3,167 acres)
- Chesapeake Bay TMDL
- Local TMDL

MS4 Permit: New Restoration Requirements & Accounting

3,167 acres impervious surface restoration during 2019-2026

- Annual benchmarks
- Based on “MEP” analysis
- Negotiated between MDE and Counties/City
- Street sweeping, inlet cleaning, storm drain pump outs, and other annual BMPs can help meet the restoration requirements; no permit requirement to perform them at a certain rate

Revised accounting rules

- All new impervious acre credits for each BMP
- New watershed model (Phase 6 Chesapeake Bay Watershed Model)
- All local TMDL Implementation Plans and progress must be updated
- Restoration priorities may shift (locations, pollutants)
- Relative cost effectiveness of BMPs may change (refocus/prioritize restoration programs)



MS4 Permit: New and Revised BMPs

New

- Floating Treatment Wetlands
- Conservation Landscaping
- Forest Conservation
- Urban Soil Decompaction

Expanded

- Outfall Stabilization
- Overachieving SWM facilities:
 - Green Stormwater Infrastructure bonus
 - “Watershed Management” bonus

Revised

- Storm Drain Cleaning: separate credit for organic and inorganic debris
- IDDE: limiting cap placed on credit from IDDE
- Street Sweeping: must document higher sweeping frequency with upgraded equipment



MS4 Permit: New Salt Management Plan

“The County shall reduce the use of winter weather deicing and anti-icing materials, without compromising public safety, by developing a County Salt Management Plan (SMP)”

Ahead of the curve:

- New DPW Highways equipment
- DPW tracking and reporting deicing usage for each winter storm

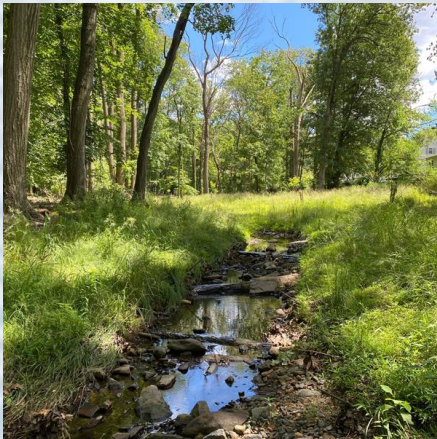


Down the road:

- “Salt Academy” to train County staff and contractors
- Salt management outreach to residents

EPS Capital Improvement Projects

- Stream Restoration
- Shoreline Stabilization & Protection
- Stormwater Facility Maintenance & BMP Improvements
- Reforestation



