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FOREST CONSERVATION IN BALTIMORE COUNTY: CHALLENGES AND OPPORTUNITIES

A Report by the Baltimore County Advisory Commission on Environmental Quality



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**Full appendices are in a supplemental PDF.*

EXECUTIVE SUMMARY

The Maryland Forest Conservation Act (FCA) of 1991 was the first of its kind in the United States to protect a state's forest resources. Forests provide critical ecological, economic, and human health and well-being benefits to residents of Baltimore County and the environment in which they live, work, and play. Forest ecosystems and trees play an important role in both slowing and remediating the effects of climate change. Unfortunately, since the passage of the FCA, Maryland and Baltimore County are still losing mature trees and forests at a rate greater than they are replaced.

Provisions in the FCA were intended *as a minimum*, with each county in Maryland responsible for developing implementation guidelines. One main target in the FCA required jurisdictions to plant trees to compensate for losses due to human activities such as construction of the built environment. Reforestation involves aiding and speeding the return of natural resource assets to the landscape. At the time FCA was passed, Baltimore County adopted a 3-year period despite DEPRM (Department of Environmental Protection and Resource Management, the predecessor to DEPS) recommendation for an eight-year maintenance period.

Failed reforestation efforts are a waste of time and resources. An increased investment in Baltimore County's natural assets will have long term benefits and will support the long run goal of having and maintaining healthy forests in Baltimore County.

The Council's Resolution asked CEQ to report on the adequacy and efficacy of the current reforestation procedure, especially as they pertain to Baltimore County's and other Counties' codes regarding Forest Conservation and to the success or failure of such requirements. Jurisdictions such as Howard County and Montgomery County have updated aspects of their respective Forest Conservation laws and manuals in recent years. Table 2, below, includes a comparison of the practices of five Counties and Baltimore City. Best practices must be implemented to address the challenge of conserving, planting, and maintaining healthy trees and forest stands in the face of Maryland's changing climate and concurrently the demands on Maryland's remaining forested properties.

The CEQ proposes four recommendations to reduce forest loss, improve reforestation success, and maintain long-term forest conservation in Baltimore County.

Protect Healthy Forests

1. By increasing the number of trees that are protected, and not removed or damaged, Baltimore County will experience their attendant environmental and public health benefits. Additionally, fewer trees will have to be replanted or replaced.

Improve Reforestation Success

2. Increase the reforestation maintenance and monitoring period to 10 years, incorporating a two-phase approach.

3. Increase the requirement for the minimum tree survival rate (currently 75%) to at least 80% at the end of 5 years, before releasing the security bond.

Provide for Long-term Forest Conservation in Baltimore Country

4. Incorporate strategies and interventions that can mitigate potential impacts of climate change into Baltimore County's Forest Conservation laws and efforts.
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INTRODUCTION AND BACKGROUND

The Baltimore County Council has heard concerns about the Forest Conservation program of Baltimore County, especially as related to the survival of trees planted in compliance with the Maryland Forest Conservation Act (Natural Resources Article Section 5-1601 through 5-1613). Enacted in 1991, the Act's goal is to minimize the loss of Maryland's forest resources during land development, and requires that disturbed forests be measured and, in some cases, replanted, with a plan for maintenance and protection for at least two years.

Each county and jurisdiction within Maryland can create laws that are stricter than the State requires. For a summary of the Act, see A Citizen's Guide to the Forest Conservation Act in Maryland¹, by C. Delfs, published by the Chesapeake Bay Foundation, June 2004. For selected aspects of the ordinances and implementation of the Forest Conservation Act in 22 counties and cities in Maryland in 2020, see the report by the Maryland League of Conservation Voters in partnership with students at the University of Maryland School of Public Policy.

The current concern is this: The Baltimore County Code and the guidelines for Forest Conservation are not resulting consistently in newly planted tracts of trees growing and maturing into healthy forests.

