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Plan2040: Background

Anne Arundel County General Development Plan
Preliminary Draft, September 30, 2020

ACKNOWLEDGEMENTS

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Department of Detention Facilities

Library Services

Anne Arundel Economic Development Corporation

Department of Inspections and Permits

Department of Aging and Disabilities

Department of Recreation and Parks

Police Department

Office of Emergency Management

Anne Arundel County Public Schools

Department of Social Services

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Anne Arundel County has many assets which make it the best place to live, learn, work and play: its natural environment; proximity to the Chesapeake Bay, Washington, D.C., Baltimore and Annapolis; rich historical and cultural heritage; and key economic drivers such as Fort Meade and Baltimore Washington International Airport.

Plan2040 is the update to Anne Arundel County's General Development Plan (GDP), developed with input from community members and guidance from a Citizen Advisory Committee. Plan2040 serves to guide land use and determine how to capitalize on assets and conserve resources. It is based on a Vision and five Vision Themes that are integrated into a comprehensive set of goals and policies. The plan is based on an integrated approach to sustainable development that considers the interaction of the environment, economy, and social equity. To emphasize those connections, the plan is organized in four chapters:

- Planning for the Natural Environment (including environmentally sensitive areas, resource conservation, priority preservation areas and water resources),
- Planning for the Built Environment (including land use, housing, cultural and historical resources, transportation, and climate resiliency)
- Planning for Healthy Communities (including schools, libraries, recreation and parks, police, fire, and emergency services), and
- Planning for a Healthy Economy (including emerging and traditional industries such as agriculture, marine trades, and mineral resource extraction).

Plan2040 provides a framework for important decisions such as how land should be used, how natural features will be protected, where growth should occur and where spending priorities should be placed for the next twenty years. As the County's Comprehensive Plan, Plan2040 is general in nature, but provides the legal basis for key land management tools like zoning and subdivision regulations. All master plans, zoning and development regulations adopted by the County must be consistent with the goals, policies and recommendations of Plan2040.

The Plan is organized into two volumes. Volume I is the core of Plan2040; it establishes the overall Plan2040 Vision and the overall goals, policies, and strategies to implement the Vision. It also establishes the process for Region Planning, which will provide more detailed long-term planning at a local, community level. Volume I includes an implementation plan to help achieve the Vision, and performance measures to track progress.

Volume II provides background for Volume I. It begins by outlining the State regulatory context for Plan2040 and continues with a description of the range of input derived from the various public engagement activities throughout the Plan2040 development. Volume II also provides much of the background information for the Plan, describing the existing conditions and key challenges that are addressed by the goals, policies and strategies in each of the main Plan2040 topic areas.

Finally, Volume II outlines the next steps in comprehensive planning in Anne Arundel County, namely the process for detailed Region Planning, and the relationship of these Region Plans to the Countywide Plan2040.

A Vision for the Future

A Vision Statement serves as a common direction for long-term planning. It is intended as a statement of the community's values and aspirations, a shared image of what the residents want their community to become over the next twenty years. In short, it answers the question, "Where are we headed?"

A Vision is structured as a concise outcome-based statement that is creative and bold, but practical enough to be detailed within the Plan's chapters through achievable goals and implementation strategies. Prior GDPs, as well as each of the 16 Small Area Plans had guiding Vision statements that reflected the

communities' values. Key ideas from these previous statements include the following:

- Proximity to other places: Baltimore, the Bay/waterfront, shopping areas
- Variety of housing (type, socio-economic, age and lifestyle) balanced with employment
- Preserving/enhancing community character (close-knit/hometown, vibrant, diverse, healthy, quality of life) through harmonious design in development/ revitalization, with balanced uses and often framed by gateways
    - Residential neighborhoods: clean, attractive, quiet, well-designed, sidewalks, landscaping
    - Office districts
    - Local commercial/activity nodes: vibrant, mixed-use, often with focal plaza/gathering space and/or transit hub
    - Regional commercial/service districts
    - Protected rural areas and cultural and agricultural heritage
- Quality community facilities and public services (community/youth/senior centers, libraries, health centers, recreational facilities, emergency services), often as anchors in the community; quality education for all residents
- Accessible natural features and parks, trails/greenways, waterways, and open space
- Natural and historic resource conservation (forests, rivers, wetlands, open space, agricultural land, green space, steep slopes, watersheds, the Bay) and environmental stewardship
- Adequate mobility linkages, balanced with growth
    - Pedestrian/bike trails
    - Upgraded and reliable road network
    - Public transportation
- Economic vitality with diverse business and employment opportunities paying a living wage
- Citizen/government collaboration
- Planned/managed development with concurrent infrastructure improvements; facilities in areas with infrastructure to discourage sprawl in rural/agricultural areas; redevelopment of underutilized areas.

Maryland Twelve Planning Visions

In 2009, the State of Maryland adopted Twelve Planning Visions to reflect an aspiration to develop and implement sound growth and development policies. Local comprehensive plans are required to implement these Visions.

1. Quality of Life and Sustainability: A high quality of life is achieved through universal stewardship of the land, water, and air resulting in sustainable communities and protection of the environment.
2. Public Participation: Citizens are active partners in the planning and implementation of community initiatives and are Sensitive to their responsibilities in achieving community goals.
3. Growth Areas: Growth is concentrated in existing population and business centers, growth areas adjacent to these centers, or strategically selected new centers.
4. Community Design: Compact, mixed–use, walkable design consistent with existing community character and located near available or planned transit options is encouraged to ensure efficient use of land and transportation resources and preservation and enhancement of natural systems, open spaces, recreational areas, and historical, cultural, and archeological resources.
5. Infrastructure: Growth areas have the water resources and infrastructure to accommodate population and business expansion in an orderly, efficient, and environmentally sustainable manner;
6. Transportation: A well–maintained, multimodal transportation system facilitates the safe, convenient, affordable, and efficient movement of people, goods, and services

within and between population and business centers;

7. Housing: A range of housing densities, types, and sizes provides residential options for citizens of all ages and incomes;
8. Economic Development: Economic development and natural resource–based businesses that promote employment opportunities for all income levels within the capacity of the State's natural resources, public services, and public facilities are encouraged;
9. Environmental Protection: Land and water resources, including the Chesapeake and coastal bays, are carefully managed to restore and maintain healthy air and water, natural systems, and living resources;
10. Resource Conservation: Waterways, forests, agricultural areas, open space, natural systems, and scenic areas are conserved;
11. Stewardship: Government, business entities, and residents are responsible for the creation of sustainable communities by collaborating to balance efficient growth with resource protection; and
12. Implementation: Strategies, policies, programs, and funding for growth and development, resource conservation, infrastructure, and transportation are integrated across the local, regional, state, and interstate levels to achieve these Visions.

The Plan2040 Vision, found in Plan2040, was crafted by the Citizen Advisory Committee (CAC) based on various factors. The CAC took into account the Vision statements of the County's prior GDPs and Small Area Plans, the State's Twelve Visions, and comments received from residents during public outreach component of the Plan2040 process. The Plan2040 Vision and subsequent Vision Themes provide a common focus for Countywide planning and policy making.

Regulatory Planning Framework

The State of Maryland mandates that localities adopt a comprehensive plan and that at least once every 10 years, the Plan be reviewed, revised or amended if necessary. The Anne Arundel County Code requires the Office of Planning and Zoning (OPZ) to comprehensively review the GDP and its implementing mechanisms every eight years and make revisions as necessary to reflect changes to the County's demographics as well as the County's economic, social and natural environment policies. In addition, it is updated to reflect new State and County legislation.

As a charter county, Anne Arundel County is granted planning and zoning powers by the Land Use Article of the Annotated Code of Maryland, with certain requirements for comprehensive planning. Specifically, charter counties must include elements within their comprehensive plans that address development regulations, sensitive areas, transportation, water resources, mineral resources, and housing. The plan may also include a priority preservation area element addressing agricultural and forested lands.

The Land Use Article of the Code of Maryland also requires the County's comprehensive plan to consider the County's relation to neighboring jurisdictions. Because many elements addressed in Plan2040 are regional issues, intergovernmental coordination is critical for effective implementation of the Plan's goals, policies and strategies and the programs and initiatives of various agencies. State or Federal funding for programs or infrastructure may require interjurisdictional cooperation. The City of Annapolis and Anne Arundel County are required to coordinate plans and programs related to growth management, annexations, transportation services, public safety, utilities, and other public services.

The current comprehensive planning framework within Anne Arundel County is implemented through multiple programs, plans and regulatory measures in place at the Federal, State

and County levels and are detailed below. Collectively, they have accomplished much in terms of ensuring development in the County is consistent with the adopted land use plan and goals for resource preservation, land conservation, water quality, assuring a safe and ample supply of drinking water, stormwater management and wastewater disposal.

Federal

The Clean Water Act and National Pollutant Discharge Elimination System

The Federal Clean Water Act (CWA) establishes regulations for discharges of pollutants into the waters of the United States and quality standards for surface waters. Under the CWA, the Environmental Protection Agency (EPA) has implemented pollution control programs such as setting wastewater standards for industry and water quality standards for all contaminants in surface waters.

The CWA made it unlawful to discharge any pollutant from a point source into navigable waters, unless a permit was obtained. EPA's National Pollutant Discharge Elimination System (NPDES) was created in 1972 by the CWA and helps address water pollution by regulating point sources that discharge pollutants to waters of the United States. Point sources are discrete conveyances such as pipes or man-made ditches. Individual homes that are connected to a municipal system, use a septic system, or do not have a surface discharge do not need an NPDES permit; however, industrial, municipal, and other facilities must obtain permits if their discharges go directly to surface waters.

The Safe Drinking Water Act

The Federal Safe Drinking Water Act was established to protect the quality of drinking water in the United States. This law focuses on all waters actually or potentially designed for drinking use, whether from above ground or underground sources and authorizes EPA to establish minimum standards to protect tap water, requiring all owners or operators of public water systems to comply with these standards. It also establishes minimum standards for state programs to protect underground sources of drinking water from endangerment by underground injection of fluids.

Flood Insurance Rate Maps

The Federal Emergency Management Agency (FEMA) is the Federal agency responsible for floodplain management. FEMA prepared new Flood Insurance Rate Maps in Anne Arundel County that became effective in February 2015. The new maps are digital, improve spatial accuracy for determining future flood risk and enhance the ability for planning, permitting and insurance applications.

Total Maximum Daily Loads

The CWA also requires Total Maximum Daily Loads (TMDL's), which are the maximum amount of a pollutant that a waterbody can absorb and still meet water quality standards. They are based on the relationship between pollution sources and in-stream water quality conditions.

In 1998, the Chesapeake Bay and many of its tidal tributaries were added to the list of impaired waters. In response, the State of Maryland has been involved in an ongoing process of developing and promulgating individual TMDL's for specific pollutants as well as developing a watershed implementation plan for the Chesapeake Bay TMDL. Information on Maryland's TMDL development process can be found at the Maryland Department of the Environment (MDE) website.

TMDL's represent mandatory standards for site-specific water quality goals. Section 303 (d) of the CWA established expectations for impaired waterways. Existing "use" of each respective waterway as of November 28, 1975 was established as a baseline "designated use."

Designated Uses

Designated uses consider the use and value of each respective waterbody in areas such

as public water supply; protection of fish, shellfish, and wildlife; recreational fishable and swimmable waters; as well as agricultural, industrial, and navigational purposes. The suitability of each water body as a designated use is based on the waterbody's physical, chemical and biological characteristics (such as imbalanced pH, biological impairments, temperature, salinity and dissolved oxygen); geographic setting; scenic qualities; and economic considerations as a resource.

The State of Maryland (COMAR Section 26.08.02.08) has defined the following Uses:

1. Use I: Water Contact Recreation, and Protection of Nontidal Warm Water Aquatic Life
2. Use I-P: Water Contact Recreation, Protection of Aquatic Life, and Public Water Supply
3. Use II: Support of Estuarine and Marine Aquatic Life and Shellfish Harvesting
    A. Shellfish Harvesting Subcategory,
    B. Seasonal Migratory Fish Spawning and Nursery Subcategory (Chesapeake Bay only),
    C. Seasonal Shallow-Water Submerged Aquatic Vegetation Subcategory (Chesapeake Bay only),
    D. Open-Water Fish and Shellfish Subcategory (Chesapeake Bay only),
    E. Seasonal Deep-Water Fish and Shellfish Subcategory (Chesapeake Bay only), and
    F. Seasonal Deep-Channel Refuge Use (Chesapeake Bay only)
4. Use II-P: Tidal Fresh Water Estuary – includes applicable Use II and Public Water Supply
5. Use III: Nontidal Cold Water
6. Use III-P: Nontidal Cold Water and Public Water Supply
7. Use IV: Recreational Trout Waters
8. Use IV-P: Recreational Trout Waters and Public Water Supply

Each major stream segment in Maryland is assigned a Use. The Use is a goal for water quality and may or may not be served now, but should be attainable. Currently within Anne Arundel County, the majority of nontidal waters are categorized as Use I. The tidal waterways (the rivers) are categorized as Use II. The Jabez Branch is categorized as a Use III, (nontidal cold water - i.e. a reproducing trout stream) and is the only Use III water in the coastal plain of Maryland. The Severn Run and the Lower North Branch of the Patapsco River are classified as a Use IV (recreational trout waters - i.e., trout are stocked annually for fishing but the waterway cannot support a reproducing population of trout).

State

Maryland Land Use Code

The Maryland Land Use Code requires that the County prepare land use, development housing, water resources and transportation elements as part of its comprehensive plan. In addition, counties such as Anne Arundel that have State-certified agricultural and woodland preservation programs are required to prepare a priority preservation area element. The Land Use Code also recognizes historic preservation as "…a public purpose in the State to preserve sites, structures, and districts of historical, archaeological, or architectural significance and their appurtenances and environmental settings" and authorizes local government to establish historic preservation programs and adopt laws to achieve the following:

1. Safeguard the heritage of the local jurisdiction by preserving sites, structures, or districts that reflect elements of cultural, social, economic, political, archaeological, or architectural history;
2. Stabilize and improve the property values of those sites, structures, or districts;
3. Foster civic beauty;
4. Strengthen the local economy; and

5. Promote the preservation and appreciation of those sites, structures, and districts for the education and welfare of the residents of each local jurisdiction.

Habitats of Rare, Threatened, and Endangered Species

In 1979, the State of Maryland established the Natural Heritage Areas Program which defines a Natural Heritage Area as:

1. Containing one or more threatened or endangered species or wildlife species in need of conservation;
2. Be a unique blend of geological, hydrological, climatological, or biological features; and
3. Be considered to be among the best Statewide examples of its kind.

Administered by the Maryland Department of Natural Resources (MDNR), this program is responsible for identifying, ranking, protecting and managing Rare, Threatened and Endangered (RTE) species throughout the State. In order to accomplish this, MDNR restores degraded habitats, conducts field surveys, performs research, and continues public outreach and education efforts.

The Maryland Department of Planning (MDP) and the Forest Service Division of the MDNR have set goals for protecting and conserving open space, greenways, and woodlands. These goals include:

1. Identifying, protecting and restoring sensitive areas and other lands and waterways that support important natural resources and ecological functions;
2. Focusing conservation and restoration activities within the Statewide green infrastructure;
3. Developing a more comprehensive inventory of natural resource lands and environmentally sensitive areas to assist in implementation;
4. Assessing the combined ability of State and County programs to expand the network of contiguous green infrastructure, protect critical terrestrial and aquatic habitats, biological communities and populations, manage watersheds to protect and conserve natural areas and support a productive forestland base and forest resource industry;
5. Establishing measurable objectives for natural resource conservation and combined State and local strategies to achieve them;
6. Preserving the cultural and economic value of natural resource lands;
7. Encouraging private and public economic activities to support long-term conservation objectives;
8. Restoring, managing and protecting Maryland's trees, forests, and forested ecosystems to sustain our natural resources;
9. Connecting people to the land; and
10. Maintaining efficient and effective operations of forestry services to stakeholder groups through innovative technology, proactive policy communication / implementation, efficient use of resources, and professional development of personnel.

Economic Growth, Resource Protection and Planning Act of 1992

The 1992 Economic Growth, Resource Protection and Planning Act articulated the State's growth policy through visions that centered on concentrating growth in suitable areas; preserving and protecting sensitive areas; and stewardship of the Chesapeake Bay and its watershed. This law requires local jurisdictions to address specific environmentally sensitive areas that require protection in their comprehensive plans. With the passage of State legislation in 2006, all comprehensive plans are required to include a Water Resources Element (WRE). The WRE addresses the relationship of planned growth to water resources for both waste disposal and safe drinking water. The legislation also established the Task Force on the Future for Growth and Development in

Maryland to study current trends and challenges as they relate to population and growth, to analyze the impact of current local policies on infrastructure and the environment.

Priority Funding Areas Act of 1997

The 1997 Priority Funding Areas Act provided a geographic focus for State investments by directing funding for growth-related infrastructure to Priority Funding Areas (PFAs). The Act legislatively designated certain areas and established criteria for local jurisdictions to designate additional PFAs. The criteria include permitted density water and sewer infrastructure availability and designation as a growth area in a comprehensive plan.

The Agricultural Stewardship Act of 2006

The Agricultural Stewardship Act of 2006 authorized counties to include a Priority Preservation Area (PPA) element in their comprehensive plan. This requirement is mandatory for counties such as Anne Arundel that have State-certified agricultural and woodland preservation programs.

The Smart, Green and Growing Act of 2009

The Smart, Green and Growing Act of 2009 modernized the State's eight planning visions with 12 visions, listed in the previous section, that reflect the State's aspiration to develop and implement sound growth and development policy.

Sustainable Forestry Act of 2009

The Sustainable Forestry Act of 2009 was a landmark legislation that expressed the importance of

Maryland's forest to the environmental and economic well-being of the State. One section of the Act replaced the Forest Advisory Commission with the Sustainable Forestry Council. The Sustainable Forestry Council utilized the findings of these previous efforts and new information to advise MDNR on timely forest conservation issues and appropriate actions to help Maryland implement a no net loss of forest policy. The recommended actions build on existing programs and regulations including the recent development of Watershed Implementation Plans to meet the Total Maximum Daily Load requirements for the Chesapeake Bay, the Forest Conservation Act, and local planning and zoning requirements. The Sustainable Forestry Act of 2009 created a Governor-appointed Sustainable Forestry Council which aimed to advise MDNR on all matters related to:

1. Sustainable forestry management in the State,
2. The expenditure of funds from the Woodland Incentive Fund,
3. Existing regulatory and statutory policies that are perceived as economic barriers to a viable forest products industry,
4. New markets to enhance forest health, including renewable energy development through biomass energy, to offset fossil fuel consumption and reduce greenhouse gas emissions,
5. Creative strategies to help privately owned forest lands better compete with real estate market values that are driving forest conversion and fragmentation,
6. The means to promote forest-based economies and processing capability that contribute to economic and employment growth, and
7. Assigning a nutrient benefit to forest stewardship plans and other forest conservation management plans that can be measurably tracked and reported by the number of forested acres covered by the plans.

The Sustainable Communities Act of 2010

The Sustainable Communities Act of 2010 was intended to promote reinvestment and revitalization in existing communities around the State. The Act established a State designation of specific geographic areas to promote efficient use of State resources based on local

sustainability and revitalization strategies. The Sustainable Communities program consolidates resources for community revitalization and economic development under a single designation with an emphasis on infrastructure improvements, multimodal transportation and "green" development. The legislation established the Governor's Smart Growth Cabinet as the body charged with final approval of Sustainable Communities designations. Development and infrastructure projects located within a Sustainable Community may be eligible for assistance through a variety of State financing and tax credit programs including the Community Legacy, Neighborhood BusinessWorks, Sidewalk Retrofit, Community Safety and Enhancement, Job Creation Tax Credit, and Enhanced Local Tax Increment Financing programs.

The State defines Sustainable Communities as places where public and private investments and partnerships achieve:

1. Development of a healthy local economy;
2. Protection and appreciation of historical and cultural resources;
3. A mix of land uses;
4. Affordable and sustainable housing, and employment options;
5. Growth and development practices that protect the environment and conserve air, water and energy resources, encourage walkability and recreational opportunities, and where available, create access to transit.

The Sustainable Growth and Agricultural Preservation Act of 2012

The Sustainable Growth and Agricultural Preservation Act of 2012 limits the number of septic systems on large-lot residential development for the purpose of protecting agriculture, controlling growth in rural areas, promoting growth in areas that have infrastructure in place, and reducing nitrogen pollution from septic systems in the Chesapeake Bay and other waterways. The Act does not apply to commercial and industrial property. Per State requirements, counties are required to include a Growth Tiers Map in their comprehensive plans.

State Antidegradation Policy and Tier II Waters

Maryland's water quality standards consist of three components that, together, set goals to protect the State's water quality. The components are:

1. Designated Uses for each water body (e.g., recreational use, potable water supply);
2. Criteria that set minimum conditions to support the designated use; and
3. Antidegradation Policy that recognizes three tiers of water quality and establishes a way to maintain high quality waters such that they are not allowed to degrade to meet only the minimum criteria for their designated use.

For purposes of implementing the Antidegradation policy, waters of the State are categorized into one of three tiers based on their assessed water quality and biological conditions. Tier I waters are those that meet the minimum criteria to support their designated uses. Tier I waters are typically referred to as "fishable-swimmable" Tier II "high quality" waters are those water bodies where existing conditions are better than the minimum required for their designated use. Tier III refers to Outstanding National Resource Waters (ONRWs) - water bodies of exceptional quality, where the most stringent protection is both necessary and appropriate to protect and maintain the resource.

Water Quality Criteria

Water quality "criteria" consider standards required to support designated uses. They include narrative or numeric expressions for pollutant thresholds that are not to be exceeded such as water quality mass loading; physical habitat conditions; bioaccumulation of toxins; and legacy pollutants in sediments.

Designated uses drive water quality criteria and together they represent water quality standards. Water quality standards define the threshold for water quality impairments. Water quality impairments of concern include nutrients (nitrogen and phosphorus), biological impairments, sediments (legacy pollutants), toxic chemicals (metals, pesticides and others), and bacteria. Water quality impairments exceeding the defined threshold for respective waterways result with being placed on the Section 303 (d) list of impaired waters. Stream segments placed on the list leads to promulgation of TMDL allocations for the various pollutant contributors.

Each respective TMDL establishes a maximum amount of a pollutant that can be introduced to a waterbody and still meet designated "water quality standards." Primary criteria for any TMDL require that the stressor be expressed in a quantitative manner. It also requires that the stressor be linked in a cause and effect way to the relevant water quality standard cited in the 303 (d) waterbody listing. Each of Anne Arundel County's twelve watersheds is listed for four or more impairments. A complete listing of impairments to County waterways is provided on the MDE website.

Chesapeake Bay Critical Area Act

In 1984, the Maryland General Assembly passed the Critical Area Act in response to concerns about the decline in quality and productivity of the Chesapeake Bay. Through this action, the General Assembly enacted a comprehensive resource protection program for the Chesapeake Bay and its tributaries. The Critical Area is identified as all land within 1,000 feet of the mean high water line of tidal waters and/or within 1,000 feet of the landward edge of tidal wetlands, and all waters of and lands under the Chesapeake Bay and its tributaries.

The law also established a Statewide Critical Area Commission to oversee the development and implementation of local Critical Area programs. The Commission developed specific criteria to guide local jurisdictions in developing these programs. In 1986, the Maryland General Assembly approved the Critical Area Criteria established through the Critical Area Commission work efforts. The result was implementation of local Critical Area Programs directed towards minimizing adverse water quality impacts, conserving plant and animal habitat, and addressing land use policies for development in the Critical Area.

Chesapeake Bay TMDL

Despite extensive restoration efforts, the EPA determined in 2010 that insufficient progress had been made to achieve necessary pollution reductions of nitrogen, phosphorus and sediment across the Bay watershed and established the Chesapeake Bay TMDL. The Chesapeake Bay TMDL is designed to ensure that all pollution control measures needed to fully restore the Bay and its tidal rivers are in place by 2025. Wasteload Allocations (WLAs) were assigned to the Bay States.

Stormwater Management Act

In response to requirements of the 1972 Clean Water Act and guidance from the Environmental Protection Agency, the State of Maryland developed a Stormwater Management Program. In 1982, the State passed the Stormwater Management Act and subsequently, regulations were adopted and a stormwater design manual was developed. The primary goals of the Act are to:

1. Maintain runoff characteristics to pre-development conditions,
2. Reduce stream channel erosion, siltation and sedimentation, and
3. Reduce local flooding impacts.

These goals are implemented through methods and practices set forth in the 2000 Maryland Stormwater Design Manual. The regulations apply to development or redevelopment of land for residential, commercial, industrial or institutional uses but do not apply to agricultural land management practices.

In October of 2007, the most recent Statewide stormwater management regulations became effective. Those regulations, known as the Stormwater Management Act of 2007, require new development to use environmental site design (ESD) and to control stormwater runoff using nonstructural best management practices and other low impact site design techniques to the maximum extent practicable. MDE addressed the requirements of the Act including changes to State regulations and, in 2009, revised the State's 2000 Stormwater Design Manual. Prior to this Act, ESD was encouraged through a series of credits found in the 2000 Stormwater Design Manual. MDE has delegated authority to implement and enforce stormwater management to Anne Arundel County.

National Pollutant Discharge Elimination System Permits

In response to EPA's NPDES stormwater regulations, MDE began issuing NPDES MS4 stormwater permits in 1993. MS4 permits are designed to regulate local government "Municipal Separate Storm Sewer System (MS4) discharges" and to require more comprehensive actions necessary to manage the complex issues related to sources of pollutants in stormwater runoff. The permits are required to be updated and renewed every five years.

Anne Arundel County's first NPDES MS4 permit was issued on December 2, 1993. The most current permit was issued on February 12, 2014 and is slated for renewal in 2019. Through annual reporting to MDE, the County must demonstrate compliance with permit requirements that include:

1. Identifying sources of pollutants in stormwater runoff and linking them to specific water quality impacts;
2. Implementation of management programs to reduce and control stormwater runoff and introduction of pollutants through stormwater runoff;
3. Implementation of a public education and outreach program to reduce stormwater pollutants and integrated with all aspects of the County's activities.
4. Continuation of a systematic assessment of water quality within the County's watersheds that includes a detailed water quality analyses, the identification of water quality improvement opportunities, and the development and implementation of water quality improvement projects to control stormwater discharges to the maximum extent practicable
5. Implementation to the maximum extent practicable of the identified projects and practices. By the end of the permit term, the County shall complete water quality improvement projects to manage or restore the equivalent of twenty percent of the County's unmanaged impervious surface area.
6. Developing and implementing Total Maximum Daily Loads (TMDL) restoration plans for the stormwater waste load allocation (SW-WLA) associated with each EPA-approved TMDL (Chesapeake Bay TMDL and all local TMDLs).
7. Utilization of chemical, biological, and physical monitoring to assess watershed restoration efforts, document Best Management Practices (BMP) effectiveness, and/or calibrate water quality models used to show progress toward meeting applicable SW-WLAs. Additionally, physical stream monitoring shall continue for purposes of assessing the effectiveness of the implementation of the 2000 Maryland Stormwater Design Manual.

The Watershed Protection and Restoration Act

In 2012 the Maryland General Assembly passed the Watershed Protection and Restoration Act requiring Maryland counties and municipalities subject to municipal stormwater permits to adopt and implement laws or ordinances to establish a watershed protection and restoration program on or before July 1, 2013; and requiring the program to include

a stormwater remediation fee and a local watershed protection and restoration fund.

Maryland Forest Conservation Act, 1991

The Maryland Forest Conservation Act was enacted in 1991 to minimize the loss of Maryland's forest resources during the land development process. The legislation requires the identification and protection of forests and other sensitive areas during the site planning process. Forested areas adjacent to streams or wetlands, those on steep or erodible soils or those within or adjacent to large contiguous blocks of forest or wildlife corridors are considered priority for retention.

Forest Preservation Act of 2013

The Forest Preservation Act of 2013 amended the State's Land Use and Natural Resource Articles with the purpose of maintaining the State's existing 40 percent tree canopy cover by instituting a "No Net Forest Loss" policy. Instead of using regulations or maintenance requirements to prevent forest loss, the Act utilizes incentives for private landowners to conserve and preserve forestland

Maryland Agricultural Land Preservation Foundation (MALPF)

The Maryland Agricultural Land Preservation Foundation program is a purchase of development rights program that had been in existence since 1977. MALPF's primary purpose is to preserve sufficient agricultural land to maintain a viable local base of food and fiber production for the present and future citizens of Maryland. The program purchases perpetual agricultural conservation easements throughout the state. Individual properties' eligibility for the program is based on a set of State and local criteria. After eligibility is established, the MALPF can purchase the development rights from the owner based on the fair market value of the property. The Foundation offers grants for payment in lump sum or in installments. The property is then preserved for agricultural use in perpetuity and placed under an easement.

Program Open Space

Program Open Space is designed to acquire outdoor recreation and open space areas for public use, administers funds made available to local communities for open and recreational space through the State real estate transfer tax and from the Land and Water Conservation Fund of the National Park Service.

Forest Legacy Program –designed to identify and protect environmentally important forestlands through the use of perpetual conservation easements between willing sellers and willing buyers

Forest Land Incentive Program – encourages long-term sustainability of non-industrial private forestlands by providing financial, technical, and educational assistance via State Forest Service Agencies to assist private landowners in actively managing their land.

Rural Legacy Program

The Rural Legacy Program is administered by the MDNR and requires participating counties to delineate a specific geographic area in need of focused land conservation efforts. Maryland's Rural Legacy Program provides funding to preserve large, contiguous tracts of land and to enhance natural resource, agricultural, forestry and environmental protection while supporting a sustainable land base for natural resource based industries. Anne Arundel County's designated Rural Legacy Area (RLA) is approximately 37,381 acres in size and is located in South County. Within that area, the County can purchase easements from landowners based on a scoring and ranking system that rates property according to size, development potential, soil productivity and other factors. Grants are awarded for lump sum payments.

Maryland Environmental Trust

The Maryland Environmental Trust was created as a quasi-public entity by State statue in 1967 to "conserve, improve, stimulate, and perpetuate the aesthetic, natural, health and welfare, scenic and cultural qualities of the

environment, including, but not limited to land, water, air wildlife, scenic qualities, open spaces, buildings or any interest therein, and any other appurtenances pertaining in any way to the State." It is comprised of four main programs that include Land Conservation, Monitoring and Stewardship, Keep Maryland Beautiful and Local Land Trust Assistance.

Wellhead Protection Studies

The Safe Drinking Water Act Amendments of 1986 requires each state to develop Wellhead Protection Programs. Wellhead Protection is a strategy designed to protect public drinking water supplies by managing the land surface around a well where activities might affect the quality of the water. The EPA approved Maryland's Wellhead Protection Program in June of 1991. Maryland's program provides technical assistance, information, and funding to local governments, to help them protect their water supplies. In its continual effort to promote safe management of the land surface around public wells, the Public Drinking Water Program of MDE has developed a model ordinance as a tool for local governments to use to protect their water supplies.

Water Supply Program

MDE has the primary responsibility for the protection of Maryland's groundwater resources. MDE's comprehensive approach involves coordination and collaboration with a number of State agencies and various stakeholders such as, the Maryland Department of Agriculture (MDA), the MDNR, local governments, and other scientific organizations such as the Maryland Geological Survey and the U.S. Geological Survey, and the general public. In addition to the many water quality protection programs, MDE's Water Supply Program manages water withdrawals to ensure against unreasonable impacts on the water resource and other water users. Through the permitting process, groundwater withdrawals in confined aquifers in Maryland's Coastal Plain Province are managed such that water levels are not allowed to fall below a designated management level. The management level, intended to prevent dewatering of the confined aquifer, is defined as 80% of the difference between the pre pumping water level and the top of the aquifer.

MDE's Water Supply Program implements various programs to ensure that public drinking water systems provide safe and adequate water; and that appropriate usage, planning and conservation policies are implemented for Maryland's water resources. This mission is accomplished through proper planning for water withdrawal, protection of water sources that are used for public water supplies, oversight and enforcement of water quality monitoring at public water systems, regular onsite inspections of water systems, and prompt response to water supply emergencies.

Significant work has already been done in collaboration with the State to identify potential contaminant sources in the County and to perform a hydro-geological study of the County. This effort has established the groundwork for the County to pursue a wellhead protection program using the State's model ordinance as a guideline. See Anne Arundel County's Water and Sewer Master plan for additional information on wellhead protection and groundwater quality.

In addition to the wellhead protection program conducted in cooperation with the State, the County Department of Health (DOH) currently maintains a Groundwater Protection Plan (for private water supplies), which documents and summarizes DOH policies and programs regarding on-site sewage disposal systems and the protection of groundwater where public sewer is not available.

Greenprint

Greenprint is a program designed to protect lands critical to long-term ecological health. These lands, referred to as Maryland's green infrastructure, provide the natural foundation needed to support a diverse plant and animal population, and enable valuable natural processes like filtering water and cleaning the air, to take place. The program is expected to

boost the State's land conservation capacity by about 10,000 acres per year for the next five years. The funding allocated through this program expands the pool of money available for State land acquisitions. GreenPrint is targeted to protecting the most valuable remaining ecological lands in Maryland.

Patuxent River Policy Plan

The Patuxent River Policy Plan is a land management strategy to protect the Patuxent River and its watershed. The Plan includes 20 goals that provide a broad vision to restore and maintain water quality, habitat, groundwater and surface water supplies, and a high quality of life along the Patuxent River and its tributaries.

Central Maryland Transit Development Plan (2018)

The Central Maryland Transit Development Plan (TDP) is a guide to public transit improvements, including potential service expansion, in Anne Arundel (except the City of Annapolis), Howard and Northern Prince George's (including the City of Laurel) counties. The TDP addresses the area's transit goals and objectives, status of transit services, and steps for implementing the State objectives. The TDP aims to target these issues by expanding routes, reducing travel times, creating more direct routes, introducing new vehicles, assessing key origins and destinations, and creating more frequent service times. The Maryland Transit Administration (MDOT MTA) requires the Locally Operated Transit Systems (LOTS) in Maryland conduct a TDP update every five years. The most recent plan was approved in 2018.

County

GDP

Anne Arundel County's 2009 GDP recognized the need to preserve and protect sensitive areas and the green infrastructure network from impacts of development; and protect water quality from untreated thermal runoff, failing septic systems and overflow of pumping stations by establishing goals, policies and strategies. Plan2040 recognizes the impact of land use decisions and strives for making land use decisions that provide Resilient, Environmentally-Sound, and Sustainable Communities, New and Improved Infrastructure, Strategic Economic Growth and Redevelopment, Unique Community Character and Inclusive, Equitable and Responsive Government as shown in its Vision themes. Goals, policies and implementation strategies have been formulated to implement this Vision.

Small Area Plans

Sixteen community-based plans were prepared to refine and help implement the goals and recommendations of the 1997 GDP and to increase public outreach at the community level. Upon adoption of Plan2040, a community-based process will begin that will contain a set of specific goals and strategies that will aim to preserve or improve the County's approximately 50 communities. This process will be conducted through nine Region Plans.

Town Center Master Plans

The 1994 Parole Urban Design Plan and the 2016 Odenton Town Center Master Plan provide guidance for development with a specific set of requirements and policies.

Chesapeake Bay Critical Area Program

The County adopted its Critical Area Program based on the criteria established by the State's Critical Area Commission in 1986. The three major goals of the program are:

1. Minimize adverse impacts on water quality,
2. Conserve fish, wildlife, and plant habitat, and
3. Establish land use policies for development in the Critical Area.

The State and County program criteria include the requirement to identify and protect wildlife and plant habitats of particular significance due to their uniqueness, rarity, or possible future diminution, and which are not already protected

or addressed by other existing programs. These habitats are also known as Habitat Protection Areas and are set forth in Anne Arundel County Code Article 17, Title 8, Subtitle 5, and also defined and discussed in COMAR Title 27, Subtitle 1, Chapter 9.

Pursuant to Anne Arundel County Code (Article 17, Title 8, Subtitle 5), Habitat Protection Areas are to be preserved and protected in connection with all development as required by the County and in accordance with the recommendation of the MDNR and other review agencies.

A key provision of the County's Critical Area Program is the establishment, protection, and maintenance of the minimum 100-foot wide vegetated Critical Area buffer. This buffer, a designated Habitat Protection Area, is geographically located within the Critical Area and encompasses lands within 100 feet of mean high tide or the edge of tidal wetlands and tributary streams. The Critical Area buffer is a naturally vegetated and forested area, or an area established in vegetation and managed to protect aquatic, wetlands, shoreline, and terrestrial habitat from man-made disturbances. The areal extent of the buffer is expanded when steep slopes, hydric soils, highly erodible soils exist contiguous to the 100-foot buffer. No development activity is permitted within the buffer without prior approval of the County.

The Land Preservation, Parks and Recreation Plan (LPPRP)

The LPPRP is required to be submitted by each county to the State of Maryland every five years. This functional master plan provides a common benchmark to assist the State's evaluation of County land preservation and recreation programs. It is comprised of policies, recommendations, and strategies related to parks, recreation, and open space; agricultural land and woodland preservation; and natural resource conservation. The LPPRP supports the State's planning visions and qualifies the County for State Program Open Space funds and other programs related to the Plan's objectives.

2002 Greenways Master Plan

The County's award-winning Greenways Master Plan was adopted in 2002 with the goal of establishing an interconnected network of protected corridors of woodlands and open space that will protect ecologically valuable lands; provide open space, recreational and off-road transportation benefits for people; provide adequate habitat to support healthy populations of plant and animal species; and improve water and air quality within the County. Five criteria were used in assessing land as potential greenways: habitat value; size; connections to other land with ecological value; future potential (the potential to create greenways where they did not currently exist); and national and Countywide trails. The Greenways Master Plan is an identification, decision-making, implementation, and management tool, and is part of the County's comprehensive planning framework. Identification of the future greenways network serves as the basis for decision-making on land acquisition and natural resource protection by State and County agencies as well as by local land trusts and watershed organizations.

In 2010, Anne Arundel County issued a Greenways Master Plan Implementation Report that summarized progress on implementation of the Greenways Master Plan since 2002. The County is in the process of updating the 2002 Greenways Master Plan and renaming it the Green Infrastructure Master Plan. The updated Green Infrastructure Master Plan will not be a new plan or a departure from the intent of the 2002 Greenways Master Plan, but rather an attempt to enhance the definition of the Greenway, refine the data and analysis, and use better data and technology to formulate a comprehensive approach to interconnecting environmental ecosystems with active and passive recreational sites and corridors, scenic areas and historic and cultural resources in order to meet challenges related to land use conflicts, and human health and well-being.

Water and Sewer Master Plan

The Annotated Code of Maryland (Title 9, Subtitle 5) requires each County to develop water supply and sewerage systems in accordance with a County Master Plan which specifies the extent, adequacy, sizing, staging, and other characteristics of such facilities so that they are in compliance with State laws relating to air pollution, water pollution, environmental protection and land use. It further specifies that the extension and expansion of such water supply and sewerage systems shall be consistent with the County's GDP and adopted Land Use Plan.

The Anne Arundel County Water and Sewer Master Plan includes goals, objectives, policies and procedures as well as background information, descriptions of facilities and service areas, population and flow projections, strategies for facility optimization, and policies to address problem areas in both water supply and sewerage systems. The most recent update to the Water and Sewer Master Plan was completed in 2017 and reflects the land use policies of the 2009 GDP, the 16 Small Area Plans, the Town Center Plans and related planning policies that focus on protection of water resources.

The goals of the Water and Sewer Master Plan are consistent with the County's GDP and are as follows:

1. Ensure a sufficient supply of water will be collected, treated and delivered to areas programmed for service in the Master Plan.
2. Ensure wastewater will be collected from all areas programmed for service in the Master Plan and delivered to points best suited for waste treatment and disposal or reuse,
3. Both water and sewer services shall be monitored and maintained in a manner that strives to maximize the public health, safety and welfare for all while minimizing environmental impacts, and
4. Incorporate sound water and sewer planning principles and balanced land use initiatives to desired land management practices, highest water quality protection, and partnered financial support.

Article 16, Floodplain Management, Sediment and Erosion Control, and Stormwater Management

The Floodplain Management regulations apply to all development, new construction and substantial improvements to existing structures in a floodplain district. The Sediment and Erosion Control regulations apply to all clearing and grading in the County. Stormwater Management regulations apply to all new development and redevelopment projects. In addition, Article 16 requires the adoption and implementation of the County's Stormwater Practices and Procedures Manual, which is a comprehensive tool that provides specific design requirements; procedures and documentation for stormwater management plan submission; and for stormwater management facility maintenance and inspection. It promotes environmentally sensitive design and encourages infiltration of runoff rather than collection and conveyance to a downstream pond or stream.

Anne Arundel County is also required to adopt stormwater management ordinances and institute guidelines for implementation of stormwater management programs that are consistent with the 2007 Stormwater Management Act. The County Code and the Stormwater Practices and Procedures Manual were updated in 2017.

Article 17, Subdivision and Development Code

The Development regulations of Article 17 are one of the key implementation mechanisms of the County's GDP and are supplemented by design manuals. The County's Adequate Public Facilities Ordinance (APFO) is used as a growth management tool by connecting the approval of development projects to the availability of public facilities including roads, public elementary and secondary schools, and the capital improvements necessary to provide

emergency medical services, fire suppression, and storm water management.

Article 18, Zoning Code

Article 18 is the major tool for implementing the adopted comprehensive land use plan through the creation of zoning districts that are consistent with the land use plan as well as defining the types of uses allowed on a property and the regulations for how the land is used.

Watershed Protection and Restoration Program

Anne Arundel County established a Watershed Protection and Restoration Program in 2013, as mandated by Maryland Environmental Code Ann §4-202.1, for the purpose of supporting compliance with the requirements of the County's NDPES MS4 permit, the Chesapeake Bay TMDL, local watershed TMDLs, and stormwater Watershed Implementation Plans (WIPs) through stormwater management practices and stream and wetland restoration activities. The Program also maintains and administers the Watershed Protection and Restoration Special Revenue Fund established under Article 13 Title 7 §411-119 of the Anne Arundel County Code.

Anne Arundel County Forest Conservation Program

One of the principal regulatory tools the County has to help implement some of the recommendations in its master plans is the Forest Conservation Program. The program was created in 1991 to meet the requirements of the Maryland Forest Conservation Act of 1991.

Anne Arundel County Agricultural and Woodland Preservation Program

The County's Agricultural and Woodland Preservation Program was created in 1990 and has been certified by the Maryland Agricultural Land Preservation Foundation (MALPF) and MDP since 1992. The County's application for re-certification was recently approved through June 30, 2021. Certification is granted to counties who have established and maintained an effective program based on certain criteria including the county's commitment to spend additional local funds for the purchase of development rights or enhancements in an amount equal to or exceeding the amount of additional funds that will be available as a result of certification. Certified counties are eligible for 75% of the agricultural transfer tax collected in a given fiscal year. Beginning in fiscal year 2009, counties were required to develop a Priority Preservation Area in order to maintain certification.

The program was created to supplement the MALPF program and to offer an alternative for agricultural preservation that recognized the County's small farms, since at that time participation in the MALPF program required a minimum size of 100 acres.

In consistency with State regulations, the County's Agricultural and Woodland Preservation Program requires that all properties participating in the program have Soil and Water Conservation Plans and/or Forest Management Plans and Nutrient Management Plans when applicable in effect. These plans rely on the use of Best Management Practices (BMPs) to control agricultural runoff and reduce nutrient loads to local waters.

Additional efforts include partnerships with local land trusts and various government agencies including the MDNR, public outreach, land use controls and voluntary acquisition of agricultural and woodland easements.

Currently, landowners are offered a percentage of fair market value for a development rights/ conservation easement in addition to the agricultural district program per Article 4 of the County Code, which allows for a property tax credit on the land and the first $250,000 of assessed value of all structures.

Watershed Management Plans

Watershed Management Plans have been completed for each of the 12 major County

watersheds as of 2018. These plans provide technical support for the development, implementation, management, and refinement of the programs listed above. They also provide a holistic and systematic watershed perspective to land use planning and development review activities. These plans, which are developed on a community watershed scale, include the characterization of watershed baseline conditions and resources, while identifying existing and potential concerns, along with short- and long-term opportunities for improvement of water quality issues. Analysis of the baseline conditions and resources identified in the plan provides for an informed basis for prioritizing watershed restoration and preservation initiatives. Through the characterization and analysis of a watershed area, the plans provide recommendations necessary to facilitate daily land use and infrastructure decisions to protect watershed resources. The watershed management plans integrate and link existing watershed management business processes with watershed models and geographic information systems to provide interactive information on how changes in land use, zoning, subdivision regulations, best management practices, and other watershed conditions affect water quality and living resource habitat.

Comprehensive Water Strategic Plan

Anne Arundel County utilizes a Comprehensive Water Strategic Plan (CWSP) that addresses all significant aspects of its water supply and distribution system for current and future users. The CWSP, updated approximately every 10 years, ensures adequate supply of the highest quality water to meet the demands of its customers. The plan has enabled the County to optimize groundwater utilization and to develop a supplemental water purchase policy from the City of Baltimore consistent with forecasted interim and long-term demands.

The CWSP is a detailed engineering study of the County's water supply system. The plan includes water demand projections, and the evaluation of system performance under existing and proposed future conditions using hydraulic modeling. Recommendations for capital improvements and a proposed capital improvement schedule, with cost estimates and an implementation timeframe, are also included in the plan. The most current CWSP was completed in April 2016 by Malcolm Pirnie/ Arcadis.

The CWSP has three primary objectives, as follows:

1. Update the future demand projections based on Baltimore Metropolitan Council reports, future land use plans, and previous studies.
2. Perform an existing system analysis using the County's hydraulic model to identify immediate needs and to serve as a baseline for comparison
3. Perform a future system analysis based on three future planning horizons: 2020, 2030, and build-out and to use those results for development of a phased Capital Improvements Program.

Onsite Disposal System Evaluation Study and Strategic Plan

In early 2008, a Countywide evaluation of the nutrient loading impact that onsite sewage disposal systems (OSDS, or septic systems) have on its receiving waters and the service options available for properties with septic systems was initiated. The Onsite Sewage Disposal System Evaluation Study and Strategic Plan was completed in March 2008 and found that given the high number of septic systems coupled with their proximity to tidal waters and the sandy soils present along the waterways, the resulting nutrient load is significant. The Onsite Sewage Disposal System

Evaluation Study and Strategic Plan focused on the most cost-effective approach to reduce total nitrogen loads to the Chesapeake Bay. The study included four tasks. Task I involved identifying, categorizing and prioritizing OSDS Countywide. A preliminary cost analysis of

OSDS upgrades, cluster community wastewater systems and sewer extensions was conducted as part of Tasks 2 and 3. Task 4 of the study was the preparation of an Implementation Plan and a Final Report.

Given the significant reduction associated with connecting to public sewer systems, the County is evaluating cost/benefit analysis to determine an appropriate strategy. In analyzing these different treatment methods, it was recognized that OSDS equipped with denitrifying systems can reduce the nitrogen load from 40 mg/l to 20 mg/l, while connection to ENR upgraded WRF's reduces the nitrogen load down to 4 mg/l.

To assist in the development and implementation of an OSDS conversion program, the County initiated a Septic Task Force 2017. The Septic Task Force was completed at the end of 2017 and had four overall goals:

1. Develop a suite of recommendations that will inform decision making
2. Identify near-term strategies to support effort
3. Identify long-term strategies and approaches
4. Identify areas requiring additional investigation for County Staff

In 2017 the County procured the services of a consultant team to serve as the OSDS Conversion Program Manager. The OSDS Conversion Program Manager is a multi-disciplinary team that will provide a coordinated effort to assist Anne Arundel County in the development, implementation and execution of the OSDS Conversion Program. Such services include, but may not be limited to, planning, budgeting, public outreach, program monitoring, and public policy analysis related to the needs of the program.

Sewer Strategic Planning

In 2007, a Comprehensive Sewer Strategic Plan (CSSP) for the Annapolis, Baltimore City, Broadneck, Broadwater, Cox Creek, Maryland City and Patuxent Sewer Service Areas was completed. The CSSP was a 2-phase approach for planning the future modifications and expansion of the existing wastewater collection and treatment system. In Phase I of the study, the County's water reclamation facilities were evaluated on a number of criteria including the State's anticipated effluent total nitrogen discharge goals and other future discharge permit requirements. Phase 2 evaluated ways to expand or modify the existing wastewater conveyance system to route flow toward treatment plants with the most available capacity to accommodate future growth in a cost effective manner. The major recommendations and findings of this study were incorporated into the Water and Sewer Master Plan.

Following up on the previous CSSP, the North County Sewer Strategic Plan (CIP S776704) was recently begun. This project consists of the evaluation and recommendation of alternatives for three of the County's eleven sewer service areas (SSA's), namely, Cox Creek, Baltimore City, and Broadneck. The purpose of the Plan is to assist the County with its planning for improvements and upgrades that are required to meet its immediate and future needs and to develop a Capital Improvement Program (CIP) to implement the planned upgrades. The plan will address improvements and upgrades that are projected to be needed for a period of approximately 20 years.

The Systems Evaluation and Rehabilitation (SER) division within the County's Department of Public Works' (DPW) Bureau of Utility Operations is responsible for monitoring sewer flows, identification and investigation of inflow and infiltration sources and management of rehabilitation / repair projects within the existing system. Flow data from SER's metering program is utilized to calibrate the County's sewer computer model. This sewer model is part of the Sewer and Water Allocation, Management and Planning System (SWAMP) and is further described in Appendix B of the County's 2017 Water and Sewer Master Plan. The model is utilized to check capacity availability for

proposed development while considering existing, allocated and estimated flows from development under the Office of Planning and Zoning subdivision review process within each service area.

Enhanced Nutrient Removal

Initially, water reclamation facilities were required to achieve a 45 to 50% reduction of pollutants through primary treatment processes. In 1972, the NPDES permit required treatment plants to use biological processes as a secondary treatment of pollutants to achieve an 85 to 90% reduction in pollutants.

Because the Chesapeake Bay continued to experience a decline in water quality from enrichment of nutrients (mainly phosphorus and nitrogen), Maryland, Virginia, Pennsylvania, and the District of Columbia signed the Chesapeake Bay Agreement of 1983 that specified a nutrient reduction goal of 40% by the year 2000. MDE developed a strategy for achieving the desired reduction through upgrading the major 66 water reclamation facilities to remove nitrogen through a process known as biological nutrient removal (BNR). Using the BNR process, more than 90% of pollutants are removed, while achieving nitrogen concentration below 8 mg/l total nitrogen. Consistent with the State's initiatives to address point-source pollutant loads from water reclamation facilities, the County has upgraded and installed BNR processes and infrastructure at all of its major water reclamation facilities (WRFs).

Recognizing that more needs to be done, the Chesapeake Bay 2000 Agreement requires further reduction in nitrogen by about 20 million pounds and phosphorus by about 1 million pounds per year. MDE is using the Bay Restoration Fund to upgrade the 66 major water reclamation facilities, which discharge to the Chesapeake Bay, with enhanced nutrient removal (ENR) technologies. As defined by the State, ENR is technology capable of achieving 4 mg/l total nitrogen (TN) and 0.3 mg/l total phosphorus (TP) on an annual average basis.

Starting in 2006 with the signing of a Memorandum of Understanding between Anne Arundel County and MDE, the County initiated a series of procurements to provide design services for ENR upgrades for each of its wastewater facilities. Once upgraded, these treatment plants are expected to reduce nitrogen and phosphorus in the wastewater down to 4 mg/l total nitrogen and 0.3 mg/l total phosphorus, achieving approximately one-third of the needed reduction under the Chesapeake Bay 2000 Agreement.

The Anne Arundel County Inventory of Historic Resources

As defined by Article 17, Subdivision and Development Code, the County Inventory of Historic Resources means properties listed on the Maryland Inventory of Historic Properties, the National Register of Historic Places or the National Register of Historic Landmarks. Historic resources consist of properties, buildings, structures, districts, and archaeological sites that represent County history that are associated with the lives of historically significant persons, that have historically significant architectural value, or that are capable of yielding information important to the County's history or prehistory.

Anne Arundel County Consolidated Plan

Developed through intensive public participation, the Consolidated Plan is a comprehensive process through which communities identify and assess their housing and community development needs and establish goals, priorities, and strategies. The most current Plan, the Anne Arundel County Consolidated Plan: FY 2021 – FY 2025 was adopted in June, 2020 and can be viewed on the website of Arundel Community Development Services. The Consolidated Plan guides the investment of Federal housing and community development funds as well as State and County funds to address the needs of low and moderate income residents of a community. A Federally approved plan is required of all State and local jurisdictions in order to receive funds

from various Federal programs, including the Community Development Block Grant (CDBG), the HOME Investment Partnerships Program (HOME), the Emergency Solutions Grants Program (ESG), and the Housing Opportunities for Persons with AIDS (HOPWA) Program. The Consolidated Plan provides the framework to prioritize and fund housing and community development programs and projects which address the needs identified through the planning process.

Move Anne Arundel!

The 2009 GDP directed the County to establish a plan to guide the County's future transportation policies, strategies and investments. Move Anne Arundel!, approved in November 2019, is the County's first functional transportation master plan. The Plan integrated the County's Bicycle and Pedestrian Master Plan (2003 and 2013); the 2017 Transit Development Plan; the 2012 Corridor Growth Management Plan; the 2016 Major Intersections and Important Facilities Plan; and the 2013 Complete Streets Policy in order to make recommendations on investment priorities to the County's transportation network with the intention of enhancing mobility and accessibility within local and State fiscal constraints.

The Corridor Growth Management Plan, 2012

The Corridor Growth Management Plan (CGMP) tested current and projected growth patterns in the County in relation to travel demand and mobility and focused on balancing the need for added roadway capacity with right-of-way and environmental constraints, and the need to provide for additional travel mode choices (transit, managed travel lanes, bicycling and walking). The CGMP developed concept-level transportation alternatives, impacts and costs for nine regional and four connector corridor roads which accommodate over seventy percent of travel in the County. Ultimately, the transportation improvements aim to decrease congestion, enhance travel choices, and improve safety for all modes. The CGMP is intended as a base for future project planning and preliminary engineering, by securing funding commitments with appropriate State, Federal and private sector partners.

The Major Intersections and Important Facilities Study (2016)

The Major Intersections and Important Facilities (MIIF) Study focused on seven highway corridors in the peninsula areas of the County that serve as the primary route into these areas. Due to existing traffic volumes and limited access alternatives, there is a need for improvements in mobility in these areas. The study analyzed level-of-service and forecasted travel demand in each corridor study area, and recommended feasible roadway, transit, bicycle, and pedestrian improvements as well as other strategies such as access management and operational improvements.

Pedestrian and Bicycle Master Plan

In June 2013, the County's completed an update to the 2003 Anne Arundel County Pedestrian and Bicycle Master Plan (PBMP). Whereas the 2003 plan was a Countywide study, the 2013 PBMP emphasized pedestrian and bicycle infrastructure and non-infrastructure improvements that created transportation alternatives for County residents within urbanized areas to increase the potential for safe trip-making by walking and bicycling while diminishing the need for single occupant vehicle (SOV) trips.

A key element of the 2013 Pedestrian and Bicycle Master Plan (PBMP) update was the identification of specific pedestrian and bicycle related infrastructure projects deemed "credible of consideration for construction." The overriding intent was to identify projects for advancement to construction whenever an opportunity arises, be it through Federal, State or County funding or as a condition of development approval.

Complete Streets Policy Guidance

The County's Complete Streets Policy (CSSP) adopted in 2014 aims to improve transportation options and safety throughout Anne Arundel County. The Policy ensures that alterations to transportation systems are implemented in a way that provides all users regardless of age or ability with a comprehensive and connective multi-modal network. Guiding principles of the policy fall under the categories of Program Administration, Regulations, and Design. Guiding principles of the CSSP are to:

1. Evaluate resurfacing and reconstruction projects as well as access permit requests to public right of way for Complete Streets inclusion.
2. Approach every transportation improvement and project phase as an opportunity to create safer, more accommodating, and more accessible streets for all users.
3. Maintain skill and knowledge levels consistent with the state of the practice with the recommended practices of the American Association of State Highway and Transportation Officials (AASHTO), the National Association of City Transportation Officials (NACTO), and the Manual of Uniform Traffic Control Devices (MUTCD).
4. Report the success of implementation of the Complete Streets Policy, and its Guiding Principles, through measurable goals including, but not limited to, crash reduction, level of service and comfort, transit ridership, and changes in mode share.
5. Adhere to design standards, Federal requirements, and construction specifications, using the best and latest standards available.

Solid Waste Master Plan

The Anne Arundel County Solid Waste Management Plan is prepared in accordance with the requirements of the Environmental Article, Title 9, Subtitle 5 of the Annotated Code of Maryland and the Code of Maryland Regulations (COMAR) 26.03.03. The goals of the Solid Waste Plan are to establish a basis for the conservation of resources and protection of the environment within the County, and to ensure that adequate management and solid waste disposal capacity exists for at least the succeeding ten (10) year planning period. The Solid Waste Plan is required to be reviewed by the County at least once every three years.

Other Programs and Regulations

There are additional programs and regulations within Anne Arundel County that are in place to implement the GDP. These include the Erosion and Sediment Control Program, In-Stream Biological Monitoring Program, Wastewater Industrial / Commercial Pretreatment Program, the Capital Improvement Program and grading and building permit review.

In addition to these programs and regulations, the County supports the Watershed Stewards Academy and numerous non-governmental organizations to help implement pollution prevention measures needed to address local water quality problems.

History of Comprehensive Planning in Anne Arundel County

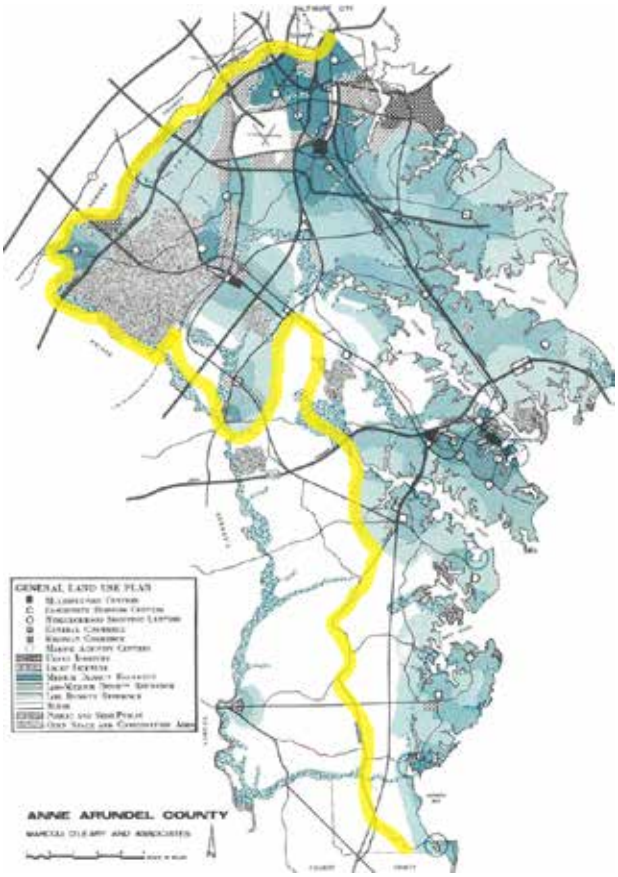
The County's first Zoning Ordinance was adopted in 1952, sixteen years prior to its first GDP in 1968. The majority of the land was zoned "Agriculture" with pockets of residential along its waterways and in the Odenton, Glen Burnie and Annapolis areas. Commercial development occurred along the transportation corridors and industrial uses were located primarily within the Marley Neck, Odenton and Hanover areas. Fort Meade, "Friendship Airport" and the County's proximity to Baltimore and Washington were its key economic drivers.

The 1968 Plan forecasted population growth of 759,000 residents by the year 2000 and noted that "Anne Arundel is no longer a rural community…. As the County becomes more urban, the undirected physical growth which is spreading through it is becoming less acceptable as a living environment." There

was an urgency regarding the need to direct physical growth which was creating a living environment that was characterized in the Plan by "congestion, pollution, and blight." The Goals of the 1968 Plan were: a safe, healthy, and attractive environment for all the people; sound economic growth and broad economic opportunity; and efficiency in the provision of public services. The residents felt that the County's natural environment was its greatest asset and that the natural setting imposed few important obstacles to eventual development and that ultimately the only limit on where and what may be built in the County was the feasibility of providing road access, clean water, and public sewer. The County was planned to be served by public sewer in 86% of its land area, to be phased in over 34 years.

To implement the 1968 Land Use Plan, the County was comprehensively rezoned between 1971 and 1976 by assessment district or portions of assessment districts. Assessment Districts 1, 7 and 8 (primarily the South County, the Deale/ Shady Side peninsula and the Edgewater/Mayo area) were comprehensively rezoned in 1971; Assessment Districts 2, 3 North (Annapolis, Davidsonville, Crownsville, Millersville, southern portion of Glen Burnie, Pasadena, Marley Neck, Fort Smallwood, Lake Shore and Gibson Island areas) were rezoned in 1972; Assessment Districts 3 South (Severna Park and Broadneck) and 4 (Odenton, Severn, Jessup, Maryland City) were rezoned in 1973; and Assessment District 5 (Brooklyn Park, Hanover, Linthicum, Ferndale and the northern portion of Glen Burnie) was rezoned in 1976.

Even though a slower growth rate occurred than what the 1968 Plan anticipated, the 1978 Plan notes the public's concern about growth and development and changes in the quality of life. The County grew by over 100,000 people in 10 years and forecasted a growth of 591,000 by 2000. Demographic changes and local economic factors reflecting conditions in the national economy such as the 1970s inflation, recession, slump in housing construction, and the oil embargo prompted reconsideration of



1968 Land Use Plan, with future extent of the sewer envelope highlighted

development patterns and densities in light of energy costs.

A Growth Management Program was put in place in the County which included adoption of the 1978 GDP, a growth management ordinance, improved management systems, programs for capital facilities and development regulating ordinances.

The 1978 Plan was developed by evaluating seven different alternative development patterns that represented three dimensions: location of population growth, degree of sprawl and the rate of population growth.

- The Baseline Alternative was the continuation of current conditions as shown in the 1968 Plan, which was forecasting 76% of new development in the public sewer envelope by 1995. It noted a benefit of being responsive

to market trends and the costs of having little impetus to improve older communities, a moderate rate of consumption of agricultural and other rural land, moderate to high potential impacts of critical environmental areas and moderate to high generation of air and water pollution.

- The Dispersed Alternative was a development pattern that encouraged growth in currently rural or undeveloped areas. Benefits noted were lower land costs in older developed areas, more private open space in residential areas and fewer areas of pollution concentration. Costs included less emphasis on services in older communities, more expensive public utilities and services, higher average housing costs, higher total air pollution and energy consumption, higher transportation costs, greater consumption of rural and farm land and less affordable housing for moderate income families.
- A High Growth Alternative showed the same land use pattern as the 1968 GDP, but with a population growth 50% higher than the Baseline, dispersed in Glen Burnie and Annapolis. The benefits noted were a greater proportion of working-age adults, higher average family income, more potential to upgrade older neighborhoods, greater variety and higher level of public services with costs being higher per capita service costs, greater potential lags in public service provision, earlier high consumption of rural and farm land, earlier high pollution levels, and energy consumption and lower levels of development control possible.
- A Low Growth Alternative was also examined which would have been the same land use pattern as the 1968 GDP, but with a 50% lower population growth than the Baseline. Benefits noted included higher standards of development control possible, less lag in public service provisions, delay in consumption of rural and farm land and a delay in energy consumption. Costs noted were higher proportions of elderly and poor, less variety of public services and lower average family income.
- A High Growth in the North Alternative was examined which concentrated the baseline population in the northern part of the County and large industrial employment in the Marley Neck area. Benefits noted were more potential for revitalization of older communities in the north, more upgrading of services in older communities, less consumption of rural and farm land, less total air pollution, less total energy consumption reduced level of travel, better feasibility for public transportation in the north and increased fiscal benefits from industrial development versus costs of higher concentration of air pollution in the north, more concentration of traffic congestion in the north and increased fiscal benefits from industrial development.
- A Western Growth Alternative was examined which concentrated the baseline population in the western portion of the County with a large government employment base in Fort Meade. The benefits were basically the same as the high growth in the north alternative except for noting the potential to develop Odenton as a major center, better support for the rail transit, and better use of the Baltimore Washington corridor and the costs of potential impacts on the Patuxent River and Severn Run wetlands and water quality.
- The final alternative examined was a Contained Pattern of development, which was the Alternative ultimately chosen. It showed a growth pattern that encouraged most new growth in and near current developed areas. Benefits noted were less consumption of rural and farm land, greater impetus to improve older communities, less total air pollution, less energy consumption, more accessible lower cost services, and a wider variety of housing types. The costs of this alternative included higher concentration of air pollution in urban areas, greater concentration of traffic congestion in highly urbanized areas, and higher land costs in older urbanized areas.

With the adoption of the 1978 Plan, the sewer service area boundary was revised to reflect

the Containment Alternative and the County's Growth Management Plan. The total service area narrowed to 58% of the County's land area while the existing service area grew to 14% of that total.

No comprehensive rezonings occurred after the 1978 GDP was adopted. Significant progress was made toward the achievement of the land use goals adopted in the 1978 GDP utilizing other implementation tools including:

- Creation of an Agricultural Land Preservation Advisory Board in 1978 that provided assistance to the County in the establishment of agricultural districts and approving easement purchases for the purpose of preserving agricultural resources.
- Adoption of an Agricultural Zoning bill (2-81) in 1981 to "foster the agricultural use of land and preserve the character of the County's Agricultural areas." This legislation reduced residential density in the agricultural areas from one dwelling unit per two acres to one dwelling unit per twenty acres.
- Adoption of the Patuxent River Policy Plan recommendations, formation of citizen-based watershed protection commissions in 1979, and environmental review of subdivision submittals were all implemented to help protect sensitive areas,
- Adoption in early 1985 of the Annapolis Neck Sector Plan that was a recommendation of the 1978 GDP. Subsequent comprehensive rezoning occurred in late 1985.

A 1986 Addendum to the 1978 GDP continued the Containment Alternative chosen in 1978 but further limited the growth area in the County by lowering densities along the Bay and shorelines of the rivers. Industrial park areas were added within the designated growth areas, and to provide an opportunity for a variety of commercial activities, significant commercial centers were added to discourage strip centers. The integrity of the rural residential and farming areas was maintained by redefining Rural from 1 dwelling unit per ½ acre to 1 dwelling unit per 2 acres, with the areas subject to the Agricultural Zoning Bill 2-81 defined as 1 dwelling unit / 20 acres. Also, the R-10 zoning district was implemented to produce a mix and variety of housing. In addition to land use changes, the County was preparing to implement the Chesapeake Bay Critical Area Act, watershed management plans for each river basin, stormwater techniques that would address water quality and quantity, and a water quality monitoring program. In 1990, most of the Lake Shore Area was removed from the public sewer service envelope in response to implementation of the 1986 GDP.

To implement the 1986 Addendum to the 1978 GDP, the County was comprehensively rezoned between 1986 and 1989 by assessment district or portions of assessment districts. The remainder of Assessment District 2 that was not rezoned with the 1985 comprehensive rezoning for the Annapolis Neck Areas was rezoned in 1988. The southern portion of Assessment District 3 and Assessment Districts 1, 7 and 8 were also comprehensively rezoned in 1988. The northern portion of Assessment District 3 and Assessment Districts 4 and 5 were comprehensively rezoned in 1989.

In 1997, the population of the County was approximately 460,000 and was forecasted to increase to 531,500 by the year 2020. The primary goal of the 1997 GDP was to "conserve areas of the County that are primarily rural, agricultural, open space and environmentally sensitive by concentrating development in other areas of the County that have existing or planned public facilities." Thus, key recommendations of the 1997 Plan included completion of watershed management plans, developing a Countywide greenways master plan, code revisions to protect historic resources and a mixed-use land use designation. Transit Oriented Development and Town Center study areas were recommended. More than 90% of the growth in the County occurred in the existing and planned sewer service areas. A key recommendation of the 1997 GDP was to

divide the County into 16 Small Planning Areas to produce plans for enhancing the quality of life of communities and implement the goals and recommendations of the 1997 GDP, as well as to promote resident, business and County cooperation in the planning and development process. This was a departure from how planning for the future of Anne Arundel County had occurred previously.

Following the adoption of the 1997 GDP, the County designated a Priority Funding Area (PFA), consistent with the "Smart Growth" Areas Act of 1997 in order to target funding for "growth-related" projects (e.g. highways, sewer and water infrastructure, economic development assistance, etc.) to suitable areas consistent with the 1997 land use plan.

Additionally, the County initiated Small Area Planning with 108 residents appointed from six areas of the County to serve on six different Small Area Plan Committees. The mission of the Committees was to work with County staff to develop a more detailed plan for land use, the environment, transportation and community facilities by using the 1997 GDP as the basis. The first round of Small Area plans began in February 1998. All 16 Small Area Plans were adopted under separate bills by the County Council by the end of September 2004. Comprehensive rezoning was conducted by Small Area after the adoption of most of the small area plans, with a few of the Small Area comprehensive rezoning bills bundled together.

In 2008, a decision was made not to update the Small Area Plans and but instead, to produce an update to the 1997 GDP that considered the visions of each of the Small Areas. The 2009 GDP provides goals, policies, and action statements related to balancing growth, development, and land preservation; targeting new development toward areas identified for growth; community revitalization; historic resource preservation; watershed protection; land conservation; provision of public services and facilities; agricultural preservation; and transportation services and infrastructure. The Plan established 3 development policy areas: Targeted Growth Areas, Managed Growth Areas and Rural Areas. Implementation of the 2009 GDP includes upholding the County's previously established goal of maintaining 80% of new development activity inside the PFA. Based on Annual Reports for the years 2010 through 2017, the cumulative percentage of new residential units approved within the PFA was roughly 83% of the total approved units, and the cumulative percentage of residential building permits issued was approximately 89 percent of the total permits issued. In addition, Land Preservation and Conservation efforts have also continued, especially in the South River Greenway, the Jug Bay Natural Area, the Magothy Critical Area, and the North and South Greys Bogs. Also, since 2010, over 2,100 acres of land has been acquired and protected in agricultural easements and Community Revitalization programs have been established to further implement the goals of the 2009 GDP.

Comprehensive rezoning occurred between 2010 and 2011 to facilitate implementation of the 2009 GDP. Legislation was introduced to the County Council under three separate bills and took ten months to complete. Council Bill 12-11 was introduced on 2/22/2011 for Council Districts 1 and 4 and adopted 5/16/2011; Bill 44-11 was introduced on 5/16/2011 for Council Districts 6 and 7 on and adopted on 8/15/2011; and Bill 66-11 was introduced on 9/6/2011 for Council Districts 2, 3 and 5 and adopted on 12/5/2011. Following the 2011 Comprehensive Zoning process, the County completed a comprehensive review of the PFA and made adjustments in accordance with State criteria and the new GDP land use policies and zoning changes.

Planning Process

On May 1, 2017, the County Council passed Resolution 18-17 urging the start of an update to the GDP that incorporates stakeholder participation. OPZ staff planned a three-phase process for the GDP update to answer the following key questions:

1. Where are we now?
2. Where and what do we want to be?
3. How do we get there?

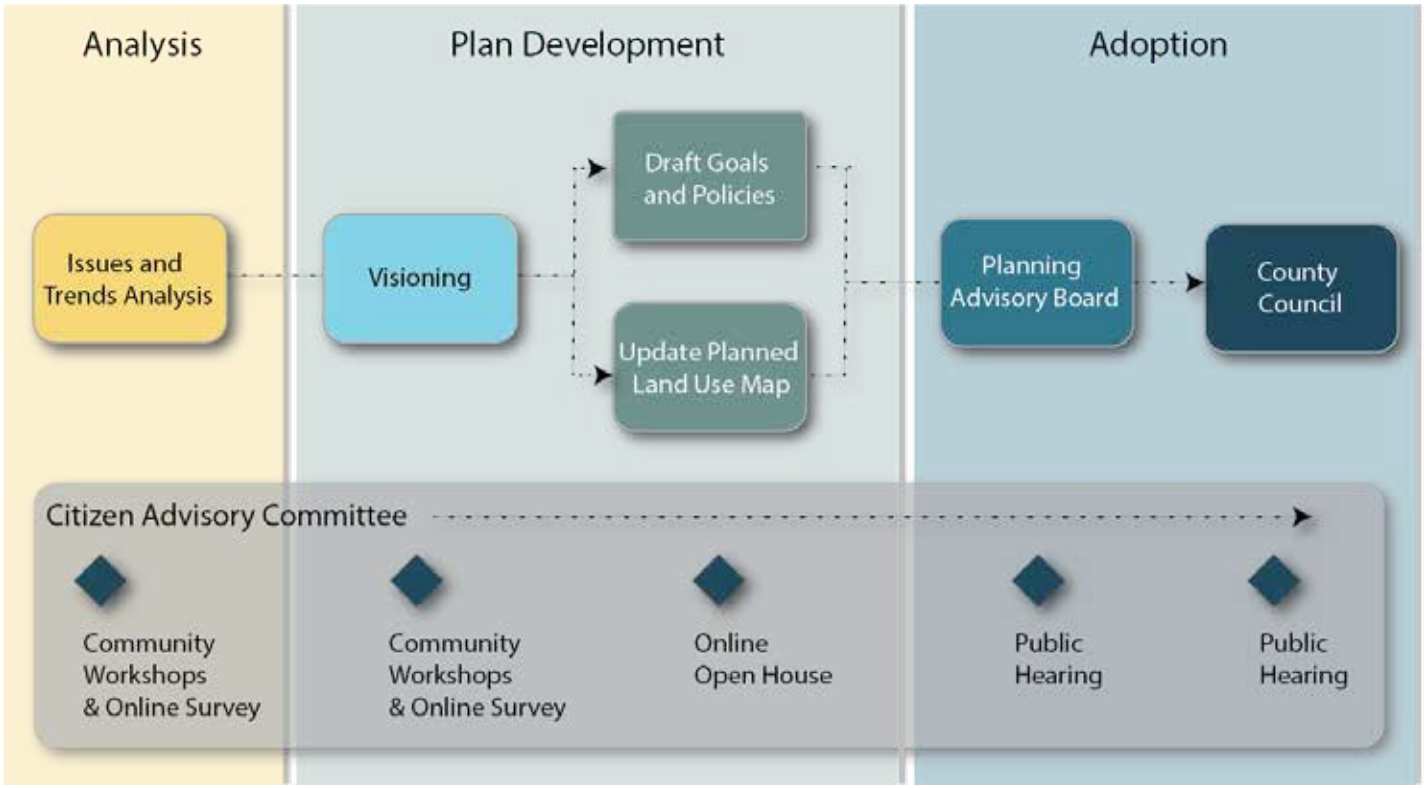
Phase 1: Analysis

The first stage in the planning process was to assess existing conditions in the County. The process started with a series of eight Listening Sessions throughout the County, as well as an online survey, aimed at understanding residents' perspectives on their values and the issues their communities face. County staff also prepared a series of nine Background Reports identifying challenges and opportunities in each of the topics Plan2040 addresses. In addition, OPZ contracted with a consultant to conduct a Land Use Market Analysis to study the County's economic and demographic trends, how these are projected to impact the demand for different land uses in the County, and how development policies and trends, if continued, could impact the future supply of land for various uses.

Phase 2: Visioning and Plan Development

The second phase of the planning process involved developing a Vision and supporting goals for the future of Anne Arundel and its communities. This phase involved gathering further community input through a series of seventeen Visioning meetings throughout the County, supplemented by online surveys and numerous meetings with stakeholder groups. Using information gathered from these sources, the Citizen Advisory Committee (CAC) developed a Vision and subsequent Vision themes that provided a common direction for the Plan2040 goals to support the Vision.

Plan2040, with its goals, policies and strategies, was developed using community input and background research from the analysis and visioning information. A central feature of Plan2040 is the Planned Land Use Map, which



will serve as a guide for implementing the preservation, growth and development ideals in the zoning and subdivision regulations, County master plans, and other implementation tools.

Phase 3: Adoption

Phase 3 focused on the formal adoption of Plan2040, with review and public hearings by the Planning Advisory Board on November __, 2020, introduction to the County Council on December __, 2020 followed by public hearings and adoption in _____, 2021.

Public Engagement Process

At the outset of the Plan2040 process in 2017, a key objective was to develop a robust public engagement program to allow stakeholders opportunities to provide guidance and input in the planning effort. The Public Engagement Plan outlined the following key Goals and Strategies for soliciting and gathering input during the Plan2040 development:

Goal: Establish an even stronger standard for enhanced stakeholder engagement in County Planning efforts.

- Create an enhanced stakeholder outreach process than was originally planned for Plan2040 to engage residents at the community level (the original Plan2040 process called for a more robust public input process than was carried out in the development and implementation of the 2009 GDP).
- Improve community outreach to restore public trust in County planning efforts creating an ethic of collaboration between residents and their government.
- Ensure all stakeholders buy-in to Plan2040 and subsequent planning efforts.

Goal: Gather information strategically to understand stakeholder vision for Plan2040

- Structure engagement activities to elicit substantive input that will help shape Plan2040.
- Ensure efficient use of limited staff / County resources.
- Continue evaluating how technology and tailored outreach methods can broaden the range of stakeholder input.

Goal: Ensure equitable stakeholder input so all County stakeholders are represented

- Improve the diversity of voices from all regions, age groups, sectors, and interest groups in the County.

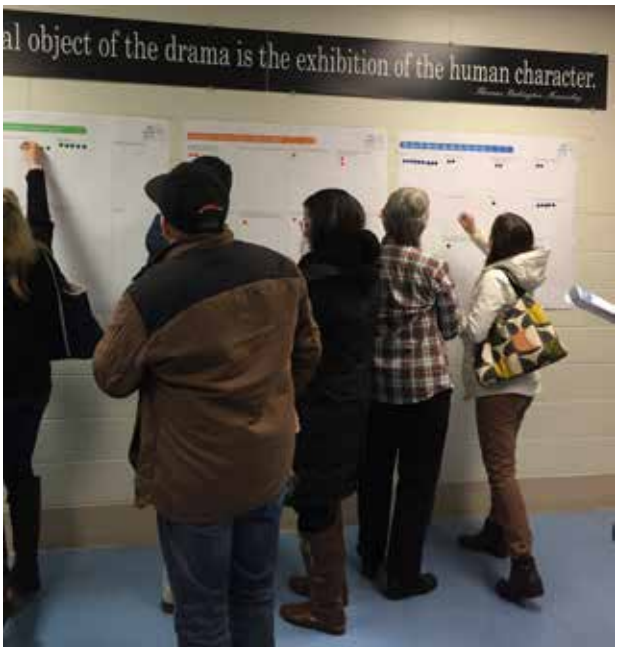
Goal: Ensure unified and positive public messaging across County staff

- Foster a culture of even greater collaboration between OPZ, Executive Staff, and County Departments and Agencies through engagement efforts and Plan2040 development.
- Ensure a common understanding of goals and objectives that is communicated clearly and consistently throughout the process.

During the three years of developing Plan2040, a range of public engagement activities gathered substantive input and feedback that helped inform the Plan's vision and goals for development and land use. Each of these engagement activities is described below; they are in addition to the Plan's CAC, the mandated Planning Advisory Board review and public hearings, and the County Council public hearings.

Plan2040 Webpage

A page within the OPZ webpage served as a repository of Plan2040 information for the public, including announcements of upcoming events, and updates of activities or drafts of mapping or documents associated with the development of Plan2040. The page also included a feedback form to a dedicated Plan2040 email address, available at any point in the Plan2040 process for people to submit comments and ideas on the Plan. Additionally, a Plan2040 listserve allowed interested stakeholders to register for periodic email updates from Planning and Zoning staff at key points in the planning effort.



Outreach Series 1

The first series of public outreach focused on gathering broad, initial input on the residents' values and vision for the future of the County. The primary activity was a series of eight Listening Sessions held at locations throughout the County during the fall of 2017 and winter of 2018. Each Listening Session was structured with an introduction explaining Plan2040, followed by input activities for the attendees, followed by a final open comment session for the attendees. A simultaneous online survey mirrored the input activities of the Listening Sessions for those who were not able to attend the live event. Nearly 400 people attended the live Listening Sessions, while over 400 people submitted online survey responses.

In conjunction with the eight Listening Sessions, a youth outreach event offered a day-long conference to teach high school students in the County about land use and comprehensive planning and gain their input for development of the Plan2040 vision, goals and recommendations.

To enhance outreach, Series 1 also included meetings with over thirty separate stakeholder groups to hear their perspectives on the County's issues and its future. This effort helped broaden the cross-section of interest-based perspective, ensure equitable stakeholder voice, and further education on the scope and progress of Plan2040. In addition, local media interviews to discuss the Plan2040 effort helped reach radio and Arundel TV audiences.

A comprehensive summary of all Series 1 outreach activities, including a profile of participants and detailed input results, is in the Appendix.

Outreach Series 2

On April 13th, 2019, a one-day Smart Growth Workshop was led by representatives from the non-profit organization Smart Growth America to provide educational sessions and kick-off the reconstitution of the Citizen Advisory Committee (CAC). With over 160 members of the public and the new CAC members in attendance, the workshop provided an overview of best practices in planning (including Smart Growth principles) and the impacts of changing demographics and trends in the knowledge economy. The workshop also provided an opportunity to collect critical feedback from stakeholder attendees. A summary of the workshop and the input received from participants is available in the Appendix.

Outreach Series 3

In May and June 2019, a series of 17 Visioning Meetings were held throughout the County. These were structured with Open House-style input activities and an open comment session. The main goals of this round of input was to review implementation of the 2009 GDP and prior Small Area Plan recommendations, gather input and prioritize former actions for future implementation, and help inform a Countywide Vision for Plan2040. An online survey mirrored the activities of the live Visioning Meetings.

In follow-up to the Visioning Meetings, another online survey was conducted to gather more detail about the top priorities identified in the Visioning Meetings and Listening Sessions. The responses were used to guide priorities, identify how and where the County should develop and what types of land uses are desired in the communities.

Summaries of the input from the Visioning Meetings and the subsequent online survey are in the Appendix.

Outreach Series 4

In response to the coronavirus pandemic, the County shifted all community engagement efforts to online platforms. An interactive online open house website, Plan2040 Community Engagement@Home, was developed to present the draft Goals and the draft Planned Land Use Map for public comment. The Plan2040@Home website was tested with the CAC, then made available for the public from August 5 to September 10, 2020. The website presented background information and drafts of the major elements of Plan2040 including the Vision, Themes, Goals, Policies, and Implementing Strategies, Development Policy Areas Map, Resource Sensitive Policy Areas Overlay Map, and the Planned Land Use Map. Users were able to provide comments through a set of surveys and interactive tools. Additionally, OPZ staff collaborated with Community Engagement and Constituent Services staff on three Town Halls to provide an orientation to the Plan2040@

Home website; approximately 180 community leaders and members of the public attended the virtual sessions. The website received over 4,000 visitors, and a summary of the public input is provided in the Appendix.

Outreach Series 5

[to be updated]

Anne Arundel County's natural environment is rich in diversity and is considered by many to be its greatest asset. The County has many large and small rivers, streams and coves that form over 500 miles of tidal shoreline including the Chesapeake Bay. The County contains extensive woodlands, farmlands, and designated environmentally Sensitive Areas such as tidal and nontidal wetlands, bogs and steep slopes. It is also home to a variety of animal and plant species. Water resources are a vital part of Anne Arundel County's environmental and economic health, as well as a valuable recreational resource.

One of the most commonly voiced concerns throughout the Plan2040 process has been the need for continued protection, conservation and management of the County's land and water.

The State's Land Use Article requires local jurisdictions to provide goals and policies within their comprehensive plans to protect designated sensitive areas from the adverse effects of development. Sensitive areas as defined by the State include: stream and wetlands, and their associated buffers, the 100-year floodplain, habitats of threatened or endangered species, steep slopes, agricultural or forest lands intended for resource protection or conservation, and any other area in need of special protection, as determined in a plan.

In addition, the Land Use article requires that a Water Resources Element be included in the comprehensive plan to identify drinking water and other water resources that will be adequate for the needs of existing and future development proposed in the land use element of the plan; and that suitable receiving waters and land areas meet stormwater management and wastewater treatment and disposal needs of existing and future development proposed in the land use element of the plan.

For counties seeking a State certification of its agricultural land preservation program, identification of Priority Preservation Areas and inclusion of a Priority Preservation Element in the comprehensive plan are required.

This chapter addresses natural resources, including those designated by the State as sensitive areas, land conservation, agricultural land preservation and water resources; and functions as the State's required Sensitive Areas, Water Resources and Priority Preservation Elements. While these elements could be discussed separately, they have been included in one chapter because of their relationship to one another and their importance in Anne Arundel County.

Sensitive Areas

The Chesapeake Bay is the largest estuary in the United States with a watershed area of over 64,000 square miles encompassing portions of New York, Delaware, Pennsylvania, Maryland, Virginia, West Virginia, and the District of Columbia. It is over 200 miles long and is fed by 48 major rivers and hundreds of smaller rivers and tributaries. Anne Arundel County, on the western shore of the Chesapeake Bay, is bordered almost entirely by water. The Patapsco River serves as the County's northern border; to the west is the Patuxent River; and to the east is the Chesapeake Bay. As a result of being almost surrounded by tidal and non-tidal waterways, the County has over 533 miles of shoreline and its landform contains twelve distinct watersheds.

This section addresses the sensitive areas located in Anne Arundel County including streams and their buffers, the 100-year floodplain, nontidal wetlands and their buffers, habitats of threatened and endangered species, steep slopes and agricultural and forest conservation areas. In addition, the section goals and policies designed to protect sensitive areas from the adverse effects of development and recommendations to address identified needs in further protecting these areas are provided in Natural Environment Goals 1, 2 and 3 in Volume I of Plan2040. The County's sensitive areas are depicted in Figures 1 through 8. For detail maps of each sensitive area, see the background report Environmental Protection and Resource Conservation at the Plan2040 website.

Streams and Stream Buffers

Most of the 1,750 miles of non-tidal streams in the County are short, first- or second-order headwater streams that are slow moving with a very low gradient. Stream buffers are important in controlling nutrient and sediment runoff, maintaining stream temperatures, and providing aquatic and wildlife habitat. A stream buffer is an undisturbed strip of natural vegetation contiguous with and parallel to the bank of a stream that functions to provide bank stabilization, moderate water temperature, provide a degree of sediment and pollutant removal, provide groundwater storage/recharge for a stream and provide wildlife habitat, open space, or both.

While current County Subdivision regulations prohibit development within a stream bed or within a 100-foot non-disturbance stream buffer, past allowance of modifications have had a negative impact in these sensitive areas. An evaluation, conducted during the County's comprehensive watershed assessment and planning process, indicates that the majority of streams within the County's watersheds have vegetated buffers of at least 50 feet in width. Observations of stream buffer width reduction or total absences of stream buffers are most often found in association with developed lands. Additionally, the headwaters of many nontidal streams found in the older and more densely developed areas of the County have been enclosed in pipes or confined to man-made concrete-lined channels. More often than not, these stream systems have no vegetated buffer. Moreover, these headwater systems usually drain land development that occurred prior to stormwater management requirements. Stormwater runoff, and nonpoint source pollution, is rapidly carried away from the paved portions of the land through these man-made conveyances. The runoff is eventually discharged to a downstream waterway via a culvert outfall. The result of uncontrolled runoff and discharge is manifested as a degraded natural stream channel characterized by steep-sided and slumping banks, scour pools near the outfall, a stream bed characterized by headcuts, trash strewn throughout the reach, and increased sediment deposition.

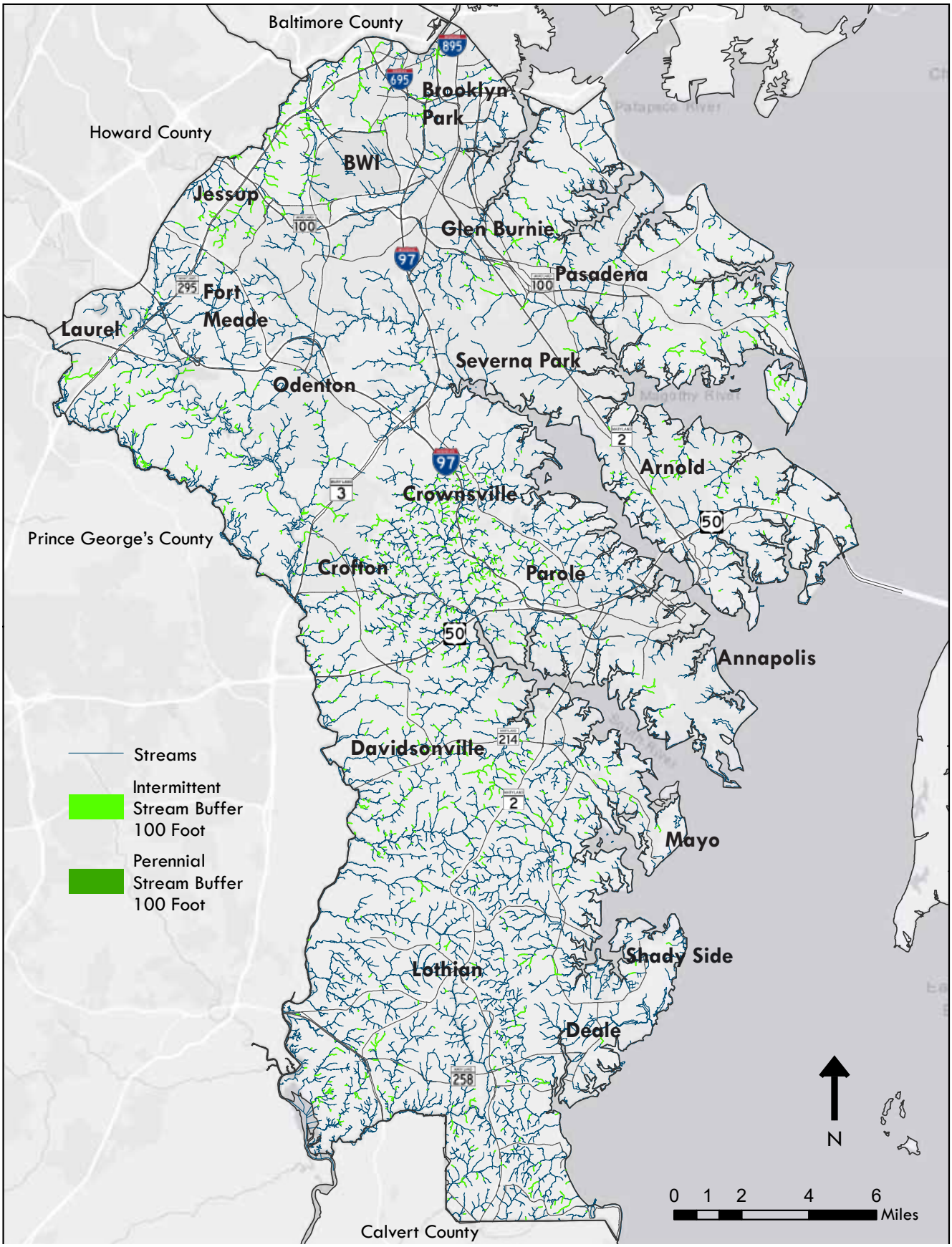
Many jurisdictions across the United States are now looking at "daylighting" previously enclosed streams so they can begin to function as natural waterways. The benefits of daylighting include reducing runoff velocities and preventing stream bank erosion; enhancing floodplain function; improving water quality by exposing water to air, sunlight, vegetation, and soil, all of which reduce nonpoint source pollution; creating aquatic and riparian habitat for fish and wildlife; providing recreational amenities; and creating or linking urban greenways.

State Antidegradation Policy and Tier II Waters

Currently, all of the waters in Anne Arundel County are within Tier 1 with the exception of three stream segments. The County contains three Tier II stream segments, two located on Lyons Creek in the southern portion of the County and one along the Patuxent River. The three stream segments are designated High Quality Tier II waters due to exceptional aquatic biological community conditions (fish and aquatic benthic macroinvertebrates) from within the stream. The first segment of Lyons Creek was listed as a Tier II waters in 2003; the second segment was listed in 2007; the segment of the Patuxent River was listed in 2009.

Jabez Branch

Jabez Branch, a tributary to the Severn River, is unique among streams in Anne Arundel County in that it supports a naturally reproducing population of brook trout (Salvelinus fontinalis), the only population known to exist in the Coastal Plain physiographic region of Maryland. Because of the presence of this coldwater fishery, Jabez Branch is a Designated Use III water (a designation specific to use as a naturally reproducing trout stream) by the MDE, the only such designation by MDE in the Coastal Plain region.


Baltimore County
Howard County
Prince George's County
Calvert County
Brooklyn Park
BWI
Jessup
Glen Burnie
Pasadena
Fort Meade
Laurel
Odenton
Severna Park
Arnold
Crownsville
Crofton
Parole
Annapolis
Davidsonville
Mayo
Shady Side
Lothian
Deale
Streams
Intermittent Stream Buffer 100 Foot
Perennial Stream Buffer 100 Foot
N
0 1 2 4 6
Miles

Protection of the Jabez Branch subwatershed has been a priority environmental goal as evidenced in the 2003 Odenton Small Area Plan and the 2009 GDP. County staff have previously worked with the Severn River Commission to develop requirements for an environmental overlay zone specific to this subwatershed that would minimize the impacts from stormwater runoff and sediment loading to the stream, maintain or reduce existing impervious surfaces levels, maintain adequate stream flow and temperature to protect the coldwater temperature and flow regime, and establish and maintain wider forested riparian buffers than currently required under County stormwater management regulations to protect the overall ecosystem quality. An overlay zone has not been adopted to date.

100-year Floodplain

The 100-year floodplain is the land area adjoining a river or stream that has a 1% or greater probability of flooding in any given year. In general, a floodplain is a relatively flat or low land that is subject to partial or complete inundation from floodwater. Historically, 100-year floodplain protection requirements were used to guard against injury to people and to prevent destruction of property. In the context of sensitive areas protection, relatively undisturbed floodplains also serve a variety of environmental functions.

A floodplain is an integral part of the stream system. It provides storage capacity for high flows, helps reduce the erosive power of the stream during a flood, reduces the discharge of sediment during high flow periods and helps floodwaters to move downstream. Floodplains also offer opportunities for wildlife habitat that can increase the biotic diversity of a stream. Floodplains provide water quality benefits as well. It is vital that the 100-year floodplain be kept in its natural state to protect public safety and the quality of streams and their habitats.

Anne Arundel County is prone to three types of flooding: nontidal flooding from rivers and streams; tidal flooding from storm surges and tides; and coastal flooding caused by intense winds and heavy rains from tropical storms, hurricanes and steady on-shore winds and elevated tide levels.

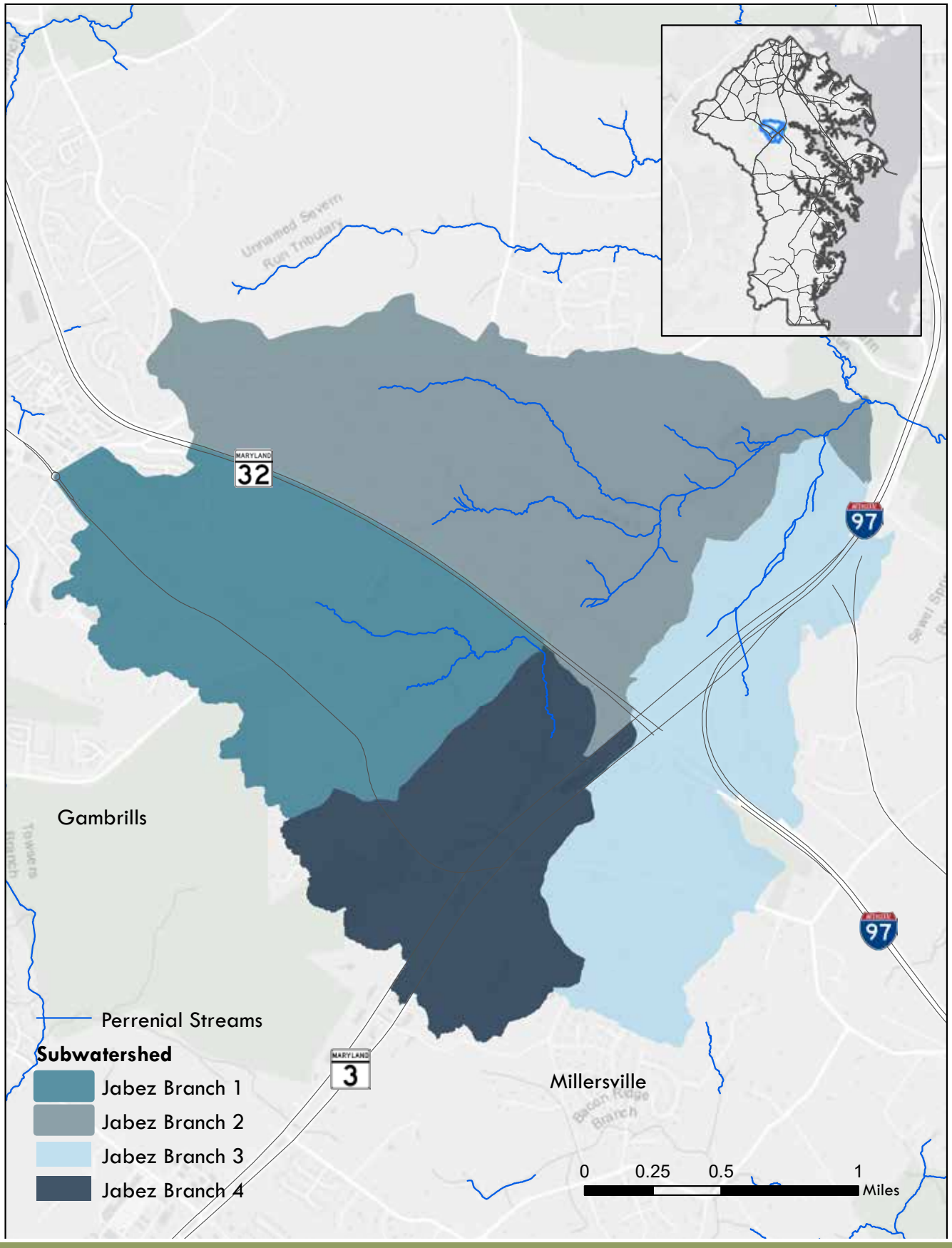
Floodplains in the County are protected through the Floodplain Ordinance (Article 16), the Subdivision and Development Ordinance (Article 17) and the Zoning Ordinance (Article 18). The Floodplain Ordinance defines the floodplain districts, requires delineation of the floodplain on development plans submitted to the County, requires structures to be elevated above the 100-year flood level and that safe vehicle access to and egress from a development is provided. The Subdivision Ordinance requires subdivisions with floodplain areas that are not deeded to the County as open space to provide an easement for access to and maintenance of the floodplain. Some of the floodplain area in the County is zoned Open Space, which allows protection of the floodplain in its natural state. Additionally, the stream buffer requirements associated with stormwater management for new development also serve as a means of floodplain protection.

