



Section 3 Background

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3.1 Introduction

In the year 2000, the U.S. Congress passed legislation known as the *Disaster Mitigation Act of 2000*. Also called *DMA2K*, the legislation established a requirement that jurisdictions nationwide must develop and implement natural hazard mitigation plans in order to remain eligible for various FEMA grant programs, including those that provide funding for hazard mitigation projects. In 2004 FEMA and the Maryland Emergency Management Agency provided Anne Arundel County a grant to develop its first mitigation plan, or HMP. The 2004-2005 version of Anne Arundel County's HMP established the County's long-term strategy for reducing its risks from natural hazards. Anne Arundel County's first HMP was approved by the Maryland Emergency Management Agency and FEMA on December 7, 2004. On August 18, 2009, FEMA and MEMA again provided grant funds for Anne Arundel County to update its Hazard Mitigation Plan.

3.1.1 Scope of the Plan

The original Anne Arundel County HMP was a concerted effort on the part of the County to develop all-hazards, County-wide approach to disaster damage reduction. In order to focus on a process needed to attain a sustainable future for the community, the County employed a FEMA-approved process to identify and assess all potential hazards that may affect the community and develop an Action Plan to address the hazards. The original Plan was completed in 2004, and has been used to better articulate accurate needs for the community based on a process that involves all stakeholders including the general public, government, business and industry.

The HMP update integrates various newly-identified hazard mitigation strategies and actions, as described in Section 8.



3.2 Anne Arundel County Government Organization and Objectives

3.2.1 Local Government

Since 1964, Anne Arundel County has had a charter form of government in accordance with State law. County government is composed of a legislative branch, known as the County Council, and an executive branch that is headed by the County Executive.

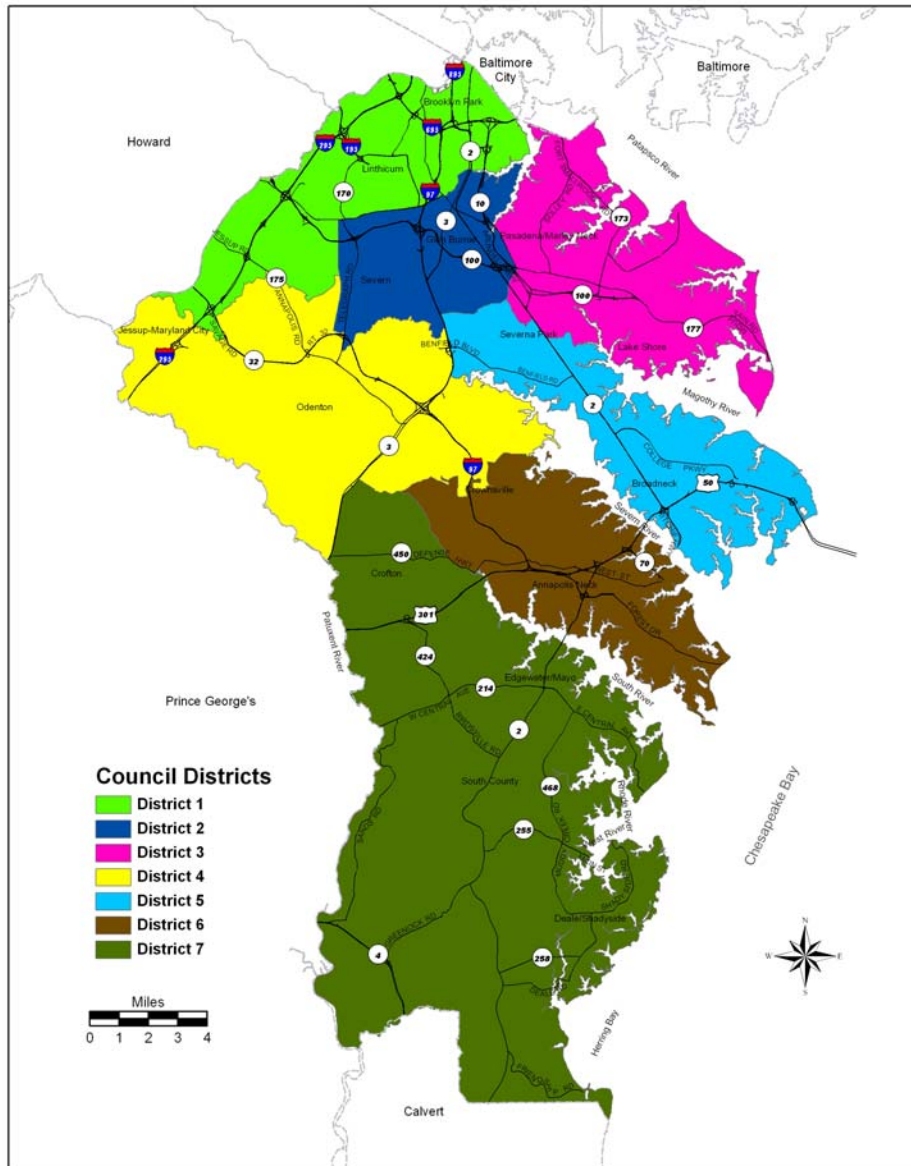
3.2.2 County Council Districts

The County Council, as the legislative branch, adopts ordinances and resolutions, and has all of the County's legislative powers. The county is divided into 7 districts that elect a representative to the County Council (see Figure 3.2.2-1). The County Council has the exclusive power to enact, repeal, and amend all local public laws. Legislation must take the form of ordinances, most of which are subject to executive veto. Five council votes are necessary to override an executive veto. The Council may also draft resolutions, which are not subject to executive veto and may only be temporary or administrative in nature.



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Figure 3.2.2-1
Anne Arundel County, County Council Districts



(Source: aacounty.org, 2006)

The County Executive oversees the executive branch of the County government, which consists of a number of offices and departments. The executive branch is charged with implementing County law and overseeing the



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operation of the County government. The County executive is elected every four years and term-limited to two terms.

3.2.3 Incorporated and Unincorporated Jurisdictions

There are only two incorporated communities within the County: Annapolis and Highland Beach. Annapolis has independent land use authority and has written a natural hazards mitigation plan.

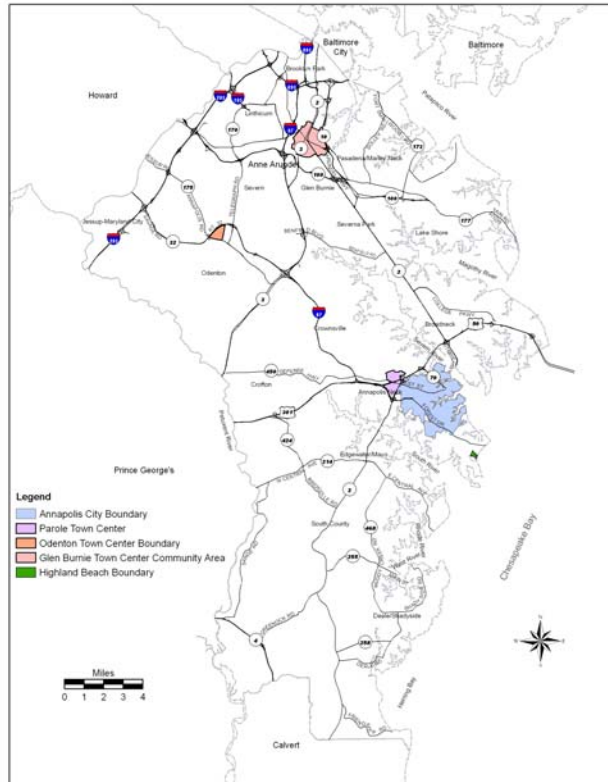
Highland Beach has zoning authority only. The community has a commission that performs reviews for compliance of established zoning standards such as how the structure looks, setbacks, and improvement of roads. In all other matters, the County is the primary agent. Highland Beach residents are subject to County coastal flood plain and grading requirements. The County is responsible for issuing and reviewing permits. Because the County is primarily responsible for the types of structures and the location of those structures, as well as enforcing County standards, it is the County's position that this Plan is sufficient to cover Highland Beach. Therefore, as an incorporated jurisdiction in Anne Arundel County, the Town of Highland Beach must also approve the updated plan with a resolution.

