

2016 ANNUAL GROWTH REPORT



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"MARYLAND'S NEW CENTER OF OPPORTUNITY"

The 2016 Annual Growth Report

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INTRODUCTION

In accordance with State law, this report must provide information on development activity and planning programs to ensure that these activities are being completed in a manner consistent with the State's goals and visions. This report also addresses the implementation status of HarfordNEXT. The indicators required by the State are included in this report.

Starting in July 2010, Harford County was required to submit a report to the Maryland Department of Planning (MDP) on its Adequate Public Facilities (APF) provisions and any development restrictions within Priority Funding Areas (PFAs) that are the result of these provisions. Harford County provides this information annually to MDP.

The 2016 Annual Growth Report is an ongoing analysis of growth trends, facility capacity, and service performance. The report also contains information on updates to the County's Development Regulations and updates of all planning documents as required by the State. It addresses State requirements regarding planning consistency and opportunities for improving the planning process. This report is prepared by the Department of Planning and Zoning in coordination with the Department of Public Works - Water and Sewer and Engineering Divisions and the Harford County Public Schools. This report provides information on the present development activity as well as past trends and future projections for Harford County and the region.

The information in this report will be used by public officials, citizens, and private developers for various purposes:

- To assess facility adequacy during the development review and approval process;
- To assess facility capacity in regard to zoning reclassification decisions;
- To support the evaluation of priority projects in the annual Capital Budget review; and
- To identify critical deficiencies which require prompt attention by the County.

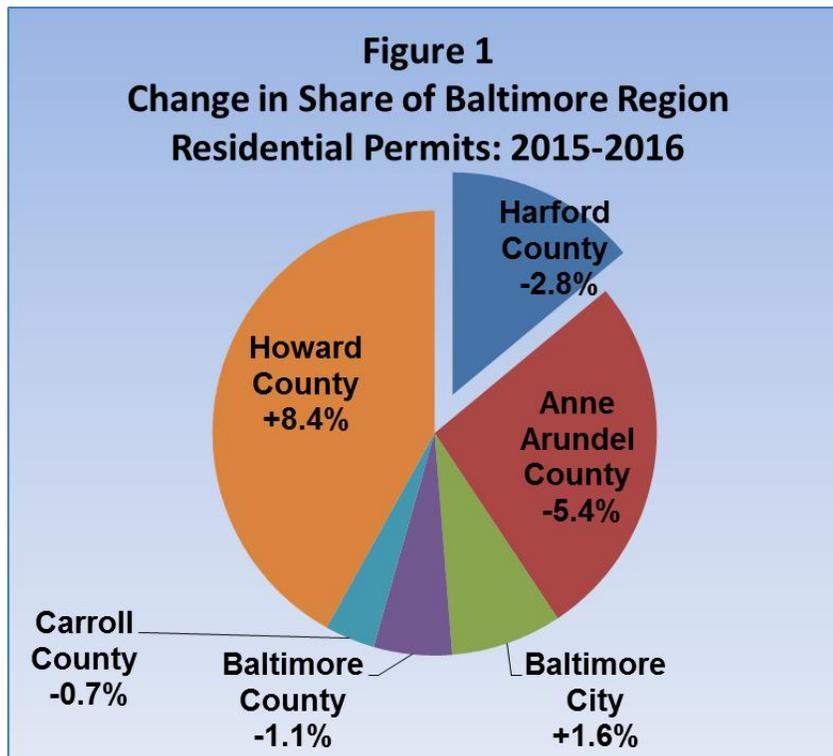
GROWTH TRENDS

Regional Data

In accordance with the Harford County Adequate Public Facilities provisions of the Harford County Code, the annual growth report must include data on growth trends for the previous one-year and five-year period, including comparisons with the other jurisdictions in the Baltimore region. Tables 1 – 5 (Appendix A) address the requirements specified in §267-126 A (2).

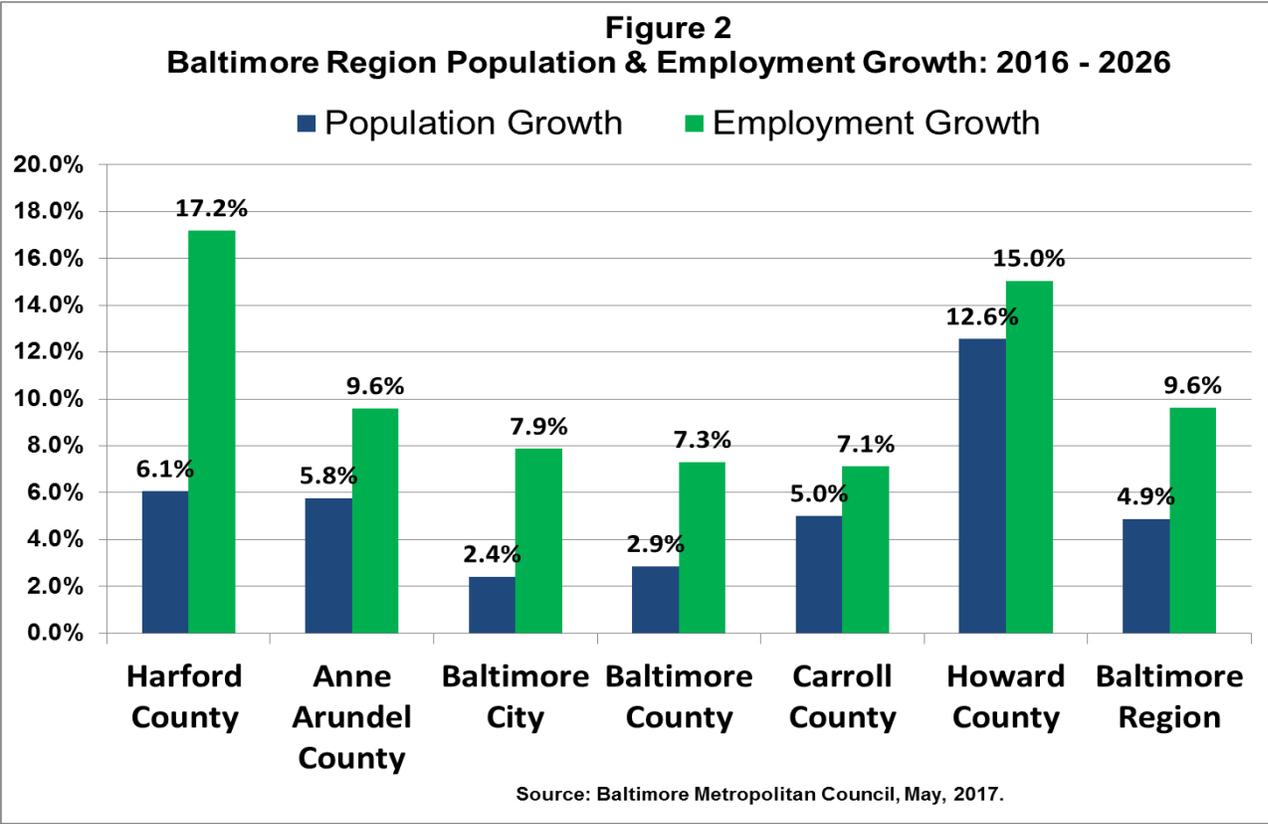
Baltimore Region Permit Activity

Harford County's share of the region's residential permits over the past five years represents 9.8% of the region's total permit activity. Harford County's share of the regional residential building permits activity decreased from 10.8 percent in 2015 to 7.9 percent in 2016, a decline of 2.8 percent (Figures 1 and 1a). See Table 1A in Appendix A for residential permit activity for the Baltimore Region for the 2012 to 2016 period.



Baltimore Region Population / Household Projections

Harford County’s population is projected to grow by 15,224 residents over the next ten years from 251,480 in 2016 to 266,704 in 2026 (Figure 2). This represents a 6% increase in population growth and is slightly greater than the Baltimore region’s projected growth rate of 4.9%. See Table 2A in the Appendix A for population and household projections for the Baltimore region for the 2016 to 2026 period.



Baltimore Region Employment Projections

Harford County’s employment is projected to grow by over 20,200 jobs between 2016 and 2026, which represents a 17.2% increase in jobs over the next ten years. By contrast, the Baltimore region employment is projected to grow by 9.6% or 153,583 jobs between 2016 and 2026. According to the Bureau of Economic Analysis, Harford County employment grew by 1.9% per year versus 0.9 % for the Baltimore region between 2010 and 2015.

Harford County is strategically located on I-95 in the heart of the East Coast and Mid-Atlantic markets. Harford’s location, highly-skilled workforce, and progressive, business-friendly environment offers the ultimate setting to a wide range of prospective companies and industry sectors. See Table 3A in Appendix A for employment projections for the Baltimore region for the 2016 to 2026 period.

Harford County Development Activity

As required by State Land Use Article §1-207, Harford County is also required to prepare an annual report on development activity and planning programs. Reporting is required to be based on designated Priority Funding Areas (PFAs). PFA's coordinate state and local government efforts to support economic development and new growth. Funding for projects in municipalities, other existing communities, industrial areas and planned growth areas designated by counties receive priority for state funding over other projects. For reporting purposes it is important to note that the PFA generally approximates the Development Envelope, though is somewhat smaller because it excludes areas that are not currently included in the County's Water and Sewer Master Plan's ten-year service area.

New Subdivisions

In 2016, Harford County approved 24 residential subdivisions, totaling 707 acres. The residential subdivisions resulted in the creation of 202 units, including 150 single-family and 52 townhouse lots. While only two of the subdivisions occurred within the County's designated PFA, they yielded 126 units or 62% of the new lots/units approved (Figure 3). This percentage is consistent with the HarfordNEXT's intent of directing new growth to the PFA. The number of units approved in 2016 represents a decrease from 300 units in 2015.

The remaining 22 residential subdivisions, located outside of the PFA, created 76 lots (Figure 3). Of these, 21% were two lots or less (11 single-lot subdivisions, 5 two-lot subdivisions). There were 4 non-residential plans approved. Of these, 3 were located in the PFA and one was located outside the PFA. A list and map of the approved subdivisions located in Appendix E.

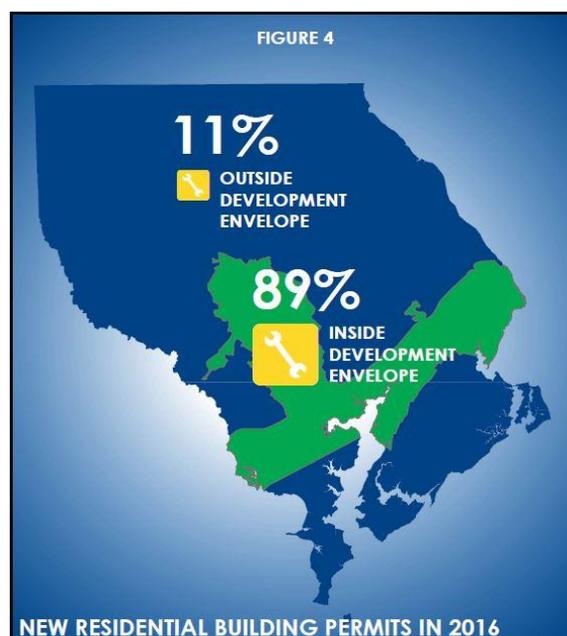


Permit Activity

A total of 2,087 building permits were issued by Harford County in 2016, which represents a 3.1% decrease over the 2015 permit total of 2,154. This number includes new construction residential, non-residential, and accessory structure permits.

New Residential Building Permits Issued

A total of 552 new residential permits were issued by Harford County in 2016, which represents a 29% decrease over the 2015 total of 781. The unit type breakdown includes 228 single family detached units, 157 townhouse units, 126 apartment units, 37 condominium units, and four mobile homes. Additionally, the municipalities of Aberdeen, Bel Air, and Havre de Grace issued 161 new construction residential permits collectively. Approximately 89% of the 713 new residential permits were located within the County's Development Envelope (*Figure 4*).



New Non-Residential Building Permits Issued

The County issued a total of 103 permits for new non-residential construction for a range of commercial and industrial uses. Of these, the largest numbers of permits issued were for industrial at 19, including 12 modular/industrialized structures, five for storage/warehousing, and two industrial structures. The remaining 84 new non-residential permits were for a variety of commercial and other non-residential uses. An additional 1,271 non-residential permits were for a variety of uses including residential accessory structures such as sheds, swimming pools, garages, and other miscellaneous uses.

An analysis of 2016 larger-scale (projects valued at \$50,000 and over) new non-residential permit activity showed there were eight commercial permits totaling 78,246 square feet in 2016, representing a decrease of six permits and 143,140 square feet over 2015. Similarly for larger-scale (projects valued at \$50,000 and over) industrial permit activity there was one new industrial permit totaling 12,000 square feet in 2016, compared to 2015 when no new permits were issued.

Please reference Table 4B and Table 5B in Appendix A for a summary of non-residential permits for new as well as additions, alterations, and repairs valued at \$50,000 and over.

Development Capacity

The Department of Planning and Zoning routinely updates the inventory of residentially zoned land in the Development Envelope. This inventory provides a total residential land capacity and includes vacant undeveloped land, preliminary and site plan approvals, vacant land capacity in the municipalities, and potential redevelopment/infill capacity. Based on this update, there is an estimated capacity of 16,953 units in the Development Envelope.

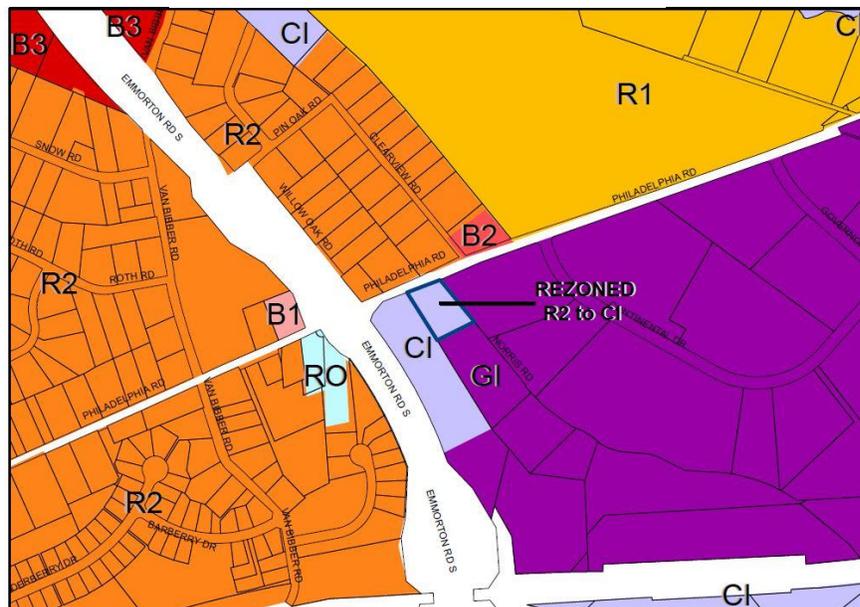
There are 5,930 planned units remaining in the Development Envelope as of December 31, 2016. There are an additional 461 planned units remaining outside of the Development Envelope as of December 31, 2016.



Zoning Map Amendment

There was one piecemeal rezoning request approved by the Board of Appeals during 2016. The 0.697 acre parcel located at 2607A Philadelphia Road (tax id# 01063111) was rezoned from R2 to CI on 4/28/2016 (Figure 6). It was determined that the rezoning of the residentially zoned parcel to a commercial use property would bring it into compliance with surrounding commercial-use parcels and uses and that there would be no adverse impact to the neighborhood. In addition the rezoning was found to be consistent with the County Master Plan.

Figure 6



PLANNING DOCUMENT UPDATES

This section addresses state reporting requirements regarding code amendments and new or updated comprehensive plans and plan elements.

Zoning Code Amendments

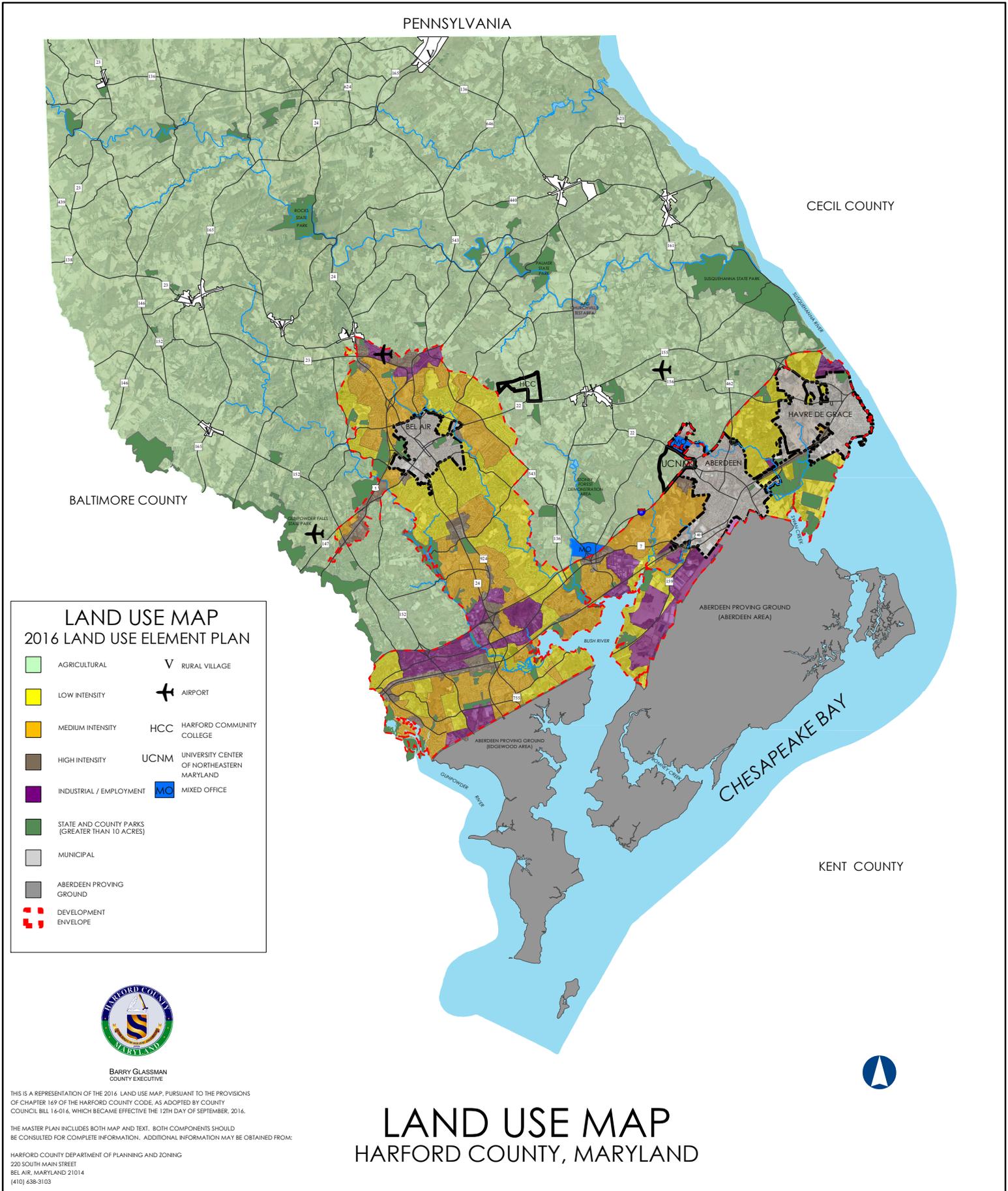
In 2016, the following bills were enacted that resulted in changes to the County's Zoning Code:

Effective Date	Bill	Description
04/19/2016	16-001	Updated the County's Floodplain Management Program (Chapter 131) to be consistent with the new Flood Insurance Rate Maps and to comply with updated State and Federal regulations Replace Chapter 131 Floodplain Management Program
05/17/2016	16-02AA	Established a 25 foot buffer for isolated nontidal wetlands under 10,000 square feet and added a definition of "isolated nontidal wetlands" (Section 267-4, Definitions; Section 267-62B(2) Application)
07/05/2016	16-07	To require that prior to approving a personal-care boarding home as a special exception all state and county laws and regulations are satisfied - Chapter 199, Section 267-88F(6)
08/22/2016	16-20	Permits encroachment up to 50% of the side, rear or front yard setback for outdoor dining areas (Section 267-23) and added definition of "outdoor dining area (Section 267-4)
02/13/2017	16-028	Permits electronic message boards in the AG zoning district on public safety property as special exception
02/13/2017	16-029AA	Created Magnolia Neighborhood Overlay District (MNOD) to encourage the development of residential communities which shall use traditional neighborhood design, while providing for flexibility in housing types, allowing limited retail uses and encouraging innovative designs that foster a sense of community standards added to the code (Section 267-65.1)

Comprehensive Plan and Element Plan Updates

HarfordNEXT, the County Master Plan was adopted by the Harford County Council in June, 2016. HarfordNEXT, combines the Land Use Element Plan, Transportation Element Plan, Natural Resources Element Plan, Historic Preservation Plan, Water Resources Element Plan and Priority Preservation Element Plan into one cohesive and streamlined document.