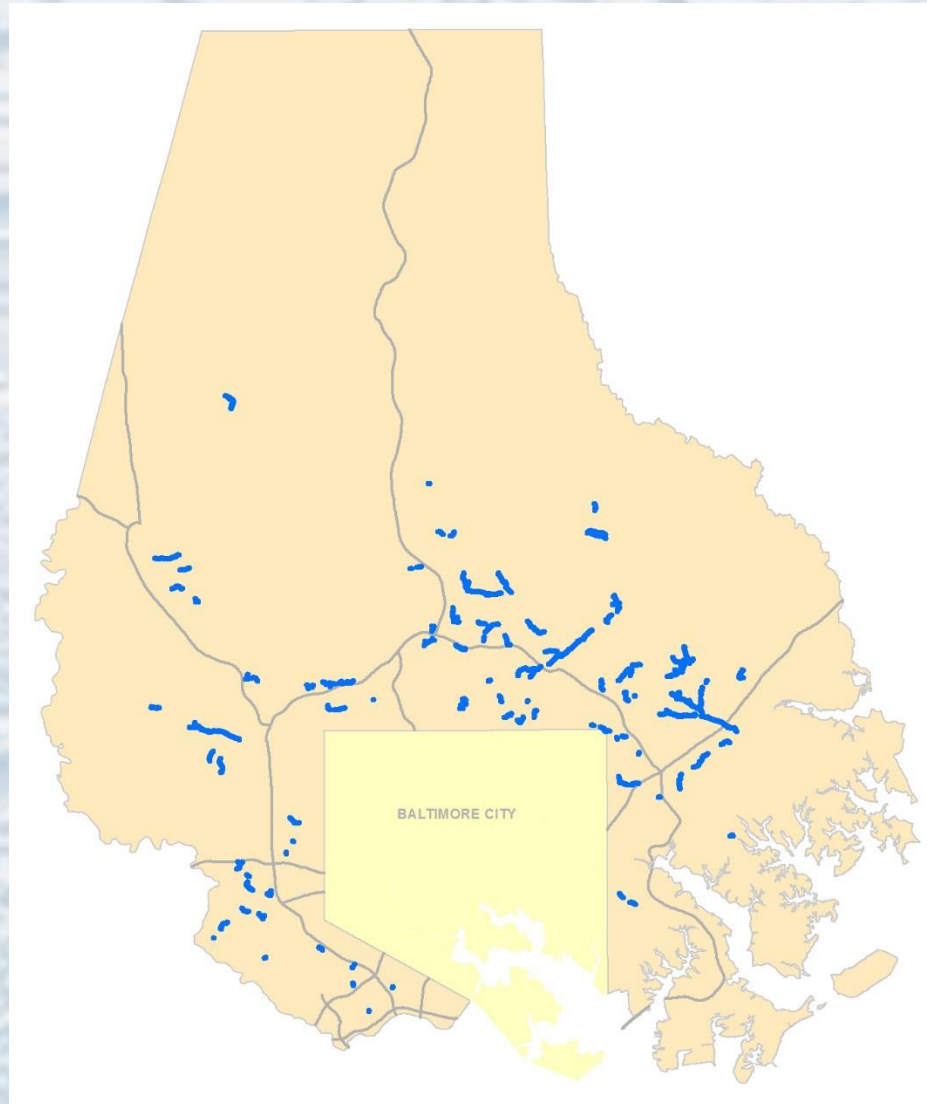
EPS – Capital Improvement Project



Stream Restoration

Current & Future Capital Waterway Improvement Projects

Stream Restoration