In addition, a number of entities within the County are commonly perceived to be independent areas such as Parole, Glen Burnie, and Odenton; these are in fact unincorporated entities for which the County provides services (See Figure 3.2.2-2).



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Figure 3.2.2-2
Anne Arundel County Incorporated Jurisdictions
and Unincorporated Town Centers



(Source: AACo Govt, 2004)

3.3 Background Information about Anne Arundel County

Prior to addressing the hazards that our community faces, this Plan presents a brief overview of the Anne Arundel County, taking into account the geography, history, climate, transportation, community assets, and population and growth.

3.3.1 Geography

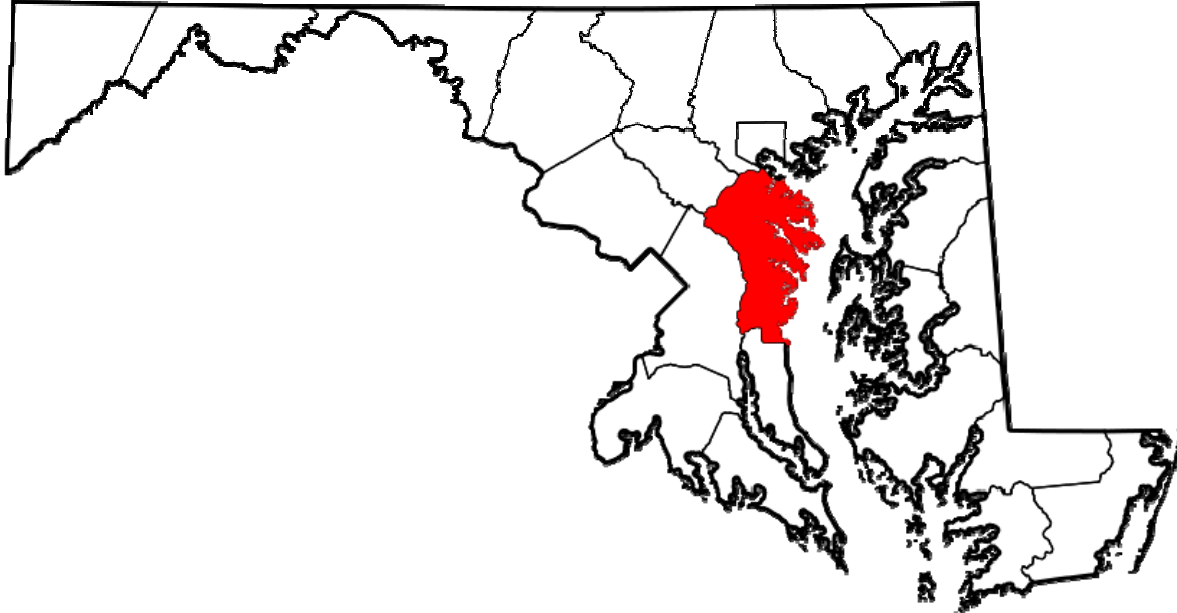
Anne Arundel County is located on the western shore of the Chesapeake Bay. The County's 533 miles of shoreline constitute more coastline than any other part of Maryland. According to the U.S. Census Bureau, the County has a total area of 588 square miles. Of that, 416 square mile is land and 172 square miles is water.

The elevation of the County ranges from sea level in the eastern portion of the County to 317 feet in the western portions of the County. Over thousands of years, a series of peninsulas fanning out from the higher elevations in the west has been formed due to deposition from numerous creeks and rivers.



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Figure 3.3.1-1
Anne Arundel County Location Map, State of Maryland



(Source: Wiki Commons, 2007)

3.3.2 History of the County

The area that would become Anne Arundel County has a long history of human habitation. Prehistoric peoples were drawn to the area by its abundant animal and plant life, and its access to fresh water and the Chesapeake Bay. Native Americans are known to have lived in Anne Arundel County as far back as 11,000 B. C. Beginning about 12,000 years ago, Native Americans quarried material for making high quality stone tools and projectile points from the Magothy Quartzite Quarry near Pasadena. This quarry may have spawned a vast and long-lived trading network among native peoples.

In addition, Native Americans found the 533 miles of shoreline offered an excellent location for seasonal harvesting of oysters and fish from the Bay. Evidence of this activity, dating mainly from 500 A. D. to 1400 A. D., is found in numerous oyster shell middens found along the Bay and its tributaries.

The area's geographical position, within a larger regional system of migratory and trade routes, created the first trails and footpaths which later became the early transportation routes of the County's European settlers. By the time of the first European settlement however, native Algonquin tribes had virtually abandoned the present day area of the County due to raids by the warlike Susquahannocks from the north.

In 1649, Protestant Governor William Stone approached a group of Virginia Puritans and offered them land and guaranteed freedoms in the colony of Maryland. Several hundred of these settlers subsequently arrived at the mouth of the Severn River and established a settlement they called "Providence" or "Severn" in present-day Anne Arundel County. Their dispersed hamlet was centered on the north shore of the Severn River, but by the 1660s it had shifted to Acton's Cove across the river at the present site of Annapolis.



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By 1650, enough settlers had moved into the area to warrant designation as a county, which was interchangeably known as Providence or Anne Arundel in its early years. Although London Town served as the original seat of County government, Providence quickly became the population center of the county and the colony. In 1695, the governor moved the capital of Maryland from St. Mary's to Ann Arundell Town, later renamed "Annapolis" in honor of Princess Anne, daughter of Queen Mary. Annapolis remained the capital and seat of government when statehood was achieved on April 28, 1788.

European settlements throughout the Chesapeake colonies relied upon tobacco as their main cash crop. The soils and climate were favorable, but tobacco had several limitations that proved important in the history of the County. Due to the labor-intensive nature of the crop, farmers were forced to rely on slaves and indentured servants. To meet these labor requirements, a 1664 law sanctioned slavery. Because crop rotation was not practiced during this time period, fertile soils were rapidly depleted; this affected the quality and quantity of the harvest. Although many marginal farmers were forced to relocate, the population of the County tripled between 1700 and 1750 from 4,100 to 12,520.

After the Revolutionary War, Baltimore City's harbor greatly increased the economic importance of the city. Concurrently, because of its proximity to Baltimore City, the economy of northern Anne Arundel County began to change from agrarian to industrial.

Iron ore outcrops, timber, and water resources promoted the rise of an iron smelting industry early in the 18th century. Puddling furnaces and roughing mills for converting pig iron into bars operated until wood and iron ore were depleted. Many of the local furnaces ceased to exist afterwards.

Within a century, the area had become a regional transportation center for delivering goods. In addition to water transportation, a road system was developed soon after settlement in the late 17th century, becoming more complex by the early 18th century. The routes of several early colonial roads continue to be used to this day. For instance, Crain Highway (Route 3) follows the path of an important colonial roadway stretching from Philadelphia to Williamsburg; Annapolis Road (Route 175) connected Annapolis with Frederick and beyond; and Generals Highway (Route 178) stretched from Annapolis to Baltimore.

