SECTION IV:

Social and Economic Sustainability

Background Papers—

The Resource Conservation Functional Master Plan: Planning for Human and Environmental Health

The Maryland-National Capital Park and Planning Commission
Prince George's County Planning Department
pgplanning.org

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I. Introduction

Human and environmental health are closely connected—improving one can benefit both. Incorporating health and environmental considerations into more aspects of decision-making can help promote awareness of the broad range of policies and decisions that impact the health of County residents and the natural environment.

Health impact assessments are a useful tool for evaluating ways in which policies and proposed development could better serve residents' and workers' health. The health of Prince Georgians cannot be ensured by any one County agency alone, such as the Health Department, but must be an integral consideration of every agency whose daily decisions impact the health of people and the environment. The broad goal of ensuring healthy communities can be achieved by considering how each policy contributes to or detracts from the health of County residents.

Many policies, strategies, and initiatives in Prince George's County addressing human health and environmental issues are currently in place thanks to County leadership, government agencies, and the efforts of nonprofits and other organizations and community groups. Guiding documents such as the *Plan Prince George's 2035 Approved General Plan* (Plan 2035) repeatedly emphasize the numerous benefits of ensuring healthy people and healthy environments, and the fact that health begins where we live, work, play, and learn.

The *Prince George's County Health Improvement Plan 2011 to 2014* identifies the County's current health-related assets and challenges. The plan "addresses our County's most pressing and immediate health needs as well as overarching concerns of the health stakeholder community as a whole. Collectively, the priorities, objectives, and strategies are ambitious and cover a broad array of health issues."[1] The Health Improvement Plan and the policies and strategies of Plan 2035 demonstrate the importance of a comprehensive approach to improving health, and underscore the fact that there is much room for progress toward a healthier County.

One of the primary benefits of the implementation of the Countywide Resource Conservation Functional Master Plan (RCP) will be the improved health of citizens and workers through the enhancement and appropriate conservation of green areas, the provision of healthy foods close to home, and the preservation of opportunities for getting in touch with nature and the County's rich history.

[1] *Prince George's County Health Improvement Plan 2011 to 2014: Blueprint for a Healthier County,* pg. 4.

II. Human Health Challenges and Initiatives

Human Health Challenges

Prince George's County covers 485 square miles, has a population of 863,420[2] people, and contains a wide variety of community types, from urban and suburban communities where tree canopy has immense value, to rural areas where natural and agricultural resources abound. The County has made significant progress to ensure that its residents have healthy places to live, work, play, and learn. However, as a large, populous, and diverse County in a growing metropolitan region, there are numerous challenges to achieving optimal human and environmental health outcomes.

Multiple measurable indicators reveal the human health challenges that Prince George's County currently faces, including but not limited to:

- A large population over the age of 65 and younger than 18, age groups which are considered to be at higher risk for respiratory illness.[3]
    - *Related environmental concern: air pollution.*
- A high proportion of residents classified as being at-risk for health disparities (minority, low-income, and/or uninsured people).[4]
    - *Related environmental concern: equitable access to green space.*
- 80,000 residents without health insurance.[5]
    - *Related environmental concern: residents and workers have little money or time to enjoy the health benefits of clean air, clean water, or a walk in the woods.*
- High rates of overweight and obesity, diabetes, and cardiovascular disease.[6]
    - *Related environmental concerns: healthy food access, green and connected communities.*

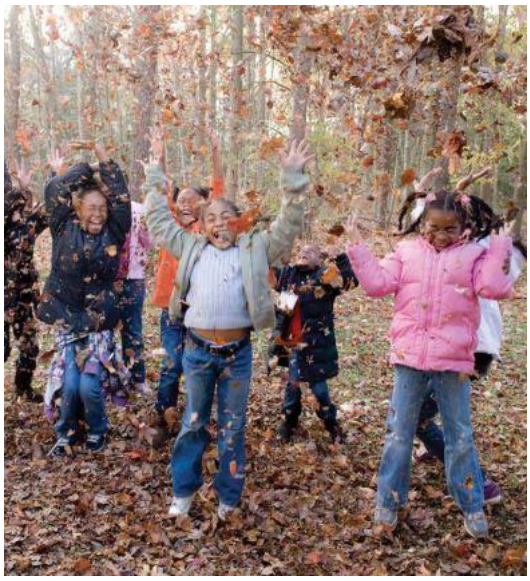
[2]2010 U.S. Census.
[3]American Lung Association, *State of the Air Report 2013*.
[4]CDC. (2015). Race & Ethnic Minority Populations. Retrieved from: http://www.cdc.gov/minorityhealth/populations/remp.html.
[5]*Plan 2035*, 2014 pg. 163.
[6]*Prince George's County Health Improvement Plan 2011 to 2014: Blueprint for a Healthier County*.

One of the County's most prominent health problems is obesity and obesity-related illnesses, which can be exacerbated by sprawling, fragmented development that limits access to healthy foods and recreational opportunities, and encourages driving and sedentary behavior over active transportation such as walking or cycling. Driving is also a major contributor to air pollution, and so car use can contribute to respiratory illnesses, obesity, and obesity-related illnesses.

While many factors contribute to health issues beyond environmental concerns, conserving natural resources and encouraging sustainable, connected communities are important measures that can provide opportunities for healthy communities, improved decision-making, and healthier lifestyles.

Human Health Initiatives

Prince George's County residents and workers benefit from a number of initiatives focused on ensuring that everyone can live, play, work, and learn in safe and healthy environments. These include efforts by County and local agencies, nonprofit organizations, and private enterprises, as well as programs at the State and national scales. The Prince George's County Health Department, the Department of the Environment (DoE), and The Maryland-National Capital Park and Planning Commission (M-NCPPC) are key players in advancing health-related policies and initiatives. Continued collaboration among these and other influential entities is key to addressing health and environmental issues in a holistic and sustained way.



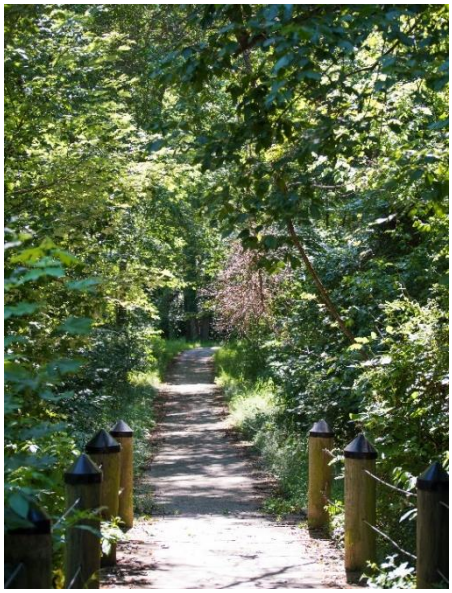
In 2012, the Institute for Public Health Innovation (IPHI) was awarded a two-year Community Transformation Small Communities Program Grant from the Centers for Disease Control and Prevention. The IPHI work focused on three communities in Prince George's County which are also designated as Transforming Neighborhoods Initiative areas. Their efforts engaged a number of local partners to implement strategies in the areas of Healthy Eating Active Living, High Quality Clinical Preventive Services, and Healthy and Safe Physical Environments. These included initiatives such as the creation of a Food Equity Council, increasing use of Crime Prevention through Environmental Design measures, and encouraging the incorporation of Safe Routes to Play into more communities. This effort was led by the Office of the County Executive and supported by the Prince George's County Council, M-NCPPC, the Board of Education, and the

Police Department, among others. This collaboration was key to the program's success, as noted by one member of the leadership team:

> *"The value of CTG [Community Transformation Grant] is that it has brought people together. The County has always addressed things in silos. The grant has shown the need for connectedness [among] silos in the way of having healthy communities…. Having police officers [work] with recreation people and health people has shaped thinking in the County around advancing social change."*[7]

Initiatives such as these have paved the way for future collaborative efforts toward advancing positive health outcomes and equity for Prince Georgians and improving the health and safety of the County's built and natural environments.

III. Environmental Challenges and Solutions



Equitable Distribution of Green and Open Spaces

Experiencing green space has been shown to provide significant human health benefits, even with as little contact as seeing trees from a window or a plant in a workplace. Green spaces of many different types, from green roofs to community gardens and parks to street trees, can reduce stress,[8] mental illness,[9] and crime.[10]

The entire County benefits from the extensive amount of large open and green spaces that are primarily located in areas where public water and sewer service is not available (generally east of US 301 and in some portions of north and south County, also called the Rural and Agricultural Area in Plan 2035, formerly known as the Rural Tier). However, the distribution of, and direct access to, green spaces from the most populated areas of the County can be limited. This is not surprising given the fact that some inner-beltway communities were built in the 1940s and 1950s, and some later in the 1960s and 1970s, when agricultural lands were converted to housing and forests were clear-cut to expand

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[7] http://www.institutephi.org/wp-content/uploads/2014/03/CTG-Highlights-Brochure_LoRes_112414.pdf.