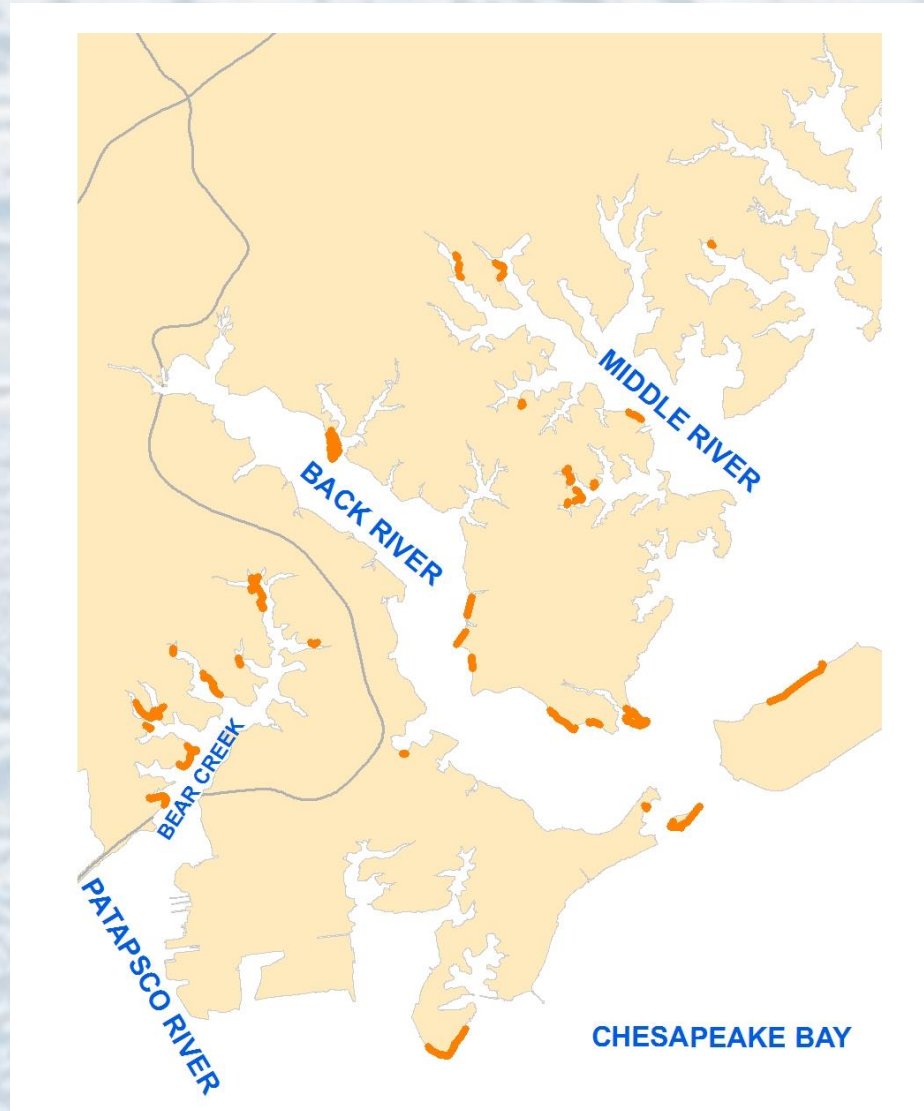


EPS – Capital Improvement Project



Shoreline Stabilization & Protection

Current & Future Capital Waterway Improvement Projects Shoreline Stabilization & Protection