Due to increasing climate change effects on sea-level rise and coastal flooding in the County (discussed in more detail in the next chapter, Planning for the Built Environment), new flood protection management mechanisms will need to be addressed.

Wetlands

Wetlands, as defined by the MDE, are areas that hold water for significant periods during the year and are characterized by anaerobic (low oxygen) conditions favoring the growth of specific plant species and the formation of specific soil types.

For resource management purposes, the U.S. Fish and Wildlife Service developed a scientifically based definition of wetlands that helped ensure accurate and consistent wetland determinations. This definition emphasizes three key attributes of wetlands: 1) hydrology – the degree of flooding or soil saturation, 2) wetland vegetation (hydrophytes), and 3) hydric soils.


Unnamed Severn Run Tributary
MARYLAND 32
97
97
Gambrills
Millersville
MARYLAND 3
Perrenial Streams
Subwatershed
Jabez Branch 1
Jabez Branch 2
Jabez Branch 3
Jabez Branch 4
0
0.25
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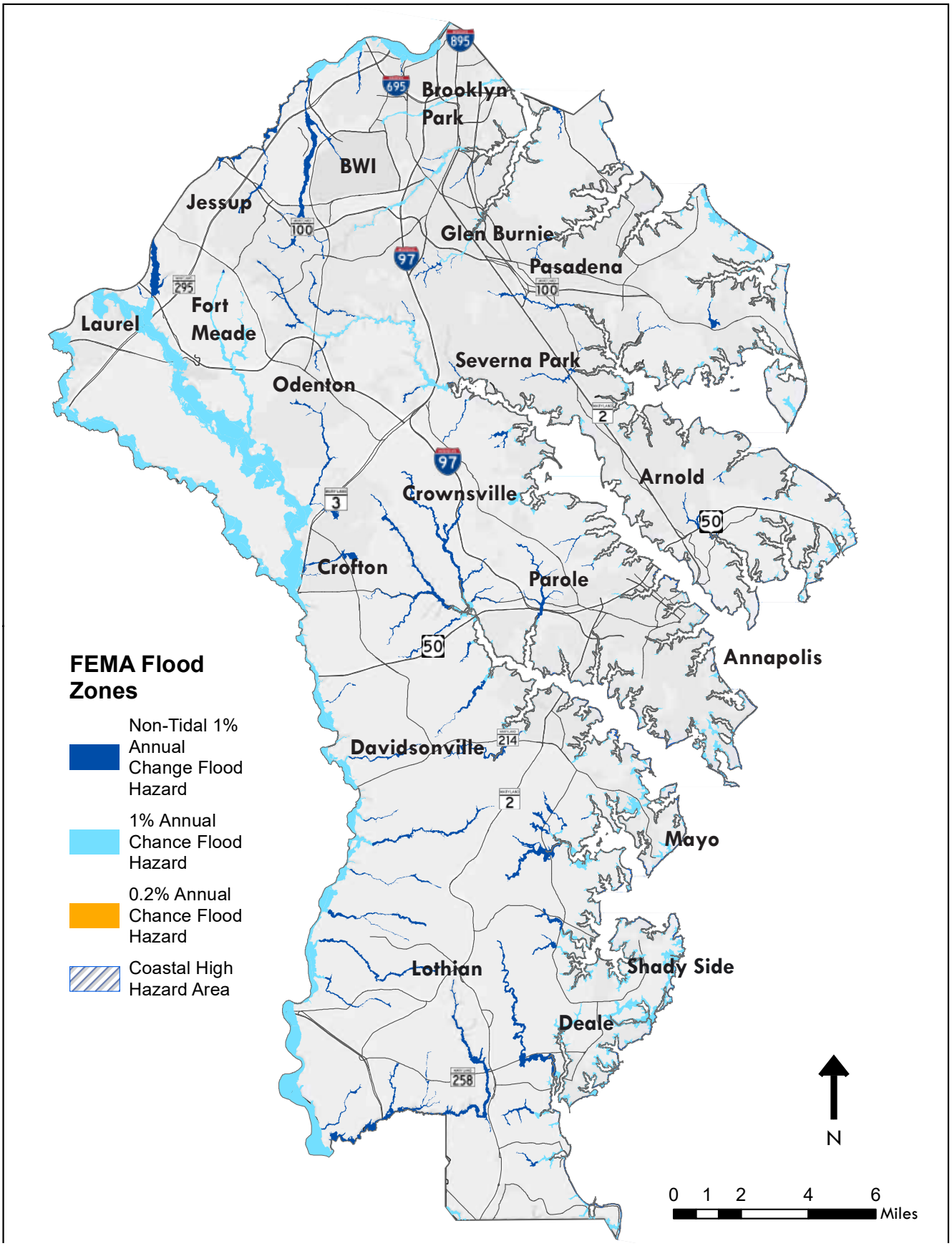

Brooklyn Park
BWI
Jessup
Glen Burnie
Pasadena
Fort Meade
Laurel
Severna Park
Odenton
Arnold
Crownsville
Crofton
Parole
Annapolis
Davidsonville
Mayo
Lothian
Shady Side
Deale
FEMA Flood Zones
Non-Tidal 1% Annual Change Flood Hazard
1% Annual Chance Flood Hazard
0.2% Annual Chance Flood Hazard
Coastal High Hazard Area
N
0 1 2 4 6
Miles

This further defines wetlands as all areas having enough water at some time during the year to stress plants and animals not adapted for life in water or saturated soils.

Wetlands are important natural resources providing numerous values to society, including fish and wildlife habitat, flood protection, erosion control and water quality protection and improvement. Wetlands comprise a range of environments within interior and coastal regions of Maryland and include both tidal and nontidal wetlands.

Nontidal Wetlands and Buffers

On the Western Shore of Maryland's Coastal Plain, nontidal wetlands have more varied topography and are generally easier to delineate in comparison to wetlands on the Eastern Shore. These wetlands are often located near streams, although the prevalence of long-term overbank flooding is rare in these areas. Most Western Shore wetlands are supported by a localized, perched water table rather than by shallow groundwater.

Within Anne Arundel County, over half of all wetlands are considered upland or non-tidal wetlands. These are areas where water is the primary factor controlling the hydrology and associated plant life. There are many types of non-tidal wetlands such as forested wetlands, scrub-shrub wetlands, and wet meadows. Non-tidal wetlands provide many of the same environmental functions as tidal wetlands, including providing habitat for fish and wildlife, maintaining water quality and flood control, reducing nutrients from runoff, and recharging groundwater.

The County protects these areas through enforcement of the Chesapeake Bay Critical Area Program, the sensitive areas criteria of the County Grading Ordinance (Article 16, Title 2), and the County Subdivision Ordinance by requiring a 25-foot buffer around nontidal wetlands except in the Parole Growth Management Area, where it is set between 25-75 feet depending on quality and function of the wetland (Article 17, Title 6, Subtitle 4 and Title 7, Subtitle 9). In addition, Article 18, Title 11 of the County Code requires a 50-foot buffer to nontidal wetlands for sand, gravel and clay extraction. All projects that impact wetlands are required to obtain approval from the U.S. Army Corps of Engineers and MDE. See COMAR Title 26, Subtitle 23 Nontidal Wetlands and Subtitle 24 Tidal Wetlands for State regulations pertaining to wetlands.

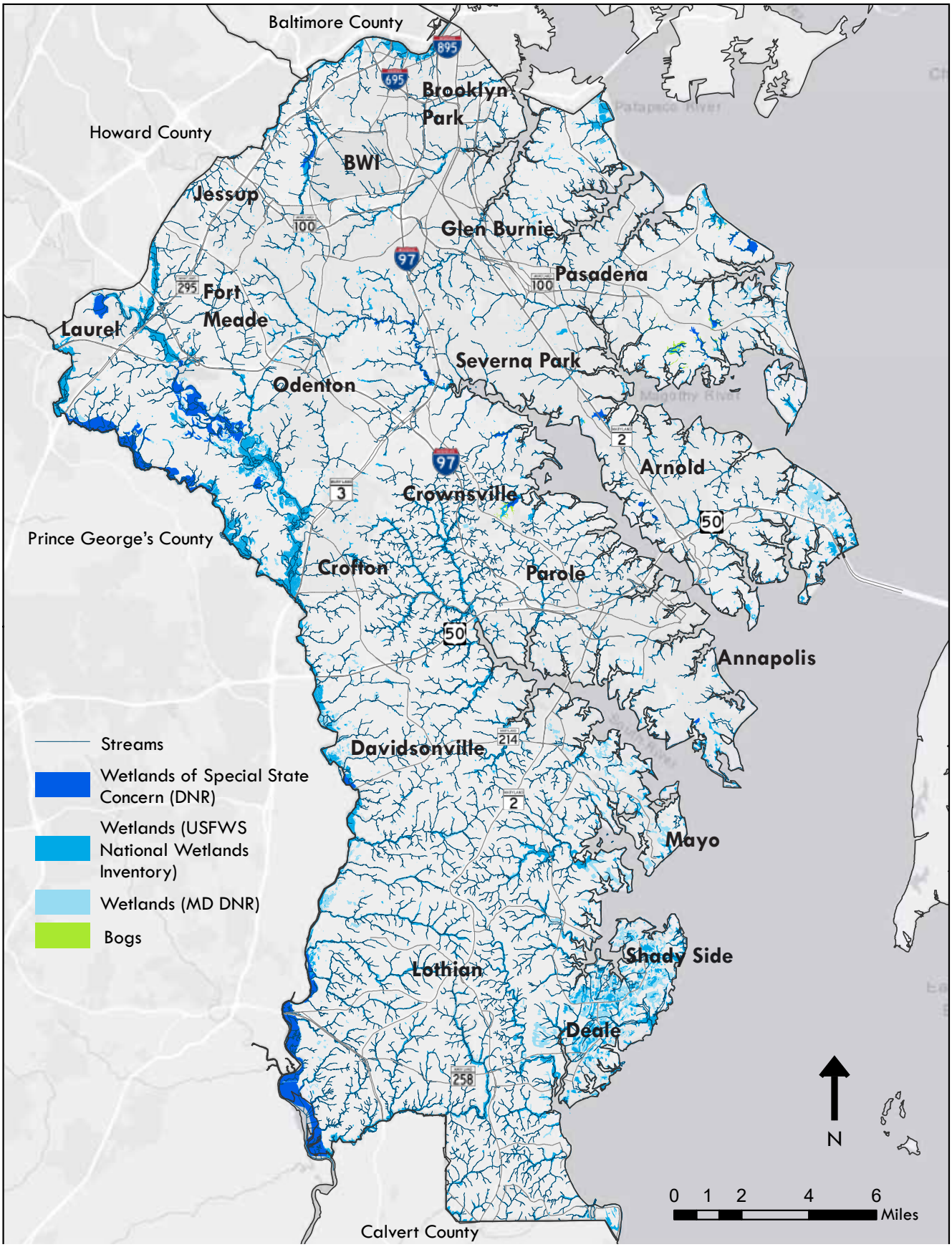
Tidal Wetlands

Tidal wetlands have long been recognized as an important component in the health of the Chesapeake Bay. They provide numerous environmental benefits such as filtering sediment and nutrients from upland runoff, controlling flooding and shoreline erosion, providing nurseries for shellfish and finfish, absorbing nutrients from the water column, and providing valuable habitat for many aquatic and terrestrial species of flora and fauna. In addition, Tidal wetlands are critically important to commercial and recreational fisheries. Many of the Chesapeake Bay's commercial fin and shellfish spend a crucial part of their early life cycle in tidal wetlands, and use these areas as refuge from predators.

The County protects tidal wetlands through implementation and enforcement of the Critical Area Program, discussed later in this report. Through the permitting process, any proposed impacts to tidal wetlands are assessed to determine compliance with Critical Area requirements, including the requirement for a 100-foot buffer to tidal wetlands. Additionally, the County coordinates with the U.S. Army Corps of Engineers and MDE to prevent adverse impacts to tidal wetlands from development projects and shoreline stabilization projects.

Bogs

Bogs are classified by MDE as Nontidal Wetlands of Special State Concern, which provides them special protection under the State's nontidal wetland regulations. According to MDE, bogs are open, acidic, wetlands with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Streams
Wetlands of Special State Concern (DNR)
Wetlands (USFWS National Wetlands Inventory)
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few of the nutrients most common plants need to survive. These wetland sites have exceptional ecological and educational value and offer landowners opportunities to observe and safeguard the beauty and natural diversity of Maryland's best remaining wetlands. Many of these special wetlands contain populations of rare and endangered native plants and animals. Other nontidal wetlands of Special State concern represent examples of unique wetland types and collective habitats for species that thrive in specialized environments.

Anne Arundel County has several bogs within the Magothy River Watershed, the Severn River Watershed and along the Tidal Patapsco River. Within the Magothy River Watershed, along the north shore of the river, these bogs include: South Gray's Creek Bog, North Gray's Creek Bog Complex, Fresh Pond Bog, Main Creek Bog, Eagle Hill Bog, Shady Pond Bog, Blackhole Creek Bog and Cockey's Creek Bog. Along the south shore of the Magothy River watershed are the Dill Road Bog, Cypress Creek Bog and the Cypress Creek Atlantic White Cedar Forest. Bogs within the Severn River Watershed include the Deep Ditch Bog, Gumbottom Bog and Sullivan's Cove Atlantic White Cedar Forest. Along the Tidal Patapsco River, between Main Creek and Rock Creek is the Hines Pond Bog.

Anne Arundel County recognizes these unique systems as being worthy of preservation and protection. Article 18, Title 14 of the County Code sets forth the protective requirements via a Bog Overlay Zone. The bog protection area is divided into the following classifications: bog, contributing streams, 100-foot upland buffer, limited activity area, and contributing drainage area. Additionally, Article 17, Title 9 of the County Code prohibits disturbance of any kind within a bog and the contributing streams. It further stipulates development requirements within the 100-foot upland buffer and the contributing drainage areas.

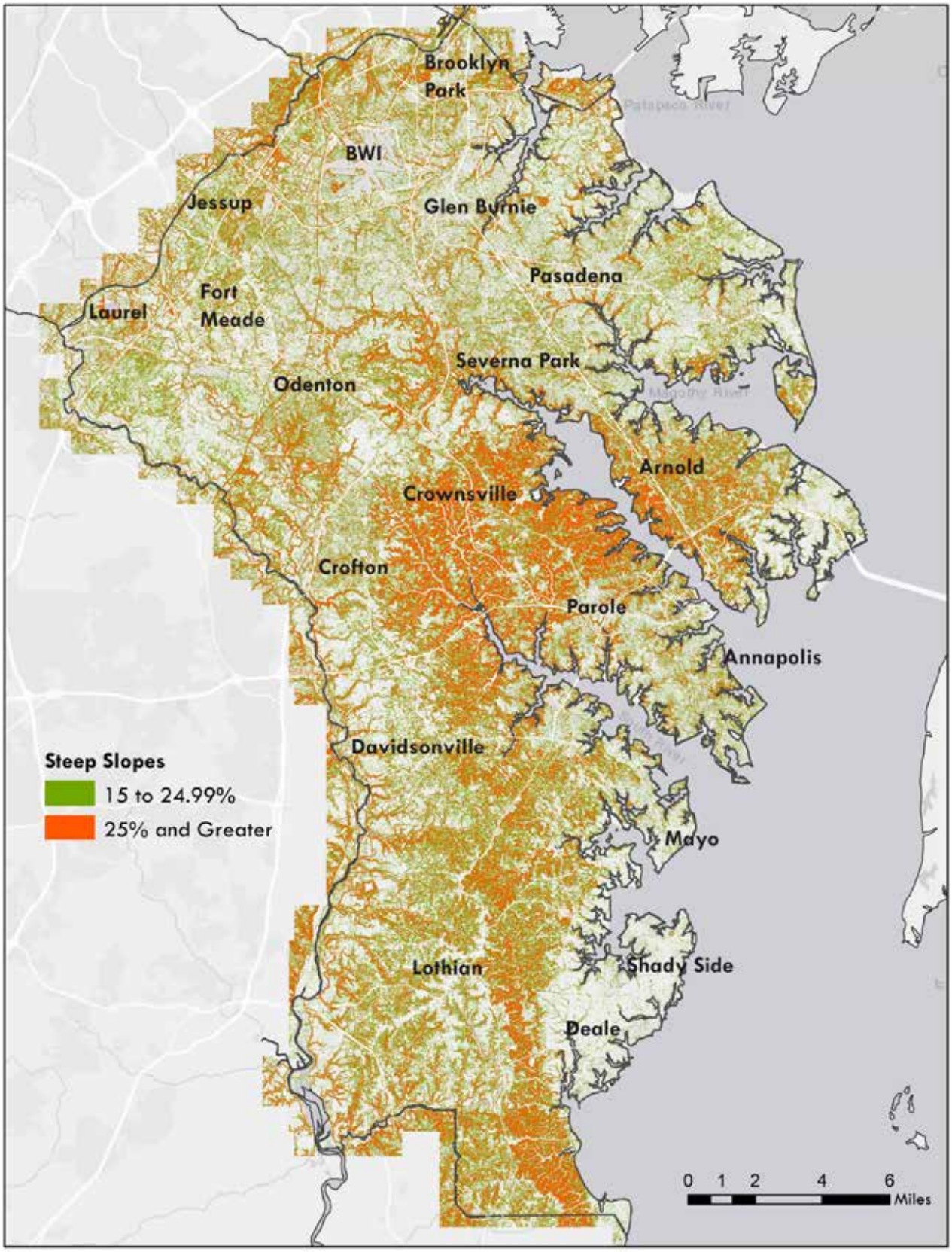
Steep Slopes

Slopes provide an environment for movement of soil and pollutants during land disturbance. Soils have varying degrees of erodibility and all soils are subject to some degree of movement. Control of this movement, or erosion potential, is often achieved by focusing environmental regulations on those areas where the slope of the land is sufficiently steep to make soil movement a problem. These are considered "steep slopes."

The preservation of steep slopes adjacent to streams, wetlands, and tidal waters is particularly important because of the potential harm to water quality and aquatic habitat that would result from soil erosion. In addition to the loss of water quality and habitat, disturbance of steep slopes can lead to landslides, flooding, and other hazards.

Steep slopes are defined in the County Code (Article 17-1-101(83)) as those that have a 25% or greater slope and that have an onsite and offsite contiguous area that is greater than 5,000 square feet over 10 feet vertical as measured before development. In the Critical Area and designated sensitive areas, steep slopes are defined as those that having a 15% or greater slope that is over six feet vertically as measured before development. Most of the steep slopes in the County occur along the rivers and streams. A nearly continuous stretch occurs between the headwaters of the Severn River to the County's southern boundary near Herring Bay. The most severe slopes are along the Severn and South rivers.

Anne Arundel County protects erosion of steep slopes through the Subdivision Ordinance. Development in the County may not occur within steep slopes or within 25 feet of the top of the steep slopes where the onsite and offsite contiguous area of the steep slopes is greater than 20,000 square feet unless development will facilitate stabilization of the slope or the disturbance is necessary to allow connection to a public utility. In the RCA and LDA overlay zones of the Chesapeake Bay Critical Area, development may not occur within slopes of 15% or greater unless development will facilitate stabilization of the slope or the disturbance is necessary to allow connection to a public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Steep Slopes
15 to 24.99%
25% and Greater
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utility. In addition, steep slopes are considered a primary environmental feature within the Stormwater Practices and Procedures Manual. They must be documented as part of the development process.

Habitats of Rare, Threatened, and Endangered Species (RTE)

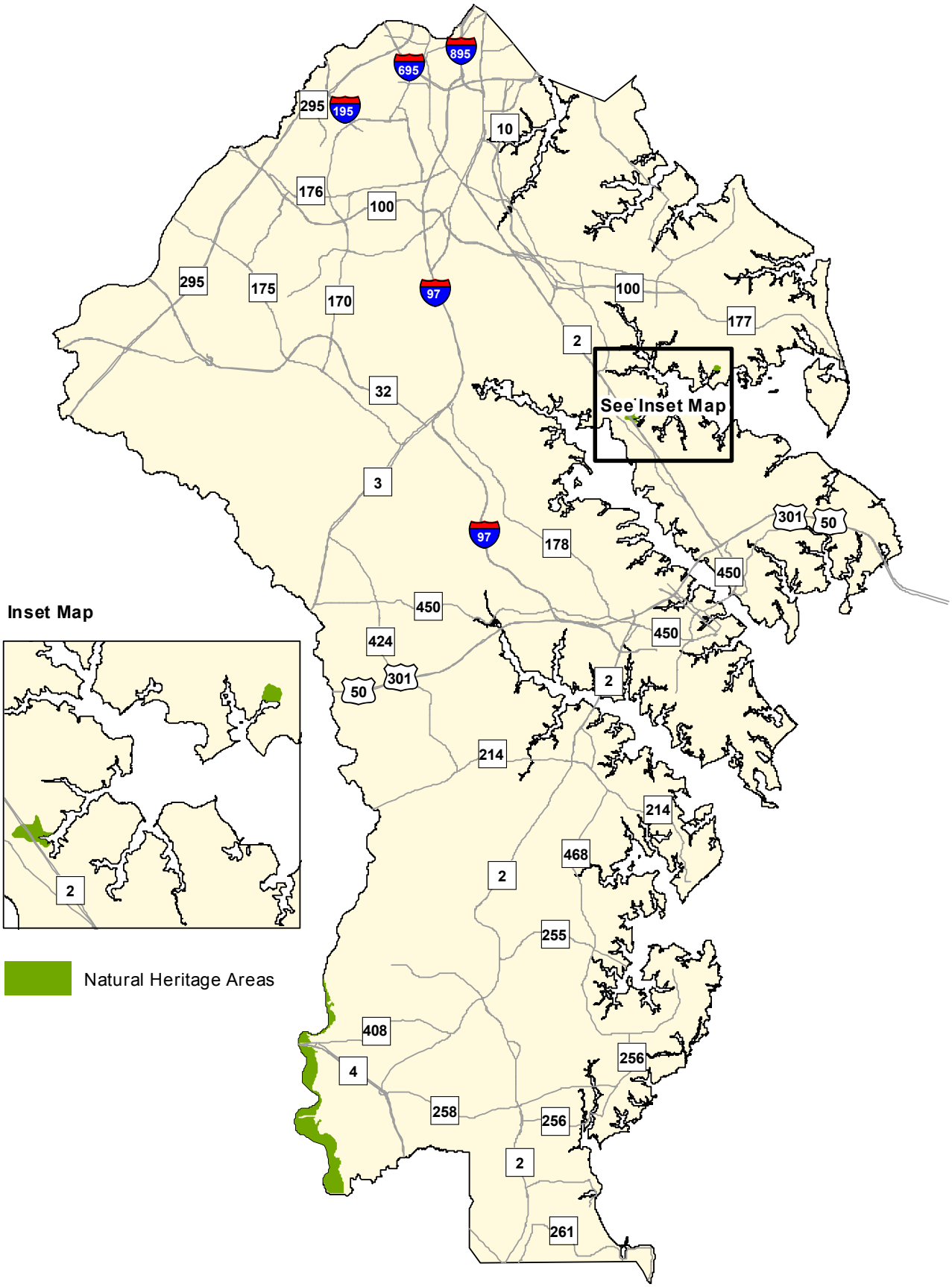
As of June 2019, MDNR has identified 40 animal species and 137 plant species classified as endangered, threatened, or in need of conservation in Anne Arundel County.

Currently, there are three distinct areas designated as Natural Heritage Areas within Anne Arundel County. These areas have been identified by the State as containing one or more threatened or endangered species or wildlife species in need of conservation; being unique blends of geological, hydrological, climatalogical or biological features; and being considered to be among the best Statewide examples of their kind. The three designated Natural Heritage Areas (Cypress Creek Swamp, Eagle Hill Bog, and the Upper Patuxent Marshes; Figure 6) encompass approximately 2,646 acres of protected lands.

The Natural Heritage Areas Program has also established review areas through the State. Whenever there are proposed development projects within these review areas, MDNR will review the proposal and work with landowners to ensure that they do not negatively affect sensitive plant and animal species within them. In select circumstances, the Natural Heritage Areas Program will cooperate with local non-profit organizations to acquire land that encompasses RTE species. The Natural Heritage Areas Program will also manage and maintain community projects through restoration and invasive species management. In 2016, MDNR developed a Pollinator Habitat Plan that sets forth the Maryland Forest Service and Wildlife Management Area System's goals of protecting Maryland's natural resources, including RTE habitats.

The County defers to the recommendation of the State and Federal agencies in establishing the appropriate buffers to these habitats. Additional protection of RTE species is provided through the County's Critical Area Program.

Policies and strategies to strengthen the protection of the County's Sensitive Areas are located in Plan2040.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Natural Heritage Areas

Land Conservation

Land conservation is an important component of natural resource protection. Sensitive areas and other natural areas such as forests, greenways, and open spaces provide many valuable environmental benefits such as flood control, soil erosion control, filtration and absorption of pollutants. They can also provide corridors for wildlife habitat and recreation, help to absorb greenhouse gases, and their cooling effect can reduce energy costs. Currently, County-owned natural resource lands total about 10,410 acres and approximately 14,560 acres of natural resource lands are owned by either the State of Maryland or the Federal government. The largest holding is the 8,850-acre Patuxent National Wildlife Refuge. Thousands of additional acres are protected through land trusts and private, individual ownership.

Several programs and legislation noted in the Planning Framework Section of this document that have helped in facilitating the protection of the County's natural resources include Program Open Space, the Rural Legacy Program, the Patuxent River Policy Plan, the Forest Legacy Programs, Maryland Environmental Trust programs, the Forest Conservation Act of 1991, the Forest Land Incentive Program, GreenPrint and the Sustainable Forestry Act of 2009. In addition, the following County initiatives described in more detail below have contributed to natural resource protection.

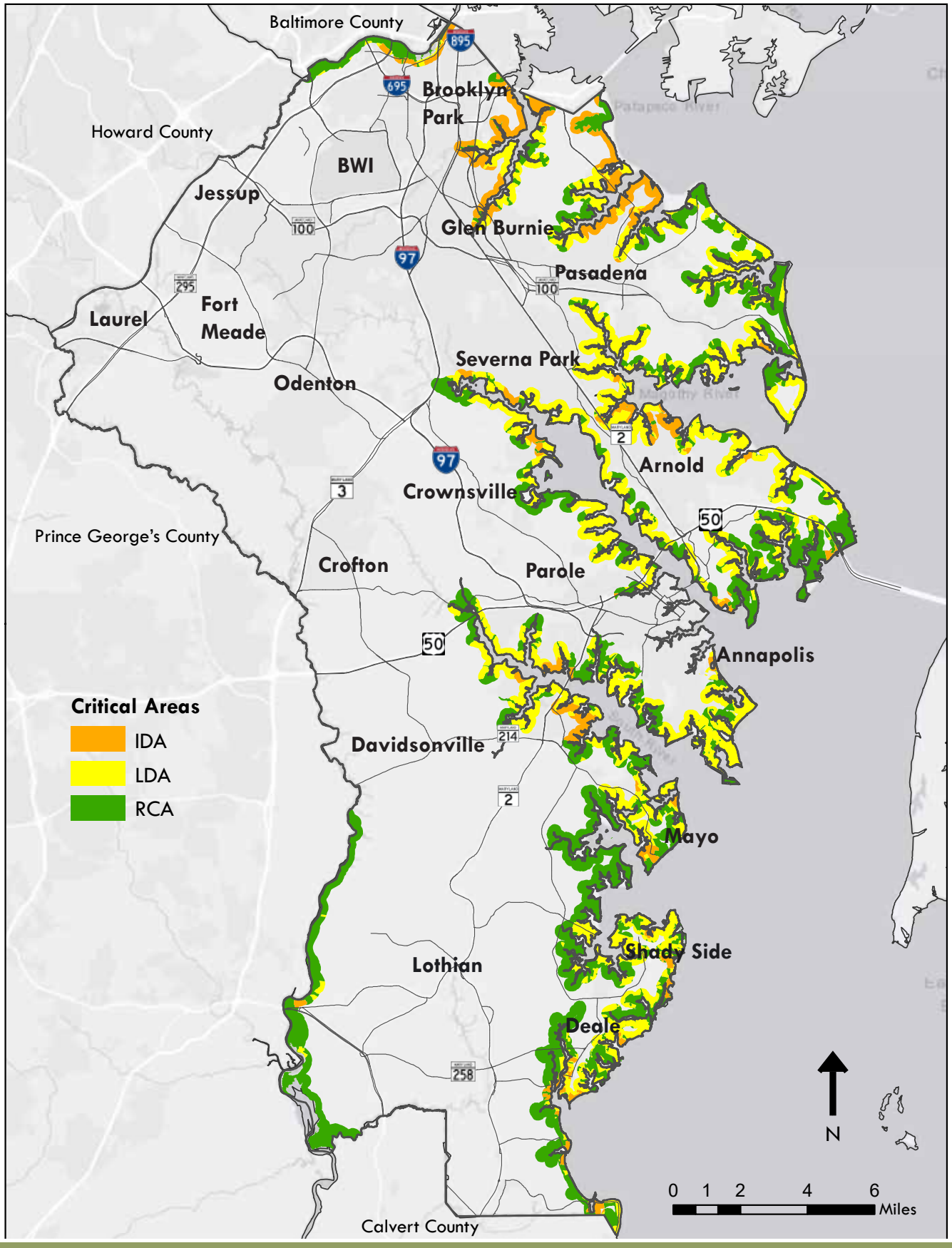
Chesapeake Bay Critical Area

The Critical Area within Anne Arundel County comprises approximately 49,000 acres. As directed by the State criteria, the County's Critical Area Program designated three categories of land development within the Critical Area. Designations were based on existing development and public services available as of December 1, 1985. The three designations and a summary of development criteria are:

1. Intense Development Area (IDA) - those lands where existing or adjoining uses were predominantly higher density residential, commercial or industrial. IDAs can be developed with medium to high-density housing, commercial, or industrial uses, according to the underlying zoning designation. Pollutant loadings must be reduced by 10% and Habitat Protection Areas (HPA) must be protected. A minimum 100-foot stream buffer is required
2. Limited Development Area (LDA) - moderately developed lands. LDAs can be developed with low to medium density housing (a maximum of less than 4 units per acre), commercial and small industrial uses according to the underlying zoning designation. Generally, lot coverage is limited to 15% of the area of the site within the Critical Area. Additionally, the minimum 100-foot buffer must be maintained, and other HPAs are protected.
3. Resource Conservation Area (RCA) - primarily undeveloped or low density developed lands; approximately 21,900 acres of County land (8%) is within the RCA area. RCAs are limited to one dwelling unit per 20 acres, agricultural and forest uses, and resource utilization according to the permitted use list. Generally, lot coverage is limited to 15% of the area of the site within the Critical Area. Additionally, the minimum 100-foot buffer must be maintained, and other HPAs are protected.

The County has a buffer modification program for areas where there is no existing functioning minimum 100 foot buffer. Forest clearing is limited, and when allowed, must be replaced. Developments on unforested sites are required to establish 15% of the site in forest. The Critical Area Program also has special regulations for the following specific areas: water dependent facilities, shore erosion protection works; forest and woodlands; agriculture; surface mining; and natural parks.

Anne Arundel County is in the process of updating the Critical Area boundaries using updated State mapping criteria as required by legislation enacted in 2008.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Land Preservation, Park and Recreation Plan (LPPRP)

The LPPRP recognizes four designated conservation areas and implementation programs within Anne Arundel County that have been set forth to conserve natural areas:

1. The Resource Conservation Area portion of the Chesapeake Bay Critical Area
2. The Priority Preservation Area
3. Greenways from the County's Greenways Master Plan
4. Portions of the County Open Space Zoning District that are not within the Greenways Network that comprise conservation areas, parkland and other open space

See the Anne Arundel County Recreation and Parks website for the most recent LPPRP update.

Green Infrastructure

The 2002 Greenways Master Plan primarily use an ecological approach of wooded hubs (at least 250 acres) and corridors (at least 200 feet wide) to delineate the greenways network. A preliminary draft Green Infrastructure Plan expands the ecological definition to include other contiguous areas that are significant for implementing the vision and organizes the network by watersheds to provide better planning, implementation and consistency with how data and environmental resources are analyzed. The green infrastructure network includes Federal, State and County parks, public and private lands acquired for preservation; agricultural, forest conservation, floodplain, wetland and open space easements; trails; historic and cultural resources; land zoned Open Space; and undeveloped lands that meet the minimum criteria for size, protection status, and land use characteristics. Figure 8 illustrates the preliminary draft Green Infrastructure Network.

Approximately 28% of the County's land area has been protected through implementation of the County's Green Infrastructure Master Plan. Table 1 provides a comparison of land in the Greenway/Green Infrastructure Network and its level of protection since 2002.

Anne Arundel County Forest Conservation Program

Anne Arundel County's Forestry Program (housed within the Department of Inspections and Permits) administers the reforestation and afforestation requirements of the Critical Area Program and the Maryland Forest Conservation Act (Article 17, Title 6, Subtitle 3). In general, these requirements apply to new subdivision plans as well as applications for grading and sediment control permits on sites that are greater than 40,000 square feet. The subdivision plan or permit application must include a forest stand delineation and a forest conservation plan that:

1. Identifies, delineates and characterizes forested areas, specimen trees, floodplains, erodible soils, and other sensitive areas on the site;
2. Establishes forest retention areas or reforestation areas that meet a minimum conservation threshold; and
3. Protects these areas through forest conservation easements.

There are alternative approaches allowed for meeting the minimum threshold requirements, but the order of preference is as follows:

1. Retention of existing forest on the site, particularly in priority retention areas such as floodplains, stream or wetland buffers, or steep slopes;
2. Onsite afforestation or reforestation;
3. Offsite afforestation or reforestation;
4. Natural regeneration onsite or offsite; and
5. Payment of a fee-in-lieu to the County's Forest Conservation Fund. Money in this fund can be used for acquisition of forested areas for conservation, reforestation or afforestation costs, or program administration.

Table 1. Comparison of 2002, 2010 and Proposed 2018 Greenways Network

	2002		2010		2018	
	Acres	% of Greenways Network	Acres	% of Greenways Network	Acres	% of Green Infrastructure Network
Protected	37,245	51%	45,224	62%	72,141	66%
Unprotected	35,222	49%	27,242	38%	37,075	34%
Total	72,467*	100%	72,466*	100%	109,217	100%

**Difference due to rounding*
Sources: 2002 Anne Arundel County Greenways Master Plan, 2010 Greenways Master Plan Implementation Report, and draft preliminary 2018 Green Infrastructure Master Plan

Another component of the Forest Conservation Program is the coordination of voluntary reforestation projects with landowners and community associations. Forest Conservation Fund monies can be used to reforest properties with native vegetation, and the landowner is required to place the reforested areas under a perpetual protective agreement such as a conservation easement. The County has a Forest Conservancy District Board that provides technical assistance to landowners who seek guidance in properly managing their woodland. Table 2 identifies the amount of forest cover in 2011, 2014 and 2017. Figure 9 illustrates the Woodlands in the County

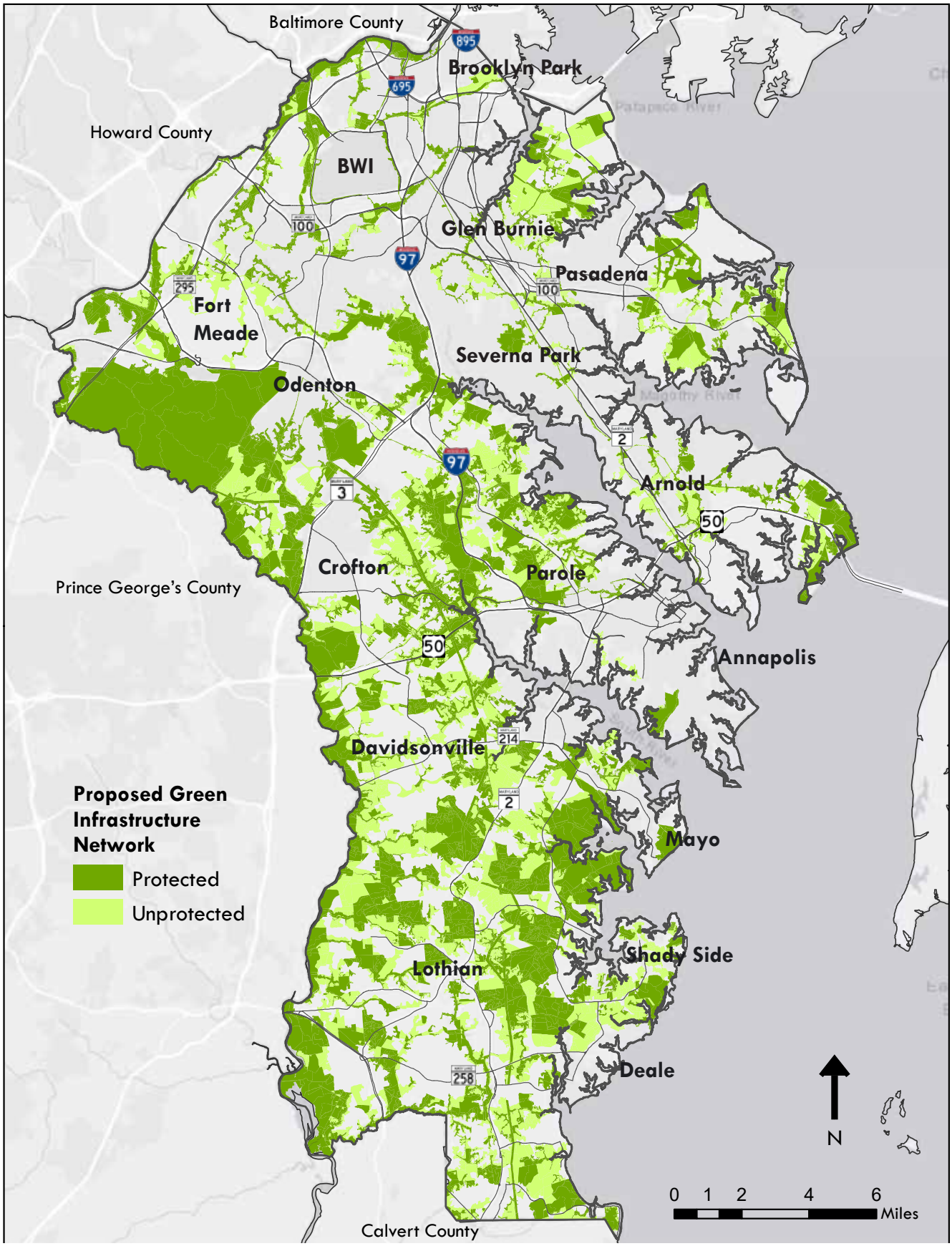
County legislation passed in 2019 strengthens protection of the County's forests by establishing standards for granting modifications to forest conservation requirements; revising the granting of a modification for forest conservation requirements; revising priority retention areas to include sensitive area buffers and habitat areas as defined by the States Natural Resource Article; revising the requirements for forest stand delineations and forest conservation plans to make the County's Forest Conservation Program conform to State law; revising the forest conservation thresholds; and revising the forest conservation fee-in-lieu payments.

Policies and strategies to strengthen the County's Land Conservation efforts are in the Plan2040.

Table 2. Anne Arundel County Forested Land*

	Forested Wetlands (acres)	Woods (acres)	Total Forested areas (acres)	As a percent to Anne Arundel County land cover
2011	286	105,702	105,988	40.6%
2014	8,358	94,256	102,614	39.3%
2017	8,526	90,099	98,625	37.7%

** Anne Arundel County aerial photograph; in 2014, refinements were made in the analysis, primarily the use of overlaying the woods layer with a wetlands layer, to discern between forested wetlands and woods.*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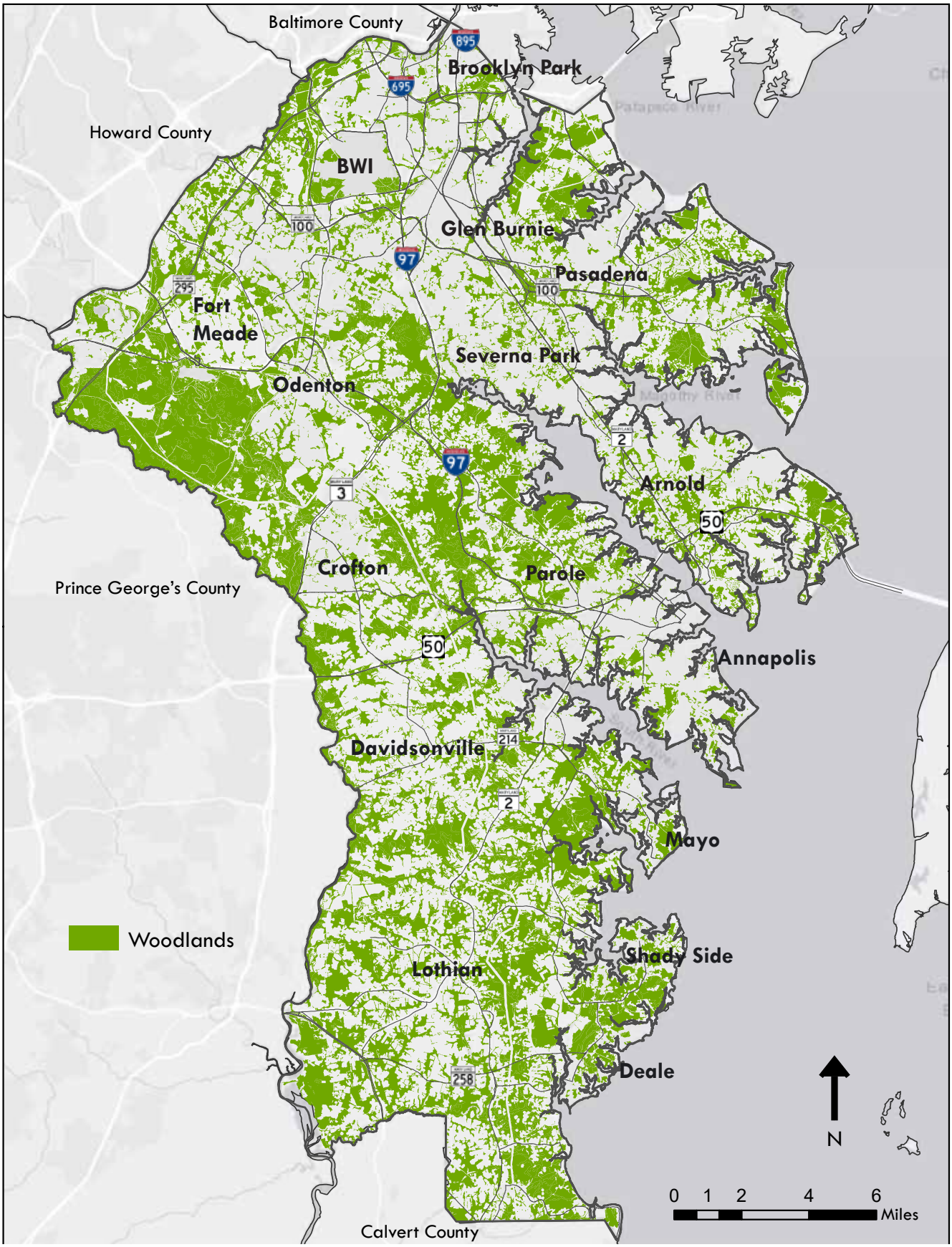
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Agricultural Land Preservation

Anne Arundel County has been an agricultural community for over 350 years, beginning with its role as a major tobacco-producing region in the 17th and 18th centuries. Today agricultural production is more diversified and remains an important component of the local economy. While the northern part of the County has become much more urbanized over the past century, South County has remained a strong agricultural producing region.

The farms and open spaces of southern Anne Arundel County are important to the County and the region. Agriculture serves a dual role of providing a direct economic benefit as well as preserving the quality of life that is reflected in a rural environment. County farms range from crops including nursery and greenhouse, livestock, timber production, equine and the introduction of vineyards and wineries. Many farms remain family operations.

The most recent USDA Census of Agriculture, completed in 2017, indicated over 27,000 acres of land in farm use in the County, representing 10% of the County's total land area. At that time, there were estimated to be 390 farms in the County with an average farm size of 69 acres. These numbers represent a drop of over 2,000 acres in farm use since 2007, but a slight increase in the number of farms.

The 2017 USDA Census estimated the total market value of agricultural production in the County to be $18 million, of which crops made up 71% and livestock 29%. The County's equine industry is also an important part of its agriculture base. A Maryland Equine Census conducted in 2010 reported 4,500 horses and ponies in the County with a value of $39 million. There were over 2,050 County residents directly involved in the equine industry sector, not including hired labor. The horse industry in the County includes the racing breeds of thoroughbreds and standard-breds, as well as other breeds involved in recreational activities, such as Arabians, quarter horses, sport horses, and smaller pony breeds.

Policies and strategies outlined in current planning documents relate primarily to promoting agriculture as a viable sector of the local economy; encouraging the use of Best Management Practices; discouraging the loss of prime agricultural land to development; and working cooperatively with State agencies and property owners to increase the amount of land protected through easement acquisitions. Progress is ongoing and is summarized in Table IV-4 in the 2017 Land Preservation, Parks and Recreation Plan.

Priority Preservation Area

The County's Priority Preservation Area (PPA) was established following specific State guidelines and adopted in the 2009 GDP. Establishment of the PPA provides an opportunity for the State and local jurisdiction to better target preservation funds to those areas that will provide the most benefit toward meeting a county's preservation goals. The County retains the ability to purchase easements outside of the PPA using the three existing easement acquisition programs, but additional State funding, when available, will be targeted toward preservation within the PPA. The State requires that a PPA meet the following criteria:

1. The area must contain productive agricultural or forest soils or be capable of supporting profitable agricultural and forestry enterprises;
2. The area must be governed by local policies that stabilize the agricultural or forest land base so that development does not convert or compromise agricultural and forestry resources;
3. The area must be large enough to support the kind of agricultural operations that the County seeks to preserve; and
4. The area must include an acreage goal for land to be preserved through easements and zoning in the PPA equal to at least 80% of the remaining undeveloped areas of land in the area.

Based on these criteria, the County defined a PPA boundary by identifying properties that contain productive soils (Class I, II or III soil types), that lie within the Rural Agricultural (RA) zoning district, and that are 50 acres or more in size. The County also took into consideration proximity to land parcels already protected by an agricultural preservation easement as well as the potential to form larger contiguous areas of preserved land. The County's PPA is divided into two main areas, both located within South County. With this update to the GDP, the County has proposed to increase the area within the PPA. The boundary of the southern portion of the PPA has been adjusted to match the Rural Legacy Area boundary at the southeastern extent. The newly expanded PPA will include five additional existing easement properties totaling 432 acres, along with 405 additional acres of unpreserved land.

Table 3 shows that Anne Arundel County's updated PPA contains 40,267 acres and includes the entire Rural Legacy Area. Approximately 14,742 acres are protected within the PPA by agricultural and woodland easements and districts. An additional 5,035 acres are County, State, and Federally-owned land, and another 236 acres are preserved by the Maryland Environmental Trust or private land trusts. Current zoning of one dwelling unit per twenty acres, along with other mechanisms, already protects much of the agricultural land and woodland operations in the PPA. During the most recent certification period, from fiscal year 2014 to fiscal year 2017, less than 50 acres of RA-zoned land in the PPA were lost to development. Approximately 1,300 acres were preserved as easements during the same timeframe through various local, State, and Federal programs.

Current Implementation Program

Anne Arundel County's implementation program for agricultural and woodland preservation consists of three easement acquisition programs, other funding mechanisms, land use controls and policies, public outreach and marketing, and an advisory board.

Program policies focus on maintaining agriculture as a viable and sustainable sector of the economy and on preserving agriculture as a key element of the rural character. The programs are implemented through the cooperative efforts of several County agencies, State agencies, advisory committees, and advisory boards.

Easement Acquisition Programs

The County utilizes the Maryland Agricultural Land Preservation Foundation (MALPF) program, the County's Agricultural and Woodland Preservation Program, and the Rural Legacy Program for easement acquisition.

1. MALPF

Anne Arundel County has participated in the MALPF Program since 1980. As of June 2020, the County has a total of 5,485 acres that are permanently preserved through MALPF easements.

2. Agricultural and Woodland Preservation Program

Under the Agricultural and Woodland Preservation Program, the County purchases easements on farms of 50 acres or greater based on 60% of the fair market value and until 2017 paid in installments, plus tax-free interest, over 30 years (Installment Purchase Agreement IPA Program). Starting in the fall of 2017, the County returned to paying cash at settlement due to lack of interest in the IPA Program. As of June 2020, the County has devoted an estimated $34 million to this program and a total of 6,553 acres have been permanently preserved.

Additional efforts include partnerships with local land trusts and various government agencies including the MDNR, public outreach, land use controls and voluntary acquisition of agricultural and woodland easements.

3. Rural Legacy Program

Anne Arundel County's designated Rural Legacy Area (RLA) is approximately 37,381 acres in size and is located in South County. Within that area, the County can purchase easements from landowners based on a scoring and ranking system that rates property according to size, development potential, soil productivity and other factors. Grants are awarded for lump sum payments.

Approximately 16,562 acres (44 percent) of the Rural Legacy Area has been protected as of February 2020. Of these, approximately 1,723 acres were preserved through the Rural Legacy program and 200 acres through MDNR's Community Connections Program.

Funding Mechanisms

The primary mechanism for permanently protecting agricultural land in Anne Arundel County is through the purchase of conservation easements on private land. Both local funds and matching State funds are used for easement acquisition. Since 1980, over $70 million has been spent on agricultural land preservation in the County, of which $40 million is from County funding sources (including $6 in matching funds for MALPF and Rural Legacy), over $17 million from MALPF funds, $12 million from Rural Legacy funds and nearly $3 million from Tobacco Buyout funds.

County funding for agricultural preservation comes from a variety of sources, including County General Fund appropriations, and agricultural transfer tax monies which go to both the State and the County. Additional funds come from grants, tobacco buyout funds, and Federal sources. The County has also offered a tax credit program since 1990 as an additional incentive for land preservation. The amount of agricultural land protected with easements under each of these programs, as of June 2020, is shown in Table 4. Figure 10 depicts the County's Priority Preservation Area and the location of properties that have been permanently protected with conservation easements through the agricultural preservation program. Most of these properties are located in South County.

Land Use Controls and Policies

The County's GDP, Zoning Ordinance, and Subdivision Regulations are the principal planning and regulatory tools used to establish land use policies and to guide and manage growth, development, and land preservation. The 2009 GDP Land Use Plan designates over 40,000 acres of land as either Conservation or Open Space and over 85,000 acres of land, including most of South County, as Rural land use. In general, a Rural designation indicates that land use in the area is agricultural in nature, and single family detached homes at a density averaging or lower than 1 unit per 5 acres.

Land use tools included in Article 17 Subdivision and Development and Article 18 Zoning of the Anne Arundel County Code and the Water and Sewer Master Plan enhance the County's ability to conserve land, especially within the Priority Preservation. These tools include restrictive zoning with minimal permitted uses in the OS Zone; one dwelling unit per twenty acres in the RA Zone, Permitted, Conditional, and Special Exception uses in the RA Zone that have minimal impact on farming, and no planned public water and sewer service in the County's designated Rural Sewer and Water Service Areas. In accordance with the Sustainable Growth and Agricultural Preservation Act of 2012, OPZ adopted Growth Tiers administratively on June 17, 2013. The County's Rural Legacy Area and the Priority Preservation Area are included in the most development-restrictive Growth Tier IV where major subdivisions are not permitted; and minor subdivisions are permitted (maximum 5 lots) and must use on-site septic systems; public sewer systems are not available.

Agricultural Preservation Advisory Board

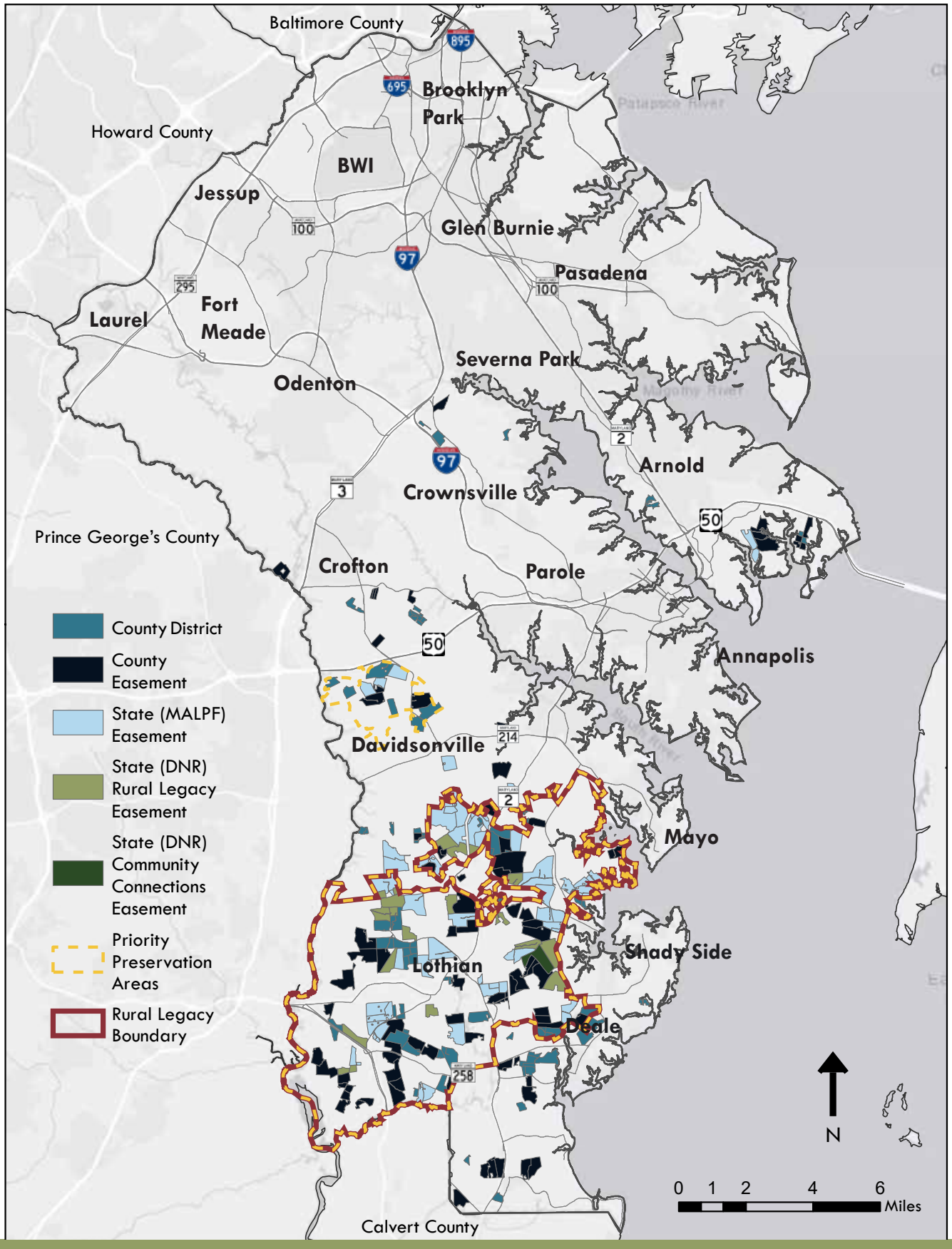
The Agricultural Preservation Advisory Board is established in accordance with the Agriculture

Table 3. Priority Preservation Area Summary

Protected Land	Acres	Percent
Rural Legacy and Community Connections	1,923	
State parks	217	
Federal parks	2,302	
County parks	2,516	
MALPF	5,286	
County Agricultural & Woodland Easements	5,203	
County Agricultural & Woodland Districts	2,330	
Maryland Environmental Trust	21	
Private Land Trust	215	
Already protected within the PPA, through zoning (including smaller parcels), floodplains, open space, etc.	10,000	
Total Protected Land	**30,013**	**75%**
Unprotected Land	**10,254**	**25%**
Total Priority Preservation Area	**40,267**	**100%**
Total Rural Legacy Area	**37,381**	**100%**

Table 4. Preserved Agricultural Lands

Agricultural Lands	Acres
Easements (permanently protected)	
MALPF	5,485
County Agriculture and Woodland Program	6,553
Rural Legacy	1,723
Community Connections / DNR	200
Total Easements	13,961
Agricultural Districts (not permanent)	
County Districts	2,373
Total Districts	2,373
Total Easements and Districts	16,334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County District
County Easement
State (MALPF) Easement
State (DNR) Rural Legacy Easement
State (DNR) Community Connections Easement
Priority Preservation Areas
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Article § 2-505.1 to promote agriculture within the County. This five-member board is appointed by the County Executive and is comprised of residents and members of the agricultural community.

The Board advises the County Executive and the County Council on the establishment of agricultural districts and the purchase of easements and also promotes the preservation of agriculture by offering assistance to farmers for the purchase of County and State easements. The Board also makes recommendations concerning budget and appropriations requests and prepares and reviews recommendations related to County policies and programs.

Anne Arundel County Forestry Board

The Anne Arundel County Forestry Board directly provides expertise and knowledge as a review agency for forest management plans on potential district and easement properties. As volunteer advocates for forestry, Board members focus on preserving the County's forest resources. The Board provides education and outreach to increase public awareness of environmental concerns and good forestry practices.

Public Outreach and Marketing

Agricultural Preservation Program information is available on the website of Anne Arundel County's Department of Recreation and Parks. Public information meetings are held periodically at different locations to explain the various programs and options available to the landowners. Attendees are provided brochures explaining qualifying criteria, payment options, and deadlines to apply along with application forms. State and local land preservation agencies are in attendance in order to offer information and answer questions.

The Anne Arundel County Economic Development Corporation (AAEDC) includes the development of agribusiness in its overall mission of serving business needs and increasing the County's economic base. AAEDC has worked with the County to develop a strategic marketing plan to promote its agricultural programs including hiring full-time staff, promoting local farmers markets and providing outreach materials.

Evaluation of the County's Progress Toward Agricultural and Woodland Preservation Goals

As part of the Priority Preservation Area element with each update to the County's GDP, it is required by the State Agricultural Article § 2-518 that the County perform an evaluation of the county's progress toward meeting the goals of the Foundation; any shortcomings in the county's ability to achieve the goals of the Foundation; and past, current, and planned actions to correct any identified shortcomings.

The Maryland Agricultural Land Preservation Foundation has four goals, which align with County and Rural Legacy Area goals:

- To preserve productive farmland and woodland for the continued production of food and fiber for all of Maryland's citizens;
- To curb the expansion of random urban development;
- To help curb the spread of urban blight and deterioration;
- To help protect agricultural land and woodland as open space

Anne Arundel County has made some significant achievements toward preserving its agricultural heritage over the past 35 years. The County has worked closely with the State Departments of Agriculture and Planning to certify and maintain its preservation programs, and continues to use a variety of approaches including legislation, outreach, land use controls and voluntary acquisitions to accomplish its mission.

An overall goal of preserving 20,000 acres of agricultural land in the County was established in 1993, and the County has been able to preserve significant amounts of acreage each year since that time. In the time since the

establishment of the Priority Preservation Area, the County has protected 2,029 acres of additional land in easement through State and County programs within the PPA.

To encourage continued participation in voluntary County and State easement programs, the County has continued to market the programs widely. Outreach efforts continue to prove effective. The Department of Recreation and Parks (DRP) markets the various preservation programs through public meetings, mailings, and attendance at public forums. Additionally, the Agricultural Preservation Advisory Board is one of the biggest proponent of the County's preservation program. Many of the board members are also trusted members the local farming community, and their ability to build awareness of the program by word-of-mouth has proven one of the program's largest assets. The County also relies on a strong partnership with Arundel Ag, the Anne Arundel County Economic Development Corporation's agriculture program, which provides service and support to the agriculture community through a variety of events and functions.

The 2009 GDP reported on the success of the Installment Purchase Agreement (IPA) option, which was added to the County's preservation program in 2000. The IPA payment program proved successful for Anne Arundel County's local program for a number of years, and led in part to an increase in easement acquisition between 2000 and 2006; however, participation in the IPA program diminished starting in fiscal year 2012. In order to renew interest in the voluntary easement acquisition program, the County restructured payment options offered to program participants, and returned to the cash payment program in fiscal year 2017. The County's decision to return to offering cash payments proved immediately effective. As a result of the program change, three farms totaling 250 acres were preserved under the local program in the fiscal year that the change was implemented.

The County also relies on a variety of land use controls to accomplish Foundation goals. Land use tools included in Article 17 (Subdivision and Development) and Article 18 (Zoning) of the Anne Arundel County Code such as Growth Tier IV designation, restrictive zoning at one dwelling unit per twenty acres, no planned water and sewer service, and Permitted, Conditional, and Special Exception uses in the RA zoning district that have minimal impact on farming, enhance the County's ability to protect the PPA to limit development and stabilize the land base.

As a matter of policy, the County relies on the RA – Rural and Agricultural zoning district as one of the primary mechanisms for land protection in South County and in the Priority Preservation Area. This policy is reaffirmed in Plan2040, both through the language of the plan and through the Land Use Plan itself, and it is a policy that should be reaffirmed through future Region Plans and updates to this plan, as well. Properties of less than 30 acres within the RA zoning district have no further subdivision potential, and are effectively protected from further development. Less than 50 acres of RA zoned land in the PPA were lost to development between fiscal year 2014 and fiscal year 2017.

Zoning also dictates limitations on use permitted on a property. To accomplish Foundation goals, use limitations within the RA zoning district must be strong enough to preserve rural character, but flexible enough that it is economically feasible for farmers to continue farming. The creation of the Agriculture, Farming, and Agritourism Commission in 2017 has helped the County identify and implement changes to the Zoning Code to support farming as a viable industry in the twenty-first century. In 2017, legislation was passed to define "agritourism" in the Zoning Code and to allow agritourism as a conditional use within certain zoning districts. This has allowed for the blending of tourism and agriculture. The Agriculture, Farming, and Agritourism Commission continues to recommend refinements to the Zoning Code. Updates to the Zoning Code based on these recommendations should enable diversification of on-farm activities that are accessory to the

principal use, so that farms and farmers may continue thriving in a changing economy.

The 2017 LPPRP evaluated the County's current implementation program for agricultural preservation and made the following recommendations to help further the County's progress in reaching its preservation goals:

1. Update program regulations for the Agricultural and Woodland Preservation Program to correct outdated Code references and to put in place policies that have been discussed over the years;
2. Revise the preservation easement priority rating system to grant extra points to properties located in the Priority Preservation Area;
3. Revise permitted uses on an agricultural easement property to include accessory uses on minimum acreage that will not interfere with farming operations.

As the effects of climate change become ever more apparent, the need to balance agricultural preservation and the generation of renewable and alternative energy has also become more apparent. The Maryland General Assembly authorized a community solar pilot program in 2015, which allows individuals and businesses to subscribe to solar-generated energy without having to own a solar panel. While this has expanded access to solar power and encouraged renewable energy production, it has also posed a challenge to the preservation of agricultural lands in the Priority Preservation Area and other rural areas of the County, as rural land is often the most desirable for solar developers. In 2018, after an eight-month moratorium on the issuance of any approved dispersed energy operations, the County passed legislation that permits accessory uses (such as solar panels on residential homes) in every zoning district, while generation for a limited number of end users and for sale to utilities will generally be a special exception use in RA districts. However, development applications proposing solar arrays on farms were submitted prior to the moratorium and passage of legislation. Going forward, it will be necessary for the County to promote renewable energy projects on compatible sites, such as landfills and brownfields, and limit conversion of agricultural and forested land to renewable energy sites.

Finally, established goals for preservation must be realistic and attainable. The 2009 GDP called for a more complete land parcel inventory and holding capacity analysis is needed in order to ascertain whether the 20,000-acre goal remains attainable. This action has yet to be completed, and should be prioritized, as this research will provide information necessary to assess the remaining available acreage that meets the qualifying criteria under the current purchase of development rights programs. It will also help to determine whether there are feasible revisions to those programs that would allow additional acreage to qualify for the programs and thus enhance the County's ability to meet its goals.

Policies and Strategies to meet the County's Agricultural Land Preservation goals are located in Plan2040.

Water Resources Plan

Water resources are an important element within a comprehensive planning process because a change in land use can increase or decrease the pollution levels of water depending on the point source and non-point source pollutants generated from the type of land use activity. Protection from pollution is essential to providing sustainable watersheds for drinking water sources, protection of aquatic life, viable fishing and shellfish industries, and healthy recreation areas.

Protection of the County's water resources is a high priority to its residents as evidenced in the Vision and goals of the 2009 GDP, the 16 Small Area Plans and the results of the Plan2040 Listening Sessions and Visioning Meetings. In addition, public outreach also concluded that healthy water recreation opportunities, an adequate and safe drinking water supply and appropriate wastewater management systems, and more effective stormwater management systems are important.

This section will address the Water Resources Element (WRE) of the Plan. In 2006, State legislation was adopted that requires local jurisdictions to include a WRE in the comprehensive plan to address the relationship of planned growth to the area's water resources. The principle purpose of the WRE is to address the relationship between planned development and its impacts on area water resources. Specifically, the WRE will:

1. Ensure that a safe and ample supply of drinking water sources are adequate for the needs of existing and future development proposed in the Land Use Element of the Plan; and
2. Ensure adequate treatment of wastewater for existing and future development proposed in the Land Use Element of the Plan,
3. Ensure that nutrient loading impacts from water reclamation facilities, septic systems and stormwater runoff from existing and future development proposed in the Land Use Element of the Plan are minimized.

For more detailed information see the Water Resources Background Report at the Plan2040 website.

Watershed Management Plans

There are twelve distinct major watershed systems and a small portion of the Lower Patuxent River watershed that drain to the major rivers within Anne Arundel County (Figure 11). For planning purposes, the Lower Patuxent River watershed is combined with the Middle Patuxent watershed. These watersheds are encompassed by three tributary watersheds within the State (Patapsco / Back River, Patuxent and Lower Western Shore) that drain to the Chesapeake Bay.

Table 5 shows acreage of different types of land cover and the amount of impervious area for each of the twelve watersheds within the County.

Analysis of the baseline conditions and resources identified in the Watershed Management Plans provides for an informed basis for prioritizing watershed restoration and preservation initiatives. Through the characterization and analysis of a watershed area, the plans provide recommendations necessary to facilitate daily land use and infrastructure decisions to protect watershed resources. The watershed management plans integrate and link existing watershed management business processes with watershed models and geographic information systems to provide interactive information on how changes in land use, zoning, subdivision regulations, best management practices, and other watershed conditions affect water quality and living resource habitat.

With the preparation of the Severn River Watershed Management Master Plan, a Watershed Management Tool (WMT) for the County was developed. This tool consists of several components to help watershed managers determine which subwatersheds and

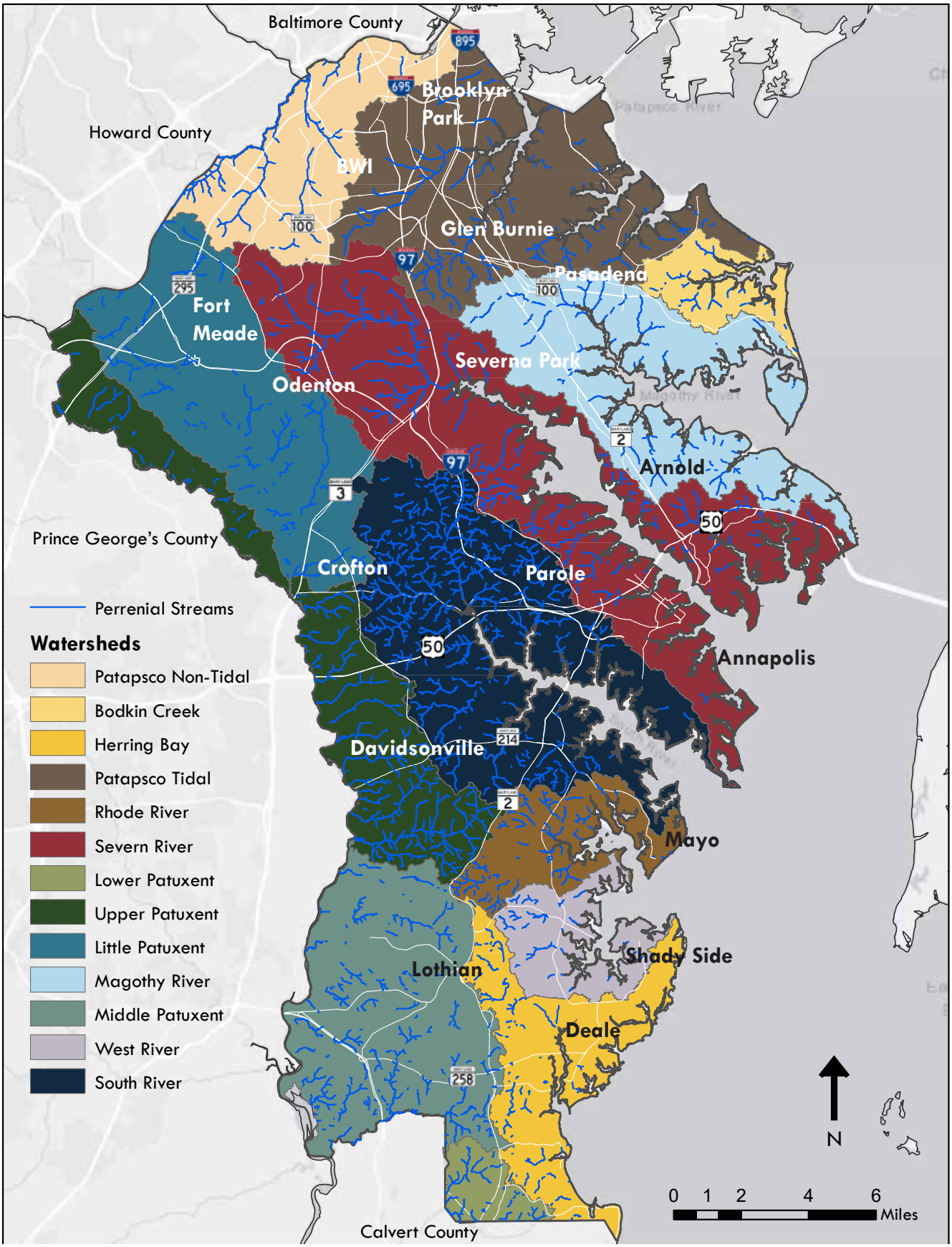

Baltimore County
Howard County
Prince George's County
Calvert County
Brooklyn Park
BWI
Glen Burnie
Pasadena
Fort Meade
Odenton
Severna Park
Arnold
Crofton
Parole
Annapolis
Davidsonville
Mayo
Lothian
Shady Side
Deale
Perrenial Streams
Watersheds
Patapsco Non-Tidal
Bodkin Creek
Herring Bay
Patapsco Tidal
Rhode River
Severn River
Lower Patuxent
Upper Patuxent
Little Patuxent
Magothy River
Middle Patuxent
West River
South River
N
0 1 2 4 6
Miles

Table 5. Existing Land Cover and Impervious Area by Watershed (Acres)

Watershed	Total Area (Acres)	Land Cover (Acres)							
		HDU	RES	TU	Imp	AG	OS	FL	NF
Severn River	44,248	3,460	19,687	1,999	8,825	1,266	2,560	14,150	1,126
South River	36,167	1,712	14,270	1,654	4,741	2,276	1,482	11,471	3,299
Magothy River	22,845	1,361	12,998	914	4,706	151.2	982	5,842	597
Rhode River	8,764	175	2,154	185	551	1,121	298	4,172	659
West River	7,297	185	1,806	190	499	1,675	198	2,903	340
Herring Bay	14,662	345	3,426	631	955	1,477	522	6,126	2,135
Upper Patuxent River	22,551	825	4,889	822	1,526	3,110	1,438	9,738	1,729
Middle Patuxent	29,632	731	6,436	664	1,445	7,638	1,109	11,293	1,761
Little Patuxent	27,750	3,661	5,494	1,595	4,875	890	2,559	11,957	1,595
Patapsco Tidal	30,841	4,711	12,858	1,946	9,135	119	2,921	7,539	748
Patapsco Non-Tidal	15,275	3,296	4,007	1,102	4,401	18	1,583	4,803	465
Bodkin Creek	5,036	178	2,351	118	653	54	294	1,827	214
Total	265,067	20,639	90,377	11,821	42,313	19,796	15,945	91,822	14,667

Notes:
1. Watershed and Total area in acres (rounded off);
2. Watershed acreages and impervious acreages are based on Anne Arundel County 2014 impervious and Land Cover;
3. Land Cover Codes: HDU = High-Intensity includes Industrial, Commercial, Airport and Mining; RES = Residential; TU = Transportation / Utility; IMP = Impervious Area; AG = Agricultural; OS = Open Space; FL= Forest Lands; NF = Natural Features

stream reaches are most in need of restoration, and evaluate the outcome of alternative land use scenarios.

A primary function of the WMT is to estimate pollutant loads in a watershed for both current and projected land use conditions, and to estimate pollution reductions associated with implementation of various preservation and restoration actions. The WMT helps assess the data, prioritize where to focus restoration and preservation investment as well as selection of the most appropriate alternative solutions or best management practices. This information also allows reassessment of current land use plans relative to where future development is being directed, its zoning potential, and policy decisions regarding development regulations, which designate the character of site planning and development. The reassessment of these existing policies can be modeled to predict future watershed water quality conditions more

favorable to meeting defined water quality standards.

The watershed modeling capabilities allow environmental impacts of land use changes to be analyzed through simulation of stormwater runoff water quality; soil erosion from the land surface; flooding and changes in flow regime; groundwater and surface water interactions (watershed water budget); and stream habitat quality. It also allows simulation of point and non-point source pollutant loads; fate and transport of pollutants on land and in the waterbody; and the role of time and spatial scale.

The watershed modeling results can be used to examine "future conditions" of the watershed in categories such as pollutant loading; flooding of road crossings; stream erosion potential; and hydrology of streams and groundwater. The WMT can also be used to evaluate certain policy considerations such as cluster zoning or septic system alternatives to predict resultant future pollutant loads for a community. Future conditions can be modeled for these policy considerations and the conditions compared to traditional community development.

Stream and Subwatershed Assessment and Ranking

Through its watershed assessments, the County has prioritized its subwatersheds and stream reaches to determine which ones are most in need of restoration or protection.

Prioritization of the stream reaches and subwatersheds are based on a set of physical, chemical and biological indicators that are assigned a weight and then combined for an overall rating for prioritization. All stream reach and subwatershed preservation assessments have been completed for County watersheds. The priority ranking of the watersheds for purposes of restoration can be found on the County's DPW web page.

Chesapeake Bay TMDL

In September 2011, Maryland issued Wasteload Allocations (WLAs) to the local jurisdictions, and required the development of Phase II Watershed Implementation Plans (WIPs) to achieve the assigned WLAs. Anne Arundel County submitted its Phase II Watershed Implementation Plan (WIP) to MDE in July 2012. The County's Phase II WIP identifies programs, policies and practices and establishes a commitment to implementation that ensures achievement of the nitrogen, phosphorus and sediment load reductions assigned by MDE. The County's Phase II WIP sets forth a strategy for implementation that identifies statutory authority, capital projects, funding mechanisms and timelines for achieving its allocated loads using Total Nitrogen as the keystone nutrient. The Countywide WLAs for Total Nitrogen that are addressed by the County's Phase II WIP are presented in Table 6.

Individual TMDLs

In addition to the Countywide Bay TMDL, individual TMDLs have been developed for watersheds within Anne Arundel County to address individual specific impairments. To date, TMDLs have been developed for nutrients, sediment, bacteria and Polychlorinated Biphenyl (PCB) impairments. TMDLs for other impairments including chlorides are either under development or will be developed by MDE. The County is required through its NPDES MS4 Permit to develop implementation plans for each approved TMDL. TMDL implementation plans set forth a strategy for achieving stormwater wasteload allocations established by the TMDL and includes actions and decisions intended to "restore" and "protect" water quality standards. This is true even if the benefits of the activity or decision cannot be quantified. TMDL implementation practices entail both reducing excess pollutants and limiting new sources of pollutants (or prohibiting them). TMDL implementation planning is intended to establish a framework of actions for managing pollutants and quantifying the results. Evaluation of TMDL implementation practices

Table 6: Countywide Total Nitrogen WLAs (delivered)

Source Sector	2009 Baseline	2025 Target
Stormwater (MS4)	657,383	449,641
Septic	518,458	281,664
Wastewater (Major Municipal)	881,691	667,127

involves verification that the pollutant control practices deemed necessary to achieve the TMDL load reductions have been implemented. Water quality monitoring is used to determine whether water quality standards have been achieved while taking into consideration potential lag times before drawing conclusions. TMDL implementation plans for approved TMDLs within Anne Arundel County can be found on the County's DPWs website.

Watershed protection is currently accomplished through a number of individual programs including watershed management plans, the erosion and sediment control program, the stormwater management program, stormwater NPDES permit, and the Critical Area program. Future needs include:

1. Continued and enhanced coordination between the existing and proposed programs,
2. Development of environmental zoning overlay zones,
3. Continued encouragement of no net loss of wetlands and development of programs for wetland creation and restoration,
4. Development of a method of identifying and tracking protected lands throughout the County, including those protected through private means (e.g., private land trust easements), and
5. Review and update of steep slopes criteria within the County to better protect and preserve this sensitive resource.

Water Supply and Demand Assessment

Water supply capacity can be defined as the system's technical, managerial, and financial capability to achieve and maintain compliance with all relevant local, state, and Federal plans and regulations. In other words, the system has the knowledge, tools, and resources to ensure it can provide safe and reliable drinking water now and into the future.

The County is divided into five categories of public water service: 'Existing', 'Existing – City of Annapolis', 'Capital Facilities', 'Planned' and 'Future' that comprise the ultimate area to be served by public water. The area of the County not planned for public water service is categorized as 'No Public Service' and is served by private wells. There are a few water treatment facilities that are privately operated, such as Fort Meade. These facilities are shown as 'Other'. These areas are depicted in Figure 6.

Groundwater Resources

Anne Arundel County relies almost entirely on groundwater for its municipal water supply. The Patuxent, Lower Patapsco, Upper Patapsco, Magothy and Aquia are the aquifers from which the groundwater is withdrawn for the County. Additionally, water supply to the County is provided by Baltimore City. The Baltimore City water supply comes from surface water sources and makes up approximately 2.5% of the water used by the County.

The City of Annapolis owns and operates its own water supply system and uses groundwater from eight deep wells located near the water treatment plant that supplies the City's water system.

The Fort Meade Military Base has its own water supply system. The system's primary source of water is the surface water from the Little Patuxent River, which provides approximately 80 percent of the water used. The remaining 20 percent is provided by groundwater pumped from six wells. All of these wells are located on the Fort Meade base and pump water from the Patuxent Aquifer.

The Rural service area utilizes individual private wells and receives water primarily from the Aquia aquifer.

Groundwater Quality and Supply

No Federal or State standards have been established for raw ground water (in the ground). There are standards that apply to a public drinking water source, but these are applied within the water distribution system, not in the ground. However, there are regulations concerning the discharge of pollutants that are administered by the Water Resources Administration of MDE.

Studies by the Maryland Geological Survey (MGS), Groundwater Supplies in Anne Arundel County, Bul. 26, 1962, indicated that the geologic and climatic conditions favor the availability of groundwater in the County. Subsequent investigations substantiate these conclusions. However, if the rate at which the groundwater is pumped exceeds the rate of replacement by precipitation or recharge by stream flow, a problem of brackish water intrusion may occur along the shoreline in shallow parts of the aquifers.

The most recent study conducted by the U. S. Geological Survey (in cooperation with the Power Plant Assessment Program of the MDNR and the Maryland Geological Survey) assessed the regional effects of groundwater withdrawals on water levels in the Aquia, Magothy, Upper Patapsco, Lower Patapsco and Patuxent aquifers measured during September 2011 and represented groundwater levels and withdrawal amounts at an instant in time. The study concluded that in each aquifer, the water levels tend to be lower in wells farther away from the outcrop area where the aquifers receive recharge. The withdrawal data can be used to assist in determining the sustainability of the aquifer system (Andreasen, David C., Curtin, Stephen E., and Staley, Andrew W., 2016).

Although the groundwater supply is not as vulnerable to decline due to drought, water levels in all of the confined aquifers supplying the County have been declining for several decades due to population growth and thus increases in use. Continued water level declines could affect the long-term sustainability of groundwater resources, particularly in areas projected for heavy growth and also in impervious areas that have the inability to recharge. Several studies have been conducted to determine the availability and quality of water supply from the County's aquifers. These studies were conducted by the Maryland Geological Survey (MGS) in cooperation with the County and can be accessed at their webpage.

A study of major well fields in the County as well as individual wells and independent well fields found that there is currently sufficient available drawdown in the Upper Patapsco, Lower Patapsco, and Patuxent aquifer systems in Anne Arundel County to support withdrawals. To assess the effects of the projected withdrawals, the calibrated groundwater-flow model was altered to simulate conditions for the period 2017 to 2086. Results of the model simulation showed water levels as deep as 100, 170, and 228 feet below sea level in the Upper Patapsco, Lower Patapsco, and Patuxent aquifer systems respectively. The current method used in regulating water use in the confined aquifers in Maryland is the 80% Management Level. The 80% Management Level represents 80% of the drawdown from the pre-pumping potentiometric surface (well water-level) to the top of the aquifer. Water levels were above the 80-percent management level in all well fields with the exception of the Upper Patapsco aquifer system at Severndale. Sufficient supply capacity was available in the Lower Patapsco aquifer system at Severndale, however, to shift the Upper Patapsco withdrawals (0.4 million gallons per day (MGD) by 2086) to the Lower Patapsco. Seasonal variations in withdrawals at build-out have a negligible effect on water levels.

Sufficient groundwater in the Patapsco and Patuxent aquifers is available to supply the projected demand through 2040 at 73 MGD while supplying water to other users in Anne Arundel County and the surrounding counties at permitted levels (Andreasen, David C., 2007). An increase in demand could result in water levels falling below the regulatory management levels in some areas, well operational problems, increased pumping costs and reduced stream base flow. Meeting the projected demand and minimizing impacts will require construction of new wells and well fields, redistributing withdrawals to other wells and careful well-field design. However, with the advent of revised water-use projections an updated assessment of potential impacts to the resource is needed. Additionally, the 2007 study did not evaluate the potential impacts to private domestic wells (i.e. water levels declining below pump intakes or below the depth to which pumps can be lowered in telescoping wells).

In some areas of southern Anne Arundel County, water levels are approaching or have exceeded the 80% management level due to the combination of increase in localized domestic use and large users in neighboring Calvert County (Andreasen, David C., 2002).

Individual Wells

There are roughly 45,700 wells in the County serving individual homes. The primary sources of water to supply these domestic systems are the Patuxent, Patapsco, Magothy and Aquia aquifers. In addition, the Piney Point aquifer supplies a few individual wells.

The Anne Arundel County DOH administers a Sanitary Engineering Program that is responsible for reviewing and approving properties for the installation of private wells in the County. Services provided through this program include issuing construction permits, inspecting private wells, investigating illegal installations, and testing private well water. The DOH also administers a Well and Septic System Assistance Program that helps eligible homeowners pay all or part of the cost to repair or replace a failed septic system or private well.

Water Quality Problem Areas

The DOH has identified five (5) potential groundwater problem areas within the County (Figure 12). These problem areas are due to saltwater intrusion, elevated radium, elevated nitrate levels, volatile organic compounds (VOC's) and elevated arsenic and cadmium levels. The County DOH will monitor these areas and, if petitions are submitted for service within the areas, action will be taken accordingly and in conjunction with the OPZ. The five groundwater problem areas and the requirements for new wells in these areas are discussed below.

Annapolis Neck Salt Water Intrusion

The Annapolis Neck area south of Black Walnut Creek toward the Chesapeake Bay and the South River is vulnerable to saltwater intrusion. New wells in this area are required to be drilled and grouted (sealed) into a confined aquifer, which is screened at a depth of no less than 270 feet and grouted to a depth of no less than 200 feet to avoid saltwater intrusion problems.

Gambrills Area – Elevated Nitrate Levels

Elevated nitrate levels have been detected in some private wells in the Gambrills area near the intersection of Annapolis Road (MD 175) and Crain Highway (MD 3), just east of the Horizons Farm (the recent U.S. Naval Academy Dairy Farm). The area of concern is shown in Figure 12. New wells in this area are required to be drilled and sealed into a confined aquifer below 140 feet in depth to avoid nitrate problems.

Northern Anne Arundel County – Elevated Radium

New and replacement wells in Northern Anne Arundel County are required to be installed to a minimum well depth and meet gross alpha and Radium 226 / 228 drinking water standards. The region within which wells are tested by the County for these parameters is shown in Figure 12.

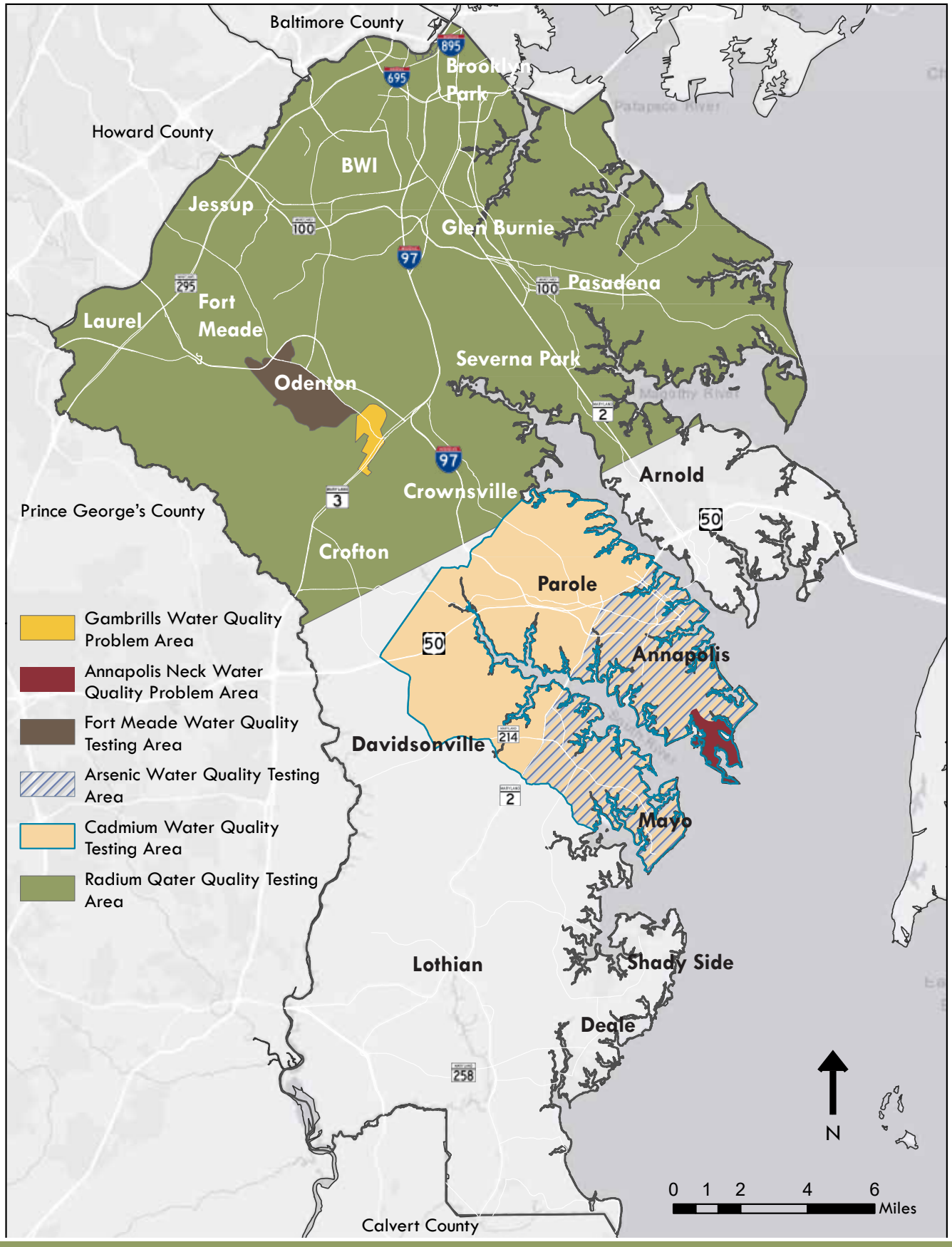
A minimum well depth is determined by the DOH and is based on an aquifer with acceptable radionuclide concentrations. A computer model showing the distribution of radionuclide data, well depths, property elevations, and deep test wells is used to determine the minimum well depth requirements. Owners of existing private wells are encouraged to test for gross alpha particles. Where levels are found above the drinking water standards, a water treatment unit or a replacement well in a deeper aquifer is recommended. See Section 3.5.3.1.11 for more details on ongoing capital projects to reduce elevated radium in three self-contained wells in the Glen Burnie area.

Lower Patapsco Aquifer adjacent to Ft. Meade

A remedial investigation/feasibility study (RI/FS) identified three groundwater contaminant plumes within the Lower Patapsco Aquifer (LPA) that extends beyond the Fort Meade boundary and into an area beneath Odenton. The contaminants were identified as trichloroethene (TCE), tetrachloroethene (PCE) and carbon tetrachloroethene (CC14). To mitigate the impact on groundwater, a groundwater remediation system (GRS) was placed into service in March 2014. The GRS is estimated to take 25 years to restore the LPA to drinking water standards.

If a property is located within the LPA assessment area (the Fort Meade Water Quality Testing Area in Figure 12) and public water is not available, Appendix J of the RI/FS provides remedial alternatives for:

1. The continued use and long term monitoring (LTM) of existing potable wells within the LPA or an unknown aquifer and a point of entry treatment system (POET).
2. A risk evaluation for replacement wells in the Upper Patapsco Aquifer (UPA) and a water treatment device for radium where levels are found above the safe drinking water standard.
3. A property assessment for single lot and subdivision development in relation to the plumes and availability of public water.


Baltimore County
Howard County
Prince George's County
Calvert County
Brooklyn Park
BWI
Jessup
Glen Burnie
Pasadena
Laurel
Fort Meade
Odenton
Severna Park
Crownsville
Arnold
Crofton
Parole
Annapolis
Davidsonville
Mayo
Lothian
Shady Side
Deale
Gambrills Water Quality Problem Area
Annapolis Neck Water Quality Problem Area
Fort Meade Water Quality Testing Area
Arsenic Water Quality Testing Area
Cadmium Water Quality Testing Area
Radium Qater Quality Testing Area
N
0 1 2 4 6
Miles

As part of the RI/FS, the Army will perform a cost-benefit analysis every five years for LTM and operation and maintenance (O&M) of a POET system with the cost to extend public water where a cluster of three or more properties exist within the same geographic area. Where the LTM and O&M costs exceed the cost of extending public water, the Army must develop plans to extend public water within the five-year LPA study assessment period. Extension of public water will follow the development of plans and will be limited to an impacted property or cluster of properties based on the cost benefit analysis.

The interim requirements for the construction of a replacement well in the UPA include the following:

1. The well must be drilled and sealed into the Upper Patapsco aquifer at a depth no greater than 200 feet below the land surface.
2. The annular space must be grouted from the gravel pack to the land surface and the gravel pack may not extend more than five feet above the well screen level.

Annapolis/Edgewater Peninsula – Presence of Elevated Arsenic and Cadmium

Wells drilled in this area may show a presence of Arsenic and Cadmium with levels that exceed the EPA maximum contaminant level (MCL). The presence of these chemicals occurs in wells drilled in the Aquia Aquifer. Any well drilled that exceeds the MCL for Arsenic must be re-drilled to a different depth. All new and replacement wells located specifically in the Saunders Point Community, must meet a minimum well depth of 300 feet. All other wells in the test area that exceed the MCL for Cadmium may be granted a Conditional Certificate of Potability with a water treatment system.

Public Water System

The County's water system is divided into 12 pressure zones or service areas, each with a distinct hydraulic grade based on the ground elevations within that zone. Eight of the 12 zones are interconnected, which enables the County to transfer water between these zones as needed. There are also three sub-pressure zones that are entirely within and served by a single larger pressure zone. The remaining land not contained in one of the 12 pressure zones is either served by the City of Annapolis, Fort Meade or is designated as Rural.

The County's public water supply system currently has 15 well fields that contain a total of 57 water supply wells and currently are permitted to produce up to 57.7 MGD (annual average) and 44.5 MGD (maximum day). In 2015, the County produced approximately 33.7 million gallons per day (MGD) (average day) and 43.0 MGD (max day) from groundwater sources while receiving 0.8 MGD (average day) and 2.8 MGD (max day) from Baltimore City. Agreements between Anne Arundel County and Baltimore City provide the rights for the County to purchase up to 32.5 MGD maximum day rate. Additional details about the Baltimore City water system are available on their website or by contacting the City of Baltimore, DPW, Bureau of Water and Wastewater.

The County's 2016 Comprehensive Water Strategic Plan (CWSP) developed water demand projections for the planning period 2020, 2030 and for build-out conditions (estimated at 2087). A combination of zoning, population and employment growth forecasting, and current development were used to create detailed demand projections. Table 7 provides 2010 data based on billing records and the projected demand for annual average day, maximum day, and maximum day groundwater supply based on existing and future conditions.