In October 2021, County Councilmembers David Marks and Izzy Patoka toured tree planting sites in Baltimore County, some of which showed a severe failure to establish a healthy forest. At those tree planting sites, Council members observed many dead trees in planting sites that were overrun with invasive plants, leaving only dead tree stems and the litter of plastic tubes and wrappings that were to have protected the trees from deer and other damage.

In November 2021, the Council unanimously passed resolution No. 135-21, asking the Baltimore County Advisory Commission on Environmental Quality (CEQ) to prepare a report to address the following:

- CEQ is hereby requested to review the afforestation and reforestation projects established pursuant to Article 33, Title 6 ("Forest Conservation") of the Baltimore County Code to provide findings and recommendations regarding the adequacy of maintenance periods, and, where feasible, include direct observations of the longer-term survival of representative reforestation projects; and

¹ www.cbf.org/document-library/cbf-guides-fact-sheets/Citizens-Guide-to-Forest-Conservationed1a.pdf

- CEQ shall include in its report a review of the current state of practice for reforestation maintenance periods, especially among other Maryland local jurisdictions that implement the Forest Conservation Act of 1991 and shall include the input of the development community (and the Maryland Building Industry Association), environmental organizations, and individuals with expertise in the subject matter in the preparation of the CEQ's report.

This report contains the findings of this request.

FRAMEWORK OF GATHERING INFORMATION

Survival of trees in forest planting sites, and nurturing trees that will over time form a healthy forest to replace the forest stands that have been lost to development, is a complex issue. There are variables such as time, biological factors such as species choice and size, physical factors such as spacing and soil characteristics, ecological factors such as water, invasive vines, deer damage, as well as maintenance tasks.

In response to the County Council request, CEQ members formed a workgroup that conducted background research, organized a public two-part online symposium, and interviewed other Maryland jurisdictions on their practices.

Symposium: CEQ organized and moderated a two-part virtual symposium to (1) learn from industry leaders representing multiple points of view, (2) understand the nuances of the diverse programs, and (3) understand the challenges and solutions being implemented across Maryland, including a presentation from the Maryland State Forester, Acting Director of the State Forester's Office which oversees the implementation of the Forest Conservation Act. CEQ invited senior members of the County administration including the pertinent Departments of Environmental Protection and Sustainability, Planning, Public Works and Transportation, Property Management, Recreation and Parks, the County Executive's Office, and the Sustainability Officer, as well as all the County Council members, to attend the symposium with opportunities to participate in the Q&A sessions. Additionally, in collaboration with the Baltimore County Green Alliance, CEQ invited members of 24 volunteer environmental organizations in Baltimore County.

On each of two evenings, the symposium hosted three presentations followed by a Question-and-Answer session. Approximately 50 people attended each symposium. A list of speakers is given in Table 1 and more information on the talks is found in the Appendix.

County Interviews: With assistance from the Baltimore County Green Alliance's workgroup on Forest Conservation, CEQ workgroup compiled summaries of Forest Conservation programs from other jurisdictions. The team interviewed appropriate staff from each selected County and Baltimore City, using questions created by members of the CEQ workgroup. Research showed that Maryland counties and jurisdictions have addressed the problem of replacing forest stands and are using a variety of approaches to comply with the Forest Conservation Act. Several jurisdictions have updated their approach in recent years. The findings are summarized in Table 2.

DEPS plans: The appendix includes a list of changes and updates that DEPS plans to carry out beginning in the next budget year (2022–23).

Table 1. Speakers invited to the CEQ Symposium on Forest Conservation: Challenges and Solutions

January 26, 2022	
Tom Krispin	Baltimore County DEPS, Environmental Impact Review
Don Outen	retired Baltimore County DEPS’ Natural Resource Manager
Dr. Anne Hairston-Strang	MD State Forester and Acting Director of the MD Forest Service
February 16, 2022	
Dr. Don Callihan	Member of Baltimore County Green Alliance Steering Committee, and VP of Gunpowder Valley Conservancy.
Katie Lauter	Executive Director of Green Space. Member of the Forest Conservancy District Board for Baltimore City.
Scott McGill	Ecotone, Inc.
Eric McWilliams	Project Manager at Bohler Engineering