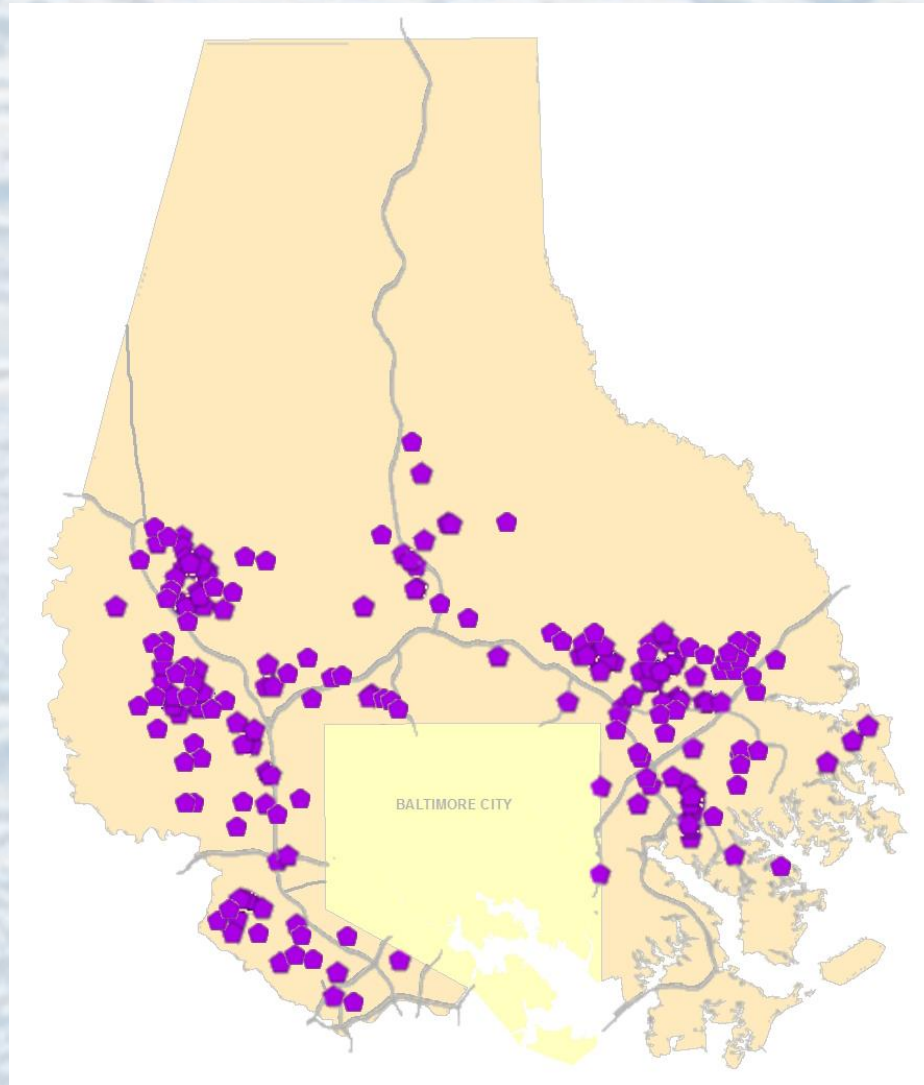


EPS – Capital Improvement Project



Stormwater Facility Maintenance
& BMP Improvements

Current & Future Capital Waterway Improvement Projects Stormwater Facility Maintenance & BMPs



