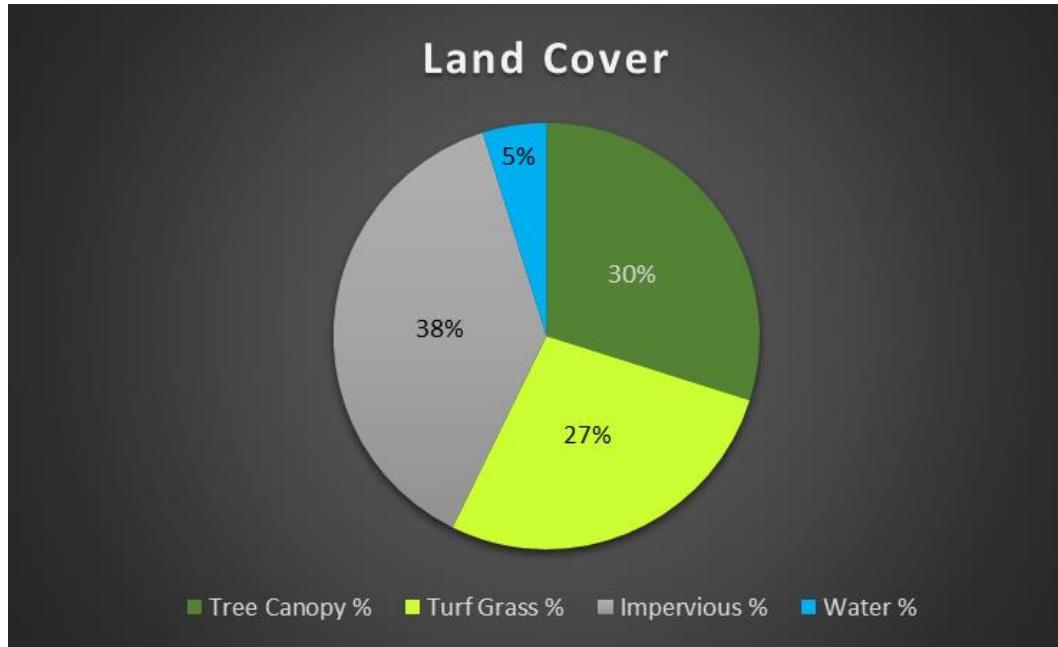




# City of Hopewell Tree Canopy Assessment

# Hopewell Land Cover Analysis

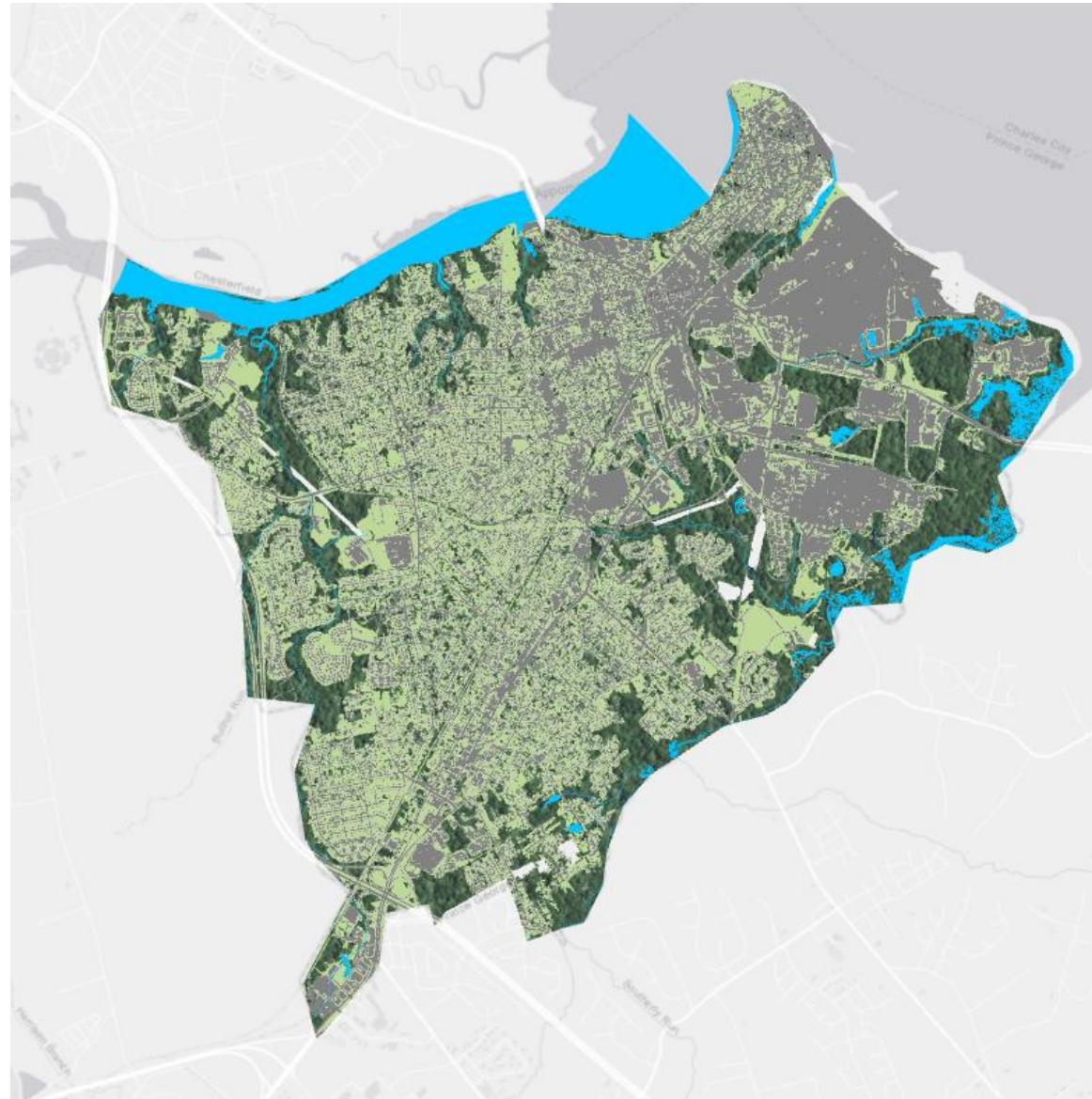
- ▶ Hopewell has an urban tree canopy (UTC) which covers about 30.6% of the city.
- ▶ Compared to other cities in Virginia such as Charlottesville (45% UTC), Fredericksburg (44%), and Richmond (42% UTC)
- ▶ Hopewell could do better.



Total Acres	Tree Canopy* (acres)	Tree Canopy %	Turf Grass (acres)	Turf Grass %	Impervious (acres)	Impervious %	Water (acres)	Water %
6,912	2112.69	30.6	1838.48	26.6	2542.15	36.78	327.19	4.7

