



**2018
GARRETT COUNTY
HAZARD
MITIGATION PLAN**



**Garrett County,
Maryland
Department of
Emergency Services**

EXECUTIVE SUMMARY

The Garrett County Hazard Mitigation Plan Update was completed by the County staff and the Hazard Mitigation Planning Committee. Updates to the Plan have been included within grey update boxes found throughout the document. In addition, data tables as well as mapping products have been updated, as applicable, and are identified, as such.

In terms of hazard identified and assessed within the plan, all 2012 hazards remained, however the opioid crisis was added to the epidemic hazard profile. One new hazard, “cyber-threat”, was added during the Plan update.

New data and analysis was included within the vulnerability assessment. Notably, 2018 Hazus, loss estimation data, as well as, projected debris generation and shelter needs. In addition, the critical and public facilities database was reviewed and updated. New facilities were added and changes to existing facilities were made. Finally, facilities deemed as essential facilities were labeled, as such, within the data tables.

Special emphasis was placed on municipalities during the Plan update. In addition to the municipal perspective section within each hazard specific chapter, *Chapter 21: Municipal Synopsis* was included. Municipal map products depicting building footprints and FEMA regulated 100-year floodplain were developed using new data and FEMA Flood Insurance Rate Maps (FIRM). Additional demographic and hazard data specific to each municipality has been provided, as well.

Finally, twenty-four (24) mitigation actions were identified in *Chapter 22: Mitigation Strategies*. These actions were developed and prioritized as part of the planning process. Action items rated as “high priority” were developed into projects. Five projects identified would achieve the nine action items ranked as having a high priority for Garrett County.

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GARRETT COUNTY HAZARD MITIGATION PLAN

1. 1 INTRODUCTION:

In response to continuing large-scale federal outlays of disaster funds to states and communities during the decade of the 1990's, Congress passed the Disaster Mitigation Act of 2000. Section 322 of this Act requires that all states and local jurisdictions develop and submit Mitigation Plans designed to meet the criteria set forth in 44 CFR Parts 201 and 206. The purpose of these plans is to prevent or reduce loss of life and injury and to limit future damage costs by developing methods to mitigate or eliminate damage from various hazards. Beginning in 2002, states were provided funding under this act to carry out the planning process.

In August 2016, the Maryland Emergency Management Agency published the *State of Maryland Hazard Mitigation Plan* that provides an overview of various hazards affecting the state. These hazards include coastal, flood, winter storm, tornado, wind, thunderstorm, wildfire, and drought.

Additional funding is being made available to counties to develop Hazard Mitigation Plans for local communities. Each incorporated community has the option of joining with its county government in the preparation of this plan. Local Mitigation Plans follow a planning methodology that includes public involvement, a risk assessment for various hazards, an inventory of critical facilities and other at-risk structures, a mitigation strategy for high risk hazards, and a method to maintain and update the Plan.

As an incentive for State and local governments to develop hazard mitigation plans the federal government requires mitigation planning as a component of eligibility for hazard mitigation project funding. The 2009 Hazard Mitigation Assistance Unified Guidance, produced by the Federal Emergency Management Agency (FEMA), states that mitigation plans are the foundation for effective hazard mitigation. As such, local jurisdictions must have a FEMA-approved local hazard mitigation plan at the time of obligation of grant funds in order to be eligible for grant funding under the unified Hazard Mitigation Assistance (HMA) programs. This requirement reinforces the importance of mitigation planning and emphasizes planning for disasters before they occur.

Hazard Mitigation plans completed in the past include:

- *2005 Garrett County Multi-Hazard Mitigation Plan; and*
- *2012 Garrett County Hazard Mitigation Plan.*

This plan is an update to the previous Hazard Mitigation plans completed by the County and its municipalities.

1. 2 PLANNING PROCESS:

Garrett County chose to develop a Hazard Mitigation Plan meeting the above guidelines and created a Planning Committee composed of representatives from various county and municipal

agencies, including Emergency Management, Planning, and the Health Department to review information concerning the hazards that are most likely to affect the County and provide public information to citizens concerning the planning process.

Planning Committee meetings were scheduled to coincide with key phases of the planning process. The first meeting was introductory in nature, to explain the overall process being used in developing the plan. This meeting also allowed committee members to rank each hazard within the county. The second meeting was designed to discuss hazard rankings and profiles and the vulnerability of various critical facilities in the county. The third meeting included a further review of critical facilities and allowed each committee member to review mitigation actions that the county can take to lessen damage from each hazard. The fourth and final meeting included a review of the proposed plan and preparation for the required public hearing.

2018 Status Update: During the Plan Update Process various meetings and outreach activities occurred. Table 1 identifies members of the LEPC-HMPC committee.

- On 16 May 2017, the Kick-Off Meeting for the new Hazard Mitigation Planning Committee (HMPC) was held at the Garrett County Airport. As in the previous Plan development process, Garrett County choose to utilize their multi-hazard Local Emergency Planning Committee (LEPC) as their HMPC. The LEPC is composed of a cross-section of the community, including government agencies, education, non-profits, businesses, and citizen representatives. At this meeting the group reviewed previously identified hazards within the *2012 Garrett County Hazard Mitigation Plan* and in the review of the new hazard data gathered during the Plan update process they performed a Hazard Identification and Ranking exercise for inclusion into the 2018 Plan Update. Hazard data coupled with local knowledge from various committee members was utilized to assess the County’s vulnerabilities to hazards during this meeting. The committee elected to add, “cyber-threat” as a hazard and to include opioid under epidemic. Public outreach materials were distributed to all eight municipalities within Garrett County. These materials contained data collection handouts and information pertaining to the Plan development process.
- On 19 September 2017, a handout containing mitigation action items and high priority projects identified in the 2012 plan was distributed for review and discussion. Four “High” priority projects were identified in the 2012 plan, one of which has been completed. Mitigation grant projects in Garrett County that have been funded over the course of the last five-year planning cycle (2012-2017) were distributed for review and requested to communicate any mitigation ideas for consideration and/or inclusion in the plan.
- On 16 January 2018, a power-point presentation highlighted updated plan elements and next steps. Information from the National Flood Insurance Program was presented and discussed. Garrett County has (17) Repetitive Loss Properties and (1) Severe Loss Property. Flooding has been ranked as a “High-Risk” hazard within the plan. In addition, current capabilities were reviewed and discussed. New capabilities that were added since the previous 2012 plan were noted. Planning committee members are requested to communicate any mitigation at their earliest convenience. New ideas will be discussed at the next meeting.