In 1840 the Annapolis & Elkridge Railroad was completed, linking northern Anne Arundel County to the Baltimore & Ohio Railroad. The advent of the railroad in the County was crucial to its development as many crossroad villages or small railroad station communities sprung up. These nodes of development frequently included stores, post offices, blacksmith shops, schools, and a handful of residences. By 1868 the Baltimore & Potomac (B & P) Railroad connected Baltimore and Washington, D. C. This line was later absorbed by the Pennsylvania Railroad and is presently used by Amtrak. In 1887 the Annapolis and Baltimore Short Line Railroad (renamed the Baltimore and Annapolis Short Line Railroad in 1894 and the Washington, Baltimore and Annapolis Railroad in the early 20th century) was constructed. It formed a 22-mile link between Baltimore and Annapolis; it was the most direct route between the two cities and quickly superseded the longer Annapolis and Elkridge Railroad line. Today this line serves as a poplar hiking-biking trail.

The reliance on tobacco as the major cash crop was lessening throughout the County during the nineteenth century, but it took the socioeconomic changes brought on by the Civil War to finally force local farmers to diversify. Maryland's Fourth Constitution adopted on November 1, 1864 freed the remaining slaves throughout the State. As this labor source disappeared, farmers in the southern portion of the county increasingly shifted to crops such as corn, wheat, hay, and fruit though tobacco was, and is, still grown. Seafood and associated industries such as



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shucking houses also became significant factors in the economy of that area. Farmers in the northern portion of the County discovered that the prevalent sandy soils were ideal for truck farming. Eastern European families living in Baltimore were transported to the farms to harvest the fruits and vegetables. Initially, Baltimore was the primary market, but over time Anne Arundel County peas, beans, strawberries and cantaloupes became famous throughout the eastern seaboard. Canning and fertilizer plants were opened in northern Anne Arundel County in support of the truck farming.

Through the efforts of the Secretary of the Navy George Bancroft, the Naval School was established without Congressional funding at a 10-acre Army post named Fort Severn in Annapolis, Maryland, on October 10, 1845. In 1850 the Naval School became the United States Naval Academy. A new curriculum went into effect requiring midshipmen to study at the Academy for four years and to train aboard ships each summer. That format remains the basis of the curriculum to this day. As the U.S. Navy grew over the years, the Academy expanded. The campus of 10 acres increased to 338. The original student body of 50 midshipmen grew to a brigade size of 4,000. Modern granite buildings replaced the old wooden structures of Fort Severn.

By the late 1800s, steamboats plied the Chesapeake Bay, transporting produce, oysters, crabs, and fish to commercial markets and passengers to recreational opportunities. The numerous steamship lines provided another important means of transporting people and commercial goods to and from Baltimore and elsewhere. These steamers continued to provide service until after the Great Depression.

In the late 1880's, recreation became a major business throughout the County with the opening of numerous summer resorts along the Chesapeake Bay. These resorts, for bathing and relaxation, became popular destinations with hotels, picnic pavilions, and amusement parks. Readily available rail and steamboat access from Baltimore and Washington brought visitors to the area's resorts.

In 1893, Major Charles R. Douglass, the son of abolitionist Frederick Douglass, established Highland Beach as an exclusive resort for African Americans. Many prominent African Americans, including Booker T. Washington, Paul Laurence Dunbar and Mary Church Terrell, either visited or owned homes in the community.

In 1899, the U. S. Revenue Cutter Service built a station for the repair of lifeboats at Arundel Cove on Curtis Creek. The Cutter Service became the U. S. Coast Guard in 1915 and its facility on Curtis Creek was expanded to include shipbuilding and a repair yard. Known as the U. S. Coast Guard Yard, Curtis Bay, it was a leader in wooden ship production prior to World War II. During the war, the facility converted to steel vessel construction. Due to its significant role in maritime and military history, the Yard was listed in the National Register of Historic Places in 1983.

Increased industrialization in the County began during World War II and the national movement towards suburban living that followed the war caused significant changes to occur in Anne Arundel County. Major employers such as National Plastics Corporation (now Nevamar) and Westinghouse relocated to the County.

Fort George Meade was established during World War I to train troops for battle in France, but was greatly expanded during World War II. The influence of this land use on western Anne Arundel County was further expanded in the 1950s with the establishment of the National Security Agency on a portion of Fort Meade's property.

The growing predominance of the automobile in the early 20th century brought significant impacts to the County. In 1941, the State Roads Commission purchased a privately owned ferry service, and shifted its western terminal from King George Street in Annapolis to Sandy Point. Increased post-World War II development brought excessive traffic



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congestion for those individuals trying to reach the Eastern Shore. In 1949, construction of the Chesapeake Bay Bridge was begun. It was completed in 1952, officially opening to the public for a toll of \$1.40.

Using the local Log Inn Road, the state expanded this route into a multi-lane highway, known as John Hanson Highway, or Route 50. Today, this area serves as a major transportation crossroads for the region, a factor that has made it a magnet for commercial, economic, and residential development. Completed in 1954, the Baltimore Washington Parkway was designed as a defense highway and alternative commuter route. Today it remains a scenic corridor between Washington D. C. and Baltimore; however, it also serves the purpose intended by its planners in providing access to government installations and residential communities of commuters along its route. The area's strategic location generated the need for another major highway project in the mid-20th century: the Baltimore beltway and the Harbor Tunnel Thruway (Route 895), completed in the 1970s. Interstate 97 was the product of the Baltimore-Annapolis Transportation Study (BATS) that started in 1978. Although several corridors were studied, a westerly corridor was chosen because it served both local and interregional traffic.

In the 1940s, the Baltimore Aviation Commission selected northern Anne Arundel County as the site for a new metropolitan airport. The Commission obtained 3,200 acres of farmland just south of Linthicum. In 1947 construction began for the Friendship International Airport. The name was changed to Baltimore Washington International (BWI) Airport in 1973. As BWI Airport has grown, the surrounding region has become a magnet for business and industry.

Because of the County's location adjacent to the Chesapeake Bay, it has developed over time into an enclave of development and commercial activities. Commercial seafood harvesting, recreational fishing and recreational boating provide a host of economic opportunities. The traditional watermen of the area are slowly disappearing because of a general decline in the water quality and available seafood in the Chesapeake Bay. However, the area is thriving economically as the loss of traditional watermen is being offset by a dramatic increase in sport fishing and recreational motor and sail boating activities. In addition, numerous world-class boat yards and sailing centers draw visitors from a wide area. The population of the County tripled in the decades between 1940 and 1960 from 68,375 to 206,634 with approximately 70% of the population living north of the South River.

3.3.3 Climate

Anne Arundel County's climate is generally moderate. It varies in the summer from mild to hot, and in the winter is typically moderate. The average annual temperature is 55.2 degrees Fahrenheit. High temperatures occur in July, the warmest month, averaging in the mid to upper 80s. Low temperatures tend to occur in January, the coldest month, averaging in the low to mid 20s.

Table 3.3.3-1
Anne Arundel County Temperature and Precipitation by Month

Month	Normal Maximum Temperature	Normal Minimum Temperature	Normal Temperature	Normal Monthly Precipitation (inches)
January	41.8	23.8	32.8	3.49
February	45.0	25.1	35.1	2.95
March	54.3	32.8	43.6	4.17
April	65.1	42.1	53.6	3.34
May	74.8	52.3	63.6	4.42



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June	83.2	61.6	72.4	3.56
July	87.7	67.3	77.5	3.98
August	85.3	65.8	75.6	4.04
September	78.0	58.5	68.3	4.25
October	66.9	46.3	56.6	3.56
November	55.7	36.2	46.0	3.33
December	46.8	28.6	37.7	3.69
Annual	65.4	45.0	55.2	44.78
Normals are calculated using data collected from 1971-2000. Source: Maryland State Climatologist Office for Anne Arundel MSP				

3.3.4 Transportation

Anne Arundel County is a suburban jurisdiction with identified town centers, extended commercial districts along its major arterial highways such as MD 2 and MD 3, and low density residential uses in other areas. As a suburban jurisdiction located between the two major urban centers of Washington, D.C. and Baltimore, the transportation investments (both highways and transit) have been made to support travel between those areas through the County.