## Virginia Cities UTC%





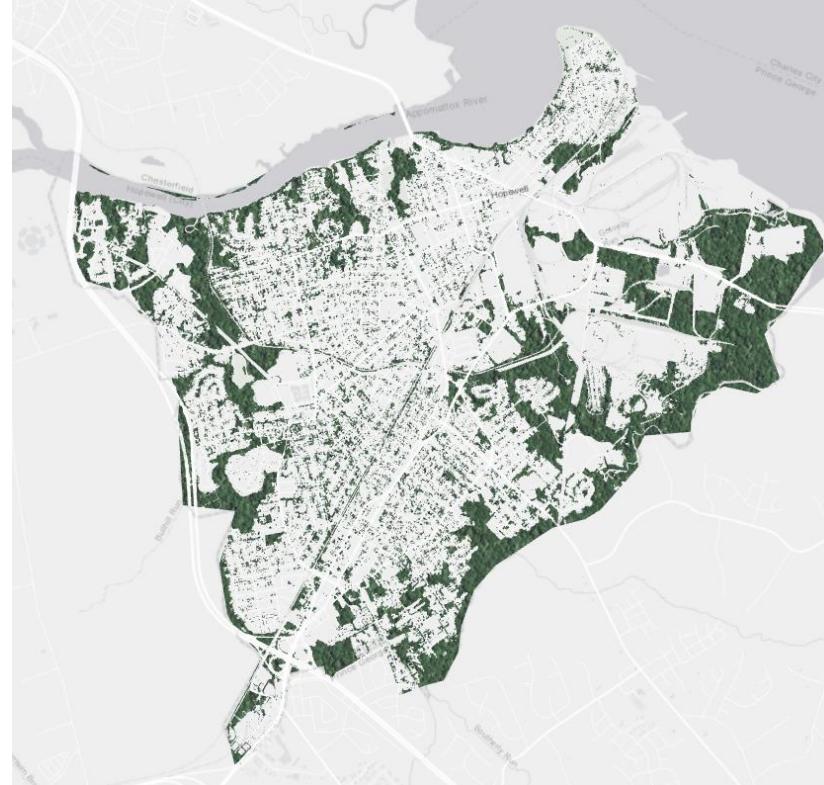
# Tree Canopy Change

2014

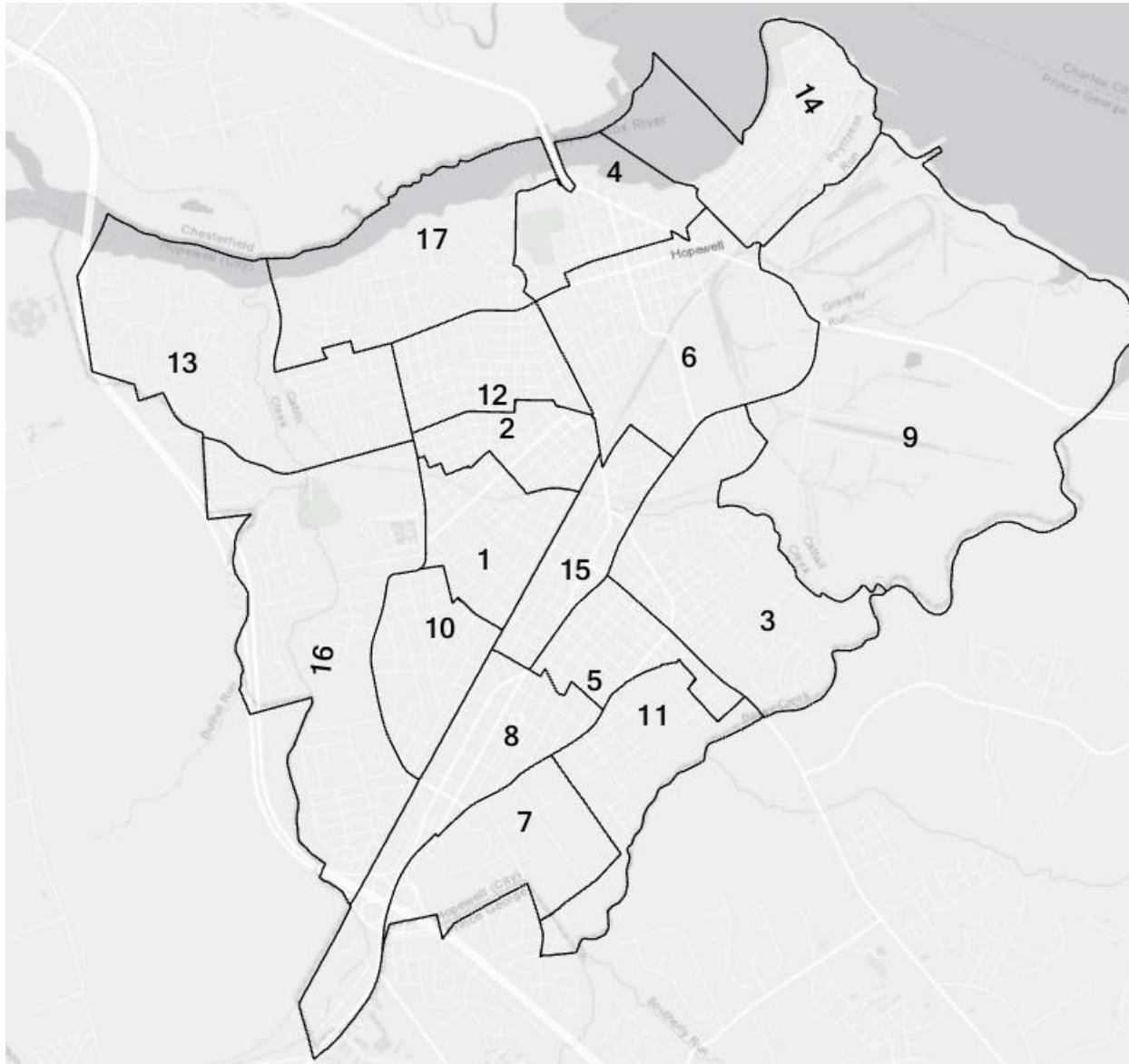


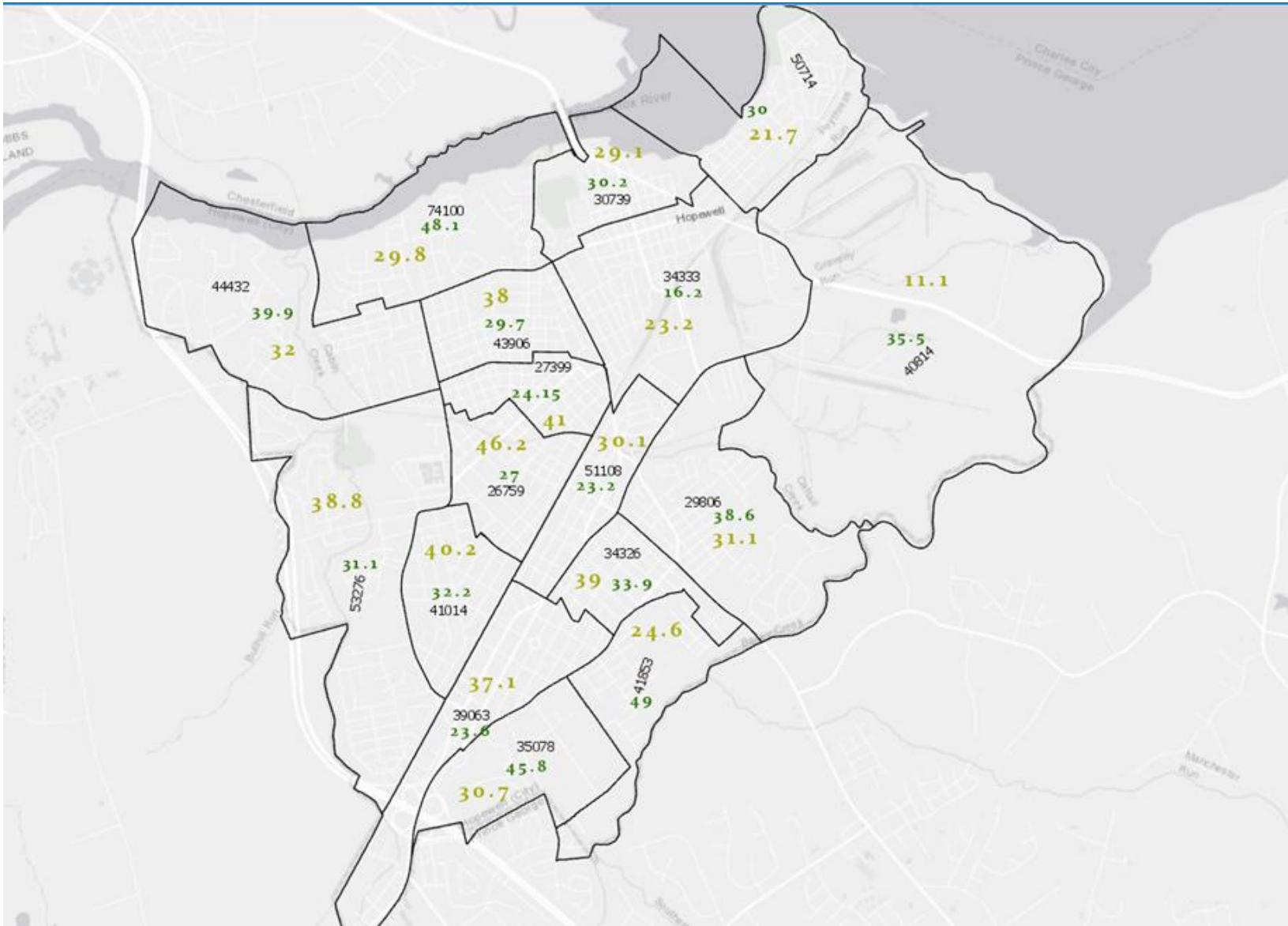
31.7% UTC

2017



30.6% UTC

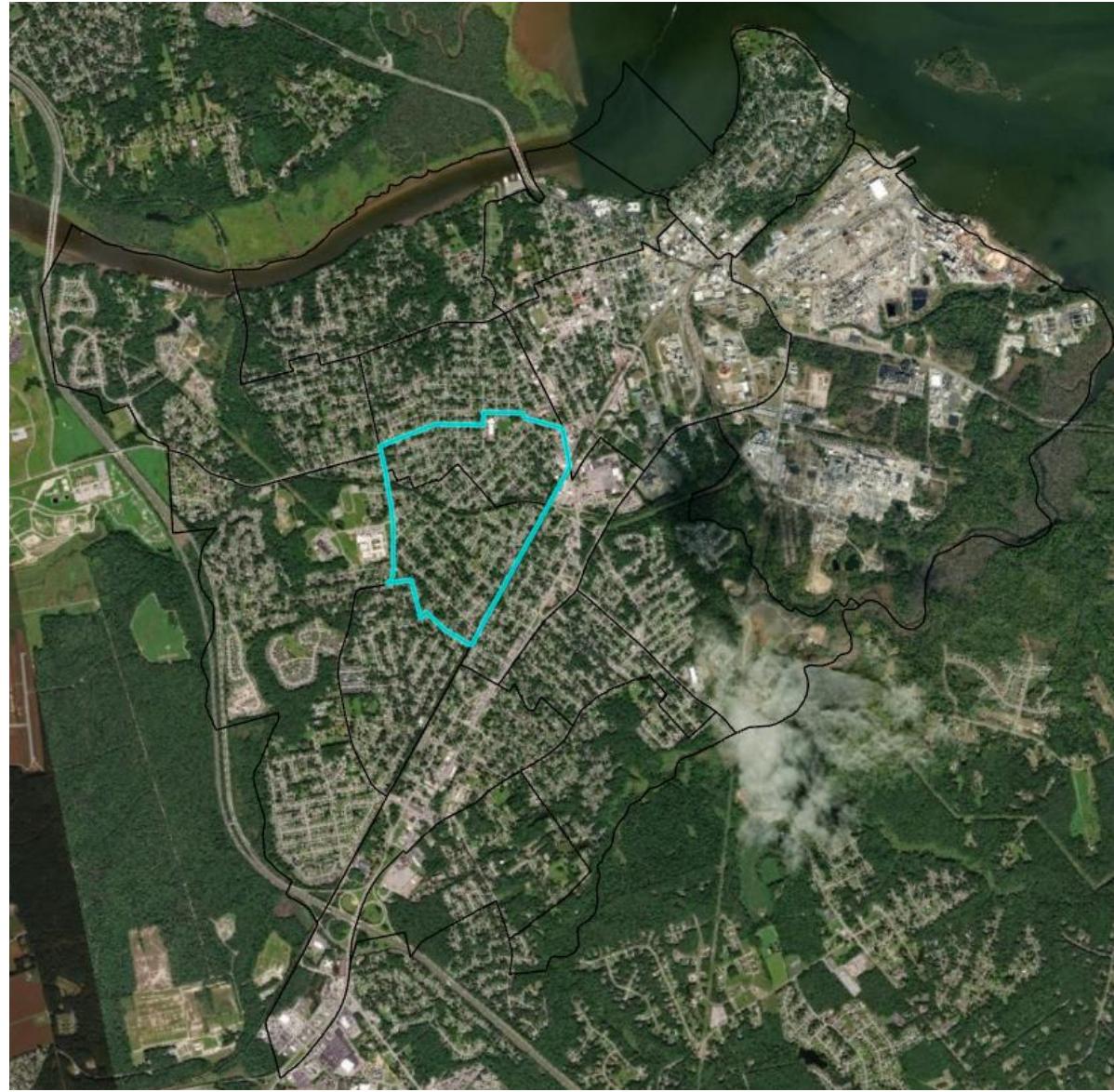






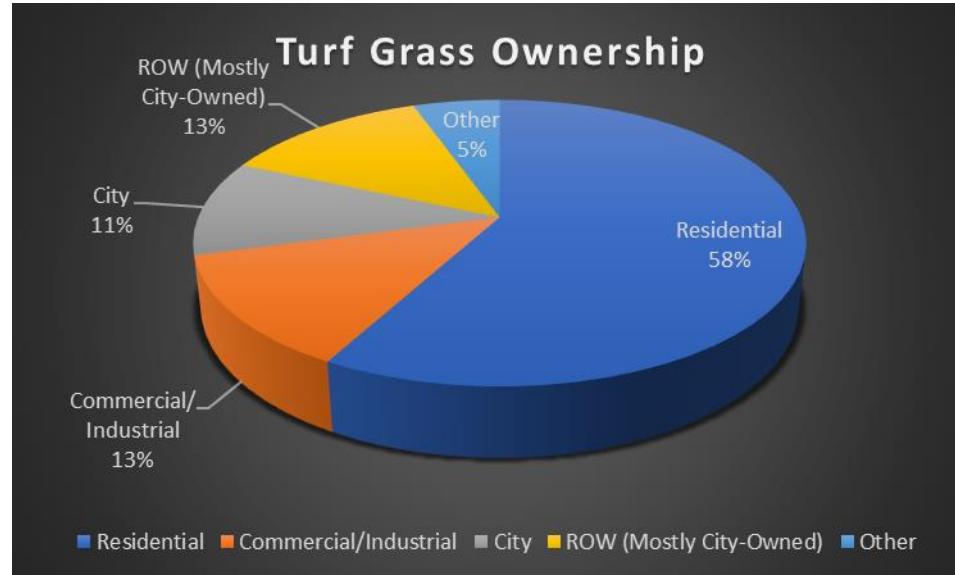


Neighborhood	Median Income	UTC%	TG%
Westwood Park	26759	27	46.2
Westwood park/Battleground	27399	24.15	41
Rosedale/Heights/King's Court	29806	38.6	31.1
East Dolin	30739	30.2	29.1
West Hopewell	34326	33.9	39
B-Village/Day/Buren	34333	16.2	23.2
Roselawn	35078	45.8	30.7
Woodlawn	39063	23.6	37.1
Industrial Zone	40814	35.5	11.1
Woodlawn/Farmingdale	41014	32.2	40.2
Belmont/Dupont Gardens	41853	49	24.6
Crescent Hill/Battleground	43906	29.7	38
Broadway Landing/Cameron's Landing/Anchor Point/Prince George Court/Appomattox/Westmoreland	44432	39.9	32
City Point/A-Village/West City Point	50714	30	21.7
Central/Poplar Street	51108	23.2	30.1
Pleasant Hill/Shady Oaks/Cobblestone/Parkview Pointe/Kippax/Cambridge	53276	31.1	38.8
Mansion Hills/West Dolin	74100	48.1	29.8