FIGURE 7



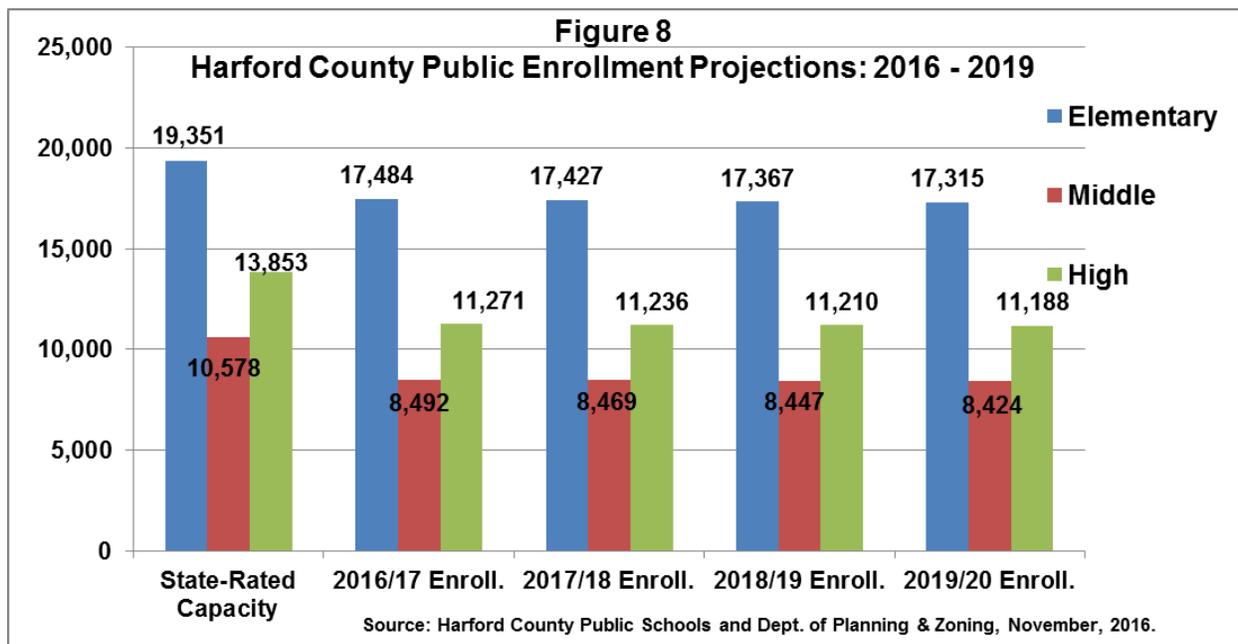
ADEQUATE PUBLIC FACILITIES

The County’s Annual Growth Report must be updated annually to identify any public facilities that are functioning below the County's adopted minimum standards. This year's Annual Growth Report includes information and analysis regarding public schools, the water and sewerage system, road intersections and government facilities.

This report also addresses State reporting requirements for Adequate Public Facilities provisions; including reporting requirements for roads, transportation facilities and schools as they relate to development patterns. In the report, Harford County must identify any restrictions that occur within a PFA because of APF restrictions, and the report must address how the restrictions will be resolved.

Public Schools

To assess current and future adequacy of the public school facilities, the capacities of existing schools, school utilization and future populations are analyzed. The data in this report regarding the public school system is aggregated by the elementary/middle/high school districts, and include school enrollments, County-rated capacities for each school facility, utilization of each school facility, and three-year projected school enrollments (*Tables 6B, 10B, and 14B in Appendix B*). Modified school enrollment projections are included and take into account planned units remaining and projected units from vacant residential zoned land (*Tables 7B, 11B, and 14B in Appendix B*). In addition, development information such as building permits issued by dwelling type (*Tables 8B, 12B, and 16B in Appendix B*) and population and household estimates (*Tables 9B, 13B, and 17B in Appendix B*) are included in this report. Figure 8 shows enrollment projections by grade level.



Analysis

Each school facility has been analyzed in terms of past growth trends, current conditions, and future enrollment projections. The information is based on factual data and is aggregated by current school districts. Based on the Adequate Public Facilities provisions of the County Code, the level of service standard for Public Schools is 110 percent of rated capacity within three years for elementary and secondary schools.

Adequacy Standards

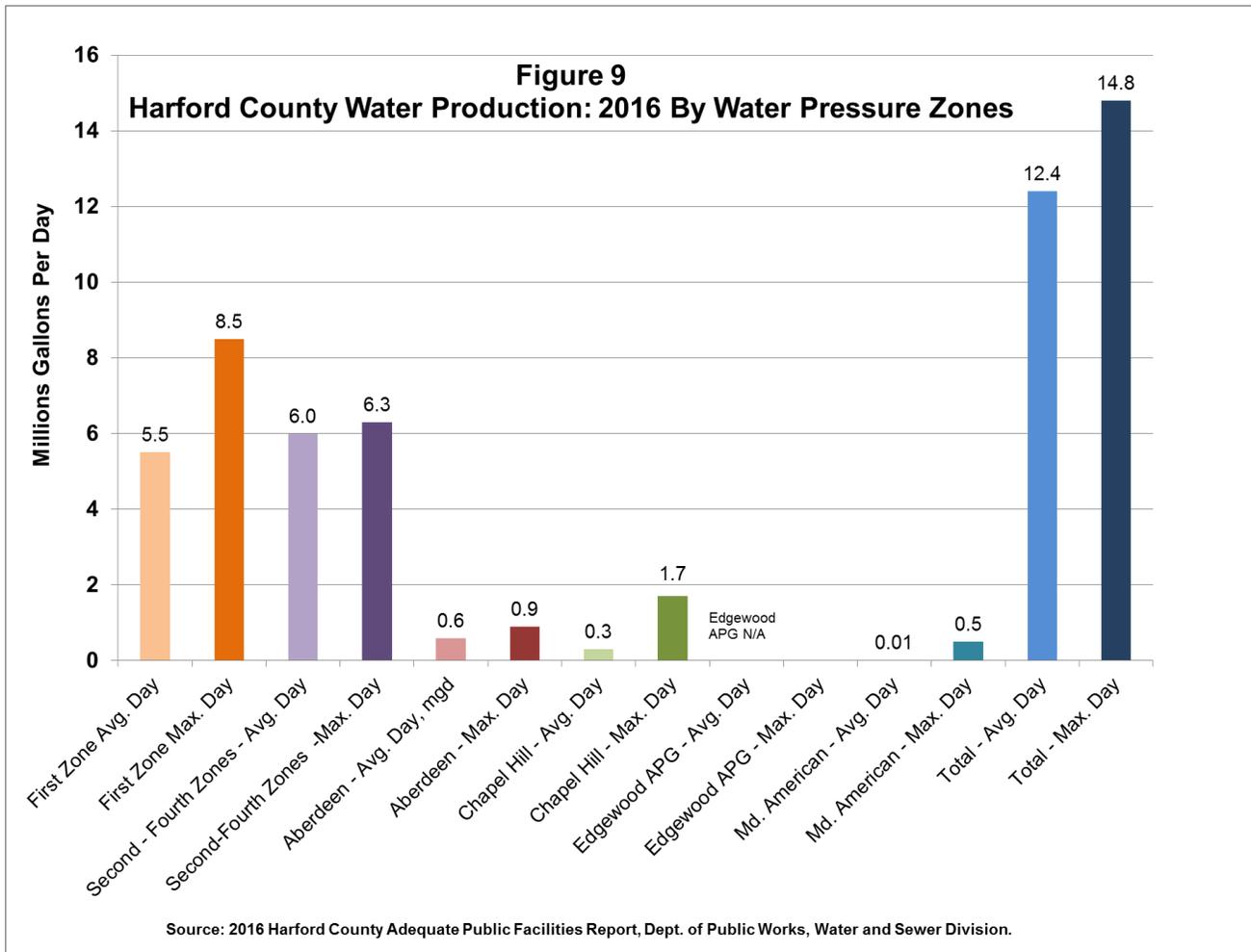
Under current law, preliminary plans for subdivisions of greater than five lots cannot be approved in school districts where the full-time enrollment currently exceeds, or is projected to exceed, 110 percent of the capacity within three years. Currently, all 33 elementary schools meet adequacy standards and all 17 middle and high schools meet adequacy standards.

Water and Sewerage

The data included in this section for the water and sewerage system are aggregated by the water and sewer service area, which generally coincides with the Development Envelope, as defined in the 2016 Harford County Master Plan. Additional information is included in this report on water/sewage usage for residential and non-residential uses, an inventory of existing water consumption/sewage flows, demand projections (including the basis for their computation), and a list of capital projects is contained in the County's Capital Improvements Program for expanding facilities, including project status (*Tables 18C - 21C in Appendix C*). This information is derived from the "2016 Water and Sewer Adequate Public Facilities Report," and is consistent with the County's Water Resources Element Plan.

Water

The County water system's average daily usage in 2016 was 12.4 MGD (Million Gallons Per Day), with a peak day demand of 14.8 MGD. With the completion of the Abingdon Water Treatment Plant (AWTP) in May of 2012, the total countywide permitted maximum daily water treatment capacity is approximately 29.1 MGD. The County has a maximum day drought demand of 19.75 MGD. Currently it is estimated that there is a need for 5.0 MGD to accommodate approved preliminary and site plans as well as to service 1,905 acres of existing industrially zoned land. With the further expansion of the AWTP to 20 MGD the County's water service area is adequately planned for. To keep pace with the projected growth, staged construction programs are established that distribute required capital costs for improvements and/or additions to the County's system over a period of years. Figure 9 illustrates water production by water pressure zones during 2016.

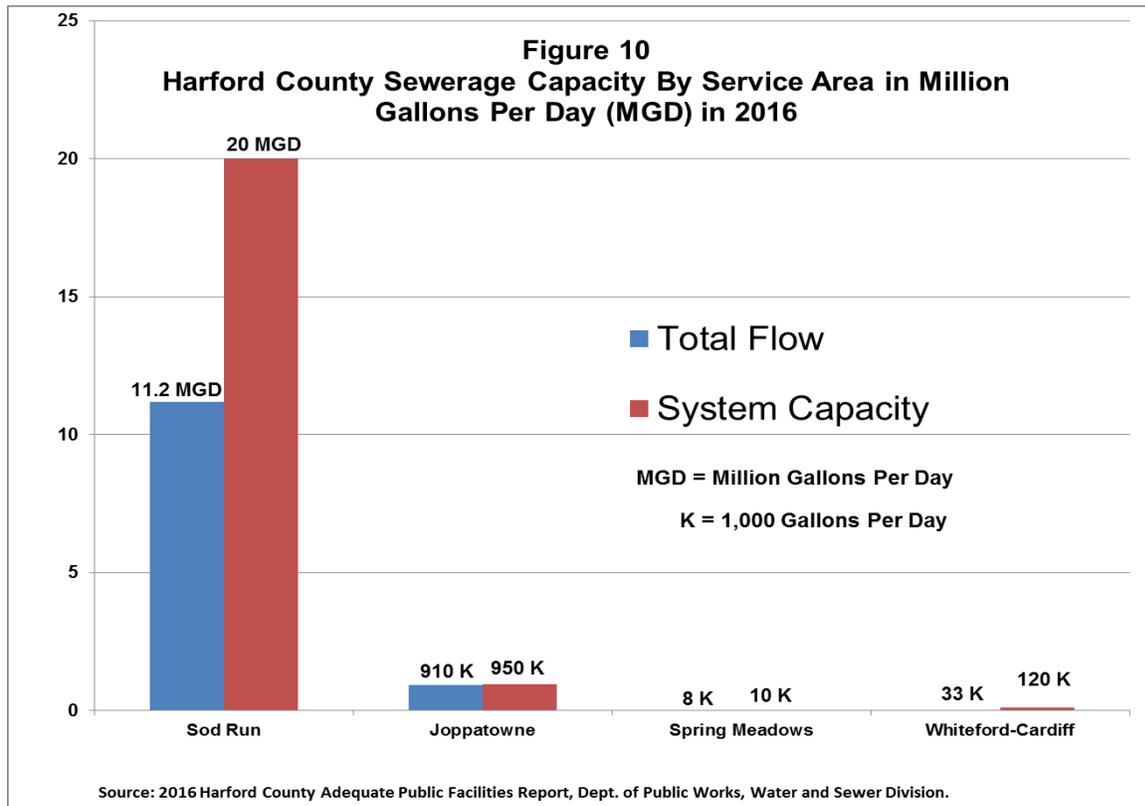


There are 13 community water systems that are not maintained or operated by Harford County, but are subject to the APF provision of the County Code. These private systems, which are monitored and evaluated by the Maryland Department of the Environment, are as follows:

- Maryland-American Water Co.
- Campus Hills Water Works Inc.
- Clear View Court Mobile Home Park
- Darlington
- Darlington Mobile Estates
- Fountain Green Mobile Home Park
- Greenridge Utilities Inc.
- Hart Heritage
- Lakeside Vista
- Queens Castle Mobile Home Park
- R & R Estates Mobile Home Park
- Swan Harbor Mobile Home Park
- Williams Mobile Home Park

Sewerage

The average daily influent flow to the Sod Run WWTP in 2016 was approximately 11.2 MGD, exclusive of recycle flows and septage. The average daily influent flow to the Joppatowne WWTP in 2016 was approximately 0.91 MGD. The average daily influent flows for Spring Meadows and Whiteford-Cardiff in 2016 respectively were 0.008 MGD and 0.033 MGD's (*Figure 10*).



Since 1972, the County has prohibited any additional privately owned community or multi-use treatment plants with a peak capacity larger than 10,000 gallons per day (GPD) outside the Development Envelope. This encourages growth to remain within the growth corridor, maintains financial stability, and protects the environment.

The Division of Water and Sewer has identified sewage pumping stations (S.P.S.) that do not have any additional reserve capacity and that may impact future development in the vicinity of these pumping stations (*Figure 11*) These sewage pumping stations include:

- Brentwood Park
- Dembytowne/Hanson Road Petition (2)
- Dembytowne/Hanson Road Petition (3)
- Forest Greens
- Harford Square

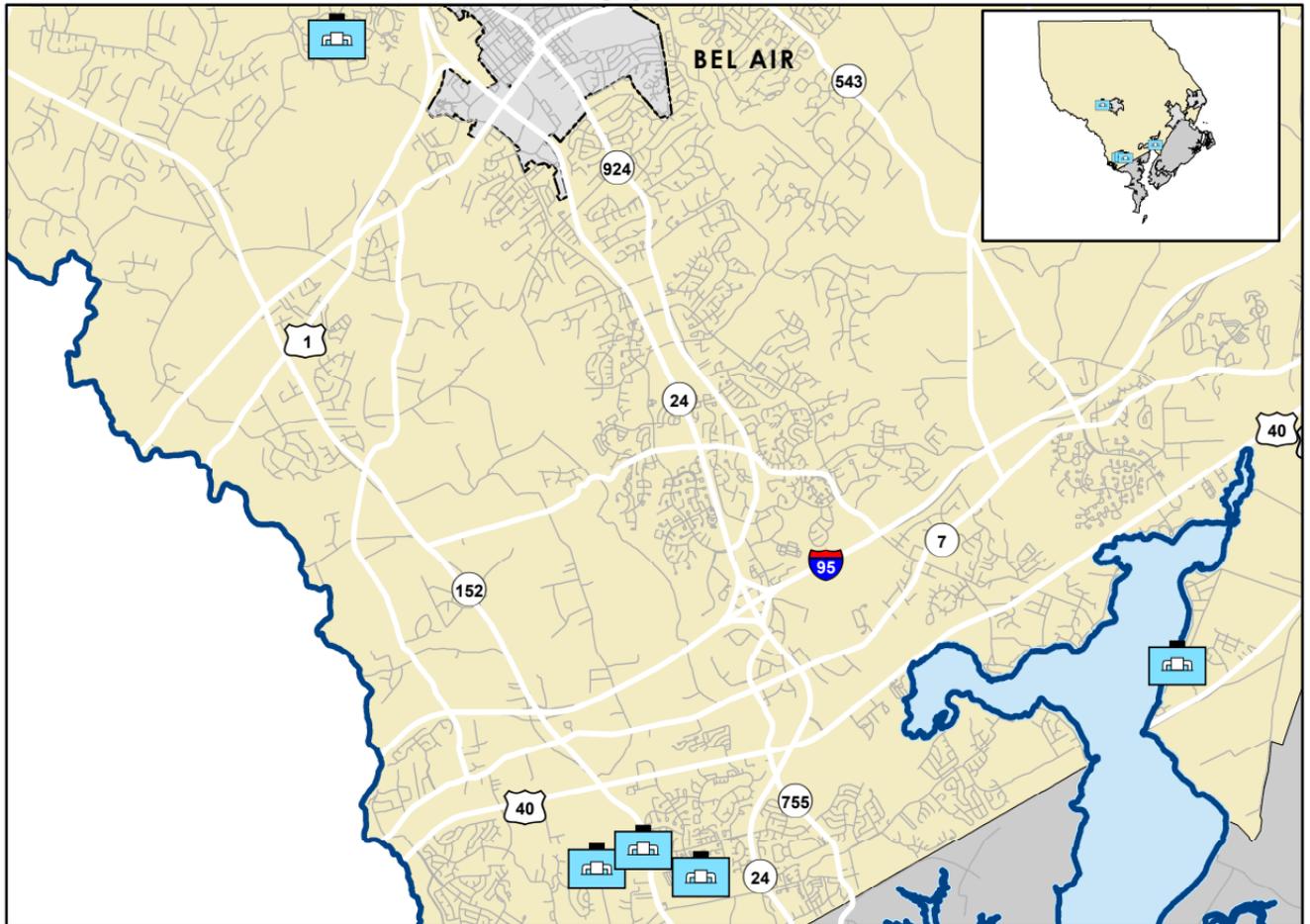
The non-inclusive listings of the sewage pumping stations above have no available capacity. This listing does not preclude the possibility of finding adequate capacity in other sewage pumping stations should a development request approval, for more flow capacity than that available, before programmed improvements are completed. It is imperative to note that mechanisms exist to cure such APF problem areas. Such remedies may include an upgrade to the pumping station by a development entity or by development of a recoupment/surcharge policy which specifies design, construction, and financial responsibilities. The Plumtree S.P.S. service area has increased from its original, designed drainage area due to the activation of the recently completed Ring Factory S.P.S. This will require evaluation of the available capacity of the Plumtree S.P.S.

The existing Bill Bass S.P.S. located in Edgewood receives flows from the Winter's Run Interceptor, Harbour Oaks Collector, Ha-Ha Collector/Interceptor and the Edgewood Interceptor. This station has been experiencing unexpected peak flows during wet weather periods. As a result, the Division of Water and Sewer has planned capital projects to address these issues including increasing the Bill Bass discharge capacity by enlarging or paralleling of the Bill Bass Pump Station force main.

There are sanitary sewers within the Bynum Ridge subdivision that do not have capacity for additional flow into the system. This will affect development proposed in the Bynum Run Collector drainage area north of Bynum Ridge Road. The Division of Water and Sewer has implemented a project to handle the increase in capacity that is needed in this area. Designs of this replacement sewer, revision to the record plats and acquisition of the required easement have all been completed. Construction is anticipated to begin shortly after July 1, 2017. Until improvements are made, new building permits may not be approved.

In October, 2014, Harford County, the Town of Bel Air, and The Maryland-American Water Company (MAWC) agreed to the First Amendment of the Water Service Contract (between Harford County and MAWC). Due to a deficit of supply from Winters Run, the Maryland Department of the Environment and the Harford County Health Department could not approve building permits within MAWC's service area. Through this amendment, Harford County may provide an additional 40,000 gallons per day (GPD) to MAWC through the existing West MacPhail Road metering station, which could allow for up to 114 equivalent dwelling units (EDUs) to be developed within MAWC's service area. This amendment is in effect until 2018. It is only intended to provide MAWC time to construct the ultimate solution of an impoundment to provide a safe and reliable water supply, sufficient for the entire approved service area. The proposed impoundment is currently in the design phase.