Highway facilities which carry travel within the County experience significant travel demand in part because of existing development patterns and densities. The relatively low residential densities over much of the County make it difficult to support mass transit opportunities and tend to result in longer vehicle trips. The County's highway network consists of approximately 4,850 lane miles of roads and is the predominant mode of travel used by residents and employees in the County.

Baltimore Washington International Airport accommodates over 21 million passengers annually and is the largest airport in the State. Owned by the State of Maryland and operated by the Maryland Aviation Administration (MAA) the airport is located in Linthicum, approximately 10 miles south of Baltimore and 30 miles north of Washington D.C. Close proximity to the Baltimore/Washington Parkway, Fort Meade and NSA have helped make the airport one of the biggest economic engines in Maryland, serving the federal government, technical, and hospitality and tourism industries.

3.3.5 Community Assets

Critical Facilities

Critical facilities are those facilities that provide services to the community and should be functional after a hazard event. For this project, Anne Arundel County considers the following facilities to be critical: 911 dispatch facilities; operations centers for the health department, public works department, board of education, and the County emergency operations center; general fuel depots; police precincts; hospitals; County communications towers; designated shelters; information technology center; waste water treatment plants; and water treatment plants (See Table 3.3.5-1).



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Table 3.3.5-1
Anne Arundel County Critical Infrastructure

Critical Facilities	Number of Each
911 Dispatch Centers	3
Police Infrastructure	7
Operations Centers	6
Hospitals	2
Information Technology Centers	1
Shelters	4
County Communications Towers	12
Fuel Depots	17
Water Treatment Plants	9
Waste Water Treatment Plants	7

(Source: AACo Govt)

Total Exposure

The total net worth of the building stock in Anne Arundel County is estimated to be \$61.37 billion. Obviously not all of these assets are at equal risk from the effects of natural hazards – this information is intended only as a general indication of the total value of potentially at-risk assets. Table 3.3.5-2 below shows the total exposure, by occupancy class. Information regarding the number of people and housing units is from the U.S Census Bureau (current 2009 and 2008, respectively). Data on the value of exposure is extracted from FEMA's HAZUS-MH tool, version MR 4.

Table 3.3.5-2
Total Exposure

Parameter	Value
People	521,209
Housing Units	204,199
Residential Exposure	\$45.43 billion
Commercial Exposure	\$9.72 billion
Industrial Exposure	\$4.18 billion
Education Exposure	\$3.92 billion
Government Exposure	\$2.59 billion
Agriculture Exposure	\$122 million
Religious	4.01 billion

(Source: AACo Govt)

3.3.6 Population and Growth of the Planning Area

Population



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Anne Arundel County has seen steady increases in its population over the past fifteen to twenty years. Between 1990 and 2000, the County experienced a population increase from 427,239 to 489,656 persons (Table 3.3.6-1), representing a 14.6% increase. In comparison, the population of the Baltimore Metropolitan Region increased by approximately 6.9% between 1990 and 2000 and the State population experienced an increase of 10.8% over the same ten-year period. As seen, the County's rate of population increase was over twice the rate of the Baltimore region and was also higher than the Statewide increase in population.

Current forecasts shown in Table 3.3.6-2 indicate that moderate growth in the County's population will continue over the 30-year forecast period, but that the rate of growth will slowly begin to decline. The total County population is forecasted to increase to 579,137 by the year 2035, representing a 12.7% increase over the thirty-year period from 2005 to 2035. This is similar to the rate of population increase forecasted for the Baltimore region over the next few decades.

Table 3.3.6-1
County and Regional Trends, 1990 - 2000
(Source: AACo Govt Planning and Zoning Forecasts; Round 7)

	1990	2000	% Change
Total Population			
Anne Arundel County	427,239	489,656	14.6
Baltimore Region	2,348,219	2,512,431	6.9
Maryland	4,780,753	5,296,486	10.8
Total Households			
Anne Arundel County	149,114	178,670	19.8
Baltimore Region	867,656	958,756	10.5
Maryland	1,748,991	1,980,859	13.2
Employment			
Anne Arundel County	251,726	297,317	18.1
Baltimore Region	1,402,862	1,528,029	8.9
Maryland	2,759,870	3,091,547	12.0

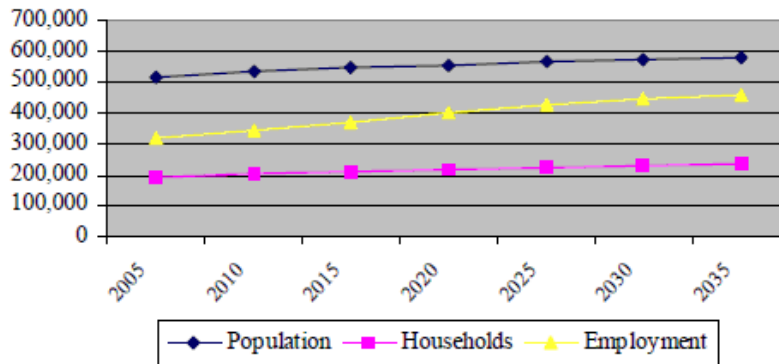
Households

Anne Arundel County continues to experience growth in households as well. The County experienced a 19.8% increase in households between 1990 and 2000, a higher rate of growth than in the Baltimore region or the State as a whole. Household growth is expected to continue over the next 30 years, based on County forecasts. The total number of households in the County is expected to reach 234,391 by 2035, representing a 21.8% increase over the thirty-year period. As is the case with population, the rate of growth in households will decline slowly over the next 30 years as the County matures. Household growth in the Baltimore region is also expected to continue at a moderate pace, with forecasts indicating an 18.0 % increase in households by 2030.

Figure 3.3.6-1
Anne Arundel County Growth Forecasts



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(Source: AACo Govt Planning and Zoning Forecasts; Round 7)

**Table 3.3.6-2
Population, Household, and Employment Forecasts**

Population, Household, and Employment Forecasts	2005	2010	2015	2020	2025	2030	2035
Population							
Anne Arundel Co.	513,700	532,529	545,964	556,105	564,925	572,828	579,137
Baltimore Region	2,606,700	2,721,950	2,812,790	2,863,760	2,900,380	2,932,100	N/A
Maryland	5,589,800	5,897,600	6,176,060	6,386,230	6,570,140	6,737,750	N/A
Households							
Anne Arundel Co.	192,450	202,359	210,960	218,039	224,148	229,513	234,391
Baltimore Region	1,001,500	1,060,950	1,110,800	1,138,600	1,163,500	1,182,000	N/A
Maryland	2,105,450	2,242,200	2,374,975	2,477,425	2,569,900	2,652,250	N/A
Employment							
Anne Arundel Co.	318,435	341,750	371,613	401,449	424,264	444,364	460,657
Baltimore Region	1,623,200	1,721,900	1,828,600	1,880,000	1,918,000	1,963,000	N/A
Maryland	3,341,300	3,560,900	3,787,300	3,907,000	3,999,900	4,103,800	N/A

(Source: County forecasts from Anne Arundel Co. Office of Planning & Zoning, Round 7 Forecasts, December 2006. Regional and State forecasts from MD Dept. of Planning, Planning Data Services, November 2007.)