- On 17 April 2018, a power-point presentation highlighted hazus vulnerability assessment results, mitigation strategies, and next steps. Members discussed mitigation goals, objectives, and actions. Applicable mitigation actions carried over from the previous plan were assessed for 2018 priority ranking. In addition, new actions were reviewed and assessed for priority ranking. Finally, members of the committee discussed four new mitigation actions for inclusion into the mitigation action table.
 - Emergency Generators-Primary Shelters
 - Opioid Outreach-Speaker’s Bureau
 - Opioid Intervention & Interdiction Training
 - Cyber Threat Mitigation & Preparedness
- In October 2018, the public plan review was initiated. The plan was posted on the Garrett County Emergency Management website:
<https://www.garrettcounty.org/resources/emergency-services/pdf/2018-Garrett-County-Hazard-Mitigation-Plan-Update.pdf>.
- On November 5, 2018, the new 2018 Hazard Mitigation Plan was presented to the Garrett County Board of Commissioners at a public meeting.
- On November 7, 2018, the new 2018 Hazard Mitigation Plan was presented at the Mayor’s Meeting. All eight (8) municipalities were represented at this public meeting.
- On December 3, 2018, the plan was presented and subsequently adopted by the Garrett County Board of Commissioners at a public meeting.

Table 1: 2018 Garrett County Hazard Mitigation Planning Committee

Member	Organization/Agency
Don Beatty	FirstEnergy
John Frank	Garrett County Emergency Management
Wayne Tiemersma	Garrett County Emergency Management
Virginia Smith	Garrett County Emergency Management
Don McLaughlin	Environmental Protection Agency
Jay Moyer	Garrett County Public Works
Dwayne Kitis	Maryland Institute for Emergency Medical Services Systems
Nathaniel Watkins	Garrett County DoIT
William Swift	Garrett County Public Schools
Paul Harvey	Garrett County Roads
Jeff Hinebaugh	Garrett Regional Medical Center
Craig Umbel	Garrett County Health Department
Robert Stephens	Garrett County Health Department
Lou Battistella	Emergency Services Board
Alicia Streets	Department of Human Resources
Bradley Williams	Maryland State Police
Brian Kloos	Maryland State Police
John Reginaldi	Maryland Emergency Management Agency
Shelia McHafey	Garrett County Emergency Management
Shelly Menear	Garrett College
Kevin Null	Garrett County Administrator

Katie Salesky	Maryland Department of Health
Richard Cosner	State Highway Administration
Mike Friend	Natural Resources Police
Ronald Bray	Garrett County Board of Education

Source: Garrett County HMPC

1. 3 WESTERN REGIONAL PARTICIPATION – ALLEGANY, GARRETT, WASHINGTON & WEST VIRGINIA PARTNERS:

On January 24, 2018, April 19, 2018, and May 7, 2018 the Western Regional Quarterly meetings were held. During these meetings, attendees from adjacent jurisdictions were informed that Garrett County was in the process of updating their Hazard Mitigation Plan. Details of updates completed during the planning process were provided at each meeting.

1. 4 PUBLIC MEETINGS:

All Local Emergency Planning Committee (LEPC) meetings held within Garrett County are open to the public and are listed on the Garrett County website. These open public meetings included a portion of the meetings set aside for the Hazard Mitigation Plan Update held on 16 May 2017, 19 September 2017, 16 January 2018, and 17 April 2018. Copies of meeting minutes are in the Appendix of this Plan.

In addition, two public meetings were scheduled, one to coincide with the review of the draft plan, and the other to coincide with the public hearing for the Hazard Mitigation Plan adoption. Copies of meeting minutes for both the planning committee meetings and the public meetings are included in the Appendix.

The plan was made available for public review at: <https://www.garrettcountry.org/emergency-services>.

1. 5 MEDIA ANNOUNCEMENTS:

The Hazard Mitigation Planning Committee meetings were held in conjunction with the LEPC meetings. Meeting dates include 16 May 2017, 19 September 2017, 16 January 2018, and April 17, 2018.

Media announcements designed to coincide with the public meeting schedule provide the public with an overview of the planning process and the mitigation measures being considered. The November Board of County Commissioners meeting.

Public Meeting Notice

NOTICE IS HEREBY GIVEN BY THE
BOARD OF GARRETT COUNTY COMMISSIONERS
FOR THE MONTH OF NOVEMBER 2018

The Board of County Commissioners of Garrett County, Maryland, located at 203 South Fourth Street, Room 209 - Frederick A. Thayer, III Courthouse - Oakland, Maryland 21550 will be in session for the transaction of all public business that may properly come before the Board on the following dates unless otherwise noted by public notice:

NOVEMBER

MONDAY, NOVEMBER 5, 2018 - Beginning at 4:00 p.m.

Request to be on the Agenda must be made to Carol A. Riley-Alexander, Executive Assistant to the Board of County Commissioners/County Administrator by 11:00 p.m. on Monday one week prior to the Public Meeting Day. It is encouraged that all interested persons who have an issue to bring before the Board schedule a time. However, the Public Meeting is open and specific issues directed to the Board will be addressed at an accessible time.

This Notice is consistent with Chapter 30.03 of the Code of Garrett County, Maryland.

By Order of the Board of Garrett County Commissioners,
Kevin G. Null, County Administrator

1. 6 MUNICIPAL PARTICIPATION:

Of the eight municipalities, five choose to participate in the 2005 Garrett County Hazard Mitigation Plan. These municipalities are Friendsville, Grantsville, Accident, Kitzmiller, and Oakland. All eight municipalities participated in the 2012 update and in the 2018 update process.

2018 Status Update: During the plan update process, each municipality was provided information from the previous plan for review and update. Additionally, a municipal hazard mitigation questionnaire was distributed to each municipality to obtain updated information for inclusion into the plan. Also, phone calls and visits to municipalities were conducted by county staff. Follow-up information was sent to the municipalities including potential grant sources and mitigation project examples. Each municipality was asked to provide mitigation actions and/or projects specific to the hazards they identified as impacting or potentially impacting their jurisdiction. Municipal information has been included throughout the plan, and Chapter 21: Municipal Synopsis is devoted to municipal risk is included.

On November 7, 2018, the new 2018 Hazard Mitigation Plan was presented at the Mayor's Meeting. All eight (8) municipalities were represented at this public meeting.

1. 7 HISTORY AND TIMELINE:

The planning process began in May 2017, with the kick-off meeting of the HMPC. The draft plan was completed in May 2018. Following the review and approval by the Maryland Emergency Management Agency (MEMA) and the Federal Emergency Management Agency (FEMA). The plan was adopted by the Garrett County Board of Commissioners in 2018.