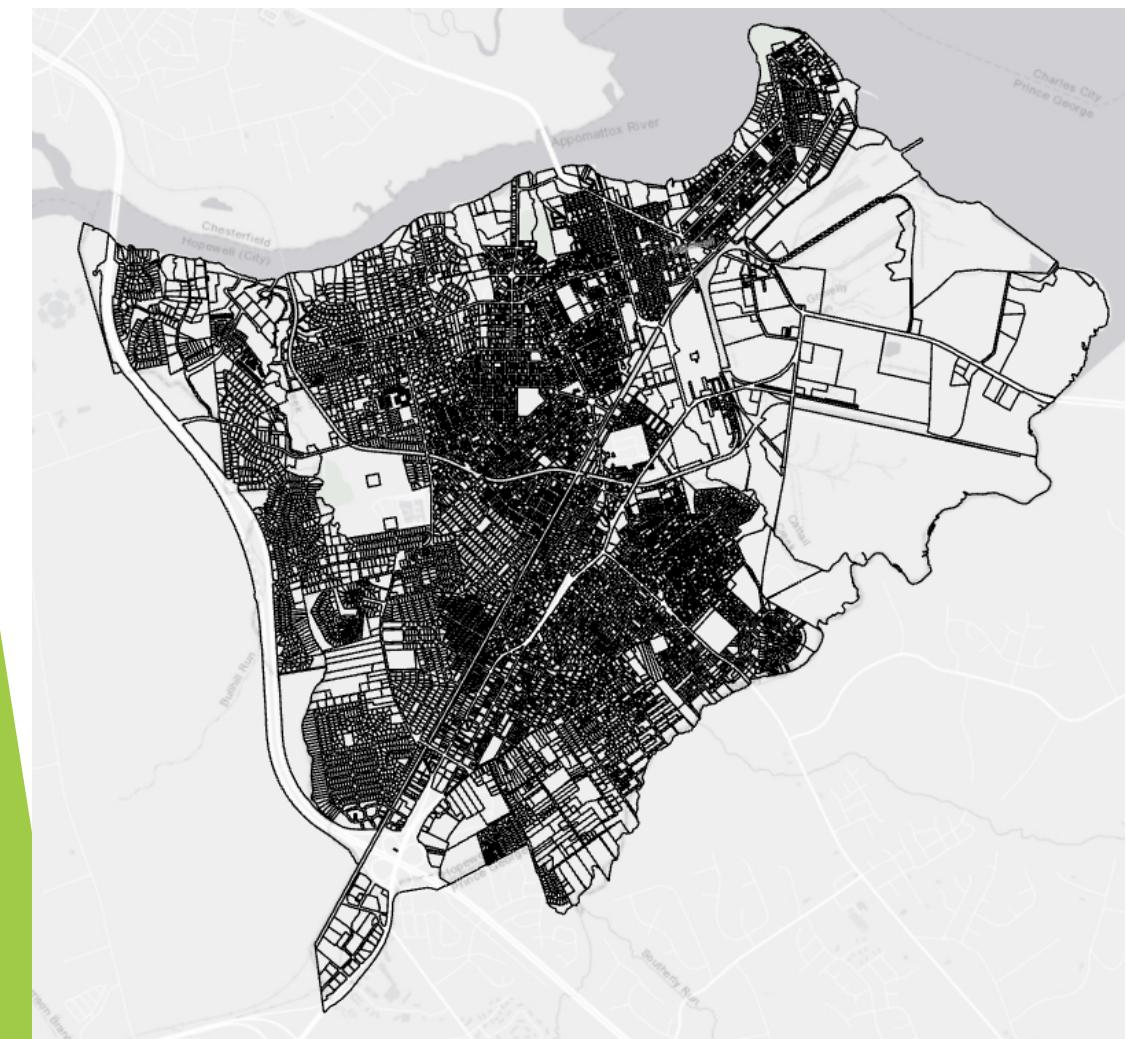


# Who Owns the Turf Grass in Hopewell?

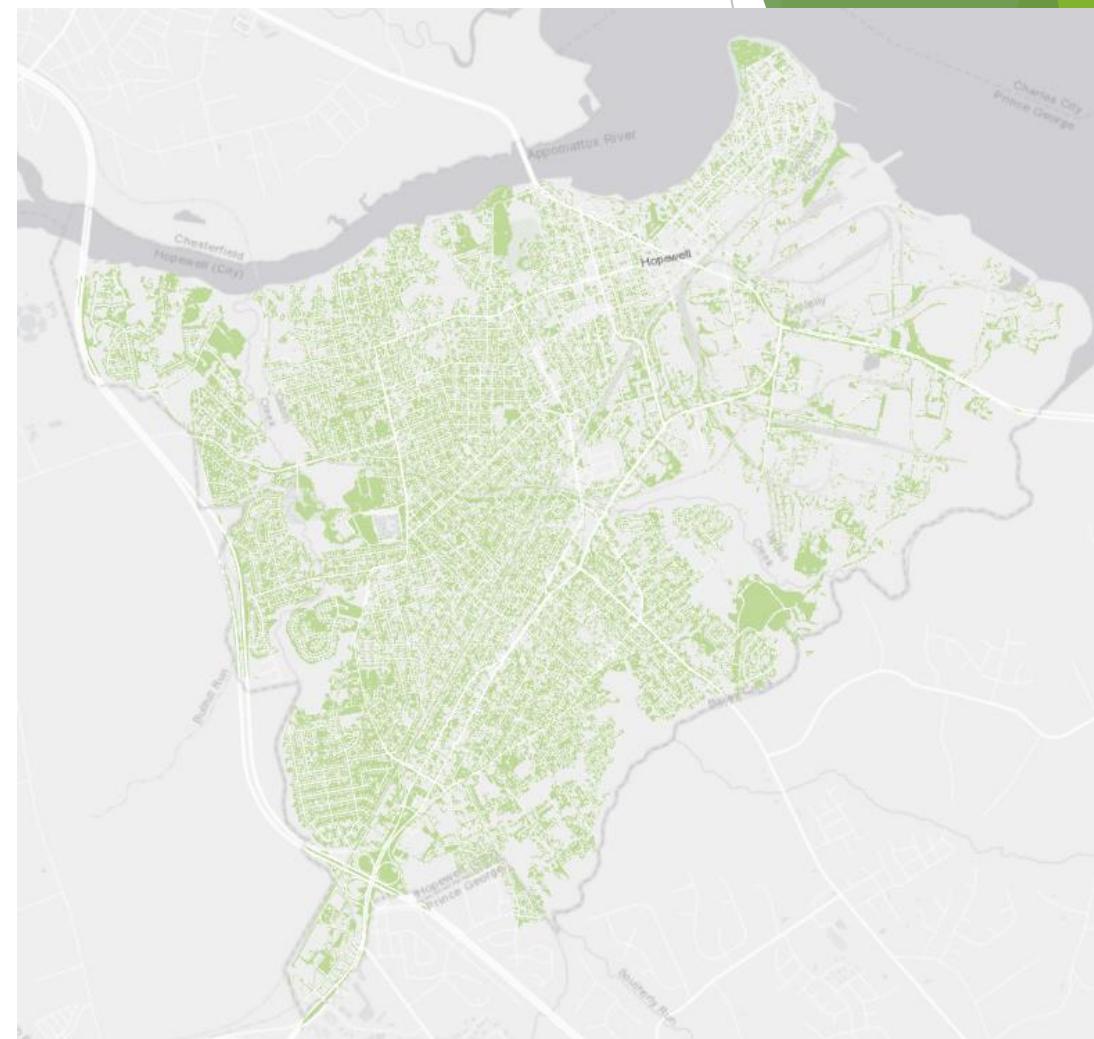


Residential	Commercial/Industrial	City	ROW (Mostly City-Owned)	Other
57.98%	12.81%	10.82%	12.95%	5.44%
1,063 acres	235 acres	198 acres	237 acres	100 acres