Employment

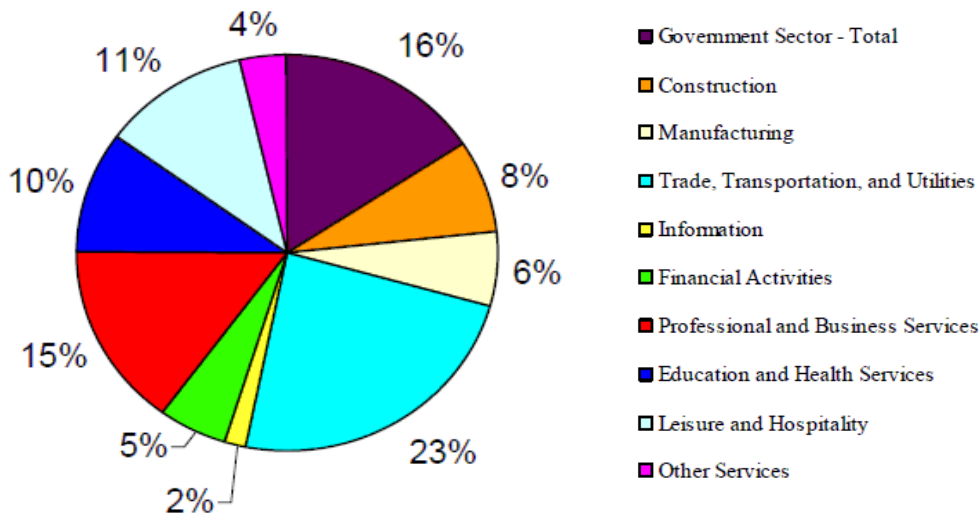
Total employment for the County increased by 45,591 persons, or 18.1%, between 1990 and 2000. This rate of employment growth exceeded the Baltimore region (8.9%) as well as the State of Maryland (12.0%) during the 10-year period. Employment in Anne Arundel County is expected to increase at a greater rate than both population and households in the coming years. Forecasts indicate County employment will increase by 44.6% between 2005 and 2035, compared to a 20.9% increase in the Baltimore region by 2030.



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Employment in Anne Arundel County is distributed across a wide array of industrial sectors. Based on 2006 employment figures, the *trade and transportation, government, and professional and business services* sectors account for over half of the total County employment: 23%, 16%, and 15% respectively. Other major employment sectors include *leisure and hospitality services* (11%), followed by *health and education services* (10%).

Figure 3.3.6-2
Annual Employment by Industry



(Source: MD Dept. of Labor, Licensing, and Regulation, 2006)

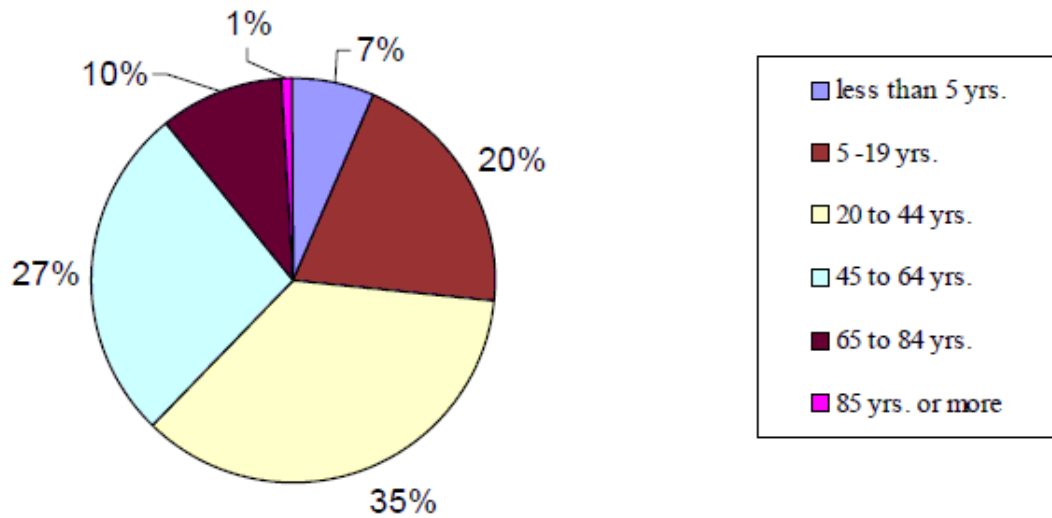
Age Profile

Anne Arundel County enjoys a diverse population with respect to age distribution. According to Census data, in the year 2000 persons between the ages of 20 and 44 years old comprised the largest segment of the population at 38%. The next largest age group was persons age 45 to 64, which made up approximately 23% of the total population. More recent estimates from 2006 indicate that the older age cohorts are gaining as a percentage of total population. It is expected that this trend will continue over the next two or three decades as the baby boomer generation continues to age.

Table 3.3.6-3
Percent of Population by Age Group



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(Source: 2006 American Community Survey, U.S. Census Bureau)

Race Characteristics

Anne Arundel County is predominantly white, making up approximately 78% of the total racial composition, according to 2006 survey estimates from the U.S. Census Bureau. The next largest racial group was Black persons, who comprise approximately 15%. All other races combined make up less than 7% of the County population.

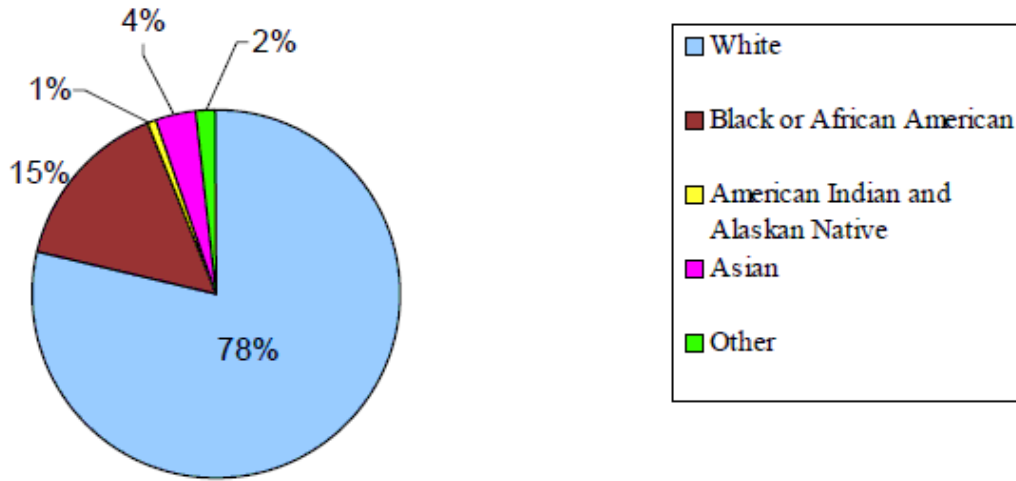
Persons identified as either Hispanic or Latino origin make up only a small percentage of the County population, about 3.7% of the estimated total population in 2006. It is important to note that the U.S. Census Bureau does not define persons of Hispanic or Latino origin as a racial category. Rather, they are regarded as an ethnicity or culture. Moreover, "other" racial groups include persons of Hispanic or Latino origin, as well as persons identified as being part of more than one racial category. For this reason, the U.S. Census Bureau tabulates persons of Hispanic or Latino origin separately from the remaining racial groups. Nevertheless, this cultural group is significant in demographic analysis, and is typically included when describing the racial characteristics of a community.