COUNTY PROFILE

2. 1 PHYSICAL LOCATION:

Garrett County is the western-most county in the State of Maryland and is surrounded on three sides by the states of Pennsylvania and West Virginia as shown on Figure 1. Its neighbor to the east is Allegany County from which Garrett was created in 1872. The county was named for John W. Garrett (1820-1884) who was president of the Baltimore and Ohio Railroad from 1858 until his death. According to American FactFinder (U.S. Census Bureau), Garrett is the second largest of Maryland's 24 counties, containing 647.10 square miles of land area. As shown on Figure 2, Garrett County is in the Allegheny Plateau province of the Appalachian Mountains. The county is also situated on the Eastern Continental Divide between the headwaters of the North Branch of the Potomac River, which flows into the Chesapeake Bay, and the Youghiogheny River which flows into the Monongahela River in the Ohio River basin as shown on Figure 3. Other major streams in the county include the Casselman River, Bear Creek and Deep Creek in the Youghiogheny Basin, and Savage River in the Potomac Basin.

2. 2 CLIMATE:

Because of its mountainous terrain and relatively high elevation (3360 ft on Backbone Mountain), Garrett County is susceptible to heavy rains and winds during summer thunderstorms and heavy snowfall and blizzard conditions during the late fall and winter months. According to Brief Economic Facts for Allegany and Garrett Counties, precipitation for Garrett County is 44.6 inches annually, of which a significant portion falls as snow or ice between the months of November and March. Most communities in Garrett County record an annual snowfall of 92 inches. Some communities at higher elevations, like Bittinger, at elevation of 2700 feet, receive, on average, more than 100 inches of snow per season. Unlike the remainder of Maryland, Garrett County receives much of its snowfall from air masses generated over the Great Lakes that rise and cool as they cross the Allegheny Plateau. This "Lake Effect" snow can result in 10-12 inches of snow on the Plateau, while areas downslope to the east receive little or no snow. By contrast, Allegany County, just to the east, receives 40.9 inches of annual precipitation and 55.6 inches of annual snowfall.

Temperatures usually average 5-10 degrees cooler in Garrett County than in the rest of Maryland throughout the year as shown on Figures 6 and 7. In fact, according to the National Weather Service, the coldest temperature recorded in the State was -40 degrees F in January 1912 in Garrett County. In addition, the county must deal with dense fog conditions during many precipitation events when low hanging clouds hamper visibility. These events occur on average more than 50 times annually as shown on Figure 8. Temperature inversions, which are common in winter, cause foggy conditions, particularly when warmer air contacts accumulated snow. Occasionally these fog events will last many hours and hamper transportation to a greater degree than snow or ice storms.

A synopsis of weather and climatic data for the Oakland Weather Station is shown on Figure 9. Additional weather information appears in the hazard profiles for winter storms, riverine flooding, hurricanes and tornadoes.

2. 3 GEOLOGY AND SLOPE:

As shown on Figure 10, steep slopes along the mountain ridges ensure rapid runoff from rainfall and snowmelt, while the broad limestone valleys in the center of the Plateau contain sizeable wetland areas which create marshy conditions that prevail throughout the year. Flash flooding is a serious problem, particularly down-slope from the major ridge-tops in the Potomac and Youghiogeny River valleys.

The rock units that make up the county's undulating surface contain large deposits of limestone, sandstone and shale as noted on Figure 11. The sandstones also contain bituminous coal, peat and clay that have been mined since the mid-1800's. The broad up-warped valleys also contain natural gas deposits that have been exploited in the past. Normally, the sandstone units form the ridge-tops while the valleys are underlain by softer shale or limestone. Slope failure, particularly in cut or fill areas where shale is overlain by sandstone, is not uncommon. Subsidence in areas underlain by old coal mine diggings is possible in the coal measures.

2. 4 SOILS:

According to the Garrett County Soil Survey, most of the soil associations in Garrett County are related to the rock type of the parent material and the slope of the land. These soils are shown in general fashion on Figure 12. Most of these soils contain steep, stony units that are moderately well drained. Unit 4 soils contain peat deposits and are generally poorly drained. Units 1 and 5 have soils that are generally formed on shales and siltstones that are moderately to steeply sloping, while units 2 and 3 are generally formed on sandstones that are moderately to steeply sloping. Unit 6 soils are formed on sandstone that is usually more resistant to erosion and is steep and stony. Approximately 150,000 acres of land are classified as steep in the county Soil Survey. Another 42,500 acres of land contain soils on colluvial materials at the foot of slopes. These soils have essentially formed on steep slopes and moved downslope over time. Another group of soils containing more than 11,000 acres are classified as alluvial. These soils have been deposited by streams over time. When disturbed by road construction, surface mining or other land development, soils on steep slopes, colluvial soils, and alluvial soils are more prone to movement than other more stable soil types.

2. 5 TRANSPORTATION:

Throughout its history Garrett County has served as an east-west transportation corridor, with I-68 replacing U.S. Rt. 40 as the main highway route through the county in the 1970's. During the same decade, the B & O Railroad became part of the CSX transportation system. Today I-68 serves as a major trucking route while CSX serves as both a through rail system and a local rail service to coal mining facilities. Figure 13 shows major transportation routes in Garrett County along with the Garrett County Airport at McHenry that provides local air service. So far as mass transit is concerned, the Garrett County Community Action Agency provides transportation for

elderly and handicapped residents through a state subsidized bus service. Finally, Greyhound Bus Lines includes scheduled service along Rt. 40 in the northern section of the county as part of its Baltimore-Pittsburgh run.

2. 6 ECONOMIC DEVELOPMENT:

Since its initial settlement, Garrett County has gone through several phases of economic development including a period of frontier hunting and trapping beginning before the French and Indian War; a period of rapid transportation development when the National Road (later U.S. Rt. 40) and the Baltimore and Ohio Railroad were built across the county, linking the east coast with the developing mid-western states; a period of agricultural development when much of present day farmland was created; a period of resource development when timbering and deep mining of coal created employment opportunities that led to the creation of a number of smaller communities in the county; and a period of recreation and tourism development linked primarily to the construction of Deep Creek Lake and its subsequent development as a second home location.

Today, Garrett County has an economy that retains much of its past flavor while it attracts new industrial and commercial growth, particularly in the area near the county seat in Oakland. The county also continues to show strong recreational and tourism development around Deep Creek Lake. According to the Maryland Department of Labor, Licensing and Regulation, out of a labor force of 15,533 people, 14,678 were employed in 2016, compared to a labor force of 15,806 in 2010 when 14,404 people were employed.

2018 Status Update: Table 2 details the number of people comprising the labor force in Garrett County by year and the percentage of population. The percent of the population occupied by the labor force peaked in 2010 is estimated at 60.9 percent and slowly decreases by approximately one percent every five years through 2040. Economic growth for the County will continue to be concentrated in and around the eight municipalities in the County, as well as the six industrial/business parks including the new McHenry Business Park. McHenry and the surrounding areas will continue to grow in recreation and tourism, as well as in the development of second homes and new rental homes and properties.