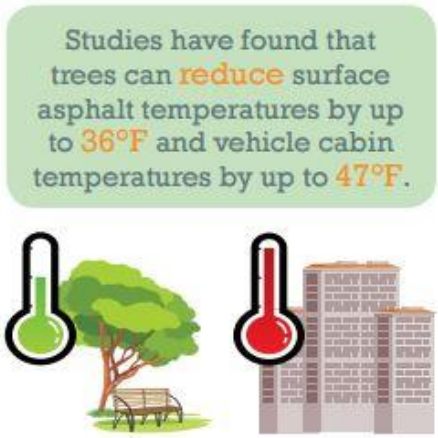
[8] *Stress recovery during exposure to natural and urban environments*. Roger S. Ulrich, R.F. Simons, B. D. Losito, E. Fiorito, M. A. Miles, M. Zelson. Journal of Environmental Psychology, Volume 11, Issue 3, September 1991, Pages 201-230. http://www.sciencedirect.com/science/article/pii/S0272494405801847.

[9] *Nature experience reduces rumination and subgenual prefrontal cortex activation*. G. N. Bratman, J. P.Hamilton, K. S. Hahn, G. C. Daily, and J. J. Gross. Proceedings of the National Academy of Sciences. Vol. 112 no. 28, 8567-8572, http://www.pnas.org/content/112/28/8567.abstract.

[10] *The relationship between residential yard management and neighborhood crime: An analysis from Baltimore City and County*. A. Troy, A. Nunery, J. M. Grove. Landscape and Urban Planning 147 (2016) 78-87. http://www.fs.fed.us/nrs/pubs/jrnl/2016/nrs_2016_troy_001.pdf?

the suburbs. The Capital Beltway was built to provide extensive vehicular access to places previously inaccessible, resulting in even more consumption of green spaces by development.

The absence of public green spaces in communities that need them is also not surprising because of how the suburbs grew: in a fragmented, "leapfrog" manner, with frequent use of culs-de-sac instead of through streets, leaving both communities and ecosystems disconnected. In order to make better use of land in existing developed areas, landscapes need to become multifunctional, maximizing their potential benefits. For example, streets can serve as paths for cars, bicycles, and pedestrians, while lined with green elements such as bioswales and tree pits that capture stormwater, improve aesthetics, provide cool and clean air, and can even produce fresh foods. Parks and community gardens offer outdoor recreational opportunities while strengthening green infrastructure networks and connecting ecosystems. Recognizing the potential for landscapes to be multifunctional and widely beneficial helps maximize the human and environmental health benefits even small spaces can provide.

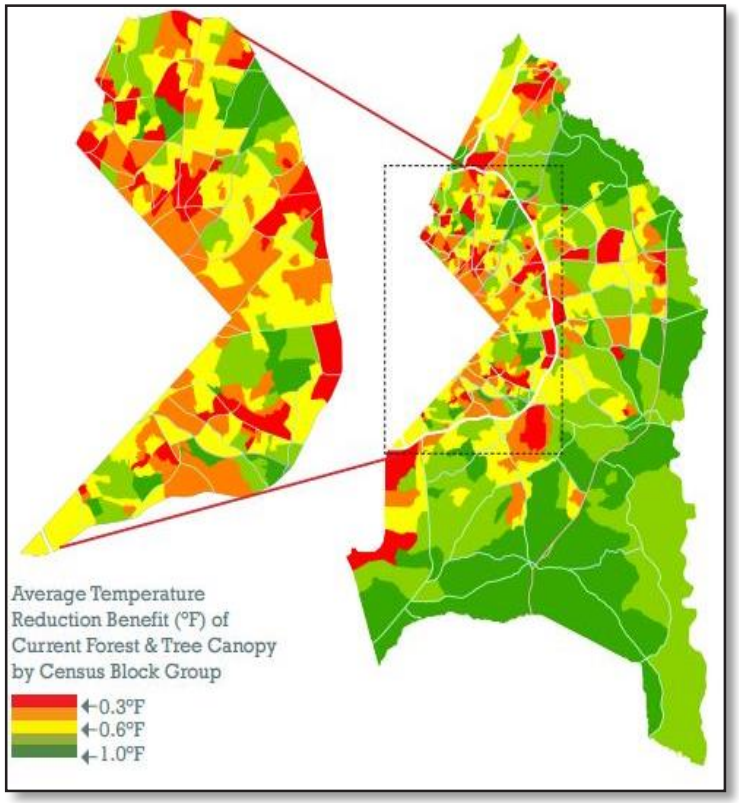


Source: The Economic Values of Nature.

Excessive impervious surfaces increase urban temperatures, resulting in what is called the "the urban heat island effect," which can negatively impact human and environmental health in multiple ways. Higher temperatures increase the likelihood of extremely hot and humid conditions, which can threaten the health of vulnerable populations such as children and older adults.[11] Heat islands also increase the need to use air conditioning to cool homes and cars, increasing air pollution from the burning of fossil fuels for these high levels of energy consumption. Tree canopy, green roofs, and other vegetated areas around buildings and in community green spaces can reduce building energy use by 25 percent, and can result in localized "oasis" cooling effects of 9 to 13 degrees Fahrenheit.[12]

[11] https://www.epa.gov/heat-islands/heat-island-impacts.
[12] The Economic Values of Nature: An Assessment of the Ecosystem Services of Forest and Tree Canopy, p. 9.

As one tool to combat the urban heat island effect, Prince George's County has set a "no net loss" goal of preserving the current forest and tree canopy coverage of 52 percent of the land area (of which forested area is 44 percent and tree canopy is 8 percent). In order to meet this goal and support healthy communities, strategies are needed to address the preservation, enhancement, and restoration of forest and tree canopy coverage. Improving the tree canopy coverage in communities where it is needed most can bring the benefits of living and working near trees: better air quality, a reduced heat island effect, more attractive and enjoyable landscapes, and cleaner waterways. Tree planting programs and regulations should ensure the proper planting and maintenance for community trees.



This map shows the "urban heat island" impacts on inner-beltway communities that have lower tree canopy coverage. Red represents areas most in need of additional forest and tree canopy coverage to reduce the urban heat island effect.

Plan 2035's goals include not only maintaining the County's current 52 percent forest and tree canopy, but also building upon the current green infrastructure plan to address the need for new ways to incorporate green space into developed areas, as described here:

"The County's development pattern has resulted in a greater need for carefully planned and designed green and open spaces. These public and semi-public spaces can provide multiple ecosystem services such as improving water and air quality, reducing the urban heat island effect, and reducing light pollution. They should be designed as multifunctional landscapes that can serve as gathering places while providing opportunities for the arts, urban agriculture, transportation facilities, and other community uses."[13]

[13]Plan 2035, p. 168.

The County has many and varied natural assets throughout, providing a variety of recreational and respite opportunities. Some of the preserved recreational and ecological areas include Bladensburg Marina on the Anacostia River, Fort Washington Park on the Potomac River, and Jug Bay Natural Area and Merkel Wildlife Management Area on the Patuxent River. The total parkland managed by The Maryland-National Capital Park and Planning Commission in Prince George's County comprises more than 27,000 acres including both natural areas and developed parks. Other park resources include multiple State and Federal lands including Piscataway National Park. Having this multitude of natural areas close by contributes to the health and well-being of County residents, workers, and visitors.

Jug Bay Natural Area

In the Rural and Agricultural Area (RAA), the area where public water and sewer services are not provided, green areas and open spaces are abundant; however, some areas are already subdivided but not built upon, and most of the RAA is in private ownership. In these areas the land is covered primarily with agricultural uses and forests, along with single-family residential homes in a low density pattern, some scattered, and some in subdivisions. Some of the forests are productive for timber harvesting; however, most areas are kept wooded for the enjoyment of the residents. This development pattern is consistent with Plan 2035's vision for the Rural and Agricultural Area:

> *"Our Rural Areas are home to low-density residential communities served by well and septic, significant natural resources, and important historic scenic roads and viewsheds. Plan 2035 recommends Rural Areas remain low-density residential or support park and open space land uses and focuses new investment on maintaining existing infrastructure and stabilizing small-scale neighborhood-oriented commercial activities that support the areas' rural lifestyle and character. …Plan 2035 defines Agricultural Areas as areas suitable for agricultural activities and forestry preservation. Plan 2035 recommends continuing to protect these areas in order to preserve the agricultural sector and the land base on which it depends."*[14]

However, with much of the County's green and open space located in rural areas, the relationship between residential areas and green space availability needs to be addressed—the current locations of green and open spaces may not provide location-specific health benefits equally to all residents. Maintaining the valuable rural and ecological areas while increasing tree canopy and green areas in more populated areas of the County will maximize the benefits trees can provide for the health of people and the environment.