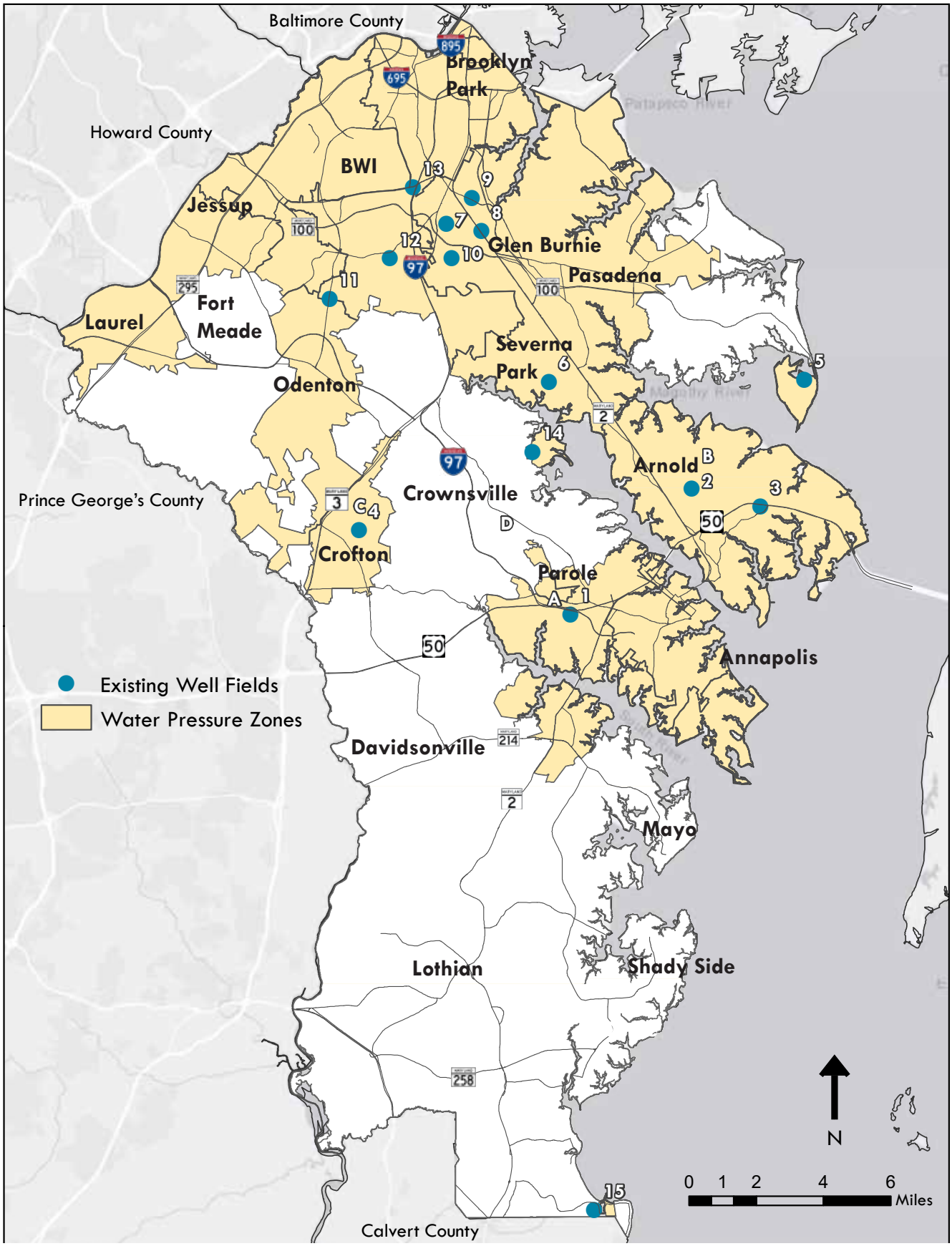
Based on a review of the 2007 study by MGS related to available groundwater withdrawal from the Upper Patapsco, Lower Patapsco and Patuxent aquifers in the County, the 2016 CWSP recommended that any major investment in new supply sources be made only within the eastern or southern portions of the County. Future potential well fields are summarized in Table 8. The approximate locations of the existing and

Table 7. Water Demand and Supply By Pressure Zone

Water Pressure Zone	2010 Demand (MGD)	Buildout Demand Annual Average Day (MGD)	Buildout Demand Maximum Day (MGD)	Maximum Day Groundwater Supply (MGD)
Airport Square	3.39	5.82	9.6	-
Broad Creek	2.3	5.93	11	11
Broadneck/Glen Burnie Low	12.3	24.45	39	36
Brooklyn Park	0.5	0.66	1.2	-
Crofton	1.8	2.92	3.9	28
Gibson Island	0.08	0.18	0.53	0.6
Glen Burnie High	4.48	10.22	16.3	-
Herald Harbor	0.13	0.28	0.56	0.6
Jessup	1.4	3.99	6.3	-
Maryland City	1.24	3.46	5.6	-
Kings Heights / Odenton	2.77	8.37	14.2	-
Rose Haven	0.03	0.08	0.19	0.3
Total	30.42	66.36	108.38	76.5

Table 8. Future Potential Well Fields

Pressure Zones	Well Field (Fig. 7)	Well Field Name	Potential Average Daily Withdrawal (MGD)				
			Patuxent	Lower Patapsco	Upper Patapsco	Aquia	Total
Broad Creek (210 zone)	A	Broad Creek	0.9	3.3	2.7		6.9
Broadneck (220 zone)	B	Arnold		10.1	7.5		17.5
Crofton (290 zone)	C	Crofton Meadows	6	11.5			17.5
Gibson Island (160 zone)	5	Gibson Island			0.2		0.2
Glen Burnie Low (220 zone)	6	Severndale		4	0.4		4.4
Herald Harbor (240 zone)	14	Herald Harbor		0.3			0.3
Rose Haven (120 zone)	15	Rose Haven				0.1	0.1
Multiple Zones (via future Millersville WTP	D	Crownsville (remote)	12	8			20
Total			18.9	37.2	10.8	0.1	66.9


Baltimore County
Howard County
Prince George's County
Calvert County
Brooklyn Park
BWI
Jessup
Glen Burnie
Pasadena
Fort Meade
Laurel
Severna Park
Odenton
Crownsville
Arnold
Crofton
Parole
Annapolis
Davidsonville
Mayo
Lothian
Shady Side
Existing Well Fields
Water Pressure Zones
N
0 1 2 4 6
Miles

future potential well fields are shown on Figure 13.

The 2016 CWSP identified the production facility infrastructure necessary for meeting expected growth while optimizing the use of potential County groundwater sources. The 2016 CWSP also identified locations throughout the County that were suitable for centralizing water production facilities in relation to where adequate groundwater resources are anticipated. The 2016 CWSP continued the efforts of the previous plans, providing greater reliability, building greater system flexibility by improving movement of water throughout the system, focusing plant expansion in areas with greater groundwater supply with the goal of reducing reliance on Baltimore City.

Other Water Supply Systems

There are over 530 wells in the County that are operated privately or by a non-County entity. The source of water for these wells is the Patuxent, Patapsco, Magothy and Aquia aquifers. These facilities typically maintain their own water treatment facilities and are regulated by the Environmental Protection Agency.

In terms of planning for future growth, the potential water supply constraints are the adequacy of groundwater resources to serve additional growth in southern Anne Arundel County, and the ability to continue to purchase water from the City of Baltimore over the long term. The County has optimized the use of its public water supply wells effectively, and has identified potential locations for new well fields, so that future deficiencies in the public water supply are not likely to occur on a long-term basis, although short-term situations related to drought conditions can periodically occur.

The long-term adequacy of groundwater resources is a regional issue that will be closely monitored by the State, and local jurisdictions must coordinate with State and regional efforts to plan for long-term stability. Southern Anne Arundel County is part of the County's designated Rural Area, and large-scale or high-density development projects are not planned there. Still, there is additional development potential for rural density residential development that would be served by private individual wells. Therefore, the County will continue to participate in regional planning efforts to monitor and protect groundwater resources that serve that area as well as the entire County.

Wastewater Supply and Demand Assessment

Eleven separate and distinct sewer service areas have been established for the purpose of providing sewerage facilities to serve Anne Arundel County. Figure 14 is a map that shows sewer service within the County. The areas that are depicted as 'Existing', 'Capital Facilities', 'Planned' and 'Future' comprise the ultimate area to be served by public sewer. There are some facilities that are privately operated, such as BWI Airport, the US Naval Academy and Fort Meade. These facilities are shown as 'Other'. The remaining land is shown as 'No Public Service'. It is designated as Rural, is not planned for service by public sewer facilities and is or will be served by septic systems.

Public Sewer

According to the County's 2017 Water and Sewer Master Plan, the ultimate area to be served by public sewer is approximately 50% of the County. Of the eleven sewer service areas, eight are served by facilities owned and operated by the County. Two of the service areas have conveyance systems that are operated and maintained by the County but the treatment facilities are located in neighboring jurisdictions. Intra-jurisdictional agreements permit the transport of wastewater from the Baltimore City Sewer Service Area to the Patapsco Sewage Treatment Plant in Baltimore City and from the Rose Haven / Holland Point Sewer Service Area to the Chesapeake Beach Water Reclamation Facility in Calvert County. The Piney Orchard Sewer Service area's collection system is owned and maintained

by the County. The Piney Orchard WRF was a privately owned and operated treatment facility; however, it was recently taken over by the County. There are over 119,000 public sewer connections and approximately 34.5 MGD (2015 total flow) are treated. The projected total flow at build-out is 71.42 MGD assuming full development of all property in the sewer service area at current zoning.

Septic Systems

Anne Arundel County has 38,708 septic systems serving residential properties, and 2,318 serving non-residential properties for a total of 41,026 septic systems (total number of onsite sewage disposal systems (OSDS) from Health's Department Inventory, February 2018). A little more than half of these systems are located in the area designated for No Public Service on the County's sewer service maps. The remaining 19,192 systems are located in the area ultimately to be served by public sewer (Existing, Planned, and Future sewer service categories). Figure 15 presents the OSDS density by watershed.

Spatial and data analyses were conducted using the County GIS information, for all management areas. The management area was defined as a service area that would have the same treatment approach recommended for each OSDS within the area (Figure 16). Each management area was evaluated to determine the effectiveness of four treatment approaches and divided into the following:

1. Sewer System extensions with treatment at existing centralized wastewater reclamation facilities upgraded for enhanced nutrient removal,
2. Cluster water reclamation facilities,
3. Upgrade each individual OSDS to an enhanced OSDS, and
4. No near-term action, which consists of low-density, low-nitrogen delivery onsite systems.

To assist in the development and implementation of an OSDS conversion program, the County initiated a Septic Task Force in late 2016 to develop recommendations and strategies. The Septic Task Force completed a report at the end of 2017 with four overall goals:

1. Develop a suite of recommendations that will inform decision making
2. Identify near-term strategies to support effort
3. Identify long-term strategies and approaches
4. Identify areas requiring additional investigation for County Staff

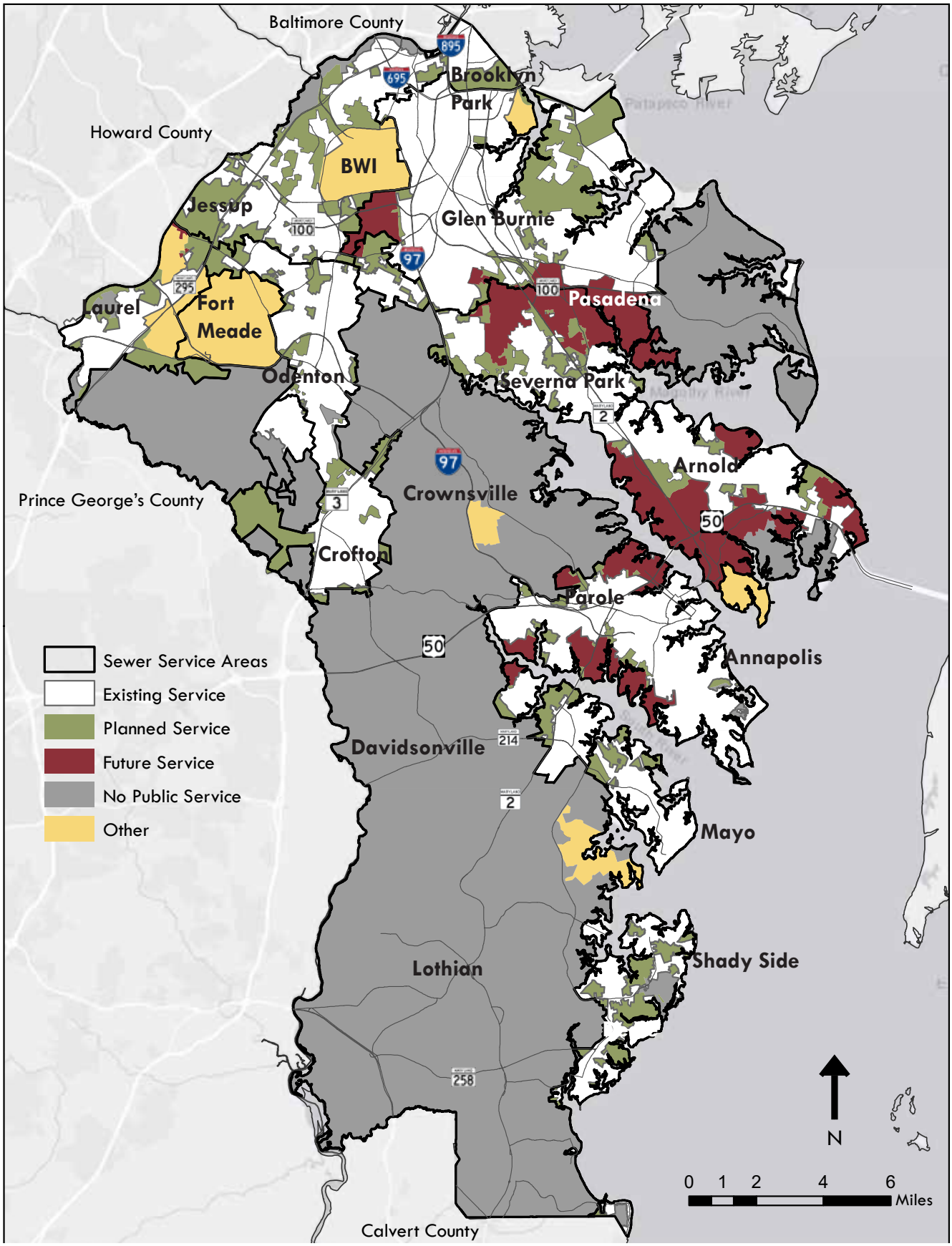
In 2017, the County procured the services of a consultant team to serve as the OSDS Conversion Program Manager. The OSDS Conversion Program Manager is a multi-disciplinary team that will provide a coordinated effort to assist Anne Arundel County in the development, implementation and execution of the OSDS Conversion Program. Such services include, but may not be limited to, planning, budgeting, public outreach, program monitoring, and public policy analysis related to the needs of the program.

In 2018, DPW began working with the OSDS Program Management consultant team to explore additional ideas as alternatives to septic connections, and assessing the impact of the new Watershed Implementation Plan, Phase III target loads. In July 2019, the Septic Task Force was reconvened to discuss changes in the scale of the program, financial plan, and policy development. The Task Force recommends the following:

- A new application process for connecting to public sewer;
- Prioritization of septic-to-sewer connections based on a set of criteria;
- County Code and/or DPW rules and regulations changes to the petition process for connecting to public sewer;
- Maintaining the current approach of voluntary participation on the community level initially, with mandatory individual connections for all property owners within

a community voting to connect to public sewer;

- An application program open to broad, rather than targeted, group of communities;
- Assessment charges based on property tax account or equivalent dwelling units;
- Expanding the eligibility for deferment of septic conversion costs;
- A County subsidy to reduce property owner costs for septic conversion;
- Criteria for determining a maximum subsidy;
- A recommended monthly customer charge based on "willingness to pay" evaluation;
- Public outreach methods;
- Pursuit of alternative funding sources;
- Discouraging consideration of additional charges or fees; and
- Legislation without a sunset provision.


Baltimore County
Howard County
Prince George's County
Calvert County
Brooklyn Park
BWI
Jessup
Glen Burnie
Laurel
Fort Meade
Pasadena
Odenton
Severna Park
Arnold
Crownsville
Crofton
Parole
Annapolis
Davidsonville
Mayo
Lothian
Shady Side
Sewer Service Areas
Existing Service
Planned Service
Future Service
No Public Service
Other
N
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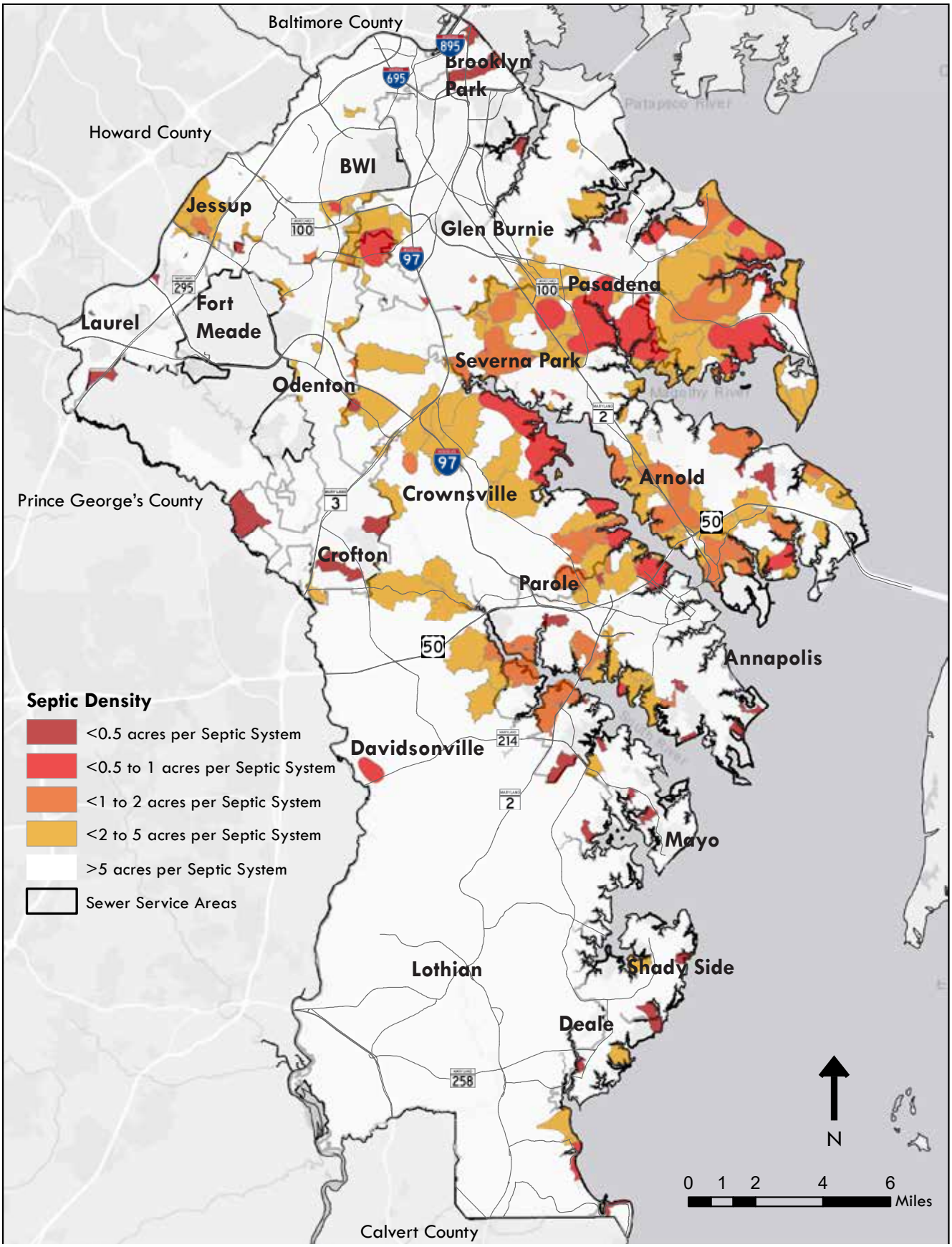
Miles


Baltimore County
Howard County
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Brooklyn Park
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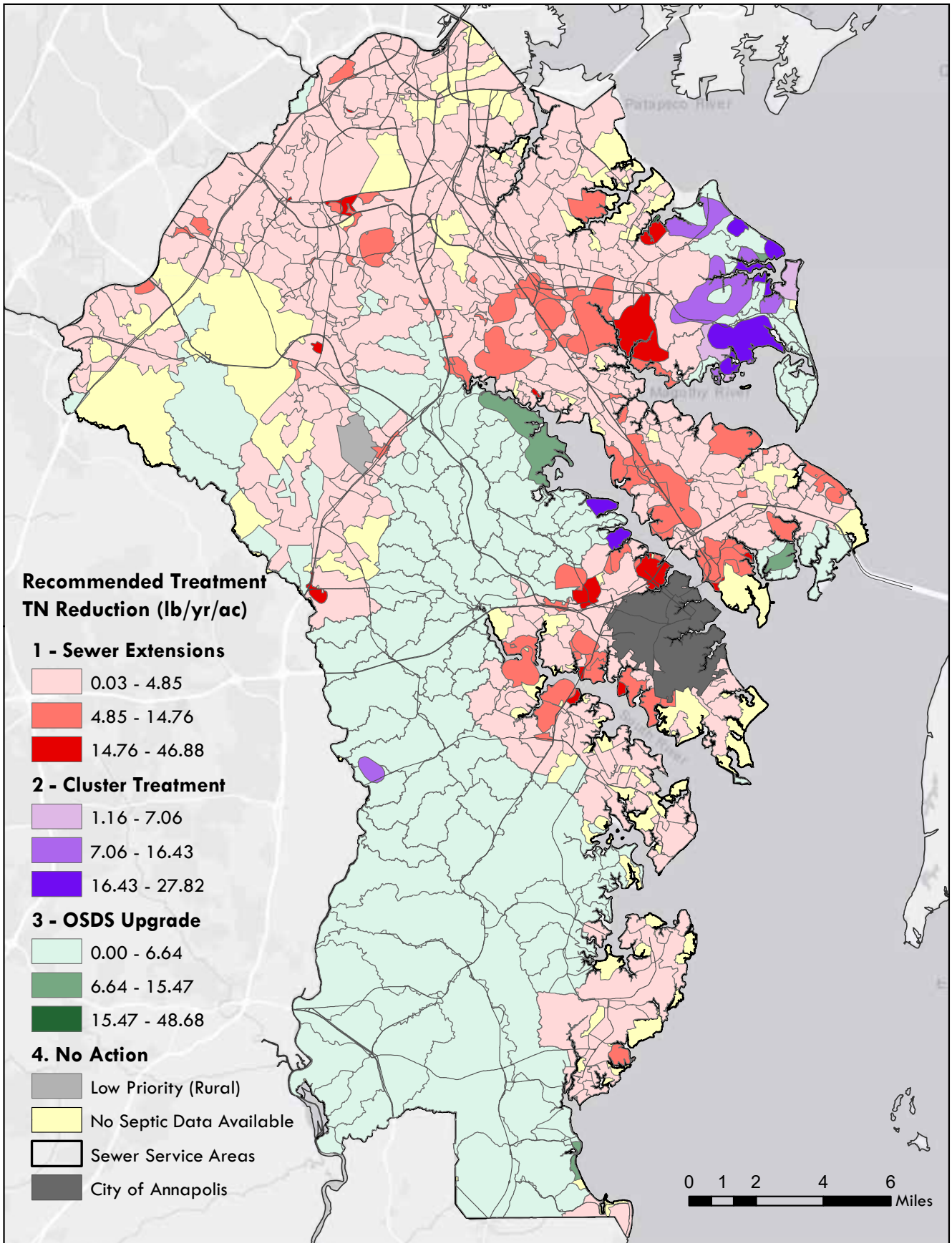
Pasadena
Fort Meade
Laurel
Severna Park
Odenton
Arnold
Crownsville
Crofton
Parole
Annapolis
Davidsonville
Mayo
Lothian
Shady Side
Deale
Septic Density
<0.5 acres per Septic System
<0.5 to 1 acres per Septic System
<1 to 2 acres per Septic System
<2 to 5 acres per Septic System
>5 acres per Septic System
Sewer Service Areas
N
0 1 2 4 6
Miles

16. OSDS MANAGEMENT AREAS WITH TREATMENT APPLIED



Stormwater Management

Development may have an influence on the quality of streams and waterbodies. Traditional land development can dramatically alter the local hydrologic cycle. During initial site clearing, trees, meadow grasses, and agricultural crops that intercept and absorb rainfall, are removed and natural depressions that temporarily pond water are graded to a uniform slope. Cleared and graded sites erode, are often severely compacted, and can no longer prevent rainfall from being rapidly converted into stormwater runoff.

Stormwater management regulations (referenced in the Planning Framework section have been put in place to control the quantity and quality of stormwater runoff as well as the cumulative impacts to the waterways. The quantity of stormwater runoff is governed by the amount of impervious surfaces (driveways, roofs, carports, sidewalks, etc.) while the quality of stormwater runoff is governed by the accumulation of pollutants on the entire surface area, regardless of whether it is grassed or paved.

Stormwater management practices help control nonpoint source pollution through the use of nonstructural and / or structural techniques to intercept surface runoff from developed areas, filter and treat this runoff, and then discharge it at a controlled rate. In addition, stormwater management reduces the adverse effects from development, reduces the effects of land use changes on stream channel erosion, preserves and enhances the environmental quality of streams and stream valleys, minimizes adverse impacts on water quality, and conserves plant, fish, and wildlife habitat and reduces flooding.

During the public outreach phase of Plan2040, residents expressed issues and concerns with the existing stormwater management program including inability of the current practices to be effective during longer and heavier periods of rainfall that the region has been recently experiencing and the ineffectiveness of the stormwater management techniques when not properly maintained by homeowner associations who are either unaware that it is their responsibility to maintain the system or the needed maintenance is not financially feasible.

Current and Projected Pollutant Loads

Water Reclamation Facility Loads

The current total design capacity of the County's water reclamation facilities with biological nutrient removal (BNR) upgrades is 46.64 MGD. The maximum total capacity based on the nutrient caps with the ENR upgrades is 62.68 MGD.

Under the ENR Upgrade program, each of the County's seven WRFs will be designed to meet an annual average of 3 mg/l TN and 0.3 mg/l TP at the design flow for the facility. The total maximum pound loadings are calculated based on 4 mg/l TN and 0.3 mg/l TP at the design rated capacity as recognized in the 2017 Water and Sewer Master Plan. By reducing the TN and TP discharges below the concentration limits, the facilities will have the capacity to expand by as much as 33%, while maintaining constant nutrient loads. Each of the ENR facilities are operated in a manner that optimizes the nutrient removal capability of each facility, which may achieve better performance than the loading and concentration limits. Note that the County recently took ownership and operation of the Piney Orchard WRF. ENR will still need to be completed at this facility. With completion of all ENR projects, the County will be in conformance with the Municipal Wastewater segment of its Watershed Implementation Plan and the County's water reclamation facilities meet the assigned TMDL loads.

Tables 9 and 10 provide the current and build-out nitrogen and phosphorus pollutant loads for each of the water reclamation facilities. The projected build-out wastewater flows assume full development of all property in the sewer service area at current zoning.

In the Broadneck, Cox Creek, Patuxent and Maryland City sewer service areas, the

Table 9. Water Reclamation Facilities Nitrogen (TN) Pollutant Loads

	2019 Total Flows MGD			Current Design Capacity			Build Out Based on 2009 GDP Land Use Plan			Future Design Capacity (with ENR)			Build Out Based on Plan2040 Land Use Plan		
Facility/SSA	(MGD)	Current TN (mg/L)	TN (lbs/ Year)	(MGD)	Current TN (mg/L)	TN (lbs/ Year)	(MGD)	TN with ENR (mg/L)	TN (lbs/ Year)	(MGD)	TN with ENR (mg/L)	TN (lbs/ Year)	(MGD)	TN with ENR (mg/L)	TN (lbs/ Year)
Broadneck	5.31	2.1	33,100	8.00	2.1	49,900	13.75	3.0	125,600	8.00	3.0	73,058	13.55	3.0	123,700
Annapolis (ENR 6/15)	8.72	2.3	61,800	13.00	2.3	92,200	15.01	3.0	137,100	17.33	3.0	157,989	14.75	3.0	134,700
Broadwater (ENR 7/15)	1.24	2.0	7,600	2.00	2.0	12,200	2.58	3.0	23,600	2.67	3.0	24,383	2.58	3.0	23,600
Chesapeake Beach	0.75	4.0		1.50	4.0		N/A			N/A			N/A		
County Portion-Rose Haven	0.10	4.0	1,200	0.14	4.0	1,700	0.20	3.0	1,800	0.14	3.0	1,256	0.13	3.0	1,200
Total Western Shore	**15.37**		**103,700**	**23.14**		**156,000**	**31.54**		**288,100**	**28.14**		**256,686**	**31.01**		**283,200**
Maryland City (ENR 12/14)	1.36	1.5	6,300	3.30	1.5	15,200	3.70	3.0	33,800	3.33	3.0	30,441	3.76	3.0	34,300
Patuxent (ENR 9/15)	5.71	1.3	22,200	10.50	1.3	40,900	13.81	3.0	126,100	10.50	3.0	95,889	13.71	3.0	125,200
Piney Orchard	0.57	3.4	5,900	0.70	3.4	7,200	0.93	3.0	8,500	0.93	3.0	8,523	1.28	3.0	11,700
Total Patuxent	**7.64**		**34,400**	**14.50**		**63,300**	**18.44**		**168,400**	**14.76**		**134,854**	**18.75**		**171,200**
Patapsco	48.70	3.6		73.00	3.6		N/A			N/A			N/A		
County Portion-Baltimore City	4.75	3.6	52,100	6.39	3.6	70,000	10.00	3.0	91,300	6.39	3.0	58,355	12.73	3.0	116,300
Cox Creek (ENR 12/17)	11.97	1.7	62,700	15.00	1.7	78,500	22.57	3.0	206,100	20.00	3.0	182,646	23.05	3.0	210,500
Bodkin Point		40.0		0.01	40.0	700	0.09	40.0	8,800	0.01	40.0	700	0.09	40.0	8,800
Total Patapsco/ Back	**16.72**		**114,800**	**21.40**		**149,200**	**32.66**		**306,200**	**26.40**		**241,701**	**35.87**		**335,600**
Total Flow within County:	**39.73**		**252,900**	**59.03**		**368,500**	**82.64**		**762,700**	**69.30**		**633,241**	**85.63**		**790,000**

Notes: Data from Table 4-2 and 4-6 of the 2017 Master Plan for Water Supply and the Sewerage Systems and September 2017 Allocation Report; Load for Bodkin Point system based on typical septic system effluent 40 mg/L using design capacity with an 80% Delivery Ratio; Baltimore City and Rose Haven/Holland Point are operated by other jurisdications or entities. Facilities assumed to be operating at current Discharge Permit limits

build-out flows exceed the WRF's permitted capacity. The County anticipates that during the planned expansions of these facilities, TMDL requirements will result in more stringent NPDES Permit limits thereby requiring costly facility upgrades. These upgrades will decrease available acreage at each WRF plant site. In order to support planned growth and accommodation of the TMDL regulations, the County is investigating alternatives at those WRF sites with restricted acreage to redirect existing and future flows to service areas where facility sites can best support future upgrades and meet loading requirements. While the Plan2040 land use map does not make significant changes in increasing density, several administrative zoning changes and text amendments to the Zoning Code since the 2009 GDP was adopted have significantly impacted build-out capacities and pollutant loadings at water reclamation facilities. Plan2040 recommends adding language to the Zoning and Subdivision and Development Codes that require the Planning and Zoning Officer to find consistency with the GDP for any text amendments to these codes. In addition, the

Table 10. Water Reclamation Facilities Phosphorus (TP) Pollutant Loads

	2019 Total Flows MGD			Current Design Capacity			Build Out Based on 2009 GDP Land Use Plan			Future Design Capacity (with ENR)			Build Out Based on Plan2040 Land Use Plan		
Facility/SSA	(MGD)	Current TP (mg/L)	TP (lbs/ Year)	(MGD)	Current TP (mg/L)	TP (lbs/ Year)	(MGD)	TP with ENR (mg/L)	TP (lbs/ Year)	(MGD)	TP with ENR (mg/L)	TP (lbs/ Year)	(MGD)	TP with ENR (mg/L)	TP (lbs/ Year)
Broadneck	5.31	0.11	1,800	8.00	0.11	2,700	13.75	0.23	9,400	8.00	0.23	5,601	13.55	0.23	9,300
Annapolis (ENR 6/15)	8.72	0.17	4,500	13.00	0.17	6,700	15.01	0.23	10,300	17.33	0.23	12,112	14.75	0.23	10,100
Broadwater (ENR 7/15)	1.24	0.14	500	2.00	0.14	900	2.58	0.23	1,800	2.67	0.23	1,869	2.58	0.23	1,800
Chesapeake Beach	0.75	0.40		1.50	0.40		N/A			N/A			N/A		
County Portion-Rose Haven	0.10	0.30	100	0.14	0.40	200	0.20	0.23	100	0.14	0.23	94	0.13	0.23	100
Total Western Shore	**15.37**		**6,900**	**23.14**		**10,500**	**31.54**		**21,600**	**28.14**		**19,676**	**31.01**		**21,300**
Maryland City (ENR 12/14)	1.36	0.03	100	3.30	0.03	300	3.70	0.23	2,500	3.33	0.23	2,331	3.76	0.23	2,600
Patuxent (ENR 9/15)	5.71	0.15	2,600	10.50	0.15	4,800	13.81	0.23	9,500	10.50	0.23	7,352	13.71	0.23	9,400
Piney Orchard	0.57	0.09	200	0.70	0.09	200	0.93	0.23	600	0.93	0.23	639	1.28	0.23	900
Total Patuxent	**7.64**		**2,900**	**14.50**		**5,300**	**18.44**		**12,600**	**14.76**		**10,322**	**18.75**		**12,900**
Patapsco	48.70	0.27		73.00	0.27		N/A			N/A			N/A		
County Portion-Baltimore City	4.75	0.27	3,900	6.39	0.27	5,300	10.00	0.23	6,800	6.39	0.23	4,377	12.73	0.23	8,700
Cox Creek (ENR 12/17)	11.97	0.09	3,300	15.00	0.09	4,100	22.57	0.23	15,500	20.00	0.23	14,003	23.05	0.23	15,800
Bodkin Point			N/A			N/A			N/A			N/A	0.09		N/A
Total Patapsco/ Back	**16.72**		**7,200**	**21.39**		**9,400**	**32.57**		**22,300**	**26.39**		**18,380**	**35.87**		**24,500**
Total Flow within County:	**39.73**		**17,000**	**59.03**		**25,200**	**82.55**		**56,500**	**69.29**		**48,378**	**85.63**		**58,700**

Notes: Data from Table 4-2 and 4-6 of the 2017 Master Plan for Water Supply and the Sewerage Systems and September 2017 Allocation Report; Load for Bodkin Point system based on typical septic system assumed to be near 0 for TP; Baltimore City and Rose Haven/ Holland Point are operated by other jurisdications or entities. Facilities assumed to be operating at current Discharge Permit limits

County will continue to analyze planned land use for a reduction in built density during the Region Plan process that follows Plan2040. In the event that feasible alternatives cannot be identified or the advancement of treatment technologies lags, the TMDL regulations could restrict future land use and could conflict with Smart Growth initiatives.

Septic System Loads

Nitrogen loads were calculated for all existing OSDS Countywide without a treatment strategy and with a chosen treatment strategy. Using MDE's criteria regarding the delivery ratio (DR) of nitrogen to the receiving water (as a function of the septic system's distance to surface water), it is estimated that septic systems in the County annually contribute nearly 700,000 lbs of TN/year to the Chesapeake Bay Watershed. For the computations, it was assumed that residential systems use 195 gpd and non-residential systems use 1,300 gpd with the Total Nitrogen Load per OSDS for residential systems estimated to 23.2 lbs/year DR. Given the significant reduction associated with connecting to the public sewer systems, the County is evaluating cost/benefit analysis to determine an

appropriate strategy. The treatment strategies considered are: sewer system extensions, cluster treatment facilities, enhanced onsite septic disposal systems, or no action, and were based on the most cost-effective strategy identified in the study for each of the OSDS management areas in each watershed. In analyzing these different treatment methods, it was recognized that OSDS equipped with denitrifying systems can reduce the nitrogen load from 40 mg/l to 20 mg/l, while connection to the WRFs that have been upgraded with ENR reduces the nitrogen load to 4 mg/l.

Table 11 shows these nitrogen loads at a subwatershed scale. Build-out conditions without treatment based on land cover and zoning and also using a treatment strategy were also calculated. The implementation of the various treatment strategies from the OSDS Study can result in significant nitrogen load reductions.

Table 11. Nitrogen Loads for Existing and Future Conditions for Septic Systems

Watershed	Area	Existing Conditions	Build-Out Conditions w/o Treatment 2017		Build-Out Conditions w/o Treatment 2019		Build-Out Conditions w/ Treatment 2019	
	(acres)	TN (lbs/ year)	TN (lbs/ year)	Departure from Existing %	TN (lbs/ year)	Departure from Existing %	TN (lbs/ year)	Departure from Existing %
Severn River	44,248	203,898	236,486	14%	213,328	4%	93,287	-119%
South River	36,167	99,524	111,887	11%	98,877	-1%	39,492	-152%
Magothy River	22,845	153,513	171,527	11%	155,692	1%	54,240	-183%
Rhode River	8,764	7,010	8,177	14%	7,455	6%	4,144	-69%
West River	7,297	6,089	8,466	28%	8,137	25%	4,215	-44%
Herring Bay	14,662	17,383	27,363	36%	22,148	22%	11,026	-58%
Total Western Shore	133,983	487,417	563,906	14%	505,637	4%	206,404.31	-136%
Upper Patuxent River	22,551	29,476	32,370	9%	33,570	12%	15,552	-90%
Middle Patuxent River	29,632	33,256	44,992	26%	59,225	44%	29,881	-11%
Little Patuxent River	27,750	19,681	21,224	7%	23,058	15%	14,782	-33%
Total Patuxent	79,933	82,413	98,586	16%	115,853	29%	60,216.22	-37%
Patapsco Tidal	30,841	56,926	60,193	5%	49,957	-14%	29,784	-91%
Patapsco Non-Tidal	15,275	26,556	26,581	0%	14,543	-83%	14,741	-80%
Bodkin Creek	5,036	42,920	57,116	25%	52,809	19%	27,970	-53%
Total Patapsco/ Back	51,152	126,402	143,890	12%	117,309	-8%	72,495.73	-74%

Nonpoint Source Loads

Pollutant loadings from nonpoint source runoff for existing conditions were calculated using the Chesapeake Assessment Scenario Tool (CAST), which is the interface for the Phase 6 Chesapeake Bay Watershed Model developed by the Chesapeake Bay Program (CBP 2020)[1]. The Phase 6 Model incorporated changes to both land use pollutant loading rates and the pollutant removal efficiencies of stormwater best management practices. Therefore, it is not possible to compare the pollutant loads in Table 12 with those in the 2009 General Development Plan. However, the Phase 6 Bay Model is used by CBP to track progress in meeting the Chesapeake Bay Total Maximum Daily Load and provides an excellent assessment of existing conditions.

Pollutant loadings for build-out conditions could not be modeled using the Bay Model, as the Chesapeake Assessment Scenario Tool (the interface that allows external users to use the Bay Model) only allows for future scenarios run through 2025. Loading rates, which were developed by the CBP and modified by the Maryland Department of the Environment (MDE 2019), were applied to land areas that were zoned for more intense use than the underlying land use. Pollutant loads from new development were reduced according to the currently required levels of stormwater management for new development. Additionally, the County has a robust pipeline of completed and planned capital improvement projects, as well as grant-funded projects in partnership with non-governmental organizations. Reductions from these restoration efforts are the reason why there are some net pollutant reductions, even with an increase in development. The nitrogen and phosphorus loads under both conditions are shown in Table 12 for each watershed in the County.

There is a good deal of variability among the individual subwatersheds in terms of future development and the percentage increase in impervious surfaces, ranging from 1% to 32%. However, the three larger watersheds all showed a similar, slight increase in nitrogen (TN) loads under build-out conditions, and a slight decrease in the phosphorus (TP) loads. The County will take into consideration subwatersheds that are expected to see an increase in TN loads when planning future restoration efforts to offset these increases.

1. Chesapeake Bay Program (CBP), 2020. Chesapeake Assessment and Scenario Tool (CAST) Version 2019. Chesapeake Bay Program Office, Last accessed July 2020. Maryland Department of the Environment (MDE), 2019. 2019 Accounting Guidance for Stormwater Wasteload Allocations and Impervious Acres Treated. Baltimore, Maryland, December 2019.

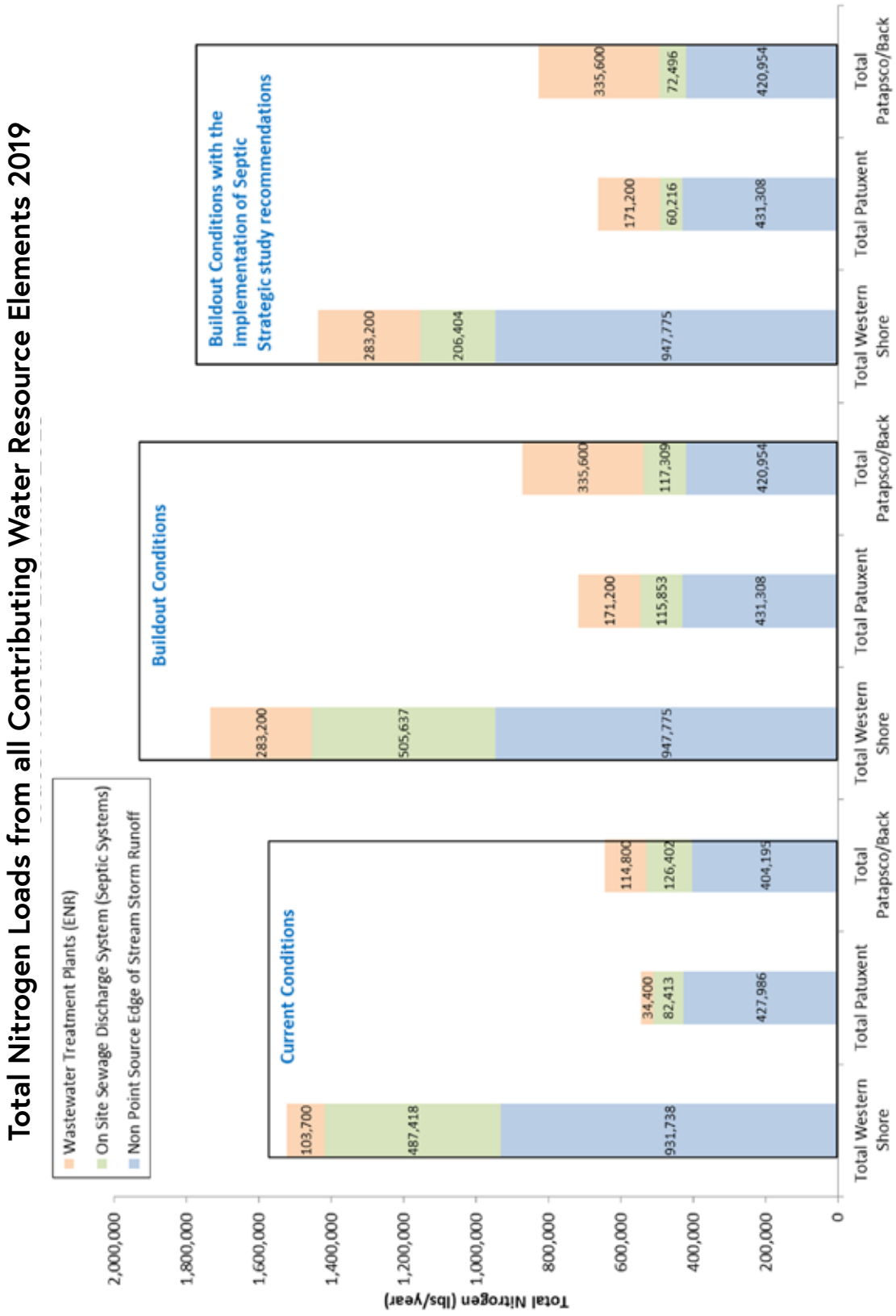
Table 12. Stormwater Nitrogen (TN) and Phosphorus (TP) Pollutant Loads

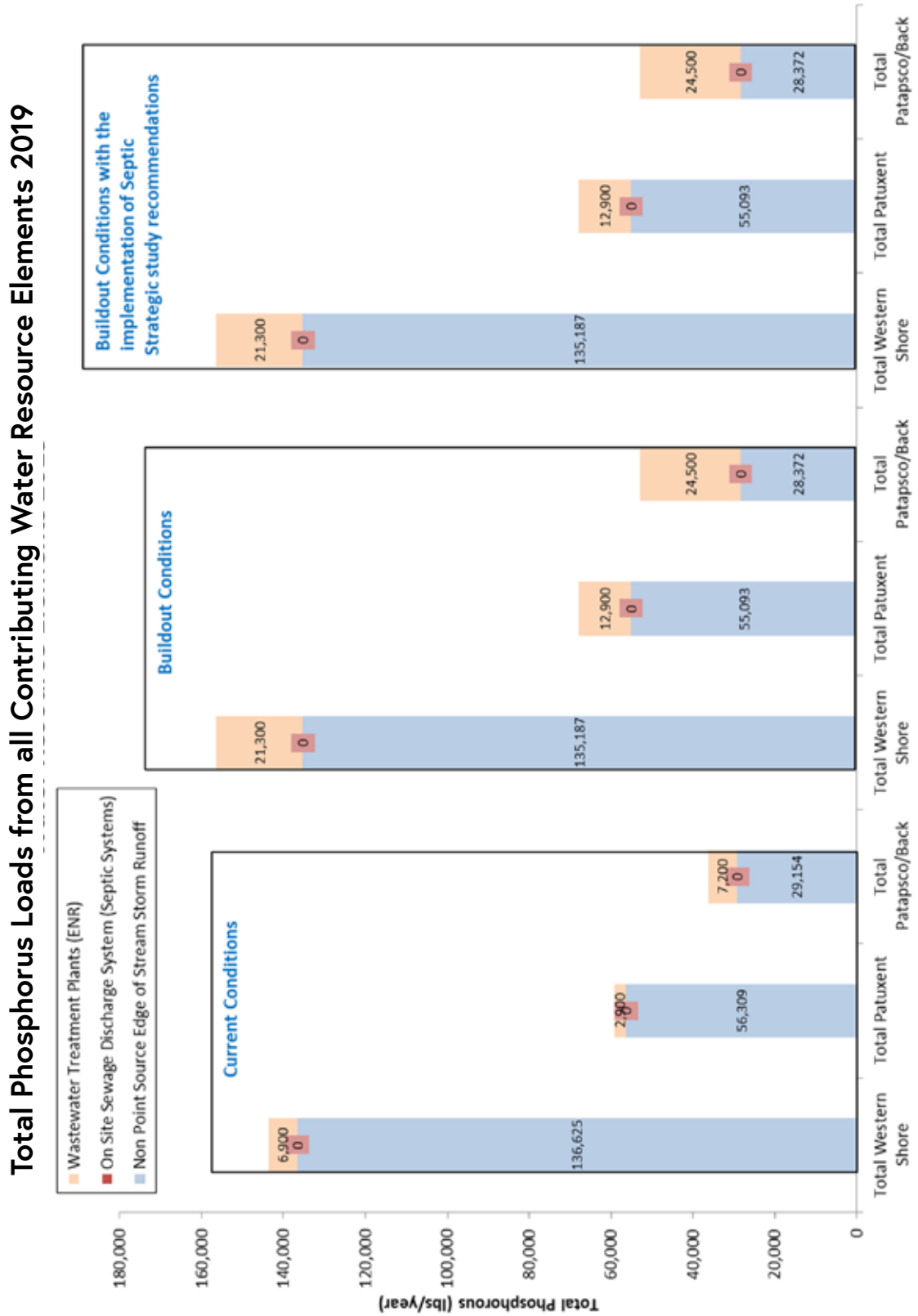
Watershed	Area	Existing Conditions			Build-Out Conditions			Percent Departure from Existing Conditions		
	Acres	TN (lbs)	TP (lbs)	Impervious (Acres)	TN (lbs)	TP (lbs)	Impervious (Acres)	TN (lbs)	TP (lbs)	Impervious (Acres)
Severn River	44,213	345,902	54,334	8,841	358,316	55,052	10,369	4%	1%	1%
South River	35,663	206,300	25,683	4,840	202,407	23,647	5,345	-2%	-8%	10%
Magothy River	22,574	218,160	26,355	4,769	225,571	26,441	5,794	3%	0%	21%
Rhode River	8,780	44,773	7,331	551	45,790	7,383	624	2%	1%	13%
West River	7,812	44,279	7,594	544	45,002	7,647	635	2%	1%	17%
Herring Bay	14,251	72,321	15,325	936	70,686	15,013	1,037	-2%	-2%	11%
Total Lower Western Shore	133,293	931,738	136,625	20,483	947,775	135,187	23,808	2%	-1%	16%
Upper Patuxent	22,359	111,807	11,218	1,496	111,776	11,090	1,583	0%	-1%	6%
Middle Patuxent	29,487	161,210	14,369	1,460	161,293	14,374	1,468	0%	0%	1%
Little Patuxent	27,972	154,969	30,722	5,021	158,239	29,628	6,130	2%	-4%	22%
Total Patuxent	79,818	427,986	56,309	7,978	431,308	55,093	9,183	1%	-2%	15%
Patapsco Tidal	30,071	289,116	22,482	9,028	298,337	21,224	11,251	3%	-6%	25%
Patapsco Non-Tidal	15,177	73,409	3,104	4,338	77,484	3,271	5,103	6%	5%	18%
Bodkin Creek	6,028	41,669	3,568	773	45,132	3,875	1,020	8%	9%	32%
Total Patapsco/ Back	51,276	404,195	29,154	14,140	420,954	28,372	17,376	4%	-3%	23%

Notes:
1. Existing conditions TN and TP loads are from CAST: Base Year – 2017 and Progress Scenario BMPs applied. Loadings and reductions associated with septic systems and wastewater treatment were excluded. 2. Existing impervious surface based on the County's 2017 planimetric dataset. 3. Wetlands, floodplains, schools, parks, stream buffers and areas zoned for future conservation were not developable in the build-out conditions model. 4. Future loads are reduced by implementing all required stormwater management regulations, as dictated by the State and County. In addition, future loads were reduced based upon current and planned stormwater-related restoration activities.

Combined Pollutant Loads

The combined pollutant loads in the three major tributary watersheds for the current conditions, buildout conditions without treatment, and build-out conditions with treatment are shown in the charts on the following pages. The County will continue to adjust the land use map during the Region Plan process to reduce pollutant loads, find alternatives to redirect wastewater flows and set maximum impervious surface limitations for each zoning district. Additional strategies to address the Water Resources are located in the Natural Environment section of the Implementation Chapter of Volume I, Action Plan.


Total Nitrogen Loads from all Contributing Water Resource Elements 2019
Wastewater Treatment Plants (ENR)
On Site Sewage Discharge System (Septic Systems)
Non Point Source Edge of Stream Storm Runoff
Current Conditions
Buildout Conditions
Buildout Conditions with the Implementation of Septic Strategic study recommendations
Total Nitrogen (lbs/year)
2,000,000
1,800,000
1,600,000
1,400,000
1,200,000
1,000,000
800,000
600,000
400,000
200,000
0
103,700
487,418
931,738
34,400
82,413
427,986
114,800
126,402
404,195
283,200
505,637
947,775
171,200
115,853
431,308
335,600
117,309
420,954
283,200
206,404
947,775
171,200
60,216
431,308
335,600
72,496
420,954
Total Western Shore
Total Patuxent
Total Patapsco/Back
Total Western Shore
Total Patuxent
Total Patapsco/Back
Total Western Shore
Total Patuxent
Total Patapsco/Back
Tributary


Total Phosphorus Loads from all Contributing Water Resource Elements 2019
Wastewater Treatment Plants (ENR)
On Site Sewage Discharge System (Septic Systems)
Non Point Source Edge of Stream Storm Runoff
Current Conditions
Buildout Conditions
Buildout Conditions with the implementation of Septic Strategic study recommendations
Total Phosphorous (lbs/year)
180,000
160,000
140,000
120,000
100,000
80,000
60,000
40,000
20,000
0
6,900
0
136,625
2,900
0
56,309
7,200
0
29,154
21,300
0
135,187
12,900
0
55,093
24,500
0
28,372
Total Western Shore
Total Patuxent
Total Patapsco/Back
Tributary

The highest priorities identified during the public outreach component of the Plan2040 process include preservation of existing neighborhoods, cultural resources and historic and scenic roads; opportunities for additional transit and mixed-use, walkable communities; and improved and adequate infrastructure in place before new development occurs.

This chapter will address the communities' priorities through the required land use and development, housing and transportation elements of the Plan; and also through sections on community revitalization, redevelopment opportunities, historic preservation and cultural resources, and sustainability.

County Trends

In order to develop effective goals policies and strategies that will address the concerns as well as meet the needs of its residents, it is important to understand the demographics of Anne Arundel County, how its land has developed over time and how much is land capacity is available.

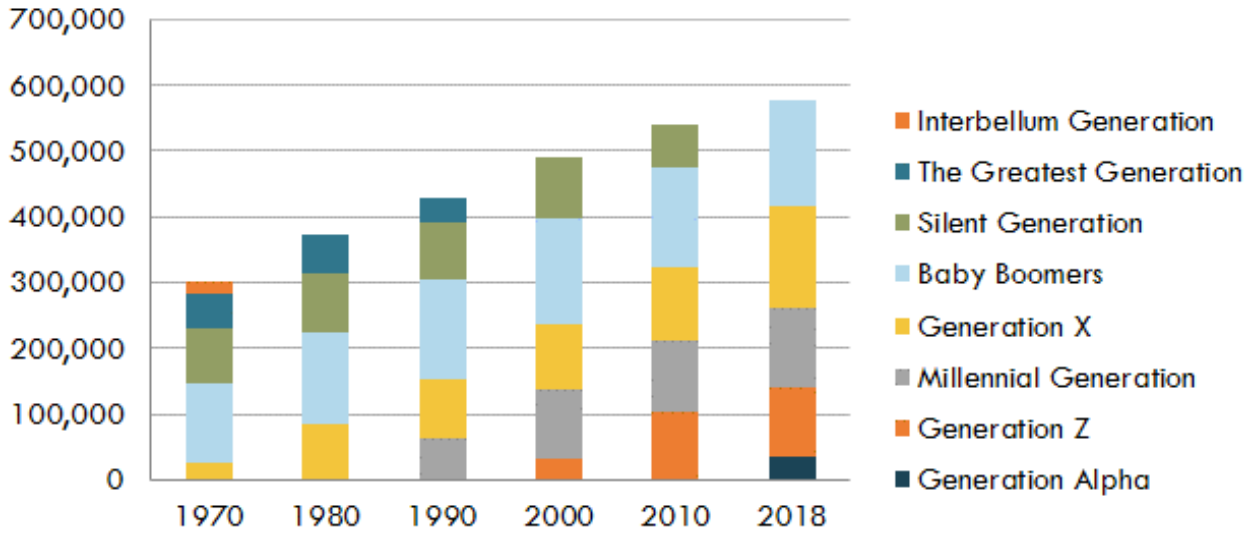
Demographic Trends

Anne Arundel County contracted with RKG and Associates in 2018 to prepare a Land Use Market Analysis that studied the economic and demographic trends in the County, and how these trends are projected to impact the demand for different land uses in the County. As a planning tool, this information was used to determine how current development policies and trends if continued, will impact the future supply of land for various uses. Below is summary of the trends and data from the Land Use Market Analysis. The complete analysis is available at the Plan2040 website.

County and Regional Population Growth Trends

Anne Arundel County's location between the Washington, DC and Baltimore metropolitan areas and the presence of large economic and employment engines has contributed to strong population growth. From 1970 to 2010, the County experienced a 2% annual average population growth and captured the highest share of growth in the region, but the County's growth rate since 2010 has been slowing. With an estimated 2018 population of 576,031, population growth averaged roughly 0.7% annually between 2010 and 2018. That is slower than the 1% annual growth rate achieved during the 2000-2010 period. Due to the County's maturing population, this lower annual growth rate is expected to continue in the future.

Population Trends 1970-2018



Source: Woods & Poole Economics, Inc. and RKG Associates, Inc., 2018

Racial / Ethnic / Age Distribution

The County's population over the last few decades has become more racially and ethnically diverse. Between 2010 and 2018, the County experienced an increase of 13,810 African Americans, 11,548 Hispanic and 8,475 people classified as two or more races or other races. The County's white population has grown since 2010 (2,583 people), but declined from approximately 75% to 72% in 2018.

The County's median age (39.5 years in 2018) is increasing due to gradual aging of the population as well as the County's ability to attract retirement age households (see Figure 1). Despite a drop from 40.6% in 1970 to 28.4% in 2010, the County's Baby Boomer generation (born between 1946-1964) still remains a large portion of the County's population. The County's population over the age of 55 has grown as a percentage of the total population from 24.2% in 2010 to 29.2% in 2018. The County's high quality of life and great cultural and natural amenities has made it an attractive retirement location.

The Generation X age cohort (born between 1965-1979) has decreased as a percentage of the County's population between 2010 and 2018. This is counter to trends statewide and in the Baltimore-Washington, DC region. The Millennial generation (born between 1980-1991) is projected to become the largest age cohort in the United States. This generation also represents a lower percentage of the County's population (19.9%) compared to the entire state (20.7%) based on 2010 census data.

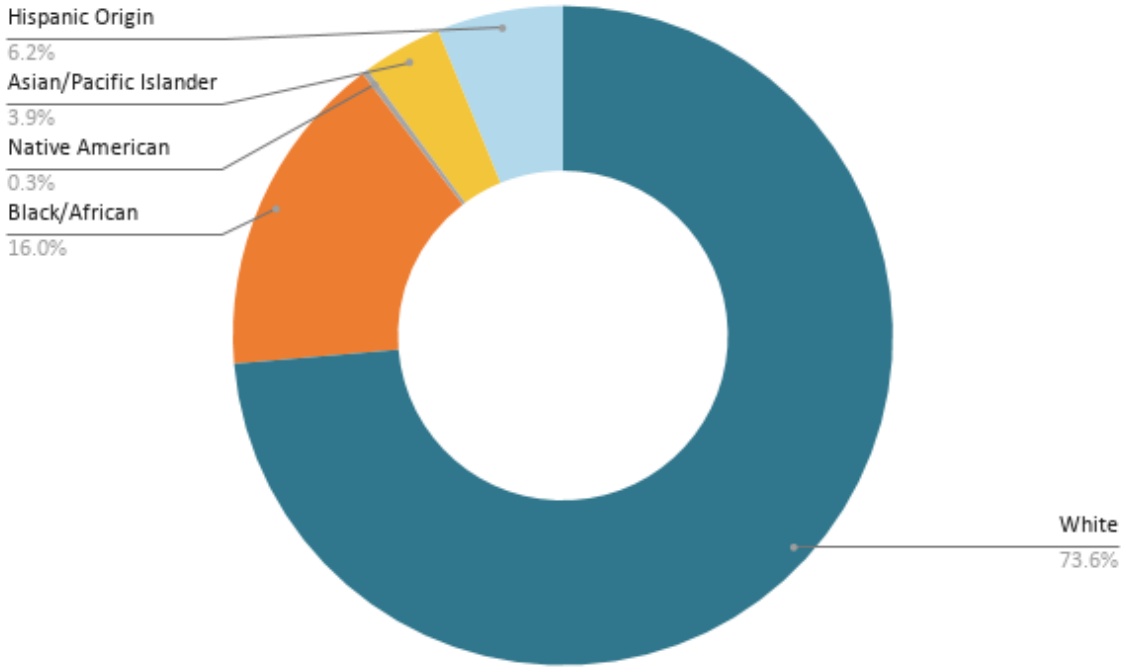
Education Levels

In 2018, education attainment levels in the County were high, similar to the Baltimore-Washington region. Over 40% of residents 25 years or older had a 4-year degree or higher.

Income Levels

Local household incomes exhibit a similar distribution to those in the Baltimore-Washington region. Approximately 14% of the County's population had household incomes that fell below $30,000 per year in 2018 and 41% that fell above $100,000 per year. In

Racial and Ethnic Diversity (2017)



Source: RKG Associates, Inc., 2018, American Community Survey, 2017

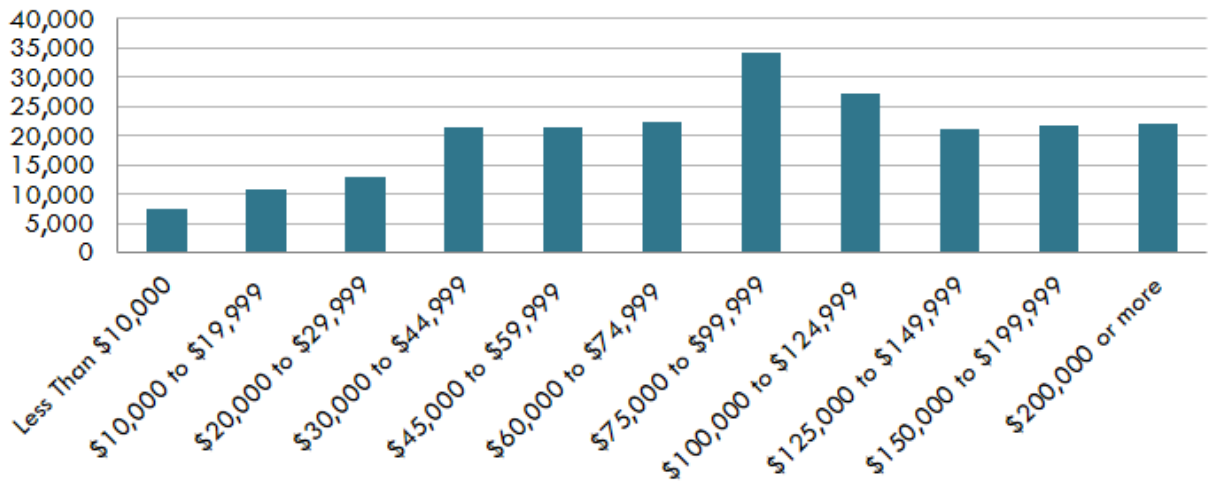
2018, the County's median household income, excluding the City of Annapolis, was $95,598 (ESRI), which is 35% higher than the United States median of $62,172. 48% of households in the County had median incomes of at least $100,000 in 2018.

Housing Trends

Between 1970 and 2010, the rate of new households in the County and the region outpaced population growth rates. While this was similar to national trends, it was primarily due to a steady decline in the average size of new households. The County added new households at an average annual rate of 3.6% while its population grew at a rate of 2.0% between 1970 and 2010 which was more than the State (2.1%) and the region (2.8%) during the same timeframe.

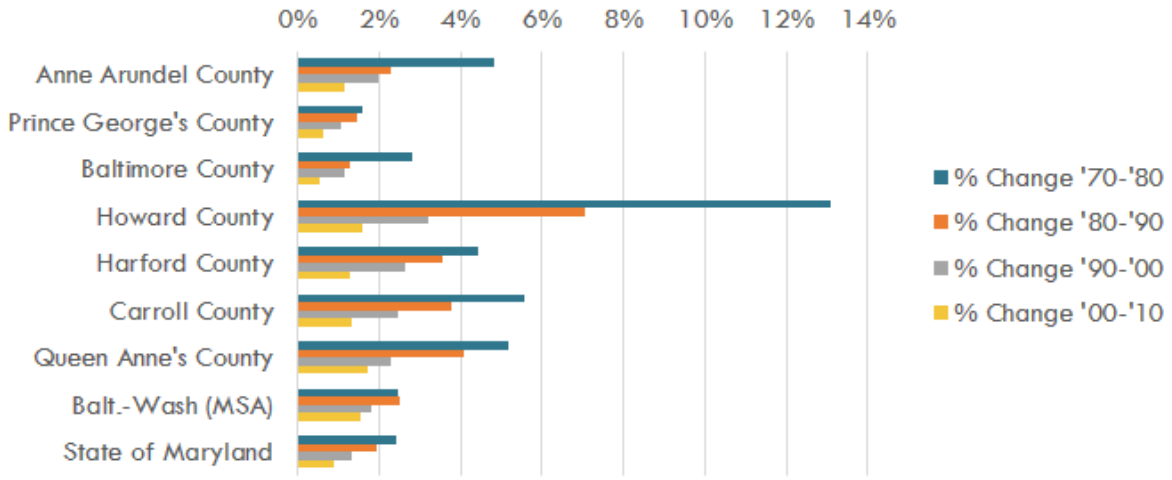
The annual rate of new household formation in the County since 2010 has mirrored population growth (0.7%). Although the average number of persons per household has increased from 2.63 in 2010 to 2.65 in 2018, it is much lower than the 3.4 persons per household the County experienced in 1970.

Household Income Distribution



Source: Woods & Poole Economics, Inc. and RKG Associates, Inc., 2018

Household Formation Trends (1970-2010)



Source: Woods & Poole Economics, Inc. and RKG Associates, Inc., 2018

Employment Trends

The estimated Countywide Transportation Analysis Zones (TAZ) employment totals for 2018, excluding the City of Annapolis, stands at 347,570. Much of the employment in the County is clustered in the area defined by the Baltimore-Washington International Thurgood Marshall Airport, the Fort George G. Meade Military Installation and the Arundel Mills Mall development.

The annual average employment growth in the County between 1970 and 2010 (4.2%) was

Table 13. Employment Trends

						(1970-2010)	
	1970	1980	1990	2000	2010	Actual Change	Ann % Change
TOTAL EMPLOYMENT	130,014	175,706	250,069	298,003	345,913	215,899	4.2%
Farm	927	894	658	532	456	(471)	-1.3%
Forestry, Fishing, Related Activities	64	106	201	289	345	281	11.0%
Mining	252	291	331	244	400	148	1.5%
Utilities	181	246	532	695	300	119	1.6%
Construction	5,486	9,066	16,404	17,516	19,389	13,903	6.3%
Manufacturing	17,237	19,934	22,463	16,851	14,865	(2,372)	-0.3%
Wholesale Trade	1,208	3,611	7,330	9,647	12,065	10,857	22.5%
Retail Trade	11,950	18,353	28,238	33,026	36,327	24,377	5.1%
Transportation And Warehousing	3,520	4,777	10,347	14,315	11,355	7,835	5.6%
Information	1,516	2,284	3,876	5,339	4,534	3,018	5.0%
Finance And Insurance	1,909	3,715	6,256	8,041	11,347	9,438	12.4%
Real Estate And Rental And Leasing	2,532	4,927	8,300	10,925	15,802	13,270	13.1%
Professional And Technical Services	4,001	7,634	14,947	23,950	31,112	27,111	16.9%
Management Of Companies And Enter-prises	151	288	563	811	1,451	1,300	21.5%
Administrative And Waste Services	3,062	5,471	10,901	16,848	19,416	16,354	13.4%
Educational Services	532	1,016	1,988	3,184	4,607	4,075	19.1%
Health Care And Social Assistance	3,616	6,898	13,505	20,574	27,828	24,212	16.7%
Arts, Entertainment, And Recreation	1,350	2,311	4,066	6,011	7,847	6,497	12.0%
Accommodation And Food Services	4,661	7,979	14,041	19,062	24,937	20,276	10.9%
Other Services, Except Public Admin-istration	2,740	5,207	10,182	15,143	17,539	14,799	13.5%
Federal Civilian Government	20,833	32,024	35,372	33,577	38,433	17,600	2.1%
Federal Military	27,548	17,891	17,009	15,294	15,774	(11,774)	-1.1%
State And Local Government	14,738	20,783	22,559	26,129	29,784	15,046	2.6%

Source: Woods & Poole Economics and RKG Associates, Inc., 2018

above that of the Baltimore-Washington region (3.4%) and outpaced the rate of population growth (see Table 13). In 1970, local, State and Federal (including military) government employment accounted for 63,119 jobs, or 48.5% of Anne Arundel County's total employment base. By 2010, the number of government jobs had grown to over 83,000 jobs, but only represented 24.3% of total employment. This is more directly due to the rapid expansion of private-sector employment opportunities since 1970 than from the loss of military jobs.

Land Use and Development

As a charter county, Anne Arundel has been granted planning and zoning authority by the State of Maryland. The State's Land Use Code requires that the County prepare a comprehensive plan and include a land use element and a development regulations element. In general, on a schedule that extends as far into the future as is reasonable, the required land use element of a County's comprehensive plan shall propose the most appropriate and desirable patterns for the general location, character, extent, and interrelationship of the uses of public and private land. In addition, the development regulations element shall:

1. Encourage the use of flexible development regulations that will promote innovative and cost-saving site design and protect the environment; and
2. Within the areas designated for growth in the comprehensive plan:
    A. Encourage economic development through the use of innovative techniques; and
    B. Encourage a streamlined review of applications for development, including permit review and subdivision plat review.

In the years leading up to the beginning of the Plan2040 process and validated through many public outreach efforts, Anne Arundel County residents voiced concerns about the development pattern that has occurred and the resulting impacts. "Too much growth," "infrastructure capacity needs to be in place before development," "the cluster development provisions are not working to conserve land" were concerns often heard during the public outreach efforts.

Land use goals, policies and strategies in Plan2040 are intended guide the location, amount and type of development within the County with the purpose of forming a land use pattern that improves the County's natural environment and the character of its communities which will in turn, result in a better quality of life for its residents. In addition, some strategies will address where the County Code has fallen short of implementing the land use plan such as allowing the majority of growth to occur in the Managed Growth Policy Area instead of the Targeted Growth Policy Area; approving cluster developments that have not promoted integrated site design in order to preserve natural features; and approving modifications to the Code that are inconsistent with the Vision and Goals of the GDP.

Plan2040 addresses land use needs Countywide and specifically where future growth and development should be concentrated, where land should be preserved and how established neighborhoods can be preserved. A framework will be established that will set the stage for future preparation of region area plans and functional plans that will implement the County's land use vision.

Development Policy Areas

An intentional and strategic approach to direct the County's future development in areas where redevelopment and revitalization opportunities exist; create vibrant, mixed-use, transit-oriented, walkable communities; capitalize on existing and planned infrastructure investments; preserve natural, rural and agricultural resources; and protect existing neighborhoods and the peninsula areas from additional impacts of development is to create development policy areas. This approach began with revising the

County's adopted 2009 Development Policy Areas.

The following policy areas were derived to achieve the land use vision for the County and are depicted in Figure 17.

Resource Sensitive Policy Area Overlay (mapped separately)

Areas of natural, cultural, or physical features of special concern or significance within the County intended for conservation and preservation from the adverse effects of development. Development in these areas is guided by policies and regulations to limit or prohibit impacts of land uses to sensitive areas. Example: Priority Preservation Area

Rural and Agricultural Policy Area

These communities are characterized by large lot residential areas, farms and very limited commercial and industrial areas outside of the Priority Funding Area (PFA). These areas are served by private septic systems. Development is limited to protect the rural and agricultural heritage and economy and limit the costly extension of public facilities and services. Example: Davidsonville

Peninsula Policy Area

Existing, stable communities, primarily residential, that are nearly surrounded by water and land within the Critical Area; and served by a single primary road corridor for access and egress. These areas are located both within and outside of the PFA and also within and outside of the public sewer service area. Development is limited to infill and redevelopment that must be compatible with the existing character of the neighborhood and where consideration of salt-water intrusion and vulnerability to sea-level rise are given. Example: Mayo Peninsula

Neighborhood Preservation Policy Area

Existing, stable residential communities and natural areas (may include local commercial and industrial uses) that are not intended for substantial growth or land use change, but may have specific areas targeted for revitalization. Development is limited to infill and redevelopment that must be compatible with the existing neighborhood character. Public infrastructure exists but may need capacity improvements. Example: Riva

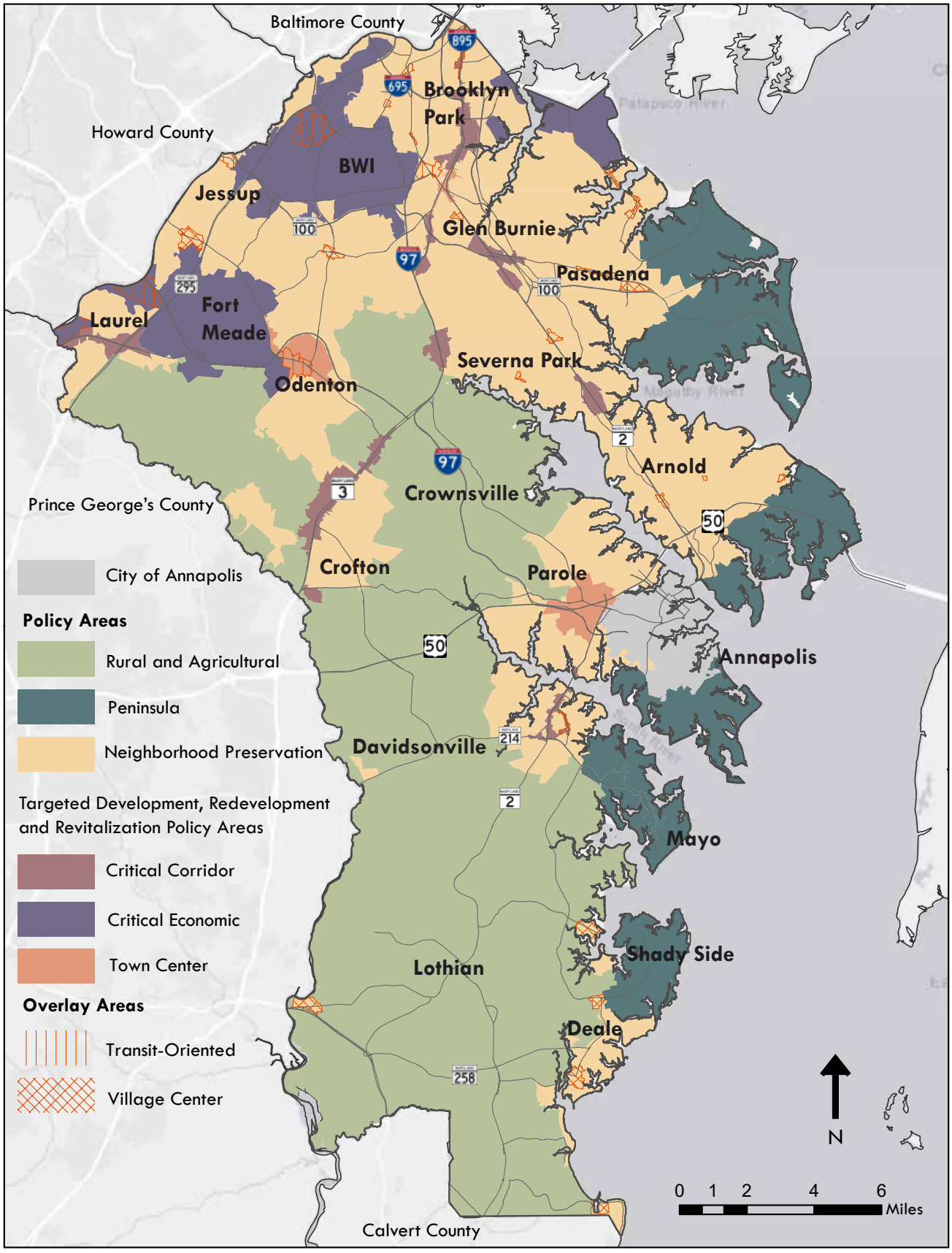
Critical Corridor Policy Area

Existing, developed areas along major roads where opportunities to improve safety and mobility exist. These areas often form the economic center of a community. Redevelopment that improves multi-modal outcomes and preserves adjacent neighborhoods is encouraged. Implementation is guided by a concept plan.

Critical Corridor Areas are generally dominated by regional-scale, auto-oriented commercial areas or congested, critical transportation arteries. These areas primarily require investments for improved traffic management and mobility for all modes, in addition to plans and recommendations currently identified for the corridors. Redevelopment in these areas should incorporate a stronger mix of uses and multimodal transportation solutions to better preserve surrounding areas and reduce auto dependency.

Targeted Development, Redevelopment and Revitalization Policy Areas:

Areas where development, redevelopment and revitalization are focused and encouraged to relieve growth pressure from other areas of the County, utilize existing facilities, and strengthen the County's tax base. These areas are characterized by a mix of residential and nonresidential uses. Public sewer exists or is planned; other public infrastructure exists but may need improvements. Future capital investments are given the highest priority once existing Countywide infrastructure issues have been addressed. The character of these areas and the policies and development standards that are applied will vary depending on the


Baltimore County
Howard County
Prince George's County
Calvert County
Brooklyn Park
BWI
Jessup
Glen Burnie
Pasadena
Fort Meade
Laurel
Severna Park
Odenton
Arnold
Crownsville
Crofton
Parole
Annapolis
Davidsonville
Mayo
Shady Side
Lothian
Deale
City of Annapolis
Policy Areas
Rural and Agricultural
Peninsula
Neighborhood Preservation
Targeted Development, Redevelopment and Revitalization Policy Areas
Critical Corridor
Critical Economic
Town Center
Overlay Areas
Transit-Oriented
Village Center
N
0 1 2 4 6
Miles

community but the goal of carefully planned, focused development is shared.

Descriptions of the Targeted Development, Redevelopment and Revitalization subareas below are general, intended to provide interim land use and development guidance until Region Plans or master plans for each area can be adopted to provide more tailored direction.

Critical Economic Area – existing or planned regional-scale destinations, employment centers, or areas supporting the County's major economic drivers. They have primarily industrial, commercial, and mixed land uses within the Priority Funding Area, with flexible land use policies to facilitate business growth and job creation.

Critical Economic Areas include the following:

- Fort Meade and its surrounding areas of supporting office and flex-space uses. Future development should continue to emphasize these uses, with local-serving commercial and medium or high-density residential for local workers where appropriate;
- BWI Airport and surrounding areas of supporting office, retail, industrial, and warehousing. Future development should continue to emphasize these uses. Residential uses should avoid airport noise zones and other incompatible locations.
- Laurel Racetrack, which is currently classified as industrial land use dedicated to functions and support of the Racetrack.
- Business and light or heavy industrial areas along the northern County border with Baltimore City, where future development must consider the impacts of past or existing industrial uses on the compatibility of future development in the area.

Town Centers – existing or planned compact, walkable, pedestrian-oriented, higher-density residential and nonresidential mixed-use areas within the Priority Funding Area that take the most urban form in character within the County. Implementation is guided by a town center master plan.

The County's three existing Town Centers are the following:

- Odenton, with specialized zoning categories, development requirements and density allowances outlined in the Odenton Town Center Master Plan to promote mixed use and high quality urban design.
- Parole, with a mix of primarily Town Center, Commercial and Industrial land uses, governed by overlay provisions with additional development requirements and allowances to achieve dense, urban development. A master plan for the area establishes a vision for future development in the area that promotes mixed use, dense residential development and continued commercial and service uses for the region.
- Glen Burnie, which is a much smaller area than Odenton or Parole, has Town Center and commercial land use designations. The Glen Burnie Small Area Plan includes a Town Center Enhancement Area Plan, with revitalization concepts and an illustrative Vision for people-oriented urban design to add a mix of commercial and residential uses to the area.

Village Center Overlay – existing or planned; walkable, pedestrian-oriented, mixed-use areas that are suburban or rural in character compatible with the underlying Policy Area and surrounding community; development and redevelopment is oriented toward the community, enhances community heritage, and is implemented by a village sector plan.

Multiple Village Centers are identified throughout the County, each with unique character and unique context. Future development in these areas should include uses and density that are compatible with the surrounding community.

Main Street Village Centers tend to be linear along a corridor and are intended to be the densest of the Village Centers, though with much lower density than Town Centers and with commercial and office uses serving local, not regional, needs. Future development

should include buildings with shallow setbacks and active streetfronts, parking primarily located behind or to the side of buildings, and residential uses integrated in upper floor apartments, live-work spaces, townhouses, and small- to mid-sized apartment buildings under ten units. Main Street Village Centers include Brooklyn Park (also a Corridor Management Area), Fort Smallwood West, Fort Smallwood East, Mountain Road, and Mayo Road (also a Corridor Management Area).

Suburban Neighborhood Village Centers are existing commercial nodes typically organized around suburban strip mall commercial hubs, with a strong auto-oriented development pattern. Targeted development is needed to retrofit these areas with a village character. Future mixed use development patterns should feature human-oriented development, including buildings and facades placed toward the street and public sidewalks, less dominant automobile parking, pedestrian-friendly frontages with sidewalks and shopfronts, and greening of sites that currently have significant hardscape. Civic spaces such as parks and plazas should be prioritized, and pedestrian and bicycle linkages within the area and to surrounding neighborhoods should be strengthened. Residential uses should be integrated in upper floor apartments, live-work spaces, townhouses, and small multiplexes. Severn, Lake Shore Plaza, Harundale, Earleigh Heights, Benfield Village, Arnold, Bay Dale, Cape Saint Claire, Staples Corner are all Suburban Neighborhood Village Centers.

Historic Villages are existing areas with much of the traditional village form of a small-scale commercial or "downtown" core surrounded by residential neighborhoods. Infill and development should reinforce the traditional village form with a mix of uses in the core at a scale compatible with existing development. Buildings should be oriented close to the street with active streetfronts, streets and pedestrian ways should be scaled for pedestrian use, and community civic and gathering spaces and amenities should be emphasized. Galesville and Deale are Historic Villages.

Rural Crossroads are small-scale, low density commercial and civic nodes serving rural, low-density areas surrounding. One-and two-story buildings may hold small-scale mixed uses, linked by pedestrian facilities. Mayo and Waysons Corner are Rural Crossroads.

Village Neighborhoods are low-density, small-scale village centers that are primarily comprised of low or low-medium density residential development and a small node of commercial or service uses. Low density residential infill and low-intensity commercial, service, or mixed use development in the commercial node will reinforce the character of these areas. Jessup and Herrington Harbour are Village Neighborhoods.

Transit-Oriented Area Overlay - compact, walkable, pedestrian-oriented, mixed-use areas that are within a ½ mile of an existing or planned transit station and compatible with the underlying Policy Area and surrounding community; all are within the Priority Funding Area; implementation is guided by a transit area sector plan.

The compatibility of future development within TOD areas will depend on the character of surrounding neighborhoods. North Linthicum, Linthicum, and Ferndale TOD areas are primarily surrounded by Low-Medium Density Residential neighborhoods, and their mix of uses should emphasize small business, commercial and medium density residential development. BWI Airport, and Savage TOD areas are principally surrounded by industrial uses; development in these areas will emphasize industrial uses supporting the airport and regional economic drivers. Dorsey and Laurel Racetrack TOD areas are generally industrial and commercial; development should focus on intensifying these uses with dense residential uses in the mix. Finally, Odenton and Cromwell are similar TOD areas that are within or adjacent to Town Centers. The planned mix of commercial, light industrial and residential development should

continue for both areas. While the Odenton Town Center Master Plan provides strong guidance for future development, Cromwell's residential mix should be limited to medium density to better transition to the surrounding low-medium density neighborhoods.

Land Use Plan

The Planned Land Use Map, along with related goals, policies and strategies serve as the Land Use Plan, which is a long-term guide for how development should occur in Anne Arundel County and provides a framework for making decisions on development and allocation of public resources.

Existing and Planned Land Use

Existing land use in the County reflects how land is currently being used. It establishes a reference point for identifying areas suitable for change and redevelopment or areas appropriate for preservation. Planned Land use is how the County and its residents envision the future use of the land to be in order to promote a more desirable outcome and is depicted in an adopted comprehensive plan as the Land Use Map. Existing land use may be different from what is planned by the adopted GDP. For example, an area that is currently developed with a struggling shopping center but planned for mixed-use may transition to the new use through a redevelopment or revitalization opportunity. Other areas of the County will not have land use changes that differ between what exists and what is planned because the existing character is consistent with the vision of the adopted GDP or region plan.

Relationship between Planned Land Use and Comprehensive Zoning

The Zoning Map and its corresponding regulations found in Article 18 of the County Code, is a tool that follows and implements the Land Use Plan by regulating the development that is allowed today. Zoning is more specific, with provisions to clarify such regulations as permitted uses, maximum density, setbacks, structure height and lot coverage, minimum lot size and setbacks and required parking. In accordance with the State's Land Use Article, the Zoning Map must be consistent with the Land Use Map. Other tools, such as development regulations, stormwater and environmental requirements, and preservation legislation, will implement the Plan2040 Vision and also help shape how development occurs.

Land Use and Development Trends

Much of the land use pattern in the County has been set since the adoption of the 1978 GDP which evaluated seven land use alternatives. Social, economic, fiscal and environmental impacts were assessed for each alternative. Based on the findings and conclusions of the assessment, the County adopted as its land use policy the concept of "contained" growth, which encouraged growth in the western areas of the County to take advantage of good transportation access, encourage the revitalization and support of existing communities and reduce the potential for negative impacts along the coastal zone. Some of the other benefits stated in choosing this alternative included less consumption of rural and farm land, less total air pollution, less energy consumption, more accessible, lower cost services and a wider variety of housing types. The noted impacts associated with choosing the contained pattern of development included higher concentration of air pollution in urban areas, greater concentration of traffic congestion in highly urbanized areas and higher land costs in older, urbanized areas. Land use planning efforts since adoption of the 1978 GDP policy of contained development has continued

to focus growth in contained areas in the western areas of the County while preserving the rural character of its southern area.

Table 14 compares the acres of planned land use between the 2004 Land Use Plan and the 2009 GDP Land Use Map with the 2017 Existing Land use Map. The 2004 Land Use Plan is a combination of the land use adopted with the Small Area Plans.

2008 Holding Capacity

A development holding capacity analysis was conducted for the 2009 GDP that estimated approximately 26,000 additional residential units could be built under the current zoning. Most of this additional capacity existed in the low to medium density residential zones (R2 and R5, and to a lesser extent R1). Most of the available capacity was attributed to vacant parcels or lots and redevelopment. It is important to note that the 2008 holding capacity analysis did not account for development of residential units in mixed use, town center, and commercial zoning districts. An updated holding capacity analysis was conducted for Plan2040 that included all zoning districts where residential units can be development. The 2008 analysis also estimated approximately 6,200 acres of commercial and industrial land that could be developed of which 3,400 acres were vacant and 2,800 acres were underdeveloped. The 2009 GDP estimated that the County could increase by approximately 25,000 households and 80,000 jobs between 2009 and 2024 and assumed that by 2020 to 2025, the County would reach maturity in terms of growth. This would result in a need to consider additional capacity and prepare for a shift from a growing population to a stable one.

A Fiscal Impact Analysis was also undertaken in 2008 for the 2009 GDP that indicated net revenues generated by new growth outweighed the costs that the County incurs in providing public services due to its aggressive revenue structure. However, when the analysis of new growth was added to the costs of serving the existing population and employment base, the annual revenues were insufficient to cover the estimated costs of providing public facilities and infrastructure on a consistent yearly basis. The study also analyzed the estimated costs to correct the budget backlog in infrastructure needs. The conclusion was that under the existing growth trends and fiscal policies, the County would continue to carry the infrastructure backlogs well beyond 2025. In addition, long-term fiscal stability could not be created by relying on new growth or achieved by making changes to the adopted land use plan. Limits on infrastructure capacity as well as development holding capacity would result in the County not being able to accommodate much new growth beyond the 2030 timeframe. The analysis concluded long-term fiscal stability would also not be created by slowing growth to a halt without a shift in fiscal policies and that it could more realistically be addressed through improved concurrency management, which ensures that available capacity of public facilities and services will be in place over the planning horizon, and through new or revised revenue strategies.

2019 Land Capacity Analysis

The 2019 Land Use Market Analysis revealed that over 90% of the County's land area is classified as developed, in large part due to large-lot residential development in the southern and central parts of the County. In fact, 76% (87,845 acres) of the County's total residential acreage is developed at less than 1.7 units per acre. Another nearly 22% of the County's residential acreage is developed at a density between 2.9 and 9.1 units per acre, which includes single-family detached, attached, and townhouse development types. Higher density residential development (over 12.2 units per acre) accounts for only 2% of the County's residential acreage, primarily in the northern part of the County.

Nearly half of all residential development in the County occurred before 1980. The vast majority of land developed since 1980 has been for residential use. Between 1980 and

Table 14. Comparison of GDP Planned Land Use with Existing Land Use

Planned Land Use Plan Category	Number of Acres: Small Area Plans Combined (2004)	Number of Acres: Adopted 2009 GDP	Existing Land Use Category	Number of Acres: 2017 Existing Land Use
Rural	88,963	84,222	Single-Family Detached: Agricultural Lots, Rural Residential (> 5 acres), Large Lot (> 1 acre to 5 acres)	75,874
			Agricultural with No Residence	9,489
Residential Low Density (1 to 2 units per acre)	47,928	48,807	Single-Family Detached: Medium Lot (1/4 acre to 1 acre) and Single-Family Semi-Detached	18,760
Residential Low-Medium Density (2-5 units per acre)	20,430	21,607	Single-Family Detached Small Lot (< 1/4 acre), Mobile Home Parks	15,533
Residential Medium Density (5-10 dwelling per acre)	10,962	10,684	Townhouse	2,425
Residential High Density (> 10 units per acre)	2,704	3,354	Multifamily Residential	1,427
Commercial	4,863	5,172	Office, Retail and Service Commercial	6,893
Small Business	60	75		
Town Center	2,515	2,440	Absorbed in Other Existing Land Use Categories	
Mixed-Use Residential	507	294	Mixed-Use: this acreage is primarily mixed-use lots; much of the acreage of the Mixed use Land Use categories are absorbed in the multifamily, commercial and industrial	35
Mixed-Use Commercial	178	178		
Mixed-Use Employment	245	606		
Mixed-Use Transit	140	587		
Industrial, Closed Landfill	10,907	9,521	Industrial	6,963
Maritime	464	544	Marina	694
Natural Features	44,952	41,591	Natural Resources and Passive Parks	40,270
Government / Institution	16,103	21,594	Public, Other Institutional	19,320
Utility / Transportation	9,317	9,252	Utility and Transportation (includes Airports and Other Uses shown as Residential Low on Planned Land Use Maps)	31,052
			Recreation / Entertainment (public and private	7,225
			Undeveloped	23,745

2000, the County had an average increase of 3,500 housing units annually, with residential development peaking in the 1990s. Many factors account for this slowdown, including the economic recession, Adequate Public Facility requirements, and the diminishing amount of undeveloped land. Since 2010, housing unit production has slowed to an average of 900 units annually.

Non-residential development (commercial, office or industrial) makes up 15% of land acreage, and one-quarter of the assessed value of properties in the County. Approximately 38% of the non-residential properties developed since 1980 were industrial, while 23% were office, and 17% were retail. Much of the non-residential development since 1980 was along transportation corridors, particularly in the BWI area. Combined, there is less commercial, office, and industrial land than there is land classified as undeveloped (22,317 acres).

Approximately 13,736 acres of developable land (land zoned for development without environmental constraints) remains in the County. About one-fourth of this land is in the southern part of the County, where growth potential is limited by low-density zoning and development policies. Nearly half of developable land is designated as a residential land use, and much of that is in northern part of the County where higher density residential development is allowed. 12% of developable land is industrial, nearly all in north County. Much less land is available for commercial or mixed-use development.

Several areas in the County with undervalued properties offer opportunities for redevelopment, particularly where there are concentrations of apartments in moderate to poor condition and non-residential properties with higher rates of vacancy along older retail corridors. Many of these potential redevelopment areas are located in the northern parts of the County.

Updated Holding Capacity Analysis

A fundamental element of growth management planning is to evaluate the capacity to accommodate forecasted development. This includes assessment of the amount of land available for development, the density allowed by the zoning code, and capacity of infrastructure systems. This section presents the analysis of holding capacity, the amount of land available and its zoned capacity. The capacity for infrastructure systems to support growth are also summarized and are presented in more detail in the respective functional plans:

- Transportation: Move Anne Arundel!
- Water and Wastewater: Water and Sewer Master Plan
- Public Schools: Facilities Master Plan

Methodology

The methodology for the holding capacity analysis is consistent with best practices outlined in the MDP guidance manual for estimating residential development capacity. It aligns with the analysis conducted in the 2009 GDP but is more comprehensive because the updated analysis examines both residential zoning districts and other zoning districts where residential uses are allowed (mixed use, town center, and commercial). The analysis was conducted in a Geographic Information System (GIS) model using County data on current zoning, environmentally sensitive areas, State and County policies (such as Critical Area designations), ownership of land, and State of Maryland tax assessor data. The analysis included the following major steps:

1. Identify property that is currently undeveloped. Properties with an assessed value of improvements of less than $10,000 were assumed to be undeveloped.
2. Identify property that is underutilized and has potential for redevelopment. Properties with an assessed value of improvements over $10,000 but less than the base land assessed value were assumed to be underutilized. This identifies properties

where there is relatively little current development compared to the value of the land. Examples of these types of properties are small structures on large properties or a structure in poor condition in an urbanizing area. These are considered candidates for redevelopment.

3. Remove areas on vacant or underutilized parcels that are otherwise not available for development. For example, schools, parks, cemeteries, Federal, State or County properties, or affected by BGE utility corridors, land protected through easements and trusts, etc. or other various factors that prohibit development. Note that environmental constraints were not factored into the non-residential zoning district analysis.
4. For the remaining parcels (considered undeveloped or underutilized and developable), yield factors or maximum development density were applied. Yield factors for residential zoning districts are based on historic trends and current experience. Yield factors do not take into consideration the physical configuration of the property. The maximum residential densities were used for the non-residential zoning districts and the Mixed-use zoning districts. The County also has several other specially designated areas where residential densities may be higher than the conventional zoning district. These areas include the BRAC mixed-use development area, Commercial Revitalization areas, and the BWI Mixed-Use Overlay. Yield factors, development densities based on previous developments, were used for the Odenton Town Center zoning districts and Parole Growth Management Area. The use of actual densities approved in recent developments recognizes that not all projects maximize the potential zoned density of a property.
5. Results were reviewed by randomly selecting a set of parcels and individually evaluating the development capacity.

It should be noted that current subdivision applications were not included in the analysis. Current Site Development Plan applications may be included in the analysis.

Results

The results of the holding capacity analysis are presented in Table 15. The results of the analysis should be considered conservative as assumptions were, in certain cases explained above, made based on previous development trends in the County and not fully on maximum density allowed by zoning.

The results shown in Table 15 indicate the County has capacity for approximately 47,000 additional residential units under the current zoning. Most of this additional capacity in non-residential zoning districts exists in the C2, C3 and Odenton Town Center zoning districts. There is also capacity for residential units within underutilized commercial properties indicating there is a great opportunity to create mixed-use areas. Nearly 65% of the capacity for both vacant and underutilized lots are located west of MD 3 and I-97 and north of MD 100.

According to Round 9A, the latest adopted forecasts for the 2015-2045 period by the Baltimore Metropolitan Council (a regional planning organization), the population of the County is projected to grow by 49,000 people (27,000 households) between 2020 and 2040. Countywide employment is projected to grow by more than 68,000 jobs. Based on the development capacity analysis, there is sufficient buildable land under current zoning to support that growth.

The primary purpose of Plan2040 and previous GDPs in Anne Arundel County since 1978 is to establish a framework for where and how growth occurs. Low-density, suburban growth patterns will strain availability of undeveloped land and costs for development and maintenance of public infrastructure and services. Given the commitment to environmental, rural and agricultural preservation, redevelopment and revitalization

Table 15. Residential Holding Capacity for all Zoning Districts*

Zoning District	Vacant Land (units)	Underutilized Land (units)	Total (units)
RA	1,074	96	1,170
RLD	507	77	584
R1	1,412	828	2,240
R2	2,517	1,422	3,939
R5	2,256	2,075	4,331
R10	808	0	808
R15	209	0	209
R22	207	0	207
Total (Residential)	8,990	4,498	13,488
C1	1,044	1,269	2,313
C2	1,039	5,932	6,971
C3	2,800	10,778	13,578
MXD-E	1,175	481	1,656
MXD-R	1,520	47	1,567
Odenton Town Center zoning districts	1,882	4,713	6,595
Total (Non-residential)	9,460	23,220	32,680
Total (Residential and Non-residential)	18,450	27,718	46,168

** Zoning districts that allow residential*
Note: 1. Analysis accounts for existing lots of record In RA and RLD. While maximum density is 1 unit / 20 acres, residential units can be permitted on existing lots of record under 20 acres. This results in more units allowed then applying a simple 1/20 ratio to all of the land in RA and RLD. 2. MXD-T and MXD-C zoning districts are not listed in table because based on this analysis there is no capacity for additional residential development in land currently within those zoning districts.

of existing developed areas will be the key to the County's sustainability.

As undeveloped property becomes scarcer, the economics of real estate are expected to transition to support more infill redevelopment, as has been seen in Town Centers and around economic drivers such as Fort Meade. The requirements of environmental regulation, adequate public facilities ordinance, limitations on upzoning based on consistency with the adopted land use plan, along with real estate economics and development incentives are likely to direct much of that future growth to redevelopment within Targeted Growth Areas with less subdivision of forest and farm land than has occurred in recent decades.

Strained land availability in the future will be exacerbated if low-density, suburban growth patterns are maintained. These population and household projections would lead to a significant Countywide shortage of land to meet residential needs, and a more moderate shortage of land for commercial development by 2035. Demand for industrial land could

Table 16. Vacant and Underutilized Land

Zoning District	Vacant Land (acres)	Underutilized Land (acres)	Total (acres)
RA	9,864	4,889	14,753
RLD	1,692	854	2,546
R1	2,644	2,438	5,082
R2	1,711	1,697	3,408
R5	1,353	1,579	2,932
R10	255	0	255
R15	91	0	91
R22	15	0	15
Total (Residential)	17,625	11,457	29,082
C1	168	346	514
C2	77	536	613
C3	269	773	1,042
MXD-E	78	32	110
MXD-R	190	3	193
Odenton Town Center zoning districts	104	297	401
Total (Non-residential)	886	1,987	2,873
Total (Residential and Non-residential)	18,511	13,444	31,955

Note: 1. Analysis accounts for existing lots of record In RA and RLD. While maximum density is 1 unit / 20 acres, residential units can be permitted on existing lots of record under 20 acres. This results in more units allowed then applying a simple 1/20 ratio to all of the land in RA and RLD. 2. MXD-T and MXD-C zoning districts are not listed in table because based on this analysis there is no capacity for additional residential development in land currently within those zoning districts.

be met Countywide, but there would be shortages in some areas of the County. Given the commitment to environmental, rural and agricultural preservation, redevelopment and revitalization of existing developed areas will be the key to the County's sustainability.

Land Use Map

The Land Use Map depicts the planned land use designations that are consistent with the development policy areas and provide general guidance in the density, character and location of land uses in the County based on the Plan2040 Vision. Town Center and other planning area master plans that contain a land use component may be more specific by identifying subcategories with descriptions of density, intensity, and character as needed for a particular community.

The Plan2040 draft Planned Land Use Map was developed by first reviewing the 2009 GDP land use designations relative to the development patterns that occurred, staff observations and public input received. Secondly, an analysis was conducted for inconsistencies between existing land use, planned land use, zoning, parcel

boundaries and the Development Policy Areas map that was drafted with the Citizen Advisory Committee. Based on that analysis, there are minor staff recommended changes for existing developed land for consistency; and staff recommended consistency changes that would require both a land use change and a zoning change or comprehensive changes that better align the land use map with the Development Policy Areas Map. Lastly, an analysis of land use change requests by individual property owners was conducted and recommendations for those requests have been made.