FIGURE 11



SEWAGE PUMPING STATIONS WITHOUT RESERVE CAPACITY

Road System

The intent of the APF Roads provisions of the County Code are to create a mechanism that requires proposed development to make appropriate and reasonable road improvements, based on the proposed development's impact to the road system.

The information for the APF Road System contained in this section includes the following: signalized and unsignalized intersection capacity analysis results (*Tables 22D and 23D*), average daily count locations (*Table 24D*), a list of approved County capital projects funded for construction in Fiscal Year 2017 (*Table 25D*), and a list of State Consolidated Transportation Program (CTP) projects funded for construction in Fiscal Year 2017 (*Table 26D*). This information will help identify existing deficiencies in the road system and guide both County and State capital project funding to the most critical road projects (*Tables 22D – 26D in Appendix D*).

Developments which generate 1,500 or more trips per day may be required to expand the study area. The determination of existing and projected Level-Of-Service (LOS) is calculated in the TIA, which is performed by the developer and reviewed by the Departments of Planning and Zoning, Public Works and the State Highway Administration. LOS is a qualitative measure describing operational conditions within a traffic stream, based on service measures such as speed and travel time, freedom to maneuver, traffic interruptions, comfort, and convenience.

There are six established LOS – A through F – that measure the operational efficiency of a transportation facility. The following is a general definition of each level of service:

LOS A – free flow of traffic with no restriction of significant delay.

LOS B – stable flow of traffic with very little restriction or delay.

LOS C – stable flow of traffic with low to moderate restriction or delay.

LOS D – approaching unstable flow of traffic with moderate to heavy restriction / delay.

LOS E – unstable flow of traffic with significant restriction and delay.

LOS F – forced flow or cases of “grid lock”. The flow rate drops significantly.

The standard for intersections within the Development Envelope is a LOS D. If the existing LOS is E or F at an intersection within the Development Envelope, then the developer must mitigate the impact of the development's new trips. The standard for intersections outside the Development Envelope is a LOS C. If the existing LOS is a D or lower, then the developer must mitigate the impact of the development's new trips.

In addition to the review of individual TIAs, the Departments of Planning and Zoning and Public Works have studied a number of major roads and intersections to identify existing conditions. This list represents a cross section of key intersections located inside, outside, and on the fringes of the Development Envelope that have been identified as failing or on the verge of failing based on the adopted LOS standards.

There are two signalized intersections and seven un-signalized intersections with one or more movements operating at a LOS E (LOS D outside the Development Envelope) or lower during peak hours. The evaluation of the LOS is determined by performance of the intersection during one hour peak traffic periods in the a.m. and/or p.m. Figure 12 identifies intersections that contain one or more movements that **operate at an unacceptable LOS**. Developments that impact these intersections will be required to mitigate their impacts to the intersections.

FIGURE 12

FAILING INTERSECTIONS



GOVERNMENT FACILITIES

The County's Annual Growth Report must include an analysis of the need for additional fire, library and public safety services and a list of approved capital projects contained in the capital improvement program (CIP) related to the below-mentioned facilities.

Fire/EMS Services

The Harford County Fire and EMS Services Master Plan that was completed in 2009 identified the need for four additional Fire Station Facilities. One of these facilities, the Patterson Mill Road Station, has been completed and turned over to Bel Air Volunteer Fire Company. There is still the need for three additional Fire/Emergency Medical Service facilities which are listed below:

- Riverside area on MD Route 543 just north of US Route 40
- On MD 543 (Fountain Green Road between Hickory and Fountain Green)
- Churchville near the intersection of MD Routes 22 and 136

The Fire and EMS Services Master Plan has estimated total cost for these stations to be \$11,000,000. These facilities are not currently funded in the current CIP.

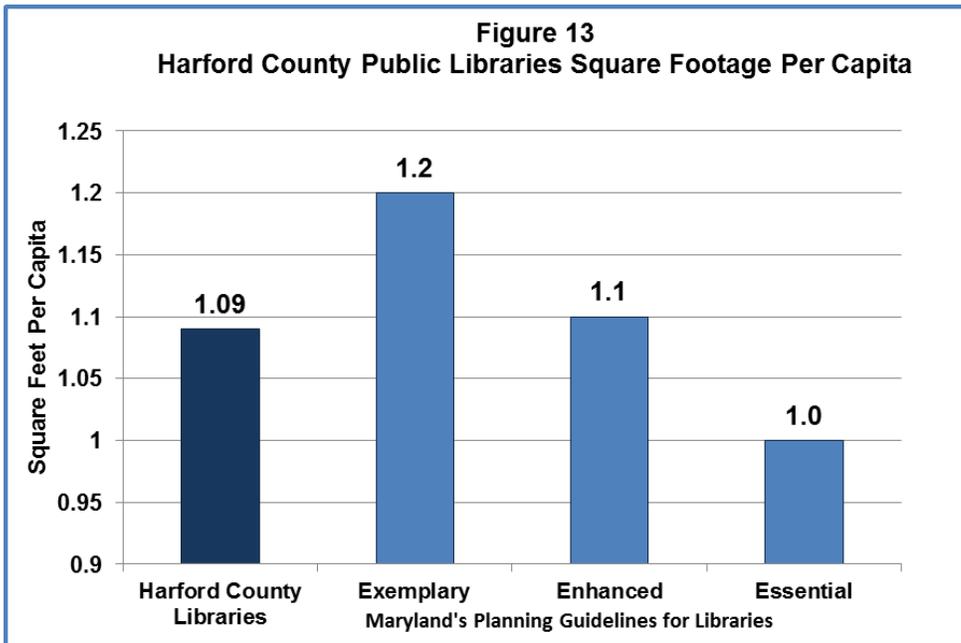
The approved FY 2017 Capital Budget includes \$600,000 for Self-contained Breathing Apparatus (SCBA) replacement account and \$400,000 for Volunteer Fire Company priority facility repairs.

Library Services

The Maryland Department of Budget and Management require that libraries refer to "Maryland's Planning Guidelines for Libraries" in order to justify the need for expansion. Please reference the planning guidelines for square footage per capita below:

- Essential = 1.0 square feet per capita (nationally accepted minimum facility size)
- Enhanced = 1.1 square feet per capita
- Exemplary = 1.2 square feet per capita

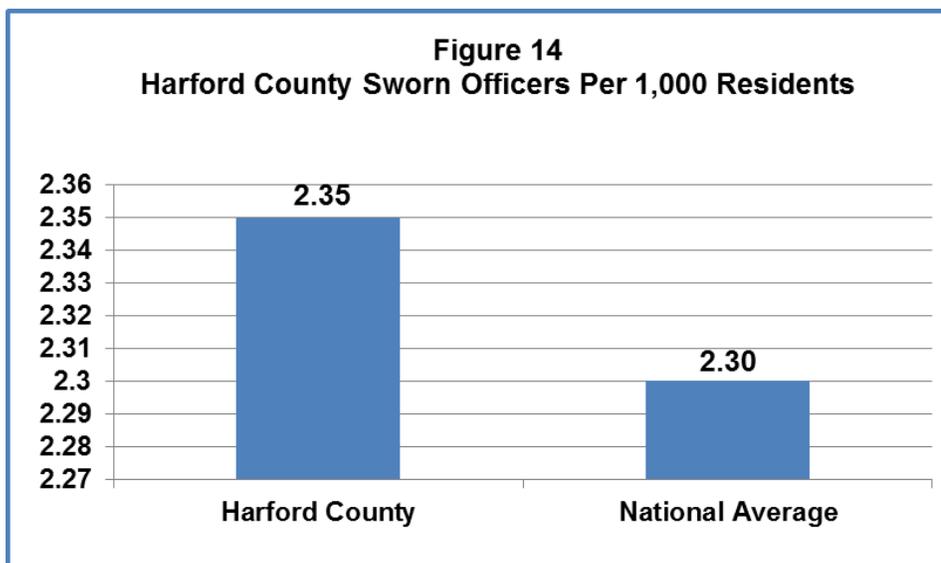
The total gross square footage of all Harford County Public Library branches totals 229,917. Based on a 2016 population figure of 251,480 the square footage per capita figure is 1.09, which exceeds the minimum accepted standard of 1.0 square feet per capita (*Figure 13*).



Law Enforcement

The 2015 Federal Bureau of Investigation Uniform Crime Report the nationwide rate of sworn officers was 2.30 per 1,000 residents. Based on staffing data obtained from the Harford County Sheriff's Office, the Maryland State Police, and the police departments of Aberdeen, Bel Air, and Havre de Grace the total sworn staff is 591. The rate of sworn officers is currently 2.35 per 1,000 residents. Based on a 2016 population figure of 251,480, Harford County exceeds the nationwide rate and therefore is considered adequate (*Figure 14*).

The approved FY 2017 Capital Budget includes \$100,000 for the purchase and installation of bi-directional amplifiers (BDA's) in the schools which will greatly improve radio coverage for school resource officers.



PLANNING CONSISTENCY REVIEW

Harford County must submit an annual report that addresses specific smart growth measures and indicators that support the statewide land use goal of targeting development within designated Priority Funding Areas and minimizing development outside of these areas. Changes in development patterns occurring in 2016 that impact land use, transportation, community facilities patterns, zoning map amendments, and subdivision plats must be reported. Local jurisdictions, as part of their annual reporting, must determine if all of the changes in development patterns in 2016 reported are consistent with the following criteria:

- All changes must be consistent with each other;
- The recommendations of the last annual report;
- The adopted plans of the local jurisdictions;
- The adopted plans of all adjoining local jurisdictions;
- The adopted plans of State and local jurisdictions that have responsibility for financing or constructing public improvements necessary to implement the local jurisdiction's plan.

Development Patterns / Consistency of Plans

All the development noted in this report has been determined to be consistent with the surrounding land uses. A review of consistency is part of the plan approval process. As recommended in previous reports, the County continues to direct the majority of new development and redevelopment (89% in 2016) to the Development Envelope. During 2016, all subdivisions approved in 2016 are consistent with the intent and policies of the 2016 Master Plan, the Water and Sewer Master Plan, and Adequate Public Facilities regulations. All roadway improvements are consistent with the State Consolidated Transportation Plan, and the Transportation Improvement Plan. Changes in development patterns, ordinances, and regulations were found to be consistent with the adopted plans of Harford County, as well as those of the state and all adjoining local jurisdictions. These changes furthered the Twelve Visions established in § 1-201 of the Land Use Article of the Annotated Code of Maryland.

Municipal Plan Coordination

Harford County coordinates with the Town of Bel Air and the cities of Aberdeen and Havre de Grace on the creation of their growth plans. State law requires municipal jurisdictions to develop a Municipal Growth Element (MGE) as part of their Comprehensive Plan. The MGE must identify future municipal growth areas outside of the existing corporate limits and be submitted to the County for review and comment. Proposed annexations must be consistent with those outlined in the Municipal Growth Element Plans, and permitted development on the annexed lands shall be in accordance with the County's zoning classification that is in place at the time of the annexation.

Implementation

Harford County uses many tools to achieve the Visions, including Adequate Public Facilities (APF) legislation to manage growth by tying development to the capacity of existing government services such as water and sewer, roads, and schools. The County has developed 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.

A MD 924 Multimodal Corridor Study is underway. The purpose of the study is to provide a comprehensive roadway safety and operations analysis for the corridor including a look at transportation options for livable streets and sustainable communities. Short-term and long-term solutions are currently being drafted. Some short-term improvements will be forwarded to SHA for inclusion in their annual maintenance and operations work plans. Other short term, medium term, and long-term improvements will also be added to the County's annual transportation priorities list which has been sent to MDOT to be considered for inclusion in the future Consolidated Transportation Program (CTP) documents. Harford County continues to partner with the Health Department and Healthy Harford on implementation of health and safety programs. The Department of Planning and Zoning partnered with the Board of Education on two Safe Routes to School grants while maintaining an ongoing partnership with Emmorton Elementary to address walkability issues.

The Department of Planning and Zoning tracks approved subdivisions located in the Priority Preservation Area Designation (Tier IV) under the Maryland Sustainable Growth and Preservation Act of 2012 (SB 236) that were approved prior to the enactment of the regulations and therefore grandfathered. In 2016, the Department tracked six grandfathered preliminary plans comprised of 111 lots. These grandfathered plans shall remain valid through the tenure of their approval.

Land Use Plan Changes

The most recent Land Use Plan was adopted as part of the County's Master Plan update in 2016. Minor adjustments were made to the Development Envelope during the update to Land Use Plan. The Development Envelope was expanded in the Fallston and Forest Hill areas adjacent to existing developed areas. This expansion included 35.16 acres in Forest Hill on the northwest corner of the intersection of MD 23 and MD 24 designated as Medium and Low Intensity; 40.8 acres southwest of the intersection of MD 152 and MD 147 in Fallston designated as Low Intensity; and 5.68 acres near the southeast corner of the intersection of US 1 and MD 152 in Fallston designated as High Intensity. In addition, the existing developments commonly known as Joppa Hills, Woodbridge Manor, and Woodsyde and lots located on the odd numbered side of Whitaker Mill Road from 405 to 415 were included in the Development Envelope by the County Council. These areas combined constitute an expansion of approximately 0.36% (*Figure 15*).

Within the Development Envelope, the existing land use designations were changed in two areas. Approximately 88 acres of land were changed from High Intensity to Industrial Employment on the south side of US Route 40 east of Old Stepney Road in the Perryman Area of the County. Approximately 1,100 acres of land in the Magnolia area of the County were changed from Low Intensity to Medium Intensity (*Figure 15*).

In addition, the County Council adopted Bill 16-029 that established the Magnolia Neighborhood Overlay District (MNOD). The purpose of the MNOD is to encourage the development of residential communities that utilize traditional neighborhood design, while providing for flexibility in housing types and allowing limited retail uses and encouraging innovative designs that foster a sense of community.

Study Area

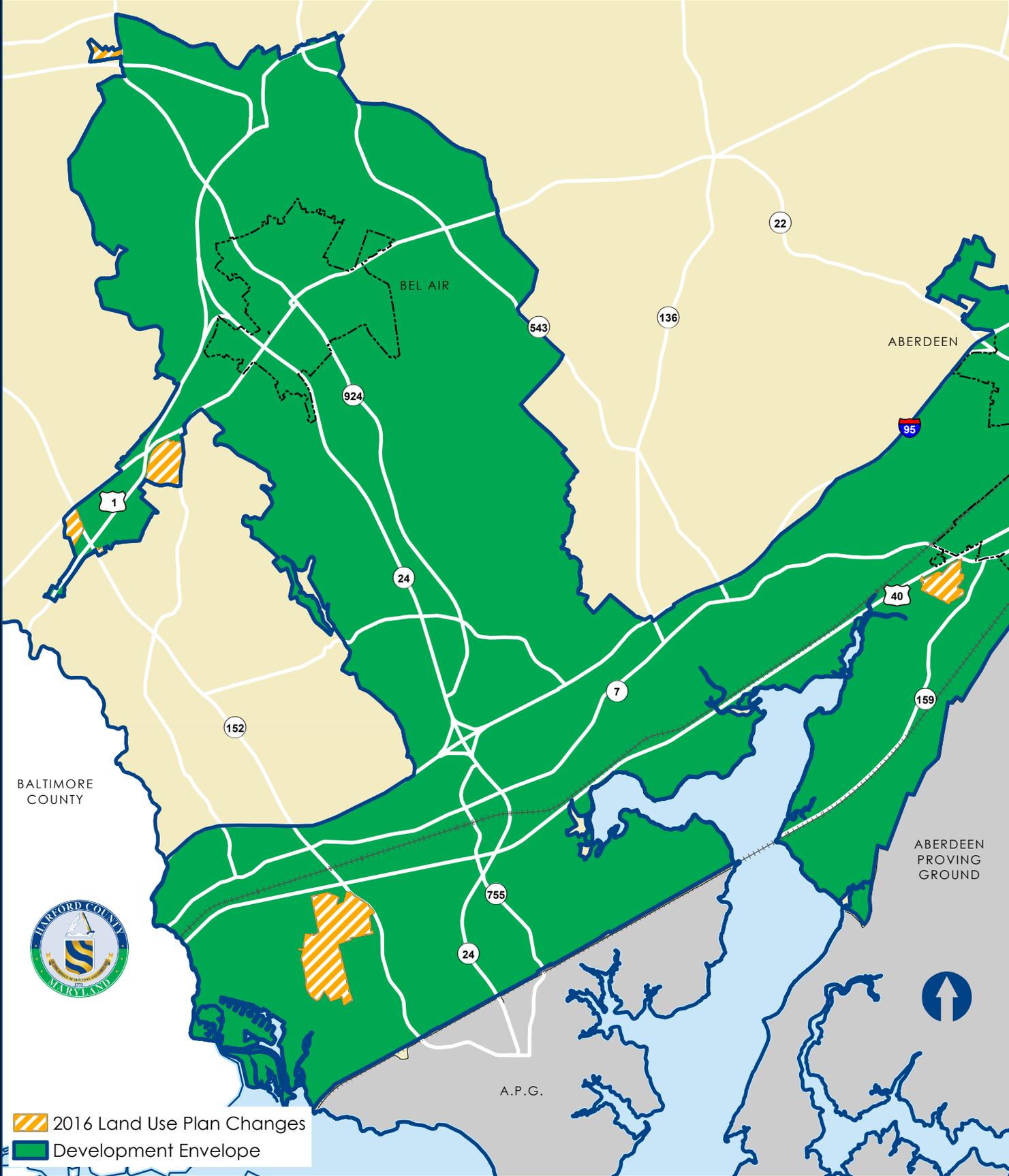
In order to assess and control the impacts of ongoing growth outside the Development Envelope the County will initiate a study of the area east of the Development Envelope between US 1 and I-95. The study will evaluate the integration of already planned or expected development, and evaluate how to serve the current and future needs of residential, business and institutional uses in the area. Additionally, the study will also include a comprehensive analysis of the community facilities needed to serve this area, including schools, polices, fire/EMS, water and sewerage, transportation, parks and recreation, and libraries.

The following are primary anticipated outcomes of the study:

- Formulation of an infrastructure improvement plan to address existing traffic concerns including MD 22 and MD 543;
- Identification of strategies for preserving the agricultural, environmental, and historic heritage of the area;
- Exploration of innovative mechanisms to preserve additional resources as an instrument to minimize future demand for public services and to protect the economic and practical viability of farming;
- Recommendations on the form and function of any future development;
- Identification of desired amenities that will enhance the quality of life for existing and future residents.