[14]Plan 2035, pg. 20.

All three elements of the Resource Conservation Plan (RCP) are related to increasing green space, but the Green Infrastructure Plan update will most directly address the County's green space needs.

Disconnected Communities

Communities are physically disconnected by a variety of factors: steep slopes, lack of transportation access, and different adjacent land uses. Another way they can be separated is because of the desire to protect environmental features. While these features are assets to the adjacent residents and the community as a whole, they can be viewed as barriers to community connectivity.

Plan 2035's guiding principles emphasize the need to connect communities through transportation infrastructure improvements, and also the need to restore and protect natural resources:

> *Plan 2035 commits to improving mobility and connectivity by investing in our transportation infrastructure (including sidewalks and trails), building on our underutilized transit network, and coordinating land use and growth management with transportation improvements…[and to] to proactively greening our built environment, restoring degraded resources, and promoting a more sustainable development pattern that reduces our reliance on driving and shifts development pressures away from our greenfields.*[15]

However, Plan 2035 does not specifically address the ways in which communities could become more connected. The RCP should recommend ways to better connect the built environment while ensuring that ecosystems remain healthy and connected as well. Environmentally sensitive community connections accomplish Plan 2035's goals and provide numerous human and environmental health benefits.

Minimal impact stream crossings allow ecological connections to be preserved or restored where human crossings are necessary. Some examples include:

- **Arched culverts**
- **Bottomless culverts**
- **Wildlife bridges**
- **Vehicle bridges**
- **Trail bridges**

[15]Plan 2035, pg. 16.

The most common method for crossing streams is the placement of concrete pipes called "culverts" in the stream and placing fill over the top of the pipes and the stream banks. These pipes provide narrow openings for streams to pass through while allowing a road or trail to be built overhead. While this is a comparatively inexpensive construction method, culverts create poor connections for the organisms that live in streams and the wildlife that uses the stream valley to travel. Standard culverts frequently are not properly maintained resulting in areas where the water undermines the structure, increasing maintenance and replacement costs, or where a drop in the water level occurs as the water enters or leaves the culvert causing other damages to the structure. The best solutions for minimizing long-term structural maintenance needs and improving water quality and wildlife habitat are bridges or bottomless or arched culverts. These designs allow streams to flow naturally and result in fewer maintenance and reconstruction costs over the life of the structure. Crossing streams in environmentally sensitive ways allows for people to pass through and enjoy natural areas while minimally impacting the integrity and health of the stream system.

Improving the connectivity of the built environment is an important step in reducing air pollution by shortening automobile trips and encouraging alternative modes of transportation; however, enhancing street connectivity does not have to be achieved at the expense of healthy waterways and ecosystems. Environmentally sensitive infrastructure options such as bridges and bottomless culverts provide an ideal balance between the goals of improving water quality and connecting communities. The RCP should address the connectivity of both ecological systems and human systems for the benefit of both.

Poor Air Quality

The mid-Atlantic region, and Prince George's County in particular, suffer from unfortunate geography with regard to the prevailing winds and air pollution. The Washington D.C. metropolitan area is located to the east of a regional producer of poor air quality (poor air quality and acid rain from coal mining to the west and north west of the region for example) and to the east of a producer of localized poor air quality (Washington D.C.). With winds blowing generally west to east the entire region suffers from poor air quality, but especially Prince George's County.

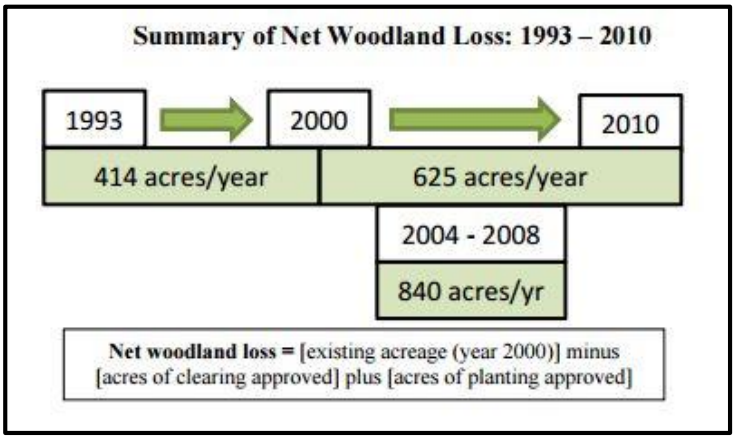
The region and the County have consistently received failing grades for air pollution from the American Lung Association, particularly for ozone levels, which is a pollutant associated with industrial facilities and motor vehicle emissions. Ozone can contribute to respiratory illnesses such as asthma and can harm sensitive ecosystems.[16] Prince George's County's current grade for

[16]https://www.epa.gov/ozone-pollution.

air quality is an "F." While air quality is a regional issue that cannot be contained within jurisdictional boundaries, every County can contribute to improving air quality, and can work to shield residents from the harmful effects of existing air pollution through the strategic planting and maintenance of trees throughout the built environment and most especially in under-canopied communities (places where the canopy coverage drops below 20 percent).

Green features, especially trees, help filter pollutants from the air and improve air quality. Trees reduce concentrations of not only ozone, but other harmful pollutants such as particulate matter (dust and small particles in the air), carbon monoxide, sulfur dioxide, and nitrogen dioxide. Improvements in air quality associated with increased tree cover in populous areas has resulted in reduced incidences and severity of respiratory illnesses.[17] Recent studies have shown that Prince George's County's current 52 percent forest and tree canopy removes more than 5,100 metric tons of pollutants from the air every year.[18]

Figure 1. *2010 Forest Canopy Assessment* Net Woodland Loss



However, both tree loss and forest fragmentation threaten the integrity of the County's current forest and tree canopy. Two important studies, the County's 2010 *Forest Canopy Assessment* and the *Forest Fragmentation Study*, have shown that annual forest losses have been significant and the fragmentation of forest patches is increasing. Planting additional trees in urban areas as well as conserving existing forests and trees will be vital to maintaining the County's overall tree canopy coverage. Focusing planting in urban areas will not only help the County's overall tree canopy coverage, but will ensure that the benefits of living near trees and green space are shared by all residents. Maintaining and reconnecting continuous forests are also key factors in providing adequate wildlife habitat and ensuring healthy, resilient forest ecosystems.

Poor Surface Water Quality

The County has a total of 621 miles of known streams spanning three major river basins, the Anacostia, Patuxent, and Potomac, all of which lead to the Chesapeake Bay. The health of this nationally significant ecosystem as well as the health of Prince Georgians relies on improving the quality of waterways in the County. To this end, the Environmental Protection Agency (EPA) and the Maryland Department of the Environment have established pollution limits that are below current pollution levels. The main pollution source is untreated stormwater runoff from

[17]https://enviroatlas.epa.gov/enviroatlas/Tools/EcoHealth_RelationshipBrowser/index.html.
[18]The Economic Values of Nature: An Assessment of the Ecosystem Services of Forest and Tree Canopy, p. 1.

impervious surfaces such as concrete and asphalt. This includes most development that occurred prior to the 1980s.

Table 1. Water Quality Ratings for the County's 42 Watersheds

Water Quality Rating	No. of Watersheds	Percent of Watersheds
Good	0	0
Fair	4	10%
Poor	22	52%
Very Poor	16	38%

According to water quality assessments, Prince George's County is in need of increased efforts to improve its stream health. Water quality is measured based on the Maryland Biological Stream Survey's Benthic-Index of Biotic Integrity, or B-IBI. The results of assessments using this measure show that the vast majority of watersheds in the County are rated as poor or very poor.[19]

There are a number of factors that can impact stream and water quality, from point source pollution (a pipe) and nonpoint-source pollution (runoff from pavement and bare ground), to soil erosion, to piping of streams under roadways, to artificially blocked and disconnected streams. The Department of the Environment is busy addressing water quality issues through the Watershed Implementation Plan (WIP) and the Rain Check Rebate Program.

Growing sources of degradation such as impervious development can outpace efforts to restore stream health, so although much work has been done, increased efforts are necessary to reduce activities that threaten watershed health. Ensuring clean surface water is key to maintaining a thriving natural environment and protecting people from contaminants and other far-reaching health effects of degraded water bodies.

