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COMMONWEALTH of VIRGINIA

Department of Forestry

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Thursday, December 23, 2021

Ann Wheeler, Chair
Prince William Board of County Supervisors
1 County Complex Court
Prince William, Virginia 22192

Subject: CPA2021-00004, PW Digital Gateway Comprehensive Plan Amendment, Amendment without Rezoning

Chair Wheeler and Members of the Prince William Board of County Supervisors,

Thank you for the opportunity to comment on CPA2021-00004. We have reviewed the Written Narrative and Suggested Plan Policies provided to VDOF on November 10th, 2021 as well as conducted our own analysis. Based on our findings, we believe that converting the Proposed Study Area of 2,133 acres from Rural Area, Non-Developmental, to Development Area will have a negative impact on the forest resources within the Proposed Study Area, the Bull Run Watershed, and the adjacent forestland in the Conway Robinson Memorial State Forest and Manassas National Battlefield Park.

The Conway Robinson Memorial State Forest consists of 444 acres of woods in the Gainesville area and is primarily a place of recreation for local residents[1] as well as a refuge for wildlife in an increasingly urbanized area. The adjacency of the state forest to the Manassas National Battlefield Park as well as other undeveloped lands allows for the movement of wildlife between key habitats. Additionally, the riparian forests and forested wetlands contribute to the water quality and ecological integrity of the Bull Run Watershed.

Even though the state forest is not included in the proposed amendment, like the Manassas National Battlefield Park, it will be negatively impacted by increased subdivision and development of adjacent lands as noted by Park Superintendent Tanya M. Gossett as part of the Remarks to the Prince William County Planning Commission Concerning the Independent Hill Small Area Plan/Comprehensive Plan Amendment #CPA2017-00008, December 9, 2020:

[1] Conway Robinson State Forest 2019 User Survey Review, M. Ardovino, S. Parmelee, 2019.

"Increased levels of development within the Rural Area has the potential to jeopardize the National Park Service's ability to fulfill its mission at Prince William Forest Park. Our concerns include stormwater management, the introduction of invasive species into the park's protected forest, and further complications from that impact, such as habitat loss."

The Proposed Study Area includes 459 acres of unprotected forests[2], as well as 12.44 miles of streams[3], much of which are buffered by riparian forests. These resources contribute to the maintenance of water quality, clean air, a healthy climate, forest and aquatic biodiversity, and scenic values of the Bull Run Watershed and the Chesapeake Bay Watershed. Forested riparian buffers in particular are critical to Commonwealth's effort to meet the nutrient and sediment reductions set forth in the Department of Environmental Quality's Phase III WIP[4] and contribute significantly to the water quality of the Bull Run Watershed and the Occoquan Reservoir which supplies drinking water to Fairfax County among other localities[5].

The proposed amendment does not describe how the project will avoid or mitigate the potential loss of key ecosystem services provided to Prince William County by both forested lands and open space agricultural land in the Proposed Study Area:

- air filtration and removal of pollutants and particulate matter from the adjacent major roads (approximately 36 tons annually, see attached iTree Canopy v7.1 analysis),
- hydrological stabilization including avoided runoff, evaporation, interception, and transpiration (approximately 138,071 gallons annually, see attached iTree Canopy v7.1 analysis),
- maintenance of healthy temperatures in a potential "urban heat island", and
- mental health benefits that green spaces provide to people in heavily urbanized areas[6].

The proposal also fails to put forth any plans to protect existing forest, establish new forest, or replace forest lost through construction of new industry or roads that would be permitted by the amendment.

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[2] K Basiolli, J Pugh, M Santucci. 2020. Forest Conservation Value Model, 2020 Edition. Virginia Department of Forestry, Charlottesville, VA. See interactive GIS map at https://arcg.is/18aWaf.
[3] according USGS hydrographic data.
[4] See description and milestones at https://www.deq.virginia.gov/water/chesapeake-bay/phase-iii-wip.
[5] See https://www.fairfaxcounty.gov/publicworks/stormwater/cub-run-and-bull-run-watersheds.
[6] Kondo, Triguero-Mas, et al. 2020. Momentary mood response to natural outdoor environments in four European cities, Elsevier 134 (2020).