FIGURE 15

2016 Land Use Plan Changes

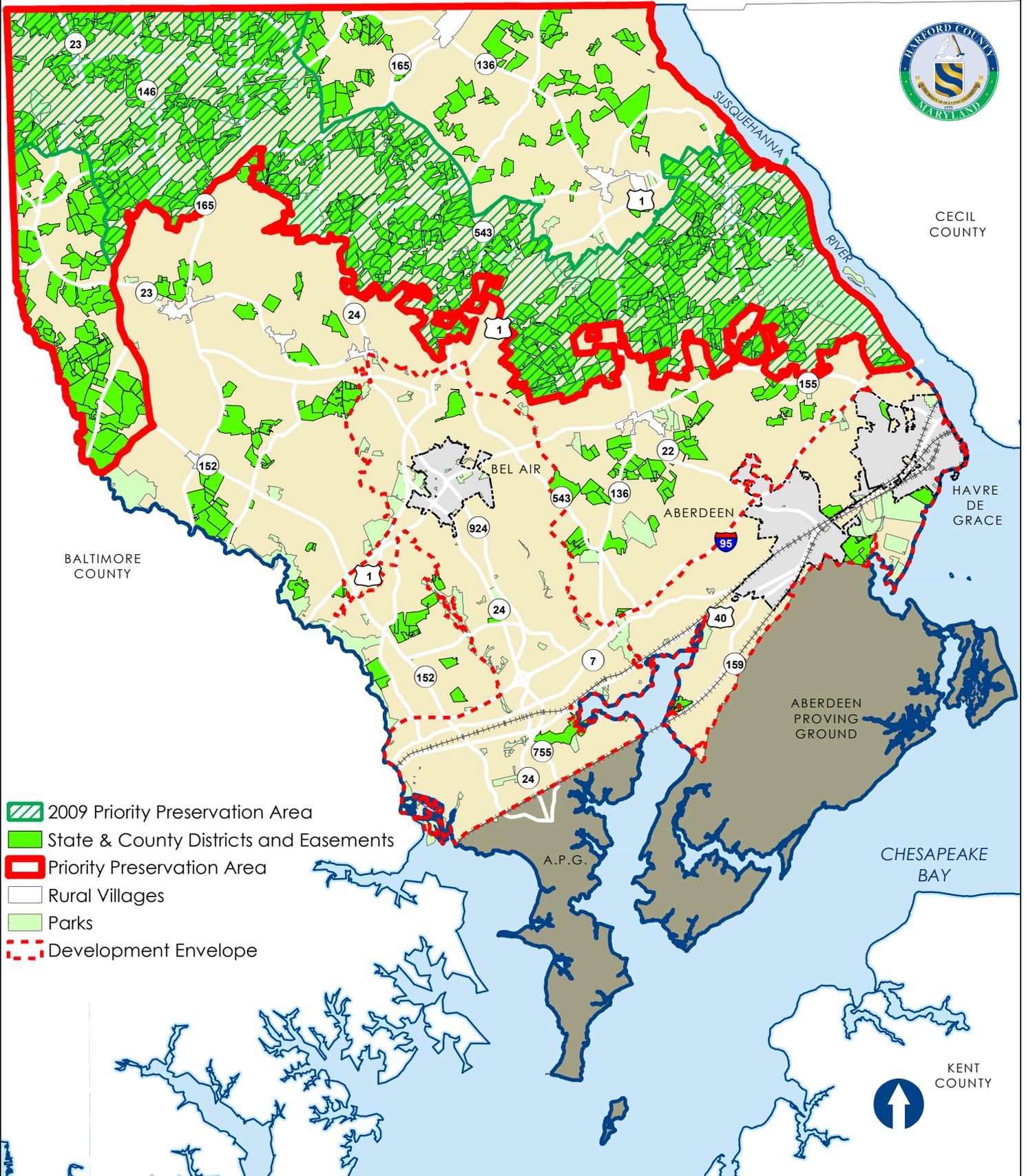


Agricultural Preservation

Preservation efforts were continued through a variety of state and local programs. While participation in agricultural preservation programs is available to all property owners with agriculturally zoned land, the County's primary focus is protecting the Priority Preservation Area (PPA) (*Figure 16*). HarfordNEXT expands the PPA boundary to include all lands north of the 2009 boundary and the Harford County portion of the Manor Rural Legacy Area. During 2016, 1,041 acres were preserved countywide, bringing the total protected land in the County to 50,450 acres. Of the acreage protected in 2016, 721 acres were located in the County's PPA, bringing the total amount of protected land in the PPA to just over 45,945 acres.

FIGURE 16

Agricultural Preservation



PROCESS IMPROVEMENTS

As part of the annual report, local jurisdictions must identify any changes that will improve the planning and development review process, in addition to zoning ordinances or regulations that have been adopted during the reporting period that specifically address the planning visions of the Land Use Article.

In 2016, Harford County continued implementation of the Harford County Phase II Watershed Implementation Plan (WIP) for the Chesapeake Bay TMDL (Total Maximum Daily Load). This Plan was completed in 2012 by County, Municipal, State, and Federal staff with expertise in the various nutrient source sectors; agriculture, septic systems, urban stormwater, and wastewater treatment plants, to meet the nutrient reduction goals that were assigned to Harford County for the Chesapeake Bay TMDL. Strategies to meet these goals by 2025 were presented in the Plan, with two-year milestones identified to track progress. In 2014, a final report for the 2012-2013 milestones was submitted, along with a new set of two-year milestones for 2014-2015. Department staff provided MDE with a progress report on the 2014-2015 milestones in early 2016 while preparing for Phase III of the WIP. In addition, Planning and Zoning staff continued working with FEMA on the development of state-of-the-art floodplain mapping. The Harford County Council adopted the new FEMA floodplain maps for the County.

The Department of Planning and Zoning is currently reviewing the 115 Comprehensive Zoning applications that were received by the Department during the application period. The Planning Advisory Board (PAB) has concluded their public meetings and will be voting on recommendations for each application during June 2017. The Department will complete their assessments and make recommendations for each application during the summer. Tentatively scheduled for September 2017, the Comprehensive Zoning bill along with a Director's Report will be submitted to the County Council. The County Council will have public hearings on the Comprehensive Zoning bill during the fall of 2017.

The County does not anticipate making any changes to the development review process in the immediate future, and will continue to direct development to the designated growth areas and encourage redevelopment. In order to provide citizens with more information and better access to development review activities, the Department has implemented an interactive web based portal known as Track-It that provides up to date information on development activities within the County.

In November 2015, the Departments of Planning and Zoning; Public Works; Inspections, Licenses, and Permits; and Information Systems implemented the Tyler Technologies' *EnerGov Permitting and Land Management* software suite. The *EnerGov* solution has modernized the County's permitting, subdivision review, and plan management systems. Disparate departments, agencies, and citizens are accessing a central "location-based" system utilizing the County's extensive Geographic Information System. Code enforcement, permit inspections, and construction management systems are utilizing *EnerGov* to streamline and automate processes from intake, citizen requests, and pre-applications to fee calculations and review, task and field inspection routing. The County anticipates this centralized system that was fully implemented in 2016 will significantly improve the life cycle of land management throughout the County and will provide enhanced services to citizens and to construction and service professionals.

ORDINANCES AND/OR REGULATIONS THAT IMPLEMENT THE STATE PLANNING VISIONS

Harford County's Master Plan, HarfordNEXT, was adopted in June 2016 and is consistent with the 12 State Planning Visions. The various element plans, including the Land Use Element Plan, Natural Resources and Water Resources Element Plan, Historic Preservation Element Plan, and Transportation Element Plan have been incorporated into the 2016 Master Plan. The Land Preservation, Parks, and Recreation Element Plan is also consistent with the planning visions contained in the Land Use Article of the Maryland Code. The plans also include strategies that address these visions. HarfordNext is consistent with the 12 State Planning Visions. The County's Chesapeake Bay Critical Area Program and its Bicycle and Pedestrian Master Plan are also consistent with the visions.

METHODOLOGY

Population Projection Methodology

Yearly estimates of population and households in Harford County for the Annual Growth Report are determined from the 2010 Census. This data is adjusted to reflect a number of variables including building permits, average household size, and household vacancy rates. The five and ten year projections are based on these estimates, with a growth factor applied to determine the rate and quantity of growth in the County. This growth factor is based on the number of building permits anticipated to be issued each year. It is important to note that projections are based on past trends and land availability. A component of the residential land inventory is the number of net planned units remaining. The total planned units remaining is calculated by subtracting the total new residential building permits issued from the total preliminary plan approved units. Subdivision plans with six or more units remaining and approved municipality plans are included.

The 2010 Census information at the census block level is utilized for specific analysis of each facility regarding area maps and demographic information. Building permits are identified by facility areas and by subdivision name and/or address for each year. This provides the needed information on growth trends by facility service area. The population projections for the five other jurisdictions in the Baltimore Region are based on an interpolation of the Baltimore Metropolitan Council's Round 8B population forecast.

School Enrollment Projection Methodology

The methodology for projecting students utilizes historical data for live births and the number of children enrolled in public schools. Using these data, a series of ratios that reflect grade cohort survival are developed. These ratios include consideration of a number of factors:

- Births in a given year which affect subsequent kindergarten and first grade enrollments.
- Net migration of school age children.
- Net transfer of children between public and private schools.
- Non-promotion of children to the next grade level.
- Dropouts in the later years of secondary school.
- Shifts between regular grade and upgraded groups other than special education.

This technique of establishing a ratio is used for each successive grade. For example, a ratio is developed between the number of children actually in first grade in a given year and the number in second grade the following year. The ratio, therefore, represents the number of first graders who advance to second grade. If significant variations exist, such as a rapid increase in home building, then factors such as pupil yields for subdivision activity and

Development monitoring is a key activity to ensure accurate projections since housing expansion periods have a direct impact on school enrollments. A primary means of calculating projected student enrollment due to a housing expansion period is by using pupil yield factors for new developments.

Pupil yield is a term which describes the number of pupils generated per dwelling. The pupil yield factor is used to assist in identifying the impact of residential development on the Harford County Public Schools (HCPS) system. To calculate pupil yield factors, 52 subdivisions were selected from various geographic locations throughout Harford County, to include single family, townhouse, apartments, condominium, and mobile home dwelling units. The subdivisions selected represent newly constructed and established subdivisions. Additionally, subdivisions were selected from a broad range of attendance areas across the County. A count was made of each student who resided in each of the 52 subdivisions studied. The data were tabulated by unit type, and the specific pupil yields were calculated for each subdivision in the elementary, middle, and high schools. Table 1 below provides a summary of the pupil yield factors by grade level.

Table 1 - Pupil Yield Factors

Unit Type	Grade Level		
	K - 5	6 - 8	9 - 12
Single-Family	0.23	0.13	0.19
Townhome	0.25	0.12	0.14
Apartments	0.11	0.05	0.06
Condominiums	0.02	0.01	0.02
Mobile Home	0.16	0.07	0.08

Source: Harford County Department of Planning and Zoning, 2015 Harford County Pupil Yield Study

The following example is included to illustrate how pupil yield factors are used to estimate new students generated by proposed residential development. In this example, it is estimated that 55 new students would be generated by a proposed 100 unit Single-Family detached (SFD) subdivision.

Table 2 - Estimating New Students Using Pupil Yield Factors (Proposed 100 SFD Subdivision)

Grade Level	Yield Factor	X	# of Dwelling Units (Single-family)	=	New Students
K- 5	0.23	X	100	=	23
6 - 8	0.13	X	100	=	13
9 - 12	0.19	X	100	=	19
TOTAL	0.55	X	100	=	55

Modified School Enrollment Methodology

Utilizing our regional cooperative Round 8B forecast, a projection of housing units was determined for each school district. The number and type of units were based on the existing zoning. After the number and type of units were determined and projected by year, a pupil yield factor was applied to determine the total number of new pupils by school district.

The methodology for determining a growth factor included a multi-step process. The process included utilization of the existing grade cohort succession methodology and the pupil yield factor. A factor was applied to the existing grade cohort succession ratio per school if the pupil yield factor identified an increase in the average number of students. In order to maintain a consistent application, all calculations were based on the Harford County Public School system's definition of "unadjusted" enrollment projections. No assumptions were made in terms of school capacities or utilization of existing facilities.

The actual enrollment of Harford County Public Schools (HCPS) is retained as base enrollment for the modified enrollment projections. HCPS first-year projected enrollment figures are also retained as they have been shown to be historically accurate.

Water and Sewer Facility Projection Methodology

Water:

The Harford County water service area is divided into four pressure zones due to varying topography within the Development Envelope. To provide an adequate supply of water, the transmission lines, and pumping and storage facilities for all zones must be sized for estimated future demands.

The water system is evaluated for adequacy for providing flows during the maximum day demand, while maintaining system pressures required to deliver fire flows. Water booster stations and/or transmission lines, service mains, storage tanks, and water treatment plants are evaluated. Areas within the Harford County Development Envelope that exist at the highest elevations of the water pressure zones are evaluated for adequacy on a case-by-case basis. The anticipated growth within the County is accommodated through a combination of developer funded projects and the County Capital Improvement Program.

The sewerage system is similarly evaluated for adequacy to accommodate expected peak flows through collectors, interceptors, pump stations, force mains, and wastewater treatment plants. Should a capacity problem exist in a collector sewer, it is the developer's responsibility to resolve the inadequacy. Inadequacies at major pumping stations and wastewater treatment plants are resolved by programmed capital projects or by projects cooperatively supported by a group of developers.

Sewerage:

The sewage flows to Harford County's existing Sod Run and Joppatowne Wastewater Treatment Plants (WWTP) originate from a portion of the Development Envelope. The area between the municipalities of Aberdeen and Havre de Grace, as well as the cities themselves, are within the Development Envelope and are served by the municipal sewerage facilities. A complete "Sewer System Capacity Analysis" is included in the "2016 Water and Sewer Adequate Public Facilities Report."

The determination of future wastewater flows to wastewater treatment plants is made by using population and household projections developed by the Harford County Department of Planning and Zoning for the years 2000 through 2035. The projections were distributed by transportation analysis zones (TAZs) by aggregating the ultimate development in terms of equivalent dwelling units into sewerage drainage areas. In order to keep pace with projected growth, the expansion of the Sod Run Wastewater Treatment Plant from 12 MGD in 1995 to 20 MGD was completed in 2000. A sanitary sewer collection system has also been established in Whiteford-Cardiff, which serves the properties within an established sanitary subdistrict. This system was made operational in 2001 with 172 mandatory hook-ups completed in 2002. Treatment for this subdistrict is provided by Delta Borough, Pennsylvania, with a current permitted average flow of 0.12 MGD.

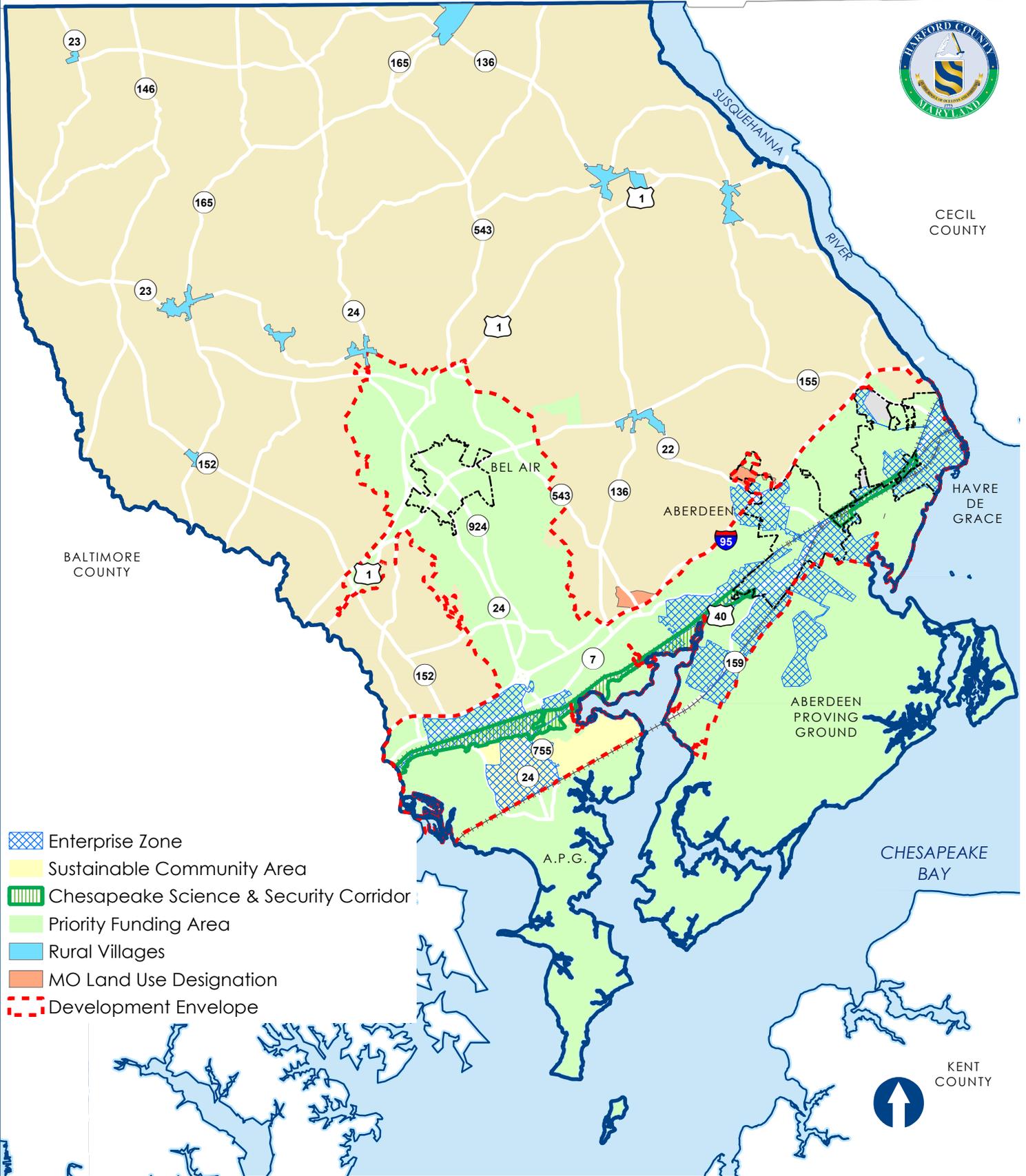
In addition to the major publicly owned wastewater treatment plants, there are multiple private wastewater treatment systems, including mobile home parks and other commercial/community establishments, plus a larger population on private individual septic systems outside the Development Envelope. In addition, many of the schools outside the public sewerage service area are on publicly owned multi-use wastewater treatment systems.

Road Intersection Analysis Methodology

A key feature of the APF Road Intersection regulations is the requirement for preparation of a Traffic Impact Analysis (TIA) for residential and non-residential uses that are projected to generate more than 249 trips per day. Proposed development located within the Chesapeake Science and Security Corridor (CSSC) (Figure 16) will not be required to submit a TIA unless the proposed use is expected to generate 1,500 trips per day. The TIA provides information regarding the impact of generated trips from proposed land uses on traffic safety and traffic operation within a designated area, and recommends solutions to mitigate the impact. The method of conducting a TIA is outlined in the "Harford County Traffic Impact Analysis Guidelines".

FIGURE 17

Priority Redevelopment Areas



Inside the Development Envelope:

The TIA shall include all existing County and state roads in all directions, from each point of entrance of site through the intersection with the first arterial roadway to the next intersecting collector or higher functional classification road. Developments which generate 1,500 or more trips per day may be required to expand the study area.

Outside the Development Envelope:

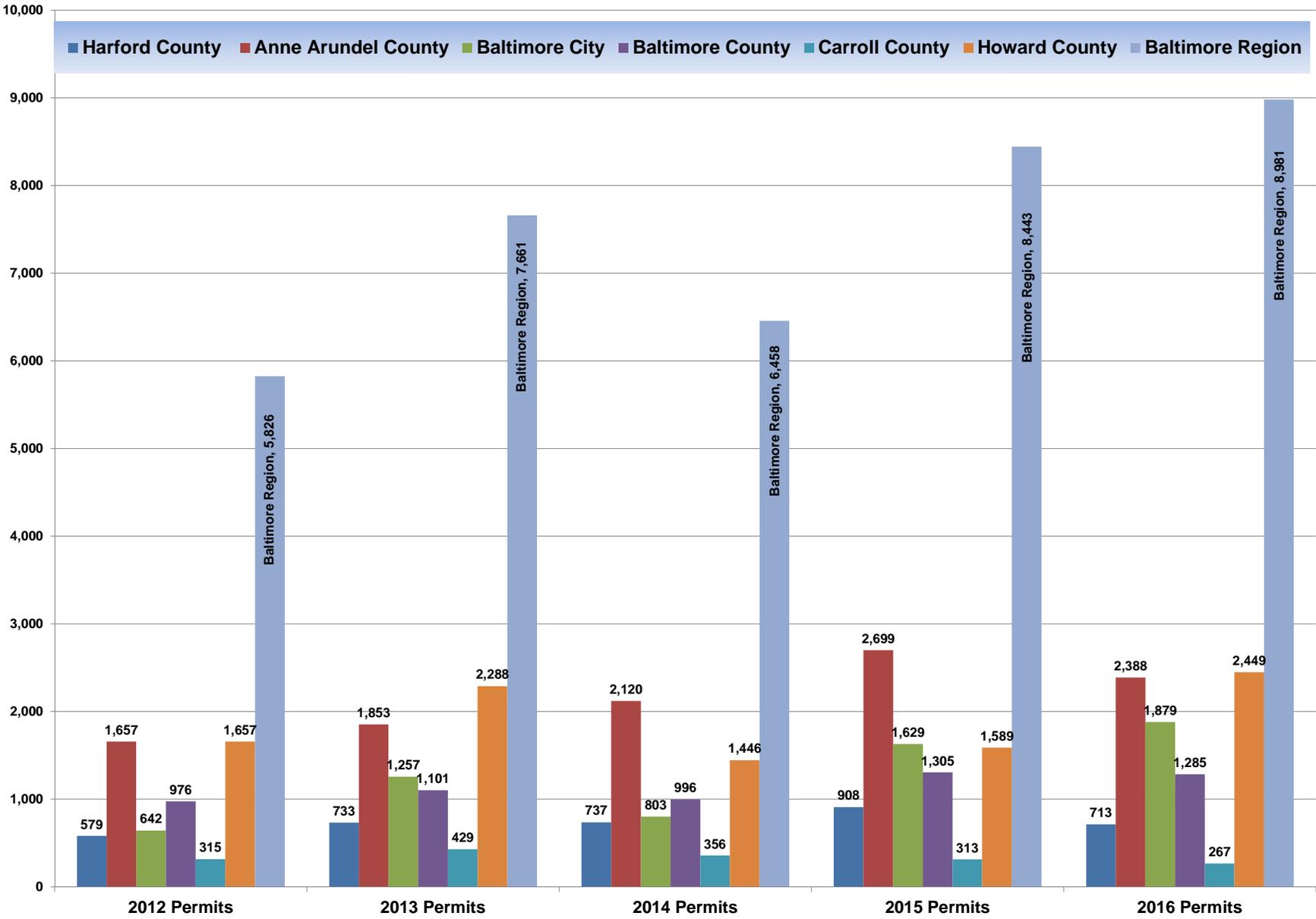
The TIA study area shall include all existing County and state roads in all directions from each point of entrance of the site to the first intersection of a major collector or higher functional classification road as defined by the Harford County Transportation Plan.