Table 2: Labor Force

Year	Population 16+	Labor Force	Percent in Labor Force
1970	14,497	6,975	48.1
1980	19,301	10,605	54.9
1990	21,433	12,700	59.3
2000	23,299	13,852	59.5
2010	24,412	14,860*	60.9*
2015	24,840	14,840	59.7
2020	25,490	14,970	58.7
2025	26,100	15,090	57.8
2030	26,370	15,090	57.2
2035	26,440	15,010	56.8
2040	26,560	15,100	56.9

Source: Projections prepared by the Maryland Department of Planning, Planning Data Services as of July 2014 Estimate*

2. 7 POPULATION:

Garrett County’s population growth has mirrored the above economic periods with higher rates of growth occurring during the early settlement of the county, during the coal and timber booms of the early part of the 20th century, and during the period of recreation and tourism development that continues into the present. According to the 2012-2016 ACS 5-Year Estimates, Garrett County had a population of 29,677 in 2016, a decrease of 420 over the 2010 Census.

In the year 2010, the incorporated towns in the county had populations ranging from 321 in Kitzmiller to 2,092 in Mountain Lake Park. Garrett County has a high percentage of residents over the age of 65 and a small percentage of residents of Hispanic origin. The U.S. Census for 2010 shows a total of 5,231 residents over the age of 65 and a total of 220 residents of Hispanic origin.

2018 Status Update: Table 3 depicts the population for Garrett County’s eight municipalities. According to the 2010 U.S. Census and Census Population Estimates, Garrett County has experienced a loss in population since 2010. The slowdown in growth in Garrett County can be tied directly to the effects of the Great Recession, which has affected the entire Western Region of Maryland.

Table 3: 2010 Census Population

Jurisdiction	2010 Census Population	2016 Census Population Estimates*
Accident	325	289
Deer Park	399	424
Friendsville	491	623
Grantsville	766	711
Kitzmiller	321	264
Mountain Lake Park	2,092	2,298
Oakland	1,925	2,008
Lock Lynn Heights	552	656
Garrett County	30,097	29,677

*Source: US Census Bureau, Census 2010, Prepared by the Maryland Department of Planning, Projections and State Data Center, August 2017. *2012-2016 American Community Survey 5-Year Estimates*

2. 8 HOUSING:

According to the U.S. Census, the county’s residents were housed in 18,854 units in 2010 as compared to 16,761 units in 2000. In addition, more than 500 permits for single-family homes, single-family doublewides, and single-family mobile homes have been issued by the county in 2015-2017. A substantial percentage of new housing is related to recreation development around Deep Creek Lake and does not represent year-round occupancy.

In terms of value, the median value of owner occupied housing was \$169,400 in 2010 and in 2016, as shown in the American Community Survey data. The data also reveals median monthly rents were \$537/month in 2010, as compared to \$630/month in 2016. These values may be somewhat skewed by recreation rentals in the Deep Creek Lake area.

2018 Status Update: Table 4 displays the number of households and household size projections for the County calculated by the Maryland Department of Planning (MDP). According to these figures, the number of households is expected to increase while the expected household size is projected to decrease. Due to the minimal change in population projections over this time, and the increase in number of households, the household size is predicted to decrease, as is shown in the table.

Table 4: Household Projections

Year	Households	Household Size
2010	12,057	2.45
2015	12,021	2.42
2020	12,383	2.40
2025	12,716	2.38
2030	12,972	2.36
2035	13,074	2.35
2040	13,197	2.33
2045	13,293	2.31

Source: Maryland Department of Planning, Projections and State Data Center, August 2017

2.9 INCOME:

So far as household income is concerned, the U.S. Census and the 2012-2016 American Community Survey data indicates that Garrett County continues to show improvement in its economic condition with a median household income of \$43,637 in 2010 increasing to \$46,710 in 2016. The poverty rate for the county has waxed and waned from 13% in 2012, 12.5% in 2010, to 12.7% in 2016.

2018 Status Update: The Maryland Department of Planning also estimated median household income utilizing U.S. Census data. The median household income for Garrett County has increased quite rapidly between 2006 and 2016, indicating positive economic growth. Section 2.6 *Economic Development*, located on page 7, further details the County's economic growth.

Table 5: Median Household Income, Single-Year Estimates for Garrett County

Year	Median Household Income	Estimated Margin of Error (/ -)
2006	39,616	2,263
2007	42,041	3,148
2008	43,496	3,391
2009	42,320	3,668
2010	43,637	3,015

2011	41,829	3,026
2012	41,515	3,396
2013	44,404	3,898
2014	47,441	2,909
2015	46,469	3,500
2016	46,710	3,652

Source: U.S. Census Bureau, Small Area Income and Poverty Estimates, November 2007

2. 10 SCHOOL ENROLLMENT:

Public school enrollment has been decreased in recent years with 4,311 students in 2010 to 3,833 in 2017, according to the Maryland Office of Planning.

2018 Status Update: According to Maryland Department of Planning, the declining trend in public school enrollment has slowly continued from 2010 to 2017. By 2019, the public-school enrollment is estimated to at 3,800 students. This decrease in school enrollment, and the slight increase in overall population of the County, indicates that the ratio of children to adults and elderly persons will decrease in the future.

Table 6: Total Public-School Enrollment (Grades Pre-K through 12, including Special Education Students)

Year	Public School Enrollment (Pre-K through 12, including Special Education Students)
2010	4,311
2011	4,212
2012	4,077
2013	4,004
2014	3,886
2015	3,858
2016	3,856
2017	3,833

Source: Maryland Department of Planning, Maryland Department of Education, 2017 Maryland Report Card

2. 11 LAND USE PROFILE-COMPREHENSIVE PLAN-BUILDING PERMITS:

2018 Status Update: Finally, the new 2018 Garrett County Hazard Mitigation Plan will be referenced and utilized during the development of existing and future County plans and studies.

The 2008 Garrett County Comprehensive Plan shows the changes in land use and land cover for the County from 1973 to 2005. This data indicates major land use and land cover change in Garrett County. Of the changes, the two most substantial increases occurred in low density residential development with an increase of 18,322 new acres and a decrease of 13,724 acres in agricultural use over the 33-year period between 1973 and 2005. All development, including low, medium and high density residential, commercial/industrial increased in the County. These

increases in development led to the decrease in agricultural and forest acreage in the County. In contrast, through the purposeful protection of important natural resources, including wetlands and water resources, these land cover types increased by 781 acres during this time.