Environmental Hazards

Environmental hazards can be anything from waste disposal sites to sources of point source pollution, such as a pipe. At the site scale, this measure often relates to preventing construction activity from harming nearby residents, but can also include areas such as the EPA Superfund sites or waste disposal activities. The EPA's Cleanup in My Community website indicates 11 cleanup sites in the County, both past and current, including Superfund sites, brownfield sites, and others. Land use data indicates that there are approximately three square miles of solid waste landfill in the County. The Capital Beltway is a designated hazmat route, which may pose a risk to nearby development. Certain land uses such as those identified as industrial can also produce externalities which can impact air or water quality. While these factors may pose risks, their effect on human health and environmental health can be minimized by monitoring and mitigating any potential impacts on surrounding communities.

[19] *Summary of Water Quality Biological Assessment Studies Conducted in Prince George's County, Maryland*, p. 10.

Noise Pollution

One of the major goals of planning efforts has long been to protect residential areas from uses deemed incompatible, such as heavy industry, which can have observable externalities like air and water pollution. Less obvious are the effects of living near sources of noise such as roadways which can impact health slowly over long periods of time. Studies have shown that noise levels of 65 dBA Ldn and greater can effect hearing, sleep, cardiovascular functioning, psycho-physiologic health, psychiatric health, and fetal development.[20] Noise levels of 65 dBA Ldn are generally accepted as the threshold for outdoor activity areas, with 45 dBA Ldn as the threshold for indoor areas where people sleep.

Typically, development applications are required to either place new development outside areas where noise levels reach 65 dBA Ldn or greater or noise mitigation measures can be provided such as special building materials or barriers to reduce outdoor levels to 65 dBA Ldn or less and indoor noise levels to 45 dBA Ldn or less.

As research in this area grows, and as the desired development pattern of Plan 2035 becomes a reality, methods are needed to reduce noise impacts. Site-specific health impact assessments currently assess noise concerns based on the proximity of a proposed development to identifiable, measureable noise sources such as airports, freight rail lines, roadways classified as arterial and greater, and specific uses such as concrete recycling facilities. Noise concerns from the construction phases of development are also a concern. Noise control measures are recommended to mitigate the potential effects of construction on nearby residential areas.

Light Pollution

Lighting levels are not currently quantified at the County scale, and are more feasible to assess on a site-by-site basis. Current planning and assessment efforts aim to reduce the spillover of light from new development to the maximum extent possible. The rural character element of the RCP includes recommendations to adopt design standards in rural areas in order to minimize the visual impact of development on the landscape, which include the use of full-cut off optics on all lighting fixtures. The spreading of unhealthy light levels is also a concern in residential communities throughout the County.

Planted noise barrier.

Source: FHWA.

Green features have long been used as a form of barrier from noise and light. Expanding built and preserved green infrastructure in residential areas experiencing high levels of ambient noise can help reduce disturbances that may result from this noise. There is also the potential for permeable pavement to not only treat stormwater on roadways, but to reduce noise from vehicle

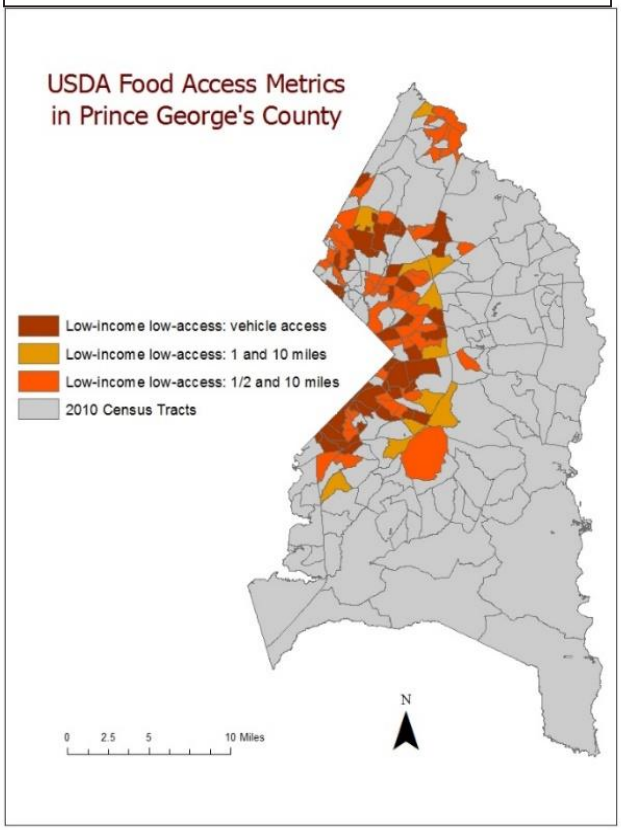
[20]http://www.hiaguide.org/sectors-and-causal-pathways/pathways/noise-pollution.

travel.[21] Permeable pavement has been shown to create less noise than traditional pavement. While not yet fully feasible in the high-volume environments that create traffic noise, there is potential for permeable pavement to improve both water quality and reduce noise impacts of roadways.

Access to Healthy Food

Prince George's County contains many areas in which access to healthy food is limited. The United States Department of Agriculture (USDA) defines a food desert as "a low-income census tract where a substantial number or share of residents has low access to a supermarket or large grocery store."[22] According to the USDA food desert statistics, Prince George's County has relatively low levels of food access compared to the nation as a whole, and most of the County's food deserts are located within the Capital Beltway. Food desert information provides a useful starting point for further investigating local food systems and ways to improve healthy food access. For example, Prince George's County has a relatively low proportion of large supermarkets, but contains many smaller food outlets. Relying on food desert metrics might lead to opening more large grocery stores in order to decrease the incidence of food deserts, while it may be more appropriate or feasible to increase the capacity of existing, smaller stores to provide healthy and affordable food. This improvement would not show up in food desert statistics, but might have significant local impacts.

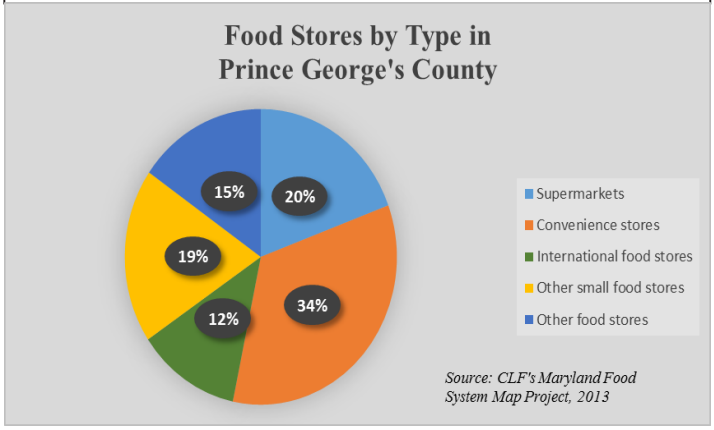
Figure 2: USDA Food Desert Map



[21] *The Application of Permeable Pavement with Emphasis on Successful Design, Water Quality Benefits, and Identification of Knowledge and Data Gaps. National Center for Sustainable Transportation*. June 2015. http://ncst.ucdavis.edu/wp-content/uploads/2014/08/06-25-2015-NCST-SR-Permeable-Pavement-FINALv4.pdf.
[22] USDA Food Access Research Atlas Documentation, http://www.ers.usda.gov/dataFiles/Food_Access_Research_Atlas/Download_the_Data/Archived_Version/archived_documentation.pdf.

Two recent studies have conducted in-depth reviews of the County's food systems: *Urban Agriculture: A Tool for Creating Economic Development and Healthy Communities in Prince George's County, MD*, 2012, and *Healthy Food for All Prince Georgians: An Assessment of Access to Healthy Food in Prince George's County, Maryland*, 2015. These studies have shown that many households located within "food deserts" may not be close to large supermarkets, but often meet their food needs through smaller food stores and/or restaurants. Access to healthy food can be increased by encouraging food outlets such as these, where residents already shop, to stock healthier options, while increasing resident knowledge about healthy eating habits.

Figure 3. Food Stores by Type



Expanding urban agriculture in the County is also important to increased availability of healthy, fresh food. Incorporating agricultural activity into populated areas increases visibility and knowledge of ways to grow and eat healthy food; involves community members in active outdoor activity; providing additional health benefits; strengthens connections among County farmers; and provides opportunities for local farmers to sell produce to local small grocery stores, restaurants, and farmers markets.

IV. Health Impact Assessments

Health in All Policies

Currently, human health outcomes are not integrated into land use planning decision-making. The need to expand the use of health impact assessments to evaluate land use decisions is identified in many policy documents at the local, state, national, and international levels. The "Health in All Policies" approach is being widely adopted by many entities such as the World Health Organization and American Public Health Association. In Maryland, the Department of Health and Mental Hygiene's State Health Improvement Process, or SHIP, provides a framework for advancing health-related goals statewide, an effort which is supported in Prince George's County by the Health Department's Health Improvement Plan. Health in All Policies is described in the World Health Organization's Adelaide Statement on Health in All Policies as assisting "leaders and policymakers to integrate considerations of health, well-being and equity during the development, implementation and evaluation of policies and services."[23]

Consideration of health in policymaking must extend beyond behavioral factors and access to healthcare facilities, but should include environmental factors, acknowledging that "the

[23]Health in All Policies Guide, pg. 1. http://www.phi.org/uploads/files/Health_in_All_Policies-A_Guide_for_State_and_Local_Governments.pdf.

environments in which people live, work, study, and play shape their health outcomes."[24] This approach recognizes that while personal lifestyle choices are important contributors to health, they alone cannot ensure health. For example, walking to work or school is healthier than driving, but if residents are not able to live near where they work or study, or if adequate pedestrian facilities are not available, this is not a viable choice. Options must be provided and promoted to produce better health outcomes.