EPS – Capital Improvement Project

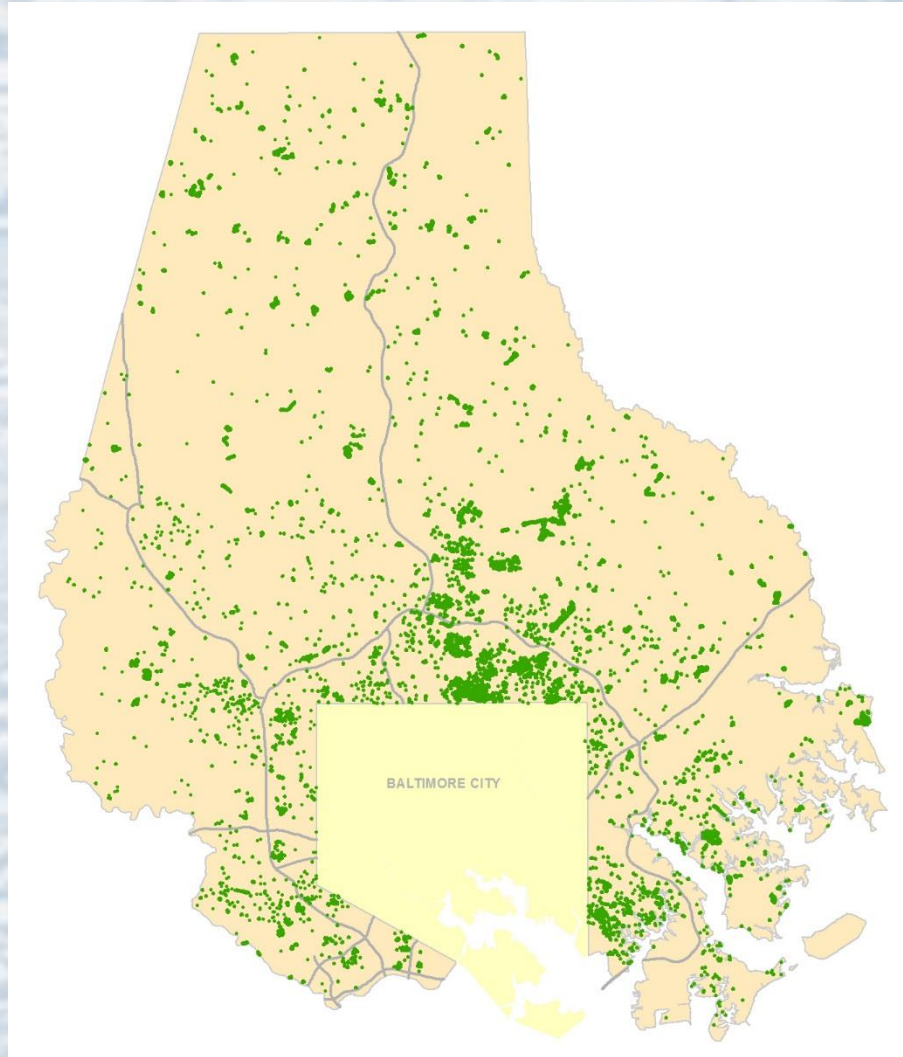


Rural Reforestation



Operation ReTree

Current & Future Capital Reforestation



Guiding Documents

- MS4/NPDES Permit (EPA/MDE)
- Phase III WIP (Chesapeake Bay TMDLs)
- TMDL Implementation Plans (Local TMDLs)
- SWAPS

Baltimore County Waterway Improvement Spending Plan FY 23 – Draft

Project Name	Project Limits	Job Order	Total Project Estimate	Funding Allotted	FY 2022 Needs	Funding Needs FY 2023	Funding Needs FY 2024	Funding Needs FY 2025	Funding Needs FY 2026
Stream Restoration and Supporting Projects	Countywide	221-0100 221-0112 221-0203 221-0400 221-0105 231-0201 231-0203	\$133,964,361	\$42,194,861	\$13,077,500	\$13,720,000	\$16,520,000	\$8,825,000	\$10,875,000
Shoreline Stabilization and Supporting Projects	Eastern Baltimore County	221-0100 221-0400	\$16,315,000	\$4,706,153	\$450,000	\$525,000	\$1,421,000	\$3,370,000	\$2,190,000
Reforestation Planned Projects	Countywide	221-0200 221-0400 221-0402 231-0203	\$2,785,000	\$7,348,300	\$1,220,000	\$2,150,000	\$1,500,000	\$2,150,000	\$1,500,000
Stormwater Facility Maintenance and BMPs	Countywide	221-0400 231-0203	\$30,050,000	\$13,050,000	\$3,700,000	\$3,700,000	\$3,700,000	\$3,700,000	\$3,700,000
Watershed Management & Monitoring Initiatives	Countywide	221-0401 231-0203	\$3,066,496	\$3,394,497	\$1,841,100	\$958,900	\$1,625,600	\$971,500	\$1,552,875
Other	Countywide		\$4,645,000	\$6,111,352	\$1,438,000	\$825,000	\$450,000	\$825,000	\$450,000