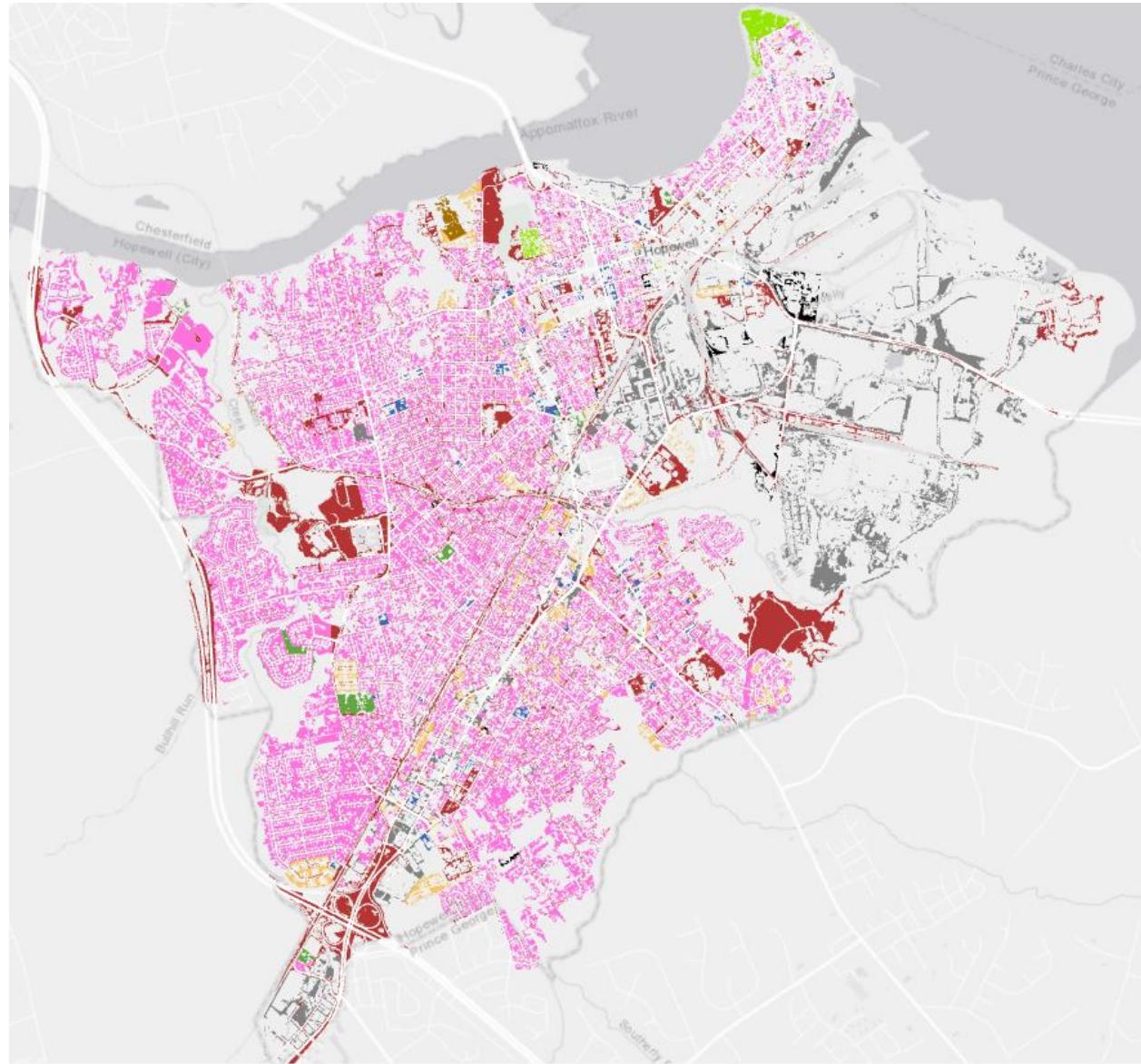
Most of Hopewell's existing turf grass belongs to its residents. This suggests that a tree giveaway program could help increase the city's tree canopy.

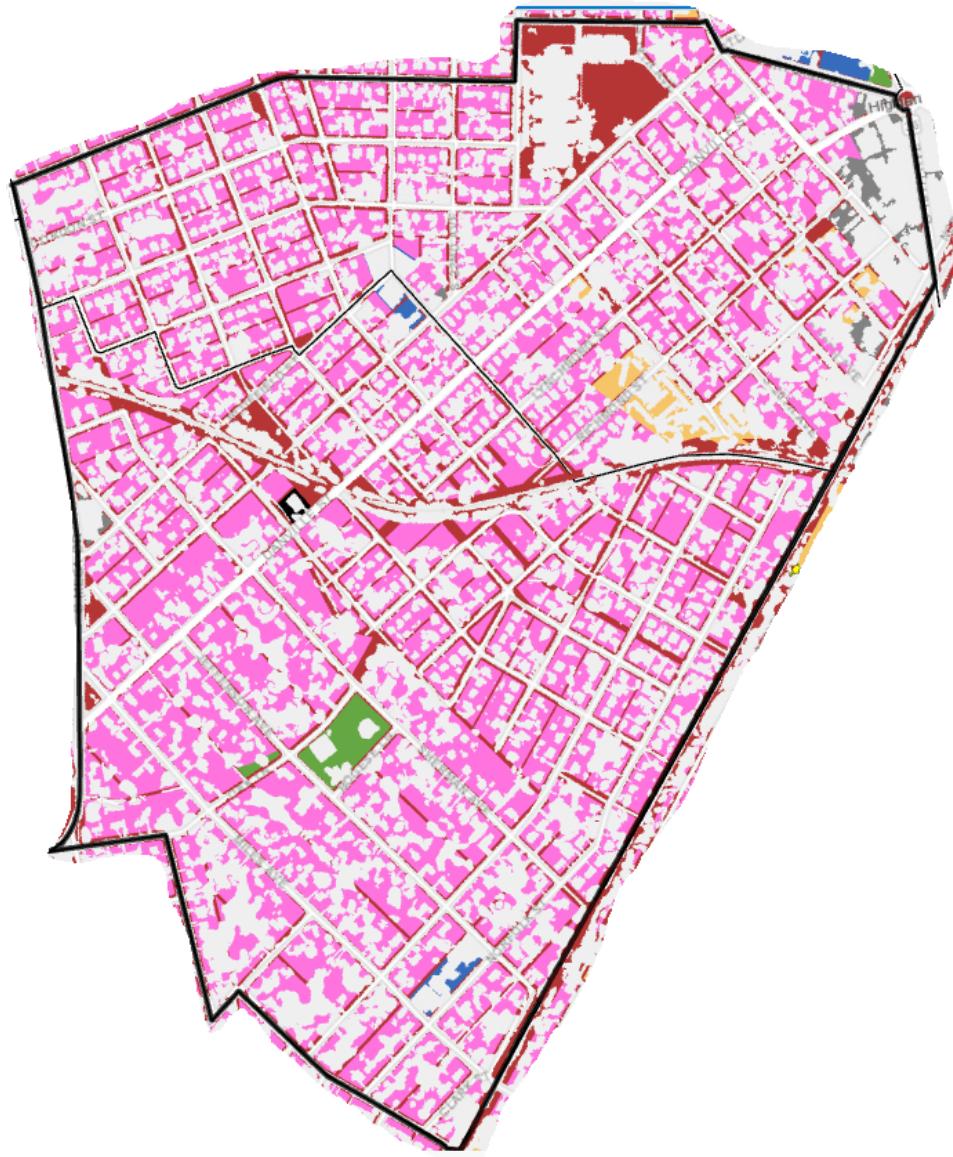


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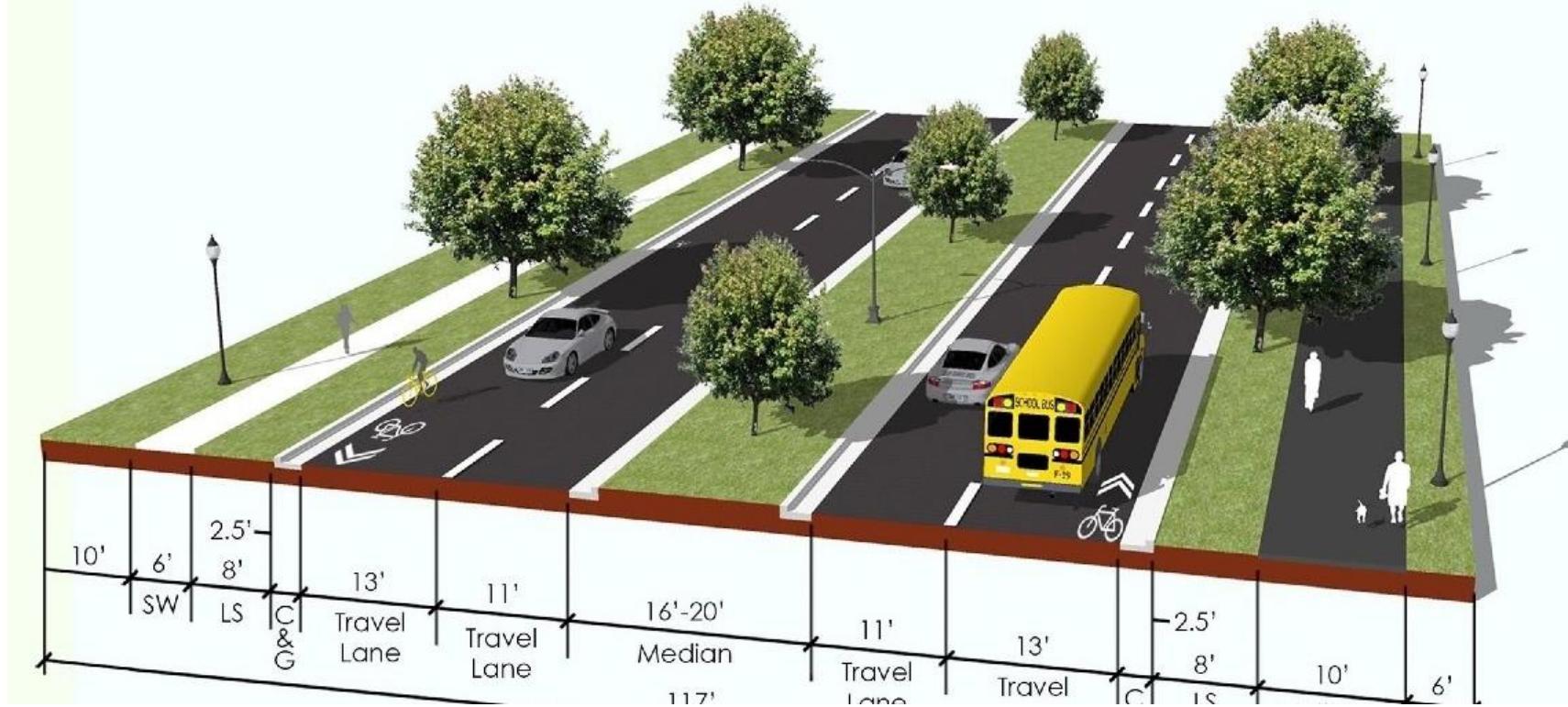