Plan 2035 devotes a plan element to "Healthy Communities," and incorporates health-oriented policies and strategies throughout the plan. One of these policies is to "integrate community health into the master plan and development review processes," and related strategies identify the need for collaboration and evaluation of current processes to better address multiple aspects of community health.[25]

One of the goals of currently conducted health impact assessments is "…evaluating the proposal for conformance with the priorities outlined in the Prince George's County Health Improvement Plan 2011 to 2014."[26] Priority 5 of this plan is to "Ensure that Prince George's County physical environments are safe and support health, particularly in at-risk communities."[27] Several objectives that fall under this priority could potentially be addressed in plans at or above the sector plan level, such as increase access to healthy food and venues for physical and recreational activity, reduce pedestrian injuries on public roads, and reduce hospital emergency department visits from asthma.[28]

Growing healthy communities is everyone's responsibility.

This plan is designed to align with the Maryland SHIP, or State Health Improvement Process, which in turn aligns with Healthy People 2020, a program of the U.S. Department of Health and Human Services. Ensuring that new plans and plan updates address Health Department goals such as these identified in the Health Improvement Plan will reinforce the need for addressing policies and strategies through a health and equity lens.

Prince George's County's ability to complete health impact assessments is currently limited by the amount of resources available to assist with the process. Expanding the use of health impact assessments as a tool to gauge the extent to which policies contribute to improving the health of the County should take these limitations into consideration, and strive for a solution that maximizes the effectiveness of the assessments while minimizing the need for time-intensive evaluations.

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[24]Health in All Policies Guide, p. 102. http://www.phi.org/uploads/files/Health_in_All_Policies-A_Guide_for_State_and_Local_Governments.pdf,
[25]Plan 2035, p. 225.
[26]HIA Checklist Tools Standard Statements, n.p., Prince George's County Health Department.
[27]Prince George's County Health Improvement Plan 2011 to 2014, pg. 50.
[28]Prince George's County Health Improvement Plan 2011 to 2014, pg. 50–51.

Current HIA Requirements and Processes

Health impact assessments (HIA) are a tool used to approach policymaking in an inclusive, evidence-based way that looks at the health effects of different policy scenarios in a holistic way. They can take different forms depending on local context, needs, and resources, but in general, a complete HIA consists of six steps: screening, scoping, assessment, recommendations, reporting, and monitoring.[29] Screening and scoping are important steps, in that they evaluate whether a HIA is feasible and useful, and if so, determine its direction and methodology. This can result in a more efficient process and impactful product.

Currently, health impact assessments are completed by the Prince George's County Health Department for development application plans only, "in order to better focus limited resources and produce more meaningful outcomes."[30] These assessments cover eight major topics related to environmental impacts and human health, including: air quality, water quality, new construction/environmental hazards, food facilities, noise levels, lighting levels, connectivity (transit/walkability/bike-ability), and green and open spaces (including community gardens and recreational facilities).

While these assessments are useful for identifying potential environmental impacts in the area immediately surrounding a given development, health impact assessments can also be effective at a larger scale by providing a framework that avoids development patterns with negative health impacts before they become a problem, and directing interventions that improve health to where they are needed most.

V. Recommendations

Green Infrastructure

- Ensure equitable provision of green and open spaces.
- Reduce the construction of new impervious surfaces to improve water quality and human health.
- Consider impacts on human and environmental health when evaluating areas for green infrastructure preservation or restoration, locating it, when possible, in areas that would provide the greatest human health benefit.

[29]Human Impact.org HIA Toolkit, pg.15, http://www.humanimpact.org/capacity-building/hia-tools-and-resources/.
[30]HIA Checklist Tools Standard Statements, n.p., Prince George's County Health Department.

- Integrate green infrastructure into more aspects of the built environment by promoting green building techniques, urban tree canopy expansion, and on-site stormwater management methods to maximize human and environmental health benefits in densely populated areas.
- Improve air quality by connecting communities to reduce vehicle miles traveled and encourage walking and biking.
- Connect communities and ensure stream health by requiring that all stream crossings are either arched/bottomless culverts or bridges.
- Promote a Health in All Policies approach in all applicable County operations.
- Consider establishing an interdisciplinary team to promote health considerations and address the need for HIA.
- Encourage applicants to address health issues in development submissions, either via checklists or by integrating health assessment elements into environmental site assessments/natural resource inventories.
- Coordinate with the Health Department and other relevant agencies to develop an interdisciplinary and streamlined health impact assessment process.

Agriculture

- Identify in master and sectors plans areas suitable for urban agriculture, community gardens, and food retailers of all scales.
- Improve access to land for growing and selling local, healthy food.
- Expand land acquisition and preservation programs to include smaller land parcels in all areas of the County, encouraging colocation of residential areas and green space suitable for urban agriculture.

Rural Character

- Encourage new development in the rural and agricultural area to use natural materials to promote visual continuity with the landscape as well as incorporating green building principles to ensure minimal impacts on the land and a healthy indoor environment.
- Adopt “dark sky” lighting policies along roads in the rural and agricultural area and require all new development to minimize the spillover of lighting fixtures.
- Use native vegetation wherever replanting is necessary along roadways or adjacent to new development to support ecosystem health and landscape continuity.

Building the Green Economy in Prince George's County:

Case Studies in Green Job Creation

Prince George's County Green Job Fair

The Maryland-National Capital Park and Planning Commission
Prince George's County Planning Department
pgplanning.org

Introduction

Photo credit: Growing Home.

Prince George's County, Maryland is in the midst of preparing the first-ever countywide Resource Conservation Plan to address the three topics of green infrastructure planning and agricultural and rural character conservation. As part of this project, the team is focusing on how the plan can support green jobs as part of the new green economy. Promoting green infrastructure of all types, traditional and innovative agriculture, and protection of rural and historic resources encourages sustainable business practices, workforce development, and green job creation through entrepreneurship and business expansion. The broad term "green jobs" can include work related to anything from constructing green buildings to locally sourcing materials to rural and urban farming. Green jobs generate economic value from the practice of resource conservation, relating to all three RCP themes.

Green job creation results in numerous community benefits such as job training for the emerging green market, matching the available workforce with green jobs requiring complementary skillsets, and bringing needed revenue into the economy with limited upfront private or public expenditure. Green businesses generally do not require large infrastructure investments like those of conventional companies. They also produce fewer externalities, making them healthier and more desirable neighbors and workplaces. Most green businesses rely on easily provided resources such as available land with accommodating zoning, a trained or trainable workforce, and supportive policies that make such businesses attractive and viable.

In order to be sustainable, communities must embrace and promote all three areas of sustainability: social, economic, and environmental. Green job creation and workforce training support all three elements and are key to building a more resilient economy. This paper explores the many ways that green businesses can support the social structure of a community, while providing economic and environmental benefits at the same time. The companies featured are starting and expanding in the County and in similar communities nationwide, and are illustrated as inspiration for how green job growth can be promoted. While the following case studies provide examples of the wide variety of businesses and organizations that contribute to the green economy, the list provided is not exhaustive as there are the countless dedicated and creative people working to build a sustainable economy in and around Prince George's County and across the country.

Aiding the shift toward a green economy are organizations like Prince George's Green, an organization that works to grow the green economy by providing support for green business development, connecting certified businesses to Green America's Green Business Certification network, and providing training and placement services to help connect workers with green jobs. Support services and networks for green businesses are key to green job growth in Prince George's and contribute to a strong, sustainable economic future for the County.

Green Infrastructure and Green Jobs

Prince George's County is a national leader in green infrastructure policy and implementation, both in the area of ecological green infrastructure and green stormwater infrastructure, and is well-positioned to support economic activities related to expanding and maintaining its green infrastructure network. Green stormwater infrastructure is an important contributor to the goals of effectively managing stormwater and promoting green building practices. Green infrastructure's impact on job creation comes from long-term implementation needs and spans multiple industries related to design, construction, and maintenance. These can include companies related to engineering, surveying, and land use planning, all of which hire employees specifically to address stormwater and environmental issues. Many green infrastructure initiatives are relatively new, and so job creation statistics come in the form of predictions and models that give an idea of the scope of green infrastructure's potential to influence local economies.