In terms of hazard mitigation inclusion into the in the 2008 Garrett County Comprehensive Plan, the Sensitive Areas Element of the Plan details hazard specific information. Sensitive areas include floodplains, wetlands and vernal pools, steep slopes, and other hazard prone land use problems. In addition, the floodplain ordinance and County building codes include wind and snow loading requirements for new construction are developed and implemented within the context of hazard mitigation planning and are linked directly to the Hazard Mitigation Plan. Even with the increase of urban development, the clear majority of land in Garrett County remains in either in agriculture (89,323 acres in 2010) or forest use (284,457 acres in 2010) with more than 75,000 acres in State Forests and Parks. A substantial amount of forest and agriculture land has been mined (10,095 acres) and reclaimed in recent years.

Table 7: Garrett County Land Use/Land Cover

Land Use	Acres in 2002	Acres in 2010	Change in Acres
<u>Developed Land</u>			
Very Low Density Residential	11,357	12,823	1,465
Low Density Residential	15,008	16,732	1,724
Medium Density Residential	2,443	2,537	93
High Density Residential	259	298	38
Commercial	1,793	2,237	444
Industrial	176	204	29
Other Developed Lands/Institutional/Transportation	6,654	6,967	317
<u>Resource Lands</u>			
Agriculture	90,392	89,323	-1,069
Forest	287,654	284,457	-3,197
Extractive/Barren/Bare	844	1,007	163
Wetlands	2,714	2,710	-4
Water	5,767	5,767	-

Source: Maryland Dept. of Planning 2010 Land Use Land Cover Dataset

Based on land use/land cover and permit records, it appears reasonable to conclude that another 4,000-5,000 acres have been developed countywide during the last decade. More than 365 square foot homes were built in the DCL Watershed. The DCL Watershed area is being developed more heavily than other areas, with more than 365 homes since 2010. A more detailed and updated table of all approved building permits for Garrett County, Maryland can be found on Figure 14 in Appendix A.

Table 8: Single-Family Dwellings Built Between 2010 & 2017

Year	SF Homes		SF Doublewides		SF Mobile Homes	
	Countywide	DCL Watershed	Countywide	DCL Watershed	Countywide	DCL Watershed
2010	108	44	6	1	11	0
2011	91	32	10	2	10	0
2012	109	48	17	2	18	0

2013	59	33	10	0	8	0
2014	81	37	13	0	9	0
2015	183	98	12	0	13	1
2016	43	23	5	2	11	1
2017	67	37	7	2	9	2
Total	741	352	80	9	89	4

Source: Garrett County Office of Permits & Inspections

2. 12 WATER AND SEWER PLAN:

2018 Status Update: Garrett County has revised and adopted their Water and Sewerage Master Plan on December 9, 2014.

According to the *2014 Garrett County Water and Sewerage Master Plan*, all municipalities in the county have public water and sewer service as shown on Figures 15 and 16. The unincorporated communities of Bloomington, Crellin, and Gorman also have public water and sewer service. In addition, a large area around Deep Creek Lake is served by a public sewer system managed by the Department of Public Works – Utilities Division. The Deep Creek Lake area also has many private water systems that serve portions of the lake community. Planned extensions to water and sewer systems are also addressed in the Water and Sewer Plan.

2. 13 MUNICIPAL PERSPECTIVES:

The eight municipalities in Garrett County are in large part still the centers for most residential and commercial activity in the county except for the area around Deep Creek Lake. The two largest municipalities (Oakland and Mountain Lake Park) are neighbors while Loch Lynn Heights and Deer Park are within 5 miles of Oakland. Between these four municipalities, the total population was 5,386 in the 2012-2016 American Community Survey data, a decrease of 418 since 2010. While the two larger communities provide the commercial hub for the county, Loch Lynn Heights and Deer Park are primarily residential in nature.

The four remaining municipalities are more isolated from the Oakland - Mountain Lake Park area and even though small in population, they continue to serve as hubs for community activities and have commercial activities that serve the surrounding countryside. Accident is located north of Deep Creek Lake on U.S. Rt. 219 in the center of a farming area and has a relatively stable population, while Grantsville is located near the junction of Rt. 219 and I-68 along old U.S. 40. Accident has some new commercial and industrial growth along Route 219, while Grantsville’s population has declined by 55 people since 2010 and despite this has seen new commercial and industrial development along Rt. 40 and at the intersection of I-68 and Rt. 219. Friendsville is located along I-68 near the western boundary of the County on the Youghiogheny River while Kitzmiller is located on the North Branch of the Potomac River above the Bloomington Dam.

2. 14 POPULATION POJECTIONS AND LAND USE TRENDS:

2018 Status Update: The actual population of Garrett County provided by the 2010 Census is 30,097. Evaluating future growth in Garrett County is accomplished through various planning efforts. In terms of the 2018 Hazard Mitigation Plan, assuring development and placement of development is a crucial component in determining the vulnerability from future hazards. Population and housing projections for Garrett County indicate that the County will continue to develop; therefore, it is important that hazard prone areas are restricted and/or limited in the types and number of structures built in these areas. The following table shows population and housing in Garrett County for 2020, 2030, and 2040 (projections).

Table 9: Population and Housing, 2020, 2030, and 2040

Geography	2020		2030		2040	
	Population	Housing Units	Population	Housing Units	Population	Housing Units
All Towns	30,300	12,383	31,250	12,972	31,450	13,197

Source: Maryland Department of Planning, Projections and State Data Center, August 2017

As noted earlier in the Population Profile, the Maryland Department of Planning projects Garrett County to have population estimates of 30,300 of by the year 2020, and a population of 31,250 by 2030. The Garrett County Comprehensive Plan projects that most of the population growth and associated urban development in the county will continue to be centered on designated growth areas in the Oakland-Mountain Lake Park vicinity and at Deep Creek Lake and in the secondary growth areas around Grantsville and Accident. As noted under the Water and Sewer paragraph, a good portion of the land in these growth areas is served or is projected to be served by public water and sewer as shown on Figures 15 and 16. The Comprehensive Plan states that an additional 50,000 people could be accommodated on the approximately 8,000 buildable acres of land within the growth areas shown on Figure 17.

The Maryland Department of Planning, Projections and State Data Center is projecting 12,383 housing units by 2020. However, Garrett County has many seasonal (vacation) homes which accounts for the higher number of housing units when compared to the population. Because of the County’s relatively small population, the effects of vacation homes and other types of visitation is pronounced, especially in the Deep Creek Lake area. Visitors and seasonal residents do not count toward the County’s year-round population; however they often have the same impacts on traffic and transportation, drinking water, wastewater, and most community services (except education) as permanent residents. Therefore, this Plan evaluates future growth in Garrett County primarily from the perspective of housing units, rather than population.