Furthermore, other laws besides Forest Conservation also govern impacts on trees and their roots and soils. These include: Baltimore County code 33-6-111- Afforestation and Retention, of Article 33, Title 6, which prioritizes the protection of trees in “sensitive areas”, contiguous forest sites, and of larger DBH (diameter at breast height) or on “steep” slopes; Article 33, Title 2, Chesapeake Bay Critical Areas Protection; Article 33, Title 3, Protection of Water Quality, Streams, Wetlands and Floodplains; and others. Waivers to such laws’ requirements affect protection and retention of existing forest resources.

The CEQ recommendations included below address the duration of required maintenance periods, as requested, as well as other issues crucial to minimizing the loss of Maryland’s forest resources through human activities, namely land use change.

FINDINGS AND RECOMMENDATIONS

A mature forest is a self-organizing and self-maintaining ecosystem. However, during the initial re-establishment period, before a forest canopy is in place, the trees face stress and competition from other vegetation for nutrients, sunlight, and water, as well as damage from deer “browse” on the young, growing branches. Without maintenance, vines can cover and choke young tree saplings. English Ivy, Asian Bittersweet, Japanese Honeysuckle, Porcelain Berry, Winter Creeper, and Asiatic Tearthumb are among the invasive vines in Baltimore County. Climbing vines strangle tree trunks and cover tree crowns, pull them down and/or block sunlight needed for growth. Deer bite small branches and bucks rub tree trunks which can also damage and kill young trees. Climate change, extreme weather events, and the presence of invasive pests also stress natural growth patterns. Suppression of competing vegetation and control of damage by deer for more than three years following planting is essential for healthy trees, forests, and ecosystems.

Based on the findings and presentations cited in this report, as well as the information from other Forest Conservation jurisdictions, CEQ recommends the following strategies to protect healthy forests, improve reforestation success, consider longer term goals of resiliency to climate changes, and achieve no net loss of forests.

Protect healthy forests

1. Many decades are required to produce a mature, healthy forest stand, or even one mature tree. The more trees that are protected and not removed or damaged, the more trees the County will continue to have with all their attendant environmental and public health benefits, and the fewer trees that will have to be planted to try to replace them. Although the Council requested that CEQ provide recommendations about the required maintenance period, CEQ finds that other jurisdictions have made additional changes that are necessary for an extended maintenance period to be successful in accomplishing the intended goal of protecting healthy forests. Therefore, we have added recommendations below that we view as complementary to the recommendation to extend the maintenance period. CEQ recommends the following:
 - a. Strengthen implementation of existing requirements to reduce deforestation, avoid removal of trees, or minimize damage to living trees' root systems.
 - b. Decrease and make rare the waivers of environmental laws and regulations that protect trees from harm or removal.
 - i. Clarify language and make explicit the requirements that must be met before a waiver can be considered.
 - c. Review how zoning requirements regarding impervious surface impact tree and root health.
 - d. Change the trigger for applying the Forest Conservation law from 40,000 to 20,000 SF. (Note that Baltimore City decreased its trigger to 5,000 SF, and numerous development properties in Baltimore County inside the URDL have similarities to many in the City.)
 - e. Modify the threshold for applying Forest Conservation requiring forest planting by requiring cumulative tracking for all properties (similarly to Carroll County), rather than considering each property separately regardless of proximity to other properties.
 - f. Strengthen, by law, the retention and protection of trees on County-owned properties.
 - g. Revise fee-in-lieu charges to \$1.50/SF of forest planting required from tree removal inside the URDL, and \$1.25/SF outside the URDL (similarly to Anne Arundel and Howard Counties). Require that the fee-in-lieu (and the securities) be inflation-adjusted every 2 years (as in Montgomery County).
 - h. Research best practices on deer population control and protection of trees from damage by deer. Ramp up efforts to keep deer populations in line with the area's natural sustainable limit and use best-practices tree shelters against damage by deer.
 - i. Strive for a no net loss goal. Although the Forest Conservation Act was not designed as a no net loss measure, it is time to revisit and strengthen it to achieve a "no net loss" goal.