Figure 3.3.6-4



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Percent of Population by Race



(Source: 2006 American Community Survey, U.S. Census Bureau)

Educational Attainment

One of the most beneficial assets to a local jurisdiction is a well-educated population. Census estimates from 2006 show that approximately 35% of Anne Arundel County's population age 25 and over has either a bachelor's degree or a graduate or professional degree, and that less than 10% of the population over 25 did not obtain a high school diploma. These percentages are similar to estimates for both the Baltimore region and the State of Maryland.

Table 3.3.6-3
Education Attainment Percentages

	Less than High School Diploma	High School Diploma or Equivalent	Some College, no degree	Associate Degree	Bachelor's Degree	Graduate or Professional Degree
Anne Arundel Co.	9.74%	27.14%	20.35%	7.56%	20.38%	14.82%
Baltimore Region	14.04%	26.76%	19.03%	6.60%	18.89%	14.68%
Maryland	12.90%	26.86%	18.62%	6.57%	19.40%	15.65%

(Source: 2006 American Community Survey, U.S. Census Bureau. Note: Counts for ages 25 years and older.)

Household Income

As of the 2000 decennial Census, the median household income for Anne Arundel County was \$61,768. Median household incomes for the County were 24% higher than the \$49,817 median income for the Baltimore region, and 17% higher than the \$52,868 Maryland median income in 2000.

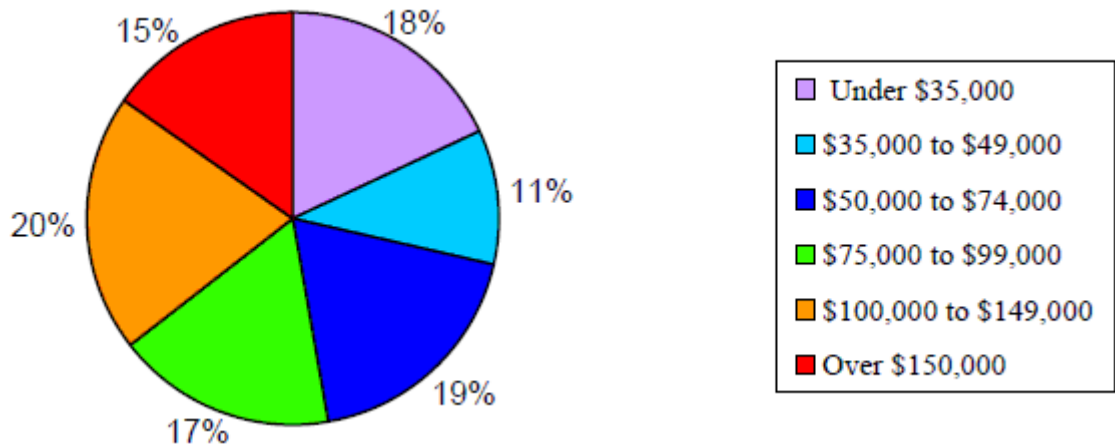
Anne Arundel County has a uniform income distribution, in terms of the number of households in each income bracket. Census estimates from 2006 indicate household incomes that are fairly evenly distributed



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within the six income classes selected. The County's median household income in 2006 was estimated at \$79,160, which is greater than the estimated regional median of \$65,145. The number of households earning above 75,000 dollars annually represented over half of the households reported in the latest U.S. Census survey. This is consistent with the prior decennial Census tabulations showing growth in households in this income classification. Households within the \$100,000 to \$149,000 annual household income classification represent the largest percentage of total households.

Figure 3.3.6-4
Percentage of Households by Annual Income Classification



(Source: 2006 American Community Survey)

Land Use and Development Trends

The 16 Small Area Plans (SAP) (See Figure 3.3.6-5), were prepared in 1998 to guide how individual properties should be used and what facilities may be needed to serve the County's communities. The individual land use plans have subsequently been consolidated to form the County's current 2009 General Development Plan. Although the Small Area Plans are now a part of the Land Use Plan, the County will continue to implement the many Small Area Plan recommendations over the coming years. However, current land use across the county will be demonstrated through maps and tables that more concisely depict the County's development trends.

Major development trends forecasted over the next 10 years for the County include the significant relocation of a number of federal positions to Fort George G. Meade military base. This nationwide relocation event is the Federal Base Realignment and Closure (BRAC) Initiative. This relocation will bring both additional jobs and households to the County as well as to the region in general.

It is estimated that 22,000 new jobs will relocate in Anne Arundel County as a direct result of BRAC by 2015: 5,695 new defense positions; 4,000 new jobs due to expansion of the National Security Agency; 10,000 new jobs to be located at a planned secured office complex to be developed under an Enhanced Use Lease (EUL) on the Fort Meade base; and 2,000 additional jobs attributed to government contractors or other service providers who will locate in the County as a result of the base realignment. Most of this job relocation and expansion will occur within



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the next five years, or by the year 2012 to 2014 timeframe. Many of these jobs are expected to be highly paid positions in information technology and related fields.

Table 3.3.6-4
BRAC Job Relocation

RELOCATING ORGANIZATIONS	Number of Expected Jobs	Areas Relocating From
Defense Information Systems Agency (DISA)	4,272 Direct Jobs	Northern Virginia
Defense Media Publications (DMA)	663 Direct Jobs	Virginia, D.C., Texas
Adjudication and Office of Hearing & Appeals Offices	760 Direct Jobs	California, Ohio, Virginia, Massachusetts & Arizona
Total Direct Jobs Relocation to Fort Meade	5,695	

Source: Anne Arundel Economic Development Corp.

In addition to the anticipated job growth, the State has estimated that over 28,000 new households will locate in Maryland as a result of BRAC. It is projected that approximately 4,500 of these households will locate in Anne Arundel County, with the remainder locating in Harford, Baltimore, Montgomery, Cecil, Prince Georges, and Howard Counties and Baltimore City. It is anticipated that approved residential units in the development pipeline combined with development projects in the planning stages will provide sufficient housing capacity in the County to serve this BRAC-related growth. However, the County will continue to assess and plan for the potential impacts on public facilities and infrastructure such as State and local highways.

In the longer term, beyond the 20 year planning horizon, the land use planning priorities in the County are likely to gradually shift from a focus on new development to a focus on redevelopment and revitalization, as the County matures and as vacant land for development becomes scarcer. While the existing development capacity is expected to be adequate to serve new growth over the 20 year horizon, any significant increases in capacity in the future would likely require shifts in existing land use policies. Along with these changes, a priority for both the short and long term is strategic planning for water resource protection and a focus on mitigation to address the impacts of existing and planned land uses on water resources. In light of new State limits on pollution loads that can be received by area tributaries, future land use plans and policies will have to account for and address watershed impacts.

The 2009 General Development Plan (GDP) follows the same trends from the 1990's by continuing to concentrate new growth in specific target areas, and maintaining the rural areas intact. The community favors most of these trends in support of preserving their community's character and historical integrity.