All TIA's shall include:

- An analysis of existing conditions including traffic counts, lane configuration, and signal timings.
- An analysis of background conditions without site development, including growth in background traffic, future traffic generated by nearby proposed developments and the determination of Level-of-Service (LOS) with any approved/funded State and County Capital projects.
- An analysis of the projected conditions with site development, including the traffic being generated by the proposed development and background traffic.
- An explanation of the results with recommended improvements as necessary.

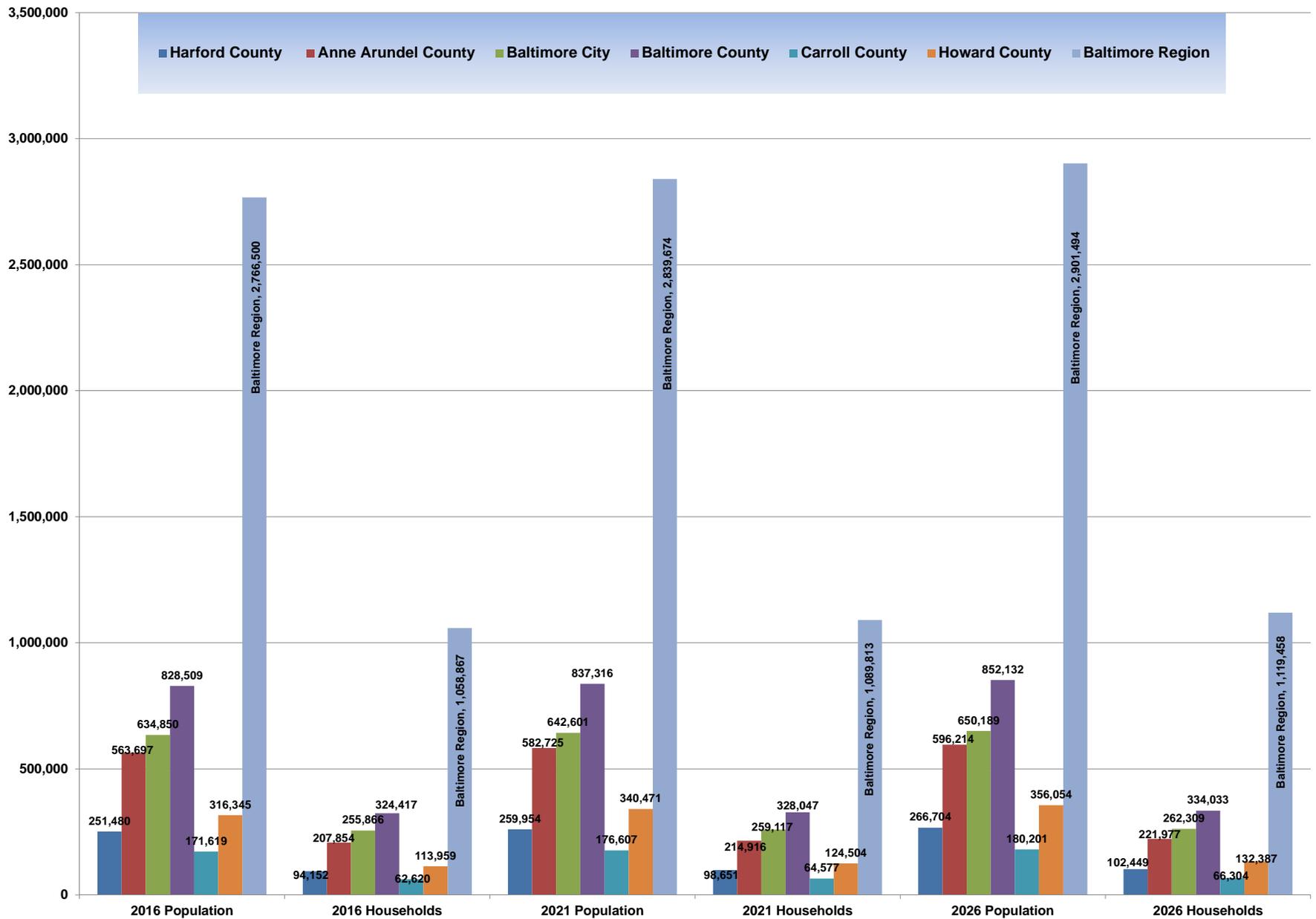
APPENDIX A

**Table 1A
Harford County-Baltimore Region Residential Permit Activity: 2012 - 2016**



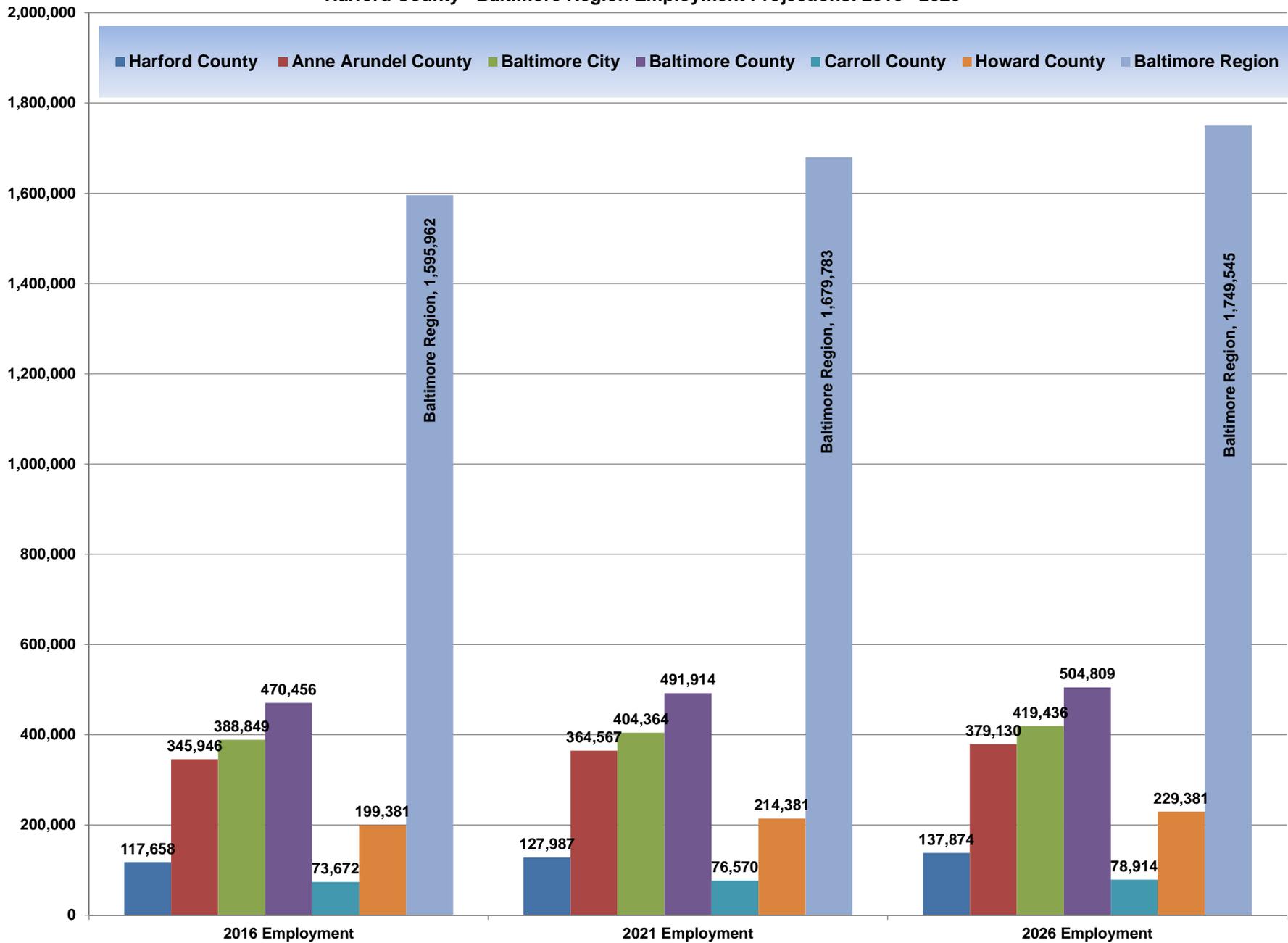
Source: Baltimore Metropolitan Council, May, 2017.

Table 2A
Harford County - Baltimore Region Population and Household Projections: 2016 - 2016



Source: Baltimore Metropolitan Council, May, 2017.

Table 3A
Harford County - Baltimore Region Employment Projections: 2016 - 2026



Source: Baltimore Metropolitan Council, May, 2017.

Table 4A
Harford County Non-Residential Permit Activity
New Permits Valued \$50,000 and Over

Permit Type	2012		2013		2014		2015		2016	
	# of Permits	Square Footage	# of Permits	Square Footage	# of Permits	Square Footage	# of Permits	Square Footage	# of Permits	Square Footage
Commercial	24	576,114	6	113,272	9	150,235	14	221,386	8	78,246
Industrial	0	0	2	1,601,520	3	12,225	0	0	1	12,000
Institutional	5	71,992	5	90,238	6	103,598	4	35,296	0	0
Utilities	1	2,674	0	0	1	300	0	0	0	0
Other	2	16,911	0	0	2	1,970	0	0	0	0
Total	32	667,691	13	1,805,030	21	268,328	18	256,682	9	90,246

Source: Baltimore Metropolitan Council, May 2017.

Table 5A
Harford County Non-Residential Permit Activity
Additions, Alterations, and Repairs Valued \$50,000 and Over

Permit Type	2012		2013		2014		2015		2016	
	# of Permits	Square Footage								
Commercial	50	NA	4	NA	29	NA	28	NA	29	NA
Industrial	1	NA	2	NA	5	NA	17	NA	9	NA
Institutional	26	NA	4	NA	11	NA	16	NA	8	NA
Utilities	5	NA	3	NA	11	NA	9	NA	0	NA
Total	82	NA	13	NA	56	NA	70	NA	46	NA

NA: Data Not Available

Source: Baltimore Metropolitan Council, May 2017.

APPENDIX B

FIGURE 1B

Elementary School Districts

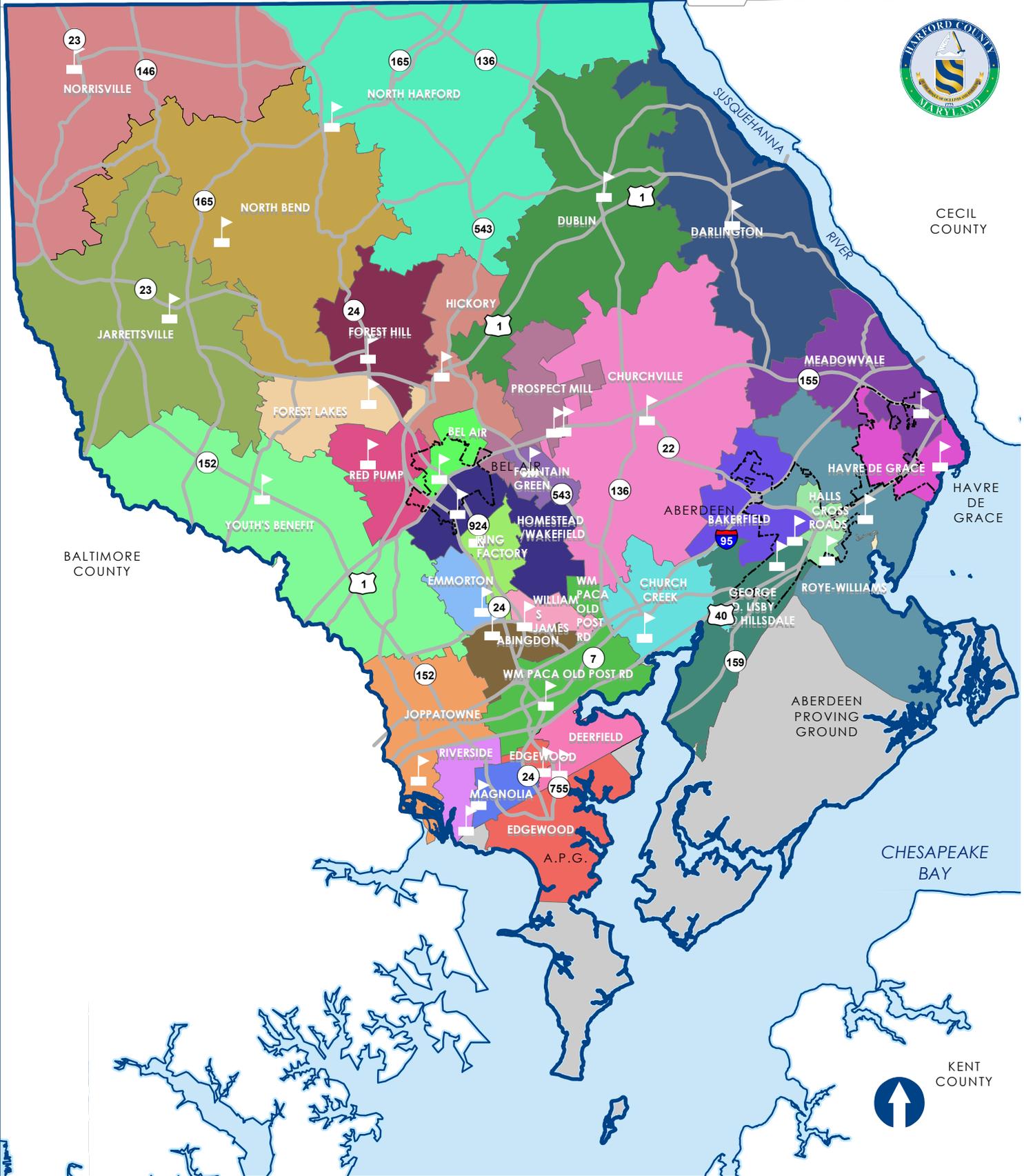


Table 6B

Harford County Elementary Schools 2016 Utilization Chart									
Elementary School	State-Rated Capacity	Actual		Projected		Projected		Projected	
		2016 - 2017		2017 - 2018		2018 - 2019		2019 - 2020	
		ENROLL	% UTIL.						
Abingdon	864	830	96%	841	97%	852	99%	863	100%
Bakerfield	500	427	85%	425	85%	422	84%	420	84%
Bel Air	500	466	93%	461	92%	455	91%	450	90%
Church Creek	793	794	100%	796	100%	799	101%	801	101%
Churchville	388	367	95%	367	95%	366	94%	366	94%
Darlington	157	115	73%	114	73%	113	72%	113	72%
Deerfield	816	798	98%	798	98%	799	98%	799	98%
Dublin	295	262	89%	265	90%	268	91%	271	92%
Edgewood	511	398	78%	394	77%	390	76%	386	76%
Emmorton	549	560	102%	546	99%	532	97%	518	94%
Forest Hill	568	469	83%	462	81%	454	80%	447	79%
Forest Lakes	546	463	85%	454	83%	445	82%	437	80%
Fountain Green	571	494	87%	481	84%	467	82%	455	80%
G. Lisby at Hillsdale	455	459	101%	466	102%	473	104%	481	106%
Hall's Cross Roads	562	515	92%	518	92%	521	93%	524	93%
Havre de Grace	566	457	81%	464	82%	470	83%	477	84%
Hickory	681	687	101%	688	101%	689	101%	689	101%
Homestead/Wakefield	907	955	105%	958	106%	961	106%	964	106%
Jarrettsville	548	420	77%	421	77%	422	77%	423	77%
Joppatowne	653	566	87%	570	87%	574	88%	578	89%
Magnolia	518	538	104%	539	104%	540	104%	541	104%
Meadowvale	568	520	92%	518	91%	516	91%	513	90%
Norrisville	252	198	79%	203	81%	207	82%	212	84%
North Bend	500	309	62%	299	60%	290	58%	280	56%
North Harford	500	411	82%	401	80%	391	78%	382	76%
Prospect Mill	680	586	86%	574	84%	563	83%	552	81%
Red Pump	696	681	98%	684	98%	687	99%	690	99%
Ring Factory	548	512	93%	512	93%	512	93%	512	93%
Riverside	522	446	85%	439	84%	432	83%	425	81%
Roye-Williams	703	535	76%	552	79%	570	81%	588	84%
Wm. Paca / Old Post Rd.	954	846	89%	832	87%	818	86%	804	84%
Wm. S. James	522	413	79%	405	78%	397	76%	389	75%
Youth's Benefit	958	987	103%	980	102%	972	101%	965	101%
TOTAL	19,351	17,484	90%	17,427	90%	17,367	90%	17,315	89%

Source: Harford County Public Schools & Dept. of Planning and Zoning, November 2016.

Table 7B

Harford County Modified Elementary School Enrollment Projections								
School District	2016	2017	2018	2019	2020	2021	2022	2023
Abingdon	830	841	853	865	877	889	901	913
Bakerfield	427	425	432	440	449	457	456	455
Bel Air	466	461	460	460	460	459	455	451
Church Creek	794	796	821	846	872	898	903	907
Churchville	367	367	369	372	374	377	377	377
Darlington	115	114	114	115	115	115	115	115
Deerfield	798	798	812	825	839	852	853	854
Dublin	262	265	270	275	280	285	289	293
Edgewood	398	394	390	386	382	378	375	372
Emmorton	560	546	539	532	526	520	508	496
Forest Hill	469	462	454	447	440	434	428	422
Forest Lakes	463	454	445	437	428	420	413	406
Fountain Green	494	481	467	455	442	430	419	408
G. Lisby at Hillsdale	459	466	474	483	491	499	508	517
Hall's Cross Roads	515	518	523	528	533	538	542	546
Havre de Grace	457	464	488	514	541	569	578	587
Hickory	687	688	700	711	724	736	738	740
Homestead/Wakefield	955	958	975	992	1,010	1,027	1,032	1,036
Jarrettsville	420	421	426	431	436	441	443	445
Joppatowne	566	570	580	590	600	611	616	621
Magnolia	538	539	544	549	555	560	562	564
Meadowvale	520	518	519	519	520	521	520	519
Norrisville	198	203	209	216	223	230	236	243
North Bend	309	299	293	286	280	275	267	260
North Harford	411	401	395	390	384	379	371	364
Prospect Mill	586	574	564	554	544	535	526	517
Red Pump	681	684	694	704	715	726	730	734
Ring Factory	512	512	517	522	527	533	534	535
Riverside	446	439	435	431	427	424	419	413
Roye-Williams	535	552	570	588	607	626	647	669
Wm. Paca / Old Post Rd.	846	832	830	828	826	825	812	799
Wm. S. James	413	405	398	391	385	378	372	366
Youth's Benefit	987	980	981	983	985	987	981	975
Total	17,484	17,427	17,541	17,666	17,796	17,935	17,925	17,920

Source: Harford County Public Schools & Dept. of Planning and Zoning, November 2016.

Source: Harford County Dept. of Planning and Zoning, May 2016.