Color	Owner
Pink	Single Family
Orange/Yellow	Multi-Family
Red	City-Owned + ROW
Green	Charities
Blue	Religious
Grey	Commercial/Industrial
Black	Utilities

# City-Owned Places with Turf Grass

Place Name	Turf Grass (acres)
Patrick Copeland Elementary and Hopewell High	39.2
Carter G Woodson Middle	8.6
Harry E James Elementary	6.6
Hopewell City Park	4.6
Dupont Elementary	4.2
Crystal Lake Park	3.7
Woodlawn	2.7
Arlington Park	2.2
Hopewell Community Center	1.4
Fort Abbott Park	1.3
200 Station St Fire Station	1
Atwater Park and Atwater Soccer Complex	0.9
City Hall/police station and Court Building	0.9
City Point Park	0.7
3 ½ Street Park	0.5
3400 Virginia Fire Station	0.3
King's Court Park	0.3
Hopewell City Marina	0.2



# Right-Of-Way (ROW)

# Hopewell's ROW

- ▶ 13% of Hopewell's existing turf grass is road Right-Of-Way
- ▶ Total acreage of 237.3
- ▶ The city owns all ROW Turf Grass except the 295/36 interchange and Route 10 bridges.
- ▶ The following table provides a list of the where the highest priority turf grass parcels are located based on amount of area.



<b>Top 40 (acres)</b>	<b>Directions</b>
25.04	295/36 Interchange
4.80	E. Side of I-295 N. between the dead end of glacier bay court and dead end of pin oak dr. and along pin oak dr.
4.21	W Side of I-295 N. and E Side of I-295 S. at same spot as above
4.11	E Side of I-295 N and Cameron's Landing Ln
2.14	median of old woodlawn st and 36
1.59	Oaklawn Blvd median SW of Crossings Blvd
1.26	W side of 295 S at Shenandoah Cir
0.85	Beacon Ridge Dr and Anchor Point Blvd
0.85	Cedar Level Rd, Wilmington Ave, and North Ave
0.85	156 and S. 6th ave
0.77	Portsmouth and Sherman to Portsmouth and Moultrie to Moultrie and Bristol
0.76	S. Colonial Dr. and River
0.74	Riverside Ave and N. 21st ave
0.68	Borrow Pit Rd. and Dellrose dr to dellrose and cloverdale ave
0.67	Perrymount rd. and gloucester, sidney st., n. cedar level and paul karnes dr
0.66	arlington rd. and berry st. to arlington and courthouse rd
0.63	roanoke ave. and oaklawn blvd
0.62	maryville ave and courthouse rd
0.58	n 21st ave and riverside ave
0.56	mansion dr and central terr
0.56	tri-cities blvd and 36
0.54	pine ave and boston st
0.50	blackstone ave and trenton st
0.50	n. 23rd and portsmouth
0.49	heretick ave and pocahontas Ln.
0.48	S side of route 10 at 800 ft W of hummel ross rd intersection
0.47	tri-cities blvd and plaza dr
0.47	stonemill dr and cobblestone dr
0.47	Libbie Ave and Thrift Ln.
0.47	median of 36 at jefferson park rd intersection
0.45	bassett st and warren ave to bassett st and liberty ave
0.44	colonial corner dr and courthouse rd
0.43	richmond st. and hill ave
0.42	park ave and walnut st and prince george ave and summit st
0.42	295 median parallel to cameron's landing Ln
0.41	jackson farm rd and westhill rd
0.40	buren st. and S. 9th ave
0.40	Wagner st and lynchburg st
0.18	petersburg st. and hill ave
0.19	lynchburg st and moultrie ave

# ROW + City-Owned Turf Grass

- ▶ 395.5 acres total
  - ▶ Excludes 40 acres on I-295 and 295/36 interchange owned by VDOT (circled)
- ▶ Ability to increase UTC by 5.7% from 30.6% to 36.3%