A. Criteria Used in Determining Changes from the 2009 Land Use Map
    i. Consistent with Plan2040 Development Policy Area, including, in the case of the Land Use Change applications and the Staff Recommended changes, the Resource Sensitive Policy Area elements, as follows: adopted Priority Preservation Area, Critical Area Resource Conservation Area (RCA) designation, Bog Protection Area, Jabez Branch subwatersheds, and cultural and historical resources
    ii. Consistent with current zoning
    iii. Consistent with the existing use of the property
    iv. Compatible with the surrounding planned land use
    v. Consistent with the defined sewer service area
    vi. Consistent with the Plan2040 Vision
    vii. Consistent with prior zoning (and/or land use) decisions made by the County
    viii. Provides public benefit
    ix. Public comments indicate community support or concern

A preliminary land use map was developed with the Citizens Advisory Committee and then reviewed by the public in a series of public forums and online review. These comments were taken into consideration by the County staff and the Citizens Advisory Committee to form a recommended draft land use map. The recommended draft land use map was tested for impacts to provide a threshold for how much development the County can accommodate in the areas where it is to be directed and to provide a basis for infrastructure needs. The recommended land use map was presented to the Planning Advisory Board where residents had an opportunity to comment through a public hearing. The Planning Advisory Board's recommended Land Use Plan was taken into consideration and a proposed land use plan was forwarded to the County Council for approval.

Table 17 lists the planned land use designations used in the Plan2040 Land Use Map (Figure 18) which will guide future development in the County. The table also includes zoning districts that are generally applied in each of the land use designations.

Changes from 2009 Planned Land Use Map

A. Land Use Category Changes
    i. A new Conservation Land Use category represents land that is publicly and privately-owned and is used for conservation purposes in perpetuity. This designation includes properties preserved through land trusts, platted floodplains, passive open space adjacent to platted floodplains, and passive parks and other conservation lands.
    ii. A new Open Space Land Use category represents publicly and privately-owned outdoor recreation areas like ballfields, golf courses, driving ranges and campgrounds. Both the Open Space and Conservation land use designations should be expanded and refined during the Region Planning process with community input.
    iii. The Natural Features category will be eliminated. Land that

Table 17. Plan2040 Planned Land Use Designations

Proposed Planned Plan2040 Land Use Designation	Zoning Category Generally Consistent with Land Use Designation	Permitted / Anticipated Uses
High density residential (HDR) - density between 10 to 22 units per acre	R15, R22 (and in TC, MXD zones)	Multifamily Residential, Mobile Home Parks, Private Institutional
Medium density residential (MDR) - density between 5 to 10 units per acre	R10 (and in TC, MXD zones)	Townhomes, Single-Family Semi Detached, Mobile Home Parks, Private Institutional
Low – Medium density residential (LMDR) - density between 2 to 5 units per acre	R5	Single-Family Detached, Single-Family Semi Detached, Mobile Home Parks, Private Institutional
Low density residential (LDR) - density between 1 to 2 units per acre	R1, R2	Single-Family Detached, Mobile Home Parks, Private Institutional
Rural - density averaging or lower than 1 unit per 5 acres	RA, RLD	Single-Family Detached, Mobile Home Parks, Private Institutional, Agricultural
Town Center (TC)	TC - Town Center OTC Districts	Mixed-use
Commercial (COM)	C1 – Local Commercial C2 – Commercial Office C3 – General Commercial C4 – Highway Commercial SB – Small Business TC – Town Center	Office: Low, Medium or High Rise Office, Office Park, Residential Office Retail: Local, Major, Residential, Shopping Mall Service: Eating and Drinking, General, Hotel, Self-Storage
Mixed use (MU)	MXD-Residential MXD-Commercial MXD-Employment MXD-Transit	Mixed-use
Industrial (IND)	W1 – Industrial Park W2 – Light Industrial W3 – Heavy Industrial	Industrial: Flex / Tech park, Landfill, Manufacturing, Mining, Warehouse / Distribution
Public Use (PU)	Any	Government-owned facilities not designated as Conservation, Open Space or Transit
Conservation (CON)	OS	Publicly and privately-owned lands where primary function is conservation in perpetuity
Open Space (OS)	OS	Publicly and privately-owned outdoor recreation areas like golf courses, driving ranges, community recreation areas and campgrounds as well as closed landfills.
Maritime	MA1 – Community Marina MA2 – Light Commercial MA3 – Yacht Club MB – General Commercial MC – Heavy Commercial	Marinas and other Maritime Uses
Transit	Any	Public facilities used for rail, bus, water or air such as Light Rail, MARC Stations, airports and Commuter Lots

**Note: Existing zoning categories could be retained, modified, or removed; or new zoning districts could be developed depending on what is needed to implement the land use plan that is adopted.*

does not meet the criteria for the Conservation or Open Space land use categories such as floodplains and other Sensitive Area elements that have not been protected in perpetuity to date nor their boundaries field verified, are designated with a land use that is consistent and compatible with the area around them. These elements are protected through a variety of measures within County and State Codes. As an awareness and transparency measure, a map corresponding with the Plan2040 Resource Sensitive Policy Area will be available on the County's website for public viewing. The Resource Sensitive Policy Area includes natural, cultural, or physical features of special concern or significance within the County intended for conservation and preservation. The map will show areas guided by established County policies, such as the Priority Preservation Area located in South County, along with indicators of the locations of the environmentally sensitive areas defined in and regulated by Article 17 of County Code. The map will be a compilation of data from many sources, intended to be used by the general public and County staff for guidance purposes only. This map will be updated as new information and data becomes available, and as new policies and regulations are adopted.

iv. Publicly-owned properties are designated as Public Use. The 2009 Land Use Map designated public land, facilities and private institutional uses as Government / Institutional. A review of the 2009 Land Use Map showed there were many inconsistencies. Not all publicly-owned lands or private institutional uses were designated as such. Additionally, some private institutional uses have changed use to something other than institutional (example – private school within a residential neighborhood closes and is replaced with a residential community). Land that does not meet the Public Use criteria and was designated as Government / Institutional on the 2009 GDP Land Use Map are designated with a land use that is consistent and compatible with the area around them.

v. Transportation/Utility rights-of-ways are eliminated as a specific planned land use designation. Rights-of-ways are not considered a land use and the analysis found no value to having these areas separated.

vi. Low Density, Low-Medium Density and Medium Density residential land use designations are realigned to be consistent with the existing developed densities. Approximately 2,268 acres that were designated as Low-Medium Density are now designated as Low Density. Approximately 6,387 acres that were designated as Medium Density are now designated as Low-Medium Density. Table 18 compares the residential land use changes between the 2009 GDP Land Use Map and the Plan2040 Land Use Map (Table 17).

vii. The specificity of Mixed Use Land Use designations (Residential, Employment, Commercial, Transit) has been removed to allow for an overhaul of the Mixed-Use zoning districts.

viii. Small Business land use designations have been incorporated into the broad Commercial Land Use designation.

Table 18. Residential Land Use Categories Comparison

Land Use Designation	2009 GDP Defined Density	2009 GDP Corresponding Zoning	Plan2040 Defined Density	Plan2040 Corresponding Zoning
Low Density	1-2 units per acre	R1, R2	1-2 units per acre	R1, R2
Low-Medium Density	2-5 units per acre	R2, R5	2-5 units per acre	R5
Medium Density	5-10 units per acre	R5, R10	5-10 units per acre	R10

B. Minor Consistency Changes

i. Consistency changes were made in areas where the 2009 GDP Land Use Plan did not accurately reflect existing development types and densities and are planned to remain through the planning horizon particularly with Planned Unit Developments, Multifamily and Townhome developments

ii. Consistency changes were made where the 2009 GDP Land Use did not accurately match the intended parcel boundary.

iii. Consistency changes were also made where the planned land use was not reflective of the existing zoning currently in place and expected to remain through the planning horizon.

C. Consistency and Comprehensive Land Use Changes

In addition to minor consistency changes, there are recommended land use changes that are either to reflect better alignment with the parcel boundary that is not considered a minor change or to change an existing nonconforming use expected to continue within the planning horizon to the appropriate planned land use designation. Staff is recommending 54 of these types of changes that consist of a total of 487 acres. There are also staff recommended changes that are more comprehensive in nature that reflect changes to land use to better align with the Development Policy Areas. Staff is recommending 12 of these changes that total 1,031 acres.

With few exceptions, the 2009 GDP land use designations within the Targeted Development and Revitalization Policy Areas have primarily been retained until further input with wider, more diverse stakeholder groups that represent these areas has been attained.

D. Planned Land Use Change Application Requests

The County received 189 land use change applications from individual property owners. Seven applications were withdrawn and 182 applications were evaluated. A summary of the changes are shown in Table 19.

The land use plan depicted in Figure 18 is a result of the above steps, comments taken into consideration during the County Council public hearing process and ultimately, adoption by the Council. The adopted land use map does not constitute a rezoning or a recommendation of approval of any proposed development. Proposed development on site shall be subject to all applicable regulations, including those regulations governing environmentally sensitive areas, at time of development.

See the list of adopted land use changes in the Appendix.

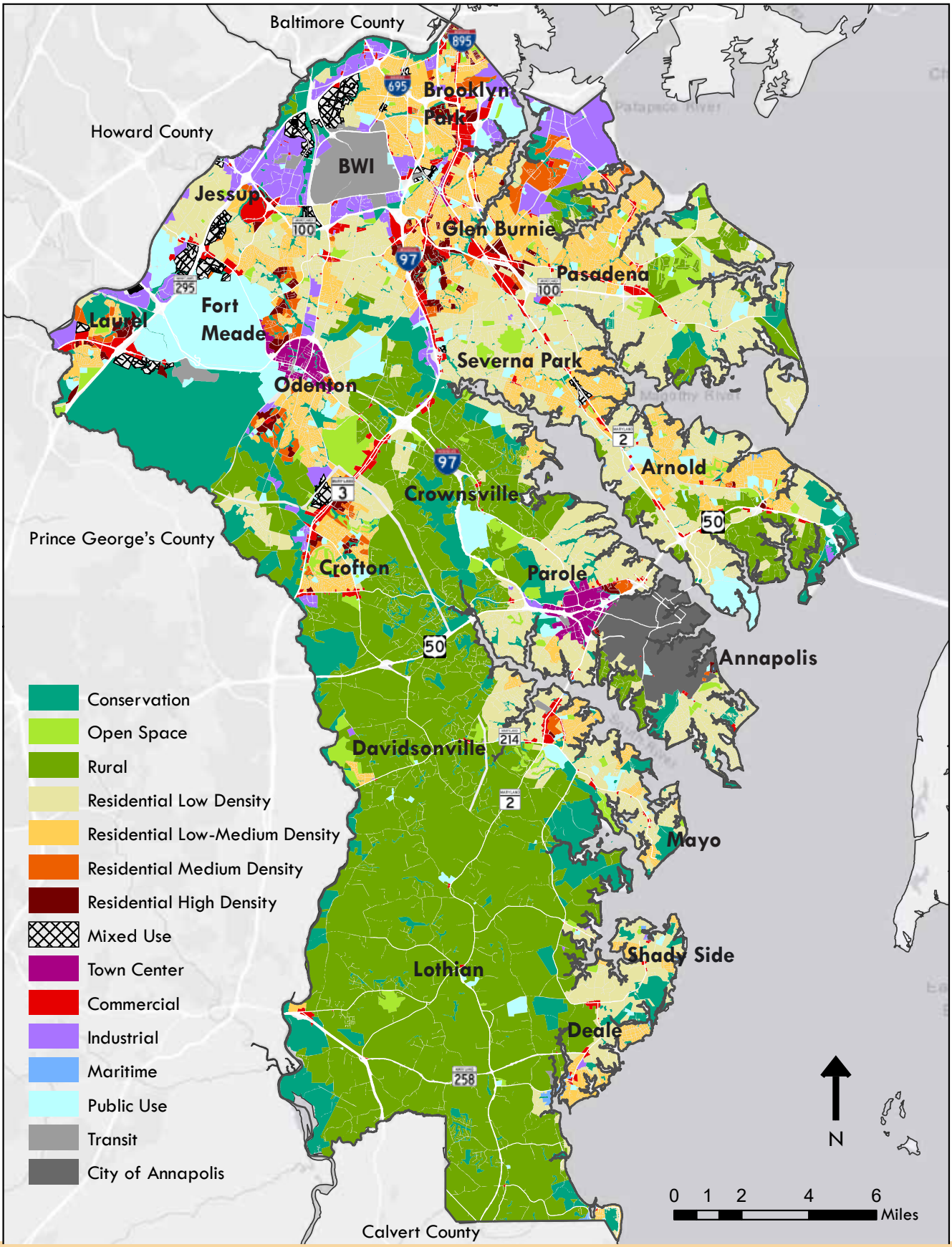

Baltimore County
Howard County
Prince George's County
Calvert County
Brooklyn Park
BWI
Jessup
Glen Burnie
Pasadena
Fort Meade
Laurel
Odenton
Severna Park
Arnold
Crownsville
Crofton
Parole
Annapolis
Davidsonville
Mayo
Shady Side
Lothian
Deale
Conservation
Open Space
Rural
Residential Low Density
Residential Low-Medium Density
Residential Medium Density
Residential High Density
Mixed Use
Town Center
Commercial
Industrial
Maritime
Public Use
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Table 19. Summary of Land Use Change Applications

Planned Land Use Change Requests	# of Recommended Changes *
Staff supported change in land use	59
Staff support for requesting No Change in land use	12
Staff support for reconciliation between planned land use and parcel boundaries	12
Staff recommending a land use different than requested	11
Staff recommending to retain current land use and review further during the Region Planning process	33
Staff not supporting land use change	58

**Note: dual recommendations for some applications (for example, partial retain existing land use, partial change land use)*

Growth Tiers

In accordance with State law, the County developed a Growth Tiers Map (Figure 19) based on the governing criteria shown in Table 20. The original Growth Tiers Map that was officially certified in July 2013 by the Planning and Zoning Officer and in accordance with State Law, has been included in Plan2040 and is consistent with the governing criteria.

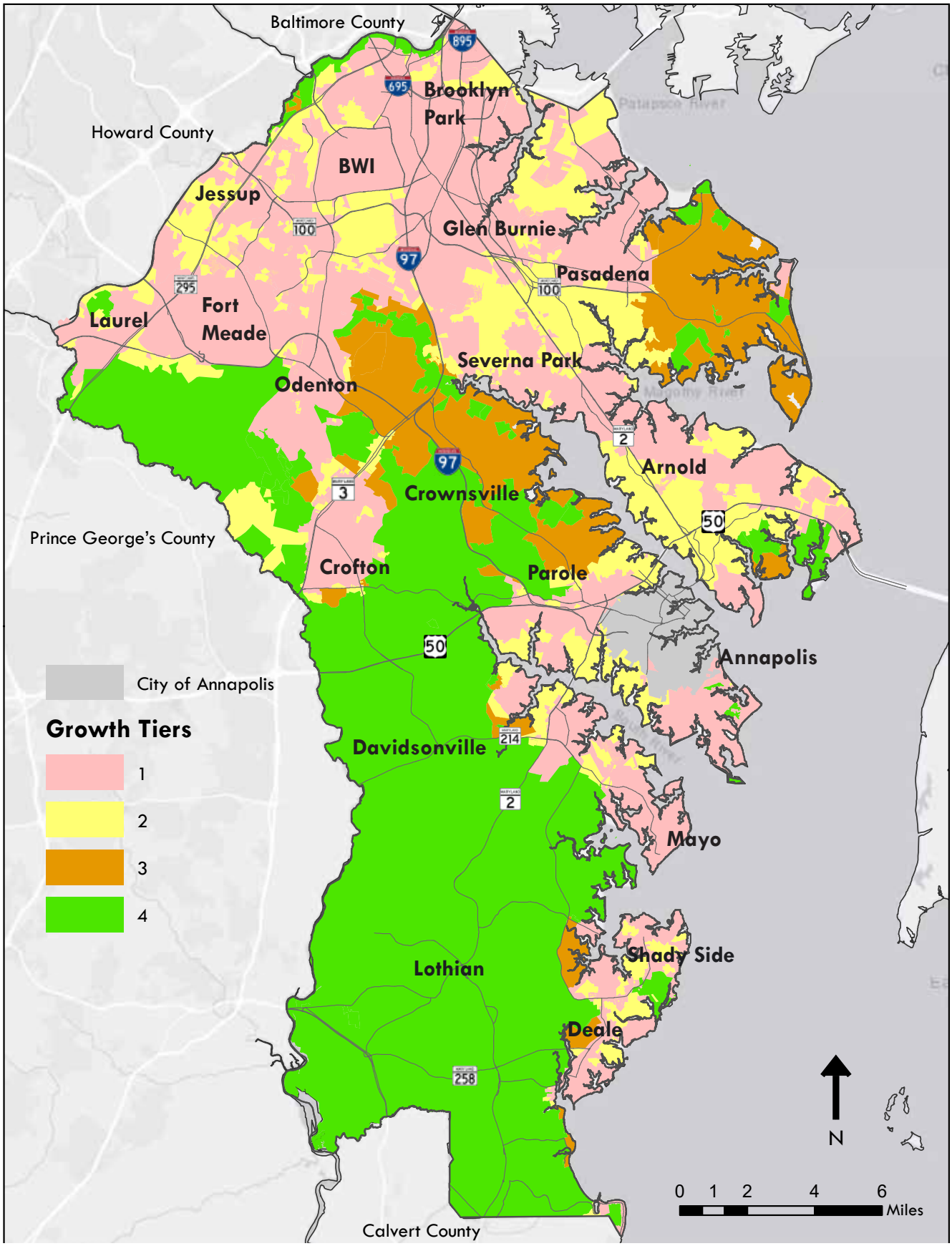
Changes to the Growth Tiers Map since 2013 include moving properties that have connected to public sewer from Tier II to Tier I and moving parcels that are in the Planned or Future Sewer Service category to Tier II. In addition, Table 21 shows the properties that were moved from Tier III to Tier II to reflect the intention of connecting to the public sewer system.

Table 20. Growth Tier Criteria

Growth Tier	Governing Criteria
I	• Areas served by public sewer systems (Existing Sewer Service Category in the Water and Sewer Master Plan) • Areas in a locally designated Growth Area
II	• Areas planned to be served by public sewer systems (Planned or Future Sewer Service Category in the Water and Sewer Master Plan) • Areas in a locally designated Growth Area
III	• Areas not planned for public sewer service (No Public Sewer Service Category in the Water and Sewer Master Plan) • Areas that are generally planned and zoned for large lot or rural residential uses
IV	• Areas not planned for public sewer service (No Public Sewer Service Category in the Water and Sewer Master Plan) • Areas that are generally planned or zoned for land, agricultural or resource protection or preservation; and are dominated by agricultural lands, forest lands, or other natural areas; or are rural legacy areas, priority preservation areas, or areas subject to covenants, restrictions, conditions or conservations easements for the benefit of, or held by a State agency or a local jurisdiction for the purpose of conserving natural resources or agricultural land. • Areas subject to conservation easements or covenants

Table 21. Updates to Growth Tier Map

Location	Change
Tax Map 36, Parcel 290, Part of Lot 2	Tier IV to Tier II - this site has been acquired for a public school and a County park. It is adjacent to a Tier II area and can be served by public sewer
Tax Map 55, parcel 299, Recreation Lot	Tier IV to Tier II - this site is a County-owned park that is adjacent to a Tier II area and has public sewer fronting the property.


Baltimore County
Howard County
Prince George's County
Calvert County
Brooklyn Park
BWI
Jessup
Glen Burnie
Pasadena
Laurel
Fort Meade
Severna Park
Odenton
Arnold
Crownsville
Crofton
Parole
Annapolis
Davidsonville
Mayo
Shady Side
Lothian
Deale
City of Annapolis
Growth Tiers
1
2
3
4
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Miles

Priority Funding Areas

The County's current Priority Funding Areas (PFAs) are generally concentrated in the northern and western portions of the County where public water and sewer utilities are available and density requirements are met. While the County's PFAs meet the criteria established by the State to target funding for infrastructure, not all of these areas are coterminous with the County's "targeted growth areas" and should not be misconstrued as such. Most of the County's PFAs are located in established communities within the Neighborhood Preservations Policy Area where State funding should be targeted to preserve and revitalize these communities rather than to support future growth. The County's PFA designations will be reviewed and updated after each of the comprehensive rezoning processes that follows each of the Region Plans; view the County's current PFAs at the County's mapping webpage.

Housing Element

With its natural resources, a location between large metro areas, a robust economy, and anticipated job growth, particularly in the technology and the defense industries, Anne Arundel County has been an attractive suburban market for decades, with consistent housing demand and residential market growth. Several past and projected trends will impact the type of housing and services necessary to meet the needs of the County's population. The shifting of the population towards middle and retirement age and an increase in the elderly population is a key factor. Recent trends show that more seniors want to age in place and have opportunities to live in walkable neighborhoods that offer smaller, lower maintenance housing options in close proximity to transit. In addition, the anticipated 68,000 additional jobs projected by the latest Baltimore Metropolitan Council forecast in the next two decades means that the provision of housing choices in close proximity to the employment centers will be important to meet the needs of the growing workforce. Finally, as the Baby Boomers continue to retire and age, the County must be mindful of strategies to continue to attract younger people and households that may require different types of housing. Encouraging more compact, urban mixed-use development may be possible at certain locations where density is possible and desired while redirecting new development away from areas not intended for growth.

Housing Supply and Demand

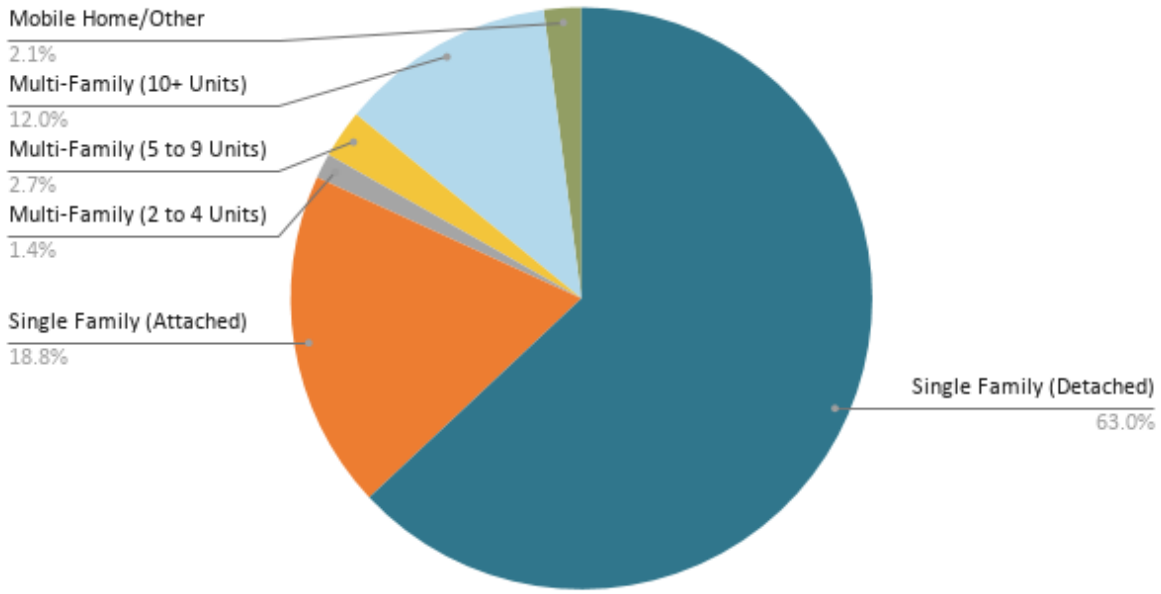
Census estimates as of 2016 place the total number of housing units in the County at 201,363.

The predominant type of housing in the County is the single-family detached home (63%), though development of this type of housing has slowed compared to other types of housing. There is a noticeable inventory gap between detached and attached single-family housing units (81.8%) and the County's supply of multifamily housing units (16.1%).

Approximately 30,000 multifamily units (apartments and condominiums) exist in the County, and most are 1-2 bedrooms, in buildings of ten or more units, and located near transportation networks in the Annapolis area and the northern part of the County. There is high demand Countywide, with highest rents in the Annapolis area. Smaller multifamily developments (9 units or smaller) comprise only 4.1% (8,180 units) of the County's housing stock. Smaller apartment buildings are expected to continue to lose market share in the County because they are less efficient than more modern multi-family complexes/communities.

Almost 48% of the County's housing stock was built prior to 1980 and only 4% is less than ten years old. Older housing is less efficient and will likely require more frequent repairs and maintenance.

Housing Types in Anne Arundel County



Source: U.S. Census American Community Survey Estimates 2012-2016 and RKG Associates, Inc., 2018

Housing Value and Affordability

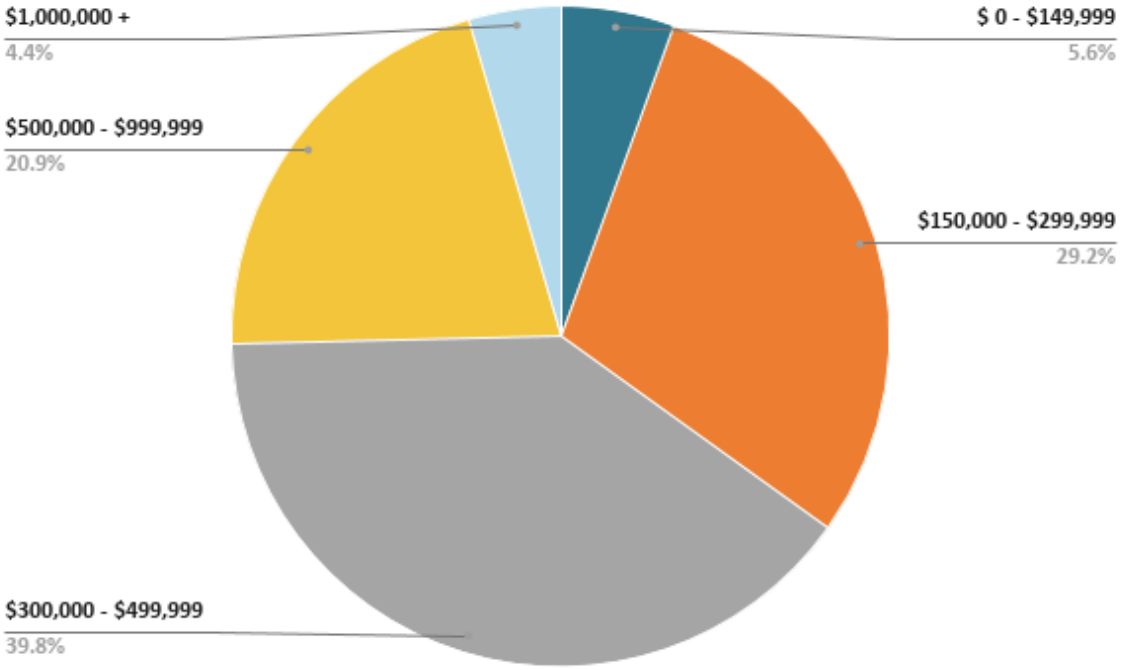
The County has a healthy housing market with a low rate of vacancy (6.4%) among both owner-occupied and rental units. The US Department of Housing and Urban Development (HUD) defines housing affordability as housing priced at no more than 30% of a household's monthly gross income. In the County, household income statistics show that nearly 61% of owner-occupied households earn at least 100% of the area median income (AMI), and 20% earn less than 60% of AMI. Over one-third of rental household incomes earn less than 60% of AMI. Despite the housing market downturn in 2007, home sale prices have rebounded in most of the County. At the same time, rental prices increased dramatically as a result of the foreclosure crisis during and following the economic recession.

The 2018 data indicate that owner-occupied homes valued between $300,000 and $499,999 comprise the largest share of the County's housing stock (39%), followed by homes valued between $150,000 and $299,999 (28.5%). Compared to the greater Baltimore-Washington region, these values are the mid-range. There are fewer than 8,000 owner-occupied properties throughout the County with a home value under $150,000 (approximately 5.5% of the total owner-occupied count); and these are concentrated primarily in the northern part of the County, from Severn through Pasadena, corresponding to the areas with a larger proportion of older housing units.

Newly constructed owner-occupied properties in the County's densely developed areas have been primarily priced for higher-income households, which may result in many low- to moderate-income households being priced out of the County's housing market.

For home buyers using conventional mortgage loans with a 20% down payment, over 55% of owner-occupied housing units are considered affordable to households earning 100% of the AMI, while nearly one-third are affordable for households at 80% of AMI. Only 6% of owner-occupied units are valued below $150,000, and these are concentrated in North County (Severn through Pasadena) and in South County.

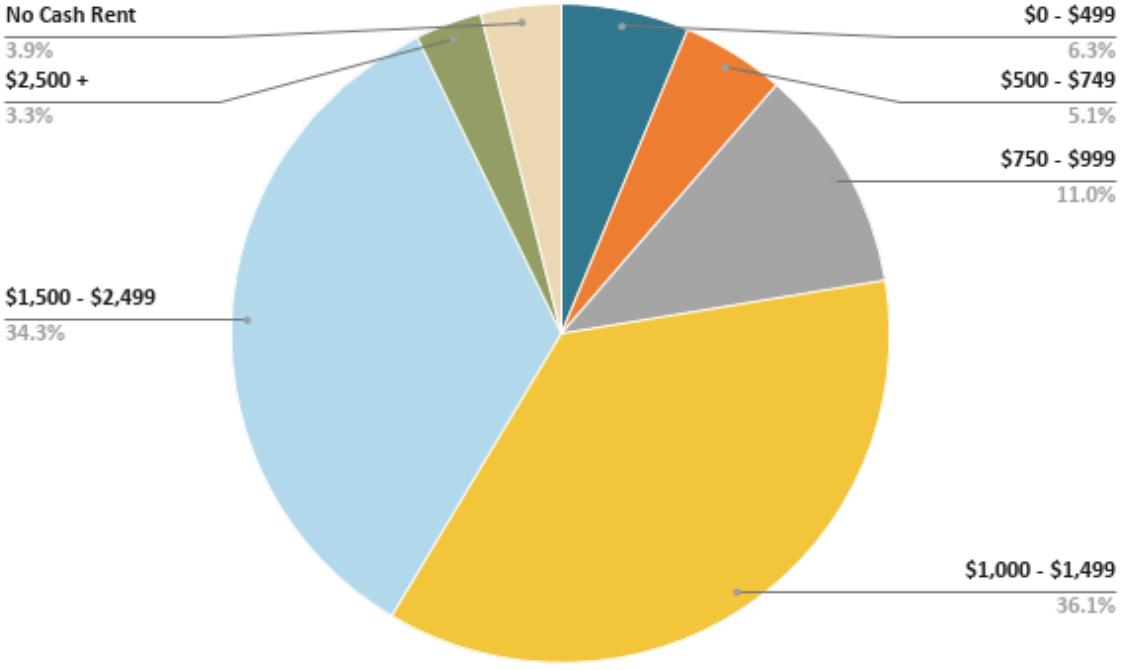
Distribution of Owner-Occupied Home



Source: ESRI and RKG Associates, Inc., 2018

Over one-third of rental units in Anne Arundel County are in the Brooklyn Park, Glen Burnie, and Pasadena areas, consistent with the area's more urban development pattern. In general, multifamily rental housing is a larger proportion of the housing market in the northern parts

Distribution of Monthly Rental Rates



Source: U.S. Census, ESRI Community Profile Reports, and RKG Associates, Inc., 2018

of the County. The Annapolis area also has a substantial concentration of rental housing.

A majority of the County's rental units have rents between $1,000 and $2,500 per month, similar to rental rates in the wider region. Just over 3% of rental units are priced over $2,500, a rental rate similar to the region's urban centers and inner suburbs. Conversely, 11.4% of rental units in Anne Arundel County rent for under $750 per month. The County generally offers a variety of rental housing options across most income thresholds, but rent ranges are concentrated on the higher end, and some parts of the County offer few rental housing options.

Over one-third of renter households earn below 60% of the area median income. Of the supply of rental housing, over 70% is affordable for households earning between 30% and 100% of AMI, with gross rents between $571 and $1,900. An additional 12.6% of rental units are affordably-priced for extremely low income households earning below 30% of AMI.

Housing Projections

Based on forecasts from the Baltimore Metropolitan Council, approximately 27,000 new housing units are projected to be constructed Countywide through 2040. Of these, approximately 24,000 are forecasted to be owner-occupied, primarily single-family (15,000 units) or townhome (8,000 units). Approximately 4,000 apartment units are projected to be constructed.

Of the projected owner-occupied units, most will be priced for households making at least 100% of AMI. A very small proportion (0.03%) is projected to be priced affordably for households below 80% of AMI, located principally in the Brooklyn Park, Glen Burnie, and Pasadena areas. This is likely to create a housing market with lower vacancy rates and higher competition for lower value housing units.

Of the rental units projected through 2035, nearly half will be 2-bedroom units, with another 38% to be 1-bedroom units. Just under one-third of these new apartment units will be priced to be accessible to two-person households who make between 60% and 80% of AMI. In general, the pricing of rental units in the County is projected to increase at a faster rate than ownership housing, and 61% of new rental units will be priced for households at 80% to 100% of AMI. Households making 60% of AMI or less are likely to be vulnerable to shortages in housing stock.

Affordable Housing and Community Development

The need for affordable housing and workforce housing, including for the younger population, low- income families, professionals and seniors was an issue consistently heard during the Plan2040 public outreach process and during the current Anne Arundel County Consolidated Plan: FY 2021– FY 2025 planning process.

The State's Land Use Code requires that a housing element be included in the comprehensive plan and address the need for affordable housing within the County including workforce housing and low-income housing. The State has provided the following definitions that apply to affordable housing:

1. Area Median Income - means the median household income for the area adjusted for household size as published and annually updated by HUD.
2. Affordable - housing costs that do not exceed 30% of household income.
3. Low-Income Housing means housing that is affordable for a household with an aggregate annual income that is below 60% of the area median income.
4. Workforce Housing means:
    A. Rental housing that is affordable for a household with an aggregate annual income between 50% and 100% of area median income.
    B. Homeownership housing that:

i. Except as provided in ii below, is affordable to a household with an aggregate annual income between 60% and 120% of area median income or,

ii. In target areas recognized by the State for the purposes of the Maryland Mortgage Program, is affordable to a household with an aggregate annual income between 60% and 150% of the area median income.

The County's adopted GDP and the Consolidated Plan are two key plans that are utilized to address affordable housing and community development needs by identifying goals and strategies to meet those needs. Plan2040 emphasizes the need for affordable housing with Built Environment Goal 11 to "Provide for a variety of housing types and designs that will allow all residents housing choices at different stages of life and at all income levels." Subsequent policies and actions include maintaining a range of housing densities and types by targeting areas for mixed-use development and using up-to-date demographic data to update housing supply and demand forecasts for age-restricted and senior housing.

Key goals outlined in the County's FY2021-2025 Consolidated Plan include investing in supportive services in order to stabilize housing for the homeless and providing programs and activities that positively contribute to the revitalization of Priority Revitalization Communities. Priority Revitalization Communities include the County's older, more established neighborhoods and contain a higher percentage of older housing stock and low and moderate income households than the County as a whole. The County proposes targeting its limited Federal community development funds for non-housing community development and revitalization activities in the three County and State designated Sustainable Communities: Brooklyn Park, Glen Burnie and Severn. Keeping in line with Federal fair housing requirements, the Consolidated Plan supports new affordable housing development in Communities of Opportunity (Figure 20). Communities of Opportunity for affordable housing are those areas that offer opportunities to access better schools, employment, transportation alternatives, safe neighborhoods, public amenities and a stable housing stock; they reflect areas within Census tracts identified by DHCD as Opportunity Areas and also within the County's Priority Funding Area.

Programs and Strategies for Housing

To address housing and community development needs and implement strategies of the Consolidated Plan, Anne Arundel County partners with Arundel Community Development Services, Inc. (ACDS), the Housing Commission of Anne Arundel County, and many other government and nonprofit partners to administer programs. ACDS administers approximately $7 million in Federal housing and community development funds on behalf of Anne Arundel County each year. These funds are matched with approximately $3 million in County general funds, including required match dollars.

Because of its unique nonprofit status, ACDS successfully applies for additional competitive State and private financing to leverage funds available to address the County's housing and community development priorities and carry out community revitalization, financial empowerment, develop and preserve affordable housing, and provide homeless programs and initiatives in Anne Arundel County each year. These programs and initiatives include:

1. Community Development and Revitalization - The County prioritizes expending much of its CDBG funding in older communities like Brooklyn Park and Spring Meadows in Severn. Communities where there is a concentration of older housing stock and infrastructure, as well as low and moderate income households, are defined in the County's Consolidated Plan as "Priority Revitalization Communities" and are targeted for neighborhood revitalization resources and programs that improve the

quality of life for residents. ACDS also provides smaller operating grants to service providers who support revitalization efforts in Priority Revitalization Communities, including grants for the Boys & Girls Club afterschool and summer programming and other programming for at-risk youth.

2. Property Rehabilitation - ACDS also utilizes County entitlement funds to conduct owner-occupied property rehabilitation throughout the County for low and moderate income households, many of whom are elderly or persons with disabilities.
3. Financial Empowerment - ACDS, with County support, is focused on the financial empowerment and self-sufficiency of the County's low-income residents and offers a suite of programs to support this goal such as a homeownership counseling program, foreclosure prevention counseling and a Financial Literacy counseling program.
4. Affordable Rental Housing - The County includes supporting the development of new affordable rental housing, the preservation of existing affordable housing and the redevelopment of public housing as three of its major affordable housing goals in its five-year Consolidated Plan.
5. Ending Homelessness – Strategies to end homelessness in the County focus on improving access to shelter, resources and permanent housing. The County's biggest priority has been to take critical steps to end homelessness among Veterans through the Operation Home campaign.
6. Special Needs - The County utilizes a combination of Federal resources to support persons with special needs through stabilization of housing and increasing the supply of housing. Through the ACDS Group Home Rehabilitation Program, nonprofit organizations serving persons with developmental disabilities or special needs like mental health diagnoses can receive interest free or low interest financing, as well as technical assistance to make needed repairs to their group homes.

Affordable Housing Needs

According to data from the U.S. Census Bureau's American Community Survey (2012-2016), among low-income households (defined by HUD as those earning 80% of the Area Median Income, (AMI), and below) in the County:

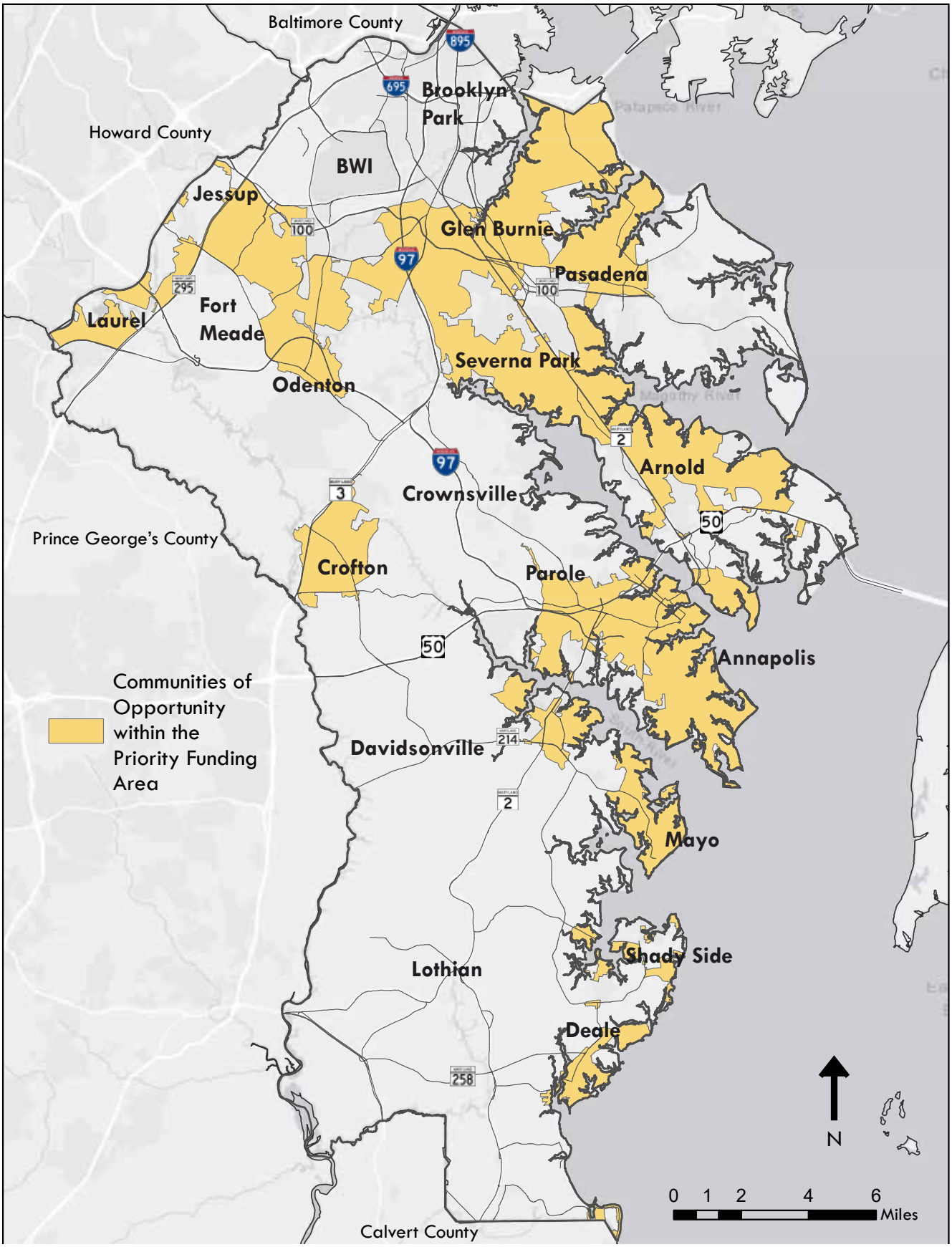
1. 27% are moderately cost-burdened, paying between 30% and 50% of their income towards housing expenses; and
2. 29% are severely cost-burdened, paying over 50% of their income towards housing expenses.

Among extremely low-income households (defined by HUD as those earning 30% AMI and below) in the County:

1. 5% are moderately cost-burdened, paying between 30% and 50% of their income towards housing expenses; and
2. 57% are severely cost-burdened, paying over 50% of their income towards housing expenses.

According to the Anne Arundel County Affordable Housing Needs Assessment[1], there are 17,603 Anne Arundel County households earning $50,000 and below per year. For households with four people, that is approximately 50% of Area Median Income (AMI) and these households are considered very low income by HUD. Of those very low income renter households, 8,923, or 51% are unserved by the current multifamily housing stock at appropriate affordability levels. The graphic depicting Submarket Penetration Rates is based on the Real Property Research Group's survey of all rental communities affordable to households earning 80% of the AMI and below. It shows the ratio of affordable units to the number of renter households at different income levels across different submarkets and indicates that the biggest undersupply of units is for households earning between 30% AMI and 60% AMI in three of the four submarkets evaluated.

1 Prepared for the Arundel Community Development Services, Inc. (ACDS) by the Real Property Research Group (May 2019)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Severna Park
Odenton
Arnold
Crownsville
Crofton
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Davidsonville
Mayo
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Communities of Opportunity within the Priority Funding Area
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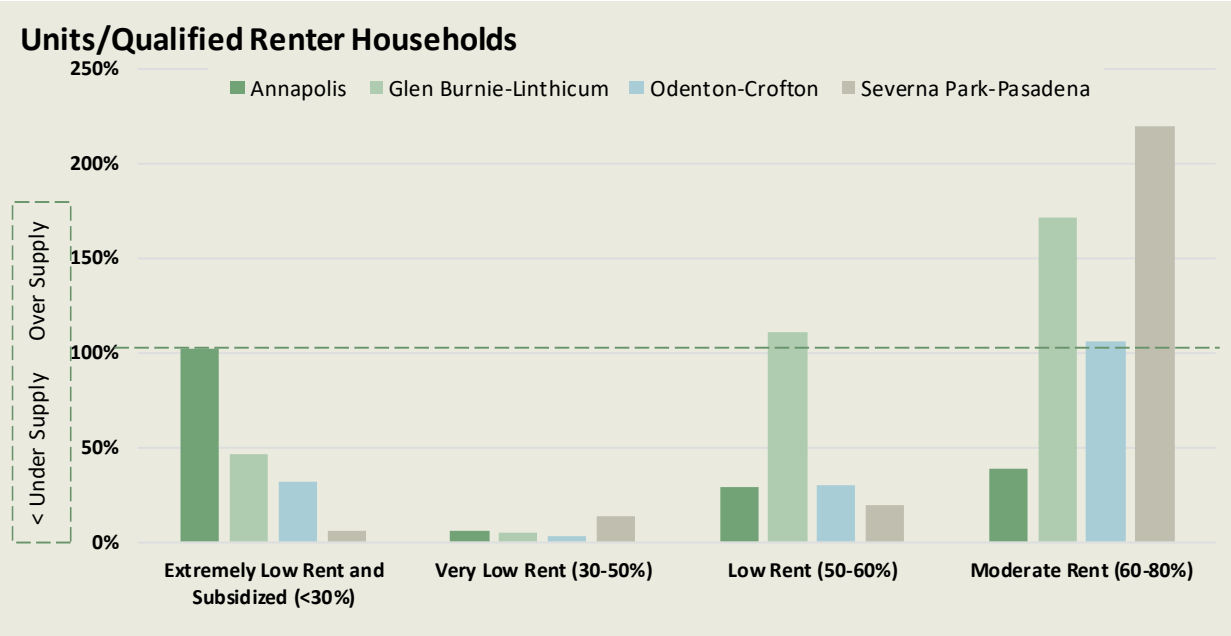
Submarket Penetration Rates



Source: Anne Arundel County Affordable Housing Needs Assessment, May 2019, Real Property Research Group

In terms of affordable homeownership trends, the Anne Arundel for Sale Affordable Housing Needs Assessment[2] indicates that sales prices have increased at a compounded rate of 4.3% from 2000 to 2019, compared to a compounded rate of 2.5% for income growth over the same time period.

As the County's older adult population continues to grow, there will be an increasing challenge to ensure there are adequate housing types and services tailored to this group. Providing and coordinating services for homeless individuals and families, and expanding housing options for special needs populations will continue to be important.

Community Revitalization

Community revitalization involves reinvesting in existing communities to improve their vitality and prevent decline. Revitalization is one of the basic premises of Smart Growth in that it focuses resources in developed areas, where public and private investments have previously been made in order to ensure those investments are protected into the future. Anne Arundel County supports and promotes revitalization opportunities wherever needed, but has also made some targeted efforts that have focused on specific geographic areas.

The County has various programs and initiatives in place to facilitate revitalization and promote reinvestment in some of the County's older communities and commercial corridors. These initiatives include the Sustainable Communities program, the Baltimore Regional Neighborhood Initiative, and the Commercial Revitalization Areas program.

Commercial Revitalization Areas

Commercial revitalization improves communities, reduces blighted areas, increases property values, and reduces sprawl. Anne Arundel County encourages revitalization of its older commercial corridors through rehabilitation, adaptive reuse, or redevelopment.

In order to stimulate private investment and encourage revitalization in older commercial corridors, the County established eleven Commercial Revitalization Areas, which are adopted as Overlay Areas in the Zoning

2 Real Property Research Group (July 2019)

Ordinance (Article 18, Title 14, Subtitle 3). In general, these corridors are located along State highways in the northern and western areas of the County and were developed with commercial uses decades ago (See Figure 21). While all contain viable uses and generate economic activity, they have experienced varying levels of decline over the years. The intention of the Overlay Areas is to encourage revitalization and reuse of vacant and underutilized properties and facilitate redevelopment opportunities by allowing expanded uses and greater development flexibility in certain zoning districts within a Commercial Revitalization Area.

Sustainable Communities

Anne Arundel County was granted approval of three designated Sustainable Communities in 2013 and 2014. These are Brooklyn Park, Glen Burnie, and Odenton-Severn (see Figure 21). More detailed descriptions of the three Sustainable Communities can be found in the Economic and Community Development / Revitalization background report at the Plan2040 website. For more information about the various State revitalization programs available to Sustainable Communities, visit the Maryland Department of Housing and Community Development website.

The Brooklyn Park and Glen Burnie Sustainable Communities were approved for renewal in 2019, and an application for renewal of the Odenton-Severn Sustainable Community is pending approval by the Smart Growth Cabinet. As part of the renewals, the Action Plans for each area were updated and will be used to guide revitalization efforts in these areas using all available resources. These are also the three communities the County will includes as priority areas for investment of Federal community development and revitalization dollars in its next 5 year Consolidated Plan.

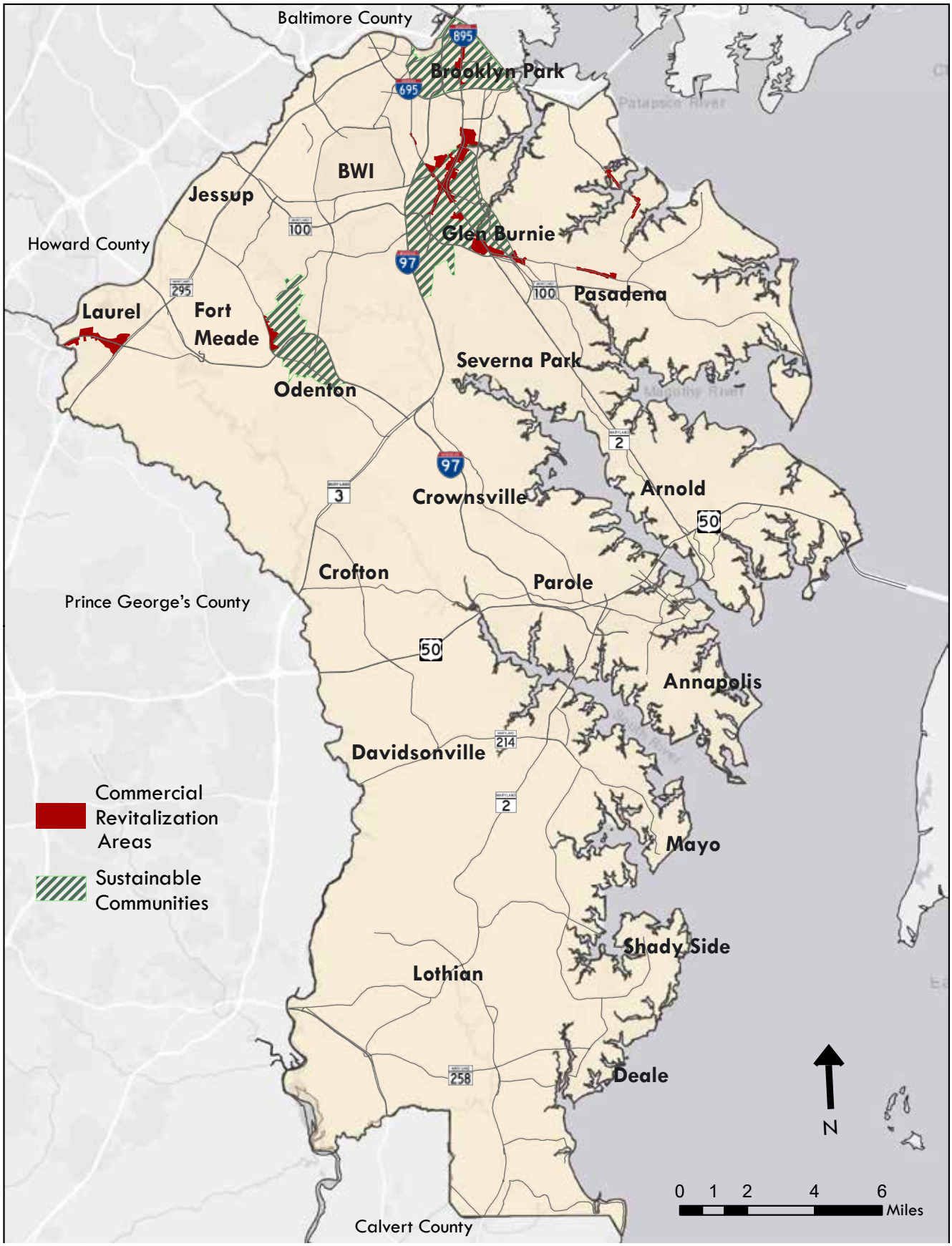
Baltimore Regional Neighborhood Initiative

The Baltimore Regional Neighborhood Initiative (BRNI) was established by State legislation in FY2014 as a revitalization tool to fund projects that build on the strengths of Baltimore City and surrounding communities. The initiative targets existing communities that have experienced physical, economic, or social decline. The goal is to focus strategic investment in local housing and businesses that will lead to healthy communities, grow the tax base, and improve the quality of life.

To this end, Anne Arundel County and the City of Baltimore collaborated with multiple stakeholders on a cross-jurisdictional plan to improve the Brooklyn–Curtis Bay–Brooklyn Park area, referred to as Greater Baybrook (see Figure 22). The Greater Baybrook Vision and Action Plan may be viewed at www.greaterbaybrookalliance.org. Since that time, a local City-County community development corporation known as the Greater Baybrook Alliance (GBA) has been formed and is working with partners in both the City and County in their revitalization efforts for the Baybrook area. Since inception of the BRNI program, over $4 million in grant funds has been awarded to the Greater Baybrook area (almost $2 million in the County) for a variety of revitalization programs and projects in the three neighborhoods.

Redevelopment Opportunities

Consistent with the goals, policies and implementing strategies for preserving the natural environment and conserving land and water resources identified in the previous Chapter Planning for the Natural Environment; and consistent with the intent of the development policy areas; the majority of future growth should be in the form of redevelopment. As the size and amount of undeveloped land parcels within the targeted growth areas diminishes, the redevelopment of underutilized properties, including those with a mix of land uses to promote the vision of pedestrian-friendly communities, and those with greater density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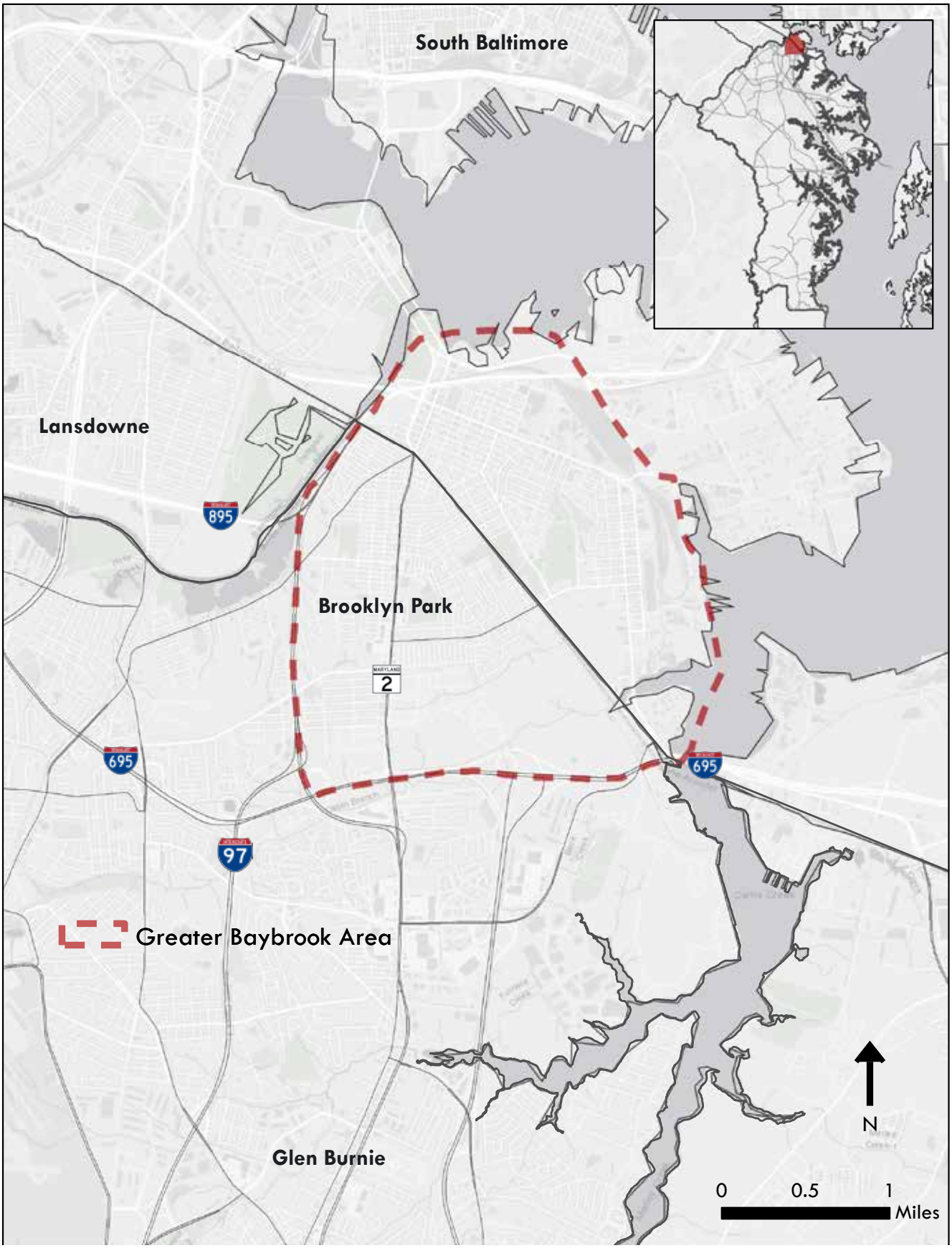
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in areas of existing infrastructure, provides opportunities for significant environmental and economic benefits. Redevelopment also provides potential for walkable communities in proximity to existing employment, transit and community services as well as an opportunity for sustainable design.

Over the years, the County has made it a priority to promote redevelopment and revitalization of older developed areas, primarily within commercial districts. Table 22 identifies some potential sites for redevelopment. Further evaluation of these sites should be considered during the Region Planning process.

RKG's land use market analysis also examined areas, both non-residential and residential, that may have redevelopment potential by comparing the assessed value of improvements to a median value by land use or building type. The results identified ten clusters or areas that may be candidates for various levels of redevelopment (Table 23). While this is a useful analysis, there are many other factors that influence the redevelopment potential of a property or area, such locational factors, public infrastructure and amenities, and desired community character. This analysis should be further evaluated during the Region Planning Area process to help identify appropriate sites to target future redevelopment.

During the public outreach effort for Plan2040, redeveloping in built areas, revitalizing older communities in decline, and ensuring transportation options for all users emerged as priority goals for the County. Many participants cited the need to redevelop vacant areas and improve particular neighborhoods, primarily in the northern part of the County. Revitalizing neighborhoods and communities is a key quality of life issue in parts of the County, and promoting residential rehabilitation, particularly in areas with concentrations of older housing stock, as well as development/redevelopment in targeted commercial areas continues to be a challenge.

Table 22. Potential Redevelopment Opportunity Sites

Site / Location; Current Commercial Revitalization Overlay Area	Description of Area	Future Opportunities
Brooklyn Park Plaza and Arundel Village Plaza / Ritchie Highway north and south of 11th Avenue Brooklyn Park Commercial Revitalization Area	The Arundel Village Plaza shopping center was built in 1960 on a 6-acre site. The Brooklyn Park Plaza shopping center is on a 5-acre site with three pad sites. Both shopping centers currently experience healthy occupancy rates. Visual appeal is low with no landscaping on sites.	Given the central location of these sites within the commercial corridor and proximity to public amenities (library, park, two schools, fire station), they may be candidates for long-term redevelopment with mixed retail, employment and residential uses. See concepts in the Brooklyn Park Urban Design Study.
Cromwell Field Shopping Center / B&A Blvd. and 8th Avenue, Glen Burnie Glen Burnie Town Center Core – B&A Boulevard Commercial Revitalization Area	The shopping center was built in 1986 on a 9-acre site with four pad sites. The main anchor is Roses. The space formerly occupied by Giant is now vacant; no new tenant has signed a lease. Visual appeal is low with no on-site green space or landscaping; there are problems with vagrancy, crime, and loitering.	Located across from the Cromwell Light Rail Station, this site represents an opportunity for future redevelopment utilizing Transit Oriented Development. Light industrial properties across B&A Boulevard could potentially be part of a larger redevelopment concept. See concepts plans in the Glen Burnie Small Area Plan.
Southwest quadrant of Crain Highway North and Baltimore Annapolis Blvd. in Glen Burnie Glen Burnie Town Center Core – B&A Boulevard Commercial Revitalization Area	Roughly 8-acre block with multiple parcels/lots and property owners. Most of the buildings were built in the 1950-60s. The buildings at the corner of Crain Highway and B&A Boulevard have high tenant turnover rates and frequent vacancies. The County owns several parcels used as free public parking. There are property maintenance issues and poor visual appeal.	This block is in a primary visible location in the Glen Burnie Town Center and presents an opportunity to contribute to a more vibrant activity hub. Opportunities for coordinated redevelopment of multiple properties should be created and pursued. See concept plans in the Glen Burnie Town Center Enhancement Plan.

Baltimore Annapolis Boulevard from Harding Road to MD 10, Glen Burnie Not currently within an existing Commercial Revitalization Area	The north side of the intersection is a C4-zoned corridor with primarily auto-related commercial uses; the south side is a C3-zoned strip shopping center on a 4-acre site, built in 1961; one space is leased by a church. Abundance of stored vehicles with no landscaping creates poor visual appeal along this eastern gateway into the Glen Burnie Town Center and adjacent to the Glen Burnie High School. Some businesses have minimal screening between adjacent residential uses.	Rather than promoting redevelopment, the north side may benefit more from streetscaping and landscaping improvements, screening, and other measures to improve the aesthetics of the area. Given the limited C4 land inventory in the County, it may be appropriate to retain this highway commercial use corridor. The shopping center site on the south has a good location and potential for future redevelopment into a more modern retail/employment center or a mix of commercial/ residential uses.
Ritchie Highway (MD 2) and Aquahart Road, Glen Burnie Harundale- Ritchie Highway Commercial Revitalization Area	The area includes Harundale Plaza and adjacent commercial properties along Aquahart Road, primarily older office buildings that are zoned C3. The plaza site is 25 acres and contains two primary structures and four pad sites. Older commercial properties are in need of upgrades; there are expansive surface parking areas and inadequate buffering with adjacent residential areas.	Located across from Glen Burnie Regional Library and less than a half mile from the Glen Burnie High School, this area is surrounded by relatively dense residential communities and presents a future opportunity for updated commercial development or mixed use. The Library Department was considering expansion onto this site at one time.
Intersection of Camp Meade Road/Belle Grove Road (MD 170) and Baltimore Annapolis Blvd. (MD 648), Linthicum Not currently within an existing Commercial Revitalization Area	Small commercial hub of roughly 20 properties zoned primarily C4. Contains a mix of auto services, chain restaurants, and hotels. There are underutilized properties in need of upgrades and improvements. The former Rose Restaurant has been vacant for a long period and is deteriorated.	This area is within walking distance of the North Linthicum Light Rail Station and presents an opportunity for future redevelopment as a small Transit-Oriented Development center.

Northwest quadrant of Mountain Road and Outing Avenue Pasadena – Mountain Road Commercial Revitalization Area	This site includes two C3-zoned parcels totaling roughly 5 acres. One building is a former skating rink with 20,400 square feet built in 1975 and currently vacant. The second building is a strip shopping center built in 1979 with 10,000 square feet.	These are relatively large and underutilized commercial parcels with outdated structures that may represent a future redevelopment opportunity to create a more attractive local activity hub adjacent to the George Fox Middle School.
Intersection of Fort Smallwood Road and Riviera Drive Riviera Beach-Fort Smallwood Road Commercial Revitalization Area	Properties surrounding this C3-zoned intersection are currently well-utilized, with a CVS, a newly renovated restaurant, and the Riviera Plaza. The northeast quadrant contains a vacant parcel for sale.	With its central location in the Riviera Beach community, there may be opportunity for longer term redevelopment into a more vibrant activity center. See concepts in the Pasadena/ Marley Neck Small Area Plan.
Intersection of Fort Smallwood Road and Hilltop Road Riviera Beach-Fort Smallwood Road Commercial Revitalization Area	This is a central intersection in the commercial corridor that has a number of vacant and deteriorated properties and poor visual appeal.	Opportunities for coordinated redevelopment of multiple properties should be explored to create a small business activity center, potentially serving the maritime community.
Marley Station Mall Glen Burnie/Marley Commercial Revitalization Area	This 80-plus acre site is developed with a regional shopping mall that serves the Greater Glen Burnie, Pasadena, and Severn communities. Current occupancy rates are reasonably stable. The site has a significant excess of surface parking.	The mall has longer term redevelopment potential into a more updated retail center, possibly incorporating a mixed use concept and a bus transit hub.
Deale Churchton Road and Deale Road (MD 256) Not currently within an existing Commercial Revitalization Area	This local commercial hub is zoned C3, C4 and MC and contains many maritime uses as well as retail businesses. Some older or underutilized properties are in need of improvements.	This area is a good location near public facilities (library, school, post office) with a potential to be a more vibrant activity center for the Deale and Churchton communities. See concept plans in the Deale/Shady Side Small Area Plan.

East Park Shopping Center/ Crain Highway at I-97 Not currently within an existing Commercial Revitalization Area	The 21-acre site is a 104,000 square-foot strip shopping center with several pad sites. Giant is the main anchor. There is some history of vacancies but most retail space is currently occupied. The buildings are outdated and there is excess surface parking.	The site has good highway access and is surrounded by higher density residential uses. This may present future opportunity for mixed-use development or an updated retail/office center.
US Army Depot Site / Ordnance Road Not currently within an existing Commercial Revitalization Area	The 460-plus acre site was a former ordnance depot and has been unused for decades. The site is zoned W2, has waterfront access on Curtis Creek, is adjacent to the County Bachman Sports Complex and the Ordnance Road Detention Center. The Federal government has discussed releasing ownership but there has been no definitive action to date.	This is a potential opportunity for public-private partnership for development with employment and industrial uses that would benefit from access to the Port of Baltimore. Several W3-zoned properties adjacent along Stahl Point Road could potentially be incorporated into a redevelopment scheme.

Table 23. Land Use Market Analysis Potential Redevelopment Sites

Site	Description
Stoney Run/BWI Airport Area Corridor	This redevelopment opportunity site is neighboring the BWI Airport area, which is comprised of several large-scale non-residential properties dedicated to industrial and office space. Additionally, there are various service/distribution centers associated with the airport area. Analysis indicates that conditions of several properties are below 50% of the assessed value. The site maintains several concentrated vacant parcels that offer room for growth, but the location of the airport may limit its full capacity of redevelopment potential.
MD 176 /MD 100 Corridor	This site is surrounded by MD 176 and MD 100. Its location is somewhat restricted due to its proximity near the airport area, but there are vacant parcels that have the potential for redevelopment, specifically near the intersection of MD 100 and Telegraph Road. The corridor is surrounded by clusters of residential neighborhoods in addition to several manufacturing/distribution centers, such as Williams Scotsman Inc. as well as an office park heading east along MD 176 and MD 100. Despite the proximity of BWI Airport, this site contains strategic transportation nodes that are utilized daily and surrounded by major employment centers that continue to exhibit patterns of growth and job opportunities.

MD 170 N / Cunningham Corridor	The southern portion of this submarket area is comprised of residential communities that have experienced clusters of new residential development. The Site 3 corridor, however, has a higher concentration of older properties both residential and non-residential. This site extends along MD 170 to Cunningham Road. Additionally, there is a concentration of non- residential properties that are performing at below 50% of the assessed value. These properties are dedicated to manufacturing companies in addition to a storage facility site. Further, this corridor most likely performed at a more efficient level in previous years, but due to the high concentration of surrounding residential development, has deteriorated. This deterioration in combination with usage presents opportunities for strategic redevelopment potential.
Ritchie Highway / Thomas Point Corridor	Situated on Ritchie Highway, this corridor is dominated by shopping centers/plazas and surrounded by residential neighborhoods. The site is placed in a prime location giving consumers easy access to this commercial corridor. Each power center is anchored with big- box retail storefronts (Target, Costco, Home Depot, Walmart) and several food services/restaurants. A higher concentration of these establishments was built between 1980 and 1989, which may indicate why conditions are fair to poor but have continued to experience growth throughout the years. Additionally, a portion of the redevelopment opportunity site along Dover Road NE is comprised of non-residential properties dedicated to industrial space and distribution centers. This site would be complimentary for industrial uses that would benefit from its proximity to the Port of Baltimore if the site were no longer under Federal ownership.
Glen Burnie Town Center Corridor	This corridor is concentrated in the heart of the Glen Burnie Town Center, one of the County's activity hubs. Additionally, this site incorporates some of the County's existing commercial revitalization overlays. Surrounded by residential communities, this corridor is anchored by small local businesses bounded by Ritchie and Crain highways.
Crain Highway / MD 100	Although a higher concentration of this corridor is dominated by residential communities and not in need of redevelopment, several non-residential properties are being underutilized impacting the performance and value of these specific areas. That said, the site is adjacent to the Quarterfield Crossing Shopping Center between Interstate 97 and Crain Highway. The location of the East Park Plaza Shopping Center and Target are steering the commercial activity; however, these properties are underperforming and below 50% of the assessed value. These properties are older which have resulted in condition problems and vacancy, ultimately impacting the performance of this commercial corridor.

Marley Station / Ritchie Highway Corridor	Marley Station Mall, which was built in 1987, is a regional shopping center containing several big-box department stores such as Macy's, JC Penny, and Sears. However, a noticeable portion of the mall is closed and tenant vacancies are prevalent. Looking at the short-term, there has not been much discussion regarding redevelopment as sales continue with the three anchors remaining fully occupied, however, new development surrounding the regional shopping mall could help the corridor meet its full potential.
Annapolis Road / MD 32 Corridor	This corridor is comprised of the Odenton Growth Management Area, also known as the "Odenton Town Center", which is one of three designated Town Centers in Anne Arundel County. This site is located at the junction of MD 32, MD 170 and MD 175. In more recent years, the entire Odenton submarket has expanded due to local growth pressures, specifically at the Fort Meade Military Installation. The job creation occurring at Fort Meade, the largest employment center in the State of Maryland, has spun-off new development opportunities and revitalization activities along the major transportation corridors. This corridor is comprised of small local businesses and large-scale multi-family apartment communities. Another portion of the corridor consists of manufacturing distribution centers, which have been in the area for quite some time.
Waugh Chapel Town Center / Crain Highway Corridor	The southeast portion of the corridor contains a redevelopment opportunity site along Crain Highway. The site is anchored by the Waugh Chapel Town Center, which is characterized as a power center. Additionally, this hub is comprised of various services as well as an age-restricted residential community. This transportation node is shared by the southern part of the County and is utilized by residents that live in communities such as Crofton, Severna Park-Crownsville and South County. Over the years, the Crain Highway corridor has continued to expand, and businesses continue to thrive and draw customers.
Crain Highway S./ MD 450 Corridor	Located below the Waugh Chapel Town Center, this site is comprised of The Crofton Centre and small local businesses consisting of mostly of service and distribution stores. This corridor is in a prime location but is under-utilized. There are several distribution centers, such as FedEx, in the southern portion of the corridor. Further, MD 450 extends east to west throughout the submarket and into another neighboring submarket. With most of the transportation node surrounded by residential neighborhoods, there is room for commercial redevelopment and revitalizing the village / community centers should be a priority as this would increase the value of the submarkets non-residential properties as well as create a more vibrant and balanced community.

Source: RKG and Associates, Anne Arundel County Land Use Market Analysis, 2019

Historic Preservation and Cultural Resources

As one of the oldest counties in the United States, Anne Arundel County has a rich history that is locally, regionally, and nationally important. These local stories make Anne Arundel County the special place it is, and our history is experienced through a myriad of cultural resources including historic buildings, archaeological sites, family cemeteries, sacred sites, cultural landscapes, museums, and heritage tourism destinations. While diverse in form, type and age, these cultural resources represent a collection of invaluable and irreplaceable historic antiquities that give physical form and meaning to the County's rich heritage.

Beyond the intrinsic value many residents place on historic places, preserving the places and things that reflect and form a community's character can have beneficial effects socially, culturally, and economically. Preserving relics of the diverse archaeological and architectural past reinforces the County's identity and benefits its communities and residents through both civic pride and a sense of place. Current devotion to protecting the bounty of the Bay connects us to our predecessors. Native Americans lived in prehistoric campsites a thousand years ago, where they shucked oysters. A poor waterman's family lived in a simple 19th century cottage in Shady Side, where he scraped his living from the Bay, and shipped our world-famous oysters and crabs across the Country. Townspeople and planters in the 17th and 18th centuries built their fortunes at London Town, a colonial seaport that once connected Anne Arundel County to the world stage and transatlantic economy.

Historic sites help residents of the County, both the 'old-timers' and new arrivals, develop a deeper understanding of physical, cultural, and ecological heritage of the County. Preservation of historic and natural resources draws people here to explore and learn about the past. It is one of the strongest tools available to assist in smart growth redevelopment, affordable housing, and green infrastructure. Rehabilitation of historic structures fosters economic development by creating jobs for local labor and by enhancing the tax base with improved properties. Investing in historic neighborhoods and managing the kind of development that occurs within them reinforces the authentic places that locals and visitors seek, leveraging a "sense of place" as an economic asset to promote a high quality of life. Preserving and repurposing old buildings is environmentally sensitive because it reduces demolition waste sent to landfills, maximizes the use of existing infrastructure serving established neighborhoods, and thus conserves undeveloped land. Rehabilitated properties improve property values in the surrounding area and spur other private sector investments.

In 2005, the current historic preservation requirements were codified primarily under Articles 17 and 18. In brief, the current County Code requires that historic resources be identified when development is proposed, and if after careful study and evaluation by the Cultural Resources division, the Planning and Zoning Officer finds the resource is important and can feasibly be retained and preserved, the historic asset is protected and incorporated into the new development or plans. In many ways, this approach mimics the Federal standard set by the National Historic Preservation Act and its Section 106 process. In many other local jurisdictions, this process is undertaken by a citizen-based and politically appointed Historic Preservation Commission as authorized by enabling legislation found in the Maryland Land Use Code.

Protected resources in the County include historic sites and structures, scenic and historic roads, archaeology sites, cemeteries, and recorded easement properties as well as sites on the Maryland Inventory of Historic Properties. To date, these include:

1. 600 structures (excluding City of Annapolis, Federal and State properties)

A. 57 properties on the National Register of Historic Places
B. 3 National Historic Landmarks
C. 4 National Register Historic Districts

2. 1,628 archaeological sites
3. 648 cemeteries
4. 153 Scenic & Historic Roads

While the regulatory framework described above comprises the bulk of the codified mandate, the County has developed several other important components over the last several years for the purpose of preserving cultural resources

Technical Support for County Agencies; Liaison to State and Federal Preservation Offices

The Cultural Resources Section (CRS) staff within the OPZ are recognized as the Countywide technical expert on managing and rehabilitating historic buildings and sites that are owned or managed by the County. In recent years, the CRS has established strong inter-agency relationships and closely coordinated historic preservation issues with other County Agencies and departments such as the Bureau of Watershed Protection and Restoration, Recreation and Parks, and the Real Estate Division. The CRS also supports County agencies with State or Federally-mandated preservation permits, reviews and easement compliance, ensuring that County agencies are complying with applicable laws and best practices, and that they are setting the best example possible for responsible stewardship of historic assets.

In addition, the CRS often provides comments to the State Historic Preservation Office as a consulting party under the Section 106 process of the National Historic Preservation Act, which is activated when large State or Federally funded public works projects or transportation improvements may have an adverse effect on the County's historic assets.

Incentives: Historic Preservation Tax Credit Program

In 2016, the County approved the Historic Preservation Tax Credit that offers private property owners substantial financial incentives to preserve their historic buildings and implements a goal of the 2009 GDP to "protect and preserve the historic and archaeological heritage of the County." The tax credit program provides a substantial property tax credit if a property owner undertakes rehabilitation using the Secretary of Interior Standards and Guidelines for Rehabilitation, a nationally-accepted guidebook for responsible preservation, thereby encouraging homeowners to retain original materials or to prioritize a more expensive or time-consuming preservation method in their rehabilitation project.

The CRS assists private property owners in identifying State or Federal programs that can support their efforts to preserve historic resources. These include State and Federal tax credits to offset costs for rehabilitation, as well as tax deductions for property (such as an archaeological site) placed under protective easement with a certified easement holding organization, such as the County, or the Maryland Environmental Trust, the Severn River Land Trust, and the Archaeology Conservancy.

Anne Arundel County's Archaeological and Curation Facilities

The County's archaeological research program is nationally known and regionally respected as an authority on archaeological research and interpretation. As a part of that three decade initiative, the County maintains archaeological laboratory and curation facilities using consultants. Those facilities, located at Historic London Town in Edgewater, include a 1,200 square-foot professional laboratory that is open to the public four days per week and a 500 square-foot environmentally-stable storage unit. The laboratory serves as "home base" for a robust archaeology and heritage public outreach program, which includes regular workshops, lectures and hands-on experiences for residents

and visitors to the County. The CRS manages and maintains a larger storage facility located in Glen Burnie, which houses about 65% of the 6.1 million artifacts that the County owns and curates.

When archaeological sites are excavated as a requirement of site development, the County requires that the artifacts and related field notes and photographs be donated to the County, thus preserving the sites in perpetuity. The County makes these artifacts available to researchers and the public for analysis that gathers information about the past.

Public Outreach and Education

In 1997, County archaeologists began a formalized research and public education partnership with the London Town Foundation, a non-profit that manages the County-owned Historic London Town and Gardens in Edgewater. The Archaeology Lab shares artifacts and archaeological discoveries through public displays and exhibits, making the site a premier heritage tourism attraction for the County, with its interpretive foundation based on the 20-plus years of public archaeology programming implemented by the County and consultants. While it maintains the permanent archaeological exhibit located at Historic London Towns and Gardens, the County regularly develops smaller traveling museum exhibitions using the County's artifacts, taking artifacts to share with local affinity groups throughout the County, including heritage societies, local community associations, and school groups. Over the last twenty years, tens of thousands of schoolchildren, residents, and visitors have assisted professional archaeologists working to rediscover the forgotten colonial seaport of London Town, with almost every fourth and fifth grader in the County's public school system participating in CRS-managed "hands-on" dig program. This archaeological research has resulted in the accurate reconstruction of buildings from the town's colonial era, with stories learned through this public archaeology effort told by costumed interpreters.

This model for archaeological research and public engagement has been incorporated at other County parks and has helped to salvage historically significant archaeological resources on private lands that could not be protected by regulatory action. A robust, cooperative program has been developed in recent years with the Jug Bay Wetlands Sanctuary, which happens to hold a complex of dozens of Native American camp sites, villages and sacred spaces, some

dating to 10,000 years ago. Similar programs could be initiated at places like Rockhold Creek Park in Sudley, Wilson Park in Galesville, Fort Smallwood Park (which has four historically significant archaeological sites), Kinder Farm and Bacon Ridge Natural Area, both of which hold numerous prehistoric and historic sites of public interest, and of course sites such as Hancock's Resolution. With increased coordination, partnership, and staffing under the DRP, all of these County-owned sites could offer heritage-based programs for the public.

The CRS offers an exceptional academic internship program which assists the staff in managing and running the County Archaeological and Curation Facility. Between ten and twenty college and post-graduate interns work with the County collections and publish information from their discoveries. Additionally, an average of 75 individual volunteers donate thousands of hours each year in support of the County archaeological programs.

Support for Non-Profits and Affinity Heritage Preservation Organizations

There are over forty individual heritage societies, historic house museums and community organizations in the County that, at least in part, work to protect historic resources. The County assists them in many ways, from offering technical advice on maintaining or restoring buildings, to providing advice on interpretation, to assisting them with identifying and applying for grant funding to support their heritage preservation missions. Some of the more active heritage organizations in the County that have had broad impacts across the County supporting the cultural resource and historic preservation efforts include the Ann Arrundell County Historical Society, the Anne Arundel County Trust for Preservation, Inc.; the Lost Towns Project, Inc.; and the Arts Council of Anne Arundel County Foundation. See the Plan2040 Background Report on Cultural Resources and Historic Preservation for additional site or community specific heritage groups or organizations at the Plan2040 website.

A 2015 internal review of the CRS systems, policies, and operating regulations considered the strengths and weaknesses in both regulatory and management aspects of the CRS program. That assessment identifies areas of challenge and potential opportunities for improving the outcome of CRS work. Highlights from this review include the following:

- While there is generally broad support among citizens and policymakers for preservation activities, there is some misunderstanding about the County's preservation requirements, which highlight the need for enhanced transparency of the County's historic preservation policies, regulations, and processes and more agreement on what constitutes a historic resource.
- Current Code does provide tools that have proven moderately effective in protecting historic sites. The County's Scenic and Historic Roads and Archaeological programs, for example, serve as statewide models for effective preservation at the local level. However, the regulatory protections for historic resources are found across multiple Articles of the County Code and can be difficult for the citizens, property owners, and even staff, to navigate. There are inconsistencies in definitions related to preservation topics, and several minor Code changes would address these and improve upon the historic resource's identification and evaluation process.
- The CRS should develop and adopt a Cultural and Historic Preservation Master Plan. Such a coordinated effort would serve to engage the citizenry and County colleagues, and improve the capacity and effectiveness of the CRS program by establishing a higher degree of transparency for property owners and County agencies that are faced with managing preservation issues. This functional master plan (which may include elements of specific planning studies, or even "sector" studies to focus on historic

communities) could also help guide the growth and ongoing enhancement of the CRS by establishing a clearer mission and an increased clarity of purpose. A Master Plan would serve to better explain the CRS's near and long-term goals, clarify and solidify the CRS role with the development process and County government, and better define its relationship to other Agencies.

- Other challenges to the CRS mission were identified, including the need for policy and program efforts to address:
  - more innovative tools to encourage preservation;
  - expanded staffing for management of archaeological research and laboratory functions;
  - improved standards and capacity at the laboratory and curation facility;
  - a concise historic context framework, tailored to Anne Arundel County;
  - enhanced coordination and data sharing between County agencies and CRS;
  - improved coordination between AAEDC, ACDS, and CRS for historic preservation in housing and economic development; and
  - increased public outreach, including interpretation, use of new technology, expanded programs, and promotion of the historic tax credit.

Policies and strategies to strengthen the preservation of the County's historic and cultural resources are in Plan2040.

The Four Rivers Heritage Area is one of Maryland's certified heritage areas and operates under the authority of the Maryland Heritage Areas Authority (MHAA). The Four Rivers Heritage Area is officially named the Annapolis, Londontown, South County Heritage Area (ALTSCHA, Inc.). The organizations' management plan, as adopted by Bill 33-01 in 2001, defined the Heritage Area as stretching from Sandy Point State Park to the north, on and along the south side of Route 50, (John Hanson Highway), south along the east side of the Route 2 (Solomons Island Road) corridor, including the City of Annapolis, and through southern Anne Arundel County to the Calvert County line, encompassing those lands east of Route 2 to the shores of the Chesapeake Bay and its tributaries.

In close coordination with the MHAA, the non-profit organization works with nonprofits, local government, and the local visitor's bureau "Visit Annapolis & Anne Arundel County," to provide technical and financial support for products and activities that leverage economic development through historic preservation and heritage tourism.

After providing an opportunity for public input and review, the adoption of Plan2040 incorporates by reference all portions of the Four Rivers Heritage Area Management Plan, originally adopted by Bill 33-01 in 2001 as part of the Comprehensive Plan applicable to Anne Arundel County. This management plan may be amended from time to time as needed, which may result in updated heritage themes or may modify existing boundaries.

In coordination with the Four Rivers Heritage Area Board of Directors, the Cultural Resource Section of OPZ has recently completed a study so that the Four Rivers Heritage Area can initiate a boundary expansion for the state-certified region. Upon State approval, anticipated in the Spring of 2021, the Four Rivers Heritage Area Management Plan will be amended as required by State law, to modify and expand the boundaries defined in 2001. This action will ensure that the heritage area program can flourish by remaining relevant and by embracing a broad and inclusive range of heritage resources under its management umbrella.

Transportation and Mobility

Anne Arundel County is both defined and constrained by the network of highways, roads, trails, railroads, and transit services that move its residents and goods in, through and out of the community. Looking back over the past 40 years, the County's residential and economic growth patterns have a mixed-record of being coordinated with land use and transportation planning, resulting in some of the traffic congestion that exists today. Because land use has a direct impact on how the transportation network functions, Plan2040 identifies Development Policy Areas that concentrate development, redevelopment and revitalization in targeted areas; and targets investments in transportation in these areas and the Critical Corridor Policy Area.

Transportation Network

Anne Arundel County's transportation network is typical of suburban areas that were developed in a fashion that prioritized automobile speed and throughput over pedestrian and other forms of transportation to serve residential, commercial and industrial land uses. Baltimore, Washington D.C.,and Annapolis create a triangle of high-speed roads connecting the major hubs within the region. From these high-speed roads or "freeways," a grid of lower-tiered roads serving local trips developed at a slower pace to provide the capacity to support economic and residential growth in Anne Arundel and few transportation alternatives were developed to mitigate traffic congestion.

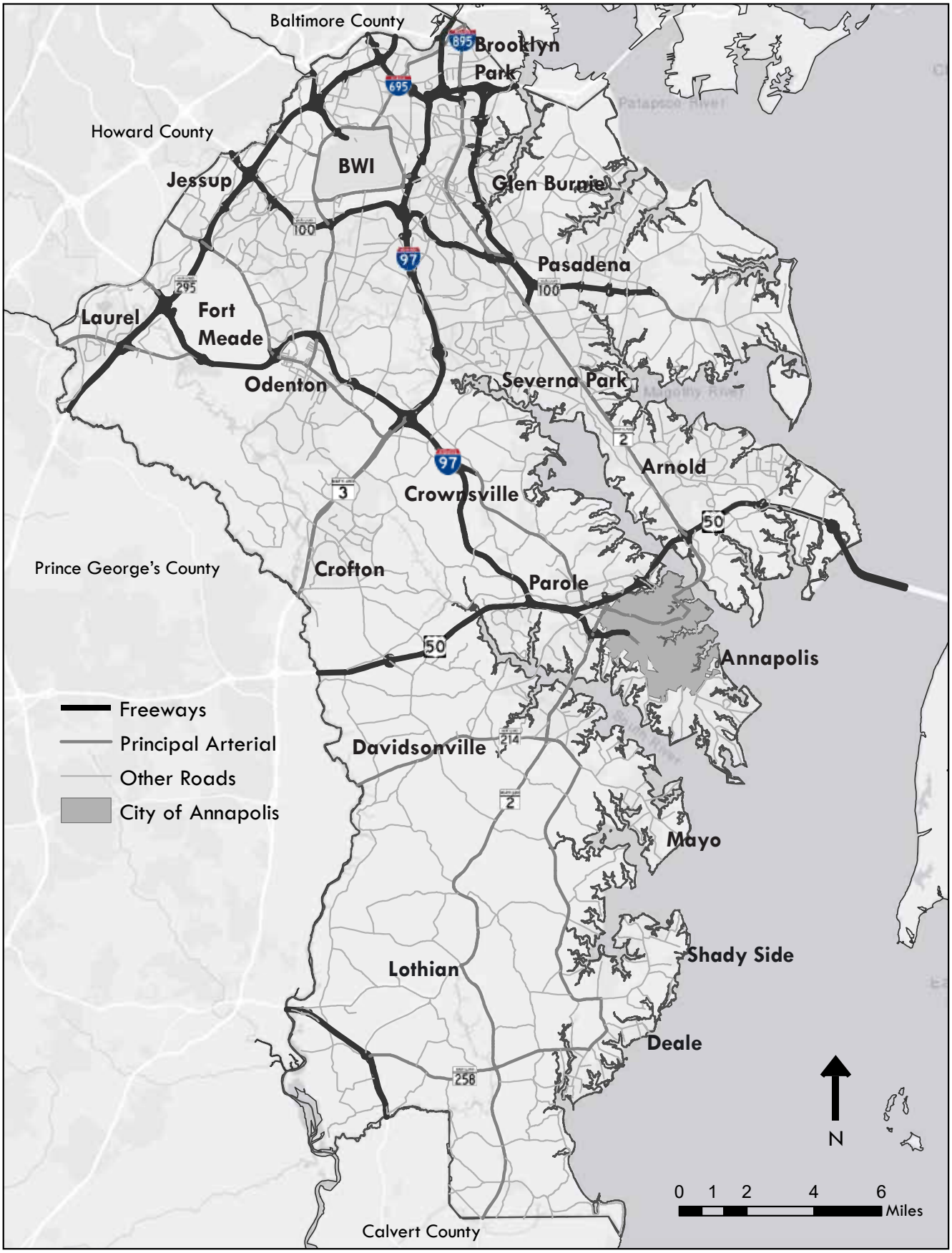
Local bus service and the central Light RailLink line exist in the northern part of the County and are oriented radially towards Baltimore; commuter bus and rail service are present in the central part of the County and are oriented towards downtown Washington, D.C. County government has filled in some of the east-west transit needs through the Regional Transit Authority of Central Maryland and with its own buses, but service coverage and frequency is too limited to serve as a viable option to most auto trips. The County's bicycle network is growing but is incomplete and gaps in the sidewalk network make walking to destinations less safe and more difficult than it should be.

Since 2000, the dominant traffic in the County has been east-west travel (MD 100, MD 32, MD 198, and US 50 corridors) owing to tremendous growth at Baltimore-Washington International Thurgood Marshall Airport (BWI Airport) and surrounding areas, Arundel Mills and at Fort George Meade. State and County transportation agencies have attempted to keep up with the growth. For example, improvements were made to widen MD 175 from MD 295 to MD 32 and Base Realignment and Closure (BRAC)-related intersection improvements along MD 713 and at MD 198, but most of these were made well after land development occurred. Most of the County and State efforts have focused on system preservation (resurfacing, bridge repair, etc.), operational improvements and developing plans to accommodate planned growth.

The responsibility for constructing and maintaining roads and bridges, developing and operating transit services, and expanding the bicycle and pedestrian network is the responsibility of more than a dozen local, State, and private agencies. While the State is responsible for the major transportation assets such as I-97, US 50, MD 295, the Chesapeake Bay Bridge, Central Light RailLink Line and the Maryland Area Regional Commuter (MARC) Train system, in general the County is responsible for neighborhood streets and collector roadways that feed into the larger network. The County also maintains bridges, operates bus routes and an extensive system of transit services for the elderly and disabled, and maintains shared-use paths. The general public makes little distinction between these agencies. What matters is that the traveler can drive, ride, and walk to their destination in a manner that is safe and reliable.

Roads and Bridges

Roads and bridges in Anne Arundel County (Figure 23) are owned and maintained by four agencies:


Baltimore County
Brooklyn Park
Howard County
BWI
Jessup
Glen Burnie
Pasadena
Laurel
Fort Meade
Odenton
Severna Park
Arnold
Crownsville
Prince George's County
Crofton
Parole
Annapolis
Freeways
Principal Arterial
Other Roads
City of Annapolis
Davidsonville
Mayo
Shady Side
Lothian
Deale
N
0 1 2 4 6
Miles
Calvert County

1. The Maryland Department of Transportation, State Highway Administration (MDOT SHA) is responsible for constructing, operating, and maintaining improvements to approximately 1,211 miles of designated roadways in Anne Arundel County. These roads tend to operate at speeds greater than 35 miles per hour and carry approximately 75% of all traffic in the County. MDOT SHA also owns 127 bridges in Anne Arundel County.
2. The Maryland Transportation Authority owns the Chesapeake Bay Bridge connecting Maryland's eastern and western shores via US 50/301, a small portion of the Baltimore Beltway (I-695) and the Baltimore Harbor Tunnel (I-895), which connects from south of the Baltimore harbor to the northern shore.
3. The Anne Arundel County DPW is responsible for approximately 1,317 centerline miles of neighborhood streets and collector roadways that feed into the larger network. The County also maintains 87 bridges.
4. The City of Annapolis' DPW is responsible for maintaining approximately 92 centerline miles of roadway within the municipal limits.

The Chesapeake Bay Crossing Study is currently underway to address congestion at the Chesapeake Bay Bridge. The study will gauge public input, evaluate environmental feasibility, identify a preferred alternative and evaluate financial feasibility. The Maryland Transportation Authority (MDTA) and the Federal Highway Administration are following the National Environmental Policy Act (NEPA) process to conduct this study.

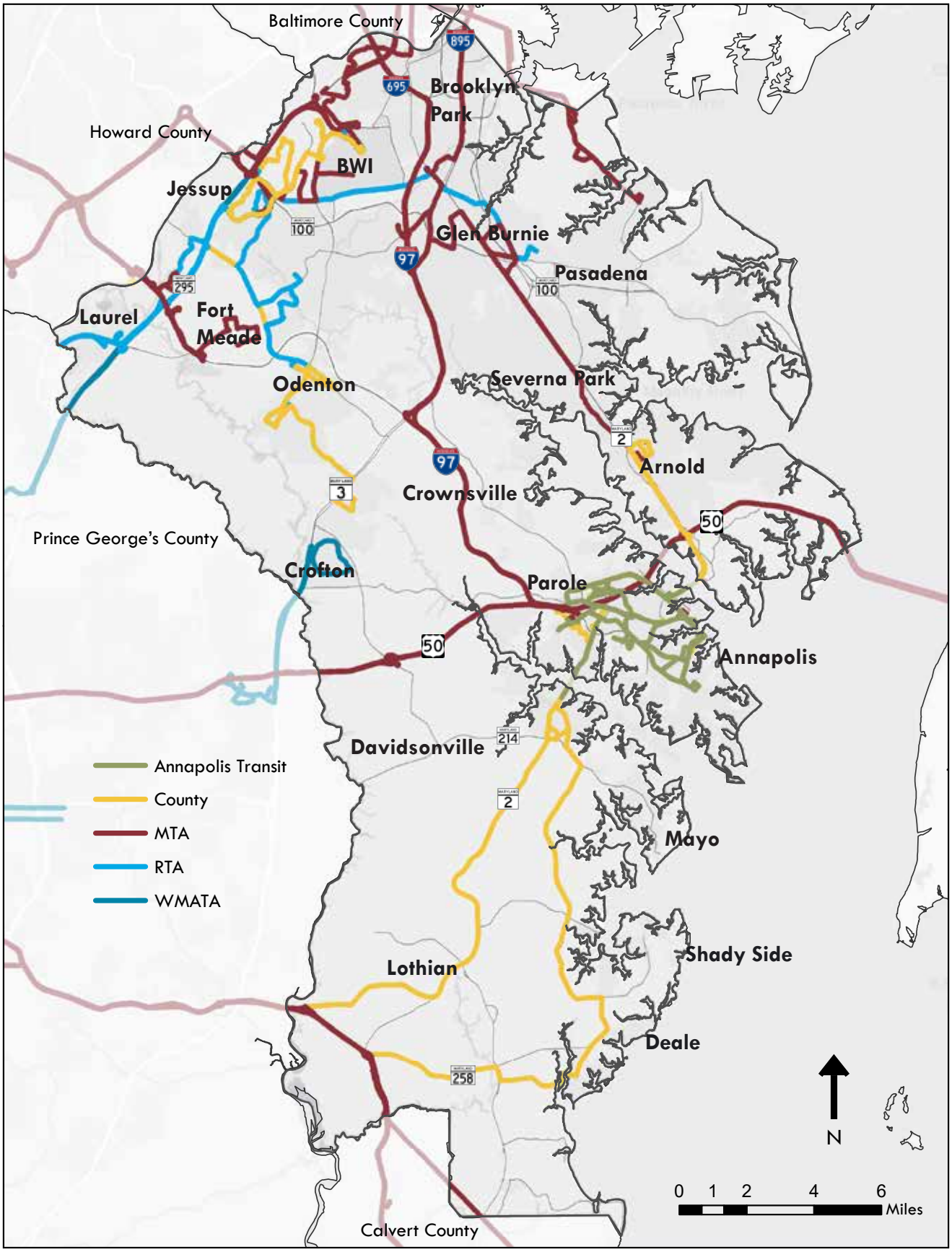
Preliminary Corridor Alternatives Retained for Analysis (CARA) were presented at public Open House meetings in Fall 2019. Input from those meetings as well as concurrence from Federal and State regulatory agencies as part of the NEPA review process has led to three corridor alternatives (Corridors 6, 7 and 8) being carried forward for further analysis. All three corridors are located in Anne Arundel County and are the only corridors that sufficiently meet the study's purpose and need. The three CARA and the No-Build Alternative will be analyzed in the Tier 1 Draft Environmental Impact Statement (DEIS) anticipated to be released for public review and hearings this Fall.

The OOT will continue to participate in this process. The study is expected to be completed in 2021. The latest information regarding the schedule and public involvement opportunities, can be found on the MDTA website.