VDOF recommends that before approving this proposed amendment, it require the applicant describe in detail how it will avoid or minimize impacts to key forest resources and ecosystem services, including those within the state forest and national battlefield, and if impacts will occur to these, how the applicant will mitigate those impacts through conservation and reforestation efforts.

We encourage the adoption of open-space land conservation practices such as conservation easements to merge smaller parcels within the rural area and increased afforestation on unused agricultural land. If the board would like more information about VDOF's conservation easement program or assistance with increasing or improving the existing forestlands, please feel free to contact me or other staff at the Virginia Department of Forestry.

Sincerely

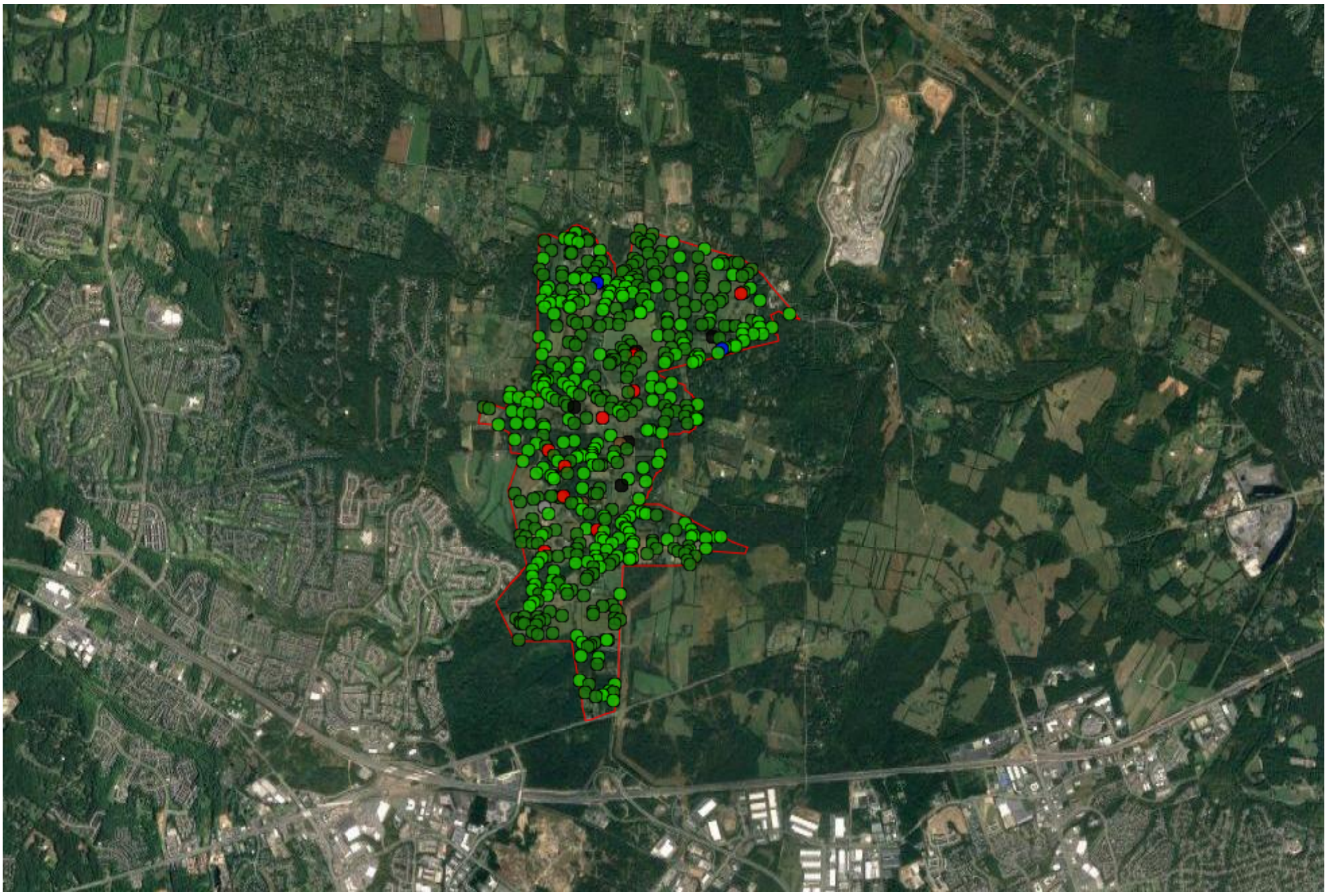
Sarah Parmelee

Sarah Parmelee
Forestland Conservation Coordinator

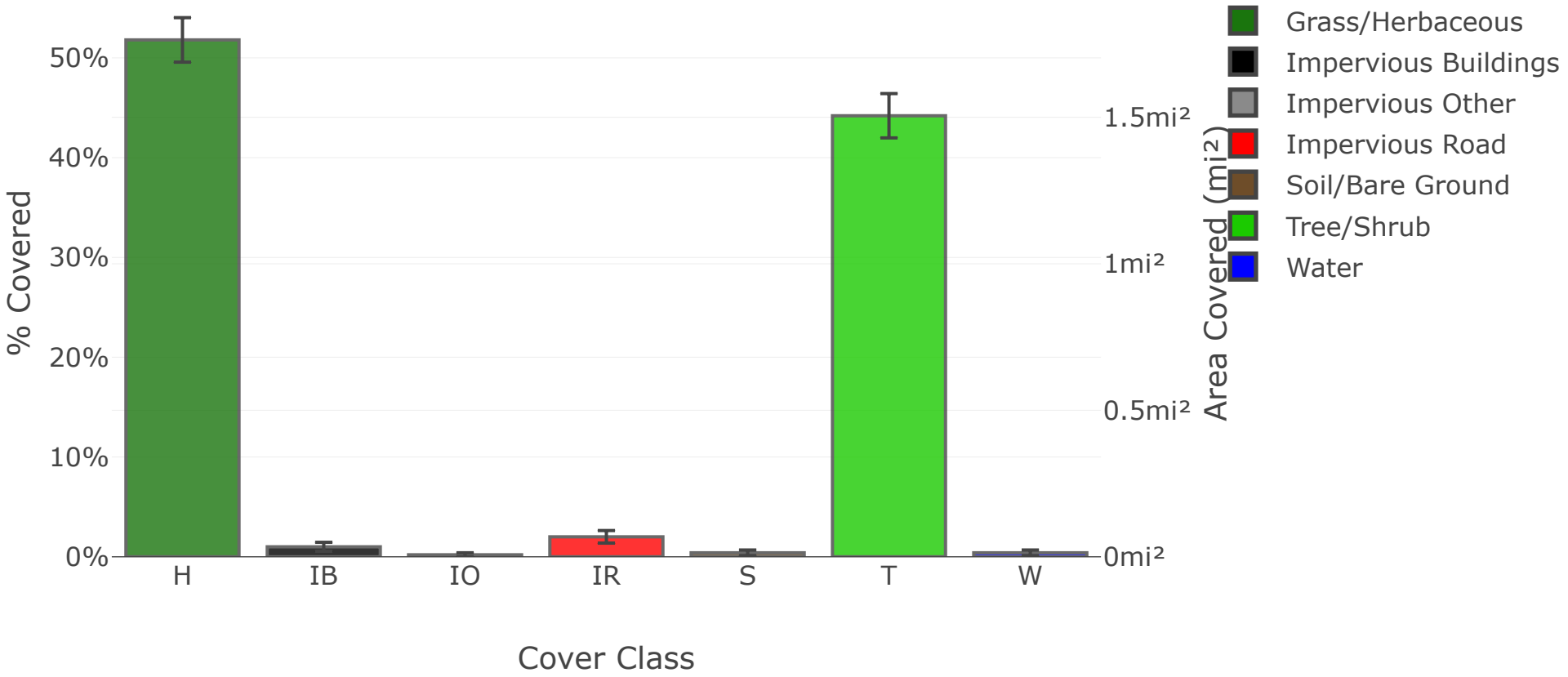
i-Tree Canopy v7.1

Cover Assessment and Tree Benefits Report

Estimated using random sampling statistics on 12/20/2021



Land Cover



Abbr.	Cover Class	Description	Points	% Cover ± SE	Area (mi²) ± SE
H	Grass/Herbaceous		259	51.80 ± 2.23	1.76 ± 0.08
IB	Impervious Buildings		5	1.00 ± 0.45	0.03 ± 0.02
IO	Impervious Other		1	0.20 ± 0.20	0.01 ± 0.01
IR	Impervious Road		10	2.00 ± 0.63	0.07 ± 0.02
S	Soil/Bare Ground		2	0.40 ± 0.28	0.01 ± 0.01
T	Tree/Shrub		221	44.20 ± 2.22	1.50 ± 0.08
W	Water		2	0.40 ± 0.28	0.01 ± 0.01
Total			**500**	**100.00**	**3.39**