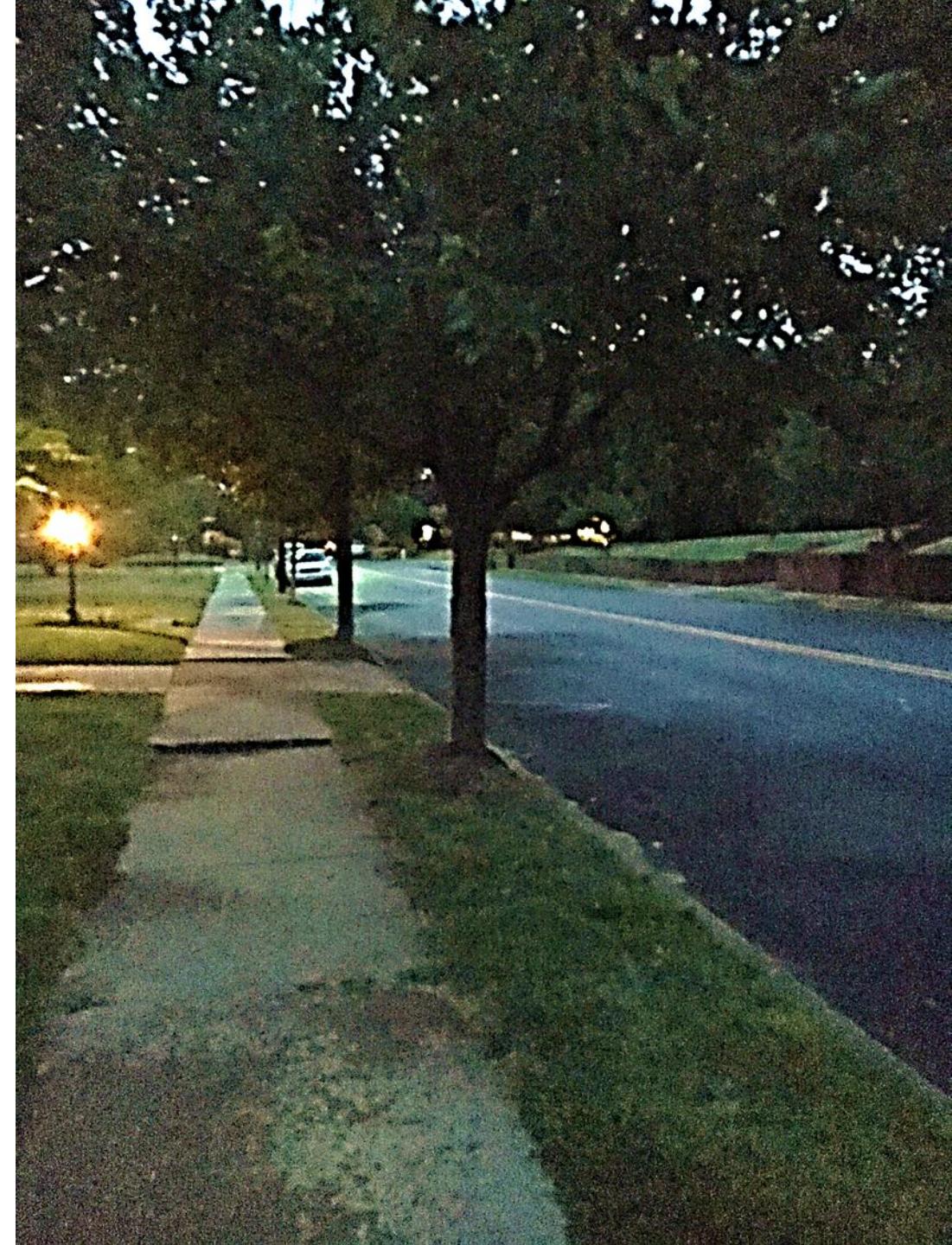




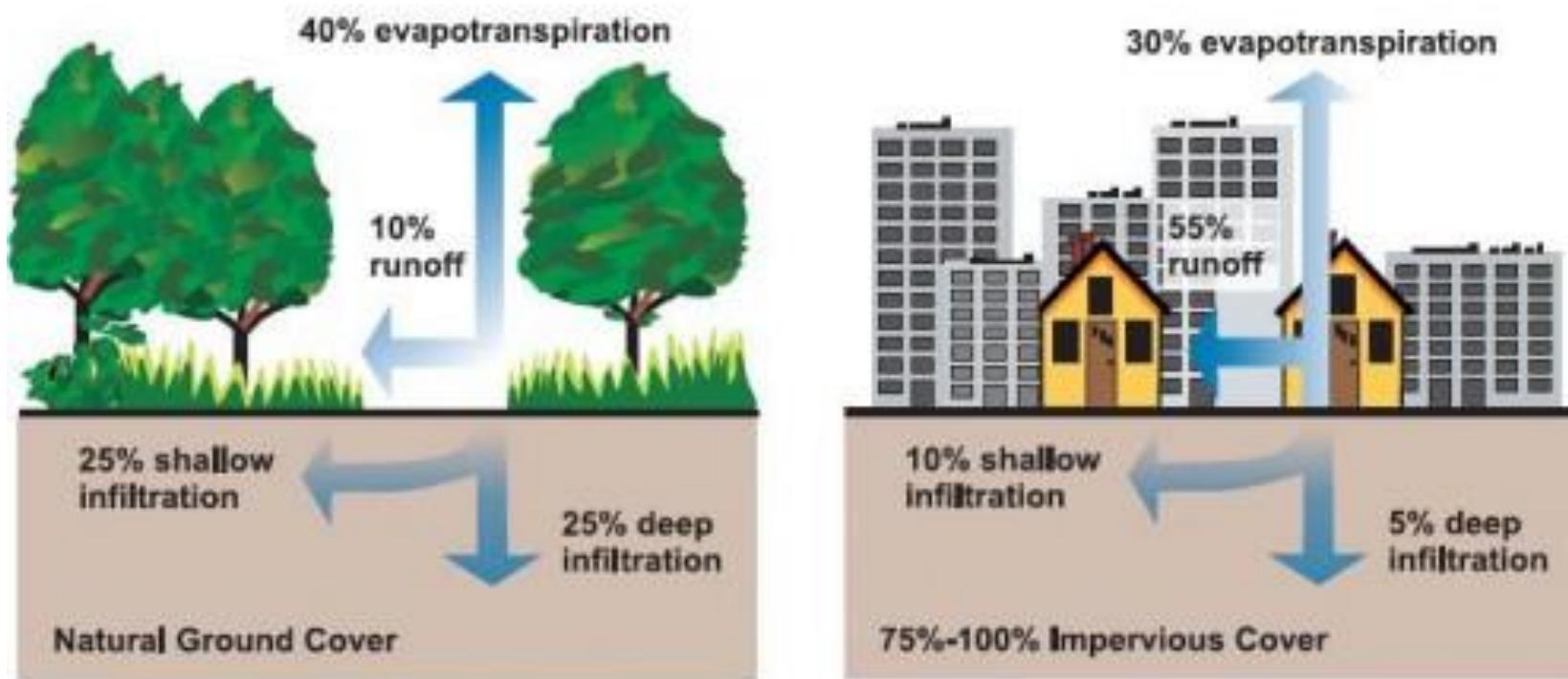
Increasing tree canopy in ROW increases  
tree canopy over impervious surface







# Why Trees can help....

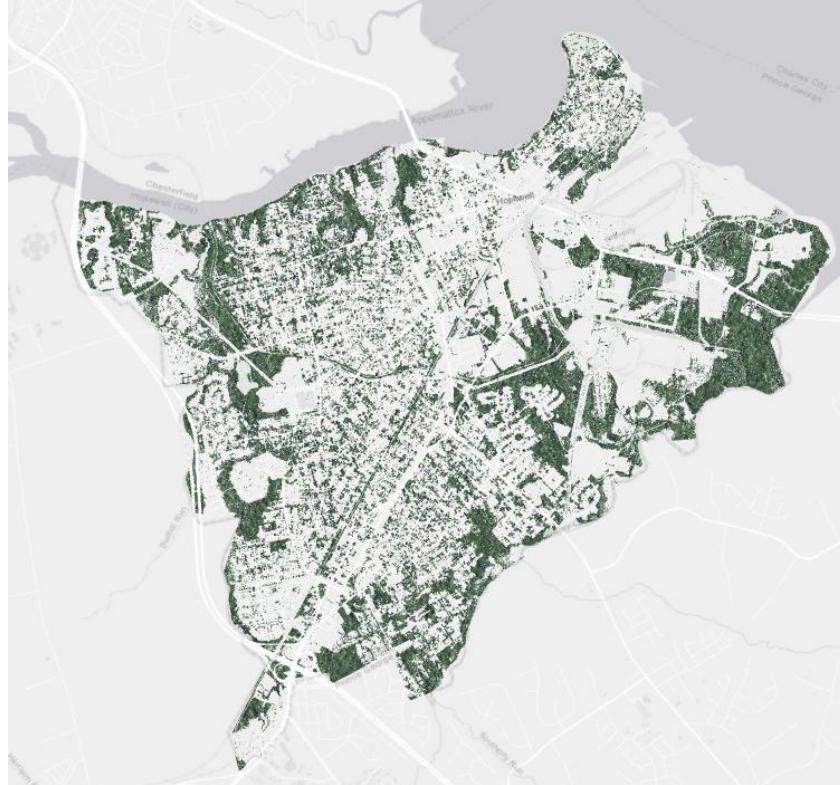


<http://hopewellva.gov/storm-water/>

From U.S. EPA

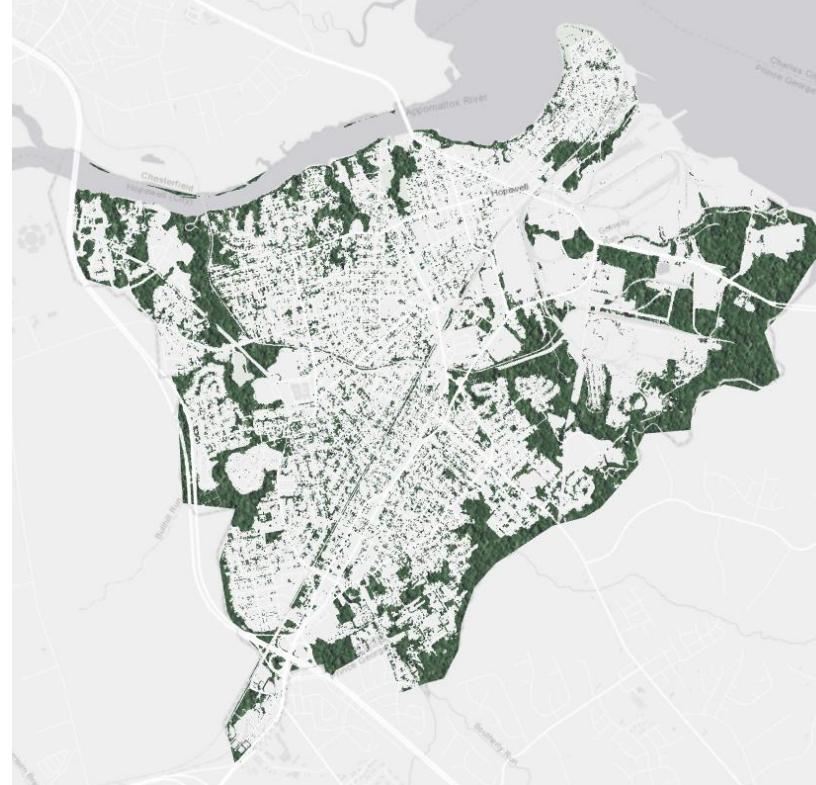
# Tree Canopy Loss

2014



2191.6 acres

2017



2112.69 acres

= 26.3 acres lost per year or around 7,890 trees

# Reducing Loads and input to Phase III WIP

- ▶ For every acre of tree canopy planted (1 acre = 300 trees):
  - ▶ Nitrogen Reduction: 1.9 lbs.
  - ▶ Phosphorus Reduction: 0.23 lbs.
  - ▶ Sediment Reduction: 22.6 lbs.
- ▶ Hopewell is losing around 30 acres of tree canopy (8000 trees) each year. This amount of canopy is responsible for treating:
  - ▶ 56.80 lbs. Nitrogen
  - ▶ 6.90 lbs. Phosphorus
  - ▶ 678.40 lbs. Sediment

Loads Calculations: Scenarios run using CAST at <http://cast.chesapeakebay.net/>. Chesapeake Bay Program. 2018.