Table 10: Peak Day Population at Deep Creek Lake

Year	Number of Visitors			Growth Rate
	Overnight	Day	Total	
2010	319,700	356,300	676,000	7.5%
2011	330,900	373,300	704,200	4.2%
2012	343,300	415,800	759,100	7.8%
2013	389,900	467,400	857,300	12.9%

2014	404,200	471,200	875,400	2.1%
<ul style="list-style-type: none"> • Annual Visitors = 1.2 Million • 54% of visitors are day visitors • 46% of visitors are overnight visitors 				

Source: The Economic Impact of Tourism in Maryland, December 2015

PREVIOUS HAZARD MITIGATION EFFORTS

3.1 ACQUISITION AND ELEVATION OF HOMES:

Garrett County has engaged in many mitigation projects within the past decade, using federal and state funding provided through the Maryland Emergency Management Agency, the Maryland Department of the Environment and the Maryland Department of Housing and Community Development. These projects include the acquisition of 6 residences in the floodplain of the Potomac River in the community of Shallmar, 10 residences along the upper reaches of the Youghiogheny River near Crellin, and one residence in Oakland on the Little Youghiogheny.

2018 Status Update: Garrett County participates in the National Flood Insurance Program; however, the County is not enrolled in the Community Ratings System (CRS) at this time. The following table contains the NFIP Report, detailing flood insurance policies within Garrett County. A review of the Repetitive Loss Property data for Garrett County was conducted. Data was obtained through Kevin Wagner, State Nation Flood Insurance Program Coordinating Office. Data was reviewed by Garrett County Floodplain Coordinator and planning staff. Results of this review found that four (4) properties on the listing have been acquired and demolished using FEMA grant funds in the 1990's.

Table 11: NFIP Insurance Report

Community Name	Total Premium	Policies	Total Coverage	Total Claims	Total Paid Since 1978
Accident	\$244	1	\$70,000	0	\$0
Friendsville	\$19,397	16	\$2,391,000	12	\$29,491.25
Unincorporated Areas of County	\$57,405	67	\$13,663,600	96	\$969,984.60
Grantsville	\$947	2	\$317,600	0	\$0
Kitzmilller	\$1,119	3	\$770,000	3	\$17,480.04
Mountain Lake Park	\$0	0	\$0	3	\$3,531.27
Oakland	\$6,639	8	\$712,900	4	\$40,131.48
Total	\$85,751	97	\$17,925,100	118	\$1,060,618.64

Source: Federal Emergency Management Agency, March 2018

3.2 STRUCTURAL MITIGATION:

During the late 1960' and early 1970's, Garrett County partnered with the Soil Conservation Service to construct 6 flood control structures in the upper reaches of the Youghiogheny River as shown on Figure 34. These dams are all in the Oakland-Mountain Lake Park area and also serve as recreation areas for the community. The county has also worked with MEMA to obtain funding to construct a flood wall around the Friendsville water treatment plant along the Youghiogheny River.

3. 3 WARNING SYSTEM:

In 2001, Garrett County participated with MEMA, Allegany County and Mineral County, West Virginia, to develop an early warning telephone system for communities downstream of the Bloomington Dam and the Savage River Dam in the Potomac Basin. This system has subsequently been expanded to include the entire county for all hazard events. The county has also installed stream level sensors at Crellin on the upper Youghiogheny River and at Kitzmiller and Bloomington on the Potomac. These sensors will be tied to the warning system in the near future.

2018 Status Update: Garrett County currently utilizes the Reverse 9-1-1 Public Notification System. This system combines 9-1-1 database with GIS mapping technology to deliver outbound emergency notification from the 9-1-1 Center.

3. 4 WINTER STORM MITIGATION:

In terms of winter storms, Garrett County is probably the best prepared and equipped county in the state to handle snow and icy conditions through its Roads Department and Emergency Management Agency. Both the county and state have made major expenditures to purchase modern snow removal equipment and communications technology to ensure that roads are kept open to the greatest extent possible during winter storms.

Garrett County building code requirements include an ice shield underlayment and a snow load requirement. The ice shield underlayment requires a waterproof barrier specially designed for use in climates that create ice dams (build ups of ice and snow) or high wind and rain events. The snow load requirement for Garrett County is 40 Pounds per Square Foot (psf).

3. 5 GOVERNORS FLOOD MITIGATION TASK FORCE:

Following two devastating floods which occurred in January and September 1996, Governor Glendening appointed a task force consisting of local, state and federal officials and representatives of local communities in the four Western Maryland counties to develop a mitigation strategy to lessen future flood damage along the Potomac and Youghiogheny Rivers and their tributaries. This task force met on numerous occasions during the next five years and developed a number of recommendations that led to mitigation projects. These projects included the acquisition or elevation of homes in floodplain areas in all four counties as well as the installation of warning systems and structural devices in certain stream basins.

2018 Status Update: This Task Force is no longer in existence. However, the three counties that comprise the Western Region (Garrett, Allegany, and Washington) meet quarterly and include hazard mitigation as an agenda topic.

3. 6 COMPREHENSIVE PLAN AND LAND USE REGULATIONS:

The Garrett County Comprehensive Plan, adopted in 1995, includes a number of goals and objectives that promote mitigation activities. This plan also is in compliance with the Maryland Economic Growth, Resource Protection and Planning Act of 1992. That Act requires each county to address seven visions that, in large part, promote hazard mitigation through land use regulation. These visions are designed to concentrate development in suitable areas having existing or planned water and sewer service, protect sensitive areas, including 100-year floodplains and steep slopes, and direct growth to existing population centers.

The Comprehensive Plan Goals include measures designed to meet the above visions. These measures include the provision of adequate environmental safeguards to control and minimize development in floodplain areas and on steep slopes. The plan also calls for measures to control or eliminate environmental health hazards, and calls for measures to provide adequate public safety services. The county Subdivision Regulations, Sensitive Areas Ordinance, Sediment and Erosion Control Ordinance, Stormwater Management Ordinance, Floodplain Regulations, Deep Creek Watershed Zoning Ordinance and Municipal Zoning Ordinances all address regulatory measures designed to meet the above visions, goals and objectives.

The 2008 Garrett County Comprehensive Plan was adopted on October 7, 2008 and is available on the Garrett County Website. In 2006, House Bill 1141 was added to state law. This Bill mandated a new Water Resources Element for all counties and municipalities in the State that exercise planning and zoning authority. This new Water Resources Element was added into the 2008 Garrett County Comprehensive Plan and includes water supply planning and stormwater management.

2018 Status Update: Garrett County is in the process of updating the county comprehensive plan. Recommendations for Plan Integration from the hazard mitigation plan update will be provided to the county plan office.

