Tree Canopy Indicator Update

Water Quality GIT 6/27/22
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Through the Chesapeake Bay Watershed Agreement*, the Chesapeake Bay Program has committed to…*

Vital Habitats Goal

Tree Canopy Outcome*:* Continually increase urban tree canopy capacity to provide air quality, water quality and habitat benefits throughout the watershed. **Expand urban tree canopy by 2,400 acres by 2025.**

Defining & Measuring Tree Canopy

"In this Management Strategy, we use a broad definition of "urban" tree canopy that includes all sizes of communities. It is important to note that this goal is intended to reflect a *net gain* in acreage of tree canopy, after accounting for canopy losses due to various factors such as development, storms, pests/diseases, and natural mortality. Meeting the goal requires protecting as much of our existing tree canopy as possible and planting enough to both mitigate losses and expand the tree canopy cover by 2,400 acres."

Defining & Measuring Tree Canopy

- New quantitative outcome in CB Watershed Agreement – no baseline/indicator or tracking systems in place
- Management Strategy proposed to track progress using combination of 1) annual tree planting BMP data, and 2) high resolution land cover dataset, under development at the time
- Developed an approved methodology in 2018, but we have been waiting on updated land use data to test and refine it

Tree Canopy Indicator- Measuring Progress
1) Reported Tree Plantings

- Track and total 3 Urban Tree BMPs reported to NEIEN
  - Urban Tree Planting
  - Urban Forest Planting
  - Urban Forest Buffer

- Report on annual progress, ~~2010~~ 2014– present *(2014 Agreement is starting point for adding 2400 new acres by 2025)*
- Use custom “no expiration” scenarios in NEIEN to make sure all new annual acres are counted

Tree Canopy Indicator Measuring Progress 2) Land Use Change Data

- CBP High Resolution Land Cover/Land Use data provides best tracking of Tree Canopy gains and losses over time
  - 2013/2014 – baseline status for Watershed Agreement
  - 2017/2018 – use to assess gains and losses (net change) since baseline
  - Future datasets every 4 or so years will be critical for tracking long term trend and progress

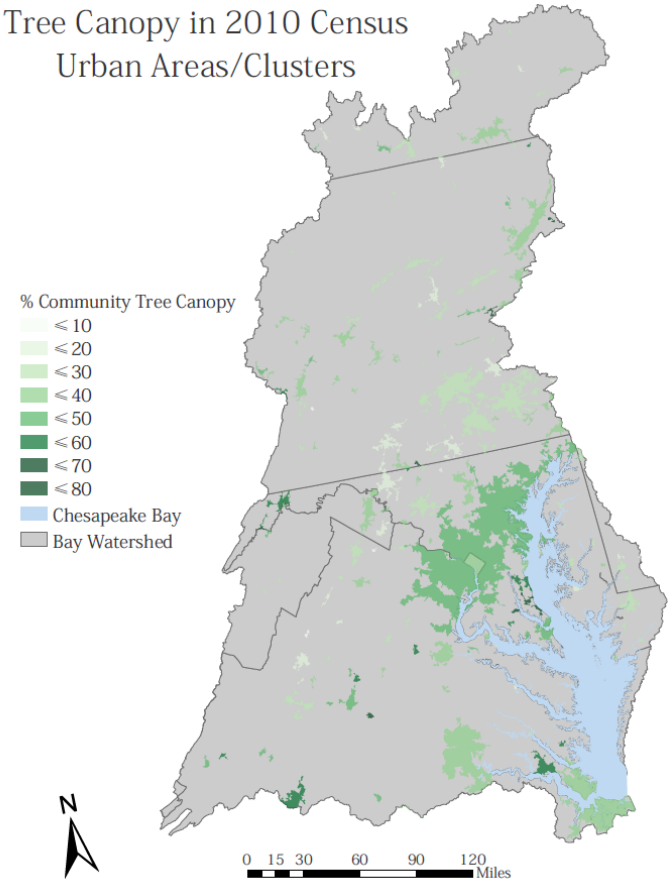
Tree Canopy Indicator
Measuring Progress
2) Land Cover/Land Use Data

Original proposal was to track changes in

- Tree Canopy over Turf
- Tree Canopy over Impervious
- "Urban" Forest – only Forest that falls within Census Urban Areas & Clusters

And not include:

- Trees on agricultural land
- Forest outside of Census Urban Areas & Clusters



Problem: Developed landscape is always expanding; Census boundaries are static and too narrow