TOTALS

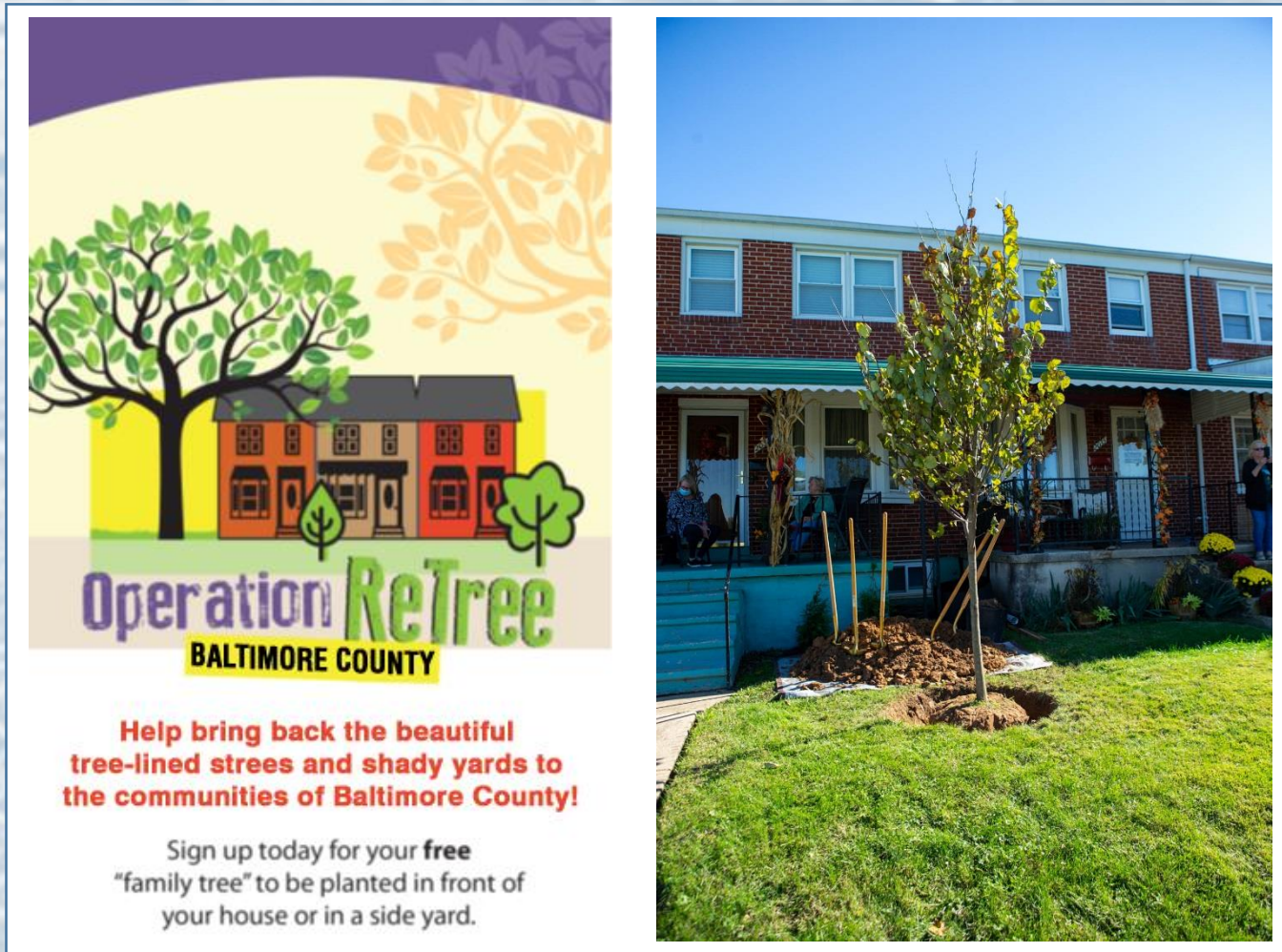
Funding Allotted	FY 2022 Needs	Funding Needs FY 2023	Funding Needs FY 2024	Funding Needs FY 2025	Funding Needs FY 2026
\$76,805,163	\$21,726,600	\$21,878,900	\$25,216,600	\$19,841,500	\$20,267,875

EPS Capital Project Efforts for Resiliency/Sustainability

	Stream Restoration	Shoreline Stabilization & Protection	Reforestation	Stormwater Maintenance & BMP Improvements
Nuisance Flooding	Designed to not impact private/public assets	May attenuate frequent events	Attenuates through canopy interception & vegetative uptake	Mitigates runoff from development; reduces peak flows
Riverine Flooding	May be intentionally increased to reduce flow velocities & erosion (approach/outcome dependent)		Attenuates through canopy interception & vegetative uptake	Mitigates runoff from development; reduces peak flows
Sea Level Rise		May become ineffectual, but must be designed for current condition to be functional		
Severe Weather	Reduces erosion for a range of storm events	Attenuates erosion by interrupting wave action; revegetation facilitates soil cohesion	Attenuates runoff through vegetative uptake and erosion by improving soil cohesion	Mitigates runoff from development; reduces peak flows
Protective Measures	Attenuates erosion and protects public/private properties & infrastructure such as sanitary sewer, bridges & culverts	Protects public and private properties from erosion		Mitigates runoff from development; reduces peak flows
Atmospheric Temperature Increase	Riparian corridor revegetation attenuates by blocking solar radiation		Facilitates biosequestration of atmospheric carbon dioxide; attenuates by blocking solar radiation	