Table 8B

Harford County Residential Building Permit Activity By Elementary School District: 2012 - 2016																									
ELEMENTARY SCHOOL	2012					2013					2014					2015					2016				
	BUILDING PERMITS ISSUED BY DWELLING TYPE					BUILDING PERMITS ISSUED BY DWELLING TYPE					BUILDING PERMITS ISSUED BY DWELLING TYPE					BUILDING PERMITS ISSUED BY DWELLING TYPE					BUILDING PERMITS ISSUED BY DWELLING TYPE				
	SF	TH	APT/CO	MH	TOTAL	SF	TH	APT/CO	MH	TOTAL	SF	TH	APT/CO	MH	TOTAL	SF	TH	APT/CO	MH	TOTAL	SF	TH	APT/CO	MH	TOTAL
Abingdon	1	0	0	0	1	0	0	0	0	0	3	32	208	0	243	3	0	84	0	87	1	0	0	0	1
Bakerfield	28	0	0	0	28	16	0	96	0	112	10	2	72	0	84	22	0	32	0	54	26	0	0	0	26
Bel Air	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	4	0	0	0	4	2	0	0	0	2
Church Creek	0	6	0	0	6	0	19	188	0	207	0	28	0	0	28	1	8	0	0	9	0	16	0	0	16
Churchville	4	0	0	0	4	2	0	0	2	4	3	0	0	0	3	6	0	0	0	6	5	0	0	0	5
Darlington	0	0	0	0	0	1	0	0	0	1	2	0	0	0	2	1	0	0	0	1	1	0	0	0	1
Deerfield	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	0	0	0	1
Dublin	12	0	0	1	13	4	0	0	0	4	6	0	0	1	7	7	0	0	0	7	7	0	0	1	8
Edgewood	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Emmorton	0	36	24	0	60	0	29	0	0	29	2	18	0	0	20	4	25	72	0	101	9	0	126	0	135
Forest Hill	4	0	0	1	5	1	0	0	0	1	4	0	0	0	4	12	0	0	0	12	12	0	0	0	12
Forest Lakes	5	0	0	0	5	2	0	0	0	2	1	0	0	0	1	1	0	0	0	1	6	0	0	0	6
Fountain Green	3	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
G. Lisby at Hillsdale	17	33	0	0	50	17	30	0	0	47	26	35	0	0	61	24	15	0	0	39	3	0	0	0	3
Hall's Cross Roads	0	22	0	0	22	0	0	0	0	0	0	36	0	0	36	0	0	0	0	0	0	0	0	0	0
Havre de Grace	33	36	0	0	69	31	0	0	0	31	37	11	0	0	48	37	4	0	0	41	30	34	0	0	64
Hickory	29	27	21	0	77	42	13	0	0	55	19	15	0	0	34	30	11	0	0	41	22	30	0	0	52
Homestead/Wakefield	34	0	0	0	34	28	6	0	0	34	11	3	0	0	14	9	22	38	0	69	24	46	37	0	107
Jarrettsville	17	0	0	0	17	6	0	0	0	6	4	0	0	0	4	10	0	0	1	11	5	0	0	0	5
Joppatowne	2	0	0	0	2	4	0	0	0	4	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0
Magnolia	1	37	0	0	38	2	23	0	0	25	10	25	0	0	35	6	0	0	0	6	31	0	0	0	31
Meadowvale	0	0	0	0	0	4	0	0	0	4	1	0	0	0	1	2	0	0	1	3	0	0	0	1	1
Norrisville	6	0	0	2	8	9	0	0	0	9	3	0	0	0	3	5	0	0	0	5	3	0	0	0	3
North Bend	22	0	0	1	23	8	0	0	0	8	4	0	0	1	5	10	0	0	1	11	18	0	0	1	19
North Harford	8	0	0	0	8	9	0	0	1	10	7	0	0	0	7	12	0	0	0	12	10	0	0	1	11
Prospect Mill	2	0	0	0	2	1	0	0	0	1	3	0	0	0	3	2	0	0	0	2	1	0	0	0	1
Red Pump	19	0	0	0	19	53	0	0	0	53	22	0	0	0	22	23	0	288	0	311	31	0	0	0	31
Ring Factory	1	0	0	0	1	0	0	0	0	0	1	0	0	0	1	1	0	0	0	1	5	0	0	0	5
Riverside	8	0	0	0	8	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	5	5	0	0	10
Roye-Williams	7	0	0	0	7	11	0	0	0	11	14	0	0	0	14	21	0	0	0	21	21	0	48	0	69
Wm. Paca/Old Post Rd	16	6	0	0	22	23	0	0	0	23	4	0	0	0	4	5	0	0	0	5	6	0	0	0	6
Wm. S. James	1	7	0	0	8	0	0	0	0	0	1	0	0	0	1	3	4	0	0	7	13	16	0	0	29
Youth's Benefit	15	23	1	0	39	12	38	0	0	50	16	34	0	0	50	11	28	0	1	40	9	44	0	0	53
TOTAL	295	233	46	5	579	288	158	284	3	733	216	239	280	2	737	273	117	514	4	908	307	191	211	4	713

* Note: Permit totals revised to reflect cancelled permits.

Source: Harford County Dept. of Planning & Zoning, May 2017.

KEY: SF = Single Family Dwelling; TH = Townhouse; APT/CO = Apartment/Condominium; MH = Mobile Home

Table 9B

Harford County Population and Households By Elementary School District: 2012 - 2016										
Elementary School	2012*		2013*		2014*		2015*		2016*	
	Households	Population								
Abingdon	4,781	12,906	4,782	12,875	4,782	12,841	5,014	13,427	5,096	13,612
Bakerfield	2,294	6,193	2,321	6,249	2,428	6,521	2,509	6,718	2,560	6,837
Bel Air	3,049	8,231	3,049	8,210	3,051	8,193	3,051	8,171	3,055	8,160
Church Creek	3,802	10,263	3,808	10,252	4,007	10,759	4,033	10,802	4,042	10,796
Churchville	2,473	6,675	2,476	6,667	2,480	6,660	2,483	6,650	2,489	6,647
Darlington	1,009	2,724	1,009	2,716	1,010	2,712	1,012	2,710	1,013	2,705
Deerfield	3,265	8,814	3,265	8,791	3,265	8,767	3,265	8,744	3,266	8,723
Dublin	1,667	4,499	1,679	4,521	1,683	4,519	1,690	4,525	1,696	4,530
Edgewood	1,256	3,390	1,256	3,381	1,256	3,372	1,256	3,363	1,256	3,354
Emmorton	2,412	6,512	2,470	6,650	2,498	6,707	2,517	6,740	2,613	6,979
Forest Hill	2,413	6,513	2,418	6,509	2,419	6,494	2,422	6,487	2,434	6,501
Forest Lakes	2,841	7,669	2,846	7,662	2,848	7,646	2,848	7,629	2,849	7,611
Fountain Green	1,896	5,118	1,899	5,112	1,899	5,098	1,899	5,085	1,899	5,071
G. Lisby at Hillsdale	2,329	6,287	2,377	6,399	2,422	6,503	2,480	6,642	2,517	6,723
Hall's Cross Roads	1,951	5,267	1,972	5,310	1,972	5,295	2,006	5,373	2,006	5,359
Havre de Grace	3,572	9,643	3,638	9,796	3,668	9,850	3,713	9,944	3,752	10,021
Hickory	2,777	7,497	2,851	7,676	2,904	7,798	2,936	7,864	2,975	7,947
Homestead/Wakefield	5,344	14,427	5,377	14,476	5,409	14,526	5,423	14,523	5,488	14,659
Jarrettsville	2,752	7,430	2,769	7,454	2,774	7,450	2,778	7,440	2,789	7,448
Joppatowne	3,853	10,403	3,855	10,380	3,859	10,363	3,860	10,338	3,860	10,310
Magnolia	1,682	4,540	1,726	4,647	1,750	4,699	1,783	4,776	1,789	4,779
Meadowvale	2,625	7,086	2,625	7,067	2,629	7,059	2,631	7,045	2,633	7,034
Norrisville	1,263	3,409	1,270	3,421	1,279	3,435	1,282	3,433	1,287	3,437
North Bend	2,240	6,048	2,262	6,091	2,270	6,096	2,275	6,092	2,285	6,104
North Harford	2,339	6,314	2,347	6,318	2,356	6,327	2,363	6,328	2,374	6,341
Prospect Mill	2,858	7,715	2,860	7,700	2,861	7,682	2,864	7,669	2,866	7,654
Red Pump	3,864	10,430	3,882	10,452	3,933	10,561	3,954	10,589	4,250	11,350
Ring Factory	2,720	7,342	2,721	7,325	2,721	7,305	2,722	7,289	2,722	7,272
Riverside	2,489	6,720	2,497	6,723	2,497	6,705	2,498	6,690	2,498	6,672
Roye-Williams	1,854	5,004	1,860	5,009	1,871	5,024	1,884	5,046	1,904	5,086
Wm. Paca/Old Post Rd	4,569	12,334	4,590	12,358	4,612	12,385	4,616	12,362	4,621	12,342
Wm. S. James	1,964	5,303	1,973	5,312	1,973	5,298	1,974	5,286	1,981	5,290
Youth's Benefit	5,185	13,997	5,222	14,061	5,271	14,153	5,319	14,245	5,357	14,309
TOTAL	91,387	246,700	91,951	247,570	92,655	248,800	93,358	250,025	94,221	251,660

* Note: Population and household figures have been revised to reflect 2010 Census data (April 1 of each year).

Source: Harford County Dept. of Planning & Zoning, May 2017.

FIGURE 2B

Middle School Districts

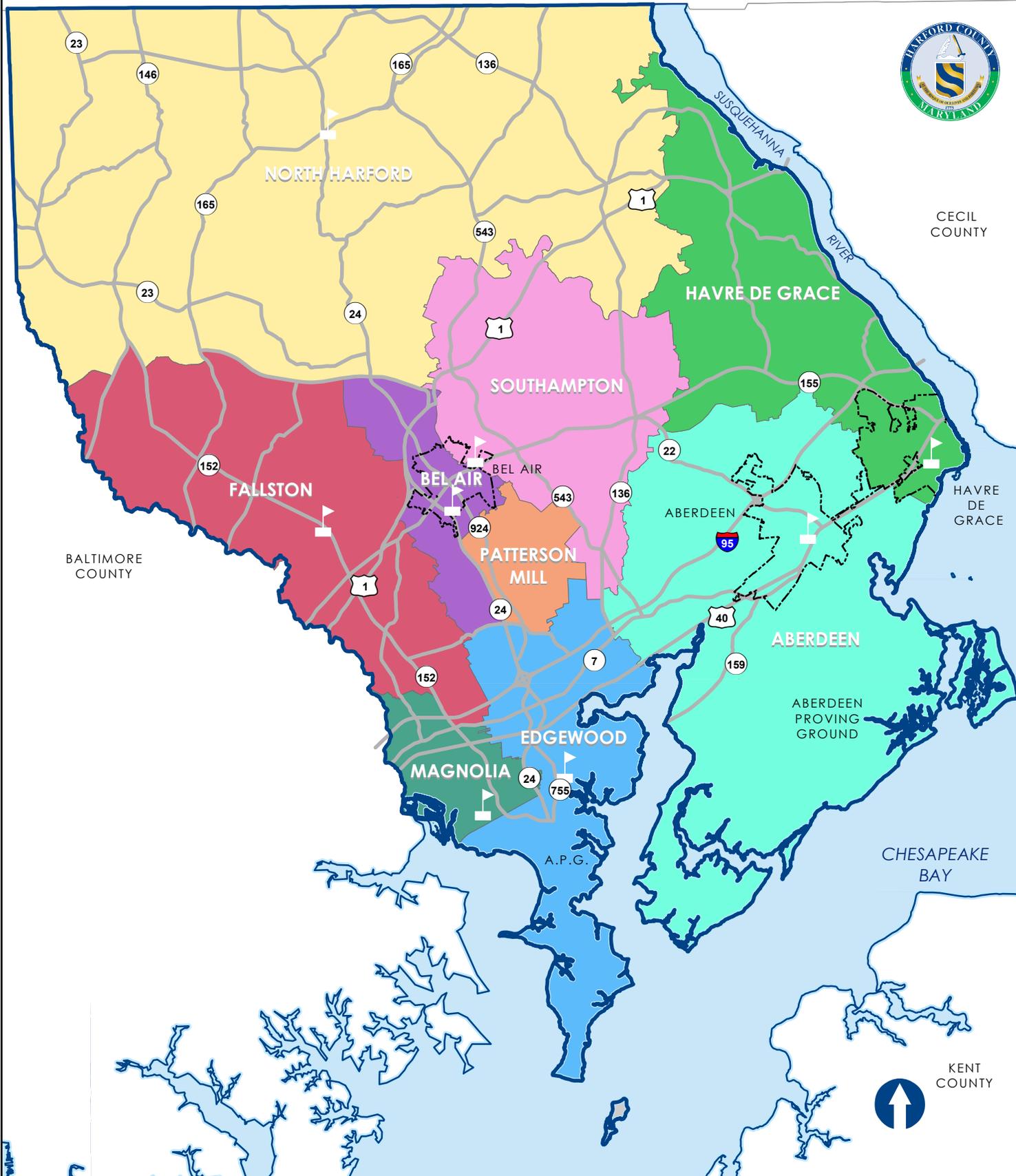


Table 10B

Harford County Middle Schools 2016 Utilization Chart									
Middle School	State- Rated Capacity	Actual				Projected			
		2016 - 2017		2017 - 2018		2018 - 2019		2019 - 2020	
		ENROLL	%UTIL	ENROLL	%UTIL	ENROLL	%UTIL	ENROLL	%UTIL
Aberdeen	1,444	1,128	78%	1,134	79%	1,140	79%	1,146	79%
Bel Air	1,318	1,324	100%	1,333	101%	1,342	102%	1,350	102%
Edgewood	1,370	1,075	78%	1,080	79%	1,085	79%	1,089	79%
Fallston	1,105	874	79%	872	79%	870	79%	868	79%
Havre de Grace	775	524	68%	523	67%	523	67%	522	67%
Magnolia	1,073	740	69%	733	68%	726	68%	720	67%
North Harford	1,243	951	77%	938	75%	925	74%	913	73%
Patterson Mill	710	690	97%	679	96%	668	94%	657	93%
Southampton	1,540	1,186	77%	1,177	76%	1,168	76%	1,159	75%
Total	10,578	8,492	80%	8,469	80%	8,447	80%	8,424	80%

Source: Harford County Public Schools & Dept. of Planning and Zoning, November 2016.

Table 11B

Harford County Modified Middle School Enrollment Projections								
School District	2016	2017	2018	2019	2020	2021	2022	2023
Aberdeen	1,128	1,134	1,150	1,166	1,182	1,199	1,215	1,232
Bel Air	1,324	1,333	1,355	1,376	1,398	1,421	1,444	1,467
Edgewood	1,075	1,080	1,103	1,125	1,149	1,173	1,197	1,222
Fallston	874	872	878	884	889	895	902	908
Havre de Grace	524	523	530	536	543	550	556	563
Magnolia	740	733	732	732	731	730	730	729
North Harford	951	938	934	931	927	924	921	918
Patterson Mill	690	679	673	667	662	656	651	646
Southampton	1,186	1,177	1,184	1,191	1,199	1,206	1,214	1,222
Total	8,492	8,469	8,539	8,609	8,681	8,754	8,830	8,908

Source: Harford County Dept. of Planning and Zoning, May, 2017

Table 12B

Harford County Residential Building Permit Activity By Middle School District: 2012 - 2016																									
MIDDLE SCHOOL	2012					2013					2014					2015					2016				
	BUILDING PERMITS ISSUED BY DWELLING TYPE					BUILDING PERMITS ISSUED BY DWELLING TYPE					BUILDING PERMITS ISSUED BY DWELLING TYPE					BUILDING PERMITS ISSUED BY DWELLING TYPE					BUILDING PERMITS ISSUED BY DWELLING TYPE				
	SF	TH	APT/CO	MH	TOTAL	SF	TH	APT/CO	MH	TOTAL	SF	TH	APT/CO	MH	TOTAL	SF	TH	APT/CO	MH	TOTAL	SF	TH	APT/CO	MH	TOTAL
Aberdeen	52	78	0	0	130	45	49	284	0	378	50	101	72	0	223	68	27	32	0	127	51	16	48	0	115
Bel Air	59	36	45	0	140	105	29	0	0	134	43	18	0	0	61	48	44	72	0	164	64	36	126	0	226
Edgewood	17	6	0	0	23	22	0	0	0	22	5	32	208	0	245	8	0	84	0	92	8	0	0	0	8
Fallston	34	23	1	1	59	19	38	0	0	57	17	34	0	0	51	16	28	288	1	333	16	44	0	0	60
Havre de Grace	37	19	0	0	56	36	0	0	1	37	40	11	0	0	51	40	0	0	1	41	32	34	0	1	67
Magnolia	9	37	0	0	46	3	23	0	0	26	12	25	0	0	37	6	0	0	0	6	36	5	0	0	41
North Harford	59	0	0	3	62	34	0	0	1	35	25	0	0	1	26	49	0	0	2	51	56	0	0	3	59
Patterson Mill	19	7	0	0	26	17	6	0	0	23	10	3	0	0	13	8	7	38	0	53	29	26	37	0	92
Southampton	9	27	0	1	37	7	13	0	1	21	14	15	0	1	30	30	11	0	0	41	15	30	0	0	45
TOTAL	295	233	46	5	579	288	158	284	3	733	216	239	280	2	737	273	117	514	4	908	307	191	211	4	713

Note: Permits totals revised for cancelled permits.

Source: Harford County Dept. of Planning & Zoning, May 2017.

KEY: SF = Single Family Dwelling; TH = Townhouse; APT/CO = Apartment/Condominium; MH = Mobile Home

Table 13B

Harford County Population and Households By Middle School District: 2012 - 2016										
SCHOOL	2012*		2013*		2014*		2015*		2016*	
	Households	Population								
Aberdeen	12,844	34,671	12,968	34,916	13,331	35,798	13,544	36,272	13,665	36,498
Bel Air	13,884	37,480	14,018	37,743	14,147	37,988	14,205	38,043	14,361	38,357
Edgewood	13,860	37,415	13,882	37,376	13,903	37,333	14,137	37,860	14,224	37,992
Fallston	8,892	24,004	8,948	24,093	9,003	24,176	9,053	24,244	9,369	25,025
Havre de Grace	7,433	20,064	7,486	20,156	7,522	20,198	7,570	20,274	7,609	20,324
Magnolia	7,913	21,361	7,965	21,444	7,990	21,454	8,025	21,492	8,031	21,450
North Harford	10,373	28,003	10,433	28,090	10,466	28,105	10,491	28,097	10,540	28,151
Patterson Mill	6,224	16,801	6,250	16,828	6,272	16,841	6,284	16,830	6,334	16,919
Southampton	9,965	26,901	10,000	26,925	10,021	26,908	10,049	26,913	10,088	26,945
TOTAL	91,387	246,700	91,951	247,570	92,655	248,800	93,358	250,025	94,221	251,660

* Note: Population and household figures have been revised to reflect 2010 Census data (April 1 of each year).

Source: Harford County Dept. of Planning and Zoning, May 2016.