Transit

Anne Arundel County is currently served by five transit operators:

1. MDOT MTA operates the local bus service, Light RailLink, commuter bus service, MARC Train, and provides complementary paratransit services. The MDOT MTA operates five commuter bus routes in Anne Arundel County that provide service between the County and the Washington region. The five routes account for almost 3,000 passenger trips per day. The State also provides local service along the MD 2 corridor from the Patapsco Avenue Light Rail Station to the Anne Arundel Community College. Other routes provide services to activity centers such as the BWI Business District, the Arundel Mills Complex and from Rivera Beach to Downtown Baltimore.
2. Annapolis Transit (AT) provides local bus service generally within the borders of Maryland's capital city. The system consists of three shuttle routes and a fixed route system that is composed of eleven routes. In total they carry over 1.3 million annual passenger trips.
3. Regional Transportation Agency (RTA) of Central Maryland serves the western communities of Anne Arundel County, all of Howard County, and the City of Laurel. The RTA service area spans approximately 845 square miles, and is located in the suburban counties of Baltimore and Maryland, and Washington, D.C. Transit connections are located throughout the service area to


Baltimore County
Howard County
Prince George's County
Calvert County
Brooklyn Park
BWI
Jessup
Glen Burnie
Pasadena
Laurel
Fort Meade
Odenton
Severna Park
Arnold
Crownsville
Crofton
Parole
Annapolis
Davidsonville
Mayo
Lothian
Shady Side
Deale
Annapolis Transit
County
MTA
RTA
WMATA
N
0 1 2 4 6
Miles

connect passengers throughout the system and to Baltimore and Washington, D.C.

4. Anne Arundel County Office of Transportation (OOT) manages the South County Circulator and the County Connector.
5. Washington Metropolitan Area Transit Authority (WMATA) provides express bus service between the Greenbelt Metrorail Station and BWI Thurgood Marshall Airport.

Although only four percent of commuting trips occur by public transit, there are multiple elements of the public transit network in Anne Arundel County that serve specific trip types, corridors, and communities to a greater degree:

1. An extensive shuttle bus system transports thousands of BWI travelers daily, to park-and- ride lots, the Amtrak/MARC Train station, and off-site rental car facilities.
2. Services for the elderly and disabled are provided by the County and various human service providers on an "on-demand" basis.
3. The MDOT MTA Light RailLink connects residents in the North County to jobs and events in Baltimore and provides access to employment at BWI Airport and the surrounding business district.
4. There are seven Light Rail stations in the County. They are located at Nursery Road, North Linthicum, Linthicum, the BWI Business District, the BWI Airport, Ferndale and Cromwell Station/ Glen Burnie. About 23,000 unlinked weekday trips are taken on the entire system that consists of thirty-three stations and extends to Hunt Valley in Baltimore County, down from 29,000 in 2009.
5. Commuting trips to and from Washington, DC via the MARC Penn Line transports roughly 2,220 people daily via the BWI Station and 2,350 people daily via the Odenton Station. Regional commuter buses carry approximately 3,500 people daily from South County, Davidsonville, Severna Park, and Annapolis to and from Washington D.C.

Bicycle and Pedestrian Facilities

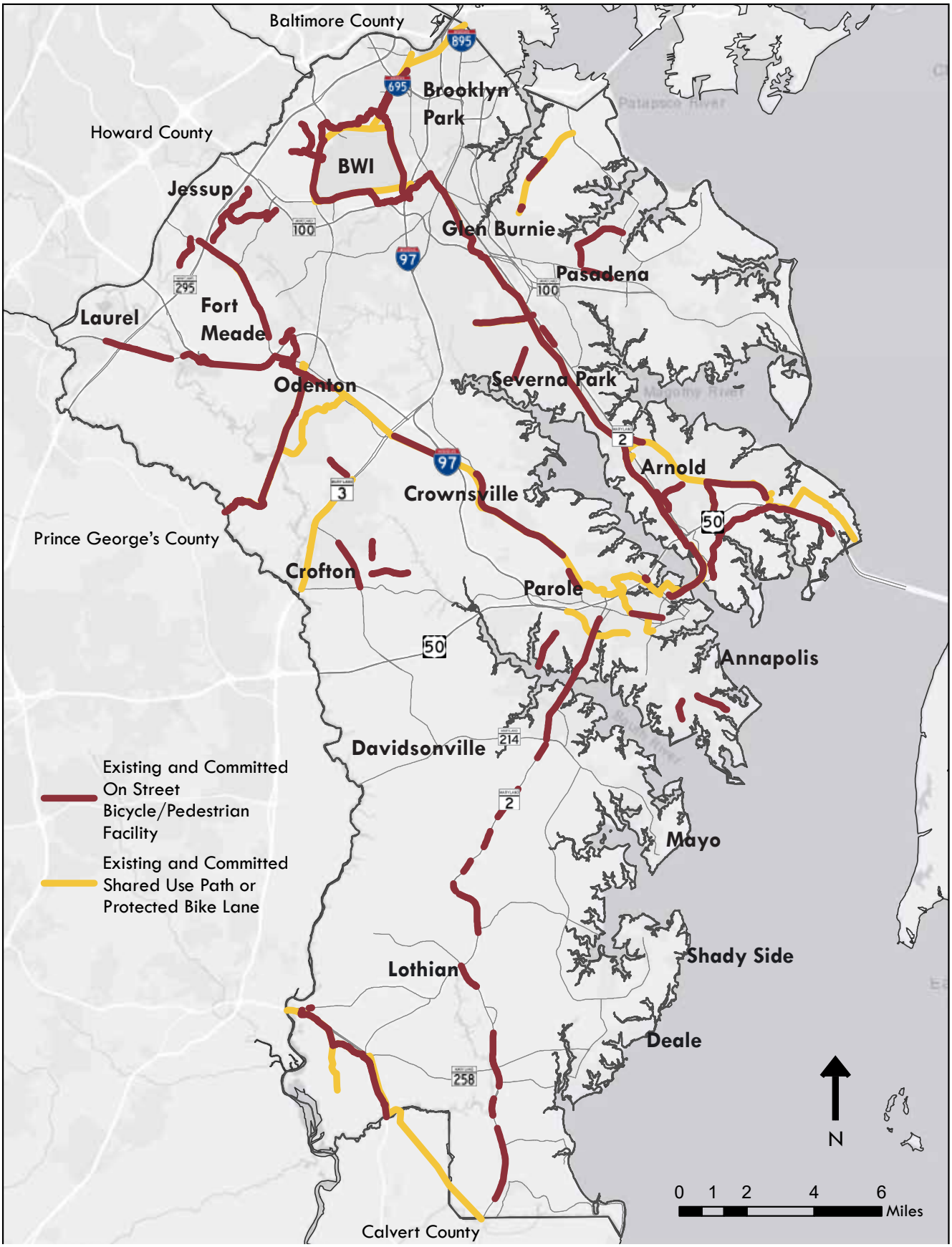
Having developed in a suburban fashion over the past 60 years, Anne Arundel County generally lacks a robust and connected pedestrian and bicycle network. While communities such as Annapolis are very walkable and interior sidewalk networks are present within some subdivisions, sidewalk connectivity between neighborhoods, shopping centers, schools, and other local destinations in many areas of the County needs further development.

Anne Arundel County's bicycle and pedestrian facilities (Figure 25) include several off-street trails and shared-use paths. The 13-mile B&A Trail extending from Glen Burnie to the Severn River in Annapolis, the 11-mile BWI Trail route around BWI Airport and extending to the Linthicum Light RailLink Station, and the 9-mile WB&A Trail from Odenton to the Patuxent River, among others, are managed by the DRP. While this existing and planned shared-use path system constitutes a quality spine for a transportation-oriented bicycle network, these trails are generally viewed as a recreational amenity rather than as part of the County's transportation network. Approximately 15 linear miles of marked on-street bicycle lanes also exist on State-owned roadways; however, these marked lanes do not necessarily connect to trip generators or to the spine of shared-use paths.

Airports

Baltimore-Washington International Thurgood Marshall Airport (BWI Airport)

BWI Airport is in a central location between Baltimore and Washington and its proximity to Fort George G. Meade and the National Security Agency have helped make it one of the biggest economic engines in Maryland, serving the Federal government and technical and hospitality industries. It generates a $9.3 billion economic impact for the State and more than 106,000 jobs are now created and supported by the airport and visitors.


Baltimore County
Howard County
Prince George's County
Calvert County
Brooklyn Park
BWI
Jessup
Glen Burnie
Pasadena
Laurel
Fort Meade
Odenton
Severna Park
Arnold
Crownsville
Crofton
Parole
Annapolis
Davidsonville
Mayo
Lothian
Shady Side
Deale
Existing and Committed On Street Bicycle/Pedestrian Facility
Existing and Committed Shared Use Path or Protected Bike Lane
N
0 1 2 4 6
Miles

With record passenger traffic in recent years, BWI Airport is the 22nd busiest in the United States and the busiest in the Baltimore-Washington region. Commercial air service includes more than 330 daily nonstop departures and flights to nearly 90 domestic and international destinations. BWI Airport is the largest airport in the State and serves the general public carrying over 25 million passengers in 2017. It has four runways, the longest being approximately 10,500 feet and has 79 based general aviation aircraft. Access to BWI is primarily via I-195, I-97 and MD 170, a consolidated rental car facility, airport-operated shuttle system connected to large satellite parking lots and the MDOT MTA light rail.

Tipton Airport

Formerly part of Fort George G. Meade, the Tipton Airport is located immediately south of the Fort along MD 32. It was transferred by the Federal Government to the Anne Arundel County Tipton Airport Authority as a result of the BRAC initiative. Tipton Airport opened as a public use, general aviation airport on November 1, 1999. The nine members of the Anne Arundel County Tipton Airport Authority, which owns and operates the facility, are appointed by the County Executive.

The Airport has one 3,000-foot X 75-foot runway, four large aircraft hangars, 22 T-hangars which opened on January 1, 2018, and approximately 500,000 square feet of apron area. Over 130 aircraft are based at the facility. These aircraft are used for recreation and business, public safety, news, medical, flight training, and aerial tours. The State estimates that Tipton has an average of approximately 110 aircraft operations per day.

The Authority is conducting an Environmental Assessment for the extension of the runway to 4,200 feet, construction of a new parallel taxiway, and the construction of additional facilities. The extension of the runway will increase safety and improve operating efficiency for the design aircraft.

Lee Airport

Lee Airport is a privately owned general aviation airport located on MD 2 in Edgewater. It has a 2,500 X 48-foot runway. Nearly 100 aircraft are based at the facility that averages about 90 operations a day.

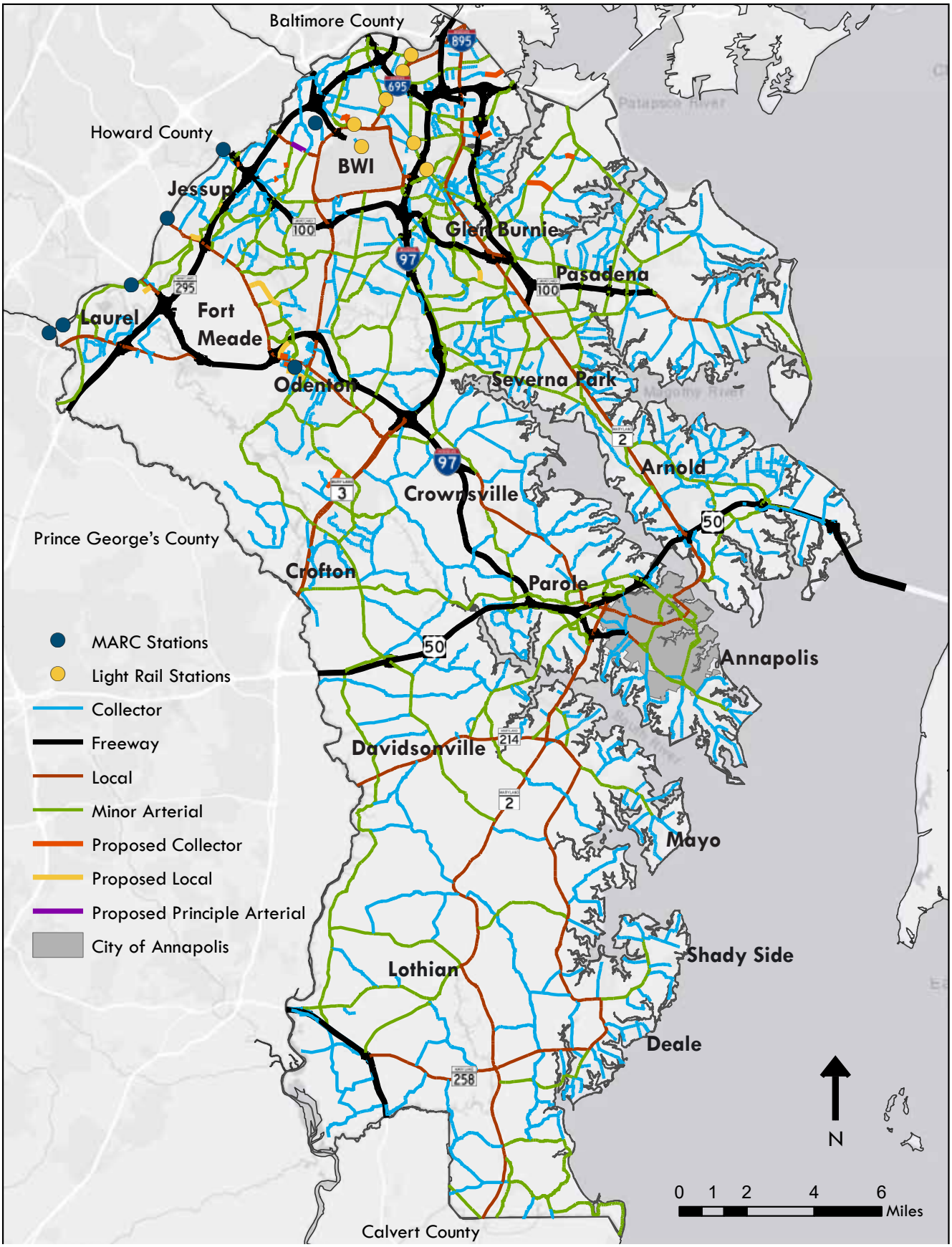
Functional Classification Map

The Functional Classification Map identifies current and future highway proposals throughout the County. Roadways are identified by their functional classification, which is the grouping of highways, roads and streets by the character of service they provide. These classifications reflect the utility of the various facilities and generally determines the design of the roadway. In the County, roadway facilities are classified as Freeways, Principal Arterials, Minor Arterials, Collectors and Local Roadways. The Functional Classification Map (Figure 26) was amended into the 2009 GDP by the County Council in May 2015.

All roads serve the dual functions of providing mobility and access. Mobility and access are inversely related as more mobility (measured in speed and capacity) means less access (measured in numbers of driveways and intersections over a distance). Arterials are primarily for moving vehicles from one place to another. They may still provide access to some adjacent lands, but it should be limited in order to maintain a high level of service in terms of mobility. Local roads are primarily oriented toward providing access to adjacent land. While they do serve to provide some degree of mobility, they are not generally designed to process the volume and speed of traffic one would expect to find on a principal arterial.

Transportation Planning

Until 2017, the OPZ and the DPW had primary responsibility for transportation planning and transportation project development and delivery, respectively, in Anne Arundel County. In 2017, the OOT was created to elevate the role of transportation planning to a core function of


Baltimore County
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Fort Meade
Odenton
Severna Park
Arnold
Crownsville
Crofton
Parole
Annapolis
Davidsonville
Mayo
Lothian
Shady Side
Deale
MARC Stations
Light Rail Stations
Collector
Freeway
Local
Minor Arterial
Proposed Collector
Proposed Local
Proposed Principle Arterial
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Miles

County government and bring greater focus to short- and long-term transportation policy and planning activities.

The OOT provides guidance in planning and engineering studies conducted by the MDOT SHA for improvement or new construction of the State-maintained roadway network, as well as planning for multimodal improvements on state roadways. In a similar fashion, it provides transportation planning for the DPW for roadway, bicycle and pedestrian facilities that are owned and maintained by the County and prioritizes sidewalk improvements along state roadways. The OOT coordinates with the OPZ regarding road right-of-way, transit accessibility design, pedestrian and bicycle facilities and recommendations involving highway modifications resulting from the transportation adequate public facilities requirements. The OOT also prepares the Long Range Transportation Plan for the Metropolitan Planning Organization (MPO), which establishes the 30-year plan for MDOT SHA and County roadway improvements. The OOT is advised by a 13–member Transportation Commission comprised of County residents and agency representatives.

The Land Use-Transportation Connection

A comprehensive, well-planned, and efficiently functioning transportation system is essential to the County's long-term growth and vitality. While residents of different parts of the County have varying levels of desire for non-auto modes, the predominant mode of transportation continues to be the personal automobile. More than 80% of County residents commute to work alone via their personal car and less than four percent use public transit. This has resulted in longer distance traveled, more time spent and more frequent person trips made for work, social, recreational and other purposes.

There is no evidence that at a Countywide scale these proportions are likely to change; however, it is possible that land use and transportation policies along with transportation facilities and services could evolve over the next two decades that would achieve a more balanced transportation network in some areas.

Plan2040 integrates land use and transportation policies that support development patterns that target future development, redevelopment and revitalization to town centers, critical economic areas, and transit-oriented development centers; increase pedestrian and bicycle opportunities; and provide alternatives where redevelopment and multimodal solutions could improve safety and mobility and reduce auto-dependency. These policies are key for the County's sustainability and its ability to better manage growth, improve the efficiency of travel, and contain infrastructure costs.

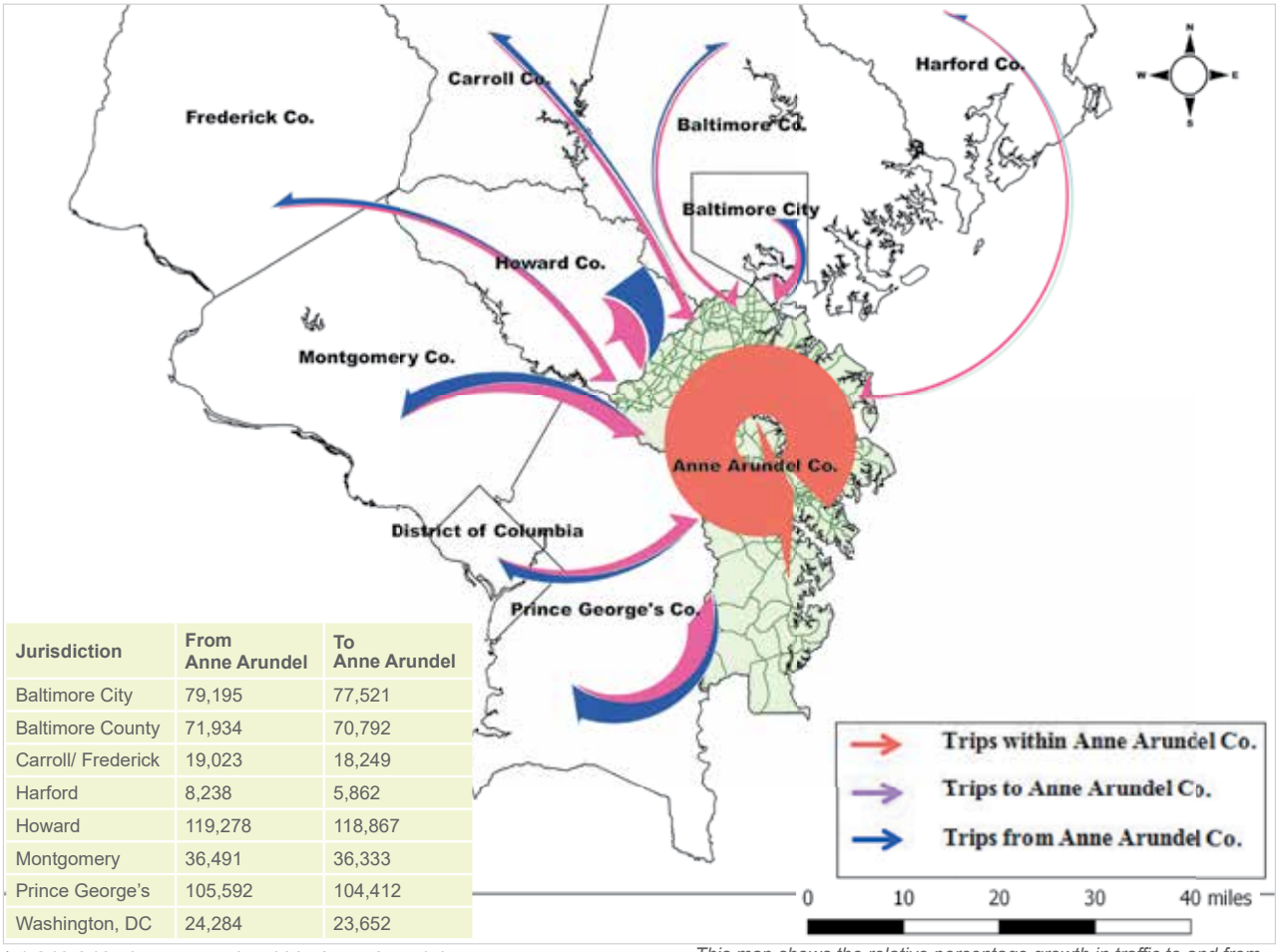
Move Anne Arundel!

Move Anne Arundel! is used to guide the County's future transportation policies, strategies and investments with the intention of enhancing mobility and accessibility within local and State fiscal constraints and serves as the basis for the transportation element of Plan2040. More detailed information regarding Move Anne Arundel! can be accessed on the OOT website.

Five major transportation planning studies were prepared for the County and incorporated into Move Anne Arundel! These include the 2012 Corridor Growth Management Plan, the 2016 Major Intersections and Important Facilities Study, the Pedestrian and Bicycle Master Plan (2003 and 2013), the 2018 Central Maryland Transit Development Plan and the Complete Streets Policy Guidance. A description of these plans and studies is provided in the Regulatory Planning Framework section of Volume II.

Looking ahead, strong population and employment growth are forecasted to continue over the next 20 years; however, the County's current development holding capacity has narrowed. Revitalization and redevelopment in mature areas will become the primary focus for residential and economic growth in the future. Evolving technologies, an aging population, and the transportation preferences of younger

Travel Patterns



Jurisdiction	From Anne Arundel	To Anne Arundel
Baltimore City	79,195	77,521
Baltimore County	71,934	70,792
Carroll/ Frederick	19,023	18,249
Harford	8,238	5,862
Howard	119,278	118,867
Montgomery	36,491	36,333
Prince George's	105,592	104,412
Washington, DC	24,284	23,652

* 1,248,346 trips are made within Anne Arundel County each day.

Average Daily Trips to and from Anne Arundel County using all modes of transportation

This map shows the relative percentage growth in traffic to and from Anne Arundel County between 2020 and 2040.

Source: Move Anne Arundel!

generations will also change the County's mobility landscape.

Based on current projections, there will be an increase of more than 86,950 daily trips taken within, to and from Anne Arundel County by 2040. A total of 554,600 daily trips projected for 2040 is 15% higher than a similar study five years ago. More than 80% of all daily trips in Anne Arundel County are made by personal automobile; when considering commuting trips only, more than 90% of all trips are taken alone.

As the number of trips increases, commuting patterns are changing as well. While travel to and from Baltimore City and County once was dominant, travel to Howard, Montgomery, Prince George's counties and the District of Columbia has overtaken trips to and from the north. At a regional level, congestion will significantly worsen on MD 3 through Crofton and Bowie, on US 50 between I-97 and I-495, and on the MARC Train stations at Odenton and BWI. This gradual shift in commuting patterns also is producing a rapidly increasing number of trips to and from Howard County which has implications for east-west travel in the mid-County along MD 100, MD 175, and MD 32.

When looking at trips of all kinds - not only commuting trips, but travel to the grocery store, doctor's office, and other day-to-day activities,

nearly 75% trips are made within the County and most are less than 5 miles in length. This is significant because as trips on the primary State roadways become longer and less reliable, drivers will seek alternative routes using local roads not designed to handle significantly increased volume. Trips within community cores will become more difficult and less safe. Unless a range of transportation solutions is advanced, mobility challenges will continue to mount, resulting in more cumbersome travel within the County and longer and less reliable commutes within the Baltimore and Washington, DC region.

The adoption of Move Anne Arundel! set the framework to advance the vision and goals reflective of the identified priority investments listed below that address the varying mobility needs of Anne Arundel County:

1. Making Communities More Walkable
2. Building a Low-Stress Bicycle Network
3. Upgrading County Corridors and Strengthening Community Cores
4. Improving Regional Corridors to Make Commutes More Reliable
5. Advancing a New Model of Transit Services

Table 24 shows a summary of recommended investment priorities from Move Anne Arundel! Not every project identified and detailed in Move Anne Arundel! will be built in the next twenty years, but resources must be prioritized with the aim of doing so.

Policies and strategies that address and improve the County's transportation systems are in Plan2040.

Table 24. Summary of Recommendations from Move Anne Arundel!

Priority Investment	Recommended Investment Priorities
Make Communities More Walkable	• 17 Elementary Schools are recommended for the Safe Routes to School program including new sidewalk connections, highly visible signage, education and enforcement activities. • New public facilities such as schools, libraries, community centers, recreation centers, etc. should be cited and oriented to maximize pedestrian access. • Town Centers should be the focal point of investments to close gaps in the sidewalk network using the new Multimodal Improvement Fund.
Creating a Low Stress Bicycle Network	High priority investment: • WB&A Trail Bridge Crossing over the Patuxent River » South Shore Trail from Odenton to Annapolis • Shared-use path connection from Odenton to the Baltimore City line. • Shared-use paths or separated bikeways on peninsular routes, such as the Annapolis Neck and Mayo Peninsula. • Broadneck Peninsula Trail from the B&A Trail to Sandy Point. Extend existing shared use paths, including the Marley Neck Boulevard, East West Boulevard, MD 175 sidepaths, and the Odenton Trails.
	Other recommendations: • Make on-street "last mile" connections from trails to nearby community activity centers • Work with MDOT SHA to identify the disconnected segments of on-street bicycle facilities and prioritize filling out the network by extending lanes to logical termini.

A New Model For Transit Service	• Significantly expand commuter bus service with routes from northern and central Anne Arundel County to suburbs along Capital Beltway (College Park, Silver Spring, Bethesda, etc.) • Restructure most locally-operated routes to be "Deviated Fixed Routes" or "Zone Routes" and add the following services: • Riviera Beach – Pasadena – UM Baltimore Washington Medical Center • North Glen Burnie Loop – Cromwell Light RailLink Station • Cromwell Shopping Center – Veterans Highway – Old Mill Road - UM Baltimore Washington Medical Center • Work with MDOT MAA to explore and expand, if appropriate, the role of the BWI Shuttle to be a higher-frequency "last mile" transit service to within the BWI Business District. This could be a more cost-effective solution to last mile needs than can be provided by MDOT MTA. • Construct the Annapolis/Parole Transit Center and identify other opportunities for improved customer connections: Glen Burnie/Pasadena near Marley Station Mall, at Fort Meade, in Maryland City/Laurel, and Crofton/Waugh Chapel/Bowie.

Upgrading County Corridors and Community Cores	North County Priority Investments: • MD 2 from Brooklyn Park to Glen Burnie to address traffic and pedestrian safety. • MD 177 between MD 10 and Edwin Raynor Boulevard to address traffic congestion, improve bicycle and pedestrian facilities, and upgrade the streetscape in commercial areas. • Solley Road between MD 173 and MD 177 to address traffic congestion and accommodate planned community and economic growth. • Linthicum and Ferndale Community Connectors. (Andover Rd, B&A Blvd, Camp Meade and Belle Grove Road)
	Central & West County Priority Investments: • Roadway/transit improvements at Odenton Town Center to support new development and manage congestion. • MD 170 from Aviation Boulevard to MD 175 to address growing traffic congestion. • MD 713 between MD 175 and Arundel Mills Blvd. to address increasing traffic congestion and traffic safety issues and provide additional bicycle facilities. • Improving Waugh Chapel area roads to create a street grid network. Improve access management and make safety upgrades along Benfield Boulevard.
	Broadneck and Annapolis Area: • Access to Annapolis, Parole and Annapolis Neck (MD 2/MD 450/MD 665/ Forest Drive) to address congestion and improve traffic and pedestrian safety. • College Parkway between MD 2 and US 50 to address traffic congestion and incorporate the Broadneck Peninsula Trail extension. • MD 2 through Severna Park to Arnold to reduce congestion hotspots
	South County: • Coordinate land use and transportation strategies with Calvert and Prince George's Counties to achieve a safe and consistent transportation network without bottlenecks. • Implement minor safety and operational improvements to allow for left-turns, especially along MD 214 and MD 424. • Slow traffic through the more populated areas. • Building the sidewalk and bicycle network where it makes the most sense for very localized trips.

Improving Regional Corridors to Make Commutes More Reliable	MD 3	• Convert to a limited access freeway in three phases: MD 32 to Waugh Chapel Road (2.4 miles), Waugh Chapel Road to MD 450 (3.7 miles), and MD 450 to US 50 (2.8 miles). • New commuter bus service should be provided from the Waugh Chapel area to Washington, DC and to its suburbs at New Carrollton Metro Station, College Park, and Silver Spring and more park and-ride lots must be developed along MD 3 to support this service.
	MD 32	• Prioritize eastbound improvements between MD 295 and MD 198 and westbound improvements between MD 170 and Fort Meade. • Add commuter bus service from south County and Parole to Fort Meade • Establish a transit center on Fort Meade near NSA to allow for open-door local and commuter bus service on base.
	MD 100	• Prioritize the section of MD 100 between I-95 and MD 170 to provide safer and smoother merging and weaving areas as vehicles enter and depart the highway; MD 295 and MD 100 is a major bottleneck that must be addressed.
	MD 295	• Prioritize the section between MD 175 and I-195 to get ahead of future problems and address the interchange of MD 295 and MD 100 • Pinpoint operation improvements along MD 295 to limit environmental impacts using strategies such as ramp metering, longer exit lanes, hardening of shoulders for peak hour use
	MD 50	• Extend HOV lanes from the Prince George's County line to I-97. • Add commuter bus service from the park and ride lots in Annapolis and Severna Park to College Park, Silver Spring, and Bethesda.
	MD 97	• Implement TSMO strategies, including ramp metering and the hardening of shoulders for peak hour use between MD 174 and MD 32. • Improve safety and traffic flow at junction of I-97, MD 3, and MD 32 and the junction of I-97 and US 50, especially during the PM peak period.

Climate Resiliency

The impacts of climate change are becoming more and more apparent in Anne Arundel County as the County experiences more frequent flooding, coastal flooding exacerbated by sea level rise, increased heat waves, including more days above 90 degrees through the year; and increased extreme precipitation events are occurring.

These impacts have been documented in a number of studies. The draft update of the Maryland Greenhouse Gas Reduction Act Plan produced by the Maryland Commission on Climate Change provides a concise summary of studies of impacts and future climate projections.

> "In the Northeastern U.S., the rate of sea level rise already observed is greater than the global average, having increased about one foot since 1990 (average is 8 inches), likely due to both increased Greenland ice loss as well as changes in regional currents and land subsidence. Maryland has experienced an increase in annual average temperature of 1.5°F since the beginning of the 20th century, and a winter warming trend reflected in the average of less than one day per year of nights below 0°F since the mid 1990's, as compared to an average of two nights per year between 1950 and 1994. Annual precipitation, though more variable, increased by approximately 0.39 inches per decade in the Northeast during this same time, with Maryland's annual mean precipitation having been above average for the past two decades. The climate in this region is generally expected to continue trending warmer and wetter over the next century, accompanied by an increase in extreme heat waves and precipitation events."

Anne Arundel County has addressed climate change in three previous initiatives. The Sea Level Rise Strategic Plan (2011) is discussed in the next section. Also addressing climate change are the Energy Efficiency and Conservation Plans (2009 and 2013) and the Climate Resilience Action Strategy (2019 - ongoing).

In 2013, Arundel Community Development Services prepared the Implementation Plan for Achieving Energy Efficiency and Conservation. The plan served as an update to the 2009 Strategic Plan for Energy Efficiency and Conservation. The Implementation Plan provides a framework and specific recommended actions to reduce electricity consumption by 15 percent in five years. It includes recommendations to improve energy efficiency within County operations and to support development of renewable energy sources.

In 2019, the County began a partnership with the University of Maryland Center for Global Sustainability and other counties on the Chesapeake Bay to explore innovative solutions and financing options to support climate resilience. A working group representing eight County departments and the County Executive Office has convened to work with the University of Maryland to draft a Climate Resilience Action Strategy. The strategy is scheduled to be completed by the end of 2020.

The recommendations of the 2011 Sea Level Rise Plan, the 2013 Energy Efficiency and Conservation Plan, and the preliminary draft recommendations of the Climate Resilience Action Strategy are incorporated in the Plan2040 goals, policies, and implementation strategies.

Coastal Flooding

Anne Arundel County is prone to four types of flooding: nontidal flooding from rivers and streams (riverine); tidal flooding from storm surges and tides; coastal flooding caused by intense winds and heavy rains from tropical storms, hurricanes and steady on-shore winds and elevated tide levels; and nuisance flooding (also known as sunny day flooding), caused by sea level rise, land subsidence and loss of natural and coastal barriers.

Sea Level Rise

Anne Arundel County is almost completely surrounded by tidal and non-tidal waterways and has over 533 miles of shoreline. Historical records suggest the possibility of sea level rise occurring along Maryland's coastal areas. It is recognized that strategic planning for potential sea level rise will be an ongoing and transitioning process as more research, analysis and guidance becomes available from State and Federal agencies and the scientific and academic communities.

In 2011, Anne Arundel County produced a Sea Level Rise Strategic Plan. The plan included an assessment of the County's vulnerability to sea level rise under multiple scenarios and a set of recommended actions to manage risks. The assessment found that over 2,000 acres of land representing approximately $2.9 billion in assessed value are at risk from inundation with 2 feet of sea level rise (see figure below). If sea level rise increases by 5 feet, approximately 6,900 acres of land with an assessed value of $4.1 billion will be at risk of inundation. Nearly all of the land at risk to inundation is located within the designated Chesapeake Bay Critical Areas. Over 80% of the land at risk to inundation is in the Resource Conservation Area (RCA) overlay in the 2 feet of sea level rise scenario. Nearly 70% of the land at risk is in the RCA in the 5 feet of sea level rise scenario. The areas at risk are almost entirely within the 100-year floodplain designated by the Federal Emergency Management Agency. The areas that appear to be most at risk to sea level rise impacts are the Deale Peninsula, the Mayo Peninsula, the Lake Shore Peninsula, and Annapolis Neck. Nearly all of the marinas in the County are likely to be impacted under both the 2 feet and 5 feet of sea level rise scenarios. Figure 27 illustrates the 100 and 500 year flood areas as mapped by the Federal Emergency Management Agency indicates areas of the County most at risk of flooding.

In 2018, the Maryland Commission on Climate Change updated sea-level projections for the State. The 2018 study analyzed multiple greenhouse gas emissions and prepared estimates of sea level rise with probabilities to indicate likelihood of occurrence.

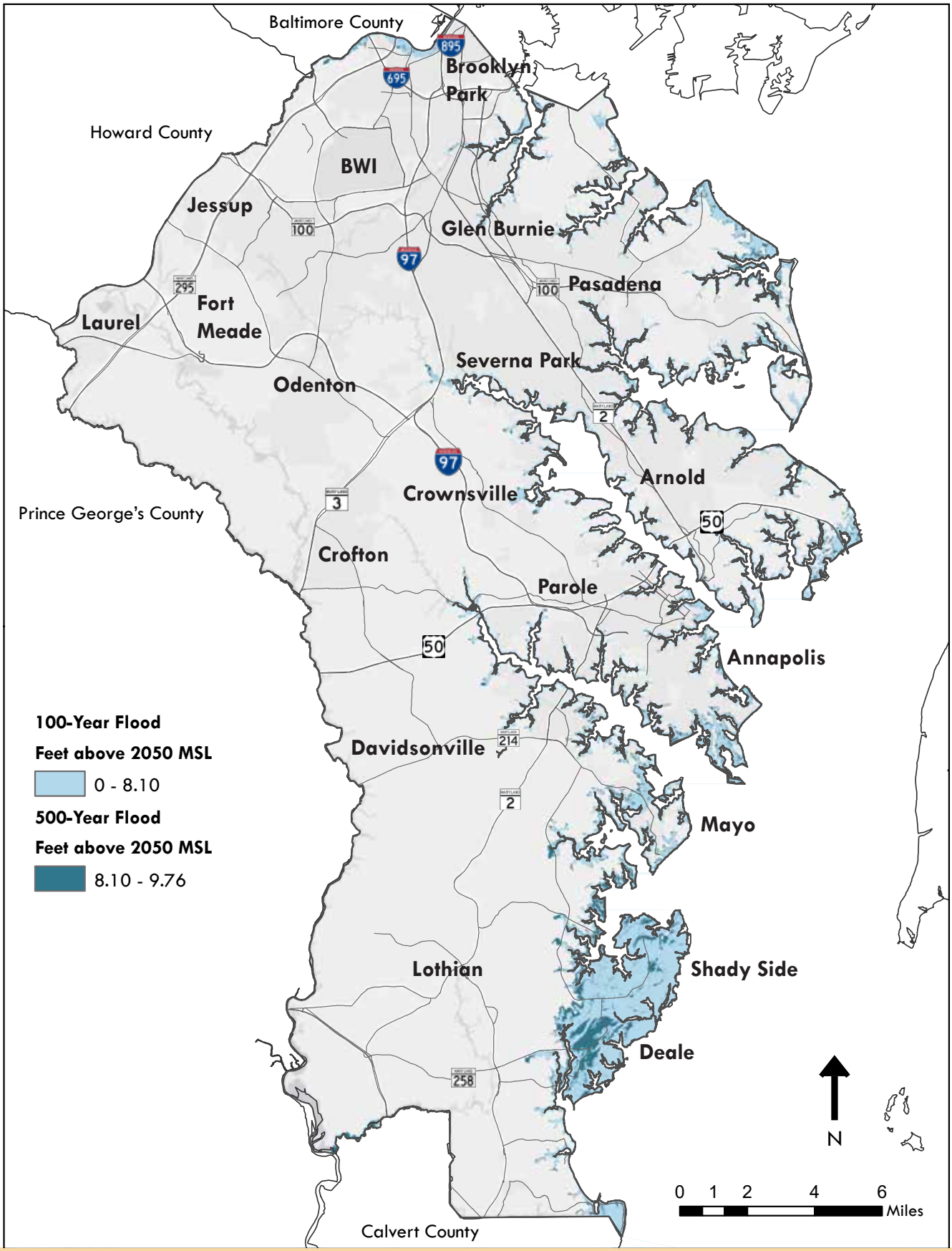
Sea level rise is likely to have impacts on public infrastructure, cultural resources and natural resources.

- Transportation: Major transportation infrastructure in the County such as freeways and arterial highways does not appear to be significantly vulnerable to sea level rise impacts, and even local and collector roads were found to be minimally impacted (in terms of total road miles) under a sea level rise of 2 feet. Approximately 35 miles of local and collector roads are potentially at risk with 5 feet of sea level rise.
- Public Water and Sewer Systems: No public water or sewer treatment facilities are located in areas at risk to inundation up to 5 feet of sea level rise. Water and sewer lines in low lying coastal areas could have reduced capacity from saturation.

Table 25. Projected Sea Level Rise Estimates Above 2000 levels for Maryland

Year	Emissions Scenario	Likely Range (67% probability)	Central Estimate (50% probability)	1 in 20 chance (5% probability)
2050		0.8 - 1.6 ft.	1.2 ft.	2 ft.
2100	Growing	2.0 - 4.2 ft.	3.0 ft.	5.2 ft.
	Stabilized	1.6 - 3.4 ft.	2.4 ft.	4.2 ft.
	Paris Agreement	1.2 - 3.0 ft.	2.0 ft.	3.7 ft.

Source: Sea level rise projections for Maryland 2018. University of Maryland Center for Environmental Science.


Baltimore County
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Crofton
Parole
Annapolis
Davidsonville
Mayo
Lothian
Shady Side
Deale
100-Year Flood
Feet above 2050 MSL
0 - 8.10
500-Year Flood
Feet above 2050 MSL
8.10 - 9.76
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0 1 2 4 6
Miles

- Private Water and Septic Systems: Approximately 12 percent of individual septic systems and 10 percent of private wells could be impacted by inundation or high water tables under the 2 feet of sea level rise scenario. The risk increases to approximately 18 percent of individual septic systems and 17 percent of private wells under 5 feet of sea level rise.
- Archaeological and Historic Resources: A total of 371 archaeological sites and 47 historic structures are vulnerable under the 2 feet sea level rise scenario. The number rises to 422 archeological sites and 74 historic structures assuming 5 feet of sea level rise. The 422 threatened sites account for nearly 30 percent of the total sites recorded in the County.
- Natural Resources: Sea level rise has converted marshes to mud flats and open water and resulted in loss of shoreline beaches.

Policies and strategies that address climate change are in Plan2040.

Green Building

Green building, also known as sustainable building, is the practice of creating and using healthier and more resource-efficient models of construction, renovation, operation, maintenance and demolition (US EPA, 2018). There are a variety of organizations that certify the sustainability of construction, but most review projects based on the following subject areas:

- Sustainable sites
- Energy efficiency
- Water efficiency
- Materials and resource use
- Indoor environmental quality
- Emissions
- Operations and maintenance
- Construction and operations plans
- Building owner education

The United States Green Building Council's Leadership in Energy and Environmental Design (LEED) may be the most well-known green building rating system. Projects pursue credits that earn points. The project is then awarded a certification level, ranging from certified to platinum, based on the number of points earned. There are over 150 projects in Anne Arundel County that have earned certification from LEED. The Philip Merrill Environmental Center, located on the Annapolis Neck and home to the Chesapeake Bay Foundation, is the world's first LEED platinum building.

Anne Arundel County does not have any green building requirements, however, the County offers a tax credit (Article 4, Title 2, Subtitle 310) from County real property taxes on high performance dwellings as authorized by § 9-242 of the Tax-Property Article of the State Code for "high performance dwellings." A high performance dwelling means a principal residential structure that meets or exceeds a Silver rating in the current version of the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED) Green Building Rating System for homes or a Silver rating of the International Code Council's 700 National Green Building Standard. Since 2015, there have been 25 successful applicants.

According to the Anne Arundel County Code, a qualified property is eligible for the credit for each year for a period of five taxable years beginning in the year in which the application is approved, provided the credit is not combined with other optional property tax credits as permitted under Title 9 of the Tax-Property Article of the State Code or this title.

The total tax credit allowed is a percentage of the total County property tax assessed based on the LEED rating of the high performance dwelling as follows:

- for dwellings rated LEED Silver or NGBS Silver - 40%, not to exceed $1,000;
- for dwellings rated LEED Gold or NGBS Gold - 60%, not to exceed $2,000; and
- for dwellings rated LEED Platinum or NGBS Emerald - 80%, not to exceed $3,000.

Air Quality

The majority of air pollution in the region comes from three types of sources: (1) mobile sources such as automobiles, trucks, trains, buses and construction equipment; (2) area sources such as drycleaners, automobile body shops, and consumer products such as paints and solvents; and (3) stationary sources such as power plants, manufacturing and chemical industries, and utilities. The Maryland Department of the Environment (MDE) estimates that up to 70 percent of Maryland's smog (ground-level ozone) air pollution originates outside of the State (Maryland Department of the Environment, 2018). It primarily comes from emissions from the numerous power plants in the Ohio River Valley coupled with existing meteorological conditions. Although Maryland air quality has shown a substantial improvement over the last two decades, air pollution continues to be a concern for public health and the environment. Therefore, it is important to include air quality in the planning process to inform land use decisions.

The Clean Air Act and Air Pollutants

The United States Congress passed the Clean Air Act (CAA), as we know it, in 1970 and significant Clean Air Act Amendments in 1990. The Clean Air Act, as amended in 1990, addresses air quality standards, ground-level smog (ozone), motor vehicle emissions, interstate movement of air pollution (transport pollution), international air pollution, air emissions permits, enforcement and deadlines. The CAA established primary and secondary standards for air pollutants to protect public health and the environment. Primary standards set limits to protect public health, including the health of sensitive populations such as asthmatics, children, and the elderly. Secondary standards set limits to protect public welfare including reducing harmful effects to wildlife, soil, water, crops, livestock, vegetation, and buildings, and protection against decreased visibility. The CAA, as amended, also established responsibilities for developing air quality regulations (federal government) and enforcing those regulations (delegated to the states).

The Environmental Protection Agency (EPA) sets National Ambient Air Quality Standards (NAAQS) for six principal pollutants, which are called "criteria" pollutants (U. S. Environmental Protection Agency, NAAQS Tables). These pollutants are ground-level ozone (O3), sulfur dioxide (SO2), particulate matter (PM), lead (Pb), nitrogen dioxide (NO2), and carbon monoxide (CO). They are directly emitted by mobile sources, area sources, and stationary sources or formed as secondary products of the emissions of these sources.

Under the Clean Air Act, the EPA promulgates NAAQS for each of the six criteria pollutants, and within two years of promulgating a new or revised air quality standard, designates areas as "attainment" or "nonattainment," for the standard. An area that meets or exceeds the primary standard is called an "attainment area"; an area that does not meet the primary standard is called a "nonattainment area." For any nonattainment area, the State then has 1.5 – 3 years, depending on the criteria pollutant, to develop a state implementation plan (SIP) addressing how the nonattainment area will come into compliance with the air quality standard (The National Ambient Air Quality Standard, NAAQS Implementation Process). The SIP includes regulations, emissions inventories, documentation on how the State is reducing air pollution and achieving the air quality standard, and a public comment process.

The CAA also regulates what are called "hazardous air pollutants" (HAPs). HAPs are 187 chemicals that EPA considers especially dangerous to human health (U.S. Environmental Protection Agency, 2016). They vary from mercury, which is emitted when a power plant burns coal, to tetrachloroethylene (also known as perchloroethylene, or "perc") used by many dry cleaners, and from roofing and floor tiles containing asbestos, to benzene in gasoline at the pump. Larger sources of HAPs include power plants, cement plants, major airports, and large military bases. Smaller sources include auto

body shops, dry cleaners, gasoline stations, and hospitals. EPA strongly regulates sources of HAPs through the National Emission Standards for Hazardous Air Pollutants (NESHAP)/ Maximum Achievable Control Technology (MACT) program (U.S. Environmental Protection Agency, NESHAP Table). Most HAPs are regulated first with technology-based emission standards, and then sometimes supplemented with health-based standards. EPA has delegated to MDE the enforcement of these standards.

Maryland facilities that are required to obtain an operating permit, due to the magnitude and/or types of air pollutants that they emit, are required to annually submit to Maryland Department of the Environment (MDE) an emissions certification report including both their HAP and criteria pollutant emissions (Maryland Department of the Environment, Maryland's Air Quality Compliance Program).

Maryland Department of the Environment (MDE) has air monitoring sites (Maryland Department of the Environment, Ambient Air Monitoring Network Map) deployed across the state to measure ambient air concentrations of the criteria pollutants as well as HAPs (air toxics), meteorology, visibility, and other research-oriented measurements (Maryland Department of the Environment, Air Monitoring, Current Air Quality Conditions, and Ambient Air Monitoring Network). The monitoring data for the criteria pollutants are collected and analyzed to help determine the State's attainment of the NAAQS, for the purpose of the area designation process and for determining if a nonattainment area has attained the standard in the required time frame – by its attainment date (The Clean Air Act, 42 United States Code Sec. 7503).

Reducing Exposure to Radiation

The MDE Radiological Health Program is mandated, under the Annotated Code of Maryland, Environment Article, to control the uses of radiation and to protect public health and safety and the environment from inadvertent and unnecessary radiation exposure. A person cannot store or use a radiation (x-ray) machine or radioactive materials without first obtaining a registration, license, or certification from MDE, and MDE conducts inspections and enforcement actions, where required, to ensure regulatory compliance (Maryland Department of the Environment, Radiological Health Program). In the County and State, radiation machines and radioactive materials are used in medical, dental, and veterinary offices and hospitals as well as in industrial, educational, and academic settings.

MDE has an initiative to raise awareness of the dangers of exposure to radon gas and to reduce exposures. Radon is a naturally occurring radioactive gas that is colorless and odorless. It comes from the decay of trace radioactive materials in the earth and migrates through the soil around building structures through cracks and openings, accumulating primarily in lower levels of structures. Concentrations may be high in one house yet low within an adjacent house, and concentrations can vary over time. Some locations in Maryland, including in Anne Arundel County, have had elevated radon. It is a known carcinogen and the second leading cause of lung cancer after tobacco smoke. See Maryland Department of the Environment, Radiological Health; Maryland Department of Health, Environmental Health, Radon; and U. S. Environmental Protection Agency, Radon for information on testing and remediation for radon in homes, schools and businesses, and on making new homes radon resistant.

Air Quality Nonattainment Areas

The Baltimore region, which comprises Baltimore City and the surrounding counties of Anne Arundel, Baltimore, Carroll, Harford, and Howard, was designated a moderate nonattainment area for exceeding the 2008, 75 parts per billion (ppb), air quality standards for 8-hour ozone, and in the spring of 2018, designated a marginal nonattainment area for the 2015, 70 ppb, air quality standards for ozone.

Emissions from nitrogen oxides (NOx) and volatile organic compounds (VOC) are what contribute to Maryland's ground-level ozone problem, and reduction of these emissions is key

to improving air quality. Studies and modeling data show that weather patterns often transport the pollutants well beyond the locality that produced the emissions. Up to 70% of Maryland's ozone air pollution comes from other states on Maryland's worst ozone pollution days. Emissions from motor vehicles in the Baltimore/ Washington area are a significant cause of ground-level ozone pollution of the short-range transport type. Nitrogen oxides are also a significant pollutant to the Chesapeake Bay. Over 25% of the nitrogen pollution entering the Chesapeake Bay is from atmospheric deposition.

An area within a 17-mile radius of a coal-burning power plant in Pasadena has an EPA designation of "nonattainment" for the 1-hour SO2 standard. To fulfill the Clean Air Act requirements for nonattainment areas, the State has been developing a state implementation plan (SIP) to show how the area will come into attainment with the SO2 standard by September 2021, the date required by law. Since the area was designated "nonattainment" based on data generated by a computerized air quality model, air quality modeling data will also be used to determine if the nonattainment area has attained the standard by the 2021 attainment date. Relevant air monitoring data may also be taken into consideration.

Regulations and Programs

To help the State reduce air pollution and bring its nonattainment areas into compliance with the NAAQS, Maryland has implemented programs such as the Maryland Healthy Air Act (HAA), which went into effect on July 16, 2007, and significantly reduces air pollution emissions from large coal-fired power plants in Maryland. MDE implemented the HAA through regulations that significantly reduced nitrogen oxides (NOx) and sulfur oxides (SOx) emissions (Code of Maryland Regulations , Chapter 26.11.27). Average annual SOx emissions in 2010-2017 dropped 91% from average annual SOx emissions in 2003-2009, prior to the HAA implementation phase for SOx. Average annual NOx emissions in 2009-2017 dropped 76% from average annual NOx emissions in 2003-2008, prior to the HAA implementation for NOx and prior to the first phase of MDE's 2015 NOx regulations for coal-fired electric generating units (Code of Maryland Regulations, 26.11.38). In addition, directly emitted particulate matter emissions were reduced 60%. As far as hazardous air pollutants, mercury emissions reductions exceeded the 90% reduction requirement for 2012 in 2010, and hydrogen chloride (HCl) emissions were reduced 83%. The Healthy Air Act and the subsequent NOx regulations have also significantly reduced atmospheric deposition of nitrogen to the Chesapeake Bay and other waters of the State.

Due in large part to the HAA, Maryland has also been in attainment with the NAAQS for fine particulate matter (PM2.5) across the state since 2010. The HAA has brought Maryland much closer to attainment of the ozone NAAQS, including EPA issuing a clean air quality data determination for the Baltimore area for the 2008 ozone standard. The Baltimore area is now a nonattainment area for the 2015 ozone standard, but the area's classification is "marginal" nonattainment, meaning that the ozone concentrations are just slightly above the standard compared with the area's past classification as a "moderate" or "serious" nonattainment area.

Maryland has an open burning ban that is in effect in Anne Arundel County annually between June 1 and September 1. The ban includes open burning that is primarily used as a form of disposal of certain waste materials by individuals, farmers, and developers. The ban does not affect backyard barbecue grilling or open fires for recreational purposes, such as campfires (Code of Maryland Regulations, 26.11.07). The Anne Arundel County Department of Health issues licenses for open burning at times of the year when the ban is not in effect (Anne Arundel County Department of Health, Requirements for Open Fires, Fire Pits, Bonfires, and Open Burning).

Collaborations for Air Quality and Climate Change

The Baltimore Regional Transportation Board (BRTB), including representatives from Annapolis and Arundel County, develops transportation plans and conducts analyses to ensure that transportation plans and projects are consistent with State Implementation Plans for air quality protection. The State of Maryland is a member of the Ozone Transport Commission (OTC), a multi-state organization created under the Clean Air Act responsible for advising EPA on transport pollution issues and charged with developing and implementing regional solutions to the ground-level ozone problem in the Northeast and Mid-Atlantic regions. The OTC has been working since 1991 to coordinate reductions in air pollution that benefit the region. Both the BRTB and OTC include public and stakeholder processes in which local residents can participate.

The Healthy Air Act also required that Maryland participate in the Regional Greenhouse Gas Initiative (RGGI) which is aimed at reducing greenhouse gas emissions. It is a cooperative effort by Maryland and eight other northeastern and mid-Atlantic states to reduce carbon dioxide emissions from electricity generating plants (see the RGGI website for more information). RGGI has been successful in developing the first cap and trade program that is designed to reduce carbon dioxide, a greenhouse gas, while maintaining energy affordability and reliability. Also, RGGI invests its revenues into energy and environmental programs such as for renewable energy and energy efficiency. In 2017, Maryland and the other RGGI participating states announced a consensus agreement on a regional emissions cap trajectory that will provide an additional 30% cap reduction by the year 2030.

The Maryland Commission on Climate Change (MCCC) is chaired by MDE's Secretary and consists of 26 members representing a wide variety of interests. In 2016, based on the recommendation of the MCCC, an enhanced Greenhouse Gas Reduction Act was signed into law in Maryland. It includes a requirement for Maryland to reduce greenhouse gases 40 percent from 2006 levels by 2030 (referred to as "40 by 30").

Anne Arundel County supports the Federal, State and regional regulations and programs by adopting a land use pattern that has a positive influence on air quality. The following are types of development that are encouraged within the County through the General Development Plan and implemented through the County's Zoning Ordinance, Subdivision Ordinance and the town center master plans to help curb adverse pollution effects:

1. Mixed-use development: locates complementary land uses such as residential, commercial and employment within walking distance of each other,
2. Transit-oriented development: encourages transit use by developing moderate to high-density residential uses, shopping, and employment centers along the MARC system,
3. Infill development: encourages pedestrian and transit travel by locating new development in existing developed areas where activities are closer together, and
4. Town centers: encourages pedestrian and transit travel within these growth areas.

Other measures undertaken by the County to control air pollution are implementation of the County's Pedestrian and Bicycle Master Plan (2015) that promotes biking and walking; the County's Transit Development Plan (2010), which is a five-phase document identifying local bus transit needs and recommending services to meet those needs; and the Corridor Growth Management Plan (2012) which evaluates the feasibility of increasing use of alternative modes of travel. In addition, Anne Arundel County has two transportation management associations, The Annapolis Regional Transportation Management Association and The BWI Business Partnership. These organizations advocate and promote transportation demand management strategies to reduce traffic congestion and air

pollution, reduce commuting cost and provide a central information service for ridesharing and public transportation.

Noise Pollution

Noise at excessive levels affects quality of life and the environment. It impacts the lives of many County residents, particularly noise that is generated from transportation sources such as highway traffic, railroads and aircraft operations as well as construction and industrial activities.

Point source noise pollution (such as stationary construction equipment) and non-point sources (such as vehicular traffic) are transferred through vegetative and non-vegetative features to a receiver. The method of noise transmittal determines the noise impacts that could vary based on elements such as terrain, highway alignment, and intervening structures within the noise transmission path.

Noise impacts can be severe and have significant effects on humans, including hearing loss. Considerable research has been conducted to determine the effects of various sound pressure levels on human health. In addition to existing noise attenuation measures, appropriate land use planning policies can protect people by minimizing the noise impacts.

Regulations and Programs

Many regulations and programs adopted by the State and Anne Arundel County currently assist in minimizing noise impacts. Maryland's Environmental Noise Act of 1974 sets limitations on noise levels which will protect the general health, welfare and property of the State. It requires that the Maryland Department of the Environment (MDE) assumes responsibility over the level of noise and establishing regulations for the control of noise, including for ambient noise levels and enforcing the standards and regulations. Effective October 1, 2012, MDE is no longer responsible for noise enforcement. Maryland House Bill 190 transferred noise enforcement authority to local governments. MDE continues to be responsible for setting statewide standards and general exemptions.

Environmental Noise Standards

Table 26 shows the maximum sound levels that represent the State standards by general land use category. Noise is measured in decibels and quantified by statistical descriptors, Leq (constant average sound level over a period of time) and Ldn (day-night average sound level for a 24-hour day).

State noise regulations set maximum day and night sound level limits for receiving land uses. Table 27, below, shows the maximum allowable

Table 26. Environmental Noise Standards

Land Use Category	Level	Measure
Industrial	70 dBA	Leq (24)
Commercial	64 dBA	Ldn
Residential	55 dBA	Ldn

Table 27. Maximum Allowable Noise Level (dBA) for Receiving Land Use Categories

	Industrial	Commercial	Residential
Day	75	67	65
Night	75	62	55

noise levels for industrial, commercial, and residential land uses.

Highway Noise

The Maryland State Highway Administration (SHA) Noise Policy provides for the evaluation of sound barriers for communities that are adversely impacted by noise from new and existing State maintained highways. SHA also helps reduce noise levels though land use control and highway planning and design, as well as a Sound Barrier Policy with Type I and Type II Programs that meet federal regulations (MD SHA Sound Barrier Guidelines, 2018).

The Anne Arundel County Code (17-6-110) addresses highway noise by regulating the minimum distance a residential dwelling can be from the edge of the mainline pavement of certain roads in the County. Figure 28 shows the roads in the County that have this buffer. Required setbacks may be reduced if a site plan is designed to place outdoor activity areas in rear yards that are shielded from highway noise by proposed dwelling units that are clustered to minimize front yards or to contain parking areas; or the developer conducts a noise study using Federal Highway Administration prediction methods and the study reflects that the highway traffic sound level in outdoor activity areas is at or below 66dBA or that noise mitigation measures will bring the highway traffic sound level to a level at or below 66dBA in outdoor activity areas and 45dBA in indoor residentially occupied building spaces with highway traffic sound levels at the exterior building facades that exceed 66dBA.

Airport Noise

The Environmental Noise Act of 1974 also required the Maryland Department of Transportation Maryland Aviation Administration (MDOT MAA) to adopt an Airport Noise Zone (ANZ) and Noise Abatement Plan (NAP) at Baltimore-Washington International Thurgood Marshall Airport to minimize the impact of aircraft noise for those living near the airport and prevent incompatible land uses around the airport. See Figure 15 for the current (2014) BWI Marshall Airport Noise Zone contour. The NAP recommends measures to monitor and reduce or eliminate impacted areas. In developing the NAP, the MDOT MAA works with an advisory committee composed of neighborhood representatives, airport officials, and local, State and Federal officials. The MDOT MAA is required to update the ANZ and the NAP every five years to account for changes in flight paths, total annual aircraft operations, and aircraft types.

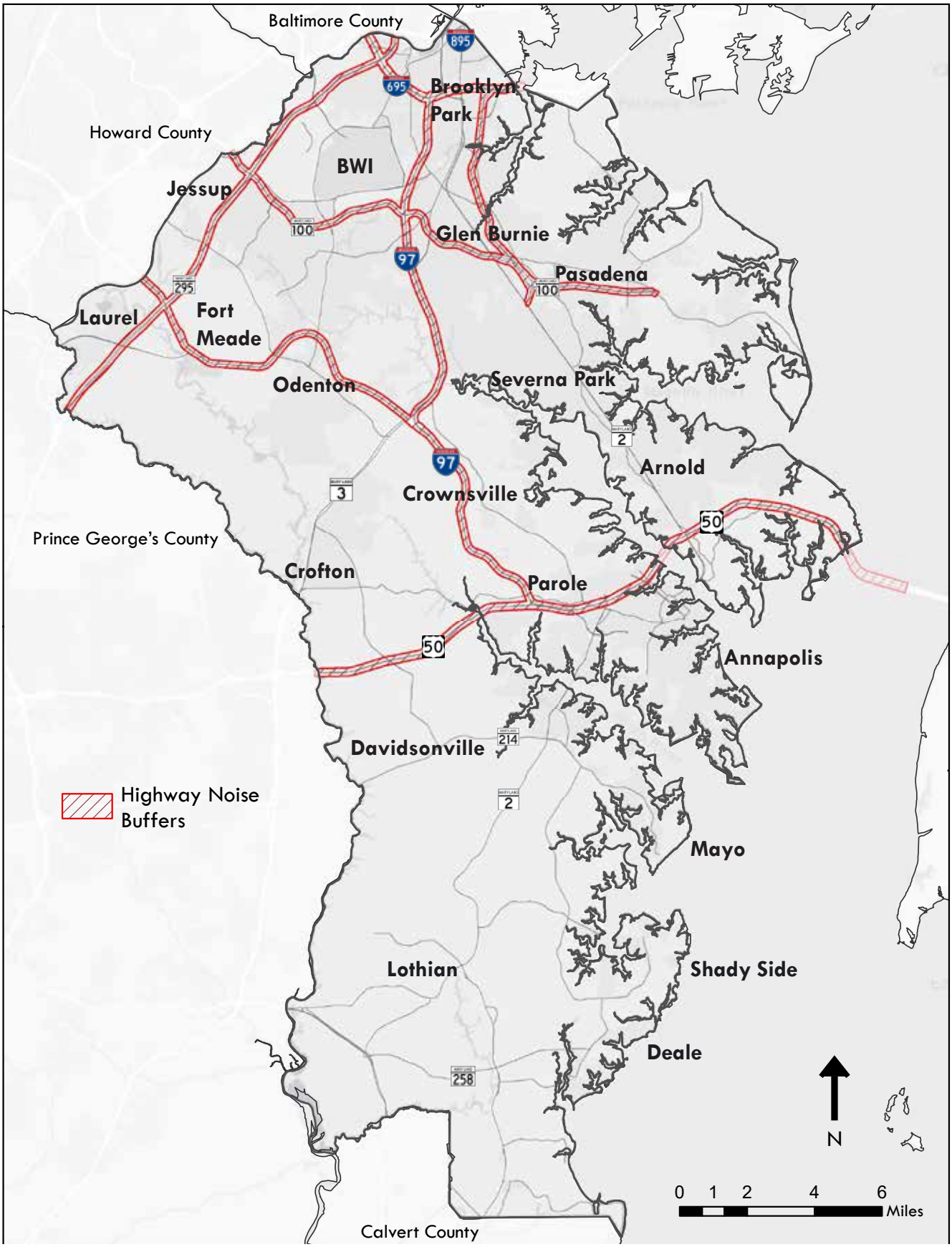
In general, residential land uses around the airport are considered incompatible in areas of 65 dBA or greater. There are some residences in these areas that existed prior to the airport, but for the most part, land outside of the airport is zoned for industrial uses. In addition, the MDOT MAA has an FAA-approved voluntary land acquisition program to acquire residential properties severely impacted by aircraft noise and a residential sound insulation program to provide sound insulation treatments to eligible homes to mitigate existing aircraft noise from BWI Marshall operations. The MAA is updating the ANZ and is expected to be complete in 2021.

Railroad Noise

The Federal Railroad Administration (FRA) relies upon the Federal Transit Administration noise and vibration impact assessment procedures for assessing improvements to conventional passenger rail lines and stationary rail facilities and horn noise assessment. Train noise can often be controlled through modifications to the trains or tracks or through construction of low noise barriers or berms. FRA's Office of Safety is responsible for enforcing the Railroad Noise Emissions Compliance Regulation that sets maximum sound levels from railroad equipment and for regulating locomotive horns.

Most Other Noise

Most other noise sources were previously addressed by MDE. Effective July 1, 2005, MDE's Noise Control Program was de-funded by action of the Maryland Legislature. MDE continues to


Baltimore County
Howard County
Prince George's County
Calvert County
Brooklyn Park
BWI
Jessup
Glen Burnie
Pasadena
Laurel
Fort Meade
Odenton
Severna Park
Arnold
Crownsville
Crofton
Parole
Annapolis
Davidsonville
Mayo
Lothian
Shady Side
Deale
Highway Noise Buffers
N
0 1 2 4 6
Miles

provide advice to the public concerning noise problems, but as directed by the legislative action, noise issues are now referred to local governments for action.

Dispersed Energy

Maryland's Renewable Energy Portfolio Standard Program has increased interest in solar efficiencies and government promotional incentives. The Program represents both a potential for great gain and a threat to the fabric of our communities. It has prompted solar energy companies to proactively explore opportunities to locate community solar energy generation facilities around the State. Due to interest from several solar energy companies in locating facilities in Anne Arundel County, the County determined a need to review and assess current regulatory requirements governing solar and other dispersed energy facilities and to determine whether revisions to the County Code were needed. Legislation was passed in 2018 (Bill 89-18) that amended Article 18 for solar energy generating facilities. Definitions and requirements were added in addition to allowing these types of facilities as various uses in certain residential, commercial, industrial, maritime, mixed use, and other zoning districts. Conditional use and special exception requirements were added for community type solar energy generating facilities and those used for resale under certain circumstances.

Anne Arundel County provides, operates and maintains a wide variety of community services and facilities to serve local needs. Providing a superior level of these services is important to the County and its residents as evidenced in the public outreach component of the Plan2040 process. Providing excellent public safety services and access to high quality public education, health services, recreation services and services for the aging and disabled has a direct impact on the health, safety and welfare of local residents as well as their quality of life.

Planning for community services is an important component of the comprehensive planning process, as land use, transportation and development decisions will have a direct impact on the demand and access for these services as well as the County's ability to provide them. Planning for Healthy Communities will focus on the following seven major community services and facilities provided by the County: Public Education, Library, Aging and Disabilities, Public Health, Recreation and Parks, Waste Management and Public Safety. For more detailed information on these services and facilities, see the individual department websites.

Public Education Facilities and Services

Anne Arundel County Public Schools

Anne Arundel County's public school system is the fourth largest in Maryland and is among the 50 largest school systems in the Country. With a current student population of over 85,000 students, Anne Arundel County Public Schools (AACPS) strives to provide a challenging and rewarding educational experience for every child. The public school system includes a staff of over 10,000 employees working in 124 public schools. The Board of Education received County Council approval in June 2019 for a $2.1 billion dollar six-year Capital Improvement Program and a $1.27 billion dollar operating budget for fiscal year 2020. Programs and policies of the public schools are established by an eight-member Board of Education that includes seven members who are elected and one high school senior who serves as the student representative. The AACPS system includes 21 Maryland Blue Ribbon Schools of Excellence, of which 18 are also National Blue Ribbon Schools.

Facilities and Services

The AACPS system is organized in 13 feeder districts, with each district served by a single high school. Within this array of high school feeder districts are 19 middle schools and 78 elementary schools (See Figures 29, 30, and 31). The feeder system is a commonly used model for structuring the public education system and tends to be preferred because it builds upon a consistent stream of pupil enrollment from elementary school through middle school and eventually into the corresponding high school. This system helps ensure that the same social networks continually support pupils and enhances community building. AACPS also operates several special schools and centers, including two alternate education centers, three special education centers, two contract and two charter schools.

AACPS also oversees a career and technology education program through its Centers of Applied Technology (CAT). The CAT programs include shared coursework in automotive technology, construction, computer technology, health occupations, and various trade services. Courses can be taken at each of the two CAT facilities, located in Severn and Edgewater, with additional coursework offered at select middle schools and at each of the high schools in the County.

Since the adoption of the 2009 GDP, there have been many capital improvements to the public school system including a renovation of and an addition to Annapolis, Benfield, Belle Grove, Crofton, Edgewater, Folger McKinsey, High Point, Manor View, Mills-Parole, Overlook, Point Pleasant, Southgate, and West Annapolis elementary schools, West Meade and Carrie Weedon Early Education Centers and Northeast High School. Also, Arnold, Germantown,

Jessup, Lothian, Pershing Hill and Rolling Knolls elementary schools and Severna Park High School have been replaced with new buildings. A new Crofton high school is under construction and will open in 2020.

Facilities Planning

Student enrollment projections are updated annually for a ten-year planning period. This assists AACPS in developing long-range plans for needed land acquisitions, expansions, renovations, and new or replacement schools. It is important to note that the student enrollment forecasts assume that there will not be significant variation between the current demographic trends and future trends. Over time, there can be changes in enrollment trends created by externalities such as increased demand for housing, natural increases in household size, or changes in land use or development plans. In such instances, professional staff judgments are incorporated into the enrollment forecasts. School enrollment projections combined with professional staff judgment provide facilities planners with a way to look into the future and prepare for needed capacity relief in a targeted manner.

AACPS undertook a comprehensive strategic facilities assessment in 2015 that evaluated current schools as well as new facilities for the ten-year planning horizon. In addition, the 2015 Strategic Facilities Utilization Master Plan examined best practices regarding school size. The recommendations became the basis for the current Capital Budget and Program.

The Board of Education (BOE) includes an analysis of facilities utilization in the Educational Facilities Master Plan (EFMP). School facilities utilization is based upon a comparison between the Full-Time Equivalent (FTE) enrollment and the State-Rated Capacity (SRC) for each school. SRC is defined as the maximum number of students that can be accommodated in a facility without significantly hampering delivery of the educational program. The Planning and Zoning Officer is required to prepare a school utilization chart for approval by the County Council in determining adequate school facilities.

A Student Yield Study was completed for AACPS that will modify new student yield factors and recommendations for future school sites and public services.

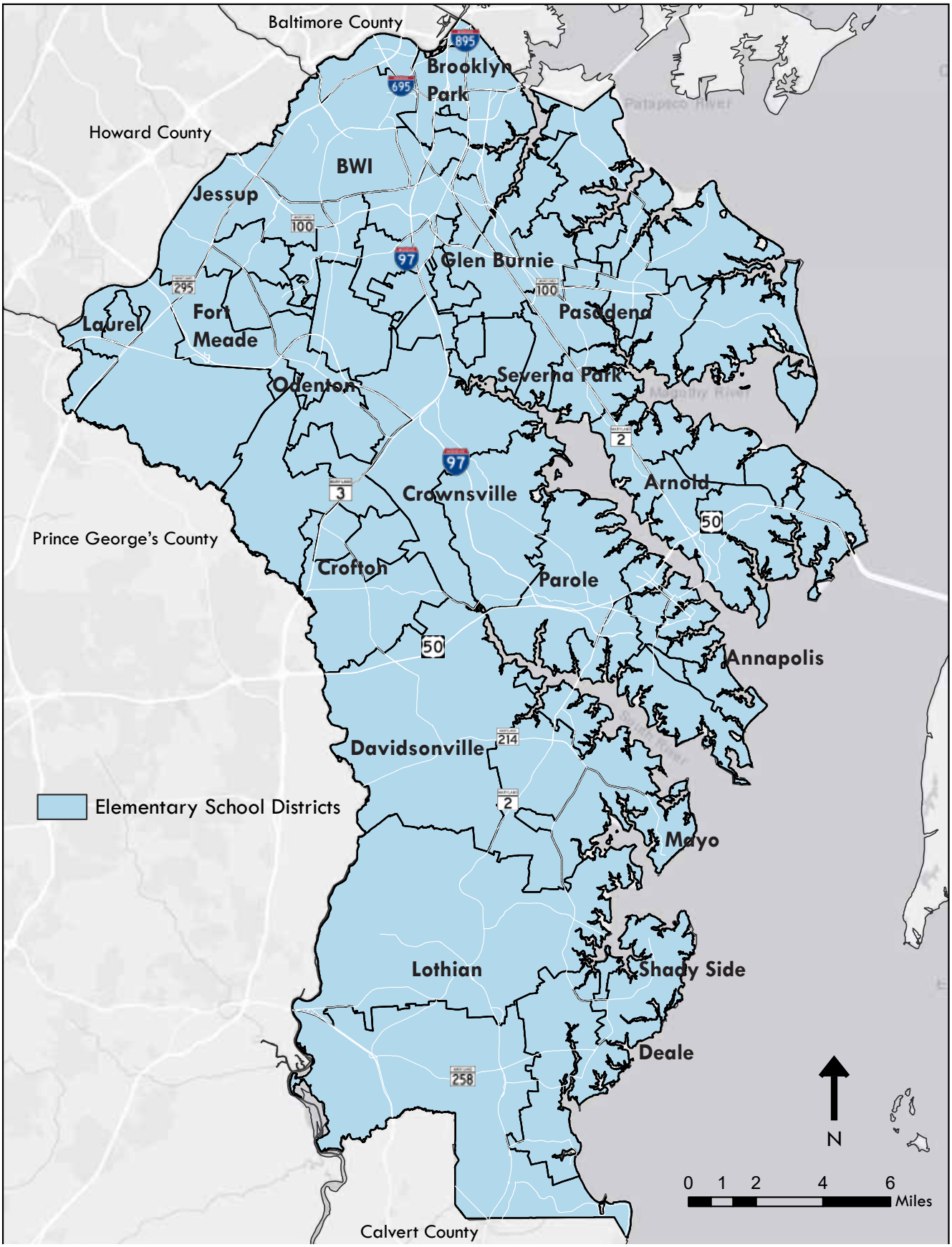
AACPS will continue to address existing building deficiencies and meet the challenges of an ever-changing educational curriculum. Utilization rates at each of the schools will continue to be addressed through a combination of methods including comprehensive redistricting; additions and renovations to existing schools; replacement of existing schools; and construction of new schools. Enrollment forecasts will need to be monitored for changes in demographic and development trends, especially household size. In addition, the need for land to accommodate new schools will continue to be a challenge and must be addressed aggressively and through comprehensive planning. Based on average student yield rates, every 3,500 homes will generate the need for one elementary school site.

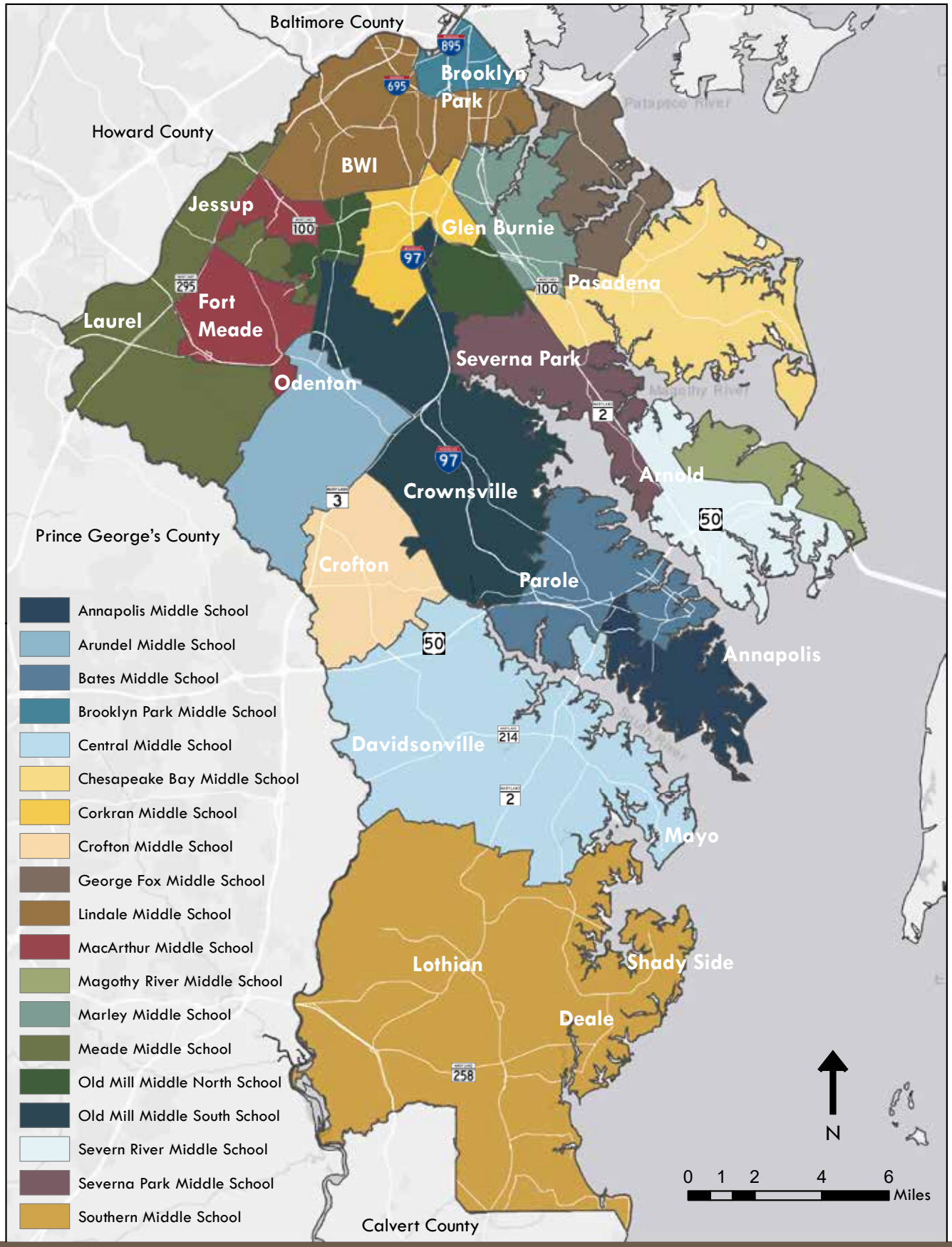
Anne Arundel Community College

Established in 1961, Anne Arundel Community College (AACC) is a fully accredited, nationally recognized, public, two-year institution and the largest single-campus community college in Maryland, serving approximately 50,000 students annually in credit and non-credit courses. AACC offers credit programs leading to an associate degree, certificate or a letter of recognition. Students may prepare for transfer to a four-year institution or move into an immediate career. Students of all ages continually redefine themselves through 225 programs of study and more than 3,500 courses.

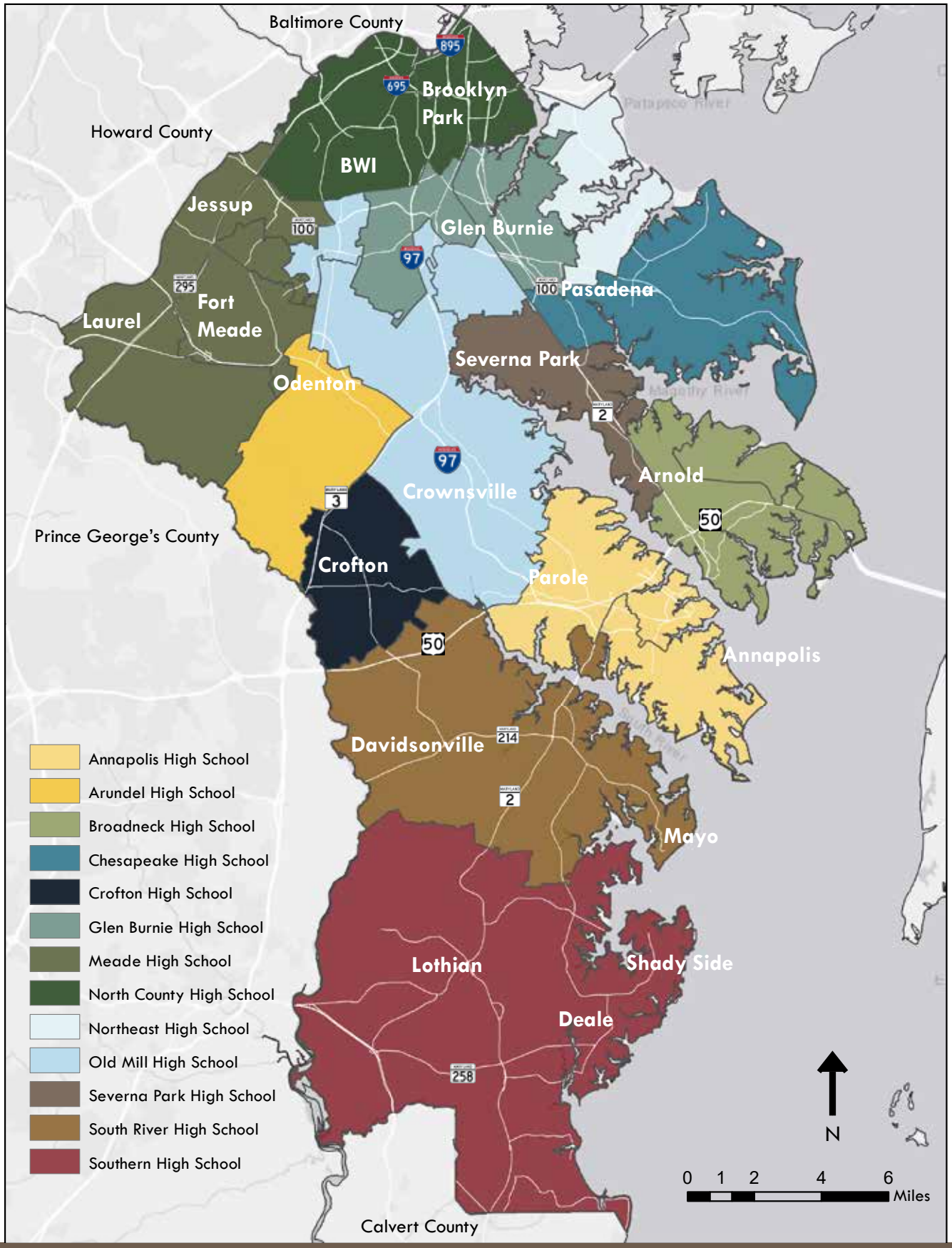
AACC also offers extensive lifelong learning opportunities and non-credit continuing professional education courses to those seeking career training or retraining, more than 140 continuing education certificates and over 30 workforce credentials.

29. 2020 ELEMENTARY SCHOOL FEEDER DISTRICTS




Baltimore County
Howard County
Prince George's County
Calvert County
Brooklyn Park
BWI
Jessup
Glen Burnie
Pasadena
Fort Meade
Laurel
Severna Park
Odenton
Crownsville
Arnold
Crofton
Parole
Annapolis
Davidsonville
Mayo
Lothian
Shady Side
Deale
Annapolis Middle School
Arundel Middle School
Bates Middle School
Brooklyn Park Middle School
Central Middle School
Chesapeake Bay Middle School
Corkran Middle School
Crofton Middle School
George Fox Middle School
Lindale Middle School
MacArthur Middle School
Magothy River Middle School
Marley Middle School
Meade Middle School
Old Mill Middle North School
Old Mill Middle South School
Severn River Middle School
Severna Park Middle School
Southern Middle School
N
0 1 2 4 6
Miles

31. 2020 HIGH SCHOOL FEEDER DISTRICTS



With learning as its central mission, AACC responds to the needs of a diverse community by offering high quality, affordable, accessible and innovative lifelong learning opportunities. The vision of AACC is to be a premier learning community that transforms lives to create an engaged and inclusive society. AACC strives to embody the basic convictions of our Country's democratic ideal: that individuals be given full opportunity to discover and develop their talents and interests; to pursue their unique potentials; and to achieve an intellectually, culturally and economically satisfying relationship with society.

Economic Impact

AACC contributes to the County's economic development in numerous ways. The net added income generated by AACC operations ($112.1 million), the spending of nonlocal students ($60.5 million) and the higher alumni earnings and increased business profit and ripple effects from alumni impact ($347.9 million) contributes $520.5 million in income to the Anne Arundel County economy each year. For every tax dollar spent on educating students attending AACC in Fiscal Year 2015-2016, taxpayers received an average of $2.60 in return over the course of the students' working lives.

Facilities and Services

AACC is a single-campus community college in Arnold, with off-campus sites at Arundel Mills in Hanover; the Glen Burnie Town Center; the Sales and Service Training Center in Arundel Mills Mall; the Hotel, Culinary Arts and Tourism (HCAT) Institute in Glen Burnie; and the Center for Cyber and Professional Training across from Arundel Mills in Hanover; as well as offices at the Fort Meade Army Education Center. AACC also offers classes at more than 90 County locations including schools, churches and senior centers. Student services are available online and at the Arnold campus, AACC at Arundel Mills, Glen Burnie Town Center and the Fort Meade Army Education Center.

Facilities Planning

AACC completes a Facilities Master Plan every ten years as required by the Maryland Higher Education Commission (MHEC). The Facilities Master Plan is reviewed and approved by MHEC and updates/revisions to the plan are submitted on a yearly basis. The most recent Facilities Master Plan was completed in 2016 and identified capital projects that are the direct result of the College's need to accommodate students, faculty and staff, modernize or replace aging and/or antiquated facilities, and/or provide space for services and programs. The plan reviewed the College's effective use of instructional space by looking at space utilization rates.

In conjunction with the facilities master planning effort, AACC also conducts a Facilities Condition Assessment every five years. This assessment analyzes all buildings and building systems with respect to maintenance and repairs, replacement, and remaining useful life.

Anne Arundel Community College will continue requesting funding for systemic renewal projects and improvements to sidewalks, parking, and roadways as well as designated funds for emergency projects and miscellaneous needed repairs. In addition, AACC has identified the following needs based on the Facilities Master Plan and the Facilities Condition Assessment:

1. A partial renovation to the Careers building at the Arnold campus to retrofit the current Biology labs once they have been relocated to the new Health Sciences and Biology building.
2. A renovation and expansion of the Child Development Center currently located within the Math building which will include a new lab for teacher education.
3. A renovation and addition to the existing Dragun Science building to create additional physical sciences labs and rejuvenate the existing facility.
4. A renovation of the Florestano building to allow for the relocation and expansions

of the School of Business and Law and the School for Continuing Workforce Development (CEWD).

5. Raze the Johnson building and complete the relocation of Ring Road to provide for added pedestrian safety on campus.
6. Renovate and expand the Student Services Center to allow for continued growth in advising and counseling services.
7. Renovate the Student Union Dining Hall with new systems that allow the campus to accommodate student needs.

Library Facilities and Services

The Anne Arundel County Public Library (AACPL) consists of fifteen branches organized into four regions, with administrative offices in a separate building. There is no central library. The AACPL Foundation, chartered in 2006, fosters philanthropic support from individuals, businesses, organizations and foundations to enhance the Library's strategic goals.

AACPL's physical plant consists of 267,037 square feet in sixteen buildings constructed between 1965 and 2004. Two branches have been scheduled and funded for replacement. In 2018, the 20,900 square-foot Annapolis Library was demolished and has been replaced by a 32,500 square-foot building that opened in 2020. The 10,500 square-foot Riviera Beach Library is being replaced by a 20,000 square-foot building scheduled to open in 2021.

Facilities Planning

The AACPL recently completed a Facilities Master Plan Study in 2017, an in-depth customer survey of both library users and non-users, and an architectural programming effort that reflected changes in customer expectations for libraries in the Internet Age to assess the future library facility planning. In addition, the Aspen Institute's October 2014 report, Rising to the Challenge: Re-Envisioning Public Libraries, provides a nationwide strategic context for the role of the modern public library. The assessments concluded that libraries in general and AACPL in particular, need to meet new expectations for service in the 21st Century.

Traditionally, library services have been valued on outputs or transactions, such as the number of items circulated, the number of questions answered and the number of books on the shelf. But 21st Century libraries are valued in terms of the impact the library has in the lives of people. The modern library achieves transformative outcomes (learning experiences) in its customers, such as improvements in skills, knowledge gained, changes in status (employment, educational achievement), or change in life conditions (better health, nutrition).

In order to meet these new expectations for memorable, high-quality customer learning experiences, new library buildings and renovations should strive to provide safe spaces focused on people, place and platform. These three elements call for a library building that differs substantially from most of the AACPL's current buildings. Therefore, AACPL's planning objectives seek to realign the physical plant with the needs of its customers through a deliberate and sustainable capital plan.

Capital Objectives and Strategy

To meet community needs for accessible and sustainable library services, AACPL established these two capital objectives:

1. There should be a minimum of 0.55 gross square feet of library space per capita in the County overall and at least 0.5 gross square feet in each geographical region of the County. This standard is based on the performance and gross square feet comparison of peer libraries and Maryland libraries overall. The framework for this standard was established in the 2017 Facilities Master Plan Study.
2. New facilities and renovations are undertaken with these design goals:
   A. Libraries are places for learning experiences, not just for transactions.

B. Libraries provide learning experiences in sustainable, responsive spaces that adapt to changing needs.

C. Libraries are centers for community engagement, bringing people into welcoming spaces. At the same time, libraries are launch pads supporting staff outreach and engagement with their communities.

D. Libraries reflect the character of individual neighborhoods while upholding the AACPL brand.

The four AACPL regions (see Figure 32) are based on census block group data provided by the 2017 Facilities Master Plan Study. The regions are grouped by "dominant library," i.e., the library most used by customers living in that block group. Three of these regions have comparable shares of the County population (about 30% each) and share suburban characteristics. The remaining region is the largest geographically and has the smallest population, but has a distinctive rural character.

The current, funded library capital projects will yield a distribution of library space and overall gross square-feet in the County by the end of Fiscal Year 2021 as shown in Table 28.

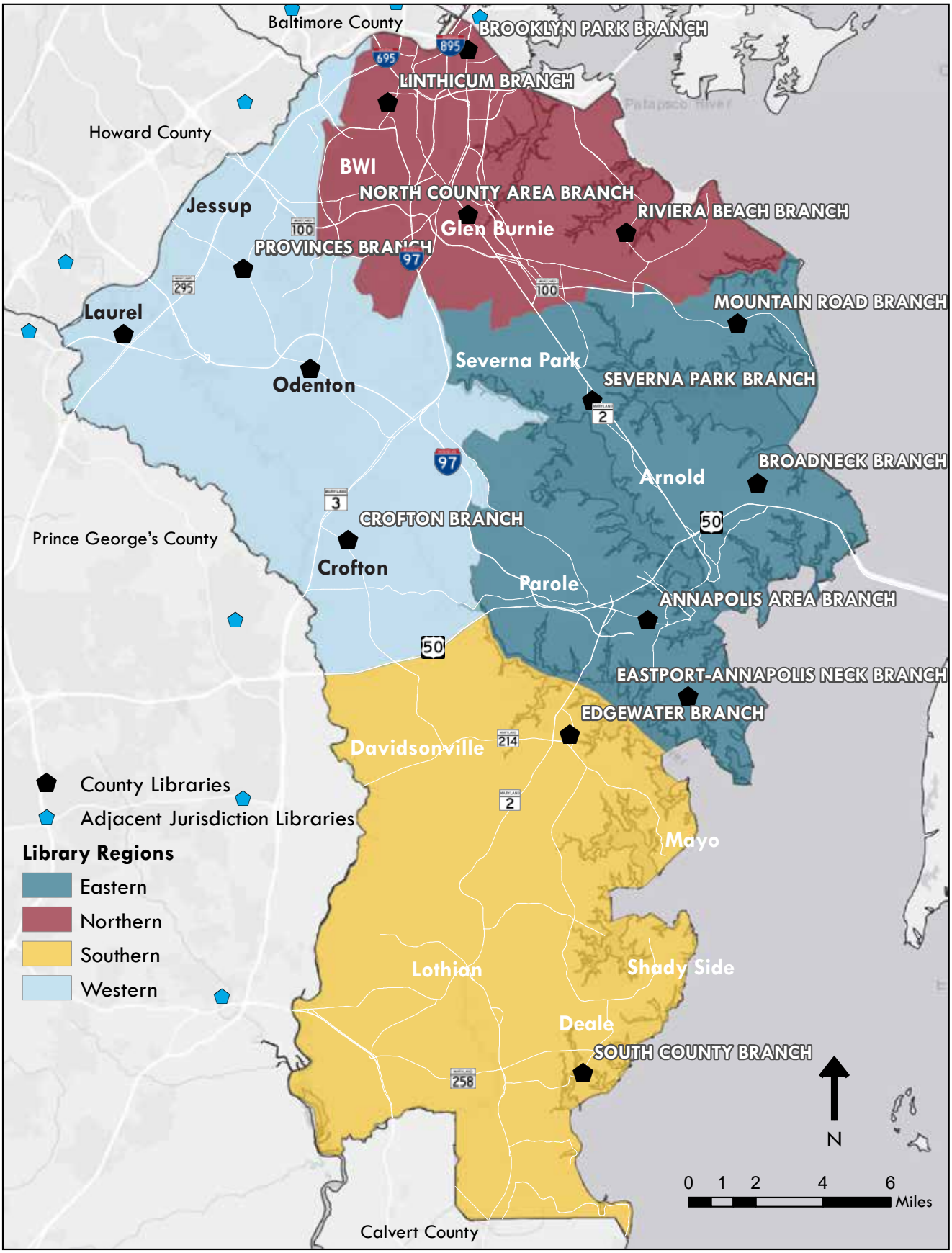
The projected population growth validates the need for a new Glen Burnie Library as highlighted in the 2009 GDP. This need has become more urgent as this building no longer meets basic suitability standards for a modern library.

The Facilities Master Plan Study estimated Anne Arundel County will grow to a population of 584,400 by 2025, requiring an additional 56,755 gross square feet of space for adequate library services. AACPL will undertake a logical, sustainable, and data-driven capital building plan to provide this space in time to meet the growing needs of the County.

Going forward, the Anne Arundel County Public Library System will meet the growing needs of the County by utilizing the Library Facilities Master Plan to undertake a logical, sustainable, and data-driven capital building plan to provide this space in time to meet the growing needs of the County.

Table 28. Library Gross Square Feet (GSF) Distribution in FY2021

Region	Population	GSF	GSF/ Capital
Northern	178,100	57,479	0.32
Eastern	180,100	85,129	0.49
Western	152,400	94,129	0.62
Southern	60,500	23,928	0.40
Total	571,100	264,665	0.46


Baltimore County
BROOKLYN PARK BRANCH
LINTHICUM BRANCH
Howard County
BWI
NORTH COUNTY AREA BRANCH
Jessup
RIVIERA BEACH BRANCH
Glen Burnie
PROVINCES BRANCH
MOUNTAIN ROAD BRANCH
Laurel
Severna Park
Odenton
SEVERNA PARK BRANCH
BROADNECK BRANCH
Arnold
CROFTON BRANCH
Prince George's County
Crofton
Parole
ANNAPOLIS AREA BRANCH
EASTPORT-ANNAPOLIS NECK BRANCH
EDGEWATER BRANCH
Davidsonville
Mayo
Lothian
Shady Side
Deale
SOUTH COUNTY BRANCH
Calvert County
County Libraries
Adjacent Jurisdiction Libraries
Library Regions
Eastern
Northern
Southern
Western
N
0 1 2 4 6
Miles

Services and Facilities for Older Adults and Individuals with Disabilities

Since the signing of the Older Americans Act in 1965, The Department of Aging and Disabilities (DOAD) has existed in numerous forms and expanded over the years to accommodate the growing older population. The average American lifespan in 1965 was 70 years old, while today it is 79 years old. Nationwide, there are 10,000 people who turn 65 every day. In Anne Arundel County, the older adult population is estimated to double in the next 15 years. As the County's population ages, the percentage of residents with disabilities will also increase. Currently, according to the American Communities Survey, 9.6% of the County's population has a disability. Likewise, as the number of older adults and people with disabilities increases, so does the number of family caregivers. To keep up with the rising needs of older adults, adults with disabilities, caregivers and anyone interested in planning for their future, the DOAD provides a one stop shop with programs and services to assist residents to age in place as long as possible.

Strategic Planning

As an Area Agency on Aging designated by the Maryland Department of Aging, the Older Americans Act requires that the DOAD develop an Area Plan on Aging every four years. This plan will reflect the goals set forth for the DOAD in Plan2040.

Facilities

The DOAD operates seven senior centers located throughout the County and serves the public at two customer service locations (Heritage Complex office on Riva Road in Annapolis and 7320 Ritchie Highway in Glen Burnie). The County's senior centers are well used by residents who often attend multiple centers based on programming interests. Recent and current capital projects include the expansion of the Pasadena and the Brooklyn Park senior center expansions. The South County Senior Center is also being evaluated for space utilization.

Services and Programs

The DOAD currently offers 22 programs in 23 locations throughout the County. The programs are organized into the Aging and Disability Resource Center Bureau (ADRC), the Senior Center / Nutrition Bureau, the Long-Term Care Bureau, and the Disability and Community Services Bureau.

Aging and Disability Resource Center (ADRC) Bureau

The Older Americans Act as reauthorized in 2006 stipulates that each jurisdiction should have an Aging and Disability Resource Center (ADRC) to provide seamless access to services for older adults, Community Services people with disabilities and caregivers. The ADRC in Maryland is branded as the Maryland Access Point (MAP). The MAP Customer Service Center can assist in finding the most valuable information in accordance with an individual's needs. This may include information on Medicare, assisted living facilities, nursing homes, rehabilitation facilities, in-home care, and long-term care. Trained professionals from the Information and Assistance program are available to help clarify an individual's specific needs and find the perfect fit.

Senior Center/Nutrition Bureau

All seven centers are multi-purpose centers focused on serving active adults at least 55 years of age. Centers enrich the lives of active, older adults by providing social, educational, volunteer and recreational opportunities so that older adults can remain independent as long as possible. Also in partnership with the Anne Arundel Community College, DOAD offers classes at six of the senior centers. Average attendance at centers ranges from 100- 300 participants a day. Program offerings can vary among the seven centers but the range of offerings is fairly extensive. Members can

participate in educational programs, recreational activities, arts and crafts classes, dance and exercise classes, computer classes, social events, bus trips and picnics.