# STANDARDS

1. Tree Board or Department
2. Tree Care Ordinance
3. Community Forestry Program  
With Annual Budget of at Least  
\$2 Per Capita
4. Arbor Day Observance  
and Proclamation



Arbor Day Foundation®



# STANDARDS

## 1. Tree Board or Department

- May be a professional forester/arborist, an entire forestry department or a tree board
- Group of volunteer citizens charged by ordinance with developing and administering a tree management program
- Legally responsible for the management of the community's trees

# STANDARDS

## 2. Tree Care Ordinance

- Establishes a tree board and gives it responsibilities
- Guidance for planting, maintaining and removing trees on public property
- Provides an opportunity to set good policy that is legally enforceable



Arbor Day Foundation®



# STANDARDS

## 3. Community Forestry Program With Annual Budget of at Least \$2 Per Capita

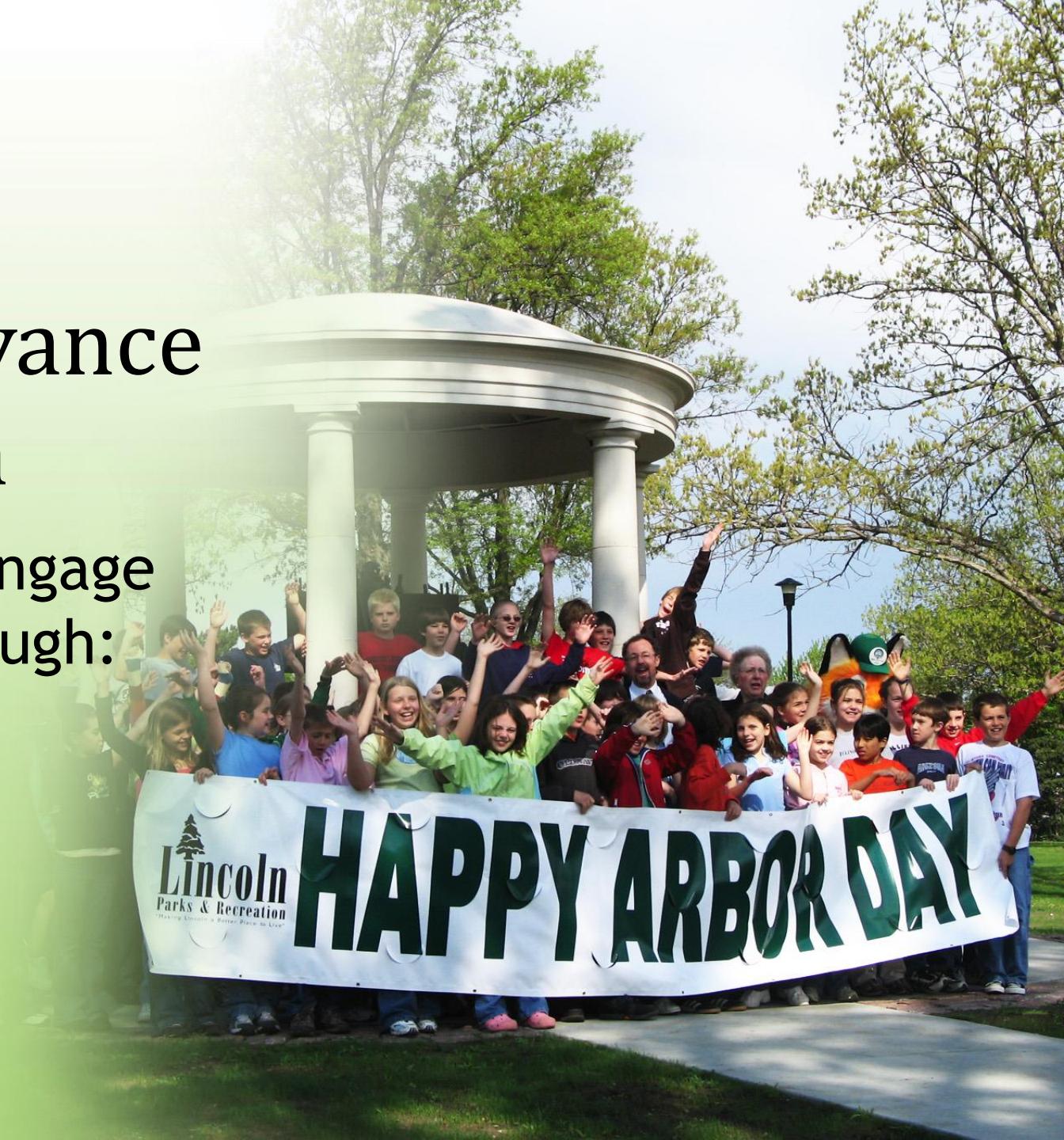
- Percentage of city workers' salaries spent on tree care
- Tree planting/watering/fertilizing
- Equipment rental/purchase/maintenance
- Arbor Day expenses
- Tree care conferences, workshops, memberships
- Value of volunteer labor

# STANDARDS

## 4. Arbor Day Observance and Proclamation

Opportunity to inform and engage the broader community through:

- Tree Planting
- Awards Ceremony
- Education



# STANDARDS

## Steps to become a Tree City USA

- Meet the Four Standards
- Complete and upload application documents each year by December 31 - *No Fee!*
- Apply at [arborday.org/TreeCityUSA](http://arborday.org/TreeCityUSA)



# Conclusion

- ▶ ROW
- ▶ Currently an abundance of area with which to begin planting trees.
- ▶ However, all the ROW Turf Grass areas shown in the top 40 table are at least 5 feet wide. This is approximately how wide a grass strip needs to be to support healthy tree growth.
- ▶ There are also a lot of Right-Of-Ways within the city that are less than 5 feet wide.
- ▶ Tree give away program in priority neighborhood
- ▶ Tree City USA Certification
- ▶ Establish Tree Stewards Program in Hopewell for ongoing pruning and maintenance of newly planted trees.
- ▶ Tree planting scheduled for November 17<sup>th</sup> for Arlington and Woodlawn Playground parks
- ▶ Presentation to the city council ?

# Data Sources

- ▶ Tree Canopy (2014): 1-meter resolution aerial imagery from the USDA's National Agricultural Imagery Program (NAIP) with 2015 LIDAR corrected data, Obtained by email from John DeGroot of the City of Hopewell Department of Public Works
- ▶ Census Block Groups and County Boundaries: The 2015 TIGER Census data from the U.S. Census Bureau, Obtained from <https://gdg.sc.egov.usda.gov/GDGOrder.aspx>
- ▶ Demographic Statistics (Median Income): <http://www.city-data.com/>
- ▶ Land Cover Datasets (2017 UTC and Turf Grass): Chesapeake Conservancy JRWQIP Restoration Planner. Data downloaded from  
<http://vgin.maps.arcgis.com/apps/View/index.html?appid=d3d51bb5431a4d26a313f586c7c2c848>
- ▶ Tax Parcel layer: Obtained by email from John DeGroot of the City of Hopewell Department of Public Works
- ▶ Utilities: Obtained by email from John DeGroot of the City of Hopewell Department of Public Works
- ▶ Loads Calculations: Scenarios run using CAST at <http://cast.chesapeakebay.net/>. Chesapeake Bay Program. 2018.