In the Resource Conservation Plan, the definition of "green infrastructure" not only includes both ecological and stormwater methods, it also includes green buildings and green energy. This broad spectrum definition results in addressing "green" from rooftops to the Chesapeake Bay.

Case Study: Clean Water Partnership

Prince George's County, MD

Bioswale

Photo credit: U.S. Environmental Protection Agency.

Prince George's County's innovative Clean Water Public-Private Partnership (P3) with contractor Corvias Solutions aims to retrofit impervious surfaces using green stormwater infrastructure methods. The partnership will occur in stages, beginning with a County investment of $100 million to retrofit 2,000 acres. If successful, this partnership will continue, making significant headway toward the County's overall goal of retrofitting 15,000 acres by 2035 (as required by the EPA). The P3 has dual goals of meeting the County's stormwater permit requirements and driving inclusive local economic development by using County-based small and minority-owned businesses for at least 30 to 40 percent of the retrofit projects.[1]

There is also an educational component of the partnership. This includes an Urban Watershed Restoration Contractor Training Course, which is offered at Prince George's Community College and taught by instructors from the Low Impact Development Center, a local leader in green infrastructure and stormwater management strategies. The course will provide instruction on the construction, operation and maintenance of stormwater management retrofit projects, and will assist in developing a robust workforce to advance the County's stormwater infrastructure.[2] The Clean Water Partnership has been recognized by the White House Council on Environmental Quality for its innovative approach to stormwater management and "…potential to revitalize communities, develop small business, and create jobs."[3]

[1]CWP FAQ: http://www.princegeorgescountymd.gov/sites/StormwaterManagement/Documents/CWP_FAQ.pdf.
[2]http://www.princegeorgescountymd.gov/sites/EnvironmentalResources/News/Pages/WhiteHouseEPA.aspx.
[3]http://www.princegeorgescountymd.gov/sites/EnvironmentalResources/News/Pages/WhiteHouseEPA.aspx.

Case Study: Stormwater Projects

Los Angeles County, CA

The County of Los Angeles passed three ordinances in 2008 as part of their Green Building Program. These include a Green Building Ordinance, a Drought-Tolerant Landscaping Ordinance, and a Low Impact Development Ordinance. The ordinances were accompanied by manuals and building and sustainability guidelines to shape new development.[4] This led to an increase in County investment in green stormwater infrastructure and green building projects.

Bioswale in Los Angeles

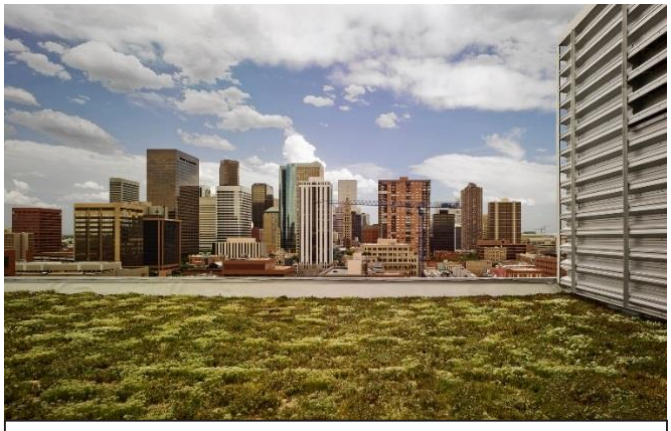
Photo credit: Haan-Fawn Chau.

Stormwater projects between 2009 and 2011 in Los Angeles produced an estimated 2,075 total jobs.[5] This surge in job creation came as the result of $166 million in investment, 74 percent of which was spent locally, and 73 percent of the workers employed by the resulting stormwater projects were from businesses within Los Angeles County.[6]

[4] http://www.waterboards.ca.gov/water_issues/programs/climate/docs/resources/la_green_infrastructure.pdf.
[5] *Using a Jobs Frame to Promote the Use of Green Infrastructure*. Urban Water Sustainability Leadership Conference, 10-17-2012, Green for All. [6]
[6] http://www.wearepowershift.org/sites/wearepowershift.org/files/resources/Green-Stormwater-Jobs-.pdf.

Case Study: Conservation Technology

Baltimore, MD



Green roof example: U.S. EPA Region 8 office.

http://www.epa.gov/sites/production/files/region8/images/greenroof_terrace.jpg

Conservation Technology, also known as Resource Conservation Technology, is a company that offers advanced green building technology and products that support green roofing, rainwater harvesting, pond and wetland construction, energy-efficient building, and waterproofing. Conservation Technology is the North American distributor for Optigreen, a world leader in green roof systems, products, and accessories.[7] They primarily sell products wholesale, but provide some products directly to end users as well.[8] The company has roughly 10 employees, and generates an estimated $1,700,000 in revenue yearly.[9]

Technologies such as green roofs and rainwater harvesting systems can provide significant payback due to their durability, low cost of maintenance, and help in avoiding wear and tear on infrastructure, such as protecting building foundations from water infiltration. This can help minimize the need for structural maintenance and repair, and can extend the life of existing buildings and reducing the need for new construction. Rainwater capture for use in building water systems and irrigation can reduce the costs of water consumption as well. Conservation Technology's systems are even able to provide clean drinking water from captured rainwater.

Website: http://www.conservationtechnology.com/

[7] http://www.greenroofs.com/premium.php?sid=149#.Vl8ojHarS70.
[8] http://www.conservationtechnology.com/general_purchase.html.
[9] http://www.buzzfile.com/business/Conservation-Technology-410-366-1146.

Case Study: Stormwater Pollution Controls

Montgomery County, MD

Stormwater and green infrastructure projects are generating job growth in Montgomery County and across the region. According to a study by the Chesapeake Bay Foundation and the Economic Policy Institute, stormwater pollution control projects in Montgomery County will create 3,300 construction and engineering jobs within the County over the next 3.5 years.[10] This is thanks to a $305 million investment in new infrastructure, much of which consists of green stormwater infrastructure and low-impact development measures such as bioswales, native landscaping, and porous pavement.

Bump out construction

Photo credit: Chesapeake Bay Foundation/cbf.org.

In an interview with the Chesapeake Bay Foundation, the manager of a construction firm working in Montgomery County, Mike Peny, reports that his company recently boosted employment by 12 percent in one year. This increase consisted of 10 workers who were hired to keep up with County efforts to meet pollution control requirements. The company's projects have included rebuilding once-eroded streams such as Booze Creek. As Peny says: "This really creates jobs for us….These types of projects are what drive our ability to hire and stay in business."[11]

[10]*Debunking the "Job Killer" Myth: How Pollution Limits Encourage Job Growth in the Chesapeake Bay Region*. Chesapeake Bay Foundation http://www.cbf.org/document.doc?id=1023.

[11]http://cbf.typepad.com/bay_daily/2012/01/as-traffic-rushes-past-on-a-road-in-montgomery-county-maryland-three-men-work-in-ditch-one-swinging-a-sledge-hammer-and-th.html.

Case Study: Montgomery County Green Buildings Law

Montgomery County, MD

Plans for the LEED-certified White Oak Community Recreation Center

http://www.montgomerycountymd.gov/DGS-BDC/Resources/Images/White_Oak_CRC.jpg

The Montgomery County Green Buildings Law, Bill 17-06, became effective in 2007. It requires that all new commercial or multifamily construction projects and major renovations over four stories in height and 10,000 square feet in size meet LEED-NC (new construction) or CS (core and shell) standards. All new construction or major renovations of buildings over 10,000 square feet in the public sector, generally County-owned or funded buildings, must achieve LEED Silver standards.[12] While buildings do not need to be officially LEED certified by USGBC, they must either show proof of certification or have standards verified by County officials. In some cases, non-LEED certifications are considered if they are found to require equivalent efficiency standards.[13]

This bill allowed one year for requirements to take effect in an effort to allow developers time to transition and adapt. It has been successfully implemented in many cases, but some analysts argue that regulations are not extensive enough, and many smaller buildings are being constructed which are not required to comply.[14] In addition to the 2006 bill, the County has since passed bill 37-06, or the "Green Building Incentive," which provides property tax incentives for buildings which exceed regulatory minimums, as well as buildings not otherwise subject to regulation, such as smaller structures.[15]

In 2014, Montgomery County became the first county in the country to require energy benchmarking, or tracking of energy use, using the free EPA Portfolio Manager tool. The implementation of this law will be phased in over several years to allow for adaptation, first applying to County-owned buildings, then large nonresidential buildings, then smaller nonresidential buildings.[16] By requiring new construction and certain scale renovations to meet high standards of efficiency and green building practices, this law has strengthened the demand for jobs in green building trades.