The Senior Center / Nutrition Bureau also includes the nutrition program through which it provides congregate dining nutrition services at 20 locations throughout the County, including the seven senior centers, several senior housing facilities and community centers. The nutrition program also includes Home Delivered Meals, SHOP 'N EAT and the Senior Farmers' Market Nutrition program. The SHOP 'N EAT program provides nutrition education at each senior center to empower older adults in making healthy selections while grocery shopping. The Senior Farmers' Market Nutrition Program (SFMNP) provides low-income older adults with coupons that can be exchanged for eligible foods (fruits, vegetables, honey, and fresh-cut herbs) at farmers' markets, roadside stands, and community supported agriculture programs.

Long-Term Care Bureau

The programs under the Long-Term Care Bureau are designed to help older adults and individuals with disabilities remain in the community for as long as possible. These programs include evidenced-based education workshops that teach participants tools to prevent falls or manage chronic conditions and improve quality of life; the Senior Care Program; In-Home Aide Service Program; a fee-for-service activity day program (Senior Center Plus); and several Supports Planning Agency programs.

Disability and Community Services Bureau

This bureau houses the County's Americans with Disabilities Act (ADA) Coordinator who provides technical assistance and education to anyone with questions or concerns regarding accessibility as covered in the federal law passed in 1990. The ADA Office ensures accessibility in County programs, services, and activities, as well as, is a resource to the public about the ADA and disability issues. The ADA Office also is the County liaison to the Commission on Disability Issues.

The Anne Arundel County Commission on Disability Issues promotes and enhances the quality of life for persons with disabilities by advising County Government on the coordination and development of government policies, programs, services, and allocation of resources for persons with disabilities and by proposing the means to meet the needs of persons with disabilities.

The ADA Coordinator is currently leading Countywide ADA Self-Evaluation Update that will identify existing barriers and provide recommendations for each County Department to increase accessibility of County facilities, as well as, programs, services, activities offered by County Government.

The DOAD provides services to people with disabilities in many programs outside this bureau, most notably through the Maryland Access Point (MAP) and the Medicaid Waiver Programs. Citizens can contact the MAP to learn about and connect to existing resources available to people with disabilities and their caregivers. As part of the Department's Aging and Disability Resource Center model, it partners with the local Center for Independent Living (CIL), Accessible Resources for Independence, to have one of the CIL's staff members at the Department two days per week. The Waiver Program supports people with disabilities in their communities by providing case management services. The DOAD also partners with the local Center for Independent Living and other community organizations to seamlessly connect residents with disabilities to appropriate services. While there are many services available, there are some gaps that exist now and will only continue to grow as the population grows. These gaps are opportunities for the Department to partner with other County agencies and private organizations to increase available services for individuals with disabilities of all ages.

Inclusion of people with disabilities into typical programs and services is the ideal opportunity for participation by people with disabilities. Many people with disabilities do not want nor require programs and services separate or different from people who do not have disabilities. Inclusion, under the Americans with Disabilities Act, requires providers of programs, services, and activities to provide reasonable accommodations for participation. This may include physical site accessibility and/or auxiliary aides and services to help with participation for someone who cannot hear or see. While the passing of the Americans with Disabilities Act in 1990 aimed to eliminate barriers for people with disabilities, they continue to exist. Future development of all public and private buildings needs to ensure full ADA compliance for inclusion of people with disabilities. Programs, services, and activities need to be equipped with auxiliary aides, services, and assistive technology to ensure inclusion of people with disabilities.

Services unique to people with disabilities can be the preference or need of some individuals. In the County, unique disability services are primarily provided by private sector providers with public funding. Public funding for services is limited throughout the State and does not provide for all the individuals who want or require the services. It is primarily a needs based system with limited funding. As parents of adults with disabilities age, the need for increased funding will exist to support these adults whose parents cannot take care of them anymore. Deinstitutionalization has been effective but many individuals need support to live in the community. Private insurance does not fund this type of support and the cost of the support can exceed individual assets to pay for it.

Self-direction and sustainability are critical to a person's ability to live independently or with supports in the community. Housing, employment, transportation, recreation, and access to health care are barriers to people with disabilities. Technology will play a role in helping to overcome some of these barriers.

Due to the projected increases in the County's population of older adults and individuals with disabilities, there are a number of challenges and needs including:

1. Growing waiting lists for all of the Long-Term Care Bureau programs, the assisted living subsidy program and the caregiver support programs
2. Growing number of clients exhibiting signs of serious mental health conditions, Alzheimer's and other dementias and the ability for services to keep pace with the needs; also, the DOAD's State Health Insurance Assistance Program (SHIP) Medicare counseling program frequently receives urgent calls and visits from clients facing challenges related to insurance coverage of opioid addiction treatment medications
3. Fewer family caregivers per older adult than previous generations who are increasingly faced with performing complex medical tasks and struggling to shoulder the financial and emotional costs of caregiving and balance it with employment, child care, etc.;
4. Growing workforce needs to provide long-term care services to older adults and people with disabilities
5. Education about incentives and partnerships with employers, as well as additional partnerships to enhance employment opportunities and expanded incentives for employers
6. Limited availability of affordable and accessible housing: the current inventory within the County is approximately ten retirement apartment communities, 15 apartment communities with senior discounts, three retirement communities and two continuing care retirement communities
7. Limited transportation and paratransit resources, and accessible public

transportation, especially in certain areas (i.e., South County)

8. Access to healthcare and limited health care professionals, especially psychiatrists specialized in working with these populations which telehealth and telemedicine may help in providing opportunities
9. Limited recreational programs for adults ages 22-54 with disabilities
10. Space utilization, aging infrastructure at staffing needs at each of the County's senior activity centers

Health Services and Facilities

Public health services are an important component in the wide array of community services provided to the residents of Anne Arundel County. Public health includes both community and environmental health, and services are provided primarily through the County's DOH and its partner agencies. The inclusion of public health in comprehensive planning ensures there are links between land use and transportation policy and chronic disease prevention and safety. The built environment can have a direct impact on public health issues, including adult and childhood obesity, inactivity, cancer and respiratory problems.

The DOH is a division of the Maryland Department of Health (MDH). As such, it is held accountable for enforcing certain Federal, State and County laws, regulations, guidelines and standards of care. In addition to regulatory and enforcement work, the DOH directly provides mandated, delegated and locally-initiated public health services. The Anne Arundel County Council serves as the County Board of Health. The DOH is responsible for improving the health of Anne Arundel County with a vision of a vibrant County with healthy people in healthy communities. The mission of the DOH is to preserve, promote and protect the health of all people who live, work and play in Anne Arundel County. Critical to achieving the DOH vision and mission are strong, sustainable partnerships with individual residents, public sector agencies, community-based organizations, health care providers and insurers, academic institutions, businesses and other private sector agencies.

Existing Facilities, Locations

The DOH is headquartered in Annapolis and operates 11 sites throughout the County (Figure 33). Some of the facilities are County-owned while others are leased. These sites include the Annapolis Family Support Center, DOH Headquarters/Annapolis Health Center, Behavioral Health Building-North, Behavioral Health Services-South, Brooklyn Park Health Center, Glen Burnie Health Center, Health Annex, Magothy Health Center, North County Health Services Center, Ordnance Road Correctional Center Drug Treatment Program and the Parole Health Center. In addition, the DOH has staff that work in 124 public schools, the court system and two detention facilities located in the County.

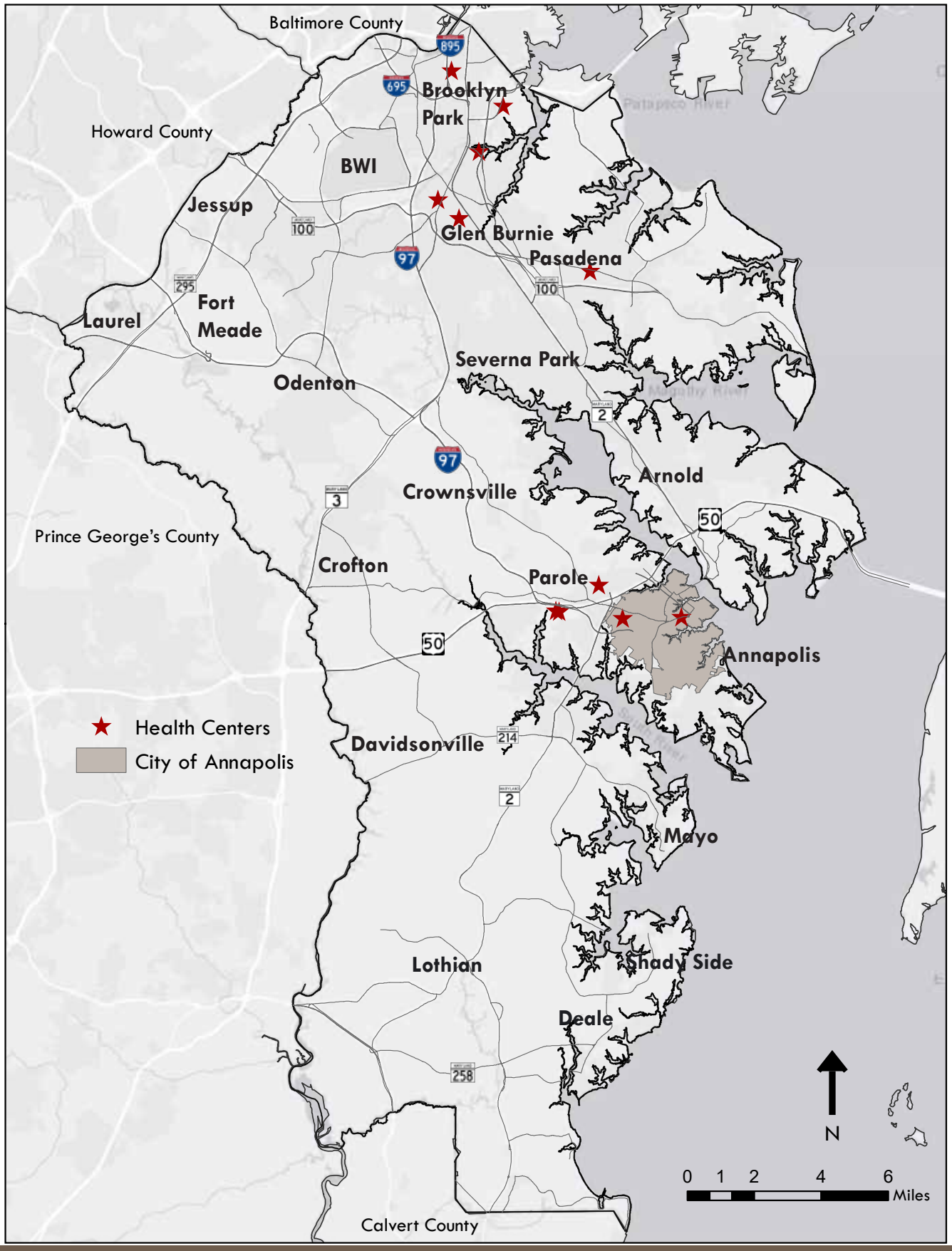
At these facilities and other locations, the DOH is committed to providing a high level of quality services that are accessible to all County residents. DOH services fall under the five programmatic bureaus which include Behavioral Health, Disease Prevention and Management, Environmental Health, Family Health and School Health Services.

Bureau of Behavioral Health

This bureau assesses mental health and substance abuse problems, needs and resources of the County; promotes behavioral health through education, prevention and treatment; and provides leadership in organizing effective public and private strategies to meet the needs of County residents affected by mental illness, substance abuse and violence..

Bureau of Disease Prevention and Management

This bureau, in partnership with the community, provides comprehensive health outreach activities in order to promote good health and


Baltimore County
Howard County
Prince George's County
Calvert County
Brooklyn Park
BWI
Jessup
Glen Burnie
Pasadena
Laurel
Fort Meade
Odenton
Severna Park
Crownsville
Arnold
Crofton
Parole
Annapolis
Davidsonville
Mayo
Lothian
Shady Side
Deale
Health Centers
City of Annapolis
N
0 1 2 4 6
Miles

healthy lifestyles, prevent disease and protect the health of County residents.

Bureau of Environmental Health

This bureau includes programs that focus on regulation, inspection and compliance in the areas of community housing, food protection, private septic systems and wells and recreational waters. The Bureau of Environmental Health also administers Bay Restoration Fund State grant monies that are used to upgrade private septic systems with nitrogen-reducing pretreatment systems and/or convert private wells to public sewer connections.

Bureau of Family Health Services

This bureau is responsible for preserving, promoting and protecting the health of County residents through programs that provide health care services and linkages to health care resources for those who are uninsured or underinsured.

School Health Services

This bureau preserves, promotes and protects the health of school-aged children, thereby strengthening and improving academic performance. They are committed to providing services that are directed to each student to develop his or her potential for physical, mental and emotional well-being.

Food Environment

Approximately 75,000 (13.2%) County residents live in an area categorized as a food desert, which is an urban neighborhood or rural town without ready access to fresh, healthy and affordable food. Lack of access to healthy foods can contribute to a poor diet and can lead to higher levels of obesity, diabetes and heart disease. Approximately 294,000 County residents (68.2% of adult population) over 18 years are overweight or obese and almost 47,000 residents (10.7% of adult population) over 18 years have diabetes[1]. An estimated 17.3% of children and adolescents ages 2 to 19 years are obese and another 15.1% are overweight[2]. Table 29 shows the prevalence of chronic obesity-related health conditions among County adults (18 years and over), 2016[3]. Figure 34 depicts the Food Environment within Anne Arundel County.

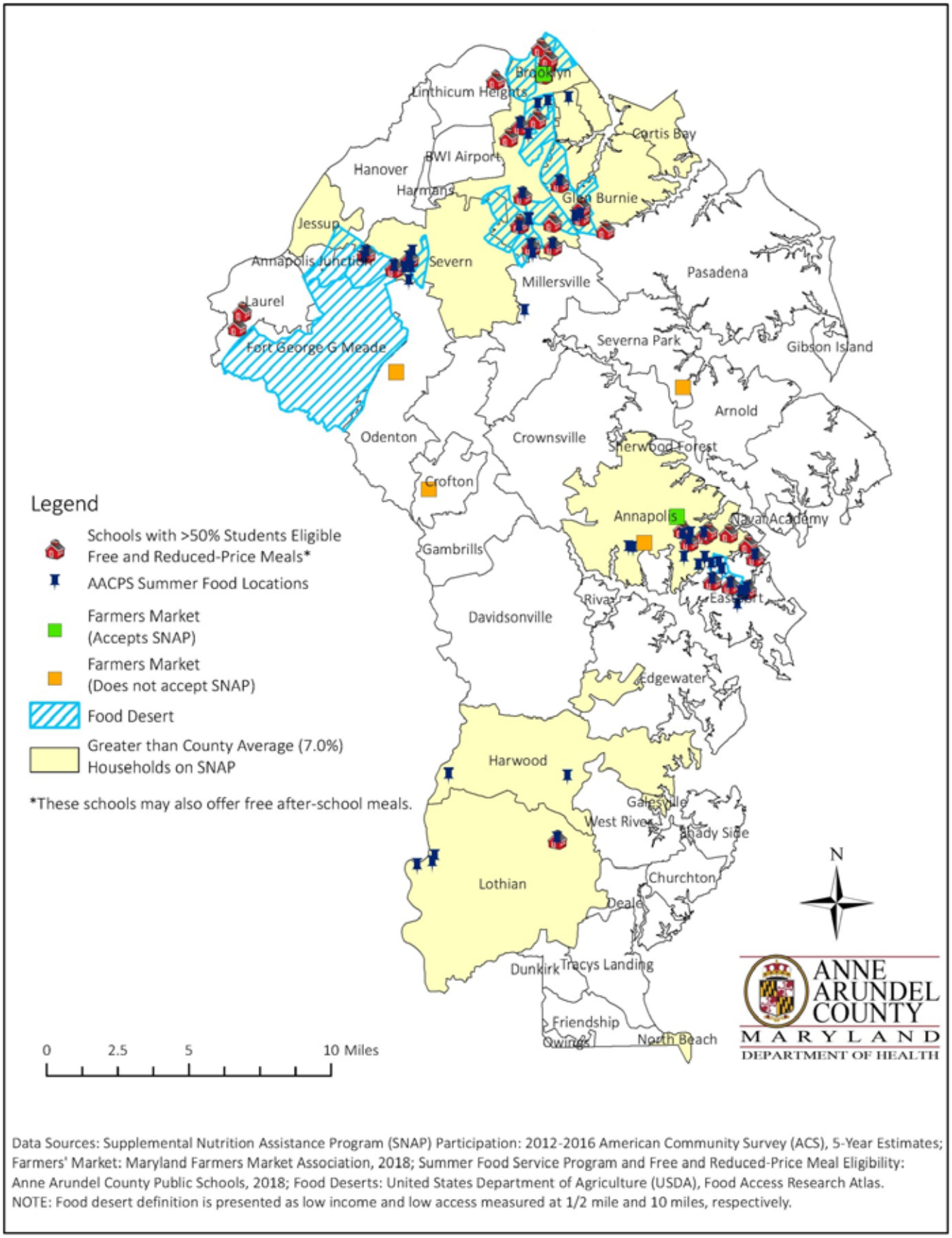
There are many factors that play a role in health, including lifestyle and surrounding environment. County residents can access healthy and affordable food if areas of need are identified and evidence-based initiatives or programs are supported. Community-level changes, such as implementing policy, are more sustainable and have proven to impact infrastructure and aid in

1 Maryland Behavioral Risk Factor Surveillance System, 2016
2 Anne Arundel County DOH, Provider-based County Survey of Children and Adolescents, 2012
3 Maryland Behavioral Risk Factor Surveillance System, 2016

Table 29. Prevalence of Chronic Obesity-Related Health Conditions Among Adults, 2016

Health Condition	Prevalence (%)	Estimated Population
Elevated cholesterol level*	37.1%	159,344
High blood pressure	36.4%	131,837
Diabetes	10.7%	46,985
Suffered heart attack	3.8%	16,694
Suffered stroke	3.3%	14,350
Angina or coronary disease	4.3%	19,045

Source: Behavioral Risk Factor Surveillance System, 2013-2016*



Data Sources: Supplemental Nutrition Assistance Program (SNAP) Participation: 2012-2016 American Community Survey (ACS), 5-Year Estimates; Farmers' Market: Maryland Farmers Market Association, 2018; Summer Food Service Program and Free and Reduced-Price Meal Eligibility: Anne Arundel County Public Schools, 2018; Food Deserts: United States Department of Agriculture (USDA), Food Access Research Atlas.
NOTE: Food desert definition is presented as low income and low access measured at 1/2 mile and 10 miles, respectively.

shifting social norms. Education of individuals and families alone is not a viable change strategy because other environmental and societal factors impede its success, including physical access or affordability. In addition, access to transportation, especially for low-income residents and seniors can positively affect access to health care, employment opportunities, social services, access to healthy food and other factors which impact health.

Challenges faced by the Department of Health include the decrease or elimination of funding paralleled with increased demand for services and current or emerging health priorities which are significant, complex and underfunded.

Recreation and Parks Facilities and Services

Recreation services are vital to the health and well-being of Anne Arundel County residents, as well as a factor in the strength of the County's overall economy. The DRP offers a wide range of active and passive recreation opportunities to County residents.

With over 342 park and recreation areas encompassing 9,497 acres of land owned by the County, City of Annapolis or Board of Education and 5,529 acres of natural resource land under County or City of Annapolis ownership, local residents have many options for leisure activities (Table 30). This acreage includes six regional parks, 98 community and neighborhood parks, 128 school recreation parks, mini parks within the City of Annapolis, three sports complexes, and 27 special use areas (Table 31). State

Table 30. Acres of Recreation and Resource Land by Owner

Owner	Recreation [1]	Resource [2]	Total
Anne Arundel County	7,608	5,094	12,702
Subdivision Open Space[3]		3,855	3,855
Board of Education[4]	1,681	0	1,681
City of Annapolis	207	435	644
Town of Highland Beach	1	<1	1
Subtotal: Local	9,497	9,384	18,883
State	1,845	2,786	4,631
Federal	0	12,180	12,180
Subtotal: State, Federal	1,845	14,966	16,811
Grand Total	11,342	24,350	35,694

Notes:
1. Pursuant to the State's guidelines, recreation land is defined as land on which the primary recreational activities do not depend on the presence of natural resources. Totals reflect the closure of the Annapolis Roads golf course.
2. Pursuant to State guidelines, resource land is land and/or related water areas for which natural resource protection, conservation, or management is of primary importance. This land may support agricultural, recreational, economic, or other uses to the extent that they do not conflict with protection or preservation of the natural resource.
3. Includes land owned by Anne Arundel County and property owners associations.
4. Board of Education land has been calculated as 60 percent of gross site acreage, as permitted by the State's guidelines. Lands owned by private schools is not included, although these lands host substantial recreational activity.
Source: 2017 Land Preservation, Parks and Recreation Plan

Table 31. County, Municipal, and Board of Education Recreation Land by Type

Type	Number	Acres	Examples
Regional Park	6	1,912	Downs Park, Fort Smallwood Park/Harry & Jeanette Weinberg Park, Kinder Farm Park, Quiet Waters Park
Community Park	86	2,470	Cross Street Park, Jessup Dorsey Park, Sawmill Creek Park, Tick Neck Park
Minipark	30	6	Burnside Park, Dick Simms Park, First and Spa
Other Public Land	2	12	Northern District Maintenance Shop, Recreation and Parks Headquarters
School Recreation Park	128	1,681	Annapolis High School, Bates Middle School, Broadneck High School, Germantown Elementary School, Hilltop Elementary School
Special Use Area	27	2,325	Glen Burnie Town Center Ice Rink, Jonas Green Park, North Arundel Aquatic Center, Shady Side Wharf, South County Recreation Center
Sports Complex	3	144	Annapolis Sports Complex, Bachman Sports Complex, Cannon Stadium
Undeveloped	10	791	Crownsville Area Park, Rockhold Creek Farm Park, Stoney Creek Park
Total	342	9,344	

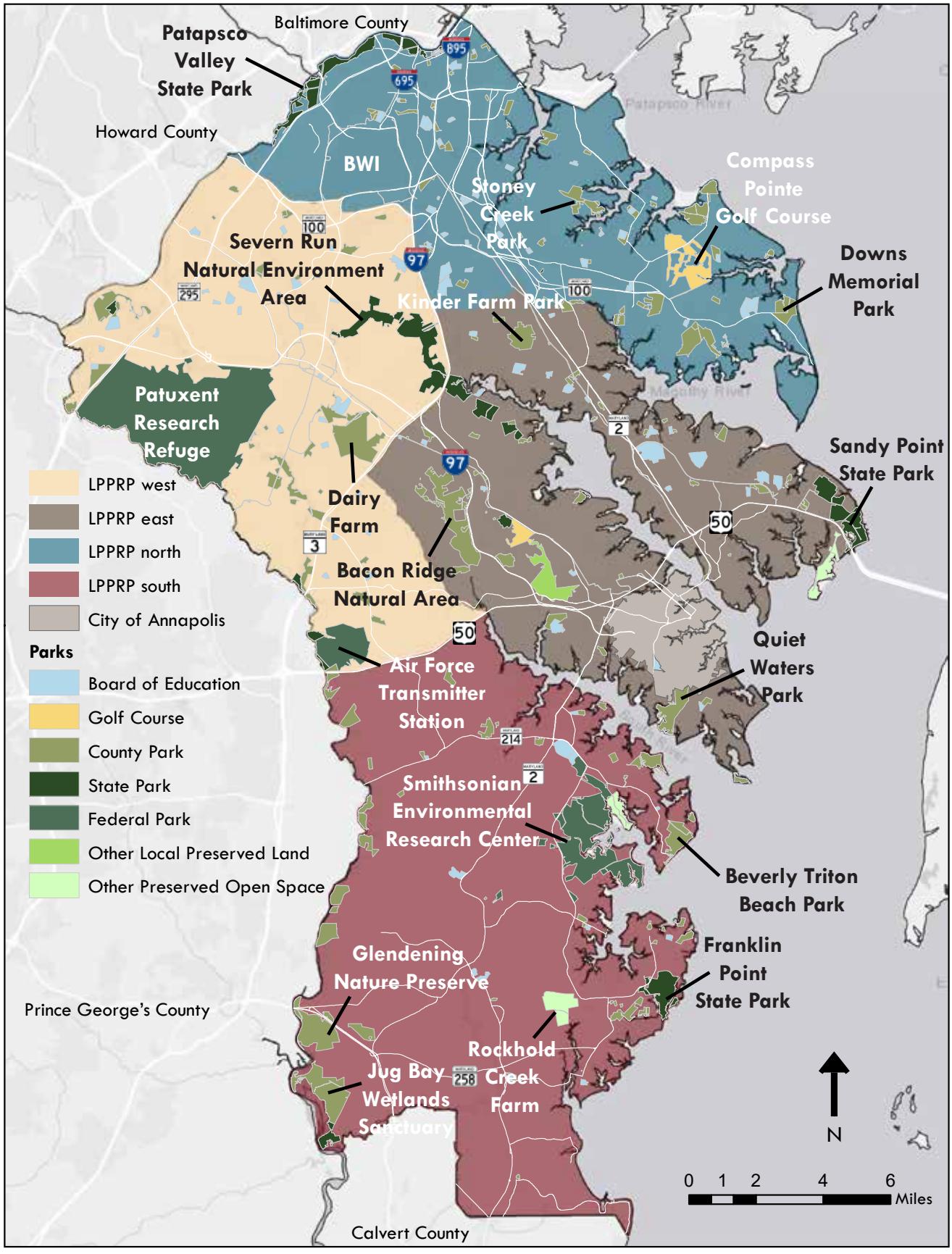
park land available for recreational use totals approximately 1,845 acres primarily in Patapsco Valley State Park and Sandy Point State Park. In addition, the State and Federal government own approximately 14,966 acres of natural resource lands including the 8,557-acre Patuxent Wildlife Refuge.

Private quasi-public lands make a significant contribution to public recreation in the County. These include neighborhood parks, mini-parks, marinas, indoor recreation centers and gyms, neighborhood pools and clubhouses, tennis clubs, and golf courses.

Fort George G. Meade comprises approximately 5,400 acres in western Anne Arundel County and is home to approximately 16,300 military personnel and about 39,000 civilian employees and contractors. Fort Meade operates a number of recreation facilities that are open to authorized personnel and their families and guests including an equestrian center, a track, and indoor and outdoor swimming pools. While these facilities reduce demand on County recreation facilities, they are not included in the recreation inventory, because they are not open to the general public.

The County is divided into four recreation planning areas to allow for a more detailed analysis of the County's recreation and open space needs. Figure 35 shows the existing park and recreational facilities within each of the four recreation planning areas.

The County's recreational programs and facilities are designed and implemented to accomplish multiple goals. Primarily, they provide both active and passive recreation opportunities, but in many cases they also conserve open space, protect important natural resources,


Baltimore County
Patapsco Valley State Park
Howard County
BWI
Stoney Creek Park
Compass Pointe Golf Course
Downs Memorial Park
Severn Run Natural Environment Area
Kinder Farm Park
Patuxent Research Refuge
Dairy Farm
Bacon Ridge Natural Area
Sandy Point State Park
Quiet Waters Park
Air Force Transmitter Station
Smithsonian Environmental Research Center
Beverly Triton Beach Park
Franklin Point State Park
Glendening Nature Preserve
Rockhold Creek Farm
Jug Bay Wetlands Sanctuary
Prince George's County
Calvert County
LPPRP west
LPPRP east
LPPRP north
LPPRP south
City of Annapolis
Parks
Board of Education
Golf Course
County Park
State Park
Federal Park
Other Local Preserved Land
Other Preserved Open Space
N
0 1 2 4 6
Miles

and preserve sensitive environmental areas and historic sites. In addition to the DRP, other County agencies conduct recreation and environmental activities within County parks. Those agencies include the Board of Education, the DPW, the OPZ, the DOAD, and many local community organizations.

Water Access

Water and water access are fundamental characteristics of life in Anne Arundel County. This includes water access for recreation activities such as boating, swimming, fishing, crabbing, and appreciation of water views. Many neighborhoods maintain community (i.e., restricted to neighborhood residents and their guests) beaches, piers, and boat ramps. In addition, there are 303 commercial and community marinas with nearly 12,035 boat slips in the County. The County does not operate or manage these community and commercial facilities.

Despite the importance of water access, the County has comparatively few public water access points to serve the general population, and specifically those who do not live in water-privileged communities. Public water access points in the County include boat ramps, "car-top" boat launches, beaches, and parks and publicly accessible resource lands with water frontage.

DRP maintains a guide to canoe and kayak launch sites and fishing spots throughout the County and is available at www.aacounty.org. In addition to providing car top boat access, the County is working with the State of Maryland to identify and map potential "water trails" which connect numerous destinations along the Chesapeake Bay and its tributaries. The County is also evaluating the potential for primitive, paddle-in campsites within County land along the Patuxent River

County Trails

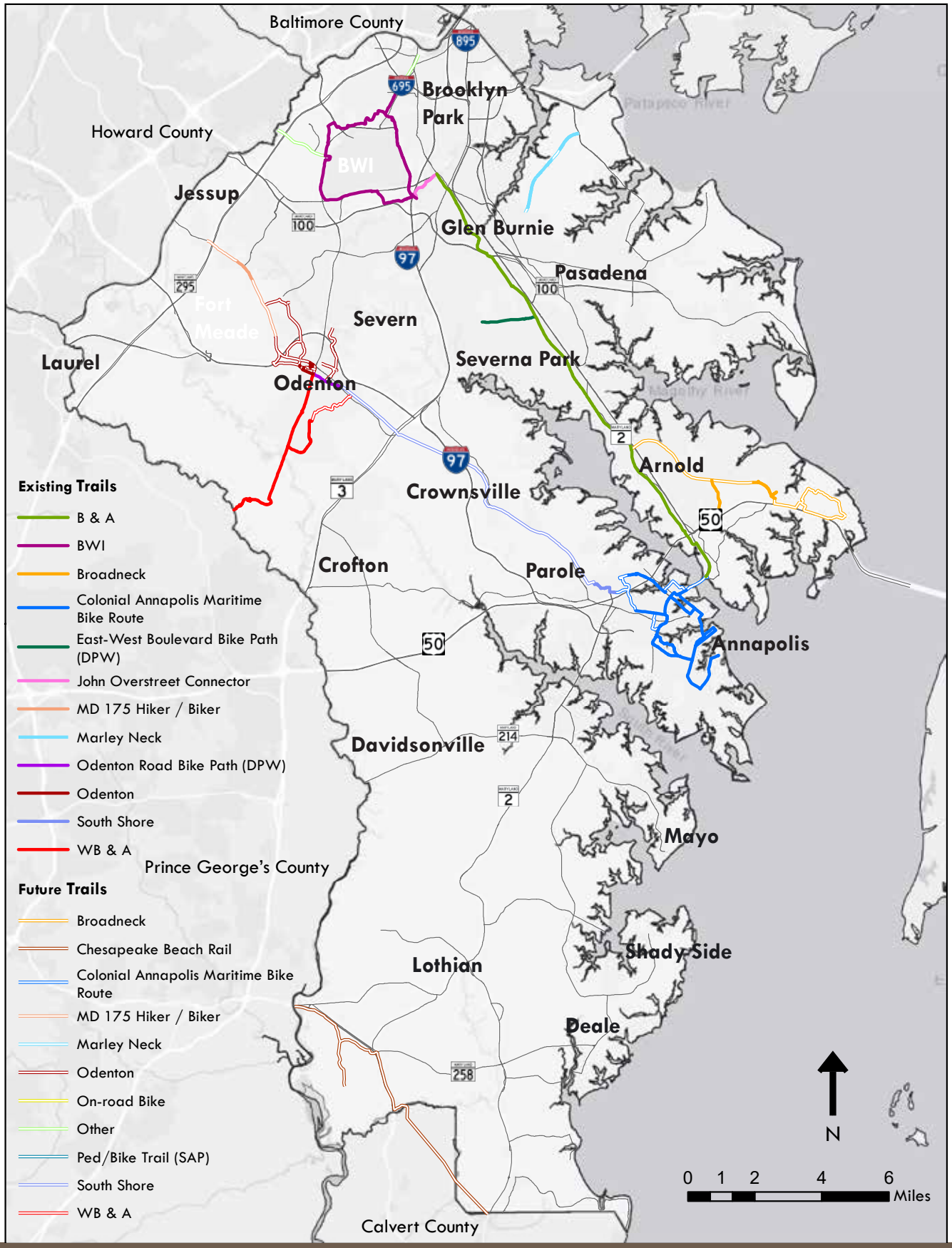
Anne Arundel County is home to multipurpose trails with national, regional, and local significance. These facilities serve as a recreation function but also as important transportation functions, providing a mode of travel for individuals who do not have access to, or prefer not to use automobiles or public transit. To the degree that trails also facilitate non-motorized transportation, they also help the County achieve the air quality, environmental, and traffic congestion goals and will grow in importance as the County moves toward multi-modalism. Figure 8 shows the County's existing and envisioned trails.

Facilities Planning

The Land Preservation Park and Recreation Plan (LPPRP) used a Citizen Interest Survey, a Proximity Analysis, Park Equity Analysis, Draft LPPRP on-line review and comment period, commission and stakeholder discussions, and in-house data and experience to identify needs and public demand for recreation land and facilities.

Key findings from the Citizen Interest Survey include:

1. The facilities for which the greatest immediate need is expressed are trails, boat ramps, nature centers, dog parks, fishing piers, swimming beaches and tennis, especially indoor courts.
2. Generally, the survey reports the greatest need for more parks that provide the opportunity to connect with nature: trails, water access, nature centers, swimming beaches and gardens.
3. For facilities related to sports, the greatest need is for tennis courts, specifically all-weather indoor courts. The County has 161 outdoor tennis courts (most at the high schools) but only one, publicly accessible indoor court. Although the overall number of outdoor tennis courts is high, these courts are widely spread across the County, and many are at schools, which may have access limitations. Moreover, the increase in popularity of tennis leagues has increased demand for concentrations of multiple tennis


Baltimore County
Howard County
Prince George's County
Calvert County
Brooklyn Park
BWI
Jessup
Glen Burnie
Pasadena
Severn
Fort Meade
Laurel
Odenton
Severna Park
Arnold
Crownsville
Crofton
Parole
Annapolis
Davidsonville
Mayo
Lothian
Shady Side
Deale
Existing Trails
B & A
BWI
Broadneck
Colonial Annapolis Maritime Bike Route
East-West Boulevard Bike Path (DPW)
John Overstreet Connector
MD 175 Hiker / Biker
Marley Neck
Odenton Road Bike Path (DPW)
Odenton
South Shore
WB & A
Future Trails
Broadneck
Chesapeake Beach Rail
Colonial Annapolis Maritime Bike Route
MD 175 Hiker / Biker
Marley Neck
Odenton
On-road Bike
Other
Ped/Bike Trail (SAP)
South Shore
WB & A
N
0 1 2 4 6
Miles

courts in discrete locations, specifically within public parks or recreation facilities (rather than school facilities).

4. A high proportion of respondents have a family member participating in team sports, but fewer respondents noted a need for additional facilities, indicating that leagues are currently able to schedule the fields that they need. County Staff is aware of a need for facilities that can host tournaments. The needs analysis in the following section of this plan also indicates that additional fields will be necessary as the County's population grows.
5. A high proportion of respondents (27%) noted a need for additional dog parks. These facilities have grown in popularity since the 2013 LPPRP.

The Proximity Analysis compares the location of the County's park and recreation facilities to the distribution of its population with the intent of generally determining where the public can readily access these amenities and where they cannot. As per the State guidelines, the County mapped a series of "catchment areas" for its parks and recreation facilities, specifically:

1. Catchment areas for parks and recreation facilities in the South Planning Area were assigned five-mile catchment areas.
2. Catchment areas for all other parks and recreation facilities in the County were one-half mile, except as described below.
3. Proximity Analysis maps that are available in the 2018 LPPRP include:
    A. Half-mile and five-mile service area for each park
    B. Half-mile and five-mile service area for County water access areas
    C. Half-mile and five-mile service area for County trails
    D. Half-mile and five-mile service area for parks with picnic facilities
    E. Five- mile service area for athletic fields

The Proximity Analysis maps suggest the following conclusions about the County's recreation and park system:

1. A substantial portion of the County residents are within a half mile of a park or recreation facility.
2. Notable gaps requiring additional park facilities are:
    A. North of Fort Meade
    B. Hanover and Harmans
3. Most of the County is within five miles of water access facilities and regional trails - that distance is narrowing as new facilities are constructed.
4. Clustering of fields and indoor facilities reveals gaps in the Northern and Western Planning Areas.

The Park Equity Analysis evaluated the degree to which parks and recreation facilities are accessible to populations that are typically underserved by such resources, including areas of high population density, high concentrations of poverty, and high concentrations of children. Areas shown as having the greatest need for park and recreation facilities (i.e., the areas of High and Medium-High Need) include:

1. Annapolis-Parole
2. Ferndale-Brooklyn Park
3. Areas north of Fort Meade
4. Glen Burnie and areas to the south
5. Laurel-Maryland City
6. Waugh Chapel, north of Crofton

These areas are generally home to the County's highest population density and lowest-income residents. This is consistent with the Proximity Analysis, which also showed gaps for certain kinds of facilities (i.e., athletic fields, water access) in this area. Many of the County's priorities for recreation and park facility development respond to the gaps identified in the Proximity Analysis.

Age is also an important equity consideration in the County's recreational facilities and programming. Athletic fields and restrooms at new and retrofitted facilities are accessible by paved pathways with gradual slopes. The DRP offers numerous senior recreation programs at swim centers and indoor recreation facilities. The DRP is pursuing both a new indoor-outdoor tennis center and a program to provide more pickle ball courts, both of which are frequently requested by older residents. The County's extensive trail system is a great resource, helping to address the walking, jogging, and biking needs of the senior community.

The 2018 LPPRP includes the DRP's 15-year Capital Improvement Program. The overall program has an estimated cost of approximately $426 million. Over the 15-year period to 2031, the total program cost averages $28.4 million per year. The 15-year program is a tool to guide the DRP in the preparation of annual capital budgets. As public demand changes, the DRP will make adjustments to the 15-year program accordingly. The 15-year program is based on:

1. The results of the supply and demand analysis (including public input)
2. Policy considerations
3. Efforts to ensure that all areas of the County are adequately served,
4. Specific needs in the City of Annapolis
5. Efficiency of recreation service delivery with respect to location and use,
6. Potential for meeting recreational facility needs through joint use, especially at public schools, and
7. The relationship of projects to State and County goals.

For more detail on the specific priorities for land acquisition, development and rehabilitation recommendations of park and recreational capital improvements, see Table III-14 of the 2018 LPPRP.

Current County priorities for meeting recreation and park needs are the result of State and County Goals set forth in adopted master plans; results of the supply and demand survey conducted as part of the Land Preservation, Park and Recreation Plan; Countywide needs versus relative needs in the different park and recreation planning areas, including the need to ensure that all areas of the County are adequately served; efficiency of recreation service delivery with respect to location and use; and the potential for meeting recreational facility needs through joint use, especially at public schools. The priorities will focus on:

1. Parkland acquisition and the preservation of open space, greenways, and sensitive natural resource areas;
2. Development or completion of regional parks, community parks, and athletic fields and related park facilities;
3. Development of an expanded trail network;
4. Development of additional water access facilities and boat ramps;
5. Investment in park and recreation facilities for underserved communities such as Jessup, Brooklyn Park, Glen Burnie, Fort Meade, Maryland City, Marley Neck;
6. Park renovations including the Eisenhower Golf Course, and over 100 County parks and specialized facilities;
7. Indoor recreation facilities, additional swim centers and recreation centers as funding allows.

Waste Management Services and Facilities

Municipal solid waste is generated by the activities of County residents, businesses, industries, and institutions. Other types of waste include rubble, controlled hazardous substances, animal carcasses, bulky or special wastes, vehicle tires, wastewater treatment plant biosolids, and septage. Residential waste is either collected by means of curbside collection or is self-hauled to waste management facilities and is either disposed or recycled. Most commercial and industrial solid

waste goes to privately owned and operated facilities.

The mission of the Anne Arundel County DPW Bureau of Waste Management Services (Bureau) is to manage the collection, processing, and recycling of solid waste. The Bureau functions as an Enterprise, focused on providing services to the residential sector from which the majority of its user fees are derived. Local businesses may choose to use the Millersville Landfill and Resource Recovery Facility, according to charges established in the County Code, or alternatively they may rely on the robust network of private sector businesses that provide waste collection, transfer, recycling, and disposal services in the region.

According to figures published in the 2017 Maryland Solid Waste Management and Diversion Report by the MDE, Anne Arundel County Government manages approximately 28% of the total amount of solid waste generated within Anne Arundel County, while the private sector manages approximately 72%.

Recycling

Recycling and waste reduction is threaded throughout all of the County's solid waste programs. To meet the objectives of reduction, reuse and recycling of solid waste, the County developed a new recycling outreach initiative in 2008 that focused on increasing the residential recycling rate from decreasing waste generation, improving the ratio of recycling to disposal, and reducing collection and processing costs. In 2019, the County's residential curbside recycling rate was 40%. The recycling rate including the solid waste managed at County facilities was 35%. The recycling rates are the ratio of total tons of recyclables collected to total tons of solid waste collected and not a participation rate. The County continues to implement multiple outreach initiatives designed to keep the public educated and motivated to recycle all that the program allows.

The County has invested significantly in its recycling programs for residents over the past decades. Programs have embraced recycling a myriad of material types, always with a clear goal of avoiding disposal costs, preserving landfill disposal capacity, developing new sources of revenue, and ensuring that user fees for the services we provide remain low and affordable. The Bureau has integrated numerous Zero Waste strategies into its operations to best manage residential sector waste.

Solid Waste Facilities

Anne Arundel County hosts both County-owned and privately held facilities which exist to accept, process, and transfer solid waste including recyclables. In addition, there exist two landfill disposal facilities; the Millersville Landfill and Resource Recovery Facility (MLFRRF) in Severn, and the Tolson and Associates Rubble Landfill in Crofton.

County Solid Waste Facilities

The Bureau operates a state-of-the-art resource recovery facility and landfill for both County residents and businesses, as well as three full-service residential drop-off facilities located in Glen Burnie, Severn and Deale; customers can also drop off at the MLFRRF. Each facility will accept all manner of recyclables, including hard-to-handle items like waste oil, antifreeze, cooking oil, lead-acid batteries, as well as the single stream recyclables, yard wastes, and household trash. Facilities also sponsor special household hazardous waste events throughout the year. This provides an opportunity for residents to properly discard chemicals, cleaners, and other items best handled separately from household trash.

The County is organized into fourteen service areas for curbside collection of waste. The County contracts with a private hauler for each discrete service area. Contracts provide for once weekly collection of recyclables, yard waste and trash.

1. Millersville Landfill and Resource Recovery Facility and Central Recycling Center, Severn - The Millersville Landfill and Resource

Recovery Facility and Central Recycling Center are co-located on the 567-acre campus at 389 Burns Crossing Road in Severn. The operation includes a scale house and truck scales, a building for receiving and baling cardboard, a warehouse, vehicle maintenance shop, facility for treating liquid waste pumped from the landfill, recycling area for landfill customers, disposal area, and landfill gas-to-electricity facility. The Millersville Landfill is projected to have waste disposal capacity until 2052. Additional reliance on out-of-County disposal outlets beyond 2023, and increases in residential recycling, could push this date further into the future. The Central Recycling Center is a drop-off facility designed to serve the needs of County residents.

2. Northern Recycling Center and closed Glen Burnie Landfill, Glen Burnie - The Northern Recycling Center is located at the entrance of the closed Glen Burnie Landfill at 100 Dover Road, Glen Burnie, and provides a location for North County residents to bring their recyclables, yard waste and trash. All of the material that comes to the Recycling Center is transported by truck for recycling, processing or disposal at other facilities. Most materials accepted for recycling are handled through contracts with private sector service providers.
3. Southern Recycling Center and closed Sudley Road Landfill, Deale - The Southern Recycling Center is located at the entrance of the closed Sudley Landfill at 5400 Nutwell-Sudley Road, Deale, and provides a location for South County residents to bring their recyclables, yard waste, and trash. All of the material that comes to the Recycling Center is transported by truck for recycling, processing or disposal at other facilities. Most materials accepted for recycling are handled through contracts with private sector service providers.

Private Solid Waste Facilities

Privately owned and operated solid waste management facilities must meet local zoning requirements, but operate under permits issued by the State of Maryland. The primary facilities are discussed below:

1. Annapolis Junction Transfer Station, Jessup - The Annapolis Junction Processing Facility and Transfer Station (Annapolis Junction) opened in March, 1997 and is privately owned and operated by Garnet of Maryland, Inc. The Facility is permitted to accept and transfer 3,000 tons per day on a six-day workweek average of non-hazardous residential, commercial, municipal, industrial, agricultural, silvicultural, construction, demolition and other waste material as allowed in the facility's Refuse Disposal Permit.
2. Curtis Creek Processing Facility and Transfer Station, Baltimore - The Curtis Creek Processing Facility and Transfer Station (Curtis Creek) opened on May 19, 1999, and is owned and operated by Waste Management, Inc. The Curtis Creek Facility has a permitted capacity of 3,000 tons per day on a six-day workweek average of non-hazardous residential, commercial, municipal, industrial, agricultural, silvicultural, construction, demolition and other waste material as allowed in the facility's Refuse Disposal Permit. Spot recycling and segregation of recyclable materials also occurs at the Curtis Creek Facility. Such materials include: ferrous and non-ferrous metals, glass, plastics, construction and demolition materials, and all grades of paper.
3. Tolson & Associates Rubble Landfill, Crofton - The Tolson & Associates Rubble Landfill opened in December of 2016 and is privately owned by Tolson & Associates, LLC. The facility is located off MD 3 at the end of Capitol Raceway Road, Crofton. This rubble landfill is a modern constructed landfill which includes a state-of-the-art liner system, leachate collection system, gas and groundwater monitoring systems and is permitted by the MDE. The facility encompasses a 72-acre fill area on a 184-acre site including an active landfill,

recycling, natural wood waste, and yard waste processing and composting areas. The landfill facility includes a scale and scale house, maintenance and storage building, leachate storage tank, and mulching and composting area. Co-located with the landfill is a sand and gravel mining and processing operation which operates under separate permits issued by MDE and Anne Arundel County. The facility is permitted to accept land clearing, construction and demolition debris and other waste material as allowed in the facility's Refuse Disposal Permit. No hazardous waste is accepted. Recovery, management and processing of recyclables including, but not limited to, natural wood waste (mulch), yard waste (compost), metals, concrete, and cardboard occurs at Tolson. In accordance with the goals and objectives of Anne Arundel County, Tolson may also utilize other technologies, processes and equipment to reduce, reuse and recycle acceptable solid waste. The service life of this facility extends well beyond the ten-year planning period.

4. Biomedical Waste Services, Baltimore - Biomedical Waste Services' facility operation involves the acceptance, processing and transfer of special medical waste. The processing component involves the use of an autoclave for the purpose of sterilization and compaction of the medical waste prior to transfer.
5. K&K Tires, Inc., Linthicum - K&K Tires sells automobile tires, used tires, and also recycles scrap tires. The property was granted a special exception in 2005 to allow a recyclables recovery facility. K&K Tires has held a Scrap Tire Recycler license from MDE since 2005.

Facilities Planning

Growth in the number of households provided with solid waste-related services is largely a function of residential development. New residential developments which are compatible with the manner of collection offered through contracts administered by the Bureau are added to the roles. The Solid Waste Service Charge authorized under §13-4-105 of the Anne Arundel County Code is assessed as collection services are extended to new communities. Table 32 shows growth in the number of households served as of the start of Fiscal Year 2021.

The Ten-Year Solid Waste Management Plan as well as regulations within the County Code help shape the County's solid waste program. Article 13, Title 4 (Public Works, Solid Waste Collection) addresses collection service areas, collection practices, container removal, commercial recycling, County-owned or operated landfills and solid waste disposal facilities, solid waste service charges and the need for a solid waste financial assurance fund. Complementary ordinances exist in the Construction and Property Maintenance Code. Article 15, Title 4 addresses enforcement, condition of premises, refuse containers, and maintenance of trash receptacles, storage of materials, inspection and removal of refuse. The development of solid waste facilities is regulated through Article 18, Zoning. Article 18 identifies requirements for composting facilities, land-clearing debris landfills, natural wood waste recycling facilities, recyclables recovery facilities, rubble processing facilities, rubble landfills, and solid waste transfer stations including where such facilities may be located. Federal and State regulations govern solid waste operations.

Table 32. Households Receiving County-provided Curbside Collection Service

Fiscal Year	2016	2017	2018	2019	2020 (7/1/20)
Households (#)	158,190	159,840	161,825	163,640	166,150

To increase recycling opportunities, more recycling-related businesses are needed within the County. There are currently no large-scale recyclables recovery facilities located within Anne Arundel County. However, Tolson and Associates Rubble Landfill is required to recycle 30% of the material it receives each year under Article 18 of the County Code.

Although source reduction, recycling and resource recovery can significantly reduce the need for waste disposal, it will not eliminate the need for waste disposal options. Even though the MLFRRF has a disposal capacity that is projected to meet annual needs for decades, the County continues to pursue viable alternatives. For example, expanded recycling programs, diverting waste to out-of-County landfills via transfer stations, and implementation of operational efficiencies such as higher compaction rates, minimization of soil for cover, increased material recovery rates and reuse of materials help ensure the longevity of the MLFRRF.

The Bureau will continue to look for programmatic improvements to enhance its affordable, comprehensive solid waste management system that promotes waste reduction, encourages the reuse of discarded materials, maximizes source separation and recycling of materials, minimizes the need to dispose of materials as waste, and conserves valuable landfill space.

Public Safety Facilities and Services

A safe community provides for better neighborhoods, economic development, and an overall quality of life that benefits all of its residents. Anne Arundel County is fortunate to be served by excellent public safety services that include fire protection and emergency medical response; police protection and crime prevention; advancement of the criminal justice system through the Sheriff's office and detention; and emergency management.

Inclusion of public safety services in the County's comprehensive plan is important since future development patterns can impact the demand on these services as well as the County's ability to provide them.

Fire Protection and Emergency Medical Facilities and Services

Anne Arundel County's Fire Department mission is to stand ready as an all-hazards organization to assure the safety of its communities. The Fire Department responds to calls for fires, medical and other emergencies as well as promotes fire prevention strategies and life safety programs. In addition, the Fire Department enforces fire code compliance to ensure that buildings are safe.

The Anne Arundel County Fire Department is one of the largest combination fire departments in the nation, operating out of 31 fire stations with 931 professional officers and firefighters, approximately 500 response-certified volunteers, 28 fire communications officers, three civilian fire inspectors, 26 civilians in support positions and three civilian contract positions. All personnel, career and volunteer, are certified in accordance with the National Fire Protection Association standards and have, at a minimum, Emergency Medical Technician medical certification. The Fire Department currently has over 280 Advanced Life Support providers. The Fire Department is functionally organized into three bureaus; Operations, Logistics and Planning.

The Operation's Bureau is responsible for staffing and responding to Emergency Medical Services (EMS) and fire incidents from each of the 31 fire stations located throughout the County. In addition, Special Tactical Teams, such as Hazardous Material Response, Marine Operations and Collapse/Confined Space Rescue are assigned to various fire stations based on the proximity to the rest of the County.

According to recent data on calls for service, the Operation's Bureau responded to nearly 87,913 calls for service in calendar year 2019. Seventy percent of these calls were for emergency medical service and 30 percent were for fire, rescue and special operations service.

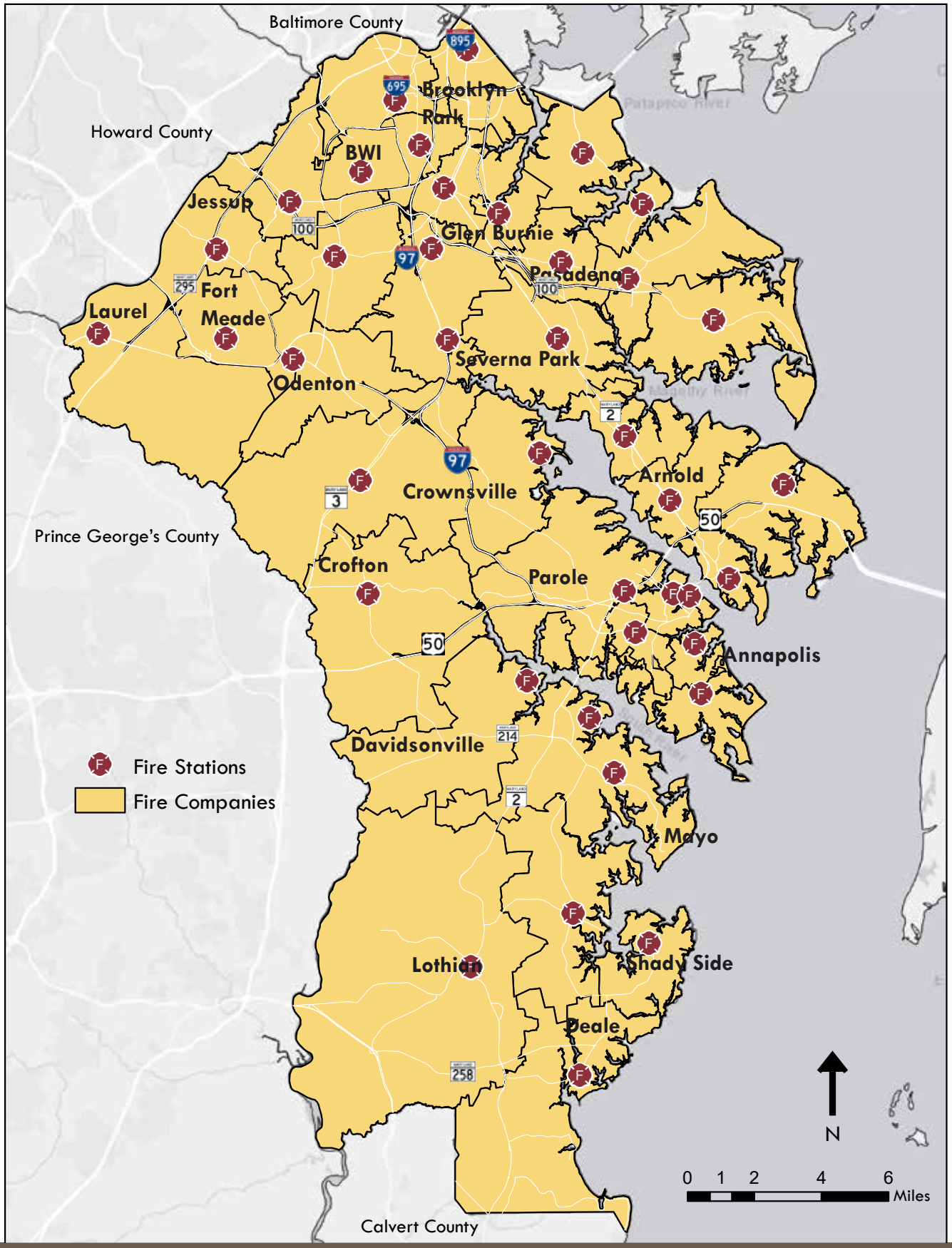
The Logistics Bureau provides operation's support to the Fire Department through the procurement and maintenance of the apparatus fleet and equipment.

The Planning Bureau includes the Fire Marshal Office and the Information Management Division (IMD). The functions of Code Enforcement and Fire Investigation are located in the Fire Marshal Office. The Code Enforcement Section enforces the County's Fire Code in existing and newly constructed buildings. IMD provides emergency 911 dispatch services to the County, as well as the City of Annapolis, through the use of a Computer Aided Dispatch system as well as an 800 MHz radio system. In addition, IMD compiles statistics and produces maps for use during emergency medical responses.

The 31 fire stations currently operating in the County and the fire company areas are shown in Figure 37. Twenty-two stations are County-owned and 9 stations are owned by a volunteer fire company. Since the 2009 GDP was approved, the West Annapolis, Harmons Dorsey, and South Glen Burnie fire stations have been renovated along with construction of new replacement stations in Marley, Lake Shore, and Galesville. Two additional replacement stations, Jacobsville and Herald Harbor, will be completed within the next several years. With the completion of the Herald Harbor station, the County will own 23 of the 31 fire stations located in the County.

Funding for replacement stations for the Herald Harbor and Jacobsville fire stations has been allocated.

In addition to these planned capital projects, the Fire Department conducted a Fire Station Location Study to analyze alternatives for delivery of services that may include relocation of fire stations, renovations or expansions of facilities, introduce the concept of sub-stations, and/or redeployment of fire and EMS units. This study concluded that over the next eight fiscal years, there is a need to construct four replacement stations and four new stations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Howard County
Prince George's County
Calvert County
Brooklyn Park
BWI
Jessup
Glen Burnie
Pasadena
Fort Meade
Laurel
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Crownsville
Arnold
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Davidsonville
Mayo
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along with the redeployment of existing resources as necessary to meet service demand.

The Fire Department needs additional personnel to support projected moderate growth within the County. In anticipation of this growth, the Fire Department has been exploring ways to better deploy its workforce in order to maximize service delivery to the residents and guests of Anne Arundel County. To achieve this, the Fire Department is looking for opportunities to hire more civilian employees for certain jobs in order to free up uniformed personnel for reassignment to other positions in the Fire Department and looking for more efficient service delivery models where appropriate.

Police Facilities and Services

Anne Arundel County's Police Department mission is to protect life and property from the threat of criminal activity, respond to calls for service from victims of crime, enforce criminal and traffic laws, promote crime prevention strategies, assure that police officers are well trained and to maintain strong community-police relations.

To carry out its mission, as of FY2020, the Police Department is authorized to employ 775 sworn officers and 254 civilian employees. The Police Department is authorized to employ 180 paid school crossing guards who staff the 316 school crossings both morning and afternoon (632 daily assignments) during the school year. There are approximately 60 contractually paid part-time employees assigned throughout the Police Department such as Crime Analysis (statistics) and the Forensic Sciences Section (Crime Lab); some are funded through grants. There are approximately 135 Reserve Officers (volunteers) and approximately 70 Volunteers in Police Support (VIPS).

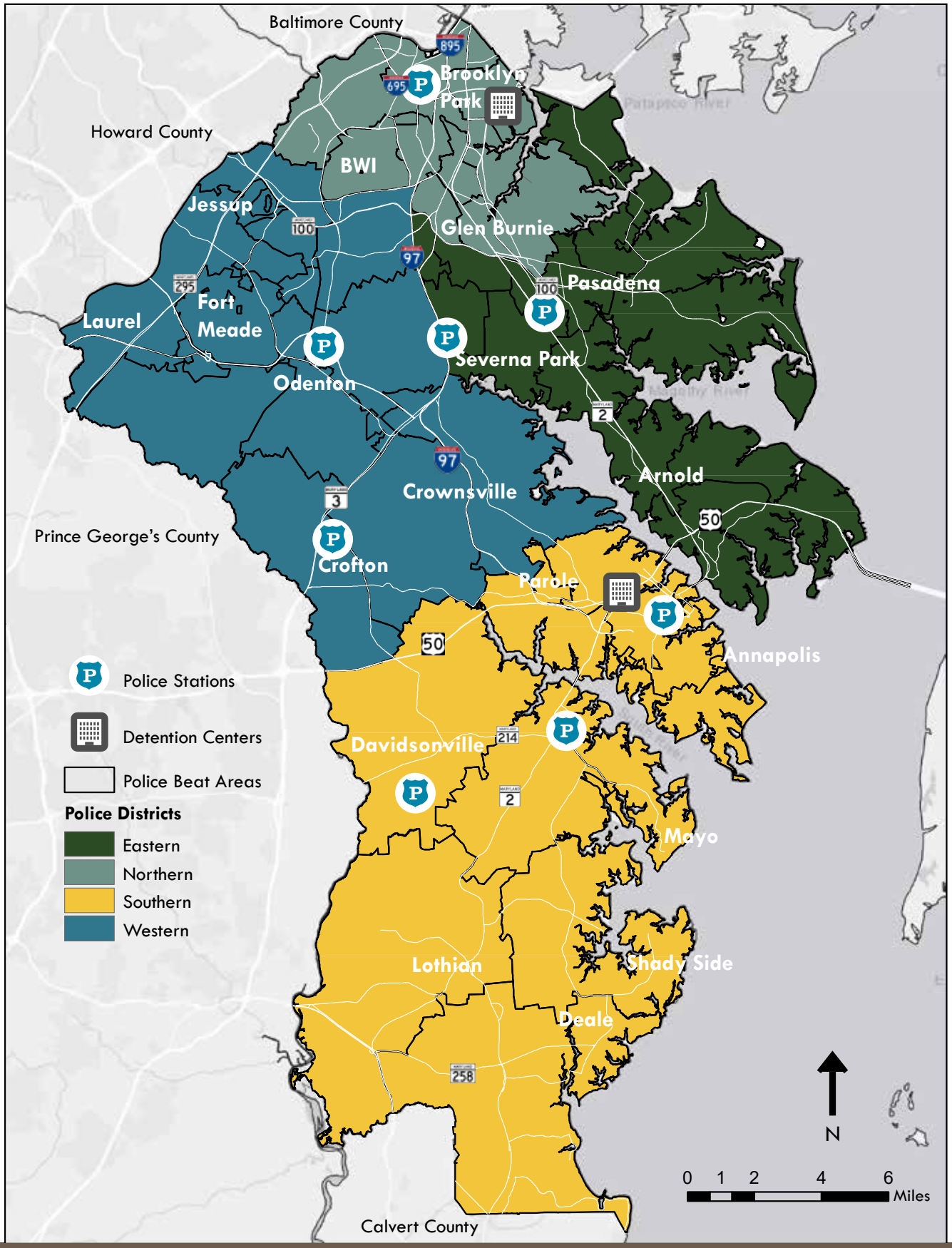
The Police Department is divided into two main commands: Administration and Operations. Administration Command houses the Fiscal Management Section (that includes the Strategic Planning Unit) and the Bureau of Administration which provides support and technical services to the Police Department including the Training Division, and the Animal Care and Control, Personnel and Property Management, Central Records, Communications and Technology sections. The Strategic Planning Unit is responsible for articulating current and future staffing needs as well as capital improvement and facility needs.

The Operations Command oversees the Bureau of Operations and Investigations which is responsible for the direction and control of the Special Operations Division and Criminal Investigation Division. The Operations Command also oversees the Bureau of Patrol which provides direct police services through patrol and district-level investigative and specialized functions through the Community Relations Division, the Crime Analysis Section and the police districts.

The Police Department's response area is currently divided into four geographic districts as shown in Figure 38. The four district stations are strategically located to provide the greatest access to serve the area and provide for community-oriented policing. The district stations provide administrative support to patrol beats within the district (Figure 10) and have space for communities to hold meetings.

Each patrol district is responsible for the initial response to calls for service within their area. The districts have developed positive partnerships with the communities and continue to enhance these relationships and create new ones. The districts also continue to have success in relationship building through the Police and Community Together (P.A.C.T.) unit. The district's Tactical Patrol Units (TPU), Tactical Narcotics Teams (TNT) and many other operations, continue to help reduce crime within Anne Arundel County.

Since the approval of the 2009 GDP, the Police Headquarters has had minor renovations, the Eastern District Police Station has been relocated to a new structure (May 2015), the Criminal Investigation Division was relocated from Crownsville to a procured building in


Baltimore County
Howard County
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Crownsville
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Crofton
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Millersville (September 2018), the Police Academy was renovated (August 2019) and upgrades to the public safety base station radio systems and the installation of additional antenna towers around the County are anticipated to be completed in late 2021.

The posts (neighborhoods) that each patrol officer covers during a shift are periodically examined to determine if law enforcement services are being effectively delivered. If the workload consistently exceeds the capacity of one officer and/or the average response time to priority calls for service is unreasonable, posts have and will be realigned and/or reduced in size or split. Ultimately, new posts will be established requiring additional officers and ultimately, addition supervisors are needed.

The International Association of Chiefs of Police (IACP) was contracted in 2016 to complete a comprehensive staffing study of the Police Department. The study examined crime, calls for service, and other data that occurred during the 2015 calendar year using law enforcement industry standards. In addition to reviewing data and the Police Department's criminal and administrative reports, ride-alongs with officers and process reviews were conducted. The report concluded that there is a need for additional staffing, especially sworn officers. Subsequent Operating Budgets have included additional police officers to aid in implementation of the IACP study and help meet the anticipated demand.

Since the IACP report was conducted, additional staffing needs have increased, especially School Resource Officers. As the County's population and employment increases, the need for additional police officers, patrol districts and facilities will be required.

Sheriff's Office

The Sheriff's Office is comprised of three bureaus: Administration, Operations and Security. The Administration Bureau is overseen by the Chief Deputy and houses the Sheriff's Administrative staff including Human Resources, Finance and Training. The Operations Bureau is supervised by a Sheriff's Captain who is responsible for the Warrant Teams, Civil Process Unit, Document Control Unit, Domestic Violence Unit, Communications Center, and K-9 Unit. The Security Bureau is supervised by a Sheriff's Captain who is responsible for the Transport and Detention Unit and the Security Teams.

Detention Facilities

The mission of Anne Arundel County Department of Detention Facilities (AACDDF) is to provide for public safety through the confinement of pretrial detainees and certain convicted offenders in safe and secure facilities, and by offering alternatives to incarceration, administer programs that maintain and improve the health, education levels and work skills of convicted offenders in order to return them to the community in better condition than when they entered their terms of confinement, administer mental health services that provide optimal care, and be a national leader in protecting the public from crime and victimization.

The County's detention facilities (Figure 38) include the Jennifer Road Detention Center (JRDC) and the Ordnance Road Correctional Center (ORCC). The JRDC is the County's maximum security intake and pretrial detention facility. Its population consists primarily of persons arrested and awaiting trial in Anne Arundel County who do not make their bail and who require special housing for medical, mental health or behavioral reasons. The JRDC has a total rated capacity of 635 with an average daily population of 404. The ORCC is the County's medium security detention facility for men and women who have been convicted and sentenced to terms up to 18 months. It also holds men and women who are awaiting trial. ORCC offers extensive programming designed to prepare inmates for successful re-entry to the community after they have completed their sentence. The total rated capacity of the Ordnance Road Correctional Center is 540 with an average daily population of 379.

Since the approval of the 2009 GDP, a Central Holding and Processing facility at the Jennifer Road Detention Center was constructed to improve the operating efficiency by creating a single point of delivery where detainees can be safely booked and securely held for processing and arraignment.

The recruitment and retention of detention officers is a key challenge within the AACDDF. In addition to staff priorities, capital projects remain an ongoing challenge. Despite the new Central Holding and Processing Center, there is a lack of parking for staff. Additionally, renovations to the open front lobbies needs to be made at both detention center (Jennifer Road and Ordnance Road) to enhance safety and protect from security threats such as an active shooter situation.

From a program standpoint, the AACDDF identifies the need for the development of mandatory specialized programs for addictions and programs for the ever increasing need for mental health.

Emergency Management Services and Facilities

Anne Arundel County government vigorously pursues a high level of readiness to respond appropriately to natural or manmade disasters that threaten the lives or property of its residents. Through a program of integrated emergency management led by the County's Office of Emergency Management (OEM), all County departments and agencies, as well as volunteer agencies and volunteer groups, plan for mitigation of hazards, preparedness for emergency conditions, conducting emergency response operations and assisting the community in recovery to the pre-disaster condition. The OEM coordinates this effort with local, State, Federal, and non-governmental partners and accomplishes this through the development and implementation of several plans including an Emergency Management Strategic Plan, an Emergency Operations Plan, an Evacuation Plan, an Extreme Temperature Plan, a Fixed Nuclear Facility Emergency Response Plan, a Hazard Mitigation Plan, a Long-Term Recovery Plan, a Mass Care Sheltering Plan and a Mitigation Plan.

Shelters

The OEM coordinates with Anne Arundel County Public Schools to utilize Annapolis, Meade, Northeast, Severna Park and Southern high schools as shelters. The County owns three 350kW generators to serve as backup generators. Of the five approved shelters, only Annapolis and Severna Park have transfer switches and wiring complete to provide a backup generator if power fails. Currently, there are three elementary schools wired for emergency generators; however, they are not practical to utilize due to the smaller lavatory facilities. Once the electrical system is fixed, Northeast High School will be approved as a shelter. The Crofton High School, which is anticipated to open in 2020, is projected to be added as a primary shelter.

Warming/Cooling Centers

The OEM coordinates with the Police Department, the DOAD, Central Services, OOT, and the County libraries to provide warming and cooling centers during extreme temperatures. Of the 24 locations to serve as warming and cooling centers, only the four Police Stations include backup generators. This could be problematic if the County experiences a long duration of extreme temperatures with power outages and Anne Arundel County Public Schools are in session.

Mass Care Shelters differ from cooling and warming centers due to their extended nature, as opposed to a temporary respite from extreme temperatures. Large-scale power outages or water shortages may result in larger numbers of residents seeking relief than can be supported by cooling or warming centers, which would warrant consideration for opening a Mass Care Shelter.

For the most up-to-date information on warming/cooling centers in the County, visit the OEM website.

The OEM has identified significant challenges in providing effective and efficient recovery services to residents of the County. To overcome the challenges and concern for family unification, sheltering, recovery, community distribution space, personnel to staff those centers, and expansion of the outreach program must be able to be addressed.

The OEM has been in discussions with Central Services and Anne Arundel County Public Schools regarding additional space for other types of facilities (Family Assistance Centers, Disaster Recovery Centers, etc.). Since space is limited, OEM realizes this is a gap in future planning and continues to research potential County and non-governmental facilities to expand upon response/recovery services.

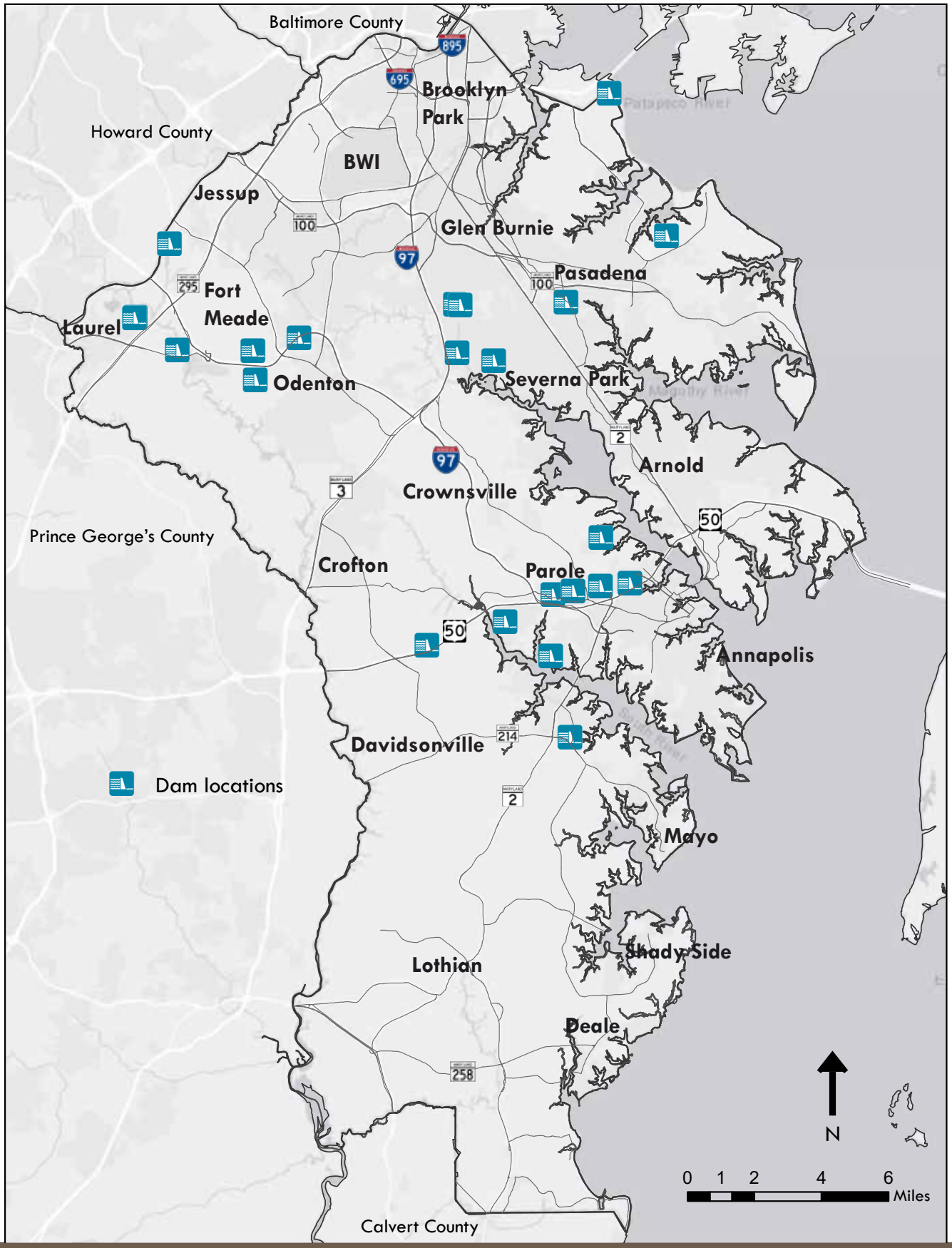
The County's ability to open additional Mass Care Shelters in schools is hampered by the lack of funding for generators and the associated transfer switch and rewiring of the schools. As far as additional planning efforts for Mass Care Shelters, the County has developed a draft Recovery Plan that focuses on identifying and prioritizing facilities to be restored for response operations. One preparedness objective within the Plan identifies the need to develop an inventory and prioritize critical infrastructure restoration and reconstruction. This should be based on the prioritization of facilities designed for response operations and the function and critical nature of the facility as it applies to overall County operations.

The County also faces the obstacle of properly staffing recovery service centers such as the Family Assistance Center, the Disaster Recovery Center, Mass Care Shelters, Commodity Points of Distribution, etc. To meet this challenge and be able to deliver adequate services to the residents, the OEM is exploring the utilization of volunteer organizations to enhance staffing levels as well as a provision to expand on all County position descriptions by adding an agreement to be reassigned to perform alternate recovery work and assist in the opening of the centers in the event of a disaster.

To build and maintain a resilient community before, during, and after a disaster, it is essential for the OEM to expand on its ability to educate residents and elected and appointed officials. Currently the outreach program is sustained through the allotment of office supply funds which hinders the capability to increase outreach activities to residents. In anticipation of future funding, the OEM has developed educational brochures and booklets to educate children and adults before, during, and after disasters. To achieve and develop effective education to elected and appointed officials through efficient training, the OEM has been updating and revising emergency response/recovery plans.

Lastly, there are 23 dams in the County (Figure 39). MDE requires approximately 12 of these to have Emergency Action Plans. Consideration should be given to land use patterns near existing and future dams in the County.

Policies and strategies to address and strengthen the County's community facilities are in Plan2040.


Baltimore County
Howard County
Prince George's County
Calvert County
Brooklyn Park
BWI
Jessup
Glen Burnie
Pasadena
Fort Meade
Laurel
Odenton
Severna Park
Arnold
Crownsville
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Economic Development

Strategically located between the metropolitan markets of Washington, D.C. and Baltimore, the diverse economy of Anne Arundel County is strong. Its $45.3 billion economy ranks as the fourth largest in Maryland[1]. The County is home to several critical Statewide and national assets including Annapolis, the State capital; Baltimore-Washington International Thurgood Marshall Airport (BWI); National Business Park; Maryland Live!, one of the nation's largest casinos; Fort George G. Meade, the third largest Army base in the U.S.; the National Security Agency; the U.S. Cyber Command; and the U.S. Naval Academy.

Various economic and demographic data attest to the strength of Anne Arundel County's economy. The County's labor force stands at 312,383, with an unemployment rate of 2.7 percent, well below the State unemployment rate of 3.2 percent[2]. The labor force is drawn from a well-educated pool of residents, with over 40 percent of residents holding at least a bachelor's degree. Most households in the County (73 percent) own their own homes, and

1 Source: Anne Arundel Economic Development Corporation (www.aaedc.org), accessed January 2020

2 Source: Maryland Department of Labor, Licensing & Regulation, data for November 2019, not seasonally adjusted

Table 33. Largest Employers in Anne Arundel County

Employer	Estimated Number of Employees	Product or Service
Fort George G. Meade	57,327	U.S. Department of Defense installation; 119 tenant organizations including the National Security Agency, Defense Information System Agency and U.S. Cyber Command
Anne Arundel County Public Schools	14,000	County public education K-12 (employee number includes full-time, part-time & contractual employees
State of Maryland	12,627	State government services
BWI Airport	9,717	Regional airport
Northrop Grumman	9,500	Electronic Systems Sector & Marine Division
Anne Arundel County Government	5,190	Local government services
Anne Arundel Health System	4,900	Hospital
Southwest Airlines	4,857	Airline
University of Maryland Baltimore Washington Medical Center	3,215	Hospital
Maryland Live! Casino	3,000	Casino
U.S. Naval Academy	3,000	Federal Naval education facility
Booz Allen Hamilton	2,100	Information assurance & signals intelligence solutions

median household income stands at $98,807, 20 percent higher than the State, and nearly 60 percent higher than the national level[3].

Approximately 58,000 businesses are located in Anne Arundel County, ranging from government, technology, healthcare, construction, hospitality, retail to agriculture. Top industries by number of jobs in the County include professional, scientific and technical services; retail; accommodation and food services; and health care and social assistance[4]. As Table 33 indicates, government agencies, health care systems and private government contracting firms are among the largest employers in the County[5].

The Anne Arundel Economic Development Corporation

The Anne Arundel Economic Development Corporation (AAEDC) is a quasi-governmental non-profit organization with a mission to support business and serve as a catalyst for business growth in Anne Arundel County, thereby increasing job opportunities, expanding the tax base and improving quality of life. AAEDC provides investment and technical assistance and fosters community revitalization initiatives. The organization plays a vital role in enhancing commercial districts, improving County infrastructure, increasing agriculture-based business and promoting high-value business sectors such as technology and national security. AAEDC also serves as a liaison for businesses to navigate the permit process, zoning and environmental considerations, building and fire codes, and health department requirements as businesses expand in or relocate to Anne Arundel County.

To accomplish its mission, AAEDC:

1. Recruits new businesses to locate in Anne Arundel County and assists in the expansion of existing businesses,
2. Anticipates and addresses workforce development needs of the County's business community,
3. Provides advocacy for Anne Arundel County businesses undergoing the regulatory and approval process,
4. Provides financing assistance to County businesses,
5. Incentivizes redevelopment and revitalization along older commercial corridors,
6. Promotes technology development and attracts start-up ventures through Anne Arundel Tech Defense Fund, and
7. Promotes agriculture development and expands markets for agri-business.

AAEDC's business development associates serve the entire business community of Anne Arundel County, providing support for industry specific sectors and are dedicated to serving the Agricultural businesses and programs in the County. In addition, AAEDC has a Memorandum of Understanding with the City of Annapolis to ensure the businesses within the City limits are serviced appropriately.

AAEDC administers a number of programs and incentives to support business start-ups, expansion, and relocation in the County.

Business Financing Assistance

AAEDC offers the Arundel Business Loan (ABL) Fund, providing Anne Arundel County businesses alternative Small Business Administration (SBA)-backed financing, as well as traditional, financing. Loans can be used to fund a start-up, expansion or relocation. In addition, the Arundel Community Reinvestment (ACR) Fund provides zero-interest loans to qualified property or business owners that are interested in making significant improvements to their façade, exterior, or interior in the County's eight Commercial Revitalization areas. AAEDC also provides a link to State of Maryland financing options.

The Arundel Defense Tech Toolbox helps small innovative businesses that are developing

3 Source: Anne Arundel Economic Development Corporation (www.aaedc.org) and US Census, accessed January 2020
4 Source: US Census, 2016 County Business Patterns
5 Source: Anne Arundel Economic Development Corporation (www.aaedc.org), accessed January 2020

technology in the national security space, with assistance such as:

1. The Next Stage Fund, which offers zero percent interest loans with flexible payment terms;
2. Workforce training grants for current and potential employees; and
3. Access to experts in the fields of commercial technology marketing, Federal contracting and intellectual property.

AAEDC serves as a manager of Maryland's Small, Minority and Women-Owned Business loan fund under the name of the VOLT Fund, which receives 1.5 percent of video lottery terminal revenue from Maryland casinos. Small, minority, woman and veteran owned businesses located within 10 miles of any of Maryland's five casinos and those located elsewhere in the State may be eligible for loans of between $25,000 to $500,000 for purposes such as business and commercial real estate acquisition and expansion, lease-hold improvements, equipment and vehicle purchase, and working capital. AAEDC of the funds to conventional small businesses and thirty percent to entrepreneurs of emerging technology.

Small Business Development

AAEDC provides several resources for small businesses. An in-house counselor from the Maryland Small Business Development Center offers assistance including writing a business plan, applying for business financing and loans, and management skills training. Small, minority, and women-owned business assistance is offered through one-on-one counseling, workshops, seminars, office resources, and connections to County and State Minority Business Enterprise certification processes. AAEDC works with SCORE (a volunteer expert business mentor network), Anne Arundel County Office of Minority Affairs and the Procurement Technical Assistance Program to ensure individual business needs are met.

Brownfields Redevelopment

The Brownfields Revitalization Incentive Program (BRIP) was approved by the Maryland Legislature in 1997 in conjunction with MDE's Voluntary Cleanup Program (VCP). The Maryland Department of Commerce administers BRIP, and AAEDC helps coordinate participation by property owners or potential developers. The purpose of this program is to encourage participation in the VCP and provide financial incentives for the redevelopment of properties previously used for commercial or industrial purposes within designated growth areas of participating jurisdictions.

Tourism

AAEDC participates as a board member of Visit Annapolis, which serves as the Visitors Bureau for Annapolis and Anne Arundel County.

Agriculture

Arundel Ag, the AAEDC agriculture program, serves to meet the business demands of Anne Arundel County Agricultural Businesses, providing assistance to new and existing agriculture businesses in the County. The program also serves as an ombudsman to assist with permitting requirements, interpreting code and the licensing and permitting required for those businesses, particularly with County, State and Federal health departments. Arundel Ag has partnered with the Farm Bureau, and various other agencies to change legislation to better serve Anne Arundel County farmers. Some of the businesses and programs that Arundel Ag provides assistance include:

1. Farmers Markets – Arundel Ag provides marketing assistance and development for County farmers markets. There are approximately 75 vendors that participate across all market locations. Vendors include farmers and producers of value-added products and foods, including beer, wine and other specialty products. Additionally, Arundel Ag advises communities and neighborhoods that are interested in establishing farmers markets of their own.

2. Anne Arundel County Equipment Rental Program – This program, funded by the Southern Maryland Agricultural Development Commission, provides the agricultural community with equipment that helps farms incorporate conservation practices on their farms.
3. Anne Arundel County Agriculture Scrap Tire Program – Arundel Ag partners with T&C Farms and Emmanuel Tire of Baltimore to allow farmers to dispose of agriculture tires. Agricultural tires are not accepted in County landfills. The program has been funded by grants from the Anne Arundel County Farm Bureau, Anne Arundel Soil Conservation District, MDE and the Maryland Environmental Service.
4. Arundel Grown – This program identifies restaurants using locally grown ingredients from farms in Anne Arundel County. Arundel Grown Certified helps promote participating restaurants and farms in an effort to increase awareness of local agriculture and food sourcing. Participating businesses are required to source at least 25 percent of its ingredients from in-season products from a Maryland Farm and at least 10 percent from an Anne Arundel County farm. The percentage is based off total purchases.
5. Agriculture Education – Arundel Ag continues work with the Ag Education Program for Southern High School and the Phoenix Academy. The Curriculum for Agriculture Science Education (CASE), a national program, was brought to Southern High School and has had a tremendous impact on County agriculture, which includes the return of the County's Future Farmers of America (FFA) program and the creation of a FFA Alumni group.
6. Agriculture Marketing – Arundel Ag promotes awareness of agriculture through educational events (Farm to Fork dinners, Buy Local Challenge, Farmers' Market events/promotions) and includes Agriculture literacy programs in elementary schools and agriculture education in County high schools. Other strategies include the distribution of flyers and newsletters to promote Farmers' Markets and Agricultural events, paid advertisements in local media, farm business profiles, press releases, social media engagement and TV and Radio interviews.

Maritime Industry

AAEDC attends and participates in the Anne Arundel County Maritime Industry Advisory Board (MIAB). The MIAB is working toward creating metrics to determine the health of the industry and grow the County's recreational and commercial maritime industries.

The cyber and defense industries of the Fort Meade area are expected to continue their patterns of economic growth. Industrial warehousing and distribution are also experiencing high growth currently, though growth patterns for this sector tend to be cyclical. Anne Arundel's location in the metro area, with proximity to BWI Airport, the Port of Baltimore, and Fort Meade, combine to make the County a target for expansion in these areas. New hotel construction, low vacancy rates, and recent investment in hotels in Annapolis and near BWI Airport point to strength in the hospitality sector, and this expansion trend seems likely to continue.

Though national trends point to headwinds facing the retail sector and exacerbated by the Covid-19 pandemic, the County's demographics may buffer some potential negative impact locally. The County remains a strong retail market, particularly in the vicinity of Parole, Odenton, and Arundel Mills/Arundel Preserve. Still, the County's malls may experience some transformation and expansion of uses and services to better respond to national trends in shopper behavior.

The County's agriculture sector remains a significant economic driver and a factor in the quality of life, but there are challenges for the future. There has been a loss in the number

of larger farms in the County, but an overall increase in the number farms, with a trend toward more small farms focused on niche farming markets. Supplemental activities are becoming increasingly important as fewer of the remaining farmers in the area engage in agriculture full time. The recent agritourism legislation (Bill 67-17) expanded the potential for agritourism activities in various zones to bolster the economic viability of the County's farms. It also established the Agriculture, Farming and Agritourism Commission, which will continue to study policies and measures that will further promote agriculture in the County. Balancing farmland preservation with development will also be key to the future of agriculture in the County. Current protections in the County Code through zoning and development regulations are critical to the continued viability of farming and maintaining farmland.

As with farming, Anne Arundel County's heritage is linked closely to its maritime activity. From recreational boating to commercial operations and ancillary activities, the County's maritime industry continues to be an important economic force in the region. The recent recession had a significant impact on maritime businesses, and despite recent growth, the industry has not returned yet to pre-recession levels. Indeed, boat sales and registrations throughout the State are below pre-recession levels. Other constraints such as the cost of land offer challenges to maritime businesses. A study of the economic impact of the County's maritime industry and the opportunities and challenges facing it going forward would help AAEDC and the County tailor policies and programs, such as a maritime tax credit program, to supporting and growing this important sector.

Workforce Development

The Anne Arundel Workforce Development Corporation (AAWDC) is a nonprofit corporation that facilitates programs to strengthen the capacity and skills of local workers and job seekers in response to the workforce needs of business and industry in Anne Arundel County.

AAWDC has several initiatives to advance this mission, including:

1. Workforce Re-Entry - This initiative is a partnership with the Anne Arundel County Detention Center that provides job search assistance, employment resources, and training options for offenders and ex-offenders to successfully transition back into the community.
2. Workforce Innovation and Opportunity Act - The Workforce Innovation and Opportunity Act provides quality career advancement and training services to assist individuals 18 and older in finding meaningful employment, and to help businesses find the qualified talent they need to remain competitive in a global economy.
3. Ticket to Work - The Ticket to Work initiative was designed by the Social Security Administration as a voluntary option for recipients of Social Security Disability or Supplemental Security Income to become and stay employed, increase their earnings, and eventually transition off benefits by becoming fully self- supportive. Participants working with AAWDC receive opportunities and support to assist with obtaining employment and advancing their careers.
4. Military Corps Career Connect - Military Corps Career Connect, better known as C3, is a Maryland-wide initiative focusing on employment for transitioning service members, active duty spouses and recently separated veterans (non-retiree). The Anne Arundel County C3 program is funded by a $4.3 million US Department of Labor, National Dislocated Worker Grant.
5. Participants work directly with a C3 Veteran Navigator to receive career planning, coaching and preparation to assist in a successful transition. Outcomes include gaining industry credentials, certifications, and licenses needed for employment; and hands-on experience with on-the-job training and paid work experience.

6. Maryland Tech Connection - Maryland Tech Connection is a public-private initiative comprised of a coalition of 59 partners led by AAWDC. The program utilizes a demand-driven system and comprehensive wrap-around services to address the unique barriers of long-term unemployed individuals and assists them in preparing for middle and high skilled occupations in information technology and biosciences.
7. JobsWork! Arundel - JobsWork! Arundel is a partnership with the Anne Arundel County Department of Social Services to get recipients of Temporary Assistance for Needy Families (TANF) on a path of self-sufficiency through barrier removal, up-to-date skills and certifications training, essential skills development, and work experience placement that leads to employment.
8. CyberWorks - CyberWorks is designed to fill the competitive needs of the high-growth Maryland cybersecurity industry by increasing the pipeline of qualified cybersecurity/IT professionals. This program focuses on providing the practical hands-on experience and specialized skills needed to succeed after completion of training. This initiative is intended to serve Maryland residents with a bachelor's degree in science, a minimum certification level of Network+, or a veteran with related experience.
9. Business Solutions - Business Solutions provides customized workforce solutions for Anne Arundel County companies by providing innovative sourcing options, talent management strategies, assistance in upskilling incumbent workers, and other resources.
10. Bridges to Construction - In response to the need for highway construction workers, AAWDC created a supportive environment that gives individuals the capabilities to succeed in transit and capital project careers, and an opportunity to gain exposure to the industry while earning wages.
11. AAWDC YouthWorks! - AAWDC YouthWorks! provides services to youth and young adults ages 14-24 by building a foundation through career exploration and skills development, leading to independence. Services include targeted in-school and out-of-school initiatives along with summer and year-round career readiness and work experience offerings.

Using innovative practices, AAWDC ensures that the Anne Arundel County workforce is prepared to meet the needs of the area's growth industries. AAWDC has a growing presence nationally, with innovative practices recognized in areas such as sector strategies, regionalism, and wrap-around strategies. AAWDC uses innovative practices and continuous improvement to train individuals with the technical and soft skills to be successful, and partners with businesses to provide quality talent management services and ensure that cutting edge industry-specific training.

Sector Strategies

AAWDC has become a nationally recognized leader in sector strategies. They have led or engaged in regional industry sector partnerships in Cybersecurity, Construction, Green Careers, and Marine Sectors. Additionally, AAWDC has developed the Industry Navigator staffing model to address the unique needs of sector strategies. Industry Navigators serve as subject matter experts and guide training, placement, and business service strategies to effectively align with industry needs.

Bridging the Skills Gap

AAWDC works to address both the technical and soft skills gap in the region for all job seekers. In the area of Soft Skills Development, AAWDC partnered with WorkNet Solutions (a nationally recognized workforce training company) to develop the Workplace Excellence Series. By teaching customers to put themselves in the shoes of the employer, AAWDC aims to cultivate the attitudes and behaviors that will

increase success in obtaining and retaining employment through 10 flexible modules.

With Integrated Learning Strategies, Anne Arundel County is on the cutting edge of career pathways development in Maryland. AAWDC partners with Anne Arundel Community College (AACC) to offer integrated learning opportunities that blend basic academic and occupational skills to help lower- skilled job seekers begin their career path based on the highly-acclaimed I-BEST model.

Wrap-Around Services

AAWDC is a national leader in workforce transportation efforts. Through a grant from the MDOT MTA and the Anne Arundel County Video Lottery Fund, AAWDC operates the Mobility Access Program (MAP) that connects transit-dependent job seekers to major employment sectors in Anne Arundel County. AAWDC has been a regional and national speaker as a model for Workforce Investment Board engagement in addressing transportation issues.

To address other employment barriers and challenges job seekers face in today's market, AAWDC partners with Arundel Lodge, a national leader in trauma-informed care. Through this partnership, AAWDC works to train staff members in the use of trauma-informed career services and to offer workshops to job seekers to address the emotional stress of long-term unemployment. AAWDC and Arundel Lodge served as subject matter experts in a Ready to Work grantee webinar on Mental Health Services for Job Seekers.

Consolidation of Local Workforce Programs

AAWDC oversees programs funded by the Workforce Innovation and Opportunity Act (WIOA); the Department of Labor, Licensing and Regulation; the Department of Social Services, and the Department of Detention Facilities. AAWDC thus provides an umbrella for County workforce initiatives, ensuring employment services are coordinated and integrated in Anne Arundel County.

The impact of AAWDC's efforts is felt throughout Anne Arundel County, but particularly for various populations that have multiple barriers to employment.

Additionally, AAWDC partners with AAEDC and others to promote various workforce programs.

In particular, AAWDC has developed focused partnerships in the County's Cybersecurity/IT and Hotel sectors to address issues in workforce recruitment, retention, and transportation, as well as training programs for other businesses and industries in the County to meet specific workforce needs. AAEDC offers Workforce Training Partnership Agreements that provide qualified new or existing companies training assistance with critical skills upgrades for incumbent or new employees.

The County's low unemployment rate relative to the State is a positive indicator of economic health, but can create a challenge for business owners seeking employees. The County's cyber industry offers one example of this, with thousands of cyber job openings that require certifications and skill sets that most unemployed in the area do not have. AAEDC and AAWDC, in conjunction with the Maryland Department of Commerce, will continue their programs and resources to help bridge this gap and increase the skill level of the local workforce.

Agriculture, Farming and Agritourism Commission

In 2016, the County formed an Agritourism Work Group that was tasked with evaluating the County Code and making recommendations for revisions in order to enhance opportunities for agritourism. The Work Group developed a definition of agritourism, identified specific agritourism activities that could be included as allowable uses in certain zoning districts and defined building code requirements related to agritourism activities. In October of 2017, the Agriculture, Farming and Agritourism

Commission was created. The Commission is comprised of residents of the County who are familiar with agriculture, farming and agritourism and related issues. Duties of the Commission are to advise and report to the County Executive and OPZ on the promotion, coordination, development, and furtherance and establishment of agriculture, farming and agritourism uses including recommended changes to the provisions of the County Code.

Mineral Resources

Mineral resources represent a valuable commodity for the local and regional economies. Recent data from the United States Geologic Survey (USGS) shows that sand and gravel production topped $95 million Statewide in 2015, with the total quantity of sand and gravel sold or used reaching 7.5 million metric tons (USGS 2015 Minerals Yearbook).

The first comprehensive mining legislation was passed by Congress in the late 1970's. In 1977, the Surface Mining Control and Reclamation Act of 1977 (SMCRA) was passed to regulate surface and subsurface mining as well as reclamation activities. The intent of SMCRA was to provide a balance for meeting the energy and resource demands of the Country in an environmentally sensitive manner. This law forms the basis from which States and local jurisdictions govern these mining activities. Code of Maryland Regulations (COMAR), Title 26, Subtitle 21 represents the State's legislative authority for regulating surface mining activities. Adopted in 1977, the authority for Title 26 was granted under Maryland Environmental Article 15-803 and 15-813 for non-coal mining permits.

COMAR Title 26 regulates non-coal surface mining activities and operations. The State mandates that surface mining permit applications contain detailed information, including grading and sediment control information. COMAR also requires applicants to submit back filling, grading, and re-vegetation (reforestation), as well as detailed reclamation plans once the productive life of the operation has been reached. Aside from regulating the physical operation and immediate environmental oversight of the mine, Title 26 also governs minimum distances that certain mining activities must maintain from other surrounding properties and non-commercial/industrial uses.

The underlying geology of Anne Arundel County contains large quantities of unconsolidated sedimentary materials that are available for productive extraction and processing via surface mining operations. Surface mining operations within Anne Arundel County concentrate on the extraction of sand and gravel. Sand is used in the construction of roads and highways, while both sand and gravel are key ingredients used to manufacture concrete. Additionally, there are mining operations that extract loose soils from what have come to be known as 'borrow pits'. Loose materials extracted from borrow pits are used in landscape service operations, as supplemental fill for highway projects, as well as for certain building construction projects.

Anne Arundel County has continued to support the State in preserving surface mining operations, in order to minimize transportation costs while at the same time ensuring that the extraction of mineral resources are done in an environmentally sensitive manner. According to COMAR, the local permitting authority must uphold the intent of Title 26 by way of proper environmental and residential protections while simultaneously allowing the mining operations to be a productive contributor to the local economic base. Anne Arundel County's primary means of regulating and permitting surface mining operations is through zoning (Article 18) of the County Code. These zoning regulations apply the intent of Federal and State law (SMCRA and COMAR respectively).

Existing Mining and Reclamation Sites

Surface mines continue to represent a viable component of the County's industrial sector. There are 13 active surface mining operations

documented Countywide. The majority of these operations are located along the Patuxent River shoreline in the western and southwestern portions of the County (Figure 40).

MDE requires that a permitted operator begin reclamation of the site as soon as feasible once mining operations begin, continuing concurrently with mineral extraction and, upon termination of mining, until the entire permit area is reclaimed. In some instances, a mining operator may not be able to begin reclamation until after mineral extraction is completed. MDE tracks the operational status of a mining operation and continues to classify a permitted facility as "active" until all local approvals are met.

The State provides mining operators between three to five years after a mining permit expires to complete reclamation actions and requests and receive the released liability bond. However, a license can remain active while redevelopment plans are submitted through a separate process. This underscores the utility of having access to a current surface mines record, especially the reclamation status for each operation. Access to information such as this is particularly useful for ensuring proper compliance with local land use policies, and allows ready assessment for redevelopment and reuse potential.