Equity Trees

- Tree Canopy versus Income-Environmental Justice and Equity in Baltimore County



Operation ReTree
BALTIMORE COUNTY

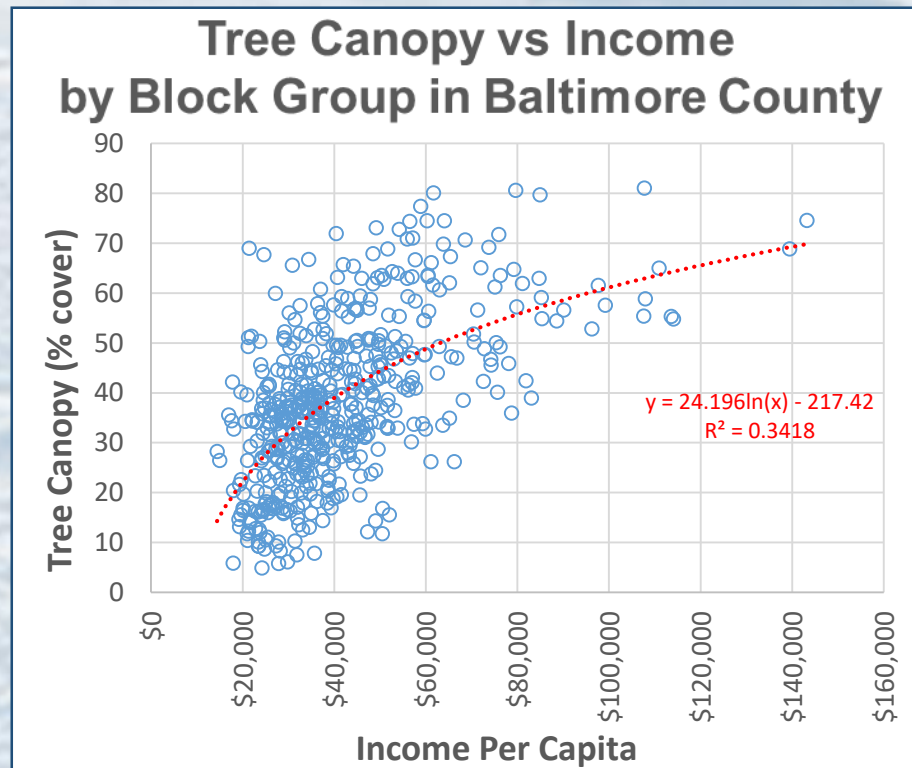
Help bring back the beautiful tree-lined streets and shady yards to the communities of Baltimore County!

Sign up today for your **free** "family tree" to be planted in front of your house or in a side yard.

The photograph on the right shows a two-story brick townhome with a green awning. A young tree, supported by wooden stakes, has been planted in a freshly dug hole in the front yard. The scene is set on a bright, sunny day with a clear blue sky.

Tree Inequity: Income vs Tree Canopy

- Higher incomes correlate with greater tree canopy
- Lower income households tend to live in areas with less tree canopy
- Higher population density correlates with lower tree canopy