3. 7 WATER AND SEWER PLAN:

The Water and Sewer Plan shares many of the goals and objectives set forth in the Comprehensive Plan, including the concentration of development in areas having adequate water and sewer service and the elimination or treatment of hazardous pollutants. Requirements for water and sewer service require that utilities be elevated 3' above the base 100-year flood elevation.

2018 Status Update: The Garrett County Water and Sewer Master Plan was approved by the Board of County Commissioners on December 9, 2014. It was approved with modifications by the Maryland Department of the Environment on March 19, 2015.

3. 8 BUILDING CODE:

During the mid-1990’s Garrett County adopted the state-mandated BOCA Building Code. This code contains wind and snow loading requirements for new structures tailored to the climate of the county. The code also contains footer depth requirements related to the frost line and tie-down requirements for mobile homes. These requirements are shown on Figure 19. The county had a Building Code Effectiveness Grading Report completed by the Insurances Services Office, Inc. in 2002 but has not received a score from the ISO.

2018 Status Update: The 2015 Garrett County Building Code adopts the 2015 International Building Code, 2015 International Residential Code and 2015 Energy Conservation Code with certain modifications and amendments. Additionally, all codes adopted by the Maryland Codes Administration through the Maryland Building Performance Standards are in force in Garrett County.

3. 9 FLOODPLAIN REGULATIONS AND FLOOD INSURANCE PROGRAM:

Garrett County has a FEMA approved Floodplain Ordinance that requires a 1’ freeboard for the first floor of new structures and additions. The ordinance also requires a setback from stream channels. The county FIRM maps were originally prepared in 1985, while the Little Youghiogheny Basin maps were updated in 1994. This update included the towns of Oakland, Mountain Lake Park, Loch Lynn Heights and Deer Park.

2018 Status Update: Garrett County adopted the 2013 Floodplain Management Ordinance on August 3, 2013. According to the Garrett County Department of Permit and Inspection Services, pursuant to the Code of Federal Regulations – 44 C.F.R. Section 59.22, this action is necessary to update the County’s current Flood Management Regulations to reflect the adoption of a revised “Flood Insurance Study for Garrett County, Maryland and Incorporated Areas” effective October 2, 2013. The update will include adoption of all accompanying updated Flood Insurance Rate Maps (FIRMs) effective October 2, 2013 and amendments to the current Ordinance. The following data source was utilized for updated flood data tables and mapping throughout the plan.

<u>FEMA Product ID</u>	<u>Latest Study Effective Date</u>	<u>Latest *LOMR Effective Date</u>
NFHL_24023C	10/2/2013	3/10/2017

**Letter of Map Revision*

3. 10 REPETITIVE LOSS PROPERTIES:

The county also participates in the Flood Insurance Program and has included a number of repetitive loss properties in its acquisition program. Current repetitive loss properties are shown on Figure 18. The Flood Insurance Program also offers incentives to lower flood insurance rates

to communities that participate in the Community Rating System (CRS). Because of staff constraints Garrett County has not participated in this program.

3. 11 STORMWATER MANAGEMENT:

Garrett County's revised Stormwater Management Ordinance was developed in response to the State of Maryland's Stormwater Management Act of 2007. The revised ordinance was approved by the Maryland Department of the Environment and was then adopted on June 15, 2010 as required by State law.

The purpose of the Stormwater Management Ordinance is to protect, maintain, and enhance the public's health, safety, and general welfare by establishing minimum requirements and procedures that control the adverse impacts associated with increased runoff. The goal is to manage stormwater by using Environmental Site Design (ESD) to Maximum Extent Practicable (MEP) to maintain after development as nearly as possible, the predevelopment runoff characteristics, and to reduce stream channel erosion, pollution, siltation, sedimentation, and local flooding, and use appropriate structural Best Management Practices (BMPs) only when necessary. These actions will restore, enhance, and maintain the chemical, physical, and biological integrity of streams, minimize damage to public and private property, and reduce the impacts of land development

HAZARD IDENTIFICATION AND RISK

4.1 INTRODUCTION:

Chapter 4 identifies hazards and provides priority hazard rankings for Garrett County from various perspectives. These hazards are detailed separately in Chapters 5-18. Each hazard chapter contains historical data, risk, and previous mitigation measures. Descriptions of the update process for each hazard chapter are provided in grey boxes throughout the chapters.

4.2 FEDERAL PRESIDENTIAL DECLARATIONS:

Since the year 2010, Maryland has been declared for four (4) severe winter storm events and (3) three hurricane events.

2018 Status Update: The Federal Emergency Management Agency (FEMA) has (2) two declarations for severe weather events that include Garrett County. The declaration are as follows:

- Maryland Hurricane Sandy FEMA 4091-DR – Declared November 20, 2012
- Maryland Severe Winter Storm and Snowstorm FEMA 4261-DR – Declared March 4, 2016

For detailed information regarding these declaration, please visit <https://www.fema.gov/disasters> and Chapter 5: Severe Winter Weather.

4.3 MARYLAND HAZARD ANALYSIS:

2018 Status Update: The Maryland Emergency Management Agency (MEMA) published the *2016 State of Maryland Hazard Mitigation Plan*, a document designed to show the probability and impact of various hazards across the state. As shown on the following chart, Garrett County ranked “High” for the risk winter storm and Riverine Flooding; “Medium-High” for the risk of tornado and wildfire; “Medium: for the risk of thunderstorm, and wind. The county ranked “Medium-Low” for the risk of coastal and drought.

The *2016 State of Maryland Hazard Mitigation Plan* identified hazards that differed from the 2010 Plan in that hazards were categorized and grouped in a new way. MEMA is encouraging local plan revisions to approach classifying hazards in a similar fashion as done in this revised risk assessment. The table below provides an outline of what types of events could fall within the designated Hazard Identification and Risk Assessment (HIRA) hazard categories.

The following hazards were identified and ranked by MEMA for Garrett County in the *2016 State of Maryland Hazard Mitigation Plan*:

Table 12: 2016 State of Maryland Hazard Mitigation Plan Rankings

Identified Hazard	Types of Events	State Ranking:
Coastal	Coastal Flooding; Hurricane/Tropical Storm; Nor'easter; Sea Level Rise; Shoreline Erosion	Medium-Low
Drought	Drought; Extreme Heat	Medium-Low
Flood	Flash; Riverine; Coastal	Medium
Thunderstorm	Thunderstorm; Lightning; Hail	Medium
Tornado	Tornado	Medium-High
Wildfire	Wildfire	Medium-High
Wind	Thunder-storm winds; Non-thunder-storm wind	Medium
Winter Storm	Winter Storm; Extreme Cold; Nor'easter (Snowfall)	High

Source: 2016 State of Maryland Hazard Mitigation Plan

4. 4 PLANNING COMMITTEE ANALYSIS:

At the kick-off meeting of the Hazard Mitigation Planning Committee (HMPC) a handout containing hazards identified in the 2012 plan as well as risk rankings for each hazard was distributed. The committee decided to keep all the hazards identified in the previous plan, however they elected to add, "cyber-threat" as a hazard and to include opioid abuse under epidemic. Modifications were made to the hazard rankings by the 2017 planning committee following a review and discussion period.