Tree Benefit Estimates: Carbon (English units)

Description	Carbon (kT)	±SE	CO_2 Equiv. (kT)	±SE	Value (USD)	±SE
Sequestered annually in trees	1.31	±0.07	4.80	±0.24	$223,355	±11,223
Stored in trees (Note: this benefit is not an annual rate)	32.89	±1.65	120.59	±6.06	$5,609,282	±281,857

Currency is in USD and rounded. Standard errors of removal and benefit amounts are based on standard errors of sampled and classified points. Amount sequestered is based on 0.874 kT of Carbon, or 3.203 kT of CO_2, per mi²/yr and rounded. Amount stored is based on 21.940 kT of Carbon, or 80.446 kT of CO_2, per mi² and rounded. Value (USD) is based on $170,550.73/kT of Carbon, or $46,513.84/kT of CO_2 and rounded. (English units: kT = kilotons (1,000 tons), mi² = square miles)

Tree Benefit Estimates: Air Pollution (English units)

Abbr.	Description	Amount (lb)	±SE	Value (USD)	±SE
CO	Carbon Monoxide removed annually	865.08	±43.47	$37	±2
NO2	Nitrogen Dioxide removed annually	4,717.09	±237.03	$63	±3
O3	Ozone removed annually	46,980.09	±2,360.67	$3,300	±166
SO2	Sulfur Dioxide removed annually	2,972.59	±149.37	$11	±1
PM2.5	Particulate Matter less than 2.5 microns removed annually	2,282.84	±114.71	$6,821	±343
PM10*	Particulate Matter greater than 2.5 microns and less than 10 microns removed annually	15,736.58	±790.74	$2,395	±120
Total		**73,554.27**	**±3,695.97**	**$12,627**	**±634**

Currency is in USD and rounded. Standard errors of removal and benefit amounts are based on standard errors of sampled and classified points. Air Pollution Estimates are based on these values in lb/mi²/yr @ $/lb/yr and rounded:
CO 577.084 @ $0.04 | NO2 3,146.698 @ $0.01 | O3 31,339.728 @ $0.07 | SO2 1,982.970 @ $0.00 | PM2.5 1,522.851 @ $2.99 | PM10* 10,497.643 @ $0.15 (English units: lb = pounds, mi² = square miles)

Tree Benefit Estimates: Hydrological (English units)

Abbr.	Benefit	Amount (gal)	±SE	Value (USD)	±SE
AVRO	Avoided Runoff	496.11	±24.93	$4	±0
E	Evaporation	40,960.23	±2,058.18	N/A	N/A
I	Interception	41,189.46	±2,069.70	N/A	N/A
T	Transpiration	55,425.51	±2,785.04	N/A	N/A
PE	Potential Evaporation	310,373.67	±15,595.73	N/A	N/A
PET	Potential Evapotranspiration	253,238.95	±12,724.81	N/A	N/A

Currency is in USD and rounded. Standard errors of removal and benefit amounts are based on standard errors of sampled and classified points. Hydrological Estimates are based on these values in gal/mi²/yr @ $/gal/yr and rounded:
AVRO 330.949 @ $0.01 | E 27,323.972 @ N/A | I 27,476.886 @ N/A | T 36,973.547 @ N/A | PE 207,045.729 @ N/A | PET 168,931.995 @ N/A (English units: gal = gallons, mi² = square miles)

About i-Tree Canopy

The concept and prototype of this program were developed by David J. Nowak, Jeffery T. Walton, and Eric J. Greenfield (USDA Forest Service). The current version of this program was developed and adapted to i-Tree by David Ellingsworth, Mike Binkley, and Scott Maco (The Davey Tree Expert Company)

Limitations of i-Tree Canopy

The accuracy of the analysis depends upon the ability of the user to correctly classify each point into its correct class. As the number of points increase, the precision of the estimate will increase as the standard error of the estimate will decrease. If too few points are classified, the standard error will be too high to have any real certainty of the estimate.

Additional support provided by:

Use of this tool indicates acceptance of the EULA.

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