[12]Montgomery County Code Article VII. http://www.montgomerycountymd.gov/DGS-BDC/Resources/Files/LEEDRegs.pdf.
[13]*Debunking the "Job Killer" Myth: How Pollution Limits Encourage Job Growth in the Chesapeake Bay Region*. Chesapeake Bay Foundation http://www.cbf.org/document.doc?id=1023.
[14]https://www.mwcog.org/uploads/committee-documents/aV1bXVlY20130321082053.pdf.
[15]Montgomery County Code, ibid.
[16]http://greenbuildingelements.com/2014/04/30/montgomery-county-first-u-s-county-pass-energy-benchmarking-law/.

Case Study: SolarCity

Photo credit: www.cleanenergyauthority.com.

As one of the nation's largest and fastest-growing solar providers, SolarCity supplies more than one out of every three new solar power systems in the U.S. It employs over 14,000 people, and in 2015 added over 500 new employees per month (on average). It has four regional offices in Maryland (Baltimore, Beltsville, Clarksburg, and Waldorf) and one in Northwest Washington, D.C.[17] Solar panel installation is a prime example of a specialized skillset that can enhance existing construction and electrician skills.

Maryland and its Mid-Atlantic neighbors are ideally located for large-scale and home solar installation. According to the Solar Energy Industries Association, "There are currently more than 177 solar companies at work…in Maryland, employing 3,000 people. In 2014, Maryland installed 73 MW of solar electric capacity, ranking it twelfth nationally. In 2015, $410 million was invested on solar installations in Maryland. This represents a 95 percent increase over the previous year, and is expected to grow again this year."[18] This enthusiasm for home-based solar installation shows the promising growth of a renewable energy economy across the region.

Website: http://www.solarcity.com/residential/states/maryland-solar

[17] http://www.solarcity.com/newsroom/press/solarcity-goes-one-day-nationwide-hiring-spree.
[18] http://www.seia.org/state-solar-policy/Maryland.

Agriculture and Green Jobs

Prince George's County has a well-established agrarian tradition with institutions such as Upper Marlboro's Clagett Farm providing educational opportunities, workshare programs, and community-supported agriculture resources to the County. The agricultural element of the Resource Conservation Plan seeks to strengthen and support rural farms, while promoting expansion of small-scale gardening and farming throughout the County's established communities. As an emerging field stimulating interest and investment across the country, urban and suburban agriculture can be a major driver of local economic growth in addition to their contributions to community health and environmental quality. Agriculture at all scales stimulates the economy both directly by providing jobs and job training, and indirectly by providing volunteer opportunities and encouraging community service, innovation, and entrepreneurship. The socially-based positive effects may be even more far-reaching and difficult to measure than economic ones: healthier residents are physically able to work more, mentally prepared for educational opportunities, and gathering places like urban farms and gardens can foster social capital and enhance community support networks. Examples from Maryland and across the country show the ability of agriculture at all scales to contribute to a sustainable local economy.

Case Study: P.A. Bowen Farmstead

Brandywine, MD

Photo credit: P.A. Bowen Farmstead.

P.A. Bowen Farmstead, established in 2009 and located in southern Prince George's County, is a livestock farm committed to sustainable farming, nutrition, and contributing to a strong local economy. The farm is owned by Geoffrey Morell and Sally Fallon Morell, cofounders of the Weston A. Price Foundation, a nutritional education nonprofit.

P.A. Bowen Farmstead is "…a mixed-species pasture-based farm incorporating organic and bio-dynamic methods."[19] One of its main focuses is artisan cheese production from its small, well-tended, grass-fed Jersey cow herd. The farm also raises chickens, turkeys, and pigs, which graze the land in a rotational system, maximizing fertility and production and minimizing environmental impacts.[20]

In addition to sustainable farming methods, the farmstead adds value to its operation by offering farm tours, classes, and a farm store featuring its own stock as well as products from other local businesses. The farm supports a staff of five full-time employees and one to three part-time staff members depending on need. They also offer an internship program for one to three participants between March and December, which generally attracts young burgeoning farmers.[21] P.A. Bowen Farmstead contributes to an economy based on nutritionally and environmentally sound practices.

Website: http://pabowenfarmstead.com/

[19] http://pabowenfarmstead.com/farm/.
[20] http://www.greenroofs.com/premium.php?sid=149#.Vl8ojHarS70
[21] Email correspondence, Brian Wort, Farm Manager.

Case Study: ECO City Farms

Edmonston and Bladensburg, MD

Image credit: ECO City Farms.

Since its start in 2009, the educational nonprofit ECO City Farms has opened and expanded two small-scale, sustainable farms in the inner-ring suburbs of Prince George's County, Maryland. They have grown to a staff of 14, and both farm sites host apprentices, interns, and student groups throughout the year.[22] ECO City Farms partners with Prince George's Community College to offer urban farming and permaculture classes aimed at training budding farmers. They sell their produce at local farmers markets (one of which they founded), through a year-round farm-share program, and wholesale outlets. ECO City Farms lives up to their motto of "growing great food, farms, and farmers" by supporting and expanding the local, sustainable food system.

Website: http://www.ecoffshoots.org/

[22] http://www.ecoffshoots.org/about-us/aboutusstaffprofiles/.

Case Study: Big City Farms

Baltimore, MD

Photo credit: Big City Farms.

Big City Farms is committed to growing the Baltimore local food network, creating good jobs, and transforming neighborhoods. It is a certified B corporation, meaning the company meets rigorous standards of social and environmental performance, accountability, and transparency.[23]

By the company's calculation, it is able to employ six people per half acre. Its mission is to provide opportunity to Baltimore's unemployed population by expanding throughout the City. The farm is partnering with the nonprofit Strength to Love II to train people coming out of the justice system as farmers at its Sandtown plot. Big City Farms began in 2010 on just one half acre, and, as planned[24], now has three locations: South Baltimore, Sandtown-Winchester, and Windsor Mill Road near Gwynns Falls/Leakin Park.[25] Its expansion is a prime example of the growing strength of the local food economy in Baltimore City and across the region.

Website: http://www.bigcityfarms.com/

[23] https://www.bcorporation.net/what-are-b-corps.
[24] http://www.bizjournals.com/baltimore/print-edition/2013/01/18/big-city-farms-plots-plenty-of-growth.html.
[25] http://www.bigcityfarms.com/faq.

Case Study: Real Food Farm

Baltimore, MD

Photo credit: Civic Works' Real Food Farm.

As a project of the nonprofit community organization Civic Works, Real Food Farm is a major force in the Baltimore local food movement. They distribute produce via a mobile farmers market (pictured), a farm-share program, traditional farmers markets, and through restaurants and retail. Real Food Farm has a staff of 14 and a strong youth involvement program; they employ 55 young people over the summer through two programs, and 10 "Youth Crew" interns during the school year.[26] Real Food Farm's commitment to local food production and community engagement strengthens the presence of urban agriculture in the Baltimore food system.

Website: http://realfoodfarm.civicworks.com/

[26] http://realfoodfarm.civicworks.com/get-involved/youth-jobs/.

Case Study: Growing Power

Milwaukee, WI and Chicago, IL

Will Allen, Growing Power founder.

Photo credit: http://www.flickr.com/people/grifray/.

Growing Power is a well-known pioneer of local food and urban farming. Among their numerous community initiatives is a successful "Youth Corps" program in both Milwaukee and Chicago. A five-acre plot in Millwood Parks, Milwaukee, is home to one of the first school/community partnerships, engaging residents, youth, and volunteers in urban farm development. In one summer, 13 community youth receive stipends and weekly produce from the garden.[27]

Across several Chicago sites in 2013, Growing Power "…trained and employed over 300 city youth in urban agriculture and community food system development. Through their work in urban gardens and greenhouses, the Chicago Youth Corps learned how to grow soil, vegetables, herbs, flowers, and launched a unique line of hand-crafted beauty, culinary, and craft products."[28] This example of far-reaching youth involvement helps to grow a new generation of Chicago residents who contribute to a strong local, sustainable food economy.

Website: http://www.growingpower.org/programs/youth-corps/

[27] http://www.growingpower.org/education/milwaukee-headquarters/.
[28] http://www.growingpower.org/education/chicago-farms-and-projects/.

Case Study: Chicago Lights Urban Farm

Chicago, Illinois

Photo credit: Ben Jaffe/Chicago Lights.

Chicago Lights is a community outreach organization at Fourth Presbyterian Church in Chicago. Its faith-based roots give it a strong community presence and membership base. One of Chicago Lights' many programs is an urban farm developed on an old basketball court adjacent to the church. As of their 2014 annual report, the farm has engaged 30 youth in a workforce development program.[29]

Chicago Lights has "…increased economic opportunities through access to organic produce, nutritional education, workforce training, and microenterprise development. It also provides a safe sanctuary and programs for children and youth to learn about urban agriculture."[30]

Website: https://www.chicagolights.org/our-programs/urban-farm/

[29] https://www.chicagolights.org/wp-content/uploads/2014/07/Chicago-Lights-Annual-Report-2014.pdf.
[30] https://www.chicagolights.org/our-programs/urban-farm/.