New approach: Land Use Change Matrices help target specific changes of interest

Note: numbers in table below are not actual, just used for illustration

"Developed" "Natural" Ag & Extractive

2013/14 Land Use \ 2017/18 Land Use	ROAD	IMPS	IMPO	TCIS	TURF	TCTG	PDEV	FORE	TCOT	NATS	HARF	RIVW	TERW	TDLW	CROP	PAST	EXTR	WATR
ROAD	-		56	1,143	6	47		217			24	3	0	0	1	2		0
IMPS		-																
IMPO	598		-	2,632	4,653	533		230			3,985	41	12	4	442	1,124		16
TCIS	114		1,307	-	2,167	13		6			2,702	11	1	0	57	91		0
TURF	250		5,904	0	-	11,210		344			1,879	17	3	2	45	69		13
TCTG	104		5,954	0	11,368	-		98			4,495	-	-	-	516	472		4
PDEV							-											
FORE	1,152		15,164	17	10,660	15,779		-			299,732	-	-	-	20,609	22,054		143
TCOT									-									
NATS										-								
HARF	1,519		27,718	1	28,503	1,037		106,876			-	-	-	-	943	1,788		748
RIVW	0		0	-	2	-		-			-	-	-	-	-	-		0
TERW	-		-	-	2	-		-			-	-	-	-	-	-		-
TDLW	-		-	-	0	-		-			-	-	-	-	-	-		-
CROP	61		3,944	0	302	40		3,263			1,348	-	-	-	-	151		104
PAST	51		4,655	0	451	44		4,591			1,038	-	-	-	178	-		63
EXTR																	-	
WATR	1		103	-	2	25		192			264	14	0	9	29	19		-

Focus on changes in tree cover on developed/developing lands

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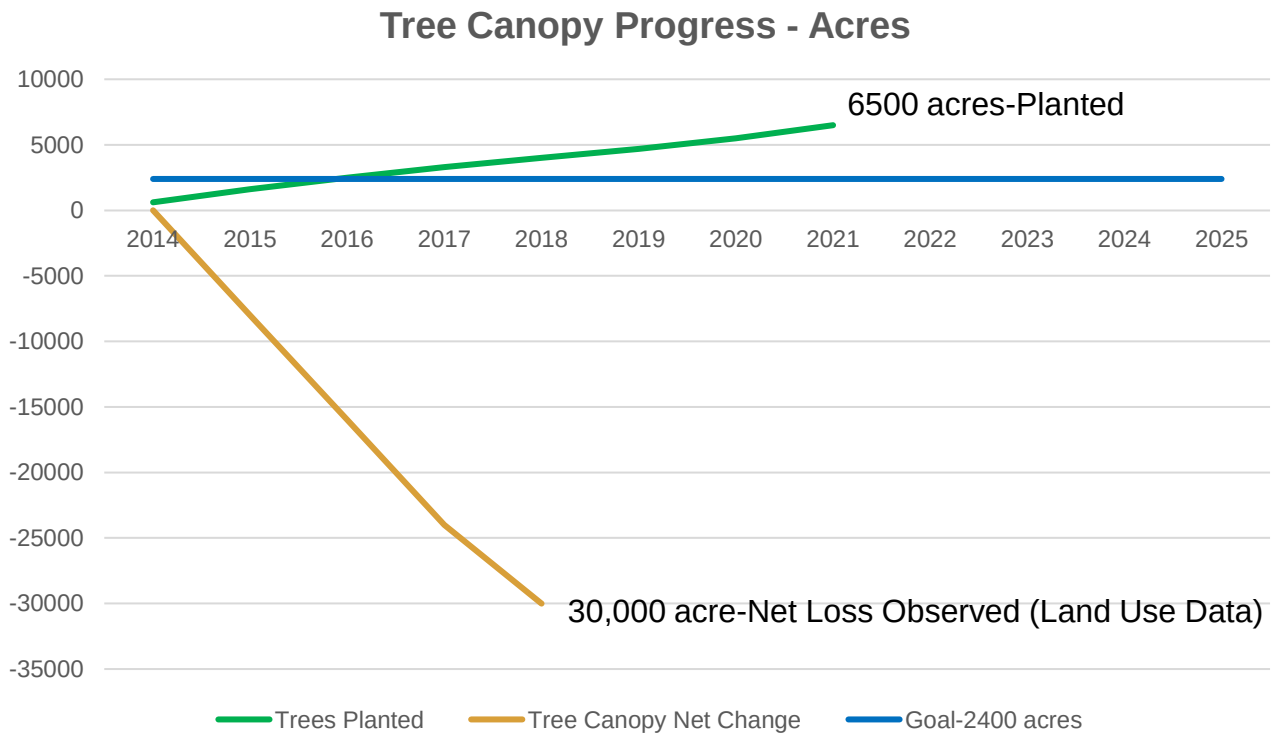
Focus on changes in tree cover on developed/developing lands:

Gain = change from impervious/turf/pervious developed to **tree canopy/forest**

Loss = change from **tree canopy/forest** to impervious/turf/pervious developed

Ideas for Displaying on Chesapeake Progress – will likely break into two charts for tree plantings vs land use change



2400 acre-Net Gain Goal

Next Steps

- FWG & WQGIT review and approval of approach (June)
- Status & Trends WG - review and approval (July)
- Finalize methods documentation, prepare TC Indicator for Chesapeake Progress, brief FWG/WQGIT prior to posting (August/Sept)

Please direct questions or suggestions to julie.Mawhorter@usda.gov