FIGURE 3B

High School Districts

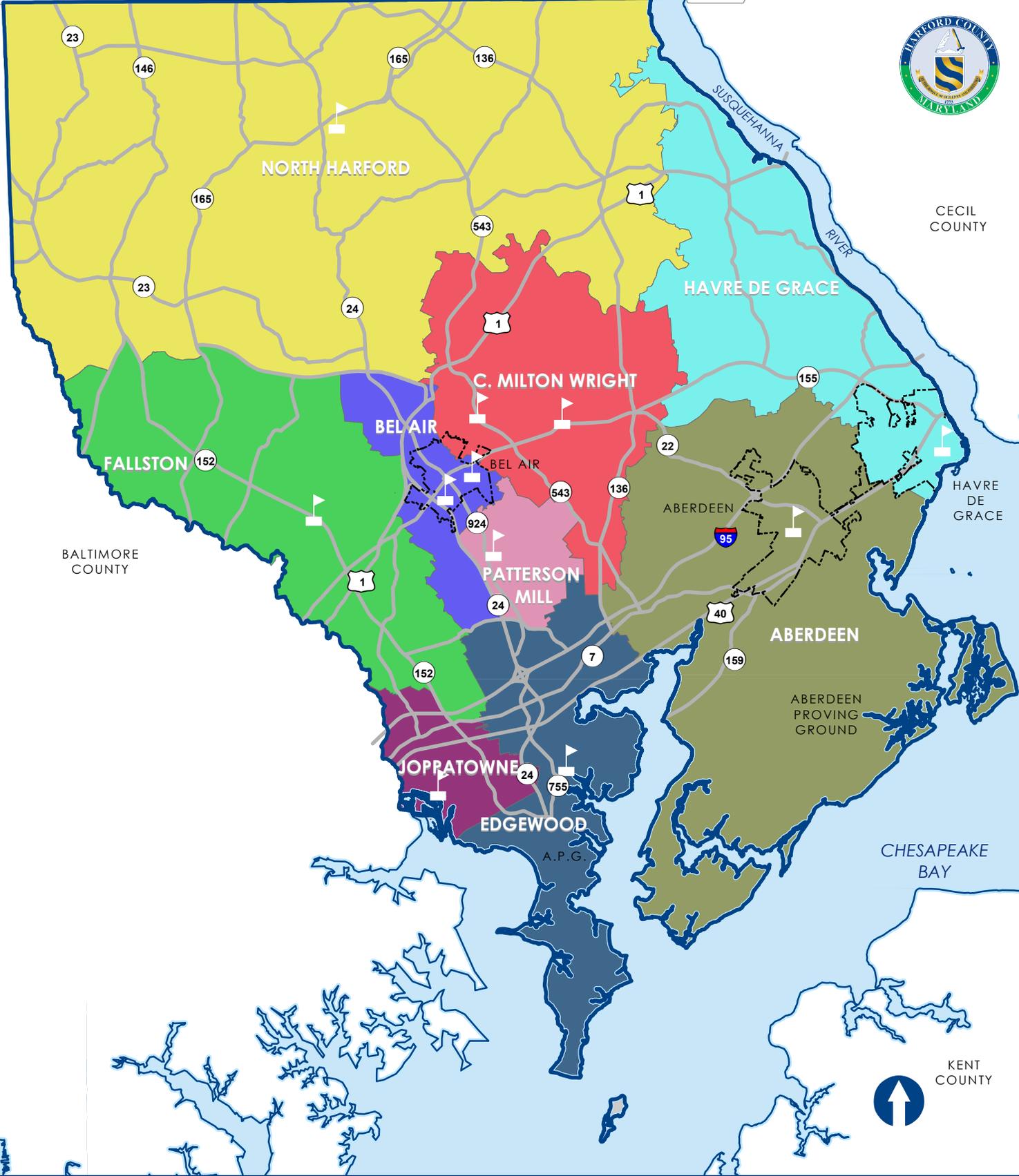


Table 14B

Harford County High Schools 2016 Utilization Chart									
High School	State- Rated Capacity	Actual				Projected			
		2016 - 2017		2017 - 2018		2018 - 2019		2019 - 2020	
		ENROLL	%UTIL	ENROLL	%UTIL	ENROLL	%UTIL	ENROLL	%UTIL
Aberdeen	1,679	1,487	89%	1,491	89%	1,494	89%	1,498	89%
Bel Air	1,668	1,564	94%	1,585	95%	1,607	96%	1,629	98%
C. Milton Wright	1,678	1,469	88%	1,453	87%	1,437	86%	1,422	85%
Edgewood	1,743	1,338	77%	1,360	78%	1,383	79%	1,406	81%
Fallston	1,573	1,045	66%	1,036	66%	1,028	65%	1,019	65%
Harford Technical	920	997	108%	993	108%	989	108%	985	107%
Havre de Grace	850	607	71%	605	71%	605	71%	606	71%
Joppatowne	1,126	694	62%	687	61%	684	61%	683	61%
North Harford	1,603	1,231	77%	1,210	75%	1,190	74%	1,170	73%
Patterson Mill	1,013	839	83%	816	81%	793	78%	770	76%
Total	13,853	11,271	81%	11,236	81%	11,210	81%	11,188	81%

Source: Harford County Public Schools & Dept. of Planning and Zoning, November, 2016.

Table 15B

Harford County Modified High School Enrollment Projections								
School District	2016	2017	2018	2019	2020	2021	2022	2023
Aberdeen	1,487	1,491	1,506	1,522	1,537	1,554	1,569	1,586
Bel Air	1,564	1,585	1,624	1,663	1,703	1,744	1,785	1,827
C. Milton Wright	1,469	1,453	1,453	1,454	1,455	1,456	1,457	1,458
Edgewood	1,338	1,360	1,401	1,442	1,484	1,526	1,571	1,615
Fallston	1,045	1,036	1,036	1,035	1,042	1,049	1,057	1,064
Havre de Grace	607	605	612	620	628	637	645	654
Joppatowne	694	687	690	695	698	702	705	711
North Harford	1,231	1,210	1,199	1,188	1,177	1,166	1,173	1,179
Patterson Mill	839	816	797	807	816	825	834	844
Total	10,274	10,243	10,318	10,427	10,540	10,658	10,796	10,937

Source: Harford County Dept. of Planning and Zoning, May, 2017

Table 16B

Harford County Residential Building Permit Activity By High School District: 2012 -2016																									
HIGH SCHOOL	2012					2013					2014					2015					2016				
	BUILDING PERMITS ISSUED BY DWELLING TYPE					BUILDING PERMITS ISSUED BY DWELLING TYPE					BUILDING PERMITS ISSUED BY DWELLING TYPE					BUILDING PERMITS ISSUED BY DWELLING TYPE					BUILDING PERMITS ISSUED BY DWELLING TYPE				
	SF	TH	APT/CO	MH	TOTAL	SF	TH	APT/CO	MH	TOTAL	SF	TH	APT/CO	MH	TOTAL	SF	TH	APT/CO	MH	TOTAL	SF	TH	APT/CO	MH	TOTAL
Aberdeen	52	78	0	0	130	45	49	284	0	378	50	101	72	0	223	68	27	32	0	127	51	16	48	0	115
Bel Air	59	36	45	0	140	105	29	0	0	134	43	18	0	0	61	48	44	72	0	164	64	36	126	0	226
C.M. Wright	9	27	0	1	37	7	13	0	1	21	14	15	0	1	30	30	11	0	0	41	15	30	0	0	45
Edgewood	17	6	0	0	23	22	0	0	0	22	5	32	208	0	245	8	0	84	0	92	8	0	0	0	8
Fallston	34	23	1	1	59	19	38	0	0	57	17	34	0	0	51	16	28	288	1	333	16	44	0	0	60
Havre de Grace	37	19	0	0	56	36	0	0	1	37	40	11	0	0	51	40	0	0	1	41	32	34	0	1	67
Joppatowne	9	37	0	0	46	3	23	0	0	26	12	25	0	0	37	6	0	0	0	6	36	5	0	0	41
North Harford	59	0	0	3	62	34	0	0	1	35	25	0	0	1	26	49	0	0	2	51	56	0	0	3	59
Patterson Mill	19	7	0	0	26	17	6	0	0	23	10	3	0	0	13	8	7	38	0	53	29	26	37	0	92
TOTAL	295	233	46	5	579	288	158	284	3	733	216	239	280	2	737	273	117	514	4	908	307	191	211	4	713

Note: Permits totals revised for cancelled permits.

Source: Harford County Dept. of Planning & Zoning, May 2017.

KEY: SF = Single Family Dwelling; TH = Townhouse; APT/CO = Apartment/Condominium; MH = Mobile Home

Table 17B

Harford County Population and Households By High School District: 2012 - 2016										
SCHOOL	2012*		2013*		2014*		2015*		2016*	
	Households	Population								
Aberdeen	12,844	34,671	12,968	34,916	13,331	35,798	13,544	36,272	13,665	36,498
Bel Air	13,884	37,480	14,018	37,743	14,147	37,988	14,205	38,043	14,361	38,357
C. Milton Wright	9,965	26,901	10,000	26,925	10,021	26,908	10,049	26,913	10,088	26,945
Edgewood	13,860	37,415	13,882	37,376	13,903	37,333	14,137	37,860	14,224	37,992
Fallston	8,892	24,004	8,948	24,093	9,003	24,176	9,053	24,244	9,369	25,025
Havre de Grace	7,433	20,064	7,486	20,156	7,522	20,198	7,570	20,274	7,609	20,324
Joppatowne	7,913	21,361	7,965	21,444	7,990	21,454	8,025	21,492	8,031	21,450
North Harford	10,373	28,003	10,433	28,090	10,466	28,105	10,491	28,097	10,540	28,151
Patterson Mill	6,224	16,801	6,250	16,828	6,272	16,841	6,284	16,830	6,334	16,919
TOTAL	91,387	246,700	91,951	247,570	92,655	248,800	93,358	250,025	94,221	251,660

* Note: Population and household figures have been revised to reflect 2010 Census data (April 1 of each year).

Source: Harford County Dept. of Planning and Zoning, May 2016.

APPENDIX C

Table 18C

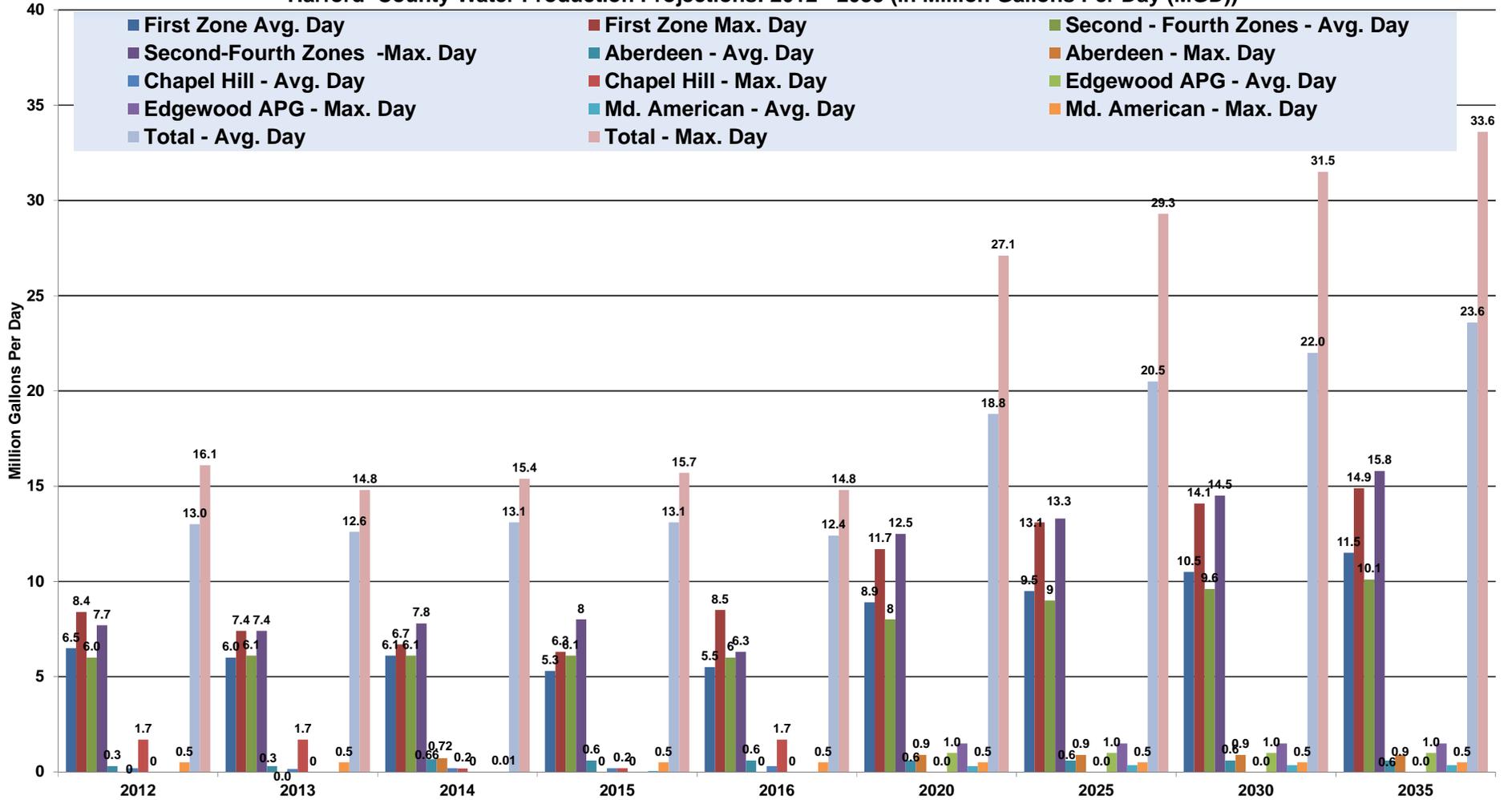
JANUARY - DECEMBER 2016		
WATER CONSUMPTION & SEWAGE GENERATIONS		
Total Number of Accounts	Existing/Open & Closed*	44,606
	Existing/Open	44,188
WATER		
Total Number of Water Accounts	Existing/Open & Closed*	41,462
	Existing/Open	41,043
Average Water Production – Total Retail and Wholesale Customers	12.4 MGD	
Maximum Day Water Production – Total Retail and Wholesale Customers	14.8 MGD	
Average Water Usage per Account – All Retail Accounts	216 GPD	
Average Residential Water Usage per Account – Retail Accounts	151 GPD	
Average Commercial / Industrial Water Usage per Account – Retail Accounts	2,038 GPD	
SEWAGE		
Total Number of Sewer Accounts	Existing/Open & Closed*	43,075
	Existing/Open	42,572
Average Treated Sewage Flow – Total Retail and Wholesale Customers	12.1 MGD	
Maximum Day Treated Sewage Flow – Total Retail and Wholesale Customers	25.1 MGD	
Average Sewage Generation per Account – All Retail Accounts	216 GPD	
Average Residential Sewage Generation per Account – Retail Accounts	151 GPD	
Average Commercial / Industrial Sewage Generation per Account – Retail Accounts	2,038 GPD	

* Total number of accounts, including deleted and closed accounts

Note: MGD = Million Gallons per Day, GPD = Gallons per Day

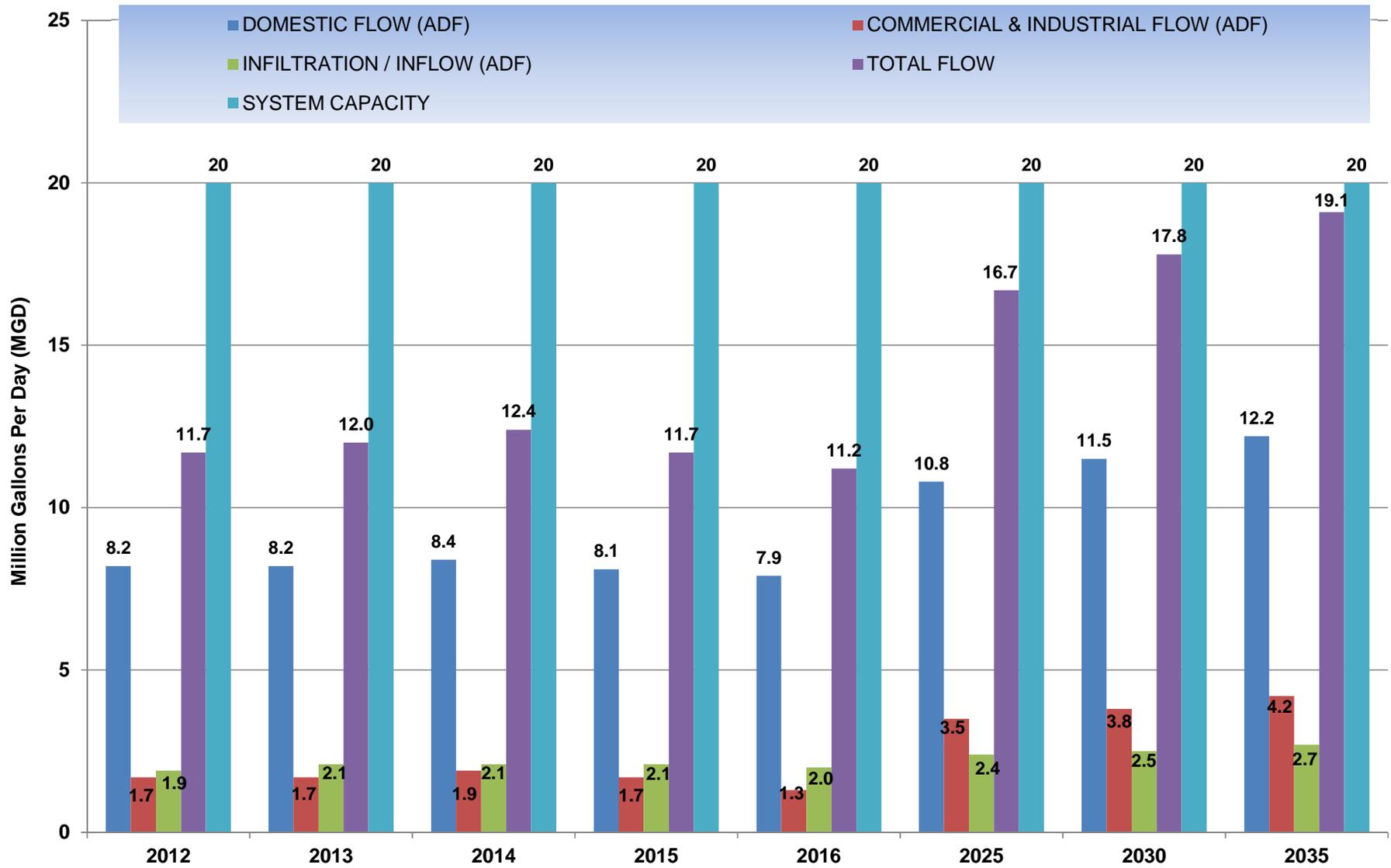
Source: 2016 Adequate Public Facilities Report, Dept. of Public Works, Division of Water and Sewer

Table 19C
Harford County Water Production Projections: 2012 - 2035 (in Million Gallons Per Day (MGD))



Source: 2016 Harford County Adequate Public Facilities Report, Dept. of Public Works, Water and Sewer Division.

Table 20C
Harford County Present and Projected Sewerage Demands and Planned Capacities in Million Gallons Per Day (MGD): 2012 - 2035



Source: 2016 Harford County Adequate Public Facilities Report, Dept. of Public Works, Water and Sewer Division.

Table 21C

2016 EXISTING WATER & SEWER CAPITAL PROJECTS

The Capital Improvement Program establishes projects for expanding and improving water and sewer facilities. This list of 2016 Capital Projects includes the project status.

<u>PROJECT NO.</u>	<u>PROJECT NAME</u>	<u>PROJECT STATUS</u>
6440	Infiltration/Inflow	Preparing Rehabilitation Schedule
6632	Harford Estates SPS Abandonment	Project Complete
6637	Sod Run ENR	Project Complete
6665	Phase 1 - Parallel Sewer	Project Complete
	Phase 2 - Pump Station # 47 Improvements	Project Complete
6687	Abingdon Road Water Main	Design Phase Completed / Easement Acquisition / Permitting Phase
6692 A	Ph. 1 - Bush Creek Pump Station Improvements	Ph. 1 - Construction Complete
	Ph. 2 - Bush Creek Force Main and Interceptor	Ph. 2 – Construction Complete
	Ph. 3 – Bush Creek Force Main Rehabilitation	Ph. 3 – Under Construction
6703	Bynum Run Parallel Phase 6 & 7	Under Construction
6707	Infiltration / Inflow in Bynum Run Drainage Area	Preparing Implementation Phase and recommended improvements
6712	Edgewood Interceptor Parallel	Design Phase
6713	Greenridge Pump Station Replacement	Project Complete
6715	Bill Bass Outfall Sewer Replacement	Construction Complete
6730	Bill Bass Pump Station Force Main Parallel / Replacement	Under Design
6737	Towne Center Drive Pump Station	Scope of Services Phase
6709	Magnolia Water Booster Station Improvements - Hydro-Pneumatic Tank Replacement	Design Complete, Pending Advertisement for Construction
2968	Fairwind Farms Pump Station Abandonment	100% Design Complete

APPENDIX D

Table 22D
Signalized Intersection Capacity Analyses
Level Of Service And Delay In Seconds: 2013 - 2016

Intersection	Peak Hour Level Of Service (LOS) Rating					
	A	B	C	D	E	F
Maryland Route 24 @ I-95 Northbound On/Off Ramp	2014					
	2016					
Maryland Route 24 @ I-95 Southbound Off Ramp	2014					
	2016					
Maryland Route 7 and U.S. Route 40*	2014					
	2016					
Maryland Route 924 and Moores Mill Road	2014					
	2016					
Maryland Route 24 and Trimble Road	2014					
	2016					
Maryland Route 152 and U.S. Route 1	2014					
	2016					
Maryland Route 24 and U.S. Route 1	2014					
	2016					
Maryland Route 152 and Trimble Road	2014					
	2016					
Maryland Route 24 and Jarrettsville Road	2014					
	2016					
Maryland Route 152 and Hanson Road	2014					
	2016					
Maryland Route 152 and Singer Road	2014					
	2016					
Maryland 22 and Thomas Run Road/Schucks Road*	2014					
	2016					
Maryland 715 and Old Philadelphia Road	2014					
	2016					
Maryland Route 22 and Brier Hill Road	2013					
	2015					
Maryland Route 22 and Maryland Route 136	2013					
	2015					
Maryland Route 24 and Bel Air South Parkway	2013					
	2015					
Maryland Route 24 and Forest Valley Drive	2013					
	2015					
Maryland Route 24 and Plumtree Road	2013					
	2015					
Maryland Route 24 and Ring Factory Road	2013					
	2015					
MD 924 @ MD 24 North Bound Ramp	2013					
	2015					
Tollgate Rd @ MD 24 Southbound Ramp	2013					
	2015					
Maryland Route 543 and U.S. Route 1	2013					
	2015					
Maryland Route 543 and Maryland Route 22	2013					
	2015					
Maryland Route 924 and Abingdon Road **	2013					
	2015					

General Definition of Level Of Service Ratings
LOS A – free flow of traffic with no restriction of significant delay.
LOS B – stable flow of traffic with very little restriction or delay.
LOS C – stable flow of traffic with low to moderate restriction or delay.
LOS D – approaching unstable flow of traffic with moderate to heavy restriction and delay.
LOS E – unstable flow of traffic with significant restriction and delay.
LOS F – forced flow or cases of "grid lock". The flow rate drops significantly.