Improve reforestation success

2. Increase reforestation maintenance and monitoring period to 10 years, incorporating a more intensive initial period followed by a less intensive maintenance period.
 - a. Initial maintenance period: The developer will be responsible for the first five years, which has proactive twice-yearly inspections, case-by-case requirements for meeting criteria as to tree survival, and control of invasive plants. This is similar to Montgomery County which has a 5-year requirement and a maintenance schedule similar to Howard County.
 - i. Specify that maintenance tasks include the removal of stakes, cords, wires, and plastic from the planting site of trees by the end of the initial maintenance period.
 - b. Extended maintenance period: If, at the end of the initial five-year period, Baltimore County inspectors find the required minimum criteria for tree survival and health have not been satisfied, the developer will continue to be responsible for the next years' maintenance, until the criteria have been met. If those criteria have been satisfied, then the County will assume responsibility.
 - c. Throughout the 10-year period, Baltimore County should inspect sites twice yearly to determine maintenance needs.
3. Increase the requirement for the minimum tree survival rate (currently 75%) to at least 80% at the end of 5 years, before releasing the security bond, and improve requirements for oversight and maintenance.
 - a. Employ additional County staff to inspect the reforestation projects. Further maintenance can be carried out by County staff or contractors.
 - b. Update the Baltimore County Forest Conservation Manual to better reflect current best practices, in all aspects that affect tree survival including site selection, maintenance, and species choices. Complete the update of the Manual by the end of 2023.

Long-term Forest Conservation in Baltimore Country

4. Incorporate the challenges of climate change into Baltimore County's Forest Conservation laws and other efforts.
 - a. Consider climate resiliency vis-a-vis species choice, range of species diversity, and location of the projects.
 - b. Expand the list of eligible native tree species to include those that are native to some geographic regions south of Maryland, in anticipation of warmer growing zones in decades to come.
 - c. Give preference to sites in the same watershed as the trees that were lost (similarly to Howard County), in sites for example in 100-year floodplains and buffers to intermittent and perennial streams, in wetlands and wetland buffers, critical habitat buffers and forest corridors for wildlife movement, and other ecological considerations.

ACKNOWLEDGEMENTS

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CEQ Membership

The 2022 CEQ membership includes the following commissioners:

Dr. Brian D Fath, Chair; Valerie S Androutsopoulos, Dr. Mahnaz Mazaheri Assadi, Brian Bernstein, Lynda Eisenberg, Justin Gallardo, Lois Jacobs, Jennifer Langford, Steve Malan, Dr. Andrew J Miller, Dr. Carol Newill, Chris Overcash, Dr. Joan D Plisko, Karen M Wynn.

APPENDICES

- A. 1/26/22 Agenda of CEQ Symposium on Forest Conservation Challenges and Opportunities, Part I
- B. 1/26/22 T. Krispin, Forest Conservation Act in Baltimore County, slides
- C. 1/26/22 T. Krispin, Forest Conservation Act in Baltimore County, written text
- D. 1/26/22 D. Outen, Forest Conservation Act - The Need for Extended Reforestation Maintenance
- E. 1/26/22 A. Hairston-Strang, Restoring Forests: FCA and Beyond
- F. 2/16/22 Agenda of CEQ Symposium on Forest Conservation Challenges and Opportunities, Part II
- G. 2/16/22 D. Callihan, Other Counties' Forest Conservation Practices
- H. 2/16/22 K. Lauter, Baltimore City's Approach to Forest Conservation
- I. 2/16/22 B. Seipp and E. Williams, Two Aspects of the Development Business Community's Experience
- J. Detailed information on Howard County's Forest Conservation program, by D. Callihan 2022
- K. Current plans by Baltimore County DEPS to address maintenance issues as related to the Forest Conservation Act, to be initiated in the 2022–23 budget year