Housing will continue in Anne Arundel County regardless of the BRAC movement, but will also begin to decline as is expected in a maturing jurisdiction. Currently, the housing distribution for Anne Arundel County is weighted toward the one-family detached dwelling type, at least in terms of new construction permits being issued. As shown in Figure 6, between 2001 and 2006 the County issued 14,876 residential permits². Among these permits, over half (7,543) were for one-family detached units. Permits for multifamily units and one-family attached units were issued at a relatively equal pace during this period with the exception of the year 2005, when nearly 1,400 multifamily units were permitted. While one-family detached units have been the most common type of permit issued over the 5-year



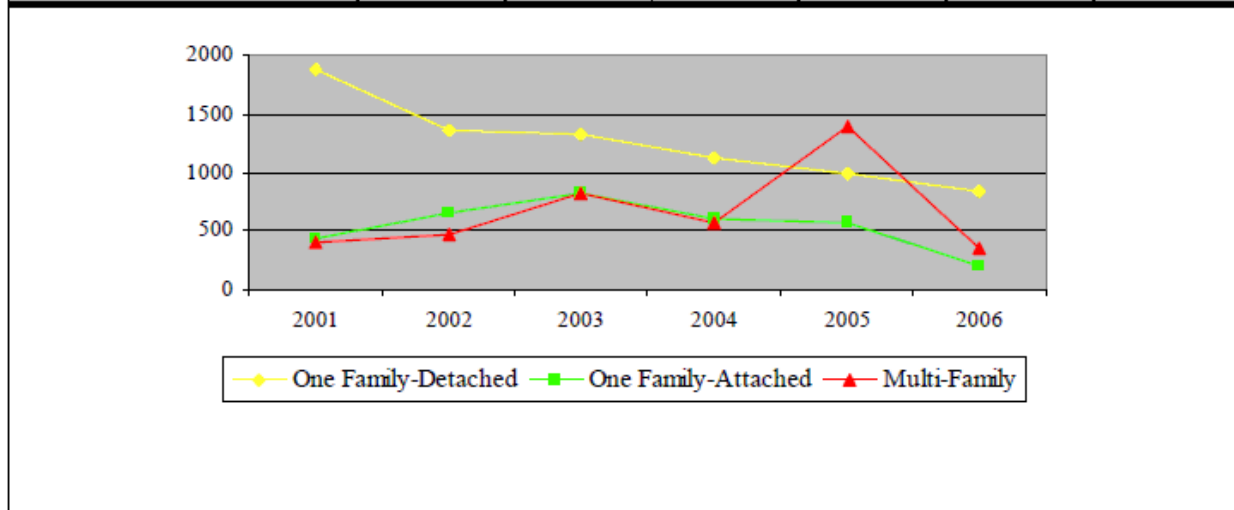
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period, the number of permits issued for these units has been in decline since 2000. Between 2001 and 2002, permits issued for one-family detached units fell 27% and the number of permits issued annually has been slowly declining since that time.

As seen below, Anne Arundel County has contributed about a quarter of the Baltimore region's overall issuance of new residential permits between 2001 and 2006. The data also indicate that regionally the number of permits issued for one-family detached units has been steadily declining over the period, as was the case in Anne Arundel County, while the number of permits issued for other types of housing in the region has varied more from year to year.

Table 3.3.6-5, Figure 3.3.6-5
Anne Arundel County Permits Issued (2001-2006)

	2001	2002	2003	2004	2005	2006
One Family-Detached	1877	1369	1328	1126	996	847
One Family-Attached	442	663	830	600	570	201
Multi-Family	404	464	830	578	1391	360
Total	2723	2496	2988	2304	2957	1408



(Source: Baltimore Metropolitan Council Building Permit Data System. Excludes two-family & mobile home types)

In 1997, the General Development Plan (GDP) divided the County into 16 small area plans (See Figure 3.3.6-7) and recommended that a separate, more detailed land-use plan be completed for each. These small area plans served as a guide for future land use, zoning, transportation improvements, open space and other capital improvements and identified opportunities for commercial revitalization and, where appropriate, mixed-use development. These small area plans then helped to form the 2004 GDP. The 2004 GDP then helped to guide the current land use plan for 2009 and beyond.

The 2009 Land Use Plan is shown in Figure 3.3.6-7. Once again, the overall pattern of land use has not changed significantly. This will likely be the case for future GDP updates as well, since development patterns are well



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established in most parts of the County. Higher density residential uses and most of the County's industrial and commercial land base are still concentrated in the northern parts of the County and in Odenton, Severn, Maryland City, Crofton, and Parole. The rural land base still covers much of the Crownsville area and virtually all of South County with the exception of the Deale, Churchton, Shady Side, and Galesville communities. Low to medium density residential uses are spread throughout but are most predominant on the peninsulas (Lake Shore, Broadneck, Annapolis Neck, Edgewater and Mayo) and in Severna Park, Pasadena, Severn and Jessup.

**Table 3.3.6-6
Description of Land Use Plan Categories**

Land Use Plan Categories	Typical Uses	Corresponding Zoning Categories
Rural	Agricultural uses and single family detached homes.	RA, RLD
Residential Low Density	Single family detached homes.	R1, R2
Residential Low-Medium Density	Single family detached homes. (Townhouse and duplex units may be allowed as Special Exception or Conditional uses.)	R2, R5
Residential Medium Density	Single family detached, duplex, townhouse, and multifamily dwellings.	R5, R10
Residential High Density	Generally multifamily dwellings.	R15, R22
Commercial	Community retail, commercial office, general retail, and highway commercial uses.	C1, C2, C3, C4
Small Business	Community commercial uses, home occupations, and single family detached homes.	SB
Industrial	Industrial park, light industrial, and heavy industrial uses.	W1, W2, W3
Maritime	Community marinas, yacht clubs, commercial marinas.	MA1, MA2, MA3, MB, MC
Mixed Use Categories	A mix of residential, commercial, employment, and public uses.	MXD-R, MXD-C, MXD-E, MXD-T
Town Center	A mix of general commercial and multifamily residential uses. Also includes Odenton Growth Management Area.	TC, Odenton Growth Management Area districts
Natural Features	Passive use parks, conservation lands, floodplains and other environmental preservation areas.	OS (Open Space) typically, but any zoning may apply.
Government / Institutional	Land owned and used by Federal, State, or local governments, such as public schools, active use parks, and BWI Airport. May also include private institutional uses.	RI typically, but any zoning may apply.
Transportation/Utility	Road and public utility rights-of-way.	Any zoning may apply.

(Source: AAcO Planning and Zoning)