* SHA improvement at this intersection

** Improvement funded by developer at this intersection

**Table 23D
Unsignalized Intersection Capacity Analyses
Level Of Service And Delay In Seconds: 2013 - 2016**

Intersection	Peak Hour Level Of Service (LOS) Rating					
	A	B	C	D	E	F
Business US 1 and Henderson Road	2014					
	2016					
Maryland 147 and Connolly Road*	2014					
	2016					
Maryland 23 and Grafton Shop Road	2014					
	2016					
Tollgate Road and MacPhail Road	2014					
	2016					
US 1 and Reckord Road*	2014					
	2016					
Maryland 7 and Brass Mill Road	2014					
	2016					
Woodsdale Road and Box Hill Corporate Center Drive**	2014					
	2016					
Maryland Route 7 and Maryland Route 159	2013					
	2015					
Maryland Route 7 and Joppa Farm Road	2013					
	2015					
Maryland Route 159 and Spesutia Road	2013					
	2015					
Maryland 155 and Earleton Road	2013					
	2015					
Maryland 543 and Henderson Road	2013					
	2015					
Tollgate Road and Ring Factory Road	2013					
	2015					
Maryland 22 and Aldino-Stepney Road *	2013					
	2015					
Macphail and Ring Factory Road	2013					
	2015					

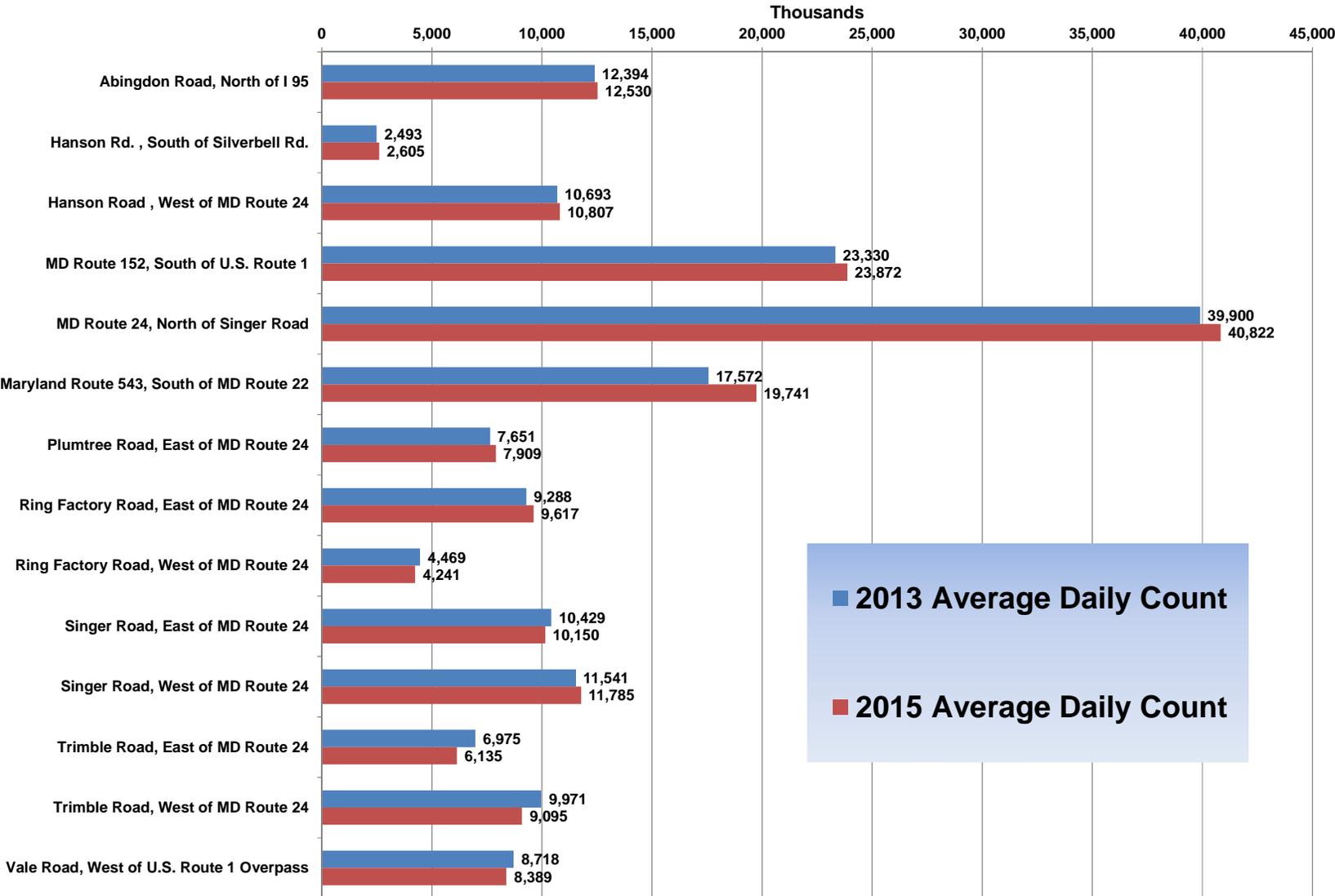
General Definition of Level Of Service Ratings
LOS A – free flow of traffic with no restriction of significant delay.
LOS B – stable flow of traffic with very little restriction or delay.
LOS C – stable flow of traffic with low to moderate restriction or delay.
LOS D – approaching unstable flow of traffic with moderate to heavy restriction and delay.
LOS E – unstable flow of traffic with significant restriction and delay.
LOS F – forced flow or cases of “grid lock”. The flow rate drops significantly.

* Improvements funded by developers at these intersections.

** Roundabout constructed at this intersection

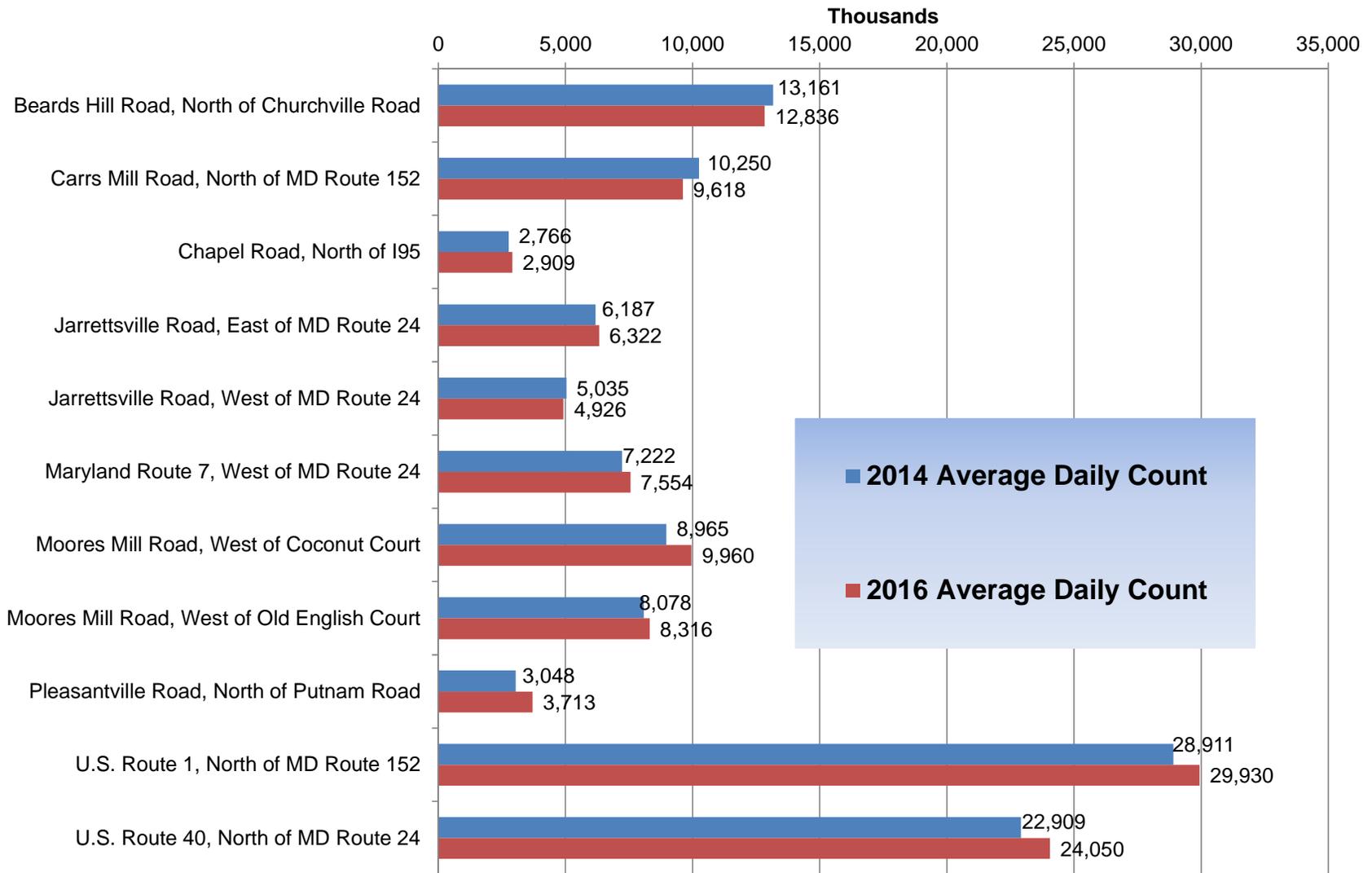
Source: Harford County Dept. of Planning and Zoning, May 2017

**Table 24D.1
48 Hour Average Weekday Daily Traffic Volume: 2013 and 2015**



Source: Harford County Dept. of Planning and Zoning, May, 2017.

**Table 24D.2
48 Hour Average Weekday Daily Traffic Volume: 2014 and 2016**



Source: Harford County Dept. of Planning and Zoning, May, 2017.

Table 25D
List of Approved County Capital Projects Funded for Construction in Fiscal Year 2017

Project Name	Project Type
Macton Road Bridge #145	Complete
Tollgate/Plumtree Roundabout	Completed
Water Tower Way and Granary Road	Intersection Improvement
Road Reconstruction and Rehabilitation*	Reconstruct and rehabilitate
Bridge and Road Scours	Repairs
Bridge Rehabilitation	Repairs
Carrs Mill Road Bridge #216	Replacement
Green Road Bridges #119 & #122	Replacement
New Park Road Bridge #125	Replacement
Roadways Resurfacing*	Resurfacing
Intersection Improvements*	Safety/Capacity Improvements
Moores Mill Road – US 1 Business to MD 924 (Phase 3)	Upgrade
Tollgate Road West Ring Factory Road to Plumtree Road	Upgrade

*Note: These are ongoing county-wide project activities that include repairs, upgrades, and resurfacing of roads and bridges selected each spring dependent upon severity of roadway problems and cost for repairs.

Table 26D
List of State Consolidated Transportation Program Funded for Construction in Fiscal Year 2017

Project Name	Project Type
MD 24 – From Deer Creek Bridge to 1,800 feet south of the bridge	Construction Complete
MD 22, Aberdeen Thruway at Old Post Road	Construction Underway
MD 22, Aberdeen Thruway at Beard's Hill Road	Construction Underway
MD 22, Aberdeen Thruway at Paradise Road	Construction Underway
US 40 at MD 7 / MD 159 in Aberdeen (Phase2)	Construction Underway
MD 755; Willoughby Beach Road to MARC Station	Pedestrian Safety and Drainage Improvements
MD 22; Prospect Mill Road to MD 136	Resurfacing
MD 7; MD 24 to Abingdon Road	Safety/Resurfacing

Source: Harford County Dept. of Planning and Zoning, May 2017.

APPENDIX E

FIGURE 1E

Approved Subdivision Plans

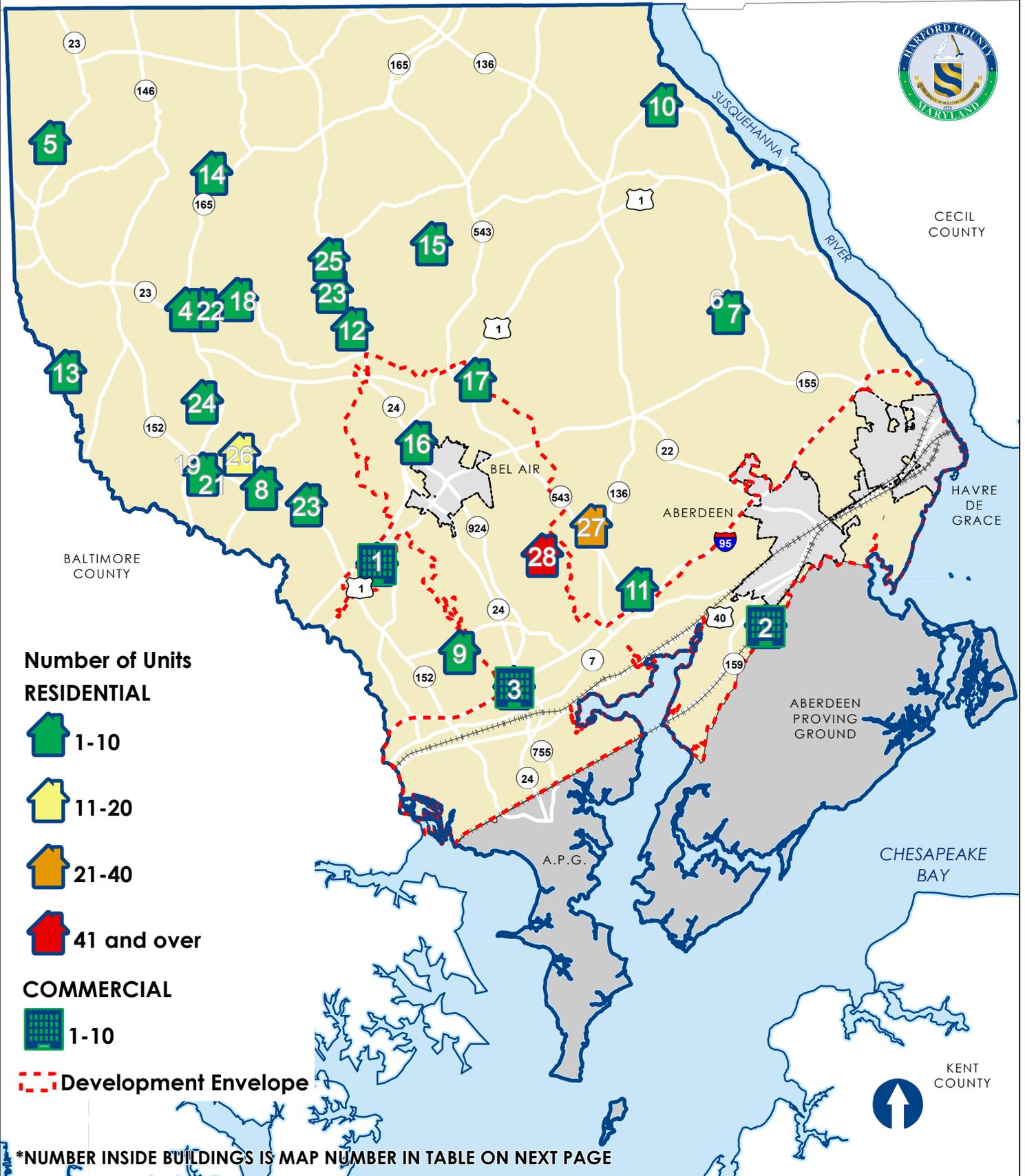


Table 27E

2016 HARFORD COUNTY APPROVED SUBDIVISION PLANS											
MAP #	PLAN NAME	ACREAGE	LOT ACREAGE	TOTAL UNITS	SF UNITS	TH UNITS	APT UNITS	CONDO UNITS	TYPE OF USE	PFA	ZONING
1	BENSON RETAIL CENTER - REVISED LOT 1	2.38	0	0	0	0	0	0	NON RESIDENTIAL	YES	B3
2	EASTGATE	246.14	205.59	0	0	0	0	0	NON RESIDENTIAL	YES	LI
3	EMMORTON BUSINESS PARK - LOT 8 & 8A	5.12	5.12	0	0	0	0	0	NON RESIDENTIAL	YES	GI
4	KURTZ PROPERTIES, INC.	1.899	1.899	0	0	0	0	0	NON RESIDENTIAL	NO	VB
5	ALMONY, LAND OF	1.983	1.983	1	1	0	0	0	RESIDENTIAL	NO	AG
6	BONITA FARM - LOT 4 (AG PRES)	3.65	2	1	1	0	0	0	RESIDENTIAL	NO	AG
7	BONITA FARM - LOT 5 (AG PRES)	51.737	51.737	1	1	0	0	0	RESIDENTIAL	NO	AG
8	HESS FARM	23.532	16.944	1	1	0	0	0	RESIDENTIAL	NO	RR
9	HESS PROPERTY - LOT 7	6.5	6.5	1	1	0	0	0	RESIDENTIAL	NO	AG
10	HILL, LESTER H. & JORENE HILL	19.918	19.918	1	1	0	0	0	RESIDENTIAL	NO	AG
11	KOTRAS PROPERTY - LOT 1	4.395	4.395	1	1	0	0	0	RESIDENTIAL	NO	AG
12	MCGILL FARM, LAND OF	29.41	3.655	1	1	0	0	0	RESIDENTIAL	NO	AG
13	POCOCK FARM LOT 1	10.5503	10.5503	1	1	0	0	0	RESIDENTIAL	NO	AG
14	STREETT, LD OF WILLIAM W. - LOT 4(5)	24.797	15.607	1	1	0	0	0	RESIDENTIAL	NO	AG
15	WILLIAMS, LDS OF ALICE & JOHN GRIER - LOT 3	12.906	6.878	1	1	0	0	0	RESIDENTIAL	NO	AG
16	919 ROCK SPRING ROAD	1.4562	1.4562	2	2	0	0	0	RESIDENTIAL	YES	R2
17	OFFNEY, LD OF STEPHANIE KILBY & DAWN KILBY PRICE	56.44	56.44	2	2	0	0	0	RESIDENTIAL	NO	AG
18	POOLE, LDS OF - LOTS 1 & 2	4.197	4.197	2	2	0	0	0	RESIDENTIAL	NO	AG
19	SCARFF FARM - LOTS 11 & 12	18	18	2	2	0	0	0	RESIDENTIAL	NO	AG/VR
20	STIRRUP RUN	44.77	44.77	2	2	0	0	0	RESIDENTIAL	NO	AG
21	WERNEKE, LD OF	3.53	3.53	2	2	0	0	0	RESIDENTIAL	NO	AG/VR
22	CARDINAL'S CHOICE - LOTS 2-4	3.06	3.06	3	3	0	0	0	RESIDENTIAL	NO	VR/AG
23	FALLSTON MEAD, LOTS 2-5	22.572	22.572	4	4	0	0	0	RESIDENTIAL	NO	AG
24	LANGE ESTATE- LOTS 3-6	31.13	31.13	4	4	0	0	0	RESIDENTIAL	NO	AG
25	UNFRIED, LD OF JANET S.	18.57	18.57	4	4	0	0	0	RESIDENTIAL	NO	AG
26	HIGHFIELDS, THE	45.73	45.73	14	14	0	0	0	RESIDENTIAL	NO	AG
27	REDLEIF RUN	255.74	255.74	26	26	0	0	0	RESIDENTIAL	NO	AG
28	MONARCH GLEN	62.15	62.15	124	72	52	0	0	RESIDENTIAL	YES	R1 COS
TOTAL		1,012	920	202	150	52	0	0			