CONSERVING AND EXPANDING TREE CANOPY FOR CLEANER AND HEALTHIER COMMUNITIES

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INTRODUCTION

Virginia has ambitious tree planting goals in its Phase III Watershed Implementation Program (WIP). By planting more than 130,000 acres of tree canopy, the Commonwealth is looking to reduce polluted runoff into our streams, rivers, and the Chesapeake Bay. The Bay Program has also set a goal of adding 2,400 acres of urban tree canopy across the Chesapeake Bay watershed. In addition to their recognized water quality goals, trees also:

- Clean and cool the air;
- Sequester carbon;
- Reduce energy usage and associated emissions;
- Enhance economic activity;
- Provide wildlife habitat, and;
- Store water and mitigate flooding.

While acreage goals have not been established for the parts of Virginia outside of the Bay watershed, increased tree planting will bring similar benefits to these waterways and communities. In order to continue receiving the water quality, climate change, health, and economic benefits trees provide, Virginia must strive to achieve no net loss of canopy.

BACKGROUND

LOSING TREE CANOPY TO DEVELOPMENT AND REDEVELOPMENT

According to the Virginia Department of Forestry, urbanization and development is the single biggest factor in loss of forestland acreage. Since 2001, 484,965 acres of forested land has been lost to land use changes; 64 percent of this acreage was cleared for urban development; 30 percent to agricultural uses; and the balance to other land uses.[1] Highly urbanized areas that are experiencing redevelopment are losing trees as the developed footprint expands.

TREES IMPROVE WATER QUALITY AND REDUCE FLOODING

According to Penn State Extension, during a one-inch rainfall event, one acre of forest will release 750 gallons of runoff, while a parking lot of the same size will release 27,000 gallons.[2] As impervious surfaces increase across a watershed and precipitation rates climb due to climate change, the rain that can't be absorbed by the ground overwhelms the capacity of the stormwater systems and flooding ensues.

Trees can reduce the volume of rain to our streets, storm drains, and streams. A typical tree's crown can intercept between 760 gallons to 3000 gallons per tree per year, depending on the species and age. "If a community were to plant an additional 5,000 such trees, it could reduce polluted runoff of millions of gallons per year, resulting in fewer flooded streets and less damage to the city's streams."[3]

TREES CAN PUT VIRGINIANS BACK TO WORK AND BOOST ECONOMIC ACTIVITY

A University of Massachusetts study found that each $1 million invested in activities like tree planting can produce as many as 39.7 direct, indirect, and induced forest-related jobs.[4] Businesses on treescaped streets show a 12 percent higher income stream than on retail areas devoid of trees. Residential areas have similarly higher property values.

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TREES REDUCE UTILITY BILLS AND ENERGY EMISSIONS

Well placed trees can lower air conditioning bills by as much as 58 percent and heating expenses by more than 40 percent by insulating homes from sun and wind.[5] New research by USDA Forest Service found that urban/community forests could save Virginians approximately $175.5 million annually in reduced energy costs associated with heating and cooling residential buildings.[6] Properly shaded residential buildings can prevent millions of tons of carbon dioxide, sulfur dioxide and nitrogen oxide from being released to the atmosphere.

Low-income and households of color in major US cities experience higher energy burdens when compared to the average household in the same city. Families who face higher energy burdens experience many negative long-term effects on their health and well-being. These families are at greater risk for respiratory diseases and increased stress.[7]

TREES FOR HEALTH AND SAFETY

Trees clean the air, removing harmful particulates that induce asthma and other respiratory illnesses. Trees in street proximity absorb nine times more pollutants than more

distant trees, converting harmful gases back into oxygen. Living in areas with high levels of trees and greenery can increase physical activity, reducing the prevalence of obesity by 40 percent. Children and youth living in greener neighborhoods have lower body mass index.[8]

Trees cool the air by shading heat-absorbing asphalt and concrete streets and parking lots through evapotranspiration. A Science Museum of Virginia study found a 16-degree temperature difference between the higher canopy neighborhoods of Richmond and neighborhoods with less canopy.[9] The study also found that 94 percent of studied areas display consistent city-scale patterns of elevated land surface temperatures in formerly redlined areas relative to their non-redlined neighbors by as much as 7°C. These heat islands correlate to increased hospital visits for heat-related illnesses as well as causing thermal shock to streams and temperature-sensitive macroinvertebrates.

TREES AND WILDLIFE

Trees help increase food, habitat, shelter, and breeding areas that are necessary to restore and sustain Virginia's wildlife. Trees are critical to helping maintain the wide variety of Virginia's unique natural areas and ecosystems (see *Improving Safety for Wildlife and People Through Wildlife Corridor Stewardship*, p. 108).

CONCLUSION

Conserving existing tree canopy and investing in urban forests and riparian corridors restores our waterways, and can help restore Virginia's economy and improve the physical and mental health of our residents, particularly those who live in underserved communities.

POLICY RECOMMENDATIONS

Amend §15.2-961.1 to allow all Virginia localities to adopt local ordinances for implementing tree canopy fund programs and to require that the site plan for any subdivision or other development provide for the preservation or replacement of trees on development sites such that the minimum tree canopy or tree cover percentage 10 years after development is achieved.

Increase funding for the Virginia Conservation Assitance Program (VCAP), the new Turf to Trees program, and VDOF Trees for Clean Water.

Increase incentives such as allowing greater densities for developers to create cluster subdivisions which increase the amount of green open space that is preserved.

Expand the use of the Healthy Watersheds Forest Initiative

HIKING UPSTREAM, SHENANDOAH NATIONAL FOREST
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