Results of this assessment are shown below. Hazards that were ranked "High" or "Medium-High" during this assessment process included riverine flooding, high wind, thunderstorm, winter weather, soil movement, epidemic, cyber-threat, and transportation-fog. Hazards that were ranked at "Medium-Low or "Low" in this assessment included extreme heat, drought, and dam failure. All other hazards were ranked at a "Medium" risk.

2018 Status Update: The 2018 HMPC rankings were similar to the 2016 State rankings except for and riverine flooding, thunderstorm, tornado, wildfire, extreme heat and high wind by plus/minus one rank. As for comparing the results from the previous local 2012 HMPC with the 2018 HMPC, most hazard rankings by the HMPC remained the same. Variances occurred in hurricane, soil movement (landslide), dam failure, and Epidemic (opioid crisis) by plus/minus one rank.

Please refer to Appendix J for the 2012 HMPC Hazard Rankings.

Table 13: Hazard Mitigation Planning Committee Risk Analysis Ranking for Garrett County, 2018

Identified Hazard	Types of Events	Local Ranking
Drought	Drought	Medium-Low
Extreme Heat	Extreme Heat	Low
Riverine Flooding	Riverine Flooding; Flash	High
High Wind	High Wind	Medium High
Hurricane	Hurricane	Medium- Low
Thunderstorm	Thunderstorm; Lightning; Hail	Medium High
Tornado	Tornado	Medium
Winter Weather	Winter Weather; Winter Storm; Heavy Snow; Blizzard; and Extreme Cold	High
Soil Movement (Landslide)	Soil Movement; Landslide	Medium High
Wildfire	Wildfire	Medium
Fire/Explosion	Fire/Explosion	Medium
Dam Failure	Dam Failure	Medium
Epidemic (Opioid Crisis)	Epidemic; Opioid Crisis	Medium High
HazMat	HazMat	Medium
Cyber-Threat	Cyber-Threat	Medium High
Transportation - Fog	Transportation; Fog	Medium High

Source: 2018 Hazard Mitigation Planning Committee

4. 5 COMBINED RISK:

2018 Status Update: By combining the results of the above studies and exercises, and reviewing frequencies, fatalities, injuries and impacts for the identified hazards from the National Centers for Environmental Information and recent disaster declarations, the combined risk and probability ranking was developed. Table 14 lists the combined risk for the identified hazards in Garrett County on a scale of 1 to 30 with 30 being the highest risk. The local assessment weight was double the amount of the other factors in determining the final rankings since each committee member represented a community or agency that deals first hand with these hazards. The formula and method involved in obtaining the combined risk are detailed in Appendix F. All combined risk ratings were equivalent to the local assessment except for tornado; this was due to the high number of reported injuries, property damage, and a death due caused by this hazard.

Table 14: Summary of Combined Risk & Probability

Hazard	Damages	Frequency	Fatalities	Injuries	Local Assessment	Combined Risk & Probability*
Riverine Flooding	\$440,000	0.49	0	0	High	16-Medium-High

Table 13: Summary of Combined Risk

Hazard	Damages	Frequency	Fatalities	Injuries	Local Assessment	Combined Risk**
Riverine Flooding	\$305,000	2.8	0	0	Medium-High	Medium-High (18)

High Wind	\$422,000	0.82	0	0	Medium-High	15-Medium-High
Hurricane	0	0.10	0	0	Medium-Low	8-Medium-Low
Thunderstorm	\$894,500	0.65	0	0	Medium-High	16-Medium-High
Tornado	\$2.6 M	0.16	1	12	Medium	22-High
Winter Weather	\$206,000	0.22	0	0	High	16-Medium-High

Combined Risk is the total of all five categories added together – 30-20=“ High”; 19 -15=“ Medium-High”; 14-10=“ Medium”; 9-5=“ Medium-Low”; 4-0=“ Low”

*Damages, frequency, fatalities, and injuries data from NCEI data tables presented within hazard chapters.

Source: National Centers for Environmental Information & 2018 Hazard Mitigation Planning Committee

4. 6 MUNICIPAL PERSPECTIVE:

2018 Update: In addition to the risk assessment exercise performed by the HPMC, the incorporated municipalities within Garrett County were asked to complete the exercise as well. The top hazards, considered as the “highest risk” for each of the incorporated municipalities are listed in Table 15.

Table 15: Municipal Hazard Ranking

Hazard	Accident	Deer Park	Friendsville	Grantsville	Kitzmiller	Mt. Lake Park	Oakland	Loch Lynn Heights
Winter Weather	X	X	X	X	X	X		X
Drought	X							
Thunderstorm	X	X						
Riverine Flooding		X	X		X		X	X
Transportation - Fog							X	
HazMat		X	X			X	X	
High Wind					X			X
Tornado	X		X					
Soil Movement (Landslide)		X						
Dam Failure			X					
Epidemic (Opioid Crisis)								
Cyber-Threat								

Source: 2018 Hazard Mitigation Planning Committee

SEVERE WINTER WEATHER

5.1 WINTER STORM PROFILE:

The typical winter storm in Maryland usually brings heavy snowfall (6+ inches), sleet or freezing rain accompanied by cold temperatures and occasionally high winds. These such storms usually start as a mid-latitude depression in the central U.S. and moves north and east between the Appalachians and the east coast. Depending on the speed at which these storms travel and the airmass temperature, heavy amounts of snow, sleet, freezing rain or some combination will be the result. Typically, a winter storm will last for 24 – 48 hours and move out of the area into New England. Then, depending on the controlling air mass, temperatures will continue to be cold and the snow or ice will linger for days or sometimes weeks, or the temperature will warm quickly, and the snow or ice will melt in a short time.

5.2 COUNTY PERSPECTIVE:

2018 Status Update: According to the *2016 State of Maryland Hazard Mitigation Plan*, Garrett County has a ranking of “High” for winter storm. The county’s HMPC agrees with this ranking. The northern and western areas of Maryland typically experience the most extreme winter weather and with the highest frequency of events. Notably, Garrett County, Maryland’s more western jurisdiction had a record snowfall of fifty-four (54) inches during 2016’s Winter Storm Jonas event.

While the above profile is true for much of the state, in Garrett County winter