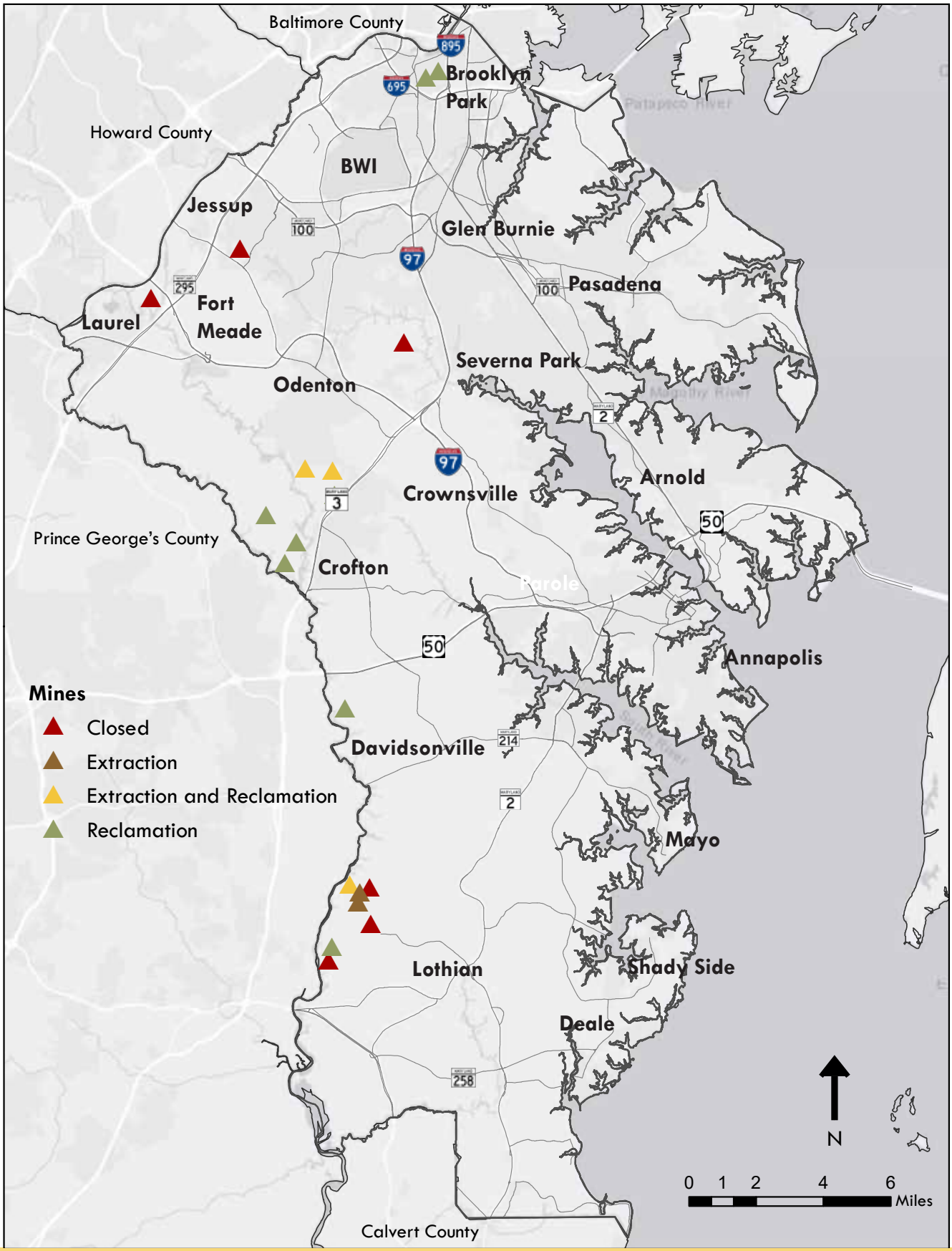
To date, out of the 13 active operations Countywide, two operators are exclusively involved in mineral extraction. Three are in the process of reclaiming their site while maintaining mineral extraction activities, and eight are in the reclamation process.

There are several examples where active mining sites have been successfully reclaimed through various public and private partnerships. Many of these successes are for sites along the Patuxent River. One of the most recognized examples of successful reclamation in Anne Arundel County is the former "Mardis Pit" operated by Chaney Enterprises. This former mining site was converted to a private golf course known as the Renditions golf course, and was awarded the 2004 Reclamation Award by MDE as well as the 2004 National Reclamation Award by the Interstate Mining Compact Commission (IMCC) for the "non-coal" category. Other examples include a site once operated by the Genstar Stone Products Company, as well as a site formerly operated by Brandywine Enterprises, Inc. The Genstar Stone Products site is now used for multi-purpose athletic and recreation fields, along with some trails/walking paths that surround the fields. Anne Arundel County purchased the site in 2000. The Brandywine site is now under passive recreation / environmental preservation.

While not common, there are also some active mining permits located in areas of the County that are currently planned for residential or industrial use. An example is the Belle Grove Corporation site in Brooklyn Park that is planned for residential use on the County's Land Use Plan. Sites such as these serve as important redevelopment opportunities for the County once the reclamation process has been completed.

Surface mining operations within Anne Arundel County continue to support the local and regional economy. For those mining operations near the end of their active mineral extraction, State and County planners should continue to cooperate to ensure that site reclamation complies with long term land use planning. This is critical for reclamation sites within planned growth boundaries as these areas have a greater chance for experiencing long-term land use changes. The County continues to periodically update and evaluate existing mining operations and current reclamation plans status for compliance with locally adopted land use plans. Greater coordination with MDE's Bureau of Mines to identify post mining land uses is necessary.

Policies and strategies to retain the County's strong economy are in Plan2040.


Baltimore County
Howard County
Prince George's County
Calvert County
Brooklyn Park
BWI
Jessup
Glen Burnie
Pasadena
Laurel
Fort Meade
Severna Park
Odenton
Crownsville
Arnold
Crofton
Parole
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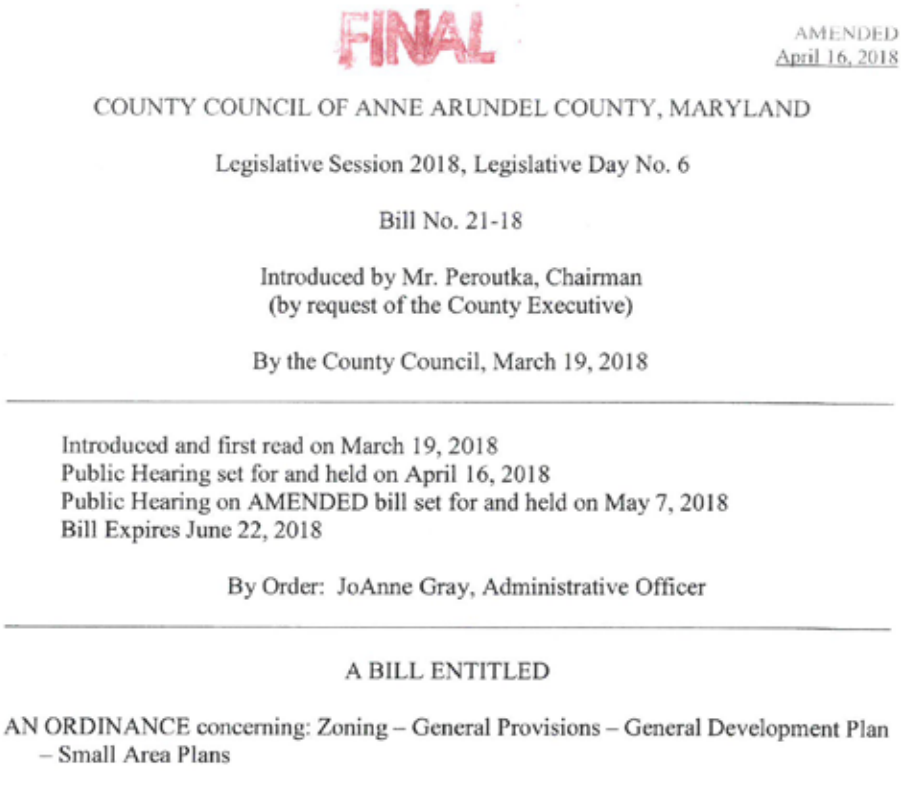
With Legislative Bill 21-18, the County Council required the GDP update to designate no less than seven small planning areas and provide for the creation of small area plans for each planning area. The legislation directed that the GDP specify process and schedule for completion, the composition of the small area plan committees and the content of the plans. The small area plan committees are required to have no less than nine members who are residents appointed by the County Executive.

Plan2040 establishes nine region planning areas encompassing all unincorporated areas of the County. These nine regions will be the focus of more detailed, community-level planning efforts following the adoption of Plan2040. Development of each Region Plan is expected to take approximately 18 to 36 months, with each plan expected to tailor the Countywide goals and policies of Plan2040 and prioritize action strategies to address elements specific to each region, such as agriculture, sea-level rise, transit-oriented development, redevelopment and revitalization.

Defining Region Boundaries

Prior to developing the Region Plan boundaries, community boundaries were determined. These boundaries were initially mapped using zip codes, manmade and natural features, homeowners associations and community groups, and historical communities. These boundaries were then shared with the Citizen Advisory Committee and public during Spring and Summer of 2019. Comments were then reviewed and a final Community map was created.

These Community boundaries were then the building blocks in identifying the Region Plan boundaries. The Citizen Advisory Committee and OPZ staff worked collaboratively to identify nine Region Planning areas. Below is a description of these boundaries and the characteristics that unite them.



FINAL

AMENDED
April 16, 2018

COUNTY COUNCIL OF ANNE ARUNDEL COUNTY, MARYLAND

Legislative Session 2018, Legislative Day No. 6

Bill No. 21-18

Introduced by Mr. Peroutka, Chairman
(by request of the County Executive)

By the County Council, March 19, 2018

Introduced and first read on March 19, 2018
Public Hearing set for and held on April 16, 2018
Public Hearing on AMENDED bill set for and held on May 7, 2018
Bill Expires June 22, 2018

By Order: JoAnne Gray, Administrative Officer

A BILL ENTITLED

AN ORDINANCE concerning: Zoning – General Provisions – General Development Plan – Small Area Plans

Region 1

Communities: Brooklyn Park, Linthicum Heights, Curtis Bay, Ferndale, BWI Airport, Harmans, and parts of Hanover

This northernmost region of the County is bound by the County boundary and the Patapsco Valley State Park to the north and west, MD 100 to the south, and MD 2 and the Curtis Bay industrial area to the east. The region is characterized as an historic residential area that is densely developed. The residential areas coexist with the Baltimore/ Washington International Thurgood Marshall Airport and the supporting office, commercial, and industrial uses as well as a variety of transit options.

This is an area of older communities that are in the midst of transition. Though the region is experiencing seniors aging out of their homes, the changing demographics will impact schools and other community facilities. Infrastructure and existing commercial centers are showing their age as well and will need to be improved and redeveloped to ensure their highest and best use for the community. There are also concerns about the encroachment of commercial development from the airport, deforestation of wooded areas, and controversial land uses in close proximity to vulnerable populations. Community members in this region have expressed interest in continuing to protect the Patapsco River shoreline, providing hiking/biking trails, and protecting the historic residential district with its architectural integrity. Despite a variety of public transit options, there is a desire for better accessibility throughout the region. Aesthetics within the region will be important to draw new investment and for individuals to take advantage of the incentives for redevelopment.

Region 2

Communities: Jessup, Annapolis Junction, Laurel, Maryland City, Fort Meade, Patuxent Research Refuge, and parts of Hanover

Region 2 includes the west County communities of Jessup, Annapolis Junction, Laurel, Maryland City, parts of Hanover, and the Patuxent Wildlife Research Refuge and Fort George G. Meade. It's borders are the County boundary to the west, MD 100 to the north, the eastern edge of the Patuxent Research Refuge to the south and east, and Fort George G. Meade and MD 713 to the east. This region includes Fort George G. Meade, the largest employer in Maryland, and like Region 1, supports various industrial, commercial, and office uses, such as Arundel Mills. As a result, this region is poised for continued development and redevelopment.

As areas within this region are developing and redeveloping, there are concerns about traffic, safety, stormwater runoff, flooding, and preserving the community character. The owners of Laurel Park, a major feature in the community, are developing plans to redevelop the area into a mixed-use entertainment area with public transportation. The region includes the MARC Penn Line, which runs along the County boundary; however, additional public transportation options are needed. There is a need for new community amenities and pedestrian amenities, especially on the major roads in the region. The region is home to several environmentally sensitive areas including the Oxbow Preserve, the Patuxent Wildlife Preserve, the Patuxent River, and the Little Patuxent River.

Region 3

Communities: Glen Burnie, Severn, and parts of Millersville

Region 3 stretches from the Severn area to the greater Glen Burnie area. It includes the entire Severn Run Natural Environment Area to the headwaters of the Severn River. This area has a strong sense of community and shared roadways. It is largely a dense residential region, though there are opportunities to redevelop the aging commercial centers such as the Marley Station Mall and the Glen Burnie Town Center. As these areas redevelop, public transportation, including the Cromwell Light Rail station can help alleviate the traffic issues.

There are demographic changes occurring where younger populations are moving into the region and want a diversity of housing. The area includes several environmental features that are in need of protection and rehabilitation. As with other regions, there is a strong need for adequate community facilities, including schools. The B & A Trail is a popular recreational amenity which provides pedestrian connections to other regions in the County.

Region 4

Communities: Pasadena, Gibson Island, Severna Park, Arnold, Cape St. Claire, Broadneck

Region 4 includes two of the County's peninsulas - the Broadneck peninsula and the Lake Shore peninsula. This region includes distinctive village areas, a strong waterfront community given the Severn River, Magothy River and numerous streams and creeks, and generally similar types of housing. The primary boundaries of the region are the Chesapeake Bay, Veterans Highway, Brightview Drive/ Obrecht Road, and the southern portion of Glen Burnie.

As with other areas in the County, automobile traffic is an issue, and there are limited public transportation options. Traffic impacts are compounded by summer traffic or commuter traffic traversing the County and particularly this region. As planning for a third span across the Chesapeake Bay occurs, careful consideration will be given to how it will impact this region. The region is bookended by rural and agricultural characteristics on the Lake Shore and St. Margarets communities in the north and south, respectively. There is a strong sense of community within this region as well as community amenities such as Kinder Park, yet there are redevelopment opportunities at the aging commercial centers and needs for infrastructure upgrades. Given the region's proximity to the water, there are historical and cultural resources that connect the area to its past.

Region 5

Communities: Odenton, Piney Orchard, Gambrills, Woodwardville, Two Rivers, Crofton

Region 5 includes the MD 3 corridor and the communities surrounding it. The region is bound by the County boundary to the west, the Patuxent Research Refuge, Fort George G. Meade, the Severn community to the north, MD 3 and the Crownsville community to the east, and MD 450 to the south. The region is mostly residential including Crofton, one of the County's first planned communities, and one of the County's most recent communities - Two Rivers. The region is also tied together by MD 3, a heavily commercialized corridor, and the Odenton Town Center to the north.

A new high school was built due to the growth of the region. However; due to the past and future development; there continues to be a need for community facilities and amenities. Special consideration is also given to the Patuxent River and the Little Patuxent River which traverse the region. Walkability and pedestrian amenities are critical in this region in order to connect the residential areas to the MD 3 commercial corridor and the Odenton Town Center.

Region 6

Communities: Crownsville and parts of Millersville

Region 6 is primarily comprised of the Crownsville community. It is bound by MD 3 and I-97 to the north, the Severn River to the east, the Annapolis area to the south, and the Crofton/Gambrills area to the west. The region is mostly residential with a few pockets of small commercial properties along MD 178. In addition to the residential and commercial areas, the region features the Bacon Ridge Natural Area and the Crownsville State Hospital site.

Future redevelopment of the Crownsville State Hospital will need to take the characteristics of this rural, historic, and waterfront region into consideration. Drivers detouring from I-97

frequently burden the rural roads in this region and widening these scenic and historic roads may not be an option. Community members have expressed a strong desire to protect the environmental assets, such as the Severn River tributaries.

Region 7

Communities: Greater Annapolis, Parole, Riva, Annapolis Neck, Bay Ridge, and Highland Beach

Region 7 is comprised of the Annapolis Neck peninsula and Riva community. It is bound to the north generally by US 50 and the Parole Town Center. A majority of the region is the City of Annapolis, though Forest Drive connects the residential waterfront areas to the Parole Town Center.

Traffic is a major concern for many residents and studies are underway to find land use and transportation solutions. With the large population in the City of Annapolis and surrounding developed areas, there is a need for public transportation, not only within the region, but to other areas in the County and beyond. There is a balance of redevelopment in the Parole area with protecting existing communities on the eastern portion of the Annapolis Neck. Quiet Waters Park is a popular park that draws many residents and visitors in the region. Given the waterfront nature of the region, there is a strong need to develop strategies to adapt to sea level rise.

Region 8

Communities: Davidsonville, Harwood, Owensville, Waysons Corner, Lothian, Friendship, Owings, and parts of Edgewater

Region 8 is largely rural and agricultural areas from MD 450 and MD 214 south to the County boundary, east of the Patuxent River and west of MD 2. It does not include the Chesapeake Bay waterfront areas. This rural and agricultural region comprises numerous scenic and historic roads and historic communities. There are dense woodlands and the area has been agrarian for centuries. Many historic homes date from the Colonial era. Small commercial areas exist at the nodes of these rural roads, including Waysons Corner, South County's major hub and eastern gateway, and the Davidsonville area. The County has long maintained this region would stay rural and agricultural and not develop significantly. However; there is a need to repair aging infrastructure, including roads; a need for community facilities; and support for farmers. Public transportation in County's least dense area has been a challenge.

Region 9

Communities: Mayo Peninsula, Galesville, West River, Shady Side, Churchton, Deale, Tracy's Landing, North Beach, and parts of Edgewater and Friendship

Like Region 8, Region 9 is predominately the southern portion of the County; however, this region is focused on the waterfront areas stretching from Edgewater to North Beach and bound by MD 2 to the west. This region is characterized by maritime uses, rural waterfront communities, and small nodes of commercial uses. Despite Edgewater being a commercial area, it does have a strong connection to the South River and maritime uses.

These communities share common issues with Region 8 in the sense that they are both rural in character and have a need for upgraded and new community facilities, but with the added need for public water access and adaptation to sea level rise. In addition, given the proximity to the shoreline, there is extra interest in protecting the environment and water quality in the Chesapeake Bay. The peninsulas, primarily the Mayo peninsula, face more transportation related issues due to the amount of development. Inland, the Edgewater community has redevelopment potential at aging and vacant commercial centers and corridors.

Implementation Process and Schedule

Broad phases of each Region Plan are illustrated below; see Plan2040 for the Region Plan schedule.

Composition and Role of Stakeholder Advisory Committees

Each Region Plan will be developed with input from a diverse Stakeholder Advisory Committee (SAC) and should include at least 11 members who represent each of the Region's defined communities. Each SAC will be appointed by the County Executive and be comprised of a broad cross section of the Region's civic, business, environmental and other stakeholders who reside in or own or manage a business in the planning area. The SACs will be representative of the diversity of racial, ethnic and age groups in the Region.

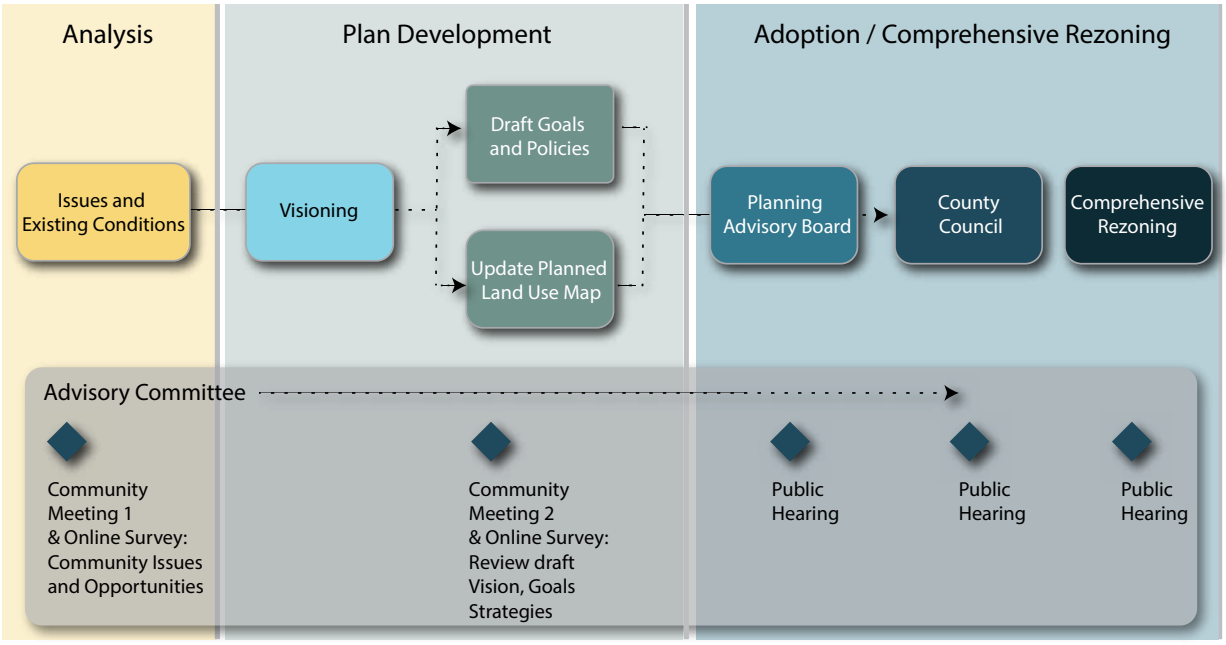
The Mission of each new Region Planning Area Committee will be to provide input and assist the County in fine tuning Plan2040 by examining specific community challenges and opportunities in more detail.

The Role of the Committee Chair (and Vice Chair) will be:

- Work with OPZ staff to facilitate the Region Planning Area Process
- Facilitate the committee meetings and discussions
- Ensure that committee members stay focused on agenda items
- Ensure that each committee member participates and is heard

The Role of each Region Planning Area Committee member will be to:

- Become familiar with the goals, policies and strategies of Plan2040
- Become familiar with planning concepts, land use regulations, community trends
- Be familiar with the built and natural environment of the planning area
- Seek community input on a long-term vision, and issues and opportunities
- Develop a Vision and Goals for the area
- Review and provide input to OPZ on polices, strategies, and the draft plan
- Participate on subcommittees as needed



- Assist / support in the public forums, Planning Advisory Board Hearings and County Council Hearings

A 51% majority of the appointed members of the committee will constitute a quorum for committee meeting to be held. The planning area process is a collaborative process. Each member should contribute and remain open-minded. Every effort should be made to reach consensus decisions. Once efforts to achieve consensus have been exhausted, the Chair may recommend that the discussion be brought to a vote. For non-policy issues, a 51% majority vote of those members present and voting will be required to pass a motion. For recommended policies and strategies, a 2/3 majority vote of those persons present and voting will be required.

All committee meetings shall be open to the public.

Content

The content of each Region Plan will align with Plan2040. The Region Plans will analyze existing conditions and trends in each of the major topic areas, and will establish goals and action items for each topic area. The Region Plans will also provide an opportunity for additional stakeholder input, identify unique features within the communities that should be protected and refine the land use plan within the targeted development and redevelopment areas. Refinements must be consistent with Plan2040. The outline below is a broad framework for each Region Plan's structure.

1. Introduction
    A. Vision
    B. Community Engagement Summary
2. Community Characteristics
    A. Community Characteristics
    B. Special and Unique Features
3. Natural Environment (Sensitive Areas, Water Resources, Land Preservation)
    A. Conditions and Trends
    B. Goals
    C. Implementation Strategies
4. Built Environment (Land Use, Housing, Transportation, Historic and Cultural Resources)
    A. Conditions and Trends
    B. Goals
    C. Implementation Strategies
5. Healthy Communities (Schools, Libraries, Public Health, Recreation and Parks, Emergency Management Services)
    A. Conditions and Trends
    B. Goals
    C. Implementation Strategies
6. Healthy Economy (Community Revitalization, Workforce Development, Economic Drivers)
    A. Conditions and Trends
    B. Goals
    C. Implementation Strategies
7. Implementation
    A. Timeline and Lead Agency: Roles, Responsibilities, Phasing, and Funding
    B. Measurement (Tracking implementation of plan and indicators of success)

Comprehensive rezoning will follow the adoption of each Region Plan. An implementation advisory committee, with similar diverse representation to the SAC, will be established after adoption of each plan to facilitate its implementation.

Prior to adoption of the 2009 GDP, §18-2-104 of the County Code was amended to include a requirement for a concurrency management plan to be included in future GDP updates. The concurrency management plan is required to address the following public facilities:

1. Fire and emergency medical services (EMS) services
2. Public elementary and secondary schools
3. Stormwater management facilities, and
4. County and State roads.

The concurrency management plan defines the level of service standards for these facilities, identifies the capacity improvements needed for each of these facilities to accommodate existing and future development at the desired level of service, describes how development impacts on the specified facilities are measured and tracked, and demonstrates how concurrency management planning informs the Capital Improvement Program (CIP) and the Adequate Public Facilities Ordinance (APFO).

For the purposes of this analysis of existing and future demand on public facilities, defined levels of service are based on operational capacity of the public facility, in other words, the physical requirements of the facility in terms of space, equipment, miles, etc. For example, strategic planning for public schools may identify needs not only for additional space as related to the number of students that can be accommodated, but also for expanded curriculums or programs. However, this analysis will focus only on the capital facility needs to maintain the desired operational capacities, since these are the costs most directly related to new growth in the County.

Fire and EMS Service

Fire and EMS services are provided by the County's Fire Department along with support from volunteer fire companies. The Fire Department operates from 31 fire stations located throughout the County and currently has approximately 952 career firefighters and 517 certified volunteer firefighters. The Department responds to calls for fire, medical and other emergencies and promotes fire prevention and life safety strategies.

APFO and Level of Service Standard

The APFO standard for fire suppression (County Code §17-5-301) requires the public or private water supply serving a development be capable of providing adequate fire-flow. This is accomplished by water supplied via water mains and drafting tanks.

Water supply calculations and requirements are based on National Fire Protection Association (NFPA) Standards. These standards provide guidance on the amount of water that must be available to the Fire Department in the event of a fire.

- NFPA 1: Fire Code
- NFPA 1141: Standard for Fire Protection Infrastructure for Land Development in Wildland, Rural, and Suburban Areas,
- NFPA 1142: Standard on Water Supplies for Suburban and Rural Fire Fighting and
- NFPA 13: Standard for the Installation of Sprinkler Systems, as appropriate.

The Anne Arundel County Fire Department, Fire Marshal Division performs review of development applications including an evaluation of the water supply requirements for residential, commercial, and industrial buildings. The water supply requirements vary for areas served by water mains and those not served by water mains, which are designated as 'rural' in the Water Sewer Master Plan.

For areas served by water mains, the County tracks the water system capacity through the Sewer and Water Allocation, Management and Planning System (SWAMP). This computer model is continuously updated to evaluate water capacity available for proposed developments.

Review of proposed residential developments served by water mains includes analysis of water supply system capacity through the SWAMP model, fire-flows based upon occupancy

type, and compliance with hydrant spacing and coverage requirements. Fire Department access roadways are reviewed for required access.

Review of proposed commercial and industrial developments served by water mains also includes analysis of water supply system capacity through the SWAMP model, fire-flows based upon occupancy type, and compliance with hydrant spacing and coverage requirements. Additionally, if the occupancy type and/or hazards require it, commercial and industrial buildings must install a sprinkler system. Fire Department access roadways are reviewed for required access.

Review of proposed developments in rural areas focuses on water supply and fire flows provided on site. Prior to 2008, all residential subdivisions in rural areas were required to provide a water supply via underground drafting tanks of various sizes. Since the adoption of the residential sprinkler code in 2008, which requires all new residential construction to include a sprinkler system, the requirement for underground drafting tanks has been relaxed. Existing underground drafting tanks are required to be tested and maintained to ensure water is available to the fire department. Commercial and industrial buildings in areas without water mains are currently required to have an on-site water supply calculated to support fire-flows and/or a sprinkler system. Fire Department access roadways are reviewed for required access.

Existing and Future Needs

In addition to the water supply standards applied in the APFO, the level of service standard for determining whether adequate levels of fire protection and EMS services are provided is response time. The Fire Department periodically conducts studies to determine areas of the County where service improvements are needed. The Department bases their performance measures on NFPA 1710 response time standards. NFPA 1710 utilizes a 90% percentile performance measure, meaning that performance objectives are expected to be met within the response zone 90% of the time.

The most recent analysis of the Fire Department's response times indicates that for critical incidents of all types, the Department arrives on location at or below benchmark times 82% of the time; for urgent incidents the Department arrives on location at or below benchmark times 84% of the time; and for non-urgent incidents the Department arrives on location at or below benchmark times 92% of the time. In order to meet industry standards, actions need to be taken to help move the Department to the 90th percentile for all call types.

Response times can be improved by ensuring that medical transport, fire suppression, and rescue units are properly staffed and strategically deployed. The Department continually evaluates how resources are deployed in order to maximize efficiency within its approved budget. In addition to proper staffing and deployment, fire station location pays a major role in response times.

The Fire Department evaluates current response time data and projected growth information to determine appropriate fire station locations for both existing and new fire stations. Concurrently, existing facility conditions are evaluated in order to prioritize which existing stations are renovated or replaced.

The Department's current Fire Station Location Study was completed in December 2018. It estimated capital needs related to anticipated growth in the County's population and employment, reviewed the Fire Department's historic and probable future performance, and identified gaps in coverage that can be addressed by future fire station development or relocation. This study was used in conjunction with Fire Department historical knowledge and Central Services input to develop a plan for fire station needs.

The study identified three significant coverage gaps in western, central and southern Anne

Arundel County in areas where response times are long and/or support aid from neighboring volunteer companies is unpredictable.

The estimated cost per new fire station, including land acquisition, engineering, plans development and construction, ranges between $7,000,000 and $9,000,000 dollars depending upon the deployment model and apparatus configuration needed at each location. In addition to the capital costs required for station construction, each station will incur additional capital costs for apparatus ($350,000 per ambulance, $525,000 per pumper) and recurring operating and personnel costs.

Capital Improvement Program

The Fire Department uses the results of its Response Time and Fire Station Location studies to guide the allocation of funds in the six-year Capital Budget and Program.

Recently completed fire station projects include, replacement and/or relocation of the Galesville, Herald Harbor, Jacobsville and Lake Shore fire stations, and for the expansion and modifications to the Harmans Dorsey and South Glen Burnie fire stations. Funding has been approved in the current FY21 Capital Budget and Program for the replacement of the Cape St. Claire fire station. Capital funds have not yet been allocated for the Fire Station needs program identified above. The 2018 Fire Station Location Study and other information will be used to inform the FY22 capital improvement program and beyond.

Future Considerations

The County may want to further explore alternatives to the current APFO test for fire suppression that would serve to improve the levels of service and the Fire Department's ability to meet its established performance measures.

Public Schools

The Anne Arundel County Public Schools (AACPS) system serves over 85,000 students with a staff of over 10,000 employees. The system consists of 13 high school feeder districts with the opening of the new Crofton High School in the 2020-2021 academic year, 19 middle schools and 78 elementary schools. Several alternative and special education centers and contract and charter schools are also operated by AACPS.

APFO and Level of Service Standards

AACPS prepares an Educational Facilities Master Plan (EFMP) annually in accordance with State of Maryland requirements, which includes enrollment projections for a ten-year planning horizon. The EFMP also determines a utilization rate for each public school by comparing the State Rated Capacity for each school versus the full time enrollment over the projection period.

The County's APFO test for public schools (County Code §17-5-501) is based on this utilization rate. AACPS prepares and updates a School Utilization Chart which designates each school as either open or closed based upon whether the school's enrollment has exceeded 95-100% of the State Rated Capacity. The School Utilization Chart is adopted by the County Council and used by the OPZ in review of development applications.

To meet the APFO requirement, a development application must demonstrate that the schools in the geographic attendance area for the development project will be open in the third school year after the year in which the determination is made. Development projects that have met other development requirements but cannot meet the School APFO test can be placed on a school waiting list for a period of no more than six years, after which the applicant is entitled to approval of the development without passing the APFO test for schools.

Legislation passed in 2018 (Bill 15-18) altered the school APFO requirements in several ways.

First, elementary and middle schools will be designated as closed on the School Utilization Chart when the school enrollment exceeds 95% of the State Rated Capacity, as opposed to 100%. High schools will continue to be designated as closed when their enrollment exceeds 100% of the State Rated Capacity. In addition, the OPZ and AACPS are directed to update the School Utilization Chart twice each year, in order to better account for additional reductions in school capacities due to new development projects approved or other factors. Finally, the APFO now requires not only that the schools impacted by a proposed development must be designated as open, but also that the projected student generation from the proposed development will not exceed 85% of the remaining capacity at each impacted school. These new requirements took effect on January 1, 2020.

Existing and Future Needs

AACPS is engaged in facilities planning in an ongoing effort to stay abreast of rapid increases in the County's student population. The student population has increased by over 10,000 students from 2009 to 2019 and is projected to increase by approximately 9,000 students from 2019 to 2029.

To help accommodate this increase, AACPS continues to renovate and add capacity to schools as funding allows. AACPS has completed construction projects at numerous elementary schools and secondary schools. A complete list of the schools and years of renovation or additions can be found on the Facilities Inventory IAC form 101.1 contained with the latest EFMP. Each year AACPS submits a Capital Improvement Program to the State of Maryland which defines the proposed projects to be undertaken in the future six years. Those projects are also part of the County's capital budget process each year that is presented and approved by County Council.

Additionally, AACPS has doubled the number of charter/contract schools (administered by outside agencies) from two to four.

Even given these recent and ongoing school expansions and replacements, addressing capacity constraints continues to be a challenge. Based on the School Utilization Chart effective in February 2020, there were a total of 31 schools designated as closed. AACPS may need to consider additional ways of accommodating students, such as redistricting to minimize the number of empty seats (currently over 10,000).

At the elementary school level the greatest enrollment gains have been in areas that have been densely developed for many years, such as in North County near Glen Burnie and Linthicum, as well as in West County and near Annapolis. There has been significant amounts of some of these areas and also demographic shifts as older households move out and are replaced by younger families with more school age children. The trend is especially pronounced in Annapolis (Tyler Heights, Germantown and Parole in particular), Glen Burnie (Marley and Hilltop) and Maryland City (Maryland City and Brock Bridge). For instance, Brock Bridge Elementary School saw its enrollment grow by 140 students in the two years, in a community with virtually no new residential development.

AACPS is in the midst of an extensive schedule of construction projects to accommodate this influx of students. These construction projects have primarily consisted of expanding or replacing existing schools as opposed to building new schools in new locations. To date AACPS has completed revitalizations or additions at all but six elementary schools. For the middle and high schools there have been eight remodels and seven expansions or replacements. The last new elementary school built in Anne Arundel County, Nantucket Elementary School in Crofton, was opened in 2008. A new elementary school is planned for the Two Rivers area to open in 2024, subject to funding. The last new high school, Broadneck High School, opened in 1982. A new high school in Crofton will open for the 2020-2021 school year.

Adding onto existing schools has allowed AACPS to keep abreast of enrollment increases,

but this strategy is not altogether effective in allowing for future enrollment gains. Such school additions are often inadequate to handle the continuing influx of new students, requiring additional expansions. Solley and Marley Elementary Schools are undergoing such "follow-up" additions. The strategy of building additions of space at existing schools eventually brings another issue to the fore: school size.

As school buildings are enlarged some of them are reaching a point where they are getting too big to administer. After elementary school enrollment reaches approximately 700-750 students, adding additional classrooms places a strain on the school's cafeteria, gymnasium, student support functions, parking lots, access and bus loops. In some AACPS schools, lunch periods run from 10:00 am until 2:00 pm.

Larger student bodies also generate a demand for more resource rooms, storage space, music rooms and art rooms, and require more staff to run them. This includes psychologists, guidance counselors, assistant principals, speech/language therapists, and other professionals, all of whom need space to work. It is important to understand that the rooms staff members occupy do not count toward the school's State Rated Capacity. Funding for school additions typically focuses on the addition of classroom space to add capacity and not on the additional space needed for increased school staff.

Another consideration concerning school construction is obsolescence. Many AACPS schools are increasingly unsuited to contemporary educational programs and philosophies. At least 56 of Anne Arundel County's elementary schools' original buildings were built at least 50 years ago. At that time most school buildings consisted of two or three hallways lined with classrooms plus a multi-purpose room and the administrative offices. A number of elements considered indispensable today were not incorporated into those schools, such as kindergarten and pre-kindergarten rooms, media centers, art and music rooms, computer labs, health rooms, occupational and physical therapists, reading and math intervention, behavior interventionists, and individualized education programs. All these uses must be provided in spaces originally used as classrooms, the result being that many schools saw their capacities decrease as more and more classrooms were converted to other uses. Title I schools, which draw funds from the Federal Government, often are used to reduce classroom sizes in schools meeting the Federal criteria. This means fewer children can be accommodated in the same amount of space, adding to overcrowding even in schools that appear to be of adequate size to handle the school's student body.

Lastly, there are several regional programs that are available at selected schools. They provide specialized curricula or services available to limited numbers of students. These regional programs thus are attended by students from throughout the County. These programs include STEM (science, technology, engineering and math), International Baccalaureate, BioMedical Allied Health Program, Performing and Visual Arts, JROTC, Special Education, and various other programs.

The combined effects of increased school-age population and the need to update obsolete and unsuitable school buildings have driven the need to upgrade or replace nearly every school in the County. The increased population also drives the need for an element of AACPS's Capital Improvement Program that has not been included in some time: the need for new school buildings to be built where adequate capacity cannot be provided by expanding existing school buildings, along with the need to purchase the land upon which to build the new school buildings.

Given the above, AACPS must identify where school overcrowding will occur in the future, where new residential construction will be most prevalent, and where demographic changes are most acute. Considering all of these factors and based on current and projected trends in development and student enrollments, AACPS has determined the following needs for new school construction. These are in addition to the

new Crofton Area high school that will open in 2020 and to ongoing expansion and renovation projects occurring at several elementary and middle schools. Other overcrowding issues will likely be addressed via school redistricting.

Capital Improvement Program

The current FY21 Capital Budget and Program includes a total of over $2.395 billion in capital funds in the Board of Education class. This funding is provided primarily through County bonds, developer impact fees, and State and Federal grants. The program includes funding for a new Old Mill West high school and Farmington Village site elementary school; replacement schools at Jessup and Arnold elementary schools; and additions to George Cromwell, Edgewater, High Point, Richard Henry Lee, and Tyler Heights elementary schools. The additional needs for new school construction listed in Table 34 have not been funded yet.

Future Considerations

Demands placed upon the Anne Arundel County Public School system facilities are constant, and it is nearly impossible for every facility need to be met simultaneously. AACPS will continue to address existing building deficiencies and meet the challenges of an ever-changing educational curriculum. Utilization rates at each of the schools will continue to be addressed through a combination of means including redistricting, additions and renovations to existing schools, replacement of existing schools, and construction of new schools. Enrollment forecasts will need to be monitored for changes in demographic and development trends, especially household size. In addition, the need for land to accommodate new schools will continue to be a challenge and must be addressed aggressively and through comprehensive planning. The County's APFO will need to be further evaluated in order to address impacts from new developments in combination with existing households.

Table 34. Potential New Schools

Potential New Schools	Estimated Capital Costs*
Elementary Schools	
Farmington School Site in Pasadena	$40,000,000
West County in Two Rivers area	$40,000,000
Tanyard Cove/Marley Neck Boulevard area (land required)	$40,000,000
Russet School Site	$40,000,000
Elvaton Road Site	$40,000,000
Linthicum/BWI Airport area (land required)	$40,000,000
Middle Schools	
Crofton area, next door to new high school site	$80,000,000
Brooklyn Park area (land required)	$80,000,000
High Schools	
Two new high schools to replace existing Old Mill High School	$260,000,000
West County in Severn area (land required)	$130,000,000
Conversions of Brooklyn Park Middle School and/or Lindale Middle School back to a high school in concert with a new middle school in Brooklyn Park	$100,000,000

**Cost estimates are for planning, design, and construction and do not include land acquisition.*

Stormwater Management

Anne Arundel County is comprised of various land uses that generate differing degrees of stormwater runoff. Generally, the amount of stormwater runoff is directly related to the amount of impervious area (i.e. pavement and buildings). Approximately 42,601 acres (16%) of the County are considered impervious. Most developed areas of the County have stormwater conveyance systems directing stormwater through pipes, roadside swales and curb and gutters to the nearest natural waterways. However, historic development of the County did not include stormwater quantity or quality treatment. The County has been accumulating stormwater management facilities, also referred to as best management practices (BMPs) over the past few decades as stormwater regulations have evolved to require water quality management. Approximately 5,970 acres of impervious surface in the County are treated by some form of stormwater BMP. New development projects in the County are designed to meet Maryland's current regulations, which require that Environmental Site Design (ESD) be used to the Maximum Extent Practicable (MEP) to reduce the runoff from new development and replicate the hydrologic characteristics of forested conditions. To meet this requirement on a new development project, ESD practices must be used either exclusively or, where necessary, in combination with structural practices to provide sufficient treatment and reduce the volume of runoff from the 1-year, 24-hour design storm. For new development projects, this standard is based on the median value of the 1-year storm for Maryland, or 2.7 inches of rainfall. It should be noted that the current standard for redevelopment projects is either to remove impervious cover or to capture and treat the runoff from 1 inch of rainfall from at least fifty percent of the existing impervious area within the project Limits of Disturbance (LOD).

The County's publicly owned stormwater infrastructure includes approximately 992 miles of storm drain piping; 6,071 stormwater outfalls; 1,034 stormwater BMPs (dry, wet and infiltration ponds and devices); and 2,041 roadway culverts.

APFO and Level of Service Standard

Stormwater management involves the conveyance of stormwater runoff to an appropriate location so that flooding and erosion are minimized. Storm drains and other facilities are typically designed to handle a specified "design flow" based on a particular storm event. The County's APFO test for stormwater management, addressed in Article §17-5-701 of County Code, requires adequate capacity in the onsite and offsite drainage systems to convey the design flow of stormwater runoff to an adequate outfall – one that can withstand both the increased volumes and velocities from development. This is the established level of service standard.

Existing and Future Needs

For the purpose of quantifying the existing demand on stormwater facilities, information is provided on the backlog of existing stormwater piping and infrastructure that needs replacement under the Closed Storm Drain and Culvert Program. The number and type of projects needed and associated costs are shown below.

The backlog total includes only those hard infrastructure items associated with extending the useful life of existing storm drain infrastructure that has been deteriorating over time. There is an additional backlog of storm drain projects that are necessary to provide flood relief or drainage improvements to address areas where runoff generated from public property impacts private property. In addition, there are projects associated with road systems that were originally privately developed and owned, and have since been conveyed to the County for maintenance, that do not have adequate or sufficient drainage systems. Identifying all such instances throughout the County is not possible, requiring that the DPW track these issues on a complaint basis.

Table 35. Existing Stormwater Infrastructure Needs

Closed Storm Drain and Culvert Projects	Number of Structures	Projected Projects	Estimated Capital Costs
Inlets	38,369	1,151	$5,755,350
Manholes	19,282	578	$4,338,450
Connections	2,864	86	$257,760
Pipes	60,344	1,810	$27,154,800
Outfalls	6,327	190	$729,240
Culverts	2,218	133	$6,387,840
Total			$44,653,440

Future needs for stormwater infrastructure are a function of the type of development, the amount of impervious coverage, and the stormwater management techniques used to control runoff. ESD can significantly reduce stormwater runoff impacts from new development, and render those properties employing ESD as "fully treated" in a regulatory context. In addition, most of the cost for installing new storm drain systems to serve new development is covered by private developers, not by the County. Therefore, the County's longer range obligations for stormwater infrastructure associated with new development are primarily comprised of inspection and maintenance activities.

There are also related costs associated with capital improvements required to meet State and/or Federal water quality regulations, including NPDES Permit requirements and the Chesapeake Bay Total Maximum Daily Load (TMDL) standards for pollutant loads to tributaries. Staying in compliance with these regulatory requirements is critical to the County's ability to continue to develop without interruption either to its stormwater permitting or wastewater sector growth capacity. The County is currently in the midst of a $120 million effort to satisfy the restoration requirements of its current NPDES Permit, which involve providing stormwater management retrofits to approximately 4,996 impervious acres in the County developed in the era prior to contemporary stormwater management requirements. The County's Watershed Protection and Restoration Fee (WPRF), implemented in 2013, has been instrumental in funding these efforts to date, and provides sufficient funding for the County's current and near term NPDES permit obligations. Based on discussions with MDE, there are likely to be additional restoration requirements assigned to the County beginning in 2021. The cost of these obligations is estimated to be in the range of $150 million in capital investment through 2026, assuming the requirement of retrofitting an additional 2,500 acres of existing impervious area.

Capital Improvement Program

The Bureau of Watershed Protection and Restoration within DPW is responsible for conducting watershed studies and restoration plans which serve to identify the capital improvements needed to enable the County to meet all water quality regulatory requirements (NPDES and TMDL). The current FY21 Capital Budget and Program includes over $265 million in approved capital funds within the Watershed Protection and Restoration Class for projects including storm drain and outfall rehabilitation, stream restoration, and stormwater management facility retrofits.

Future Considerations

The APFO requirement in § 17-5-701 focuses on the adequacy of drainage capacity through a site and beyond the bounds of the site, but also makes reference to ESD to the MEP, and

compliance with stormwater requirements of the code. The broader goal goes beyond drainage compliance to consideration of the County's need to comply with water quality standards as well. Given this, Subtitle 7 could be updated from "Adequate Storm Drain Facilities" to "Adequate Stormwater Management Facilities" to recognize it includes both quality and quantity management.

With the implementation of the Chesapeake Bay TMDL, and enhanced clean water obligations on the County as a result of both the TMDL and its NPDES permit, the County may want to consider broadening the APFO requirement to include water quality protection more generally. If broadened, the water quality APFO could include a requirement to offset the pollution load (i.e., nitrogen) impacts of new septic development, either through the use of "best available technology," a mitigation plan, or a fee in lieu. Such an expansion of the APFO requirement may be relevant by virtue of the fact that failure to achieve TMDL or other regulatory benchmarks could ultimately result in the US Environmental Protection Agency (US EPA) or MDE issuing "backstop" consequences, including, but not limited to, tightening discharge limits on the County's wastewater treatment plants and/or interfering with the County's ability to issue development-associated stormwater permits.

Additional information that would be helpful in evaluating any potential adjustments to the APFO requirements could include the following.

- Data on the approximate number of projects per year having to take either onsite action or mitigation to achieve the "adequate outfall" standard, both from a water quantity and outfall stability perspective.
- An evaluation of the pollution loading difference between ESD to the MEP treatment of stormwater using the existing regulations and the "woods in good condition" goal of the Maryland Stormwater Design Manual to determine if, in actuality, the current stormwater regulations are leaving the County in a deficit situation, or if they are pollution neutral.
- Estimates of new septic system development, annually, by zone (Critical Area; within 1,000 ft of a non-tidal stream; other) to accurately project current nitrogen deficit being inherited by the County, which will eventually need to be offset.

Public Roads

The County's road network consists of nearly 5,000 lane miles of roads including freeways, principal and minor arterials, collectors, and local roads. Responsibility for construction and maintenance of this network falls under the MDOT, Anne Arundel County, and private developments.

APFO and Level of Service Standards

The APFO standard for public roads (County Code §17-5-401) applies to new development projects that generate more than 50 daily vehicular trips. Exceptions are made for certain types of development in the Parole and Odenton Town Centers as per Article 17 and/or the Odenton Town Center Master Plan, given that higher traffic volumes (peak hour critical lane volumes) are more acceptable in these environments due to the more urban nature of a town center.

The APFO test requires that a traffic impact analysis be prepared for a defined impact area of a proposed development. The impact area is defined as all County and State roads extending in all directions from each entry and exit point from the proposed development, through the intersection with the first arterial road and along that road to the second intersecting arterial road. A more rigorous evaluation is conducted for five specified roads that serve the County's peninsula areas, in which cases the impact area is extended to the third intersecting arterial road.

There are two standards that must be demonstrated in order for a development proposal to meet the APFO requirement. First,

roads within the impact area of the proposed development must operate at a Level of Service (LOS) D or higher while accommodating traffic from the proposed development. LOS is a measure used to analyze highways by categorizing traffic flow into six levels of service (A through F) based on performance measures such as speed, travel time, volume, and safety.

The second standard requires that roads within the proposed development's impact area will have an adequacy rating not less than 70 as defined by the County's road rating system. The road rating system goes beyond the LOS assessment, which is primarily focused on peak hour volumes and capacity, to include other factors affecting road conditions and safety such as lane widths, shoulder widths, pavement condition, sight distance, roadside friction, sidewalks, frequency of access, and traffic service. The road rating requirement does not apply to development projects in designated Commercial Revitalization Areas or for most developments in the RA and RLD zoning districts; however the LOS standard still applies to these projects.

If neither of the above two standards can be met for a proposed development, the APFO requirement for roads can also be met by an approved mitigation plan, as is the case for other public facilities subject to APFO requirements. Mitigation allows the developer to construct or fund improvements to offsite facilities in the impact area that will increase the facility's capacity such that upon completion, the capacity will be equal to or greater than the capacity prior to the development's construction. Mitigation measures for road facilities may include road widening, land reconfiguration, intersection improvements, or other measures. For development within a half-mile of bus or rail transit, mitigation may also include the provision of bus passes, passenger shelters, or ride share programs.

The County has taken steps to shift from a road design that primarily serves vehicular traffic to a Complete Streets design that better accommodates other modes of transportation for users of all ages and abilities with a focus on safety and integration with the surrounding community and uses. Legislation was adopted in 2018 that requires new development proposals to include a bicycle, pedestrian, and transit assessment in addition to the traffic impact study, and to design new road improvements including those proposed under a transportation mitigation plan to accommodate these multi-modal facilities The County should also consider changes to APF requirements in the Code to ensure adequate capacity is assessed for all modes in the transportation network.

Existing and Future Needs

Anne Arundel County is a suburban jurisdiction with auto-oriented activity centers, an abundance of free and surface parking and high automobile ownership. The overwhelming percentage of trips made when travelling alone makes for significant congestion and less travel time reliability within Anne Arundel County. While more than 70% of commute trips are made within the County, the average resident reports a commute of approximately 30 minutes; however, some commutes are less reliable than others due to bottlenecks, frequent traffic crashes and other conditions. In 2017, MDOT SHA reported four roadway segments in Anne Arundel County among the top 15 most congested freeways in the State; four arterial roadways were also among the 15 most congested arterial segments Statewide. Furthermore, the County ranks fifth among Maryland counties for prevalence of motor vehicle crashes and for crashes involving bicyclists or pedestrians. This equates to nearly two crashes per million vehicle miles traveled (VMT). These data begin to outline the growing challenge for vehicular mobility and the roadway capacity in the County.

There have been concerns from residents about the existing roadway infrastructure not meeting current standards in many communities as many roadways do not have sufficient width, shoulders or bicycle and pedestrian infrastructure unrelated to congestion and

delay. To provide high quality transportation infrastructure, the implementation of Complete Streets Policy requires context sensitivity in retrofit projects to meet the needs of all users and age groups.

Based on current projections, there will be an increase of more than 86,950 daily trips taken within, to and from Anne Arundel County by 2040 – more than 80% of which will be by personal automobile. When considering commuting trips only, more than 90% of all trips are taken alone.

As the number of trips increases, commuting patterns are changing as well. While travel to and from Baltimore County once was dominant, travel to Howard, Montgomery, Prince George's counties and the District of Columbia has overtaken trips to and from the north. As a result, congestion will significantly worsen on MD 3 through Crofton and Bowie, on US 50 between I-97 and I-495, and on the MARC Train stations at Odenton and BWI. This gradual shift in commuting patterns also is producing a rapidly increasing number of trips to and from Howard County which has implications for east-west travel in the mid-County along MD 100, MD 175, and MD 32.

Still, of all trips taken within the day nearly 75% are within Anne Arundel County. This includes not only commuting trips, but travel to the grocery store, doctor's office, and other day-to-day activities. This is significant because unless capacity improvements are made, trips on the primary State roadways will become longer and less reliable, forcing drivers to seek alternative routes using local roads not designed to handle significantly increased volume. Trips within community cores will become more difficult and less safe. As such, additional travel capacity will be needed on local roadways that run parallel to major roads owned by MDOT SHA. This capacity can be created by:

- Deploying advanced traffic management and operations strategies such as adaptive traffic signal systems that respond to real-time traffic conditions; allow peak-hour use of hardened roadway shoulders; and, clear roadway incidents more quickly among others.
- Encouraging trips that are less than ¼ mile to be made on foot or bicycle by providing safe and well-connected pedestrian and bicycle routes.
- Increasing transit service in certain corridors and making transit more responsive to daily demands.

Move Anne Arundel! establishes a vision, goals, and priority investments for the transportation system. The priority investments are placed into five categories which reflect the varying mobility needs of the County:

- Making communities more walkable
- Building a connected bicycle network
- Advancing new modes of transit
- Upgrading County corridors and strengthening community cores
- Improving regional corridors and making commutes more reliable

While there is no cost estimate for each recommended investment priority project, based on historical averages and projected forward for twenty years, the "County Corridors and Community Cores" projects could cost more than $250 million while the "Regional Corridors and Reliable Commutes" projects could total nearly $1 billion. The transit, bicycle, and pedestrian improvements are a tiny fraction of the recommended road projects.

While the total package of improvements sums to a very daunting number, when spread over 20+ years and considering the amount of time for any project to move through the pipeline, the total may not be out of reach with new funding sources and financing strategies. The case for transportation investments in Anne Arundel County is clear. Anne Arundel is home to the State capital and huge economic generators such as BWI Thurgood Marshall Airport and Fort Meade. Our transportation demands relate to both the Baltimore and Washington, DC metropolitan regions.

Capital Improvement Program

The County's FY21 Capital Budget and Program includes 57 projects in the Roads and Bridges project class, with approved funding of over $599 million of which $376 million is allocated over the six-year capital program and the remainder was prior approved. Of the amount approved, over $27 million is provided by developer impact fees and the remainder through County bonds, PayGo funds, Federal and State grants, and other fund sources. Projects include capital improvements for roadways, bridges, sidewalks, and bikeways.

In addition, the Traffic Control project class includes over $22 million in approved funds for guardrails, traffic signals, streetlights, flood warning, traffic calming, and other traffic safety related projects.

The Capital Improvement Program uses a scoring system developed in the Move Anne Arundel! Transportation Functional Master Plan to prioritize investments.

Future Considerations

An assessment of the County's development impact fees is planned for the 2020-21 time frame. The assessment will evaluate whether the existing fee structure is adequately addressing the costs of transportation improvements needed relative to new development. Development impact fees must be used solely for capital improvements to expand the capacity of public roads, and cannot be used to finance ongoing operating and maintenance costs or to correct existing infrastructure deficiencies. Given the increasing costs of highway maintenance and construction, new revenue strategies may be needed for the future.

The Plan2040 Glossary is intended for general guidance only. In the event of a conflict between these definitions and a formal, legal definition established by a County ordinance, the legal definition shall prevail. Definitions in this section are drawn from many different sources, including Office of Planning and Zoning staff, Plan2040 itself, other County plans and planning documents, the County zoning regulations, the APA Planners Dictionary, and websites such as www.aacounty.org and wikipedia.com. Definitions found in these secondary sources have been modified and adapted based on the use of each term in Plan2040.

Achievement gap: Refers to any significant and persistent disparity in academic performance or educational attainment between different groups of students, such as white students and minorities, for example, or students from higher-income and lower-income households.

Adaptive reuse: Adapting an older unused structure to accommodate a new use, such as adapting a vacant motel to a residential use or a warehouse to office/retail use.

Adequate: Sufficient for a specific requirement.

Adequate Facilities Ordinance (APF): Ordinance to provide a growth management process that will enable the County to provide adequate public schools, roads, and other infrastructure facilities in a timely manner and achieve General Development Plan growth objectives.

Affordable housing: Means housing priced at no more than 30% of a household's income.

Affordable housing trust fund: Housing trust funds are distinct funds established by city, county or state governments that receive ongoing dedicated sources of public funding to support the preservation and production of affordable housing and increase opportunities for families and individuals to access decent affordable homes.

Afforestation: The establishment of a tree cover on an area from which it has always or very long been absent of forest cover or the planting of open areas that are not presently in forest cover.

Age in place: The ability to grow old in one's own residence, rather than moving to an assisted living or nursing facility, often accomplished by retrofitting the residence to respond to decreased mobility.

Agriculture and Woodland Preservation Program: A purchase of development rights program where landowners voluntarily sell in perpetuity their right to develop their farm for residential, commercial, or industrial use, subject to Anne Arundel County Code Article 17 Title 10. Permitted activities include any farm use of the land; operation at any time of machinery used in farm production or the primary processing of any ag products; any normal agricultural activities and operations, in accordance with good husbandry practices, that do not cause bodily injury or directly endanger human health, including activities that may produce normal agriculture related noise and odors; and the sale of farm products produced on the farm where the sales are made.

Agritourism: Generally, a business enterprise on a farm related to agriculture or natural resources that is offered to the public or invited groups. Agritourism is secondary to farming.

All-hazards: An all-hazards approach is an integrated approach to emergency preparedness planning that focuses on capacities and capabilities that are critical to preparedness for a full spectrum of emergencies or disasters, including internal emergencies and a man-made (or both) or natural disaster.

Area Median Income (AMI): Means the median household income for the area adjusted for household size as published and annually updated by the United States Department of Housing and Urban Development.

Arterial road: See "Functional classification"

Automated vehicle: Fully automated, autonomous, or "self-driving" vehicles are defined by the U.S. Department of Transportation's National Highway Traffic Safety Administration (NHTSA) as "those in which operation of the vehicle occurs without direct driver input to control the steering, acceleration, and braking and are designed so that the driver is not expected to constantly monitor the roadway while operating in self-driving mode." There have been multiple definitions for various levels of automation. For the sake of standardization, and to aid clarity and consistency, NHTSA has adopted the SAE International definitions for levels of automation.

Base Realignment and Closure (BRAC): Congressionally authorized process the Department of Defense has used to reorganize its base structure to more efficiently and effectively support our forces, increase operational readiness and facilitate new ways of doing business.

Best Available Technology (BAT): As pertains to septic systems: Best Available Technology for Removal of Nitrogen. BAT systems are systems designed to provide suitable conditions for aerobic and anaerobic activity to reduce nitrogen discharge from onsite sewage disposal. Various technologies are approved for use in Maryland by the Maryland Department of the Environment.

Best management practices (BMP): Means a structural device or nonstructural practice designed to temporarily store or treat stormwater runoff in order to mitigate flooding, reduce pollution, and provide other amenities. County regulations require that Environmental Site Design planning techniques and treatment policies shall be exhausted before using any structural BMPs.

Bog: A type of wetland that forms in highly acidic areas of saturated soil and standing water, factors which limit the growth of all but a few highly specialized plants. Because decay is minimal, a layer of peat accumulates beneath the bog vegetation. Bogs on the coastal plain are uncommon, and Anne Arundel County has more than any other County.

Brownfield: Contaminated or potentially contaminated and underutilized industrial and commercial sites whose cleanup costs and future liability make it unattractive to redevelop and reuse.

Budget: The County's Annual Budget has two primary components: the Operating Budget and the Capital Budget.

- The Capital Budget funds major improvements to County Facilities and infrastructure, and is based on the first year of needs in the five-year Capital Improvements Program (CIP).
- The Operating Budget includes personnel costs and annual facility operating costs.

Buffering: The act of reducing the effects of one land use on another, usually through landscaping, fencing, architectural design, or distance standards applied in the siting of structures and site activities.

Bulk regulations: The combination of controls (lot size, floor area ratio, coverage, open space, yards, height and setback) that determine the maximum size and placement of a building on a zoning lot.

Capacity (design): The average daily volume or flow that a transportation or infrastructure facility is designed to accommodate

Capital budget: See "Budget"

Capital Improvement Program (or Plan) (CIP): An annually revised document that guides the City's investments in public facilities and infrastructure during a five-year time horizon.

Capital project/capital improvement/capital investment: A physical improvement to a public facility or infrastructure.

Character (including "Community Character" or "Neighborhood Character"): Character is result of the combination of various features and traits of an area as defined by the predominant pattern of physical scale, land use, building and site design, natural and historic features, and the Vision for the area as expressed in adopted Plans. Not all of these elements affect community character in all cases; a community usually draws its distinctive character from a few elements.

Charter County: A county in which the governing system is defined by the county's own charter document, rather than by general law. A "Charter Document" is one which grants certain specified rights, powers, privileges, or functions from the sovereign power of a state to an individual, corporation, city, or other unit of local organization.

Citizens Advisory Committee: Citizen committee organized to provide input to the Office of Planning and Zoning in the development of a plan. The Plan2040 Citizen Advisory Committee included 23 members representing all of the Small Areas around the County as well as environmental and real estate development organizations.

Cluster development / Cluster subdivision: A residential development that permits variation in lot sizes without an increase in overall density and that preserves open space, tree cover, and similar natural features.

Commercial Revitalization Areas: Commercial Revitalization Areas are adopted as overlay zones in the County Code (Article 18, Title 14, Subtitle 3). The areas are allowed expanded uses and greater development flexibility to encourage redevelopment of vacant properties.

Communities of Opportunity: Areas that have strong schools, strong housing markets, low concentrations of poverty, and healthy economic characteristics.

Community character: See "Character"

Community-based system: See "Community sewerage system"

Community engagement process (also "Community engagement" and "Public engagement"): The series public outreach efforts to gather input and feedback during the development of Plan2040. Efforts included digital outreach through surveys, email, a dedicated website, and informational webinars. In-person events such as listening sessions, visioning meetings, meetings with community and other stakeholder groups, a youth conference and a day-long Smart Growth educational conference were also part of the Community Engagement process.

Community facilities: See "Public facility"

Community service: See "Public service"

Community sewerage system (also Minor system): Means any system, whether publicly or privately owned, serving two or more individual lots, for the collection and disposal of sewerage or industrial wastes of a liquid nature, including various devices for the treatment of the sewage and industrial wastes.

Compatibility (of land use): A measure of the degree to which two can uses exist side-by-side without one use adversely impacting the other.

Complete Streets: County Policy adopted in 2014 which aims to improve transportation options and safety throughout the County. The Policy ensures that alterations to transportation systems are implemented in a way that provides all users regardless of age or ability with a comprehensive and connective multi-modal network.

Concurrency Management: The process of measuring and tracking the operational capacities and levels of service of public facilities in order to ensure that adequate capacities and service levels can be maintained to serve the existing population and future growth. Concurrency management enables a local government to ensure funding mechanisms are in place and sufficient funding is allocated to meet service demands and to maintain the desired service levels.

Conditional use: A use that is specifically listed as allowed within a zoning district, so long as specific criteria are met. A conditional use differs from a special exception. For a conditional use, the evaluation of criteria occurs in the Office of Planning and Zoning through the development review process. For a special exception, the evaluation of criteria is conducted by the Administrative Hearing Officer through a public hearing.

Connected vehicle: Vehicles that use any of a number of different communication technologies to communicate with the driver, other cars on the road (vehicle-to-vehicle), roadside infrastructure (vehicle-to-infrastructure), and the "Cloud". The technologies for autonomous cars, connected cars, and advanced driver assistance systems overlap.

Connectivity: The measurement of a system of streets with multiple routes and connections serving the same origins and destinations. An inter-connected roadway network can accommodate more multi-modal travel demand than a roadway network with limited connectivity.

Corridor:

1. A street or roadway identified as a principal link or gateway within the community; may also be used to describe land uses along these routes.
2. An area of habitat connecting wildlife populations separated by human activities or structures (such as roads, development, or logging).

Critical Area: All waters of, and lands under the Chesapeake Bay and its tributaries to the head of tide; all State and private wetlands designated under Title 16 of the Environment Article; and all land and water areas within 1,000 feet beyond the landward boundaries of the resources identified above.

Cul-de-sac: A local street with one outlet, having a paved, circular turn-around area at the closed end.

Cultural heritage: The legacy of physical artifacts and intangible attributes of a group or society.

Cultural landscape: A geographic area, including both cultural and natural resources associated with a historic event, activity, or person, or exhibiting other cultural or aesthetic values.

Culvert: A tunnel carrying a stream or open drain under a road or railroad.

Curb cut: A ramp cut into an elevated curb to allow smooth passage between the sidewalk and the street.

Demand response (transit service): Also sometimes called "dial-a-ride." Transit service in which individual passengers contact an agency and request transportation from a specific location to another specific location at a certain time. Vehicles providing demand-response service do not follow a fixed route, but travel throughout the community transporting passengers according to their specific requests.

Density: The number of residential dwelling units per acre of land.

Density bonus: A density bonus permits builders to build more units than would be permitted by the zoning ordinance alone.

Developer: A person who engages in development.

Development: Means the subdivision of property or any activity other than farming, gardening, or yard maintenance that results in a change in existing site conditions, including the establishment of a use; the change of a use; the improvement of property through construction, alteration, or relocation of a structure; the provision of stormwater management or roads; grading; and clearing.

Development Policy Areas: Geographic areas in the County that depict an intentional and strategic approach to direct future development in areas where redevelopment and revitalization opportunities exist; create vibrant, mixed-use, transit-oriented, walkable communities; capitalize on existing and planned infrastructure investments; preserve natural, rural and agricultural resources; and protect existing neighborhoods and the peninsula areas from additional impacts of development. The location and extent of these areas is based primarily upon existing development patterns, natural resources, the location of public infrastructure and revitalization goals. The Development Policy Areas are intended to provide a sound, predictable framework for implementing the Plan2040 Vision, along with its goals, policies and strategies. The Development Policy Areas Map is used to inform the Planned Land Use Map.

Development review: The County process for reviewing and approving grading and construction, alterations to existing buildings, and subdivisions.

Deviated fixed routes (transit service): A hybrid of fixed-route and demand-response transit services. With this type of service, a bus or van stops at fixed points and keeps to a timetable but can deviate its course between two stops to go to a specific location for a pre-scheduled request.

"**Dominant library**": Characterized in the 2017 AACPL Facilities Master Plan Study as the library most used by customers living in a particular Census block group.

Dwelling unit: A single housing unit, including attached garages and decks, providing complete, independent living facilities for at least one person. Information on the various types of dwellings may be found in County Code Article 18, Title 1.

Easement: A contractual agreement to gain temporary or permanent use of, and/or access through, a property.

Ecosystem services: The direct and indirect contributions of natural systems to human well-being. They support directly or indirectly our survival and quality of life.

Elements: Plan sections that address the major subjects influencing the County's development.

Enhanced Nutrient Removal: The use of technologies that will allow wastewater treatment plants to provide an advanced level of treatment, dramatically reducing nitrogen and phosphorus discharge in effluent. The goal of ENR is to achieve effluent nutrient concentrations of a maximum of 3.0 milligrams per liter (mg/l) total nitrogen and 0.3 mg/l total phosphorus.

Environmental Site Design (ESD): Means using small-scale stormwater management practices, nonstructural techniques, and better site planning to mimic natural hydrologic runoff characteristics and minimize the impact of land development on water resources. Environmental site design includes: (1) optimizing conservation of natural features, such as drainage patterns, soils, and vegetation; (2) minimizing use of impervious surfaces; (3) slowing down runoff to maintain discharge timing and to increase infiltration and evapotranspiration; and (4) using other nonstructural practices or innovative stormwater management technologies approved by the Department. Environmental Site Design methods are specified in the Maryland Stormwater Design Manual, while County procedures, processes, policies, and regulations that apply to stormwater management are outlined in the County's Stormwater Management Practices and Procedures Manual.

Ephemeral stream: A stream that flows only briefly during and following a period of rainfall in the immediate locality.

Equity, equitable: A condition of parity that is achieved by being intentional about improving quality of life for populations that are underserved, under-resourced and vulnerable.

Erosion: The process by which the land surface is worn away by the action of wind, water, ice, or gravity.

Erosion and sediment control: The practice of preventing or controlling wind or water erosion, including containing eroded soil so that it does not wash off and cause water pollution to a nearby waterbody. This term can also refer to an individual practice or device designed to prevent, control, or contain erosion and sediment. The State of Maryland has a Statewide erosion and sediment control program that establishes regulatory criteria and procedures to control sediment-laden runoff from land disturbing activities.

Facilities plan: Plans usually done by specific county agencies or service providers for strategic planning and capital budgeting purposes. They typically include more detailed projections of capital facility and/ or operational needs, and are updated more frequently than the General Development Plan and functional plans.

Fair housing: The purpose of establishing laws to prevent discriminatory housing practices in the County; adding specific prohibitions relating to discrimination in housing; providing remedies for discrimination in housing.

Feeder system: Builds upon a consistent stream of pupil enrollment from elementary school through middle school and eventually into the corresponding high school.

Fiscal Impact Analysis: A tool which seeks to connect planning and local economics by estimating the public costs and revenues that result from property investments. This type of analysis enables comparison of revenues to costs associated with new development indicating whether local government can meet new demands for services.

Fisheries Habitat Protection Zones: Outside of the Chesapeake Bay Critical Area, these include: habitat of rare, threatened and endangered species, anadromous fish spawning areas, submerged aquatic vegetation, forest interior dwelling bird habitat, colonial waterbird nesting sites and Natural Heritage Areas. Inside the Chesapeake Bay Critical Area, HPAs include all of the above listed areas, plus: the Buffer and Buffer expansions, non-tidal wetlands, historic waterfowl staging areas, and other plant and wildlife habitats of local significance.

Floating zone: A floating zone is a zoning district that delineates conditions which must be met before that zoning district can be approved for an existing piece of land. ... Thus, the zone "floats" until a development application is approved, when the zone is then added to the official zoning map.

Floodplain: An area that after total development of the watershed would experience inundated by water from any source as determined by the County Procedures Manual.

Floodplain management: · The operation of an overall program of corrective and preventive measures for reducing flood damage, including but not limited to, emergency preparedness plans, flood-control works and floodplain management regulations.

- Floodplain management is a decision-making process that aims to achieve the wise use of the nation's floodplains. "Wise use" means both reduced flood losses and protection of the natural resources and function of floodplains.

Floor Area Ratio (FAR): The ratio between the total floor area on all stories of a structure to the gross area of the lot on which the structure is located. FAR is often used to regulate the size of commercial and industrial buildings without controlling their external shape.

Food scraps: Unwanted and spoiled food items and food-soiled paper and cardboard.

Food system: Includes all processes and infrastructure involved in feeding a population: growing, harvesting, processing, packaging, transporting, marketing, consumption, and disposal of food and food-related items. It also includes the inputs needed and outputs generated at each of these steps.

Forecast: An advance calculation of a future condition using relevant data and statistics.

Forest Interior Dwelling Species (FIDS): A term first derived by avian ecologists to classify bird species with habitat preferences deep in large contiguous forest blocks at least 300 feet from the forest's edge.

Full-Time Equivalent (FTE): Measure attempts to standardize a student's actual course load against the normal course load.

Functional classification: Functional classifications describe a roadway's purpose - the degree to which its primary function is to provide access to adjacent land uses or mobility for longer-distance travel. Functional classification is described in Chapter III: Roads and Streets of the County Design Manual.

Functional master plan: Plan that focuses on a specific function of the County government, such as the provision of public utilities or recreation opportunities, or on a specific goal such as the establishment of green infrastructure.

General Development Plan (GDP): Anne Arundel County's overall comprehensive plan that establishes policies and recommendations to guide to guide decisions about growth and development, land preservation, resource protection, and the provision of infrastructure and services.

General funds: A general fund is the primary fund used by a government entity. This fund is used to record all resource inflows and outflows that are not associated with special-purpose funds. The activities being paid for through the general fund constitute the core administrative and operational tasks of the government entity.

Geodatabase: A database designed to store, query, and manipulate geographic information and spatial data. It is also known as a spatial database.

Geographic Information Systems (GIS): A computer system for capturing, storing, checking, and displaying data related to positions on Earth's surface.

Goal: A general, overall, and ultimate purpose, aim, or end toward which the County will direct effort. Each of Plan2040's four elements includes a set of goals, policies, and strategies. Of these, goals are the broadest and most general.

Grading: To cause the disturbance of the earth, and the term includes clearing, excavating, filling, including hydraulic fill, stockpiling of earth materials, grubbing, rootmat or top soil disturbance, or a combination of any of these operations, including logging and timber removal operations.

Grayfield: Describes economically obsolescent, outdated, or underutilized lands such as older retail malls or strip centers that no longer attract adequate investment or tenants.

Green building: The practice of designing and constructing buildings to increase the efficiency with which they use energy, water, and raw materials, in order to reduce impacts on human health and the environment.

Green infrastructure: A connection of natural, ecological, recreational, historic and cultural areas.

Green roof: A roof that is partially or completely covered with vegtation and soil, planted over a waterproofing membrane.

Greenfield: Undeveloped sites for development.

Greenways: The purpose of the Anne Arundel County Greenways Master Plan (the Plan) is to provide an identification, decision making, implementation, and management tool for the County's future greenways network

Ground water: Water held underground in the soil or in pores and crevices in rock. Groundwater is often used to supply wells and springs.

Growth management: "A dynamic process for anticipating and accommodating development needs that balances competing land use goals and coordinates local with regional interests. Anne Arundel County uses a variety of mechanisms to manage growth, including the Adequate Public Facilities (APF) regulations in Article 17 of the County Code, and the Capital Budget and Program, and the Concurrency Management portion of the GDP.

Growth Tiers: The original Growth Tiers Map was officially certified in July 2013 by the Planning and Zoning Officer and in accordance with State Law, has been updated based on the new Plan2040 land use plan, consistent with the governing criteria.

Habitat Assessment Manual: Developed with Maryland Department of Natural Resources stream restoration biologists, this is a tool that allows students to grade different features of the stream corridor that indicate overall health of the ecosystem.

Hard Shoulder Running (HSR): A Transportation Systems Management and Operations (TSMO) strategy whereby the shoulder is reassigned as an extra lane to maximize the the capacity of the roadway during peak hours and reverted to its normal function during off-peak hours. Shoulders are often used as the High Occupancy Vehicle lane and carry additional lane markings and signage to indicate when the lane is open to traffic.

Heritage tourism: A type of tourism oriented around appreciation of the archaeological, historic and cultural heritage of an area.

High Occupancy Vehicle lane (HOV): A restricted traffic lane reserved for the exclusive use of vehicles with a driver and one or more passengers, including carpools, vanpools, and transit buses. HOV lanes are used as a Transportation Systems Management and Operations (TSMO) strategy. HOV lanes now operate on US 50 from the Anne Arundel-Prince George's County line to the Capital Beltway.

Historic preservation: The practice to preserve, conserve and protect buildings, objects, landscapes or other artifacts of historical significance.

Housing stock: The total number of dwelling units (houses, apartments, etc.) in an area.

Housing units, multifamily: See "Dwelling, multifamily"

Impact fee: A fee levied on the developer of a project by the County to pay for improvements and facilities required to serve new development and to reduce the impacts of new development on a community

Implementing strategy: See "Strategy"

Infill (also "Infill development"):

- Residential infill development is the development of vacant, buildable lots within an existing subdivision or existing developed area, or the creation of new lots within a previously approved residential plan of subdivision or an existing developed area. This is the most prevalent type of infill.

- Commercial infill development occurs on vacant commercial sites. In designated Mixed-Use zones, infill development may combine a variety of different uses (for example, residential, commercial, institutional).

Infiltration and inflow (I/I): Excess water that flows into sewer pipes from groundwater and stormwater. Infiltration is groundwater (or groundwater that is influenced by surface or sea water) that enters sewer pipes through defective pipe joints, broken pipes, and other openings. Inflow is surface water that enters the wastewater system from sump pumps,cross-connections with storm drains and downspouts, holes in manhole covers, and from yard, roof, and cellar drains. I/I causes dilution of sanitary sewers, decreasing the efficiency of wastewater treatment and potentially causing sewage volumes to exceed design capacity.

Infrastructure: The basic physical and organizational structures, along with the facilities (eg., roads, schools, water and sewer systems) needed for the operation of a society.

Integrated emergency management (IEM): Refers to an all-hazard approach to the coordination, direction and control of disasters independent of their type, origin, size, and complexity. This term was coined by the Federal Emergency Management Agency in the early 1980s.

Jabez Branch: A tributary to Severn Run; the only stream in the Maryland Coastal Plain physiographic region that supports a native, self-sustaining brook trout population.

Land management: The process of managing the use and development (in both urban and rural settings) of land resources.

Land trust: A private, nonprofit organization that, as all or part of its mission, actively works to conserve land by undertaking or assisting in land or conservation easement acquisition, or by its stewardship of such land or easements.

Land use: A description of how land is occupied or utilized.

Land Use Plan: A long-term guide for how development should occur in Anne Arundel County that provides a framework for making decisions on development and allocation of public resources.

Land Use, Existing: How land is currently being used; establishes a reference point for identifying areas suitable for change and redevelopment, or areas appropriate for preservation.

Land Use, Planned/Future: How the County and its residents envision the future use of lands in order to promote a more desirable assemblage; depicted in an adopted comprehensive plan as the Land Use Map.

Landscape Manual: Provides information on landscaping, buffering, and screening in Anne Arundel County.

"**Last-mile**": Term used to describe the often-difficult final connections between transportation hubs (especially railway stations and bus depots) and a person's final destination. In Plan2040, it is used to describe on-street bicycle facilities connecting low-stress shared-use paths to key community destinations.

Leadership in Energy and Environmental Design (LEED): A program that sets standards used internationally for the design, construction, and maintenance of environmentally sustainable buildings and infrastructure.

Level of service: Quantitative standard established to determine how well a facility is operating.

L**evel of Traffic Stress (LTS)**: An approach that quantifies the amount of discomfort that people feel when they bicycle close to traffic. The methodology was developed in 2012 by the Mineta Transportation Institute and San Jose State University. The LTS methodology assigns a numeric stress level to streets and trails based on attributes such as traffic speed, traffic volume, number of lanes, frequency of parking turnover, ease of intersection crossings and others. When a street has a moderate or high level of stress, it may be a sign that bicycle infrastructure, like separated bike lanes or shared use paths, is needed to make it a place where more people will feel comfortable riding.

Leverage: To use a small initial investment to influence additional investment.

Limit of disturbance (LOD): Means the area(s) in which construction and development activity must be contained during development, including development and construction of the principal building and permitted accessory structures, play areas, and on-site septic tanks, utilities, drainage, and other services.

Listening session: A community outreach forum conducted in-person and online and structured to gather public input on the challenges and opportunities facing Anne Arundel County and residents' values and priorities for the future.

Living shoreline: A protected, stabilized coastal edge made of natural materials such as plants, sand, or rock. Unlike a concrete seawall or other hard structure, which impedes the growth of plants and animals, living shorelines grow over time.

Lot: Lot means land depicted and shown on a recorded plat that was approved in accordance with the subdivision laws in effect at the time of plat recordation, land described in a recorded deed that was subdivided in accordance with the subdivision laws in effect at the time of deed recordation, land located entirely outside the critical area that is described in a deed that was recorded in the land records before September 7, 2004, and land for which a court order has established a new boundary line or lines.

Low-Income Housing: Means housing that is affordable for a household with an aggregate annual income that is below 60% of the area median income.

Low-stress: "In terms of bicycle networks and roadways: When people bicycle on roadways, they encounter varying levels of stress from traffic. ""Low-stress"" describes a condition in which bicyclists experience little discomfort due to traffic. Stress level is determined by a Level of Traffic Stress (LTS) analysis, which quantifies the amount of discomfort that people feel when they bicycle close to traffic. When a street has a moderate or high level of stress, it may be a sign that bicycle infrastructure, like separated bike lanes or shared use paths, is needed to make it a place where more people will feel comfortable riding."

Mainline: The main carriageway(s) of a particular route, as opposed to entrance/exit ramps or auxiliary routes (truck routes, scenic routes, etc.).

Minor system (also "Minor treatment system"): See "Community sewerage system"

Mixed-Use Development: A flexible approach to land use planning, combining a variety of uses, including housing, employment, commercial and open space uses on a single development site or on adjacent sites within a designated area in accordance with a unified design.

Mode share: The percentage of travelers using a particular type of transportation or number of trips using said type.

Moderately-priced dwelling unit (MPDU): Housing unit developed under governmental programs or private initiatives to assist families of low or moderate income, which is sold or rented at a cost that does not exceed a maximum price or rent established by the County.

Modification: Permission to deviate from requirements of a County Ordinance. A modification to Article 17, Subdivision and Development, must not be contrary to the public interest, and must be based on findings that strict application of Article 17 would result in practical difficulties or unnecessary hardship and that the spirit of the ordinance will still be observed.

Move Anne Arundel!: The County's first functional transportation master plan directed by the 2009 General Development Plan (GDP) to guide the County's future transportation policies, strategies and investments with the intention of enhancing mobility and accessibility within local and State fiscal constraints. More detailed information regarding Move Anne Arundel! can be accessed on the Office of Transportation website at https://www.aacounty.org/departments/transportation/move-anne-arundel/index.html

Multimodal: A term referring to facilities designed for and used by more than one mode of transportation (walking, cycling, automobile, public transit, etc.).

Multimodal Transportation Network: Physical network of connections among various modes of transportation (walking, cycling, automobile, public transit, etc.).

National Pollutant Discharge Elimination System Municipal Separate Storm Sewer System Program (NPDES-MS4): The NPDES-MS4 Program is mandated under the federal Clean Water Act. It is required for all MS4 owners and operators located in a US Census Bureau designated Urbanized Area. It is intended to reduce and eliminate pollution from rainfall runoff, which flows through storm drain systems to local streams, ponds, and other waterways. Within Anne Arundel County, the Department of Public Works is the lead department tasked with ensuring compliance with permit conditions.

Neighborhood character: See "Character"

Net Zero: Resulting in neither a surplus nor a deficit of something specified, when gains and losses are added together.

Nonconforming Use: A use that was allowed when it came into existence but that is no longer allowed under the law in effect in the zoning district in which the use is located.

Nuisance flooding: A nuisance flood is a layer of water between 3 and 10 centimeters high, traveling at a speed of less than 3 meters per second. These floods do not cause major property damage or seriously threaten public safety; however, nuisance floods can strain infrastructure like roadways and sewers, block transportation, threaten water quality, provide habitats for mosquitoes and bacteria, affect property values, and discourage tourism.

Nuisance property: A nuisance as a legal term is a condition or use of a property that interferes with neighbors' use or enjoyment of their property, endangers life, health or safety, or is offensive to others.

Nutrient load: Quantity of nutrients (including nitrogen and phosphorus) entering an ecosystem in a given period of time.

On-street bicycle facilities: Any street which in some manner is specifically designated and/or designed for the use of bicycles or for shared use by bicycles and other transportation modes, including bike lanes, shared lane markings ("sharrows"), etc.

Online open house: Plan2040@Home is an online tool developed to solicit public input on draft goals and the Planned Land Use Map while maintaining social distancing during the COVID-19 pandemic. An interactive website was created to provide the public with information and opportunities to provide comment on draft goals and the draft Planned Land Use Map.

Open space: Generally means land and water areas in an essentially undeveloped state. The Plan2040 Open Space land use designation means land intended for the retention of outdoor active recreation areas, including privately owned golf courses, campgrounds and other recreation areas. Information regaring Open space development provisions can be found in Article 17 of County Code (Subdivision and Development). Information pertaining to OS-Open Space zoning can be found in Article 18 of County Code (Zoning).

Operating budget: See "Budget"

Overlay: An area where certain additional requirements are superimposed upon a base/underlying area, and where the requirements of the base/underlying area may or may not be altered.

Paratransit: Transportation services that supplement fixed-route mass transit by providing individualized rides without fixed routes or timetables.

Parcel: An area of land with defined boundaries under unique ownership.

Park-and-ride: Parking lots with public transport connections that allow commuters and other people to leave their vehicles and transfer to a bus, rail system (rapid transit, light rail, or commuter rail), or carpool for the remainder of the journey. The vehicle is left in the parking lot during the day and retrieved when the owner returns.

Physical plant: The necessary infrastructure used in operation and maintenance of a given facility.

Plan2040: Plan2040 is the latest update of the General Development Plan (GDP).

Planned Unit Development (PUD): Per Article 17 of County Code, developments comprising a combination of land uses or varying intensities of the same land use in accordance with an integrated plan that provides flexibility in land use design approved by the local jurisdiction with at least 20% of the land permanently dedicated to open space.

Planning Advisory Board (PAB): Consists of seven qualified voters appointed by the County Executive that makes advisory recommendations to the Planning and Zoning Officer, the County Executive and the County Council relating to master plans, the zoning maps, rules and regulations relating to zoning, and Capital Budget and Program.

Policy: A specific statement of principle or intent that implies clear commitment by the County or agency. Each of Plan2040's four elements includes a set of goals, policies, and strategies.

Population growth: An increase in the number of people that reside in a country, state, county, or city. To determine whether there has been population growth, the following formula is used: (birth rate + in-migration) - (death rate + out-migration).

Priority Preservation Area (PPA): A requirement of the Maryland Agricultural Stewardship Act of 2006 for Anne Arundel County, the Priority Preservation Area was established in the 2009 GDP to include the entire Rural Legacy Area, plus two additional areas totaling approximately 7,000 acres.

The State requires that a PPA meet the following criteria: the area must contain productive agricultural or forest soils or be capable of supporting profitable agricultural and forestry enterprises; the area must be governed by local policies that stabilize the agricultural or forest land base so that development does not convert or compromise agricultural and forestry resources; the area must be large enough to support the kind of agricultural operations that the County seeks to preserve; and the area must include an acreage goal for land to be preserved through easements and zoning in the PPA equal to at least 80% of the remaining undeveloped land in the area.

Priority Funding Area (PFA): Maryland communities and places, designated by the Smart Growth Priority Funding Areas Act of 1997, where State resources will be focused.

Protected classes: Anne Arundel County Government prohibits illegal discrimination against any individual on the basis of race, ethnicity, color, ancestry, national origin, language, faith-based or religious affiliation, sex, sexual orientation, gender, gender identity, family/parental status, marital status, age, physical or mental disability, limited English proficiency, and any other protected lawful classifications, attributes or affiliations covered by the county, state and federal laws.

Projection: Forecasts of future conditions, based on existing conditions, trends, data, expected events, and local policies.

Public engagement: See "Community engagement process"

Public facility (also "Community facility"): Facility such as roads, schools, or sewerage treatment plants financed by public revenues and available for use by the public.

Public/private partnership: Is a cooperative arrangement between two or more public and private sectors, typically of a long-term nature. it involves government(s) and business(es) that work together to complete a project and/or to provide services to the population.

Public service: A service (including fire, police, and emergency medical services) intended to serve all members of a community.

Quality of Life: The degree to which a community or an individual perceives the ability to function physically, emotionally and socially. Quality of life includes all aspects of community life that have a direct influence on the physical and mental health of its members.

Racial equity: In a racially equitable society, the distribution of society's benefits and burdens would not be skewed by race. Racial equity demands that we pay attention not just to individual-level discrimination, but to overall social outcomes.

Ramp metering: A Transportation Systems Management and Operations (TSMO) strategy used to regulate the number of vehicles entering a freeway. Traffic signals are installed on freeway on-ramps to control the frequency at which vehicles enter the flow of traffic on the freeway.

Redevelopment: New construction on a site that has pre-existing uses or renovation of existing uses on a site.

Redistricting: The process of changing school attendance zones within a school district.

Reforestation: Generally, reforestation is the natural or intentional restocking of existing forests and woodlands that have been depleted, usually through deforestation.

Region Plans: Plan2040 establishes nine planning regions that encompass all unincorporated areas of the County. These nine regions will be the focus of more detailed, community-level planning efforts following the adoption of Plan2040. Region Plans are intended to align with the Goals and Policies of Plan2040 and build on the Small Area Plans prepared between 1998 and 2004.

Rehabilitation: The preservation and/or improvement of substandard housing or commercial buildings.

Resilience (also "Community Resilience"): The capacity of individuals, communities, institutions, businesses, and systems to survive, adapt, and grow no matter what kinds of chronic stresses and acute shocks they experience. Chronic stresses may include high unemployment, poor or overtaxed infrastructure, and water shortages. Acute shocks are the devastating occurrences that often get conversations about resilience going, including floods, disease outbreaks, and terrorist attacks. Resilience is often framed in terms of anticipated and experienced shocks related to climate change.

Reversible lane: A lane in which traffic may travel in either direction, depending on certain conditions. Typically, it is meant to improve traffic flow during rush hours, by having overhead traffic lights and lighted street signs notify drivers which lanes are open or closed to driving or turning. Use of reversible lanes is a TSMO strategy.

Revitalization: The imparting of new economic and community life in an existing neighborhood, area, or business district while at the same time preserving the original building stock and historic character.

Rezoning: There are two methods changing the zoning classification assigned to an individual property. One is called "comprehensive" and the other is "individual" or "piecemeal". During comprehensive zoning, the County Council reviews and updates all of the zoning maps for a designated area in accordance with the current Planned Land Use map. Individual, or piecemeal, zoning is the method by which an individual may request that a property be reclassified to correct any mistakes made by the County Council during the last comprehensive process or to recognize a change in the character of the neighborhood that would necessitate a change in the zoning.

Saltwater intrusion: The movement of saline water into freshwater aquifers, which can lead to degradation of groundwater (including drinking water) and other consequences. Saltwater intrusion may occur naturally, or it may be caused by human activities (such as groundwater pumping from coastal freshwater wells), or caused by sea level rise. It can also be worsened by extreme events such as hurricane storm surges.

Scenic and Historic Roads: A road shown on the official map entitled "Scenic and Historic Roads, 2006" adopted by the County Council. Legislation protects the scenic and historic fabric of the landscape of Anne Arundel County through regulating development along the County's 150+ designated Scenic and Historic Roads.

Sea-level rise: The increase in the level of the world's oceans due to climate change. Primarily driven by the expansion of seawater as a result of higher temperatures and the added water from melting ice sheets.

Sector plan: Plans that provide guidance for growth and development in specific areas with unique characteristics that require a specific set of policies, guidelines or standards targeted to that particular sector or area.

Sediment and erosion control: See "Erosion and sediment control"

Sensitive areas: Generally, streams and their buffers, 100-year floodplains, habitats of threatened and endangered species, steep slopes, tidal and nontidal wetlands.

Setback: A minimum distance between a lot line and a structure.

Sewer service area: Sewer Service Area: Eleven separate and distinct areas established for purposes of providing sewerage facilities to serve the County. Sewer service areas are based on topography and natural drainage areas. The boundaries of these service areas are shown on adopted Master Plan Maps of the Sewer System. The remaining land is designated Rural and is not planned for service by public sewer facilities.

Shared use path: Typically a paved off-street trail which provides a high level of safety and comfort for pedestrians and bicyclists of all ages and abilities.

Single occupant vehicle (SOV): A privately operated vehicle whose only occupant is the driver. The drivers of SOVs use their vehicles primarily for personal travel, daily commuting, and for running errands.

Small Area Plans (SAP): Community-based plans prepared and adopted between 1998 and 2004. Small Area Plans included recommendations for future land use and development in the area; facility and infrastructure needs; and areas to be targeted for revitalization, mixed-use development, and/or land preservation. Each Small Area Plan was followed by comprehensive zoning legislation to rezone properties according to the adopted Land Use Plan in the SAP.

Smart Growth: Smart Growth is not a single tool, but a set of cohesive urban and regional planning principles that can be blended together and melded with unique local and regional conditions to achieve a better development pattern. It is an approach to achieving communities that are socially, economically, and environmentally sustainable. Smart Growth provides choices – in housing, in transportation, in jobs, and in amenities – using comprehensive planning to guide, design, develop, manage, revitalize, and build inclusive communities and regions. It also advocates compact, transit-oriented, walkable, bicycle-friendly land use, including neighborhood schools, complete streets, and mixed-use development with a range of housing choices.

Special exception: A special exception is neither an exception nor special. It is a use that is specifically listed as allowed within a zoning district, so long as specific criteria are met. The way in which criteria will be met must be demonstrated at a public hearing.

State-Rated Capacity (SRC): The maximum number of students that can be accommodated in a facility without significantly hampering delivery of the educational program.

Steep slopes: A 25% or greater slope that has an onsite and offsite contiguous area that is greater than 5,000 square feet over 10 feet vertical as measured before development. In the critical area, "steep slope" means a 15% or greater slope that is over six feet vertically as measured before development.

Stormwater: Means water that originates from a precipitation event.

Stormwater management: For quantitative control, stormwater management is a system of vegetative and structural measures that control the increased volume and rate of surface runoff caused by man-made changes to the land. For qualitative control, stormwater management is a system of vegetative, structural, and other measures that reduce or eliminate pollutants that might otherwise be carried by surface runoff.

Strategic plan: Plans usually done by specific county agencies or service providers for strategic planning and capital budgeting purposes. They typically include more detailed projections of capital facility and/ or operational needs, and are updated more frequently than the General Development Plan and functional plans.

Strategy (also "Implementing strategy"): A specific action to be taken by County government to implement Plan2040 policies, such as the adoption of a new ordinance or implementation of a new County program. Each of Plan2040's four elements includes a set of goals, policies, and strategies.

Streetscape: The environment of the street right-of-way as defined by adjacent private and public buildings, pavement, street lighting and furniture, and the use of the right-of-way.

Subdivision: Generally, the division of land into two or more parcels, or a collection of parcels that was created from the division of a single parcel.

Subdivision, minor: Per Article 17 of County Code: an agricultural preservation subdivision; or a subdivision not previously shown on a record plat approved by the County and involving no more than five lots for single-family detached dwellings for which the extension of public roads, water, or sewer is not required.

Subwatershed: Any of several parts of a watershed that drains to a specific location.

Surface water: Water located on top of the Earth's surface such as rivers, creeks, and wetlands.

Surplus property: Property that is retained by a state or local government, but that is not currently being used.

Sustainable Communities: Sustainable Communities are designated through the State's Sustainable Communities Program. As part of its commitment to smart growth, the State of Maryland adopted the Sustainable Communities Act of 2010. This legislation resulted in a variety of state programs consolidated under the umbrella of the Sustainable Communities program, thereby establishing a way to coordinate and target State grant, loan and tax credit investment tools to better revitalize Maryland's older communities. To designate an area, jurisdictions submit a Sustainable Community plan that consists of a specific geography and a broad set of revitalization goals and strategies. Organizations whose projects are located in a Sustainable Community area are then eligible to apply for grants, tax credits or other resources.

Sustainable development: In 1987, the United Nations Brundtland Commission defined "sustainable development" as "meeting the needs of the present without compromising the ability of future generations to meet their own needs." The concept is often described as being composed of three interconnected "pillars", sometimes referred to as the "Triple Bottom Line" or the "Three Es" of sustainability: Environment, Equity, and Economy.

Targeted Development, Redevelopment and Revitalization areas: Areas where development, redevelopment and revitalization are focused and encouraged to relieve growth pressure from other areas of the County, utilize existing facilities, and strengthen the County's tax base. These areas are characterized by a mix of residential and nonresidential uses. Public sewer exists or is planned; other public infrastructure exists but may need improvements. Future capital investments are given the highest priority once existing Countywide infrastructure issues have been addressed. The character of these areas and the policies and development standards that are applied will vary depending on the community but the goal of carefully planned, focused development is shared.

Themes: The five Plan2040 themes support the Plan2040 Vision. The Themes focus on the critical issues identified in the community engagement process. The five Themes address: Resilient, Environmentally-sound, and Sustainable Communities; New and Improved Infrastructure; Strategic Economic Growth and Redevelopment; Community Character; and Inclusive, Equitable, and Responsive Government.

Total Maximum Daily Load (TMDL): A regulatory term in the U.S. Clean Water Act, describing a plan for restoring impaired waters that identifies the maximum amount of a pollutant that a body of water can receive while still meeting water quality standards.

Town Center: Designated area of the County to serve as regional centers to provide a variety of uses and services to surrounding areas. The County designated three Town Centers (Glen Burnie, Odenton and Parole) in the 1968 General Development Plan. These Town Centers have been shown on each successive General Development Plan in 1978, 1986, 1997, and 2009.

Town Center Plans: Sector plans prepared for the designated Town Centers.

Traffic: Pedestrians, ridden or herded animals, vehicles, streetcars, buses and other conveyances, either singly or together, that use roads for purposes of travel.

Traffic congestion: Condition involving slower speeds and longer trip times.

Transfer point: A point at which a rider of public transit who pays for a single-trip fare is able to continue the trip on another bus, train, etc.

Transit (including "Mass transit" and "Public transit"): The transportation of large numbers of people by means of buses, trains, etc.; also the system, vehicles, or facilities engaged in such transportation.

Transit-Oriented Development (TOD): A type of urban development that aims to increase public transit ridership and reduce the use of private cars by maximizing the amount of residential, business and leisure space within walking distance of public transport.

Transition: The way in which adjacent or adjoining uses are made to relate to each other. The goal is to have good transition in terms of scale, massing, height, landscaping and intensity of use.

Transportation Systems Management and Operations (TSMO): A set of strategies that focus on operational improvements that can maintain and even restore the performance of the existing transportation system before extra capacity is needed. The goal is to optimize performance of existing transportation facilities, at a fraction of the cost of traditional roadway widening.