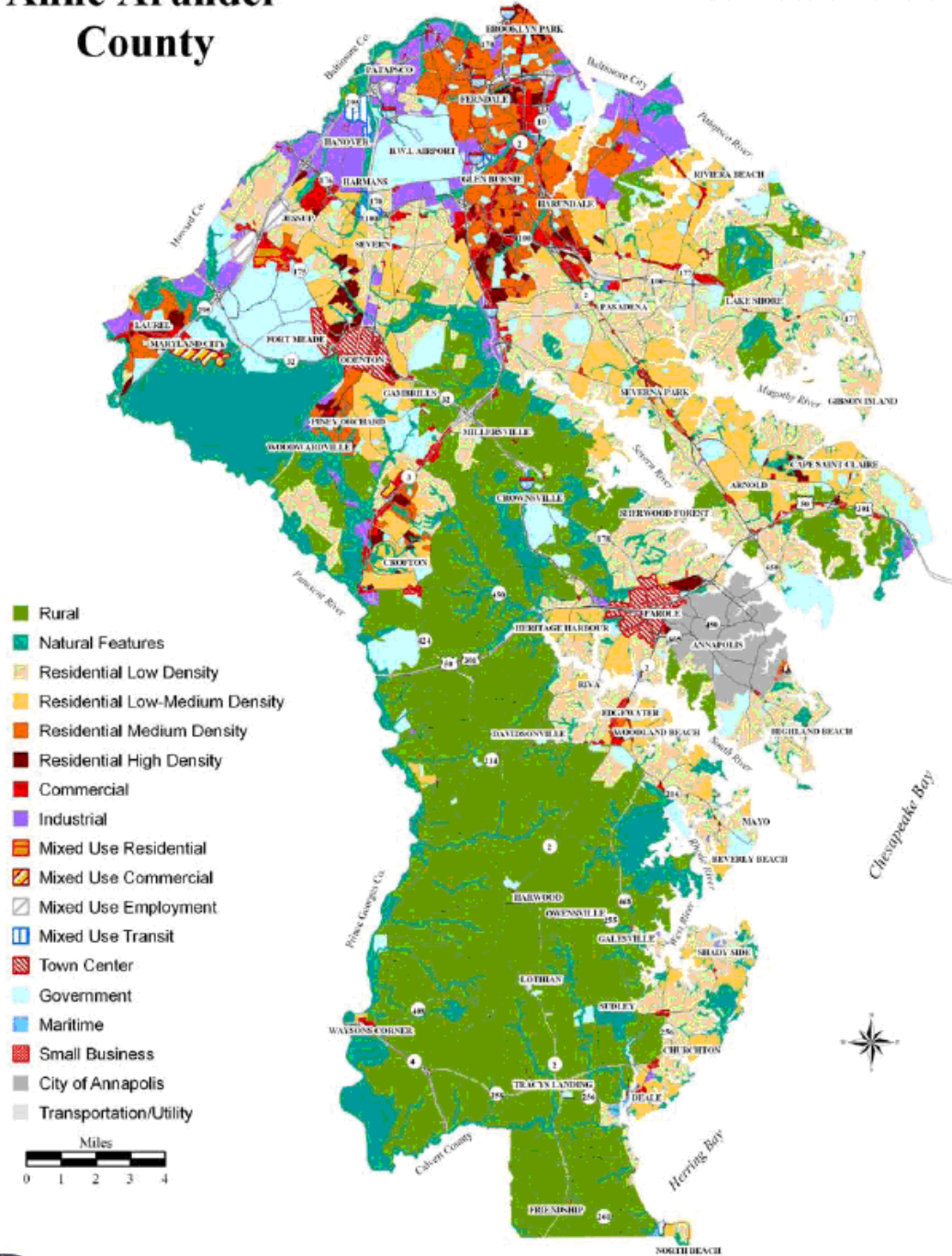
Figure 3.3.6-6



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Anne Arundel County

2009 Land Use Plan

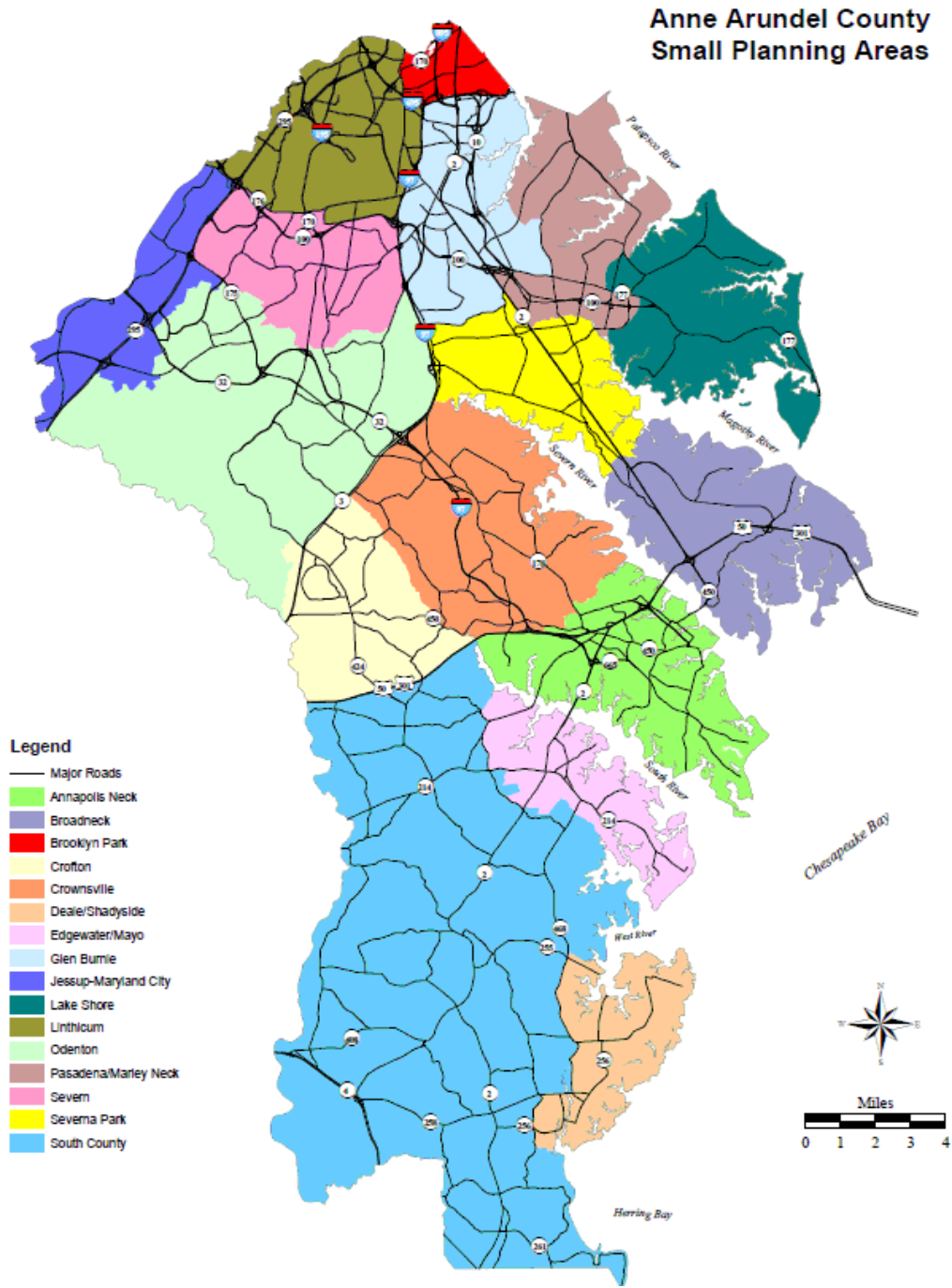


(Source: AACo Planning and Zoning)



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Figure 3.3.6-7



(Source: AACo Govt)



3.4 The Maryland State Hazard Mitigation Plan

The overarching goal and all-hazards objectives from the State Plan are summarized below:

A single overarching mitigation goal was established by the Maryland Emergency Management Agency to serve as the end toward which all the mitigation objectives and strategies contained in its mitigation plan will be directed. The following is State of Maryland's Hazard Mitigation Goal:

To reduce loss of life and damage to property associated with hazard events in the State of Maryland.

Objective 1: Continue to lead, integrate, and coordinate mitigation actions and planning efforts at the State level, to include the development of a process for the continued maintenance of the *Maryland Hazard Analysis*.

Objective 2: Support the update of local hazard mitigation plans within the State.

Objective 3: Identify and explore the implementation of mitigation actions for State-owned facilities that are most at-risk to multiple hazards and most valuable in terms of use and cost.

Objective 4: Explore the continued coordination of hazard mitigation and land use policies with the Maryland Department of Planning and local government officials.

Objective 5: Continue to document mitigation successes in Maryland by 1) investigating and documenting loss avoidance for all completed mitigation projects funded through the Maryland Emergency Management Agency and 2) continuing to distribute the *Best Practices in Hazard Mitigation* to planners, emergency managers, and elected officials in order to help identify projects and promote mitigation.

Objective 6: Increase public awareness of hazard mitigation through continued outreach and education.

The State of Maryland recognizes that the development and implementation of local hazard mitigation plans is essential for the reduction of the State's long-term vulnerability to hazards. The State, through the Maryland Emergency Management Agency (MEMA), has therefore committed its resources to local hazard mitigation planning by coordinating planning initiatives within State government and among local governments.