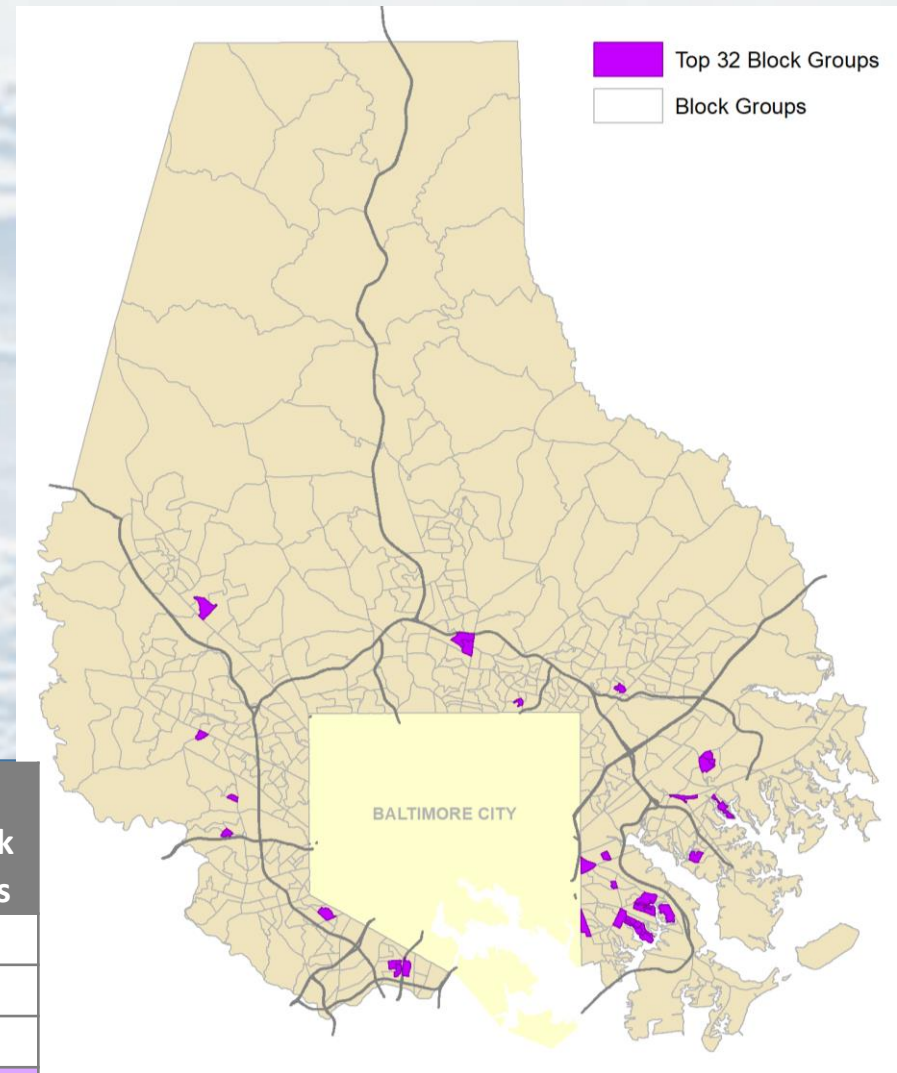
Location selection results

To improve equity, provide tree plantings in areas with lower tree canopy, lower income, and higher density

Equity Tree Priority score (ETP) for each block group

$$ETP_i = \frac{100}{\text{canopy}_{i,res}} \times \frac{\text{pop}_i}{\text{sq mi}_{i,res}} \times \frac{1}{\text{Income per Capita}_i}$$

Provide tree plantings in ETP outlier locations to maximize impact of plantings on tree equity



ETP score range		n standard deviations from the mean	n block groups
From	To		
0.0	0.2	<-0.5	150
0.2	1.5	-0.5 to 0.5	296
1.5	2.7	0.5 to 1.5	39
2.7	4.0	1.5 to 2.5	14
4.0	8.6	>2.5	22

Planting effort update

- Rebranded to Operation ReTree Baltimore County
- Community Involvement and Outreach, Direct Mailing, Door to Door campaign
- Total of 290 trees planted in the West Inverness Community Involving 131 separate residents, Local Rec Center, Local Park, Elementary School and Townhome Group
- Native Trees, sizes of 1.5 to 2 inch caliper, average 5 to 7 feet tall
- Each Tree comes with stakes, mower guard, and water bag along with a root barrier protection if sidewalk could be impacted by roots