Transportation (or Traffic) Analysis Zone (TAZ): An area delineated by state and/or local transportation officials for tabulating traffic-related data, especially commuting statistics.

Tree canopy: Generally, the part of the County that is shaded by trees.

Underutilized properties: Underutilized buildings and properties may be defined several ways, depending on one's perspective. Real estate professionals, appraisers and developers may define an underutilized property in economic terms, that it has not achieved its "highest and best use," or its maximum profitmaking capacity. Planners and government leaders generally have a broader perspective, taking into account the impact of underutilized buildings on the community's stability, economic vitality and property values. In addition to the fiscal gain of an occupied building, they strive to find a higher and better use that meets the needs of the community. A combination of several factors may be used as a way to measure under-utilization in a community, and the final determination rests with the community and its priorities.

Urban design: The process of giving form, in terms of aesthetics and function, to the arrangement of building on a specific site, in a neighborhood, or throughout a community; addresses the location, mass, and design of various components of the environment and combines elements of planning, architecture, and landscaping.

Vehicle miles traveled (VMT): A measure used to estimate automobile use on a daily or annual basis. VMT incorporates the number of vehicle trips and the lengths of those trips, and expresses the total miles traveled by all vehicles on a given roadway or roadway network.

Variance: Permission, granted by the Administrative Hearing Officer, to deviate from the Zoning Ordinance requirements. A variance must not be contrary to the public interest, and must be based on findings that there are conditions specific to the property and not because of any action taken by the applicant, that the spirit of the ordinance will still be observed, and that the variance is the minimum necessary to provide relief.

Vision:

1. A statement of philosophy and basic community values and aspirations for the future of the County that sets the overall tone for the goals, policies, and strategies in Plan2040. The Vision is supported by the five Plan2040 Themes (see ""Themes"").
2. Maryland's 2009 Planning Visions law created twelve Visions which reflect the State's ongoing aspiration to develop and implement sound growth and development policy. The twelve Visions address: Quality of Life and Sustainability; Public Participation; Growth Areas; Community Design; Infrastructure; Transportation; Housing; Economic Development; Environmental Protection; Resource Conservation; Stewardship; and Implementation. Local jurisdictions are required to include the visions in the local comprehensive plan and implement them through zoning ordinances and regulations.

Visioning forum: A community outreach effort conducted in-person and online and structured to gather public input on the desired vision for the future of Anne Arundel County.

Walkability, walkable: A measure of how safe and attractive an area is to people of all ages, abilities, ethnicities, and incomes to walk for transportation, wellness and fun. Walkable areas typically provide pedestrian connectivity between neighborhoods, shopping centers, schools, and other local destinations.

Warming and cooling center: A heated or air-conditioned public space (depending upon the weather) set up by local authorities to temporarily deal with the health effects of excessively cold or hot weather. Heating and cooling center services are aimed at the homeless, at-risk populations such as the elderly, and those without air conditioning and/or heating.

Waste management: Includes the activities and actions required to manage waste from its inception to its final disposal. This includes the collection, transport, treatment and disposal of waste, together with monitoring and regulation of the waste management process.

Wastewater: Water that has been used for washing, flushing, manufacturing, etc. and so contains waste products; i.e., sewage.

Water and Sewer Master Plan: A functional master plan for the provision of water and wastewater service to County residents, managing and directing development to appropriate and suitable areas and helping to achieve the County's conservation and resource management goals set forth in the County's general development plan.

Water quality: Pertaining to the physical, biological, chemical, and aesthetic characteristics of water.

Water Reclamation Facility: A wastewater (sewage) treatment plant.

Watershed: The area within a topographic divide above a specified point on a stream that drains into that stream.

Wetland: A lowland area, such as a marsh, that is saturated with moisture all or part of the year. Standards for defining wetland boundaries consider hydrology, vegetation, and soil conditions.

Workforce development: The various programs and initiatives aimed at improving the job skills of the County's residents, and helping residents find and keep good quality jobs.

Workforce Housing:

- Rental housing that is affordable for a household with an aggregate annual income between 50% and 100% of area median income.
- Homeownership housing that:
- Except as provided in ii below, is affordable to a household with an aggregate annual income between 60% and 120% of area median income or,
- In target areas recognized by the State for the purposes of the Maryland Mortgage Program, is affordable to a household with an aggregate annual income between 60% and 150% of the area median income.

Zoning: The classification of land into districts within which regulations and requirements uniformly govern the use, placement, spacing and size of land and buildings.

Zoning Code: A collection of regulations established to regulate land use within the County.

Zoning map: The official map showing the location of all zoning categories in a given area.

The following tables detail the key changes to the Planned Land Use map from the Planned Land Use of the 2009 General Development Plan. Changes initiated by Land Use Change Application, by OPZ staff recommendation, and by public comments to the preliminary land use plan shared via the Online Open House web tool are included.

For more information on the development of the Planned Land Use Map, see the Planning for the Built Environment chapter.

View the interactive Land Use and Development Policy Area maps online at the Plan2040 homepage.

Application Number	Address of Property	Tax Map	Parcel(s)	Lot(s)	Plan2040 Requested Land Use	2009 GDP Land Use	Existing Zoning	Plan2040 Policy Area & Overlay	Plan2040 Recommended Land Use (Preliminary Draft)	Final Staff Justification	PAB Recommendation	Final Recommendation	Council Recommendation
LUCA-1	8270 Waterford Road	16	951	53	Commercial	Low Density Residential	R1	Neighborhood Preservation	Low Density Residential	The requested change to Commercial land use is not compatible with the surrounding planned land use of Low Density Residential, nor is it consistent with the Plan2040 Neighborhood Preservation Policy Area.			
LUCA-2	220 Shenandoah Avenue	1	254	112, 113, 114, 115	Medium Density Residential	Natural Features	OS	Neighborhood Preservation	Low-Medium Density Residential	The requested change to Medium Density Residential land use is not consistent with the surrounding planned land use and developed density. The recommended Low-Medium Density Residential is compatible with the surrounding planned land use.			
LUCA-3	754 Fairhaven Road	82	6	31	Low Density Residential	Rural	RA	Rural and Agricultural	Rural	The requested change to Low Density Residential land use is not consistent with the surrounding planned land use nor the Rural and Agricultural Policy Area.			
LUCA-4	1341 Sunrise Beach Road	31	381	-	Commercial	Rural	RLD	Rural and Agricultural	Rural	The requested change to Commercial land use is not consistent with the surrounding planned land use nor the Rural and Agricultural Policy Area. The need for expansion of commercial uses in this community should be discussed during the Region Planning process.			
LUCA-5	Evergreen Road	36	59	9	Low-Medium Density Residential, Medium Density Residential	Rural	RLD	Rural and Agricultural	Rural	The requested change to Low-Medium/Medium Residential land use is not consistent with the Rural and Agricultural Policy Area nor compatible with the surrounding planned land use.			
LUCA-6 (withdrawn)													
LUCA-7	224 Light Street Avenue	23	159, 161, 298	P 161: 18-31, 49-60	Medium Density Residential	Low Density Residential, Natural Features	R1	Neighborhood Preservation	Low Density Residential	The requested change to Medium Density Residential land use is not consistent with the surrounding planned land use and nor the Neighborhood Preservation Policy Area.			
LUCA-8	901 Bay Front Road	72	142	-	Commercial	Rural	RA	Rural and Agricultural	Rural	The requested change to Commercial land use is not consistent with the surrounding planned land use nor the Rural and Agricultural Policy Area and the Resource Sensitive Policy Area, as the site is within the County's adopted Priority Preservation Area.			
LUCA-9	No Address Submitted	10	27, Bulk parcels 6 and 7	-	Commercial	Transportation/Utility, Medium Density Residential	R10	Neighborhood Preservation	Commercial	The requested change to Commercial land use is compatible with the surrounding planned land use and would allow retail or service development to serve surrounding residential areas.			
LUCA-10	1962 Fields Road	13	7	1	Low-Medium Density Residential	Low Density Residential	R1	Neighborhood Preservation	Low Density Residential	The requested change to Low-Medium Density Residential land use is not consistent with the Neighborhood Preservation Policy Area. The need for an increased in residential density in this area should be discussed during the Region Plan process.			
LUCA-11	8450, 8456, 8458, 8462, 8464 Brock Bridge Road	19	168, 6	168: 1-4	Medium Density Residential	Low Density Residential	R1	Neighborhood Preservation	Medium Density Residential	The requested change to Medium Density Residential is consistent with the site's proximity to the Laurel MARC station and is compatible with the surrounding planned land use.			
LUCA-12	815 Pasadena Road	23	343	4	Low-Medium Density Residential	Low Density Residential	R1	Neighborhood Preservation	Low Density Residential	The requested change to Low-Medium Density land use is not consistent with the Neighborhood Preservation Policy Area nor compatible with the surrounding planned land use.			
LUCA-13	3424, 3422 Pike Ridge Road	55	128	7, 9	Commercial	Low Density Residential	R2	Neighborhood Preservation	Low Density Residential	The requested change to Commercial land use is not consistent with the Neighborhood Preservation Policy Area nor compatible with the surrounding existing land use and zoning. Expansion of Commercial in this area should be discussed during the Region Planning process.			
LUCA-14	368 North Drive	24	345	58	Maritime	Low-Medium Density Residential, Maritime	MA2, R5	Neighborhood Preservation	Maritime	The applicant is not requesting a change in planned land use. The current Maritime land use is consistent with the existing zoning, use and Neighborhood Preservation Policy Area; and is compatible with the surrounding planned land use.			
LUCA-15	1293, 1295 Mayo Ridge Road	60	413	-	High Density Residential or Medium Density Residential	Low-Medium Density Residential, Maritime	MA2, R2	Peninsula	Low Density Residential, Maritime	The requested change to High Density Residential land use for the area not currently developed for the portion of the site that is a non-marina use is not consistent with the Peninsula Policy Area nor compatible with the surrounding planned land use.			
LUCA-16	8410 Brock Bridge Road	19	4	-	High Density Residential, Medium Density Residential	Low Density Residential	R1	Neighborhood Preservation	Low Density Residential	The requested change to High Density Residential land use is not consistent with the Neighborhood Preservation Policy Area and existing zoning nor compatible with the adjacent environmentally sensitive Oxbow Natural Area.			
LUCA-17	7719 Baltimore Annapolis Blvd	10	17	16-19, 28-31	Commercial	Commercial, Medium Density Residential, Government/Institution, Transportation/Utility	C1	Neighborhood Preservation	Commercial	The requested change to Commercial land use is consistent with existing zoning and is compatible with the surrounding planned land use and character along B&A Boulevard.			
LUCA-18	331 Gambrills Road	30	75	-	Commercial	Commercial	C3, RLD	Rural and Agricultural	Commercial	The applicant is not requesting a change in planned land use. The current Commercial land use is consistent with the existing zoning and use.			
LUCA-19 (withdrawn)													

Application Number	Address of Property	Tax Map	Parcel(s)	Lot(s)	Plan2040 Requested Land Use	2009 GDP Land Use	Existing Zoning	Plan2040 Policy Area & Overlay	Plan2040 Recommended Land Use (Preliminary Draft)	Final Staff Justification	PAB Recommendation	Final Recommendation	Council Recommendation
LUCA-20	3401 Mountain Road	17	198	-	Commercial	Low Density Residential, Transportation/Utility, Commercial	R2	Neighborhood Preservation	Low Density Residential	The requested change to Commercial land use is not consistent with the residential planned land use along Edwin Raynor Boulevard. It is recommended that any expansion of Commercial land use within this corridor be discussed during the Region Planning process when a more comprehensive land use plan is developed with input from the community stakeholders.			
LUCA-21	Mountain Road	17	656 Reserve	-	Commercial	Low-Medium Density Residential	R5	Neighborhood Preservation	Low-Medium Density Residential	The requested change to Commercial land use is not consistent with the residential planned land use along Edwin Raynor Boulevard. It is recommended that any expansion of Commercial land use within this corridor be discussed during the Region Planning process when a more comprehensive land use plan is developed with input from the community stakeholders.			
LUCA-22	424 Broadneck Road	40	93	-	Industrial	Low Density Residential	R1	Neighborhood Preservation	Low Density Residential	The requested change to Industrial land use is not consistent with the Neighborhood Preservation Policy Area nor compatible with the surrounding planned Low Density Residential and Rural and Agricultural land uses. The property has frontage on a road that is not suitable for expansion of industrial uses in this area.			
LUCA-23	466 Forelands Road	50	36	-	Rural	Low Density Residential	R2	Neighborhood Preservation	Low Density Residential	The requested change to Rural and Agricultural land use is not consistent with the Neighborhood Preservation Policy Area, the Planned Sewer Service category within the Annapolis Sewer Service Area nor compatible with the surrounding planned land use.			
LUCA-24	7346 Furnace Branch Road	10	342	-	Commercial	Medium Density Residential	R5	Neighborhood Preservation	Commercial	The requested change to Commercial land use is consistent with the existing use and is compatible with the corridor's retail land uses. Future commercial uses should remain low intensity and in scale with the surrounding area's planned land use.			
LUCA-25	292 Charles Hall Road	30	275	-	Low Density Residential	Rural	RLD	Rural and Agricultural	Rural	The requested change to Low Density Residential land use is not consistent with the Rural and Agricultural Policy Area or the Rural Sewer Service category, and is not compatible with the surrounding planned land use.			
LUCA-26	611, 613, 615 Ridgely Avenue	45H	156 520 157 163	-	Commercial	Low Density Residential	SB, R2 (P163)	Neighborhood Preservation	Change Parcels 156, 157, and 520 to Commercial. Keep Parcel 163 as Low Density Residential	The requested change to Commercial land use for parcels 156, 157, and 520 is consistent with the existing zoning and the small business uses. Future commercial uses should remain low intensity and in scale with the surrounding area's planned land use. It is recommended that Parcel 163 remain Low Density Residential, consistent with planned land use in the Willow Road neighborhood. It is recommended that any expansion of Commercial land use within this corridor be discussed during the Region Planning process when a more comprehensive land use plan is developed with input from the community stakeholders.			
LUCA-27	607 Ridgely Avenue	45H	497	-	Commercial	Low Density Residential	R2	Neighborhood Preservation	Low Density Residential	The requested change to Commercial land use is not consistent with the surrounding planned land use in the Willow Road neighborhood. It is recommended that any expansion of Commercial land use within this corridor be discussed during the Region Planning process when a more comprehensive land use plan is developed with input from the community stakeholders.			
LUCA-28	99 Shelly Road	5	98	-	High Density Residential	Medium Density Residential	C3	Critical Corridor	Low-Medium Density	The requested change to High Density Residential is an intensification of use within the MD 2 corridor. It is recommended to change the planned land use to Low-Medium density, consistent with the proposed surrounding planned land use and that any expansion of Commercial land use within this corridor be discussed during the Region Planning process when a more comprehensive land use plan is developed with input from the community stakeholders.			
LUCA-29	7170 Baltimore-Annapolis Blvd	4	117	2 3 73	Commercial	Medium Density Residential, Commercial	C3, R10, R5	Neighborhood Preservation, Transit-Oriented	Commercial	The requested change to Commercial land use is consistent with the existing zoning and use and is compatible with the surrounding planned land use.			
LUCA-30	7166 Baltimore-Annapolis Blvd	4	117	4 5	Commercial	Medium Density Residential	R10	Neighborhood Preservation, Transit-Oriented	Commercial	The requested change to Commercial land use is compatible with the surrounding planned land use along B&A Boulevard.			
LUCA-31	8004, 8006, 8008, 8010, 8012, 8014 Ritchie Hwy	16	200 609 201 196 314	-	Low-Medium Density Residential	Low-Medium Density Residential	C1	Critical Corridor	Low-Medium Density Residential	The applicant is not requesting a change in planned land use. The existing Low-Medium density residential land use is compatible with the surrounding planned land use. It is recommended that any expansion of Commercial land use within the Mountain Road corridor be discussed during the Region Planning process when a more comprehensive land use plan is developed with input from the community stakeholders.			

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LUCA-32	2 Willow Road	45H	159 158	-	Commercial	Low Density Residential	R2	Neighborhood Preservation	Low Density Residential	The requested change to Commercial land use would be an expansion of these types of uses within the Neighborhood Preservation Policy Area. It is recommended that any expansion of Commercial land use within the Mountain Road corridor be discussed during the Region Planning process when a more comprehensive land use plan is developed with input from the community stakeholders.			
LUCA-33	200B Dubois Road	45H	646	-	Commercial	Low Density Residential, Transportation/Utility	R2	Neighborhood Preservation	Low Density Residential	The requested change to Commercial land use would be an expansion of these types of uses within the Neighborhood Preservation Policy Area. It is recommended that any expansion of Commercial land use within this corridor be discussed during the Region Planning process when a more comprehensive land use plan is developed with input from the community stakeholders.			
LUCA-34	2976 Solomons Island Road	55	123	-	Commercial	Commercial	C2	Critical Corridor	Commercial	The applicant is not requesting a change in planned land use. The current Commercial land use is consistent with the existing zoning, use and Critical Corridor Policy Area; and is compatible with the surrounding planned land use.			
LUCA-35	712 Central Avenue East	60	523	5	Commercial	Low Density Residential	R1	Peninsula	Low Density Residential	The requested change to Commercial land use would be an expansion of these types of uses within the Central Avenue corridor. It is recommended that any expansion of Commercial land use within this corridor be discussed during the Region Planning process when a more comprehensive land use plan is developed with input from the community stakeholders.			
LUCA-36	520 Brock Bridge Road	27	4	-	High Density Residential	High Density Residential	R22	Neighborhood Preservation	High Density Residential	The applicant is not requesting a change in planned land use. The current High Density Residential land use is consistent with current zoning.			
LUCA-37	1781 Dorsey Road	8	586	-	Industrial	Commercial	C3	Neighborhood Preservation, Transit-Oriented	Mixed Use	The requested change to Industrial land use is not compatible with the Neighborhood Preservation - Transit-Oriented Policy Area. Mixed-Use is recommended which recognizes the site within close proximity to the Dorsey MARC rail station and the opportunity to create a compact, accessible, walkable environment through Transit-Oriented Development.			
LUCA-38	1091 Mt. Zion Marlboro Road	71 / 72	215 / 42 81 95 123 125 149	-	Medium Density Residential	Rural	R5, RA	Rural and Agricultural	Rural	The requested change to Medium Density Residential land use is not consistent with the Rural and Agricultural Policy Area and the Resource Sensitive Policy Area, as the site is within the County's adopted Priority Preservation Area.			
LUCA-39	1451 Furnace Avenue	10	576	-	High Density Residential	Medium Density Residential, Low-Medium Density Residential	R5, R15	Neighborhood Preservation	Low-Medium Density Residential	The requested change to High Density Residential land use nor the 2009 GDP designated Medium Density land use for this site are consistent with the Neighborhood Preservation Policy Area, the existing zoning or compatible with the surrounding planned land use. Plan2040 recommends that areas with a density between 2.1 and 5 units per acre be designated as Low-Medium Density Residential.			
LUCA-40	Homewood Landing Road	47	51	-	Maritime	Rural, Maritime	RLD	Peninsula	Rural	The requested change to expand the Maritime land use is not consistent with the Resource Sensitive Policy Area due to the Critical Area Resource Conservation Area designation, nor compatible with the surrounding Rural and Agricultural and Low Density Residential land use.			
LUCA-41	4618 South Polling House Road	67	95	-	Low Density Residential	Rural	RA	Rural and Agricultural	Rural	The requested change to Low Density Residential land use is not consistent with the Rural and Agricultural Policy Area, the Rural Sewer Service Area and the Resource Sensitive Policy Area, as the site is within the County's adopted Priority Preservation Area; nor is it compatible with the surrounding planned land use.			
LUCA-42	1254 Ritchie Hwy	39	67	-	Industrial	Low Density Residential, Industrial	R1	Neighborhood Preservation	Commercial	The requested change to Industrial land use is not consistent with any planned land use designation or zoning categories since it features multiple non-conforming uses. This property is seen as a unique community benefit. Commercial land use is recommended as it best fits the majority of the site's non-conforming uses.			
LUCA-43	6205 & 6193 Southern Maryland Blvd	76	122 128	-	Low Density Residential	Rural	RA	Rural and Agricultural	Rural	The requested change to Low Density Residential land use is not consistent with the Rural and Agricultural Policy Area, the Rural Sewer Service Area and the Resource Sensitive Policy Area, as the site is within the County's adopted Priority Preservation Area; nor is it compatible with the surrounding planned land use.			
LUCA-44	7656 Sandy Farm Road	15	34	2	Commercial	Low Density Residential	C2	Neighborhood Preservation	Commercial	The requested change to Commercial land use is consistent with the existing zoning.			

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LUCA-45	Fairfax Avenue, Baltimore	5	247	-	Industrial, Conservation	Industrial, Medium Density Residential, Natural Features	R10, W2, OS	Neighborhood Preservation	Industrial, Low-Medium Density Residential	The requested change to Industrial land use is compatible with the adjacent land uses to the east and south. Small parcels along Fairfax Avenue within the existing residential neighborhood should be Low-Medium Density Residential, consistent with the surrounding neighborhood. During the development of this site, any sensitive areas will be evaluated and protected with a conservation easement.			
LUCA-46	7489 Marley Road	10	358	-	Commercial	Medium Density Residential	R5	Neighborhood Preservation	Medium Density Residential	The requested change to Commercial land use is not consistent with the Critical Area designation of Limited Development Area nor compatible with the Resource Sensitive Policy Area, due to the site's historic resource the Marley Neck School.			
LUCA-47	8215 Hook Road	16	289 280	-	Low-Medium Density Residential	Low Density Residential	R1	Neighborhood Preservation	Low Density Residential	The requested change to Low-Medium Density Residential land use is not consistent with the Neighborhood Preservation Policy Area nor compatible with the surrounding planned land use.			
LUCA-48	1460 Dorsey Road	8	470	-	High Density Residential	Industrial	W1	Critical Economic	Industrial	The requested change to High Density Residential land use would impact the County's limited inventory of Industrial land use within the Critical Economic Policy Area.			
LUCA-49	Sellner Road	13	70	-	Mixed Use	Mixed Use Employment	W1	Critical Economic, Village Center	Mixed Use	The applicant is not requesting a change in planned land use. Mixed-Use land use is consistent with the existing zoning and is compatible with the surrounding planned land use.			
LUCA-50	617 & 627 Ridgely Avenue	45H	155 698	14	Commercial	Low Density Residential	SB	Neighborhood Preservation	Commercial	The requested change to Commercial land use is consistent with the site's existing use and with the existing SB zoning. Future commercial uses should remain low intensity and in scale with the surrounding area's planned land use.			
LUCA-51	619 Ridgely Avenue 210B Dubois Road	45H	154 689	-	Commercial	Low Density Residential	SB (P154), R2 (P689)	Neighborhood Preservation	Change Parcel 154 to Commercial, Retain Low Density Residential on Parcel 689	The requested change to Commercial land use is consistent with the site's existing use and with the existing SB zoning. Future commercial uses should remain low intensity and in scale with the surrounding area's planned land use.			
LUCA-52	901 Bay Ridge Road	57A	758	3	Commercial	Commercial, Low Density Residential	C1, R2	Peninsula	Commercial	The requested change to Commercial land use is consistent with the existing use of the property and with the surrounding planned land use.			
LUCA-53	845 Ritchie Highway	32E	414	-	Commercial	Low-Medium Density Residential, Natural Features	R2, OS	Neighborhood Preservation	Low-Density Residential	The requested change to Commercial land use is not consistent with the Neighborhood Preservation Policy Area. The 2009 GDP designated Low-Medium Density Residential land use for this site is not consistent with the existing zoning. Plan2040 recommends that areas with a density between 0.2 and 2 units per acre be designated as Low Density Residential. The recommended change to Low Density Residential is consistent with the existing zoning and surrounding planned land use. During the development of this site, any sensitive areas will be evaluated and protected with a conservation easement.			
LUCA-54	910 Ritchie Highway	32H	20	-	Commercial	Commercial	C3	Neighborhood Preservation	Commercial	The applicant is not requesting a change in planned land use. The existing Commercial land use is consistent with the existing zoning and Neighborhood Preservation Policy Area.			
LUCA-55	7143 Matthews Road	8	252		Medium Density Residential	Industrial	W1	Neighborhood Preservation	Medium Density Residential	The requested change to Medium Density land use is consistent with the Neighborhood Preservation Policy area and is compatible with the surrounding planned land use.			
LUCA-56	2800 Solomons Island Road, 8, 10, 16 Sunset Drive	51	123, 121, 260, 226	4, 5, 8	Commercial	Low Density Residential, Commercial, Maritime	R1, C2, C4, MC	Critical Corridor	Commercial	The requested change to Commercial land use is consistent with the primary commercial zoning and uses within this area and is compatible with the surrounding planned land use.			
LUCA-57	7135 Wright Road	8	261	-	Medium Density Residential	Industrial	W1	Neighborhood Preservation	Medium Density Residential	The requested change to Medium Density land use is consistent with the Neighborhood Preservation Policy area and is compatible with the surrounding planned land use.			
LUCA-58	7147 Wright Road	8	316	-	Medium Density Residential	Industrial	W1	Neighborhood Preservation	Medium Density Residential	The requested change to Medium Density land use is consistent with the Neighborhood Preservation Policy area and is compatible with the surrounding planned land use.			
LUCA-59	Wright Road	8	271	-	Medium Density Residential, Natural Features	Industrial, Natural Features	W1, OS	Neighborhood Preservation	Medium Density Residential	The requested change to Medium Density land use is consistent with the Neighborhood Preservation Policy area and is compatible with the surrounding planned land use.			
LUCA-60	Wright Road	8	325	-	Medium Density Residential	Industrial	W1	Neighborhood Preservation	Medium Density Residential	The requested change to Medium Density land use is consistent with the Neighborhood Preservation Policy area and is compatible with the surrounding planned land use.			
LUCA-61	7131 Wright Road	8	260	-	Medium Density Residential	Industrial	W1	Neighborhood Preservation	Medium Density Residential	The requested change to Medium Density land use is consistent with the Neighborhood Preservation Policy area and is compatible with the surrounding planned land use.			

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LUCA-62	Wright Road	8	265	-	Medium Density Residential, Natural Features	Industrial, Natural Features	W1, OS	Neighborhood Preservation	Medium Density Residential	The requested change to Medium Density land use is consistent with the Neighborhood Preservation Policy area and is compatible with the surrounding planned land use.			
LUCA-63	814 Camp Meade Road	4	856	-	Industrial	Medium Density Residential	R5	Neighborhood Preservation	Industrial	The requested change to Industrial land use is consistent with the surrounding commercial, industrial and transit uses. Rezoning of much of Parcel 600 to the south to C3 by Council Bill 12-11 (Amendment 33) has established Andover Road as a transition between residential and non-residential uses along Camp Meade Road.			
LUCA-64	7151 Wright Road	8	326	-	Medium Density Residential	Industrial	W1	Neighborhood Preservation	Medium Density Residential	The requested change to Medium Density land use is consistent with the Neighborhood Preservation Policy area and is compatible with the surrounding planned land use.			
LUCA-65	6025 - 6037 Ritchie Highway	5	144, 257, 267, 275, 276	3, 2	Commercial	Medium Density Residential, High Density Residential, Commercial	C3, R15	Critical Corridor	Commercial	The requested change to Commercial land use is consistent with the existing use and is compatible with the surrounding planned land use.			
LUCA-66	2056, 2062, 2076, 2078 Generals Highway; 2554, 2566 Housley Road	45	341, 344, 342, 343	A, B, C	Commercial	Town Center, Low Density Residential	C2, C3, C4	Town Center	Town Center	This is not a change in land use but a reconciliation between the existing parcel boundaries and the existing Town Center planned land use boundaries, consistent with the site's existing zoning.			
LUCA-67	491 College Parkway	40	67	B	Commercial or Medium Density Residential	Low Density Residential, Government/Institution	R1	Neighborhood Preservation	Low Density Residential	The requested change to Commercial or Medium Density Residential land use is not consistent with the Neighborhood Preservation Development Policy Area nor compatible with the surrounding planned land uses. Low Density Residential has been expanded for the entire parcel as the recommended replacement for the Government / Institutional land use (Public Use) is not appropriate for this site.			
LUCA-68	8561, 8601 Veterans Highway	22	308, 546	-	Commercial	Mixed-Use Residential, Natural Features, Transportation/Utility	C2, OS	Critical Corridor	Mixed Use	The requested change to Commercial land use is consistent with the existing zoning; however, Mixed-Use should be retained until a more comprehensive land use plan is developed for this area with input from the community stakeholders. The existing environmental sensitive features on the property are protected through private property agreements.			
LUCA-69	Central Avenue	55	299	-	Commercial	Rural	RA	Critical Corridor	Rural	The requested change to Commercial is not consistent with the current zoning and surrounding planned land use. Discuss further planned land use changes to the site and surrounding area during the Region Planning process.			
LUCA-70	8402 Brock Bridge Road	19	3	-	Medium Density Residential	Low Density Residential	R1	Neighborhood Preservation	Low Density Residential	The requested change to High Density Residential land use is not consistent with the Neighborhood Preservation Policy Area nor consistent with the existing zoning.			
LUCA-71	1130 Pasadena Yacht Yard Rd	17	8	-	Maritime	Low-Medium Density Residential	R5	Neighborhood Preservation	Maritime	The requested change to Maritime land use is consistent with the site's existing land use.			
LUCA-72	7711 Quarterfield Rd	15	206	-	Commercial	Commercial	C1	Neighborhood Preservation	Commercial	The applicant is not requesting a change in planned land use. Commercial land use is consistent with the existing zoning and is compatible with the surrounding planned land use.			
LUCA-73	1712 Crain Hwy	15	489	-	Commercial	Commercial, Medium Density Residential	C3, R5	Critical Corridor	Commercial	The requested change to Commercial land use is consistent with the existing use and zoning; and is compatible with the surrounding planned land use.			
LUCA-74	Long Hill Road, Pasadena	16	499 225 317	-	High Density Residential	High Density Residential	R15	Neighborhood Preservation	High Density Residential	The applicant is not requesting a change in planned land use. High Density Residential is consistent with the existing zoning.			
LUCA-75	8000 Long Hill Road	16	317	-	Low Density Residential	Low Density Residential	R1	Neighborhood Preservation	Low Density Residential	The applicant is not requesting a change in planned land use. Low-density Residential is consistent with the existing zoning, use, Neighborhood Preservation Policy Area and is compatible with the adjacent planned land use.			
LUCA-76	1127 Bragers Road	36	29	-	Low-Medium Density Residential	Rural	RA	Rural and Agricultural	Public Use	The requested Low-Medium Density Residential land use is not consistent with the Rural and Agricultural Policy Area. Given that the County has purchased this property, the Public Use Planned Land Use category is the most appropriate designation.			
LUCA-77	1130 Bragers Road	36	28	-	Low-Medium Density Residential	Rural	RA	Rural and Agricultural	Rural	The requested change to Low-Medium Density Residential land use is not consistent with Rural and Agricultural Policy Area, the Rural Sewer Service Area nor compatible with the surrounding planned land use.			
LUCA-78 (withdrawn)													

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LUCA-79	Brandy Farms Lane	37	71	-	Commercial, High Density Residential	Rural	C2, RLD	Critical Corridor	Commercial, Rural	The requested change to the portion of the property that is zoned C1 to Commercial land use is consistent with its zoning however, changing the portion that is currently zoned RLD to High Density Residential is an increase in residential density within this corridor. It is recommended that any increases in density within this corridor be discussed during the Region Planning process when a more comprehensive land use plan is developed with input from the community stakeholders.			
LUCA-80	25 Ritchie Hwy	23	161	-	Commercial	Low Density Residential	R2	Neighborhood Preservation	Low Density Residential	The requested change to Commercial land use is not consistent with Neighborhood Preservation Policy Area nor compatible with the surrounding planned land use.			
LUCA-81	7666 Baltimore-Annapolis Blvd	10	346 352	-	Industrial	Commercial	C4	Neighborhood Preservation	Industrial	The requested change to Industrial land use is consistent with the existing use.			
LUCA-82 (withdrawn)													
LUCA-83 (withdrawn)													
LUCA-84	Waugh Chapel Road	36	11	-	Conservation, High Density Residential	Natural Resources, Low Density Residential	OS	Neighborhood Preservation	Low-Medium Density Residential	The requested change to High Density Residential land use is not compatible with the surrounding planned land use. The GDP designated Natural Features designation is not defined for this property. The recommended Low-Medium Density Residential planned land use is compatible with the surrounding planned land use.			
LUCA-85	2824 Solomons Island Road	51	134	-	Maritime	Maritime, Transportation/Utility	MC, MA2	Critical Corridor	Maritime	This is not a change in land use but a reconciliation between the existing parcel boundaries and the existing Maritime planned land use boundaries, consistent with the site's existing zoning and removal of Utility/Transportation as a planned land use category in Plan2040.			
LUCA-86	3942 Germantown Road	60	269	-	Maritime	Maritime, Low Density Residential	MA2, R2	Peninsula	Maritime, Low Density Residential	The requested change to Maritime land use for the entire property would be an expansion of Maritime uses in this predominantly Low Density Residential neighborhood and could be incompatible. It is recommended that any expansion of Maritime land use within this Peninsula Policy Area be discussed during the Region Planning process with input from the community stakeholders.			
LUCA-87	3936 Germantown Road	60	276	-	Maritime	Low Density Residential	R2	Peninsula	Low Density Residential	The requested change to Maritime land use would be an expansion of Maritime uses in this predominantly Low Density Residential neighborhood and could be incompatible. It is recommended that any expansion of Maritime land use within this Peninsula Policy Area be discussed during the Region Planning process with input from the community stakeholders.			
LUCA-88	3930 Germantown Road	60	271	-	Maritime	Maritime, Low Density Residential	MA2, R2	Peninsula	Low Density Residential	The requested change to Maritime land use would be an expansion of Maritime uses in this predominantly Low Density Residential neighborhood and could be incompatible. It is recommended that any expansion of Maritime land use within this Peninsula Policy Area be discussed during the Region Planning process with input from the community stakeholders.			
LUCA-89	3932 Germantown Road	60	250	-	Maritime	Maritime, Low Density Residential	MB, R2	Peninsula	Maritime	This is not a change in land use but a reconciliation between the existing parcel boundaries and the existing Maritime planned land use boundaries, consistent with the site's existing zoning.			
LUCA-90	1191 Martha Greenleaf Drive	36	165	-	Commercial	Medium Density Residential	C3	Neighborhood Preservation	Commercial	The requested change to Commercial land use is consistent with the existing zoning.			
LUCA-91	8371 Baltimore Annapolis Blvd	24	529	-	Commercial	Low Density Residential	R1	Neighborhood Preservation	Low Density Residential	retain 2009 LU / defer to Region Plans			
LUCA-92	3926 Germantown Road	60	508	-	Maritime	Maritime, Low Density Residential	MA2	Peninsula	Maritime	This is not a change in land use but a reconciliation between the existing parcel boundaries and the existing Maritime planned land use boundaries, consistent with the site's existing zoning.			
LUCA-93	Crain Highway	36	363, 364	-	Commercial	Commercial	C2	Neighborhood Preservation	Commercial	The applicant is not requesting a change in planned land use. Commercial land use is consistent with the existing zoning.			
LUCA-94	161 Ritchie Highway	23	253	-	Commercial	Low Density Residential	R1	Neighborhood Preservation, Village Center	Low Density Residential	The requested change to Commercial land use would be an expansion within this Neighborhood Preservation - Village Center Policy Area. It is recommended that any expansion of Commercial land use within this Village Center be discussed during the Region Planning process when a more comprehensive land use plan is developed with input from the community stakeholders. A fire station does not need commercial land use or zoning. The existing R2 zoning permits Volunteer fire stations, per Article 18-4-106 of County			

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LUCA-95	741 Generals Highway	30	403	-	Commercial	Rural	C1	Rural and Agricultural	Commercial	The requested Commercial land use is consistent with the existing zoning and the retail commercial use; and is compatible with the adjacent planned land use to the north and west.			
LUCA-96	747 Generals Highway	30	219	-	Commercial	Rural	RLD	Rural and Agricultural	Rural	The requested change to Commercial land use is not consistent with the existing zoning, residential use or Rural and Agricultural Policy Area; and is not compatible with the planned land use of surrounding properties. It is recommended that any expansion of Commercial use be discussed during the Region Planning process with input from the community stakeholders during the Region Planning process.			
LUCA-97	751 Generals Highway	30	221	-	Commercial	Rural	RLD	Rural and Agricultural	Rural	The requested change to Commercial land use is not consistent with the existing zoning, residential use or Rural and Agricultural Policy Area; and is not compatible with the planned land use of surrounding properties. It is recommended that any expansion of Commercial use be discussed during the Region Planning process with input from the community stakeholders.			
LUCA-98	749 Generals Highway	30	230	-	Commercial	Rural	RLD	Rural and Agricultural	Rural	The requested change to Commercial land use is not consistent with the existing zoning, residential use or Rural and Agricultural Policy Area; and is not compatible with the planned land use of surrounding properties. It is recommended that any expansion of Commercial use be discussed during the Region Planning process with input from the community stakeholders.			
LUCA-99	8275 Baltimore Annapolis Boulevard	23	68	1	Commercial	Low Density Residential	R1, OS	Neighborhood Preservation	Low Density Residential	The requested change to Commercial land use is not consistent with the existing zoning and use. It is recommended that any expansion of Commercial use within the Neighborhood Preservation Policy Area be discussed during the Region Planning process with input from the community stakeholders.			
LUCA-100	1705 Woolford Lane	43	50	-	Low Density Residential	Rural, Natural Features	RA, OS	Rural and Agricultural	Rural	The requested change to Low Density Residential land use is not consistent with the existing use, zoning or Rural and Agricultural Policy Area; nor compatible with the surrounding planned land use.			
LUCA-101	1711 Woolford Lane	43	215	1R	Low Density Residential	Rural	RA	Rural and Agricultural	Rural	The requested change to Low Density Residential land use is not consistent with the Rural and Agricultural Policy Area nor compatible with the surrounding planned land use.			
LUCA-102	912 Crain Highway North	10	140	-	Commercial, Mixed Use	Medium Density Residential	R5	Critical Corridor	Low-Medium Density Residential	The requested change to Commercial or Mixed-Use land use could be an intensification of uses in this corridor. It is recommended that any change of use within this corridor be discussed during the Region Planning process when a more comprehensive land use plan is developed with input from the community stakeholders.			
LUCA-103	85 Dover Road	5	129	-	Commercial	Industrial	W1, C4	Critical Corridor	Commercial	The requested change to Commercial land use is consistent with the existing use and with surrounding planned land uses to the north, west, and south.			
LUCA-104	2623 Riva Road	50	34	3	Town Center	Town Center, Transportation/Utility	W1, C2	Town Center	Town Center	This is not a change in land use but a reconciliation between the existing parcel boundaries and the existing Town Center planned land use boundaries, consistent with the site's existing zoning and removal of Utility/Transportation as a planned land use category in Plan2040.			
LUCA-105	304 Harry S. Truman Parkway	50	34	6RR	Town Center	Town Center	W1, C2	Town Center	Town Center	The applicant is not requesting a change in planned land use. Town Center land use is consistent with the Parole Growth Management Area and is compatible with the Town Center Policy Area.			
LUCA-106	808 Bestgate Road	45	305	1RR, 2RR	Commercial	Low Density Residential	C2	Neighborhood Preservation	Commercial	The requested change to Commercial land use is consistent with the existing zoning and office use.			
LUCA-107	7509 Connelley Drive	8	620	4R	Industrial	Industrial	W2, W1	Critical Economic	Industrial	The applicant is not requesting a planned land use change. The existing Industrial land use is consistent with the existing zoning, use, Critical Economic Development Policy Area and compatible with the surrounding planned land use.			
LUCA-108	7513 Connelley Drive	8	620	5R	Industrial	Industrial	W2, W1	Critical Economic	Industrial	The applicant is not requesting a planned land use change. The existing Industrial land use is consistent with the existing zoning, use, Critical Economic Development Policy Area and compatible with the surrounding planned land use.			
LUCA-109	7521, 7525 Connelley Drive	9	71	7R	Industrial	Industrial	W2, W1	Critical Economic	Industrial	The applicant is not requesting a planned land use change. The existing Industrial land use is consistent with the existing zoning, use, Critical Economic Development Policy Area and compatible with the surrounding planned land use.			

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LUCA-110	7522, 7526 Connelley Drive	9	71	8R	Industrial	Industrial	W2, W1	Critical Economic	Industrial	The applicant is not requesting a planned land use change. The existing Industrial land use is consistent with the existing zoning, use, Critical Economic Development Policy Area and compatible with the surrounding planned land use.			
LUCA-111	2600 Cabover Drive	9	413	20R	Industrial	Industrial, Commercial	W2, C4	Critical Economic	Industrial	This is not a change in land use but a reconciliation between the existing parcel boundaries and the existing Industrial planned land use boundaries, consistent with the site's existing zoning.			
LUCA-112	7504 Connelley Drive	9	413	21R	Industrial	Industrial, Commercial	W2, C4	Critical Economic	Industrial	This is not a change in land use but a reconciliation between the existing parcel boundaries and the existing Industrial planned land use boundaries, consistent with the site's existing zoning.			
LUCA-113	7502 Connelley Drive	9	413	22R-C	Commercial	Industrial, Commercial	W2, C4	Critical Economic	Commercial	This is not a change in land use but a reconciliation between the existing parcel boundaries and the existing Commercial planned land use boundaries, consistent with the site's existing zoning.			
LUCA-114	Cromwell Park Drive	9	118	9	Commercial	Industrial, Commercial	W1, C4	Critical Economic	Commercial	The requested change to Commercial land use is consistent with the existing zoning and retail use; and is compatible with the surrounding planned land use.			
LUCA-115	1741 Dorsey Road	8	19	2R	Commercial	Industrial	C3	Neighborhood Preservation, Transit-Oriented	Commercial	The requested change to Commercial land use is consistent with the existing zoning and retail use; and is compatible with the surrounding planned land use.			
LUCA-116	Waugh Chapel Way	36	61	14, 15, 16R, 17, 18, 19, 20, 21	Mixed Use	Natural Features, Rural, Low Density Residential	MXD-R	Critical Corridor	Mixed Use	The requested change to Mixed-Use land use is consistent with existing zoning, use, Critical Corridor Policy Area; and is compatible with the surrounding planned land use.			
LUCA-117	Ft. Smallwood Road	6	54	-	Industrial	Industrial, Medium Density Residential	W3, R5	Critical Economic	Industrial	This is not a change in land use but a reconciliation between the existing parcel boundaries and the existing Industrial planned land use boundaries, consistent with the site's existing zoning.			
LUCA-118	115 S. Ritchie Highway	23	177	-	Commercial	Low Density Residential	R1	Neighborhood Preservation	Low Density Residential	The requested change to Commercial land use is is not consistent with the Neighborhood Preservation Policy Area nor compatible with the surrounding Low Density Residential planned land use.			
LUCA-119	245 Herndon Drive	45	335	-	Commercial	Low-Medium Density Residential, High Density Residential	C4	Town Center	Town Center	The change to Town Center land use is compatible with the surrounding planned land uses along the Bestgate corridor and provides public benefit by promoting redevelopment of the underutilized property.			
LUCA-120	2957 Jessup Road	13	104	-	Commercial	Low Density Residential	R1	Neighborhood Preservation	Low Density Residential	The requested change to Commercial land use is not consistent with the Neighborhood Preservation Policy Area nor compatible with the surrounding planned land use.			
LUCA-121	97 Ritchie Highway	23	173	-	Commercial	Low Density Residential	R1	Neighborhood Preservation	Low Density Residential	The requested change to Commercial land use is not consistent with the Neighborhood Preservation Policy Area nor compatible with the surrounding planned land use.			
LUCA-122	161 Ferguson Road	40	119	-	Commercial	Rural	RLD	Neighborhood Preservation	Rural	The requested change to Commercial land use is not consistent with the Rural and Agricultural Policy Area and the Resource Sensitive Policy Area due to the Critical Area Resource Conservation Area designation; nor is it compatible with the surrounding planned land use.			
LUCA-123	1700 Woolford Lane	43	51	-	Low Density Residential	Rural	RA	Rural and Agricultural	Rural	The requested change to Low Density Residential land use is not consistent with the Rural and Agricultural Policy Area nor compatible with the surrounding planned land use.			
LUCA-124	877 MD Route 3 North	37	56	6	Commercial	Low Density Residential	C1	Critical Corridor	Commercial	The requested change to Commercial land use is consistent with the existing zoning, and is compatible with adjacent planned land use and frontage on Crain Highway.			
LUCA-125	253 Old Mill Bottom Road	40	378	-	Low Density Residential	Rural	RLD	Neighborhood Preservation	Rural	The requested change to Low Density Residential land use is not consistent with the Rural and Agricultural Policy Area nor compatible with the surrounding planned land use.			
LUCA-126	Wright Road	8	259	-	Medium Density Residential	Industrial	W1	Neighborhood Preservation	Medium Density Residential	The requested change to Medium Density land use is consistent with the Neighborhood Preservation Policy area and is compatible with the surrounding planned land use.			
LUCA-127	1500 Ritchie Highway	39	292	-	Commercial	Commercial, Low Density Residential	C3, R2	Neighborhood Preservation, Village Center	Commercial, Low Density Residential	The requested change to Commercial and Low Density Residential is consistent with the site's zoning and the Policy Area. The applicant is seeking approximately an additional half acre of residential land use to convert to commercial and is not seeking to expand the remainder of the parcel into a commercial land use.			

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LUCA-128	2893 Jessup Road	13	206	-	Industrial	Small Business, Low Density Residential	SB, R1	Neighborhood Preservation, Village Center	Commercial, Low Density Residential	The requested change to Industrial land use could be an intensification of uses in this Neighborhood Preservation - Village Center Policy Area. It is recommended that any change of use within this Village Center be discussed during the Region Planning process when a more comprehensive land use plan is developed with input from the community stakeholders.			
LUCA-129	3600 Laurel Ft Meade Road	19	86	1	Industrial, Transit Facilities, Mixed Use	Industrial, Natural Features	W1, OS	Critical Economic, Transit-Oriented	Industrial, Mixed Use	The requested change to Mixed-Use, Industrial and Transit is consistent with the Critical Economic - Transit-Oriented Policy Area and is compatible with the surrounding planned land use. It is recommended that the site be split between Mixed-use and Industrial. The Industrial Planned Land Use is to accommodate the existing Laurel Race Track use, which is not a permitted use in current Mixed-Use zoning districts. The Mixed-Use designation is to recognize the site's close proximity to the Laurel Racetrack MARC rail station and the opportunity to create a dense, compact, accessible, walkable environment through Transit-Oriented Development. The Transit Planned Land Use will be discussed during the Region Plan.			
LUCA-130	1701 Poplar Ridge Road	18	73	-	Maritime	Maritime, Low Density Residential	MB, R2	Peninsula	Maritime, Low Density Residential	The requested change to extend Maritime land use planned land use to the full site is not consistent with the Resource Sensitive Policy Area due to the Critical Area Resource Conservation Area designation; and is not compatible with the surrounding low density residential planned land uses.			
LUCA-131	157 Ritchie Highway	23	773	-	Commercial, Low Density Residential	Commercial, Low Density Residential	C3, R1	Neighborhood Preservation, Village Center	Commercial, Low Density Residential	The requested change to Commercial and Low Density Residential is consistent with the site's zoning and the Policy Area.			
LUCA-132	627 Ridgely Ave., 216 Dubois Road, 216B Dubois Road	45	149, 545, 768, 546	6, 9, 10	Commercial	Low Density Residential	R2	Neighborhood Preservation	Low Density Residential	The requested change to Commercial land use is not appropriate for a site that is accessed by a narrow right-of-way; low density residential is more in line with the surrounding planned land use to the north.			
LUCA-133	36, 40 Old South River Road	51	131, 383	-	Commercial	Commercial, Transportation/Utility	C2	Critical Corridor	Commercial	reconciliation			
LUCA-134 (withdrawn)													
LUCA-135	4438 Purple Martins Road	17	532	-	Low Density Residential	Rural	RLD	Neighborhood Preservation	Rural	The requested change to Low Density Residential planned land use is not consistent with the surrounding planned land use for the area.			
LUCA-136	33 South River Road	56	359	-	Maritime	Low Density Residential	R1	Critical Corridor	Low Density Residential	The requested change to Maritime land use would support adjacent marina however, this change would be an intensification of uses within the MD 2 corridor. It is recommended that any change of use within this corridor be discussed during the Region Planning process when a more comprehensive land use plan is developed with input from the community stakeholders. Part of the property already supports the marina with paving heading toward boat storage.			
LUCA-137	48 South River Road	56	182	-	Maritime	Low Density Residential, Maritime	R1, MB	Critical Corridor	Maritime	This is not a change in land use but a reconciliation between the existing parcel boundaries and the primary Maritime planned land use boundaries, consistent with the site's existing use and zoning.			
LUCA-138	12 Sunset Drive	51	56	6	Commercial	Low Density Residential	R1	Critical Corridor	Commercial	The requested change to Commercial land use is consistent with the existing commercial and marine uses fronting Sunset drive.			
LUCA-139	846 Shady Oaks Road	69	240	1	Maritime	Low Density Residential	R2	Rural and Agricultural	Low Density Residential	The requested change to Maritime land use is not consistent with prior zoning decisions made by the County nor compatible with the surrounding planned land use. Shady Oaks Manor subdivision was platted in 1947. Marina operations began after the property's purchase on February 15, 1951. From 1952 to December 30, 1971, the site was zoned Heavy Commercial. In 1971, the zoning was changed from Heavy Commercial to R2 residential, although no change in intensity of use was noted at the time. In 1975, an application for rezoning to MC maritime district was filed, as well as an application for a variance to permit the construction of travel lift, bulkheading, and to change the configuration of certain slips (case #120-75 & V-121-75, respectively). Both applications were denied on January 12, 1976. A nonconforming use (1977-0029-N) was registered on September 18, 1977. The use appears to remain largely unchanged over the past 70 years. Additionally, based on a review of aerials, the entire neighborhood remains largely unchanged over the past 40 years. The access roadway is a narrow road through a residential area, providing only one way in and out.			

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LUCA-140	1421 Mirable Way	17	257	-	Maritime	Maritime, Low Density Residential	R2	Peninsula	Low Density Residential	The requested change to Maritime land use is not compatible with the surrounding Low Density Residential planned land use and is not consistent with prior land use and zoning decisions.			
LUCA-141	1257 and 1273 Ritchie Highway	39	72, 368	-	Commercial	Government/Institution, Low-Medium Density Residential	R1	Neighborhood Preservation	Low Density Residential	The request to change to Commercial land use is not consistent with existing zoning and is not compatible with surrounding land use. Plan2040 recommends that areas designated as Government / Institutional land use on the 2009 GDP Land Use Map and are not Public Use, be designated with a land use compatible with the surrounding planned land use. Low Density Residential is consistent with the existing zoning and surrounding planned land use.			
LUCA-142	Freshfield Lane	40	257	-	Medium Density Residential	Low Density Residential, Low-Medium Density Residential	R5	Neighborhood Preservation	Low-Medium Density Residential	The request to change to Medium Density Residential land use is not consistent with existing zoning, developed density and surrounding planned land use. The recommendation is to change to Low-Medium Density Residential which is more consistent and compatible.			
LUCA-143	344 Freshfield Lane	40	64	-	Medium Density Residential	Low Density Residential	R5	Neighborhood Preservation	Low-Medium Density Residential	The request to change to Medium Density Residential land use is not consistent with existing zoning, developed density and surrounding planned land use. The recommendation is to change to Low-Medium Density Residential which is more consistent and compatible.			
LUCA-144	350 Freshfield Lane	40	65	-	Medium Density Residential	Low Density Residential, Low-Medium Density Residential	R5	Neighborhood Preservation	Low-Medium Density Residential	The request to change to Medium Density Residential land use is not consistent with existing zoning, developed density and surrounding planned land use. The recommendation is to change to Low-Medium Density Residential land use which is more consistent and compatible.			
LUCA-145 (withdrawn)													
LUCA-146	330 Highview Road	77	268, 19	-	268: Maritime; 19: Maritime and Low Density Residential	Low Density Residential	R1	Neighborhood Preservation	Low Density Residential	The requested change to Maritime land use is not consistent with the Neighborhood Preservation Policy Area and the Resource Sensitive Policy Area, due to the historic asset (Nutwell House) existing on the site and the Critical Area Resource Conservation Area designation.			
LUCA-147	236 Ritchie Highway	23	757	D	Commercial	Low Density Residential	R2	Neighborhood Preservation	Low Density Residential	The requested change to Commercial land use is not consistent with the existing zoning and Neighborhood Preservation Policy Area nor compatible with the surrounding planned land use.			
LUCA-148	6070 Dorsey Road	8	107	2RR	Industrial	Industrial, Natural Features	W1, OS	Critical Economic	Industrial	This is not a change in land use but a reconciliation between the existing parcel boundaries and the Industrial planned land use boundaries, consistent with the site's existing zoning and compatible with the surrounding planned land use.			
LUCA-149	Deale Churchton Road	78	75	-	Commercial	Low Density Residential	R2, C3	Neighborhood Preservation	Low Density Residential	The requested change to Commercial land use is not consistent with the Neighborhood Preservation Policy Area nor compatible with the surrounding planned land use.			
LUCA-150	7074 Lake Shore Dr	82	18	1-9 21 22-23 2 10 19-21 11 18	Maritime	Natural Features	OS	Neighborhood Preservation, Village Center	Rural	The request to change to Maritime land use is not consistent with the Resource Sensitive Policy Area, due to the Critical Area Resource Conservation Area designation. The recommendation is to change to Rural land use is consistent with the Resource Sensitive Policy Area and the Critical Area designation; and it is compatible with adjacent planned land use and density.			
LUCA-151	454 Bay Front Road	73	36	-	Commercial	Rural, Commercial	RA, C1 (partial)	Rural and Agricultural	Retain current land use split (Rural & Commercial)	The requested change to Commercial land use is not consistent with the existing zoning, agricultural use, Rural Sewer Service Area, Rural and Agricultural Policy Area, and the Resource Sensitive Policy Area due to the Critical Area Resource Conservation Area designation; nor is it compatible with the surrounding planned land use. A fire station does not need commercial land use or zoning. The existing Rural Agricultural (RA) zoning permits Volunteer fire stations, per Article 18-4-106 of County Code.			
LUCA-152	4108 Mountain Road	17	146	-	Commercial	Low Density Residential, Commercial	C2, R2	Neighborhood Preservation	Commercial	The requested change to Commercial land use is consistent with the existing use and compatible with the surrounding planned land use, provided that future uses remain low intensity.			
LUCA-153	Ritchie Highway	23	664	-	Commercial	Low Density Residential	R2	Neighborhood Preservation	Low Density Residential	The requested change to Commercial land use is not consistent with the existing zoning nor compatible with the surrounding planned land use.			
LUCA-154	315 Brick Church Road	55	228	-	Commercial	Rural	RA	Rural and Agricultural	Rural	The requested change to Commercial land use is not consistent with the existing zoning nor compatible with the surrounding planned land use.			

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LUCA-155	Revell Highway	40	143 144	-	Low Density Residential	Rural	RLD	Neighborhood Preservation	Rural	The requested change to Commercial land use is not consistent with the existing zoning nor compatible with the surrounding planned land use.			
LUCA-156	212 Old Mill Bottom Road	40	382	-	Commercial	Rural	RLD	Neighborhood Preservation	Rural	The requested change to Commercial land use is not consistent with the existing zoning nor compatible with the surrounding planned land use.			
LUCA-157	2525 Evergreen Road	36	233	-	Commercial	Low Density Residential, Natural Features	C3, OS	Critical Corridor	Commercial	The requested change to Commercial land use is consistent with the existing zoning, existing land use, and is compatible with the surrounding planned land use.			
LUCA-158	Honeylocust Dr Sequoia Lane Buckthorn Drive	36	61	-	Mixed Use	Low Density Residential	MXDR	Critical Corridor	Mixed Use	The requested change to Mixed-Use is consistent with the existing zoning, use, and Critical Corridor Policy Area; and is compatible with the surrounding planned land use.			
LUCA-159	Witchhazel Circle (various)	36	61	1-17, 34, 45-52	Mixed Use	Low Density Residential	MXDR	Critical Corridor	Mixed Use	The requested change to Mixed-Use is consistent with the existing zoning, use, and Critical Corridor Policy Area; and is compatible with the surrounding planned land use.			
LUCA-160	Smooth Alder Street	36	61	53	Mixed Use	Low Density Residential	MXDR	Critical Corridor	Mixed Use	The requested change to Mixed-Use is consistent with the existing zoning, use, and Critical Corridor Policy Area; and is compatible with the surrounding planned land use.			
LUCA-161	Evergreen Road	36	61	-	Mixed Use	Low Density Residential, Rural, Natural Features	MXDR	Critical Corridor	Mixed Use	The requested change to Mixed-Use is consistent with the existing zoning, use, and Critical Corridor Policy Area; and is compatible with the surrounding planned land use.			
LUCA-162	Holland Point Road	33	85	-	Maritime	Low Density Residential	R1	Peninsula	Low Density Residential	The requested change to Maritime is not compatible with the surrounding planned land use, the Plan2040 Peninsula Policy Area or Resource Sensitive Policy Area due to the Critical Area Resource Conservation Area designation.			
LUCA-163	Romany Road	33	85 104	-	Industrial	Low Density Residential	R1	Peninsula	Low Density Residential	The requested change to Industrial land use is not consistent with the Plan2040 Peninsula Policy Area, and is not compatible with the surrounding Low Density Residential planned land use.			
LUCA-164	Aberfoyle Road	33	234	-	Maritime	Low Density Residential	R1	Peninsula	Maritime	The requested change to Maritime land use is compatible with the surrounding planned land use and it provides maritime service area for the residential community. Future maritime uses should be limited to low intensity uses serving the immediate community.			
LUCA-165	Skippers Row	33	233	206	Maritime	Low Density Residential	R1	Peninsula	Maritime	The requested change to Maritime is compatible with the surrounding planned land use and it provides maritime service area for the residential community. Future maritime uses should be limited to low intensity uses serving the immediate community.			
LUCA-166	770 Crain Hwy	37	15	-	Commercial	Commercial	C4	Critical Corridor	Commercial	This is not a change in land use but a reconciliation between the existing parcel boundaries and the Commercial planned land use boundaries, consistent with the site's existing zoning and Critical Corridor Policy Area; and it is compatible with the surrounding planned land use.			
LUCA-167	66 Magothy Beach Rd	24	880	-	Commercial	Low Density Residential	R1	Neighborhood Preservation	Low Density Residential	The requested change to Commercial land use is not consistent with the existing zoning, Neighborhood Preservation Policy Area; nor compatible with the surrounding low density residential planned land use.			
LUCA-168	210 Hallman Road	24	227	-	Medium Density Residential	Low Density Residential	R1	Neighborhood Preservation	Low Density Residential	The requested change to Medium Density Residential land use is not consistent with the existing zoning, Neighborhood Preservation Policy Area; nor compatible with the surrounding low density residential planned land use.			
LUCA-169	5109 Mountain Road	25	94	-	Rural	Low Density Residential	R1	Peninsula	Rural	The requested change to Rural land use is consistent with the Peninsula Development Policy Area and the Resource Sensitive Policy Area due to the Critical Area Resource Conservation Area designation; and it is compatible with the surrounding planned land use.			
LUCA-170	8019 Old Jessup Rd 2066 Phillips Road	13	24 36 78	-	Industrial	Low Density Residential	R1, W3 (sliver)	Neighborhood Preservation	Industrial	The requested change to Industrial land use is located on the north side of Phillips Road in and industrial area within Anne Arundel and Howard counties. The request is compatible with the adjacent industrial uses north of Phillips Road.			
LUCA-171	277 Peninsula Farm Road	32	173	-	Commercial	Low Density Residential	R2	Neighborhood Preservation	Commercial	The requested change to Commercial land use is consistent with the existing medical office building that provides a community benefit. The change in land use is not expanding additional commercial within the Neighborhood Preservation Policy Area.			
LUCA-172	1697-1699 Millersville Road 679 Md Rt 3 North	30	357 353	-	Commercial	Rural	C2, RLD	Critical Corridor	Commercial	The requested change to Commercial land use is consistent with the existing zoning and is within the Planned Sewer Service category within the Patuxent Sewer Service Area.			

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LUCA-173	743 MD 3	37	45 264 6 (lots 10-18) 348 141 (lot 3) 138	-	Mixed Use	Commercial, Rural	C4	Critical Corridor / Rural and Agricultural	Commercial, Rural	The requested change to Mixed-Use is consistent with the Critical Corridor Policy Area however, the Commercial and Rural land use designations should be retained until a more comprehensive land use plan is developed for the MD 3 corridor during the Region Plan process with input from the community stakeholders.			
LUCA-174	708, 710, 713, 714 McKnew Road Crain Hwy Md Rt 3 South 736 Md Rt 3 South	37 / 30	121, 296 / 551 472 192 494 159 (lots 1, 2, 3, 4)	-	Mixed Use	Commercial, Low Density Residential	C3, R5	Critical Corridor	Commercial along MD 3, Low-Medium Density Residential for rear parcels	The requested change to Mixed-Use is consistent with the Critical Corridor Policy Area however, staff recommends changing the C3-Zoned parcel to Commercial and the R5-Zoned parcels to Low-Medium Density to reflect the existing zoning. An evaluation for Mixed-use should occur when a more comprehensive land use plan is developed for the MD 3 corridor during the Region Plan process with input from the community stakeholders.			
LUCA-175	MD Rt 3 South	37	114	-	Mixed Use	Low Density Residential	C2	Critical Corridor	Commercial	The requested change to Mixed-Use is consistent with the Critical Corridor Policy Area however, the Plan2040 recommendation is to change the parcel to Commercial to be consistent with the existing zoning. An evaluation for Mixed-use should occur when a more comprehensive land use plan is developed for the MD 3 corridor during the Region Plan process with input from the community stakeholders.			
LUCA-176	Central Avenue-Riva Road	55	89	-	Commercial	Rural	SB	Rural and Agricultural	Commercial	The requested change to Commercial land use is consistent with current zoning and would match commercial zoning located across Central Avenue.			
LUCA-177	Race Road, Jessup	13	62	-	Commercial	Low Density Residential	R1	Neighborhood Preservation, Village Center	Low Density Residential	The current Low Density Residential land use designation should be retained until a more comprehensive land use plan is developed for the Jessup Village Center during the Region Plan process with input from the community stakeholders.			
LUCA-178	623 Ridgely Avenue	45	150	-	Commercial	Low Density Residential	C2	Neighborhood Preservation	Commercial	The requested change to Commercial land use is consistent with the existing zoning and use and is compatible with with the surrounding commercial planned land uses to the south along the corridor. Future commercial uses should remain low intensity and in scale with the surrounding area's planned land use.			
LUCA-179	820 Bestgate Road	45	302	-	Commercial	Low-Medium Density Residential	R5	Neighborhood Preservation	Commercial	The requested change to Commercial land use designation is consistent with the site's existing use as a medical office building and is compatible with the surrounding planned land uses along the Bestgate corridor. Future uses on the site should remain low intensity and in scale with the surrounding area's planned land uses.			
LUCA-180	814 MD Rt 3 South	37	245 2	-	Mixed Use	Commercial	C2	Critical Corridor	Commercial	The requested change to Mixed-Use is not consistent with current zoning. Discuss further planned land use changes to the site/area during the Region Planning process and/or during a master planning process.			
LUCA-181	740 MD Rt 3 South	37	258	-	Mixed Use	Commercial	C2	Critical Corridor	Commercial	The requested change to Mixed-Use is consistent with the Critical Corridor Policy Area however, the Commercial land use designation should be retained until a more comprehensive land use plan is developed for the MD 3 corridor during the Region Plan process with input from the community stakeholders.			
LUCA-182	7048 Aviation Blvd	4	675	-	Commercial	Small business	SB	Critical Economic	Commercial	The requested change to Commercial land use is consistent with current zoning.			
LUCA-183	Pt Reserved Parcel 3 Baltimore 21240	9	118	-	Industrial	Mixed Use Transportation	W1	Neighborhood Preservation, Transit-Oriented	Mixed Use	The requested change to Industrial land use is not consistent with Transit-Oriented Policy Area, which is targeted for mixed use, walkable development. Discuss further planned land use changes to the site and surrounding area during the Region Planning process.			
LUCA-184	600 Ridgely Avenue	45	114	-	Commercial	Low Density Residential	C2, R2	Neighborhood Preservation	Commercial	The requested change to Commercial land use is consistent with the site's existing use and zoning. Future uses should continue to be low intensity commercial/office uses in scale with the surrounding area's planned land use. Discuss further planned land use changes for the area during the Region Planning process.			
LUCA-185	Solley Road	10	118	-	Industrial	Industrial	W1	Neighborhood Preservation	Industrial	The request represents no change in the property's current Land Use designation and is consistent with the site's current planned land use and zoning, and is compatible with the surrounding planned land uses.			
LUCA-186	3920 Germantown Road	60	275	-	Maritime	Low Density Residential, Maritime	R2	Peninsula	Low Density Residential	The requested change to Maritime land use would be an expansion of Maritime uses in this predominantly Low Density Residential neighborhood and could be incompatible. It is recommended that any expansion of Maritime land use within this Peninsula Policy Area be discussed during the Region Planning process with input from the community stakeholders.			

Application Number	Address of Property	Tax Map	Parcel(s)	Lot(s)	Plan2040 Requested Land Use	2009 GDP Land Use	Existing Zoning	Plan2040 Policy Area & Overlay	Plan2040 Recommended Land Use (Preliminary Draft)	Final Staff Justification	PAB Recommendation	Final Recommendation	Council Recommendation
LUCA-187	2880, 2882, 2886, 2883, 2885, 2888, 2890, 2894 Jessup Road	13	265, 156, 157	P. 265: 6-11, 40-44	Commercial (Parcel 265 properties); Industrial (parcels 156, 157)	Small Business, Low Density Residential	SB, R1	Neighborhood Preservation, Village Center	Commercial, Low Density Residential	The requested change to Commercial land use is consistent with the existing zoning and use however the request to change the Low Density Residential area to Industrial land use could be an intensification of uses in this Neighborhood Preservation - Village Center Policy Area. It is recommended that any change of use within this Village Center be discussed during the Region Planning process when a more comprehensive land use plan is developed with input from the community stakeholders.			
LUCA-188	1046 E. College Pkwy	41	21 127 126 128	1, 2	Commercial	Low Density Residential, Transportation/Utility	R1	Peninsula	Low Density Residential	The requested change to Commercial land use is not consistent with the existing zoning and Peninsula Policy Area; and is not compatible with the surrounding planned land use.			
LUCA-189	1021 Skidmore Drive	41	129	9	Commercial	Rural, Natural Features	RA, OS	Peninsula	Rural	The requested change to Commercial land use is not consistent with current zoning and LDA Critical Area designation; and is not compatible with the surrounding planned land use.			

SR#	Location of Property	GDP2009 Planned_Land_Use	Plan2040 Policy Area & Overlay	Plan2040 Proposed Land_Use (Preliminary Draft)	Justification	PAB Recommendation	Final Recommendation	Council Recommendation
SR-1	Baltimore-Annapolis Blvd Belle Grove Rd Camp Meade Rd	Commercial, Low-Medium Density Residential	Neighborhood Preservation, Transit Oriented	**Mixed-Use**	Designation of Mixed-Use Land Use recognizes the area within close proximity to the North Linthicum Light Rail Station as an opportunity for creating a walkable, mixed-use environment through Transit Oriented Development.			
SR-2	4020 Belle Grove Rd Franklin St Second St	Medium Density Residential	Neighborhood Preservation	**Commercial**	The recommended change from Medium Density Residential to Commercial is consistent with the existing use and Neighborhood Preservation Policy Area; and it is compatible with the surrounding planned land use.			
SR-3	Kramme Avenue	High Density Residential	Neighborhood Preservation	**Low-Medium Density Residential**	The recommended change from High Density Residential to Low-Medium Residential is consistent with the existing use, developed density, Neighborhood Preservation Policy Area and the access point from the Low-Medium Density community; and it is compatible with the surrounding planned land use.			
SR-4	Church St	Medium Density Residential / Commercial	Neighborhood Preservation	**Low-Medium Density Residential**	The recommended change from Medium Density Residential and Commercial to Low-Medium Residential aligns with demarcation of the existing use; is consistent with the developed density and the Neighborhood Preservation Policy Area; and it is compatible with surrounding planned land use			
SR-5	519 Koch Rd	High Density Residential	Neighborhood Preservation	**Low-Medium Density Residential**	The recommended change from High Density Residential to Low-Medium Residential aligns with demarcation of existing use; is consistent with the developed density and Neighborhood Preservation Policy Area; and it is compatible with surrounding planned land use.			
SR-6	615 Hammonds Ln 625 Hammonds Ln 701 Hammonds Ln	Medium Density Residential	Neighborhood Preservation	**Commercial**	The recommended change from Medium Density Residential to Commercial aligns with demarcation of existing commercial uses; is consistent with the Neighborhood Preservation Policy Area; and it is compatible with the surrounding planned land use.			
SR-7	Baltimore-Annapolis Blvd	Commercial	Neighborhood Preservation	**Low-Medium Density Residential**	The recommended change from Commercial to Low-Medium Density Residential is consistent with the existing use, developed density and Neighborhood Preservation Policy Area; and it is compatible with the surrounding planned land use.			
SR-8	1 Fifth Ave	Commercial	Neighborhood Preservation	**Low-Medium Density Residential**	The recommended change from Commercial to Low-Medium Residential is consistent with the existing use, developed density and the Neighborhood Preservation Policy Area; and it is compatible with the surrounding planned land use.			
SR-9	400, 500, 600 block Camp Mead 551 First St Shipley Ct 0 Benton Rd 205 Benton Ave 541 First St	Commercial, Low-Medium Density Residential	Neighborhood Preservation, Transit Oriented	**Mixed-Use**	Designation of Mixed-Use recognizes the area within close proximity to the Linthicum Light Rail Station as an opportunity for creating a dense, walkable, mixed-use environment through Transit Oriented Development.			
SR-10	1410 Crain Hwy 1412 Crain Hwy	Commercial	Critical Corridor	**Commercial**	no change			
SR-11	Allen Road Harris Heights Ave 0 Open Space Pt Primrose Pt	High Density Residential	Neighborhood Preservation	**Low-Medium Density Residential**	The recommended change from High Density Residential to Low-Medium Density Residential is consistent with the existing use, developed density and the Neighborhood Preservation Policy Area; and it is compatible with the surrounding planned land use.			
SR-12	0 Hammonds Ln	Commercial	Critical Corridor, Village Center	**High Density Residential**	The recommended change from Commercial to High Density Residential is consistent with the existing use and developed density.			
SR-13	1700, 1800 block Dorsey Rd 7000 block Forest Ave O'Connor Dr Ohio Avenue	Industrial, Commercial	Neighborhood Preservation, Transit Oriented	**Mixed-Use**	Designation of Mixed-Use Land Use recognizes the area within close proximity to the Dorsey MARC Rail Station as an opportunity for creating a dense, walkable, mixed-use environment through Transit Oriented Development.			

SR#	Location of Property	GDP2009 Planned_Land_Use	Plan2040 Policy Area & Overlay	Plan2040 Proposed Land_Use (Preliminary Draft)	Justification	PAB Recommendation	Final Recommendation	Council Recommendation
SR-14	0 Dorsey Rd	Commercial	Critical Economic	**High Density Residential**	The recommended change from Commercial to High Density Residential is consistent with the existing use and developed density.			
SR-15	Braden Loop Curtis Way Harvest Ln Hawkins Way Kindred Way Partnership Ln Ray Ln Truck Farm Dr	Commercial	Critical Corridor	**High Density Residential**	The recommended change from Commercial to High Density Residential is consistent with existing use and developed density.			
SR-16	619 Greenway Ave	Commercial	Neighborhood Preservation	**High Density Residential**	The recommended change from Commercial to High Density Residential is consistent with the existing use and developed density.			
SR-17	200 8Th Ave 265 8Th Ave 7400 Baltimore-Annapolis Blv 7401 Baltimore-Annapolis Blv 7402 Baltimore-Annapolis Blv 7404 Baltimore-Annapolis Blv	Industrial, Commercial, Mixed-Use, Natural Features	Town Center, Transit Oriented; Neighborhood Preservation, Transit-Oriented	**Mixed-Use**	Designation of Mixed-Use recognizes the area within close proximity to the Cromwell Light Rail Station as an opportunity for creating a dense, walkable, mixed-use environment through Transit Oriented Development.			
SR-18	7693 Baltimore-Annapolis Blv 4 Highland Rd 7 Mcguirk Dr	Medium Density Residential	Neighborhood Preservation	**Commercial**	The recommended change from Medium Density Residential to Commercial aligns with the demarcation of the existing use; is consistent with the Neighborhood Preservation Policy Area; and it is compatible with the surrounding planned land use.			
SR-19	20 Hammarlee Rd	Commercial	Neighborhood Preservation	**High Density Residential**	The recommended change from Commercial to High Density Residential is consistent with the existing use and developed density.			
SR-20	7466 Furnace Branch Rd	Commercial	Neighborhood Preservation	**High Density Residential**	The recommended change from Commercial to High Density Residential is consistent with the existing use and developed density.			
SR-21	2 Mcguirk Dr	Commercial	Neighborhood Preservation	**Low-Medium Density Residential**	The recommended change from Commercial to Low-Medium Residential is consistent with the existing use, developed density and the Neighborhood Preservation Policy Area; and it is compatible with the surrounding planned land use.			
SR-22	Fern Hollow Ct Millhouse Dr Moss Brook Ct Shore Forest Dr Solley Rd	Commercial	Neighborhood Preservation	**Low-Medium Density Residential**	The recommended change from Commercial to Low-Medium Residential is consistent with the existing use, developed density and the Neighborhood Preservation Policy Area; and it is compatible with the surrounding planned land use.			
SR-23	Renfro Ct Renfro Dr	Commercial	Neighborhood Preservation	**Medium Density Residential**	The recommended change from Commercial to Medium Density Residential is consistent with the existing use, developed density and the Neighborhood Preservation Policy Area and it is compatible with the surrounding planned land use.			
SR-24	Solley Rd	Industrial	Neighborhood Preservation	**Low-Medium Residential**	The recommended change from Industrial to Low-Medium Density Residential is consistent with the existing use and the Neighborhood Preservation Policy Area; and It is compatible with the surrounding planned land use.			
SR-25	435 East Stiemly Ave	Medium Density Residential	Neighborhood Preservation	**Commercial**	The recommended change from Medium Density Residential to Commercial is consistent with the existing use and Neighborhood Preservation Policy Area; and it is compatible with the surrounding planned land use.			
SR-26	200 Bar Harbor Rd 202 Bar Harbor Rd	Maritime	Neighborhood Preservation	**Low-Medium Density Residential**	The recommended change from Maritime to Low-Medium Density Residential is consistent with the existing use and the Neighborhood Preservation Policy Area; and it is compatible with the surrounding planned land use.			

SR#	Location of Property	GDP2009 Planned_Land_Use	Plan2040 Policy Area & Overlay	Plan2040 Proposed Land_Use (Preliminary Draft)	Justification	PAB Recommendation	Final Recommendation	Council Recommendation
SR-27	Market Space St Brock Bridge Rd Annapolis St Baltimore St Broadway St Fayette St Lexington St Main St Market St Washington St	Industrial	Critical Economic, Transit-Oriented	**Mixed-Use**	Designation of Mixed-Use recognizes the area within close proximity to the Savage MARC Rail Station as an opportunity for creating a dense, walkable, mixed-use environment through Transit Oriented Development.			
SR-28	Brock Bridge Rd	Low Density Residential	Critical Economic	**Commercial**	The recommended change from Low Density Residential to Commercial recognizes a change in character in the area; is consistent with existing use; and it is compatible with the surrounding planned land use.			
SR-29	7872 Brock Bridge Rd 7878 Brock Bridge Rd 7880 Brock Bridge Rd 7888 Brock Bridge Rd	Low Density Residential	Critical Economic	**Industrial**	The recommended change from Low Density Residential to Industrial recognizes a change in character of the area and it is compatible with the surrounding planned land use.			
SR-30	1307 Crain Hwy	Commercial, High Density Residential	Critical Corridor	**Commercial**	The recommended change from High Density Residential and Commercial to Commercial is consistent with the existing use and it is compatible with surrounding planned land use.			
SR-31	Wolf Run Ln	Commercial	Neighborhood Preservation, Village Center	**Medium Density Residential**	The recommended change from Commercial to Medium Density Residential is consistent with the existing use and developed density.			
SR-32	8239 Baltimore-Annapolis Blv 8243 Baltimore-Annapolis Blv 8245 Baltimore-Annapolis Blv 8253 Baltimore-Annapolis Blv 8257 Baltimore-Annapolis Blv 8259 Baltimore-Annapolis Blv 8271 Baltimore-Annapolis Blv 8240 Waterford Rd	Low Density Residential / Commercial	Neighborhood Preservation	**Commercial**	The recommended change from Low Density Residential and Commercial to Commercial is consistent with the existing use and is compatible with the surrounding planned land use. The heavy commercial character of this area is not appropriate for residential use.			
SR-33	8707 Ft Smallwood Rd 1202 Meadow View Rd	Low-Medium Density Residential	Neighborhood Preservation	**Commercial**	The recommended change from Low-Medium Density Residential to Commercial is consistent with existing and is compatible with surrounding planned land use.			
SR-34	Leeds Dr Old Crown Dr	Commercial	Neighborhood Preservation	**Low-Medium Density Residential**	The recommended change from Commercial to Low-Medium Residential is consistent with the existing use, developed density and the Neighborhood Preservation Policy Area; and it is compatible with the surrounding planned land use.			
SR-35	Yellow Flower Rd	Commercial	Neighborhood Preservation	**Medium Density Residential**	The recommended change from Commercial to Medium Density Residential is consistent with the existing use, developed density and the Neighborhood Preservation Policy Area; and it is compatible with the surrounding planned land use.			
SR-36	0 Md Rt 177 Mountain Rd Bay Rd Bay Front Dr Bay Front Rd Blue Waters Farm Ln Flanagan Farm Rd Inkberry Ln Inkberry Ln Riddle Ln Western Sea Drive Whistling Wind Drive	Low Density	Peninsula	**Rural**	The recommended change from Low Density Residential to Rural is consistent with the existing use, developed density, Rural Sewer Service Area and Peninsula Policy Area, and is compatible with the surrounding planned land use.			
SR-37	Orchard Grove Rd Orchard Tree Rd Piney Orchard Pkwy	Commercial	Neighborhood Preservation	**High Density Residential**	The recommended change from Commercial to High Density Residential is consistent with the existing use and developed density.			

SR#	Location of Property	GDP2009 Planned_Land_Use	Plan2040 Policy Area & Overlay	Plan2040 Proposed Land_Use (Preliminary Draft)	Justification	PAB Recommendation	Final Recommendation	Council Recommendation
SR-38a	1526 Jabez Run 1522 Jabez Run	Rural, Commercial	Rural and Agricultural	**Commercial**	The recommended change from Rural and Commercial to Commercial is consistent with existing use and Rural demarcation exclusive of this limited Commercial node.			
SR-38b	1520 Jabez Run	Rural, Industrial	Rural and Agricultural	**Industrial**	The recommended change from Rural and Industrial to Industrial is consistent with the existing use and it is compatible with the adjacent rural demarcation that excludes this limited existing Industrial node.			
SR-39	8855 Veterans Hwy	Rural	Rural and Agricultural	**Commercial**	The recommended change from Rural to Commercial is consistent with the existing use and it is compatible with and it is compatible with the adjacent rural demarcation that excludes this limited existIng commercial and industrial node.			
SR-40	118 Cedar Ct 122 Cedar Rd 213 Hollyberry Rd	Maritime	Neighborhood Preservation	**Low-Medium Density Residential**	The recommended change from Maritime to Low-Medium Density Residential is consistent with the existing use, Neighborhood Preservation Policy Area and point of access; and it is compatible with the surrounding planned land use.			
SR-41	524 Seaward Dr	Maritime	Neighborhood Preservation	**Low Density Residential**	The recommended change from Maritime to Low Density Residential is consistent with the existing use and the Neighborhood Preservation Policy Area; and it is compatible with the surrounding planned land use.			
SR-42	474 Fairoak Dr	Maritime	Neighborhood Preservation	**Low-Medium Density Residential**	The recommended change from Maritime to Low-Medium Density Residential is consistent with the existing use and the Neighborhood Preservation Policy Area; and it is compatible with the surrounding planned land use.			
SR-43	Brandermill Blvd Chapel Lake Dr Main Chapel Way New Market Ln	Commercial	Corridor Mangement	**Mixed-Use**	The recommended change from Commercial to Mixed-Use is consistent with the existing Mixed-Use development.			
SR-44	515 Ridgely Rd	Low Density Residential	Rural and Agricultural	**Maritime**	The recommended change from Low-Medium Density Residential to Maritime is consistent with the existing use and it is compatible with the surrounding planned land use.			
SR-45	1201 Baltimore-Annapolis Blv	Low Density Residential	Neighborhood Preservation	**Industrial**	The recommended change from Low Density Residential to Industrial is consistent with existing use.			
SR-46	Dunberry Dr Kevins Dr Shore Acres Rd Woodberry Dr	Low-Medium Density Residential	Neighborhood Preservation	**Low Density Residential**	The recommended change from Low-Medium Density Residential to Low Density Residential is consistent with the existing use, developed density, Neighborhood Preservation Policy Area and the access point from the Low Density Residential area; and it is compatible with the surrounding planned land use.			
SR-47	Andrew Hill Rd Bay Hills Dr Brassie Ct Doral Ct Jupiter Hills Ct Mashie Ct Niblick Ct Oakland Hills Dr Pine Valley Ct Quaker Ridge Ct Quaker Ridge Dr Rusack Ct Seminole Dr Shore Acres Dr Southern Hills Dr Spoon Ct Tribal Ct	High Density Residential	Neighborhood Preservation	**Low-Medium Density Residential**	The recommended change from High Density Residential to Low-Medium Density Residential is consistent with the overall developed density of the Bay Hills neighborhood and the Neighborhood Preservation Policy Area.			

SR#	Location of Property	GDP2009 Planned_Land_Use	Plan2040 Policy Area & Overlay	Plan2040 Proposed Land_Use (Preliminary Draft)	Justification	PAB Recommendation	Final Recommendation	Council Recommendation
SR-48	Amber Creek Rd Foggy Tur Hawk Hollow Dr Hidden Trace Iron Oak Cv Little Pax Run Quarter Branch Rd Quiet Lake Cv Foggy Turn	Commercial, Natural Features	Critical Corridor	**Medium Density Residential**	The recommended change from Commercial to Medium Density Residential is consistent with existing use and developed density.			
SR-49	Bestgate Rd Gate Dr Gate Ct Herndon Dr Parker Dr	Commercial, Low-Medium and High Density Residential	Town Center	**Town Center**	The recommended change from Commercial, Low-Medium and High Density Residential to Town Center is compatible with the surrounding planned land use and provides an opportunity to improve this area on the south side of Bestgate Road.			
SR-50	Beachfield Rd Black Forest Rd Blue Crab Cove Burley Rd Burley Ln Burley Rd Cherry Rd Dogwood Ln Edwards Rd Leslie Rd Red Cedar Rd Red Cedar Rd Truxton Rd Whitehall Beach Rd	Low Density Residential	Peninsula	**Low Density Residential**	no change			
SR-51	Autumn Chase Dr Autumn Chase Cir Autumn Chase Run Autumn Leaf Pl Boyds Cove Ct Boyds Cove Dr Cape St John Rd	Low-Medium Density Residential	Neighborhood Preservation	**Low Density Residential**	The recommended change from Low-Medium Density Residential to Low Density is consistent with the existing use, developed density and the Neighborhood Preservation Policy Area; and it is compatible with the surrounding planned land use.			
SR-52	0 Md 2 2824 Solomons Island Rd 2840 Solomons Island Rd	Maritime	Critical Corridor	**Commercial**	The recommended change from Maritime to Commercial is consistent with the existing use and it is compatible with surrounding planned land use.			
SR-53	421 Granville Dr	Low-Medium Density Residential	Neighborhood Preservation	**Low Density Residential**	The recommended change from Low-Medium Density Residential to Low Density Residential is consistent with the existing use, developed density, Neighborhood Preservation Policy Area and the point of access from the Low Density Residential community; and it is compatible with the surrounding planned land use.			
SR-54	1908 Blue Ridge Rd 0 Mayo Rd 153 Mayo Rd 200 Mayo Rd 211 Mayo Rd 0 Potomac Rd 1906 Ridgeville Rd	Low-Medium Density Residential	Critical Corridor, Village Center	**Commercial**	The recommended change from Low-Medium Density Residential to Commercial is consistent with the existing commercial use and it is compatible with the surrounding planned land use.			

SR#	Location of Property	GDP2009 Planned_Land_Use	Plan2040 Policy Area & Overlay	Plan2040 Proposed Land_Use (Preliminary Draft)	Justification	PAB Recommendation	Final Recommendation	Council Recommendation
SR-55	0 Colony Crossing 301 Gatsby Pl 303 Gatsby Pl 304 Gatsby Pl 3480 Monarch Dr 3482 Monarch Dr 3484 Monarch Dr 3486 Monarch Dr 3488 Monarch Dr 3490 Monarch Dr	Rural	Neighborhood Preservation	**Low Density Residential**	The recommended change from Rural to Low Density Residential is consistent with the existing use, density and road access within the South River Colony Low Density subdivision, public sewer service availability and the Neighborhood Preservation Policy Area; and it is compatible with surrounding planned land use.			
SR-56	559 Mayo Rd 3575 Muddy Creek Rd 3603 Muddy Creek Rd 3631 Muddy Creek Rd 3635 Muddy Creek Rd	Low Density Residential	Rural and Agricultural	**Rural**	The recommended change from Low Density Residential to Rural is consistent with existing use, Rural and Agricultural Policy Area and Rural Sewer Service Area; and it is compatible with the surrounding planned land use.			
SR-57	3608 2Nd Ave 3622 2Nd St 866 Bayview Dr Beach Drive Blvd Branhum Rd Calvert St Edgemont St Evelyn Gingell Ave First Ave Fontron Dr Hillside Ave Little Neck Dr Second Ave Second St Williams St Williams Cov Woodlawn St	Low-Medium Density Residential	Peninsula	**Low Density Residential**	The recommended change from Low-Medium Density Residential to Low Density Residential is consistent with existing use, developed density, Peninsula Policy Area; and it is compatible with the surrounding planned land use.			
SR-58	Beverley Ave Central Ave Daves Rd Mayo Ave Rodgers Rd Rogers Rd Shesley Rd Spruce Ave Beverly Ave Mayo Rd Shesley Pl	Low-Medium Density Residential	Peninsula	**Low Density Residential**	The recommended change from Low-Medium Density Residential to Low Density Residential is consistent with the existing use, developed density and the Peninsula Policy Area; and it is compatible with the surrounding planned land use.			
SR-59	Elm St Likes Rd	Low-Medium Density Residential	Peninsula	**Low Density Residential**	The recommended change from Low-Medium Density Residential to Low Density Residential is consistent with the existing use, developed density and the Peninsula Policy Area; and it is compatible with the surrounding planned land use.			
SR-60	4105 Cadle Creek Rd	Industrial, Low Density Residential	Peninsula	**Low Density Residential**	The recommended change from Industrial and Low Density Residential to Low Density Residential is consistent with the existing use and it is compatible with the surrounding planned land use.			
SR-61	Cherry Ln Cherry Point Rd	Low-Medium Density Residential	Neighborhood Preservation	**Low Density Residential**	The recommended change from Low-Medium Density Residential to Low Density Residential is consistent with existing use, developed density and Neighborhood Preservation Policy Area; and it is compatible with surrounding planned land use.			

SR#	Location of Property	GDP2009 Planned_Land_Use	Plan2040 Policy Area & Overlay	Plan2040 Proposed Land_Use (Preliminary Draft)	Justification	PAB Recommendation	Final Recommendation	Council Recommendation
SR-62	911 Mulberry Ln	Industrial, Low-Density	Neighborhood Preservation, Village Center	**Low Density Residential**	The recommended change from Low Density and Industrial to Low Density Residential is consistent with the existing use and the Neighborhood Preservation Policy Area; and it is compatible with the surrounding planned land use.			
SR-63	1457 Nieman Rd 1459 Nieman Rd	Maritime	Peninsula	**Low Density Residential**	The recommended change from Maritime to Low Density Residential is consistent with the existing use and the Peninsula Policy Area; and it is compatible with surrounding planned land use.			
SR-64	4812 Atwell Rd 4816 Atwell Rd 4824 Atwell Rd	Industrial, Maritime, Low Density Residential	Peninsula	**Low Density Residential**	The recommended change from Low Density Residential, Maritime and Industrial Land Use designations to Low Density Residential is consistent with the existing use and the Peninsula Policy Area; and it is compatible with the surrounding planned land use.			
SR-65	5955 Rockhold Creek Rd 5957 Rockhold Creek Rd 5959 Rockhold Creek Rd 5965 Rockhold Creek Rd	Maritime	Rural and Agricultural	**Maritime**	Maritime Land Use designation retained to align with existing use and zoning.			
SR-66	645 Fairhaven Rd	Low Density Residential	Rural and Agricultural	**Rural**	The recommended change from Low Density Residential to Rural is consistent with the existing use, developed density and the Rural and Agricultural Policy Area; and it is compatible with the surrounding planned land use.			

Application Number	Address of Property	Tax Map	Parcel(s)	Lot(s)	Plan2040 Requested Land Use	2009 Land Use	Existing Zoning	Policy Area + Overlay	Plan2040 Recommended Land Use	Final Staff Justification	PAB Recommendation	Final Recommendation	Council Recommendation
OOHR-1	Evergreen Road, Gambrills	36	247, 294, 293, 204, 118, 72, 7, 149, 58, 57, 185, 148	8, 2, 1, 8, 8, - , 7, 6, 5, 5, 3, 3	Rural	Rural and Agricultural	RLD	Rural and Agricultural	Rural	The requested change is consistent with the Plan2040 Development Policy Area of Rural and Agricultural, the current zoning, and is compatible with the surrounding planned land use; however, there is high potential for archaeological resources in this area and the property would require intensive archaeological survey prior to any disturbance for agricultural/mining purposes.			
OOHR-2	211 Ritchie Highway, Severna Park	23	259		Low - Medium density residential	Low density residential	R2	Neighborhood Preservation	Low density residential	The requested change to Low-Medium Density Residential land use is not consistent with the surrounding planned land use nor the Neighborhood Preservation Policy Area.			
OOHR-3	2640 Evergreen Road, Odenton	36	120	7	Rural	Rural and Agricultural	RLD	Rural and Agricultural	Rural	The requested change is consistent with the Plan2040 Development Policy Area of Rural and Agricultural, the current zoning, and is compatible with the surrounding planned land use.			
OOHR-4	Ritchie Highway	24	396		Commercial	Commercial, Low - Medium density residential, Natural features, Utility/Transportation	R5, OS, C3	Neighborhood Preservation	Low - Medium density residential	The proposed Plan2040 Low-Medium Residential land use should be retained until a more comprehensive land use plan for this area is developed during the Region Plan process with input from community stakeholders.			
OOHR-5	Evergreen Road, Gambrills	36	291	3	Rural	Rural and Agricultural	RA, RLD	Rural and Agricultural	Rural	The requested change is consistent with the Plan2040 Development Policy Area of Rural and Agricultural, the current zoning, and is compatible with the surrounding planned land use.			
OOHR-6	217 Ritchie Highway	23	477		Low - Medium density residential	Low density residential	R2	Neighborhood Preservation	Low density residential	The requested change to Low-Medium Density Residential land use is not consistent with the surrounding planned land use nor the Neighborhood Preservation Policy Area.			
OOHR-7	223 Ritchie Highway	23	353		Low - Medium density residential	Low density residential	R2	Neighborhood Preservation	Low density residential	The requested change to Low-Medium Density Residential land use is not consistent with the surrounding planned land use nor the Neighborhood Preservation Policy Area.			
OOHR-8	8262 Railroad Ave., Millersville	23	26		Low - Medium density residential	Low density residential	R1	Neighborhood Preservation	Low density residential	The requested change to Low-Medium Density Residential land use is not consistent with the surrounding planned land use nor the Neighborhood Preservation Policy Area.			
OOHR-9	108 Westley Ave., Severna Park	23	181		Low - Medium density residential	Low density residential	R1	Neighborhood Preservation	Low density residential	The requested change to Low-Medium Density Residential land use is not consistent with the surrounding planned land use nor the Neighborhood Preservation Policy Area.			
OOHR-12	1185 Baltimore-Annapolis Boulevard, Arnold	39	63		Industrial	Low density residential, Industrial	R1	Neighborhood Preservation	Low density residential	The requested land use change to Industrial is not consistent with the surrounding planned land use nor the Neighborhood Preservation Policy Area			
OOHR-10	2129 Moran Drive, Annapolis	45	300		Medium density residential	Low density residential, Low - Medium density residential, Natural Features	R1, R5, W1, OS	Neighborhood Preservation	Low density residential	The requested change to Medium Density Residential land use is not consistent with the surrounding planned land use nor the Neighborhood Preservation Policy Area.			
OOHR-11	358 Mountain Road, Pasadena	16	184, 835		Commercial	Low - Medium density residential	R5, C4	Neighborhood Preservation	Low - Medium density residential	The requested change to Commercial land use would be consistent with adjacent existing development and an existing open space area would buffer the residential community to the east. However, it is recommended that any expansion of Commercial land use within this corridor be discussed during the Region Planning process when a more comprehensive land use plan is developed with input from the community stakeholders.			
OOHR-13	8301 Jumpers Hole Road, Millersville	23	23		Low - Medium density residential	Low density residential	R1	Neighborhood Preservation	Low density residential	The requested change to Low-Medium Density Residential land use is not consistent with the surrounding planned land use nor the Neighborhood Preservation Policy Area.			
OOHR-14	Evergreen Road, Gambrills	36	196, 237, 290	-, -, 2	Rural	Rural and Agricultural	RLD, RA	Rural and Agricultural	Rural	The requested change is consistent with the Plan2040 Development Policy Area of Rural and Agricultural, the current zoning, and is compatible with the surrounding planned land use; however, there is high potential for archaeological resources in this area and the property would require intensive archaeological survey prior to any disturbance for agricultural/mining purposes.			
OOHR-15	Bestgate Road, Annapolis	45	668		Medium density residential	Low density residential, Natural features	R1, OS	Neighborhood Preservation	Low density residential	The requested change to Medium Density Residential is not consistent with the Neighborhood Preservation Policy Area, the surrounding Planned Land Use, or the current zoning of the area.			

Application Number	Address of Property	Tax Map	Parcel(s)	Lot(s)	Plan2040 Requested Land Use	2009 Land Use	Existing Zoning	Policy Area + Overlay	Plan2040 Recommended Land Use	Final Staff Justification	PAB Recommendation	Final Recommendation	Council Recommendation
OOHR-16	7824 Freetown Road, Glen Burnie	16	69, 661, 38,	OS000, 1-4	Medium density residential	Low - Medium density residential	R5	Neighborhood Preservation	Low - Medium density residential	The requested change to Medium Density Residential is not consistent with the Neighborhood Preservation Policy Area, the surrounding Planned Land Use, or the current zoning of the area.			
OOHR-17	Long Hill Road, Pasadena	16	224	BP000	High density residential	Commercial, High density residential	C4	Critical Corridor	High density residential	The requested change to High Density Residential is consistent with the Critical Corridor Policy Area; and is compatible with the surrounding planned land use and zoning.			
OOHR-18	8399 Baltimore-Annapolis Boulevard, Pasadena	24	439		Low - Medium density residential	Low density residential	R1	Neighborhood Preservation	Low density residential	The requested change to Low-Medium Density Residential land use is not consistent with the surrounding planned land use nor the Neighborhood Preservation Policy Area.			
OOHR-19	1037 Skidmore Drive, Annapolis	41	76		-	Rural and Agricultural, Natural Features	R1, OS	Peninsula	Rural	Maintain Rural Planned Land Use Designation for consistency with surrounding existing and planned land use, zoning, and to support protection of Critical Areas and environmentally sensitive areas.			
OOHR-20	1031 and 1033 Skidmore Drive, Annapolis	41	132, 133		Low density residential	Rural and Agricultural, Natural Features	RLD, OS	Peninsula	Rural	Maintain Rural Planned Land Use Designation for consistency with surrounding existing and planned land use, zoning, and to support protection of Critical Areas and environmentally sensitive areas.			
OOHR-21	201 Packard Avenue, Glen Burnie	9	34	1	Medium density residential	Medium density residential	R5	Neighborhood Preservation	Low - Medium density residential	The requested change is not consistent with the the current zoning and is consistent with the existing land use of multi-family.			
OOHR-22	White Avenue / Maryland Avenue, Linthicum	4	111	36-42; 50	Mixed Use	Industrial Low Density Residential (Lot 50)	W1 R2 (Lot 50)	Critical Economic	Mixed Use	The requested change to Mixed Use is consistent with the Vision and with the planned land uses along the Nursery Road and Elkridge Landing corridor.			
OOHR-23	1007 Main Ave, Linthicum Heights	4	111	29-35; 90-91; 93-94	Transit	Low Density Residential	R2	Critical Economic	Transit	The requested change to Transit is consistent with the property's ownership by the Maryland Aviation Administration and with adjacent planned land use to the west and south.			

Anne Arundel 2040