Case Study: Growing Home

Chicago, Illinois

Photo credit: Growing Home.

Located in the underserved neighborhood of Englewood, Chicago, Growing Home is a nonprofit organization that provides farm-based training specifically for people with employment barriers, providing each individual with 25 hours per week of paid work experience and any additional support they may need in maintaining a life-work balance.

In 2014, Growing Home enrolled 40 individuals, 85 percent of participants completed the program, and 79 percent of graduates earned jobs in the food chain, from urban growing facilities to wholesalers, retailers, and restaurants. Staff provide additional support services such as housing assistance, childcare, healthcare, and GED preparation. Growing Home partners with Cabrini Green Legal Aid to help participants with criminal records overcome this employment barrier. In 2014, seven participants sealed or expunged their criminal records, helping them along the path to permanent employment.[31]

Since beginning work in 2002, Growing Home has trained 150 individuals. Of participants between 2002 and 2008, 59 percent were previously homeless and 76 percent were previously incarcerated. The participants experienced only a five percent recidivism rate, compared to Illinois' 50 percent rate. Ninety percent of Growing Home graduates successfully find stable housing, and two thirds continue on to full-time jobs or further training.[32]

Website: http://growinghomeinc.org/

[31] http://growinghomeinc.org/our-impact/.
[32] http://www.policylink.org/sites/default/files/URBAN_AG_FULLREPORT.PDF.

Repurposing Buildings and Building Materials, Green Building and Green Jobs

Repurposing building materials is an important element of sustainability and resource conservation. It reduces the rate at which debris goes to landfills and supports the adaptive reuse of existing buildings, a useful tool in conserving historic buildings and landscapes. Reuse can reduce the negative environmental impacts of extracting raw materials while making construction and home improvement more affordable.

According to a 2011 report to the EPA, a rubble landfill in Prince George's County accepted the most (nearly 40 percent) of all the construction and demolition waste in the State—199,796 tons—in 2010.[33] While not all of this waste originated in the County, it makes the disposal problem hit close to home.

Deconstruction and reuse in Prince George's County can highlight its role as a pioneer in building a green economy. By diverting waste from landfills, the County can take the lead in refocusing jobs from waste handling and disposal to materials reuse and repurposing. As estimated by Details Deconstruction, a company profiled below, deconstruction can create up to eight times more jobs than standard demolition when resale and repurposing pursuits are considered. These jobs often call for more specialized training, which can build workers' transferable skillsets, providing future job and advancement opportunities.

[33] http://www3.epa.gov/epawaste/conserve/imr/cdm/statereports.htm.

Case Study: Community Forklift

Edmonston, MD

Photo credit: Steele Britton, via Community Forklift website.

Community Forklift, a nonprofit organization founded in 2005 in Prince George's County, resells and donates salvaged building materials and appliances to the Washington, D.C. metropolitan area. Since its founding, it has diverted an estimated $12 million worth of building materials from landfills. Materials are sold at 25 to 75 percent of their retail price, and some are lent or donated to local nonprofits. Community Forklift's HELP program distributes free items to families in need. In one year, this amounted to $50,000 worth of materials.

Efforts like this can make building renovation and upkeep feasible when they might not otherwise be possible, helping to maintain or enhance property values and community character. Furthermore, low building material prices help contractors keep projects affordable and workers employed, and the warehouse itself provides jobs for 45 employees.

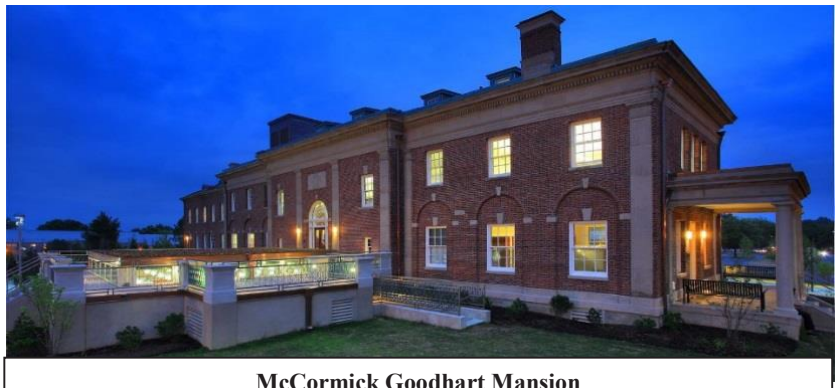
Community Forklift's many initiatives help it fulfill the promise of its name; to lift up the community by providing a much-needed, affordable source of home goods and building materials, and economic opportunities for all.[34]

Website: http://communityforklift.org/

[34] http://communityforklift.org/wp-content/uploads/2014/12/421329-2015-National-Comunity-Forklift.pdf.

Case Study: Encore Sustainable Design, LLC

Fort Washington, Annapolis, and Edgewater, MD



McCormick Goodhart Mansion

Photo credit: Kenneth Wyner Photography, via encoresdesign.com.

Encore Sustainable Design, LLC is a woman- and minority-owned architectural firm that specializes in sustainable design and historic preservation. Incorporated in Maryland in 2012 with locations in Fort Washington, Easton, and Edgewater, MD, the company has completed numerous significant projects in Maryland, Virginia, and the District of Columbia. Their approach incorporates adaptive reuse, sustainability, and preserving historic context. This promotes maintaining the historic value of structures and their surroundings while ensuring their future utility and efficiency.[35] Their restoration work includes the McCormick Goodhart Mansion (currently home to the nonprofit CASA de Maryland), the Bowieville Mansion, the Inn at 202 Dover, and many more across the region.

The McCormick Goodhart Mansion in Langley Park is an exemplary case of adaptive reuse in Prince George's County. The project was 60 percent funded by historic tax credits, and all work done on the building met or exceeded the standards of the Secretary of the Interior, the National Park Service, and State and County agencies. The building is now LEED Gold certified, and has received the Maryland Historic Trust Project Excellence Award, the Prince George's County Historical Society St. George's Day Award, and the J. Timothy Anderson Award for Excellence in Historic Rehabilitation, Most Innovative Adaptive Re-Use.[36] It provides significant community value as the home of CASA de Maryland and as a standout historic landmark.

Website: http://www.encoresdesign.com/

[35] http://static1.squarespace.com/static/55555104e4b0ee228d0ffcd3/t/55e585c1e4b010f17db2d18f/1441105345043/ENCORECo_April2015.pdf.

[36] http://www.encoresdesign.com/selected-works-source/2015/7/22/casa-de-md.

Case Study: Details Deconstruction

Maryland

A social enterprise of Humanim, Inc., Details Deconstruction considers a "triple bottom-line" in its work: social, environmental, and financial. Deconstruction is a greener alternative to demolition, which creates jobs and can provide financial benefits to donors. Deconstruction creates between six and eight jobs for every one job in standard demolition, which includes resale and repurposing trades. The practice of taking buildings apart, repurposing the intact materials, and recycling the rest can divert more than 90 percent of that material from landfills. By donating reusable building materials, donors can gain tax incentives, making deconstruction financially possible. Owners can donate a house or the parts and materials of a house to Details, and the appraised value of those materials can be used as a tax deduction to offset the cost of deconstruction. Details partners with reuse organizations like Habitat for Humanity and Build it Green! NYC to resell salvageable materials.[37]

Photo credit: Max Pollock, Baltimore Brick By Brick.

Details runs the Baltimore Brick By Brick project, which deconstructs vacant homes in the City of Baltimore. Its mission is "…to create: create jobs for local residents, create value by salvaging building materials, and ultimately create vital spaces where the vacant homes once stood."[38] Through work on just one street and as of May 2015, the project deconstructed 35 houses, salvaged 110,000 bricks, 8,300 square feet of flooring and 21,000 board feet of lumber, pulled over 150,000 nails, and diverted 95 percent of the building materials from landfills, totaling 330 tons of salvaged material, while creating 24 jobs for Baltimore residents.[39]

Their overall total as of October 13, 2015 is 86 houses, 14,500 square feet of flooring, 230,000 bricks, 51,000 board feet of lumber, 300,000+ nails, and 154 marble steps.[40]

Website: http://www.details.org/

All photos used in this paper are either in the public domain or are used with permission.

[37] http://www.details.org/social-environmental-impact.html.
[38] http://baltimorebrickbybrick.com/theplan/.
[39] http://baltimorebrickbybrick.com/.
[40] http://baltimorebrickbybrick.com/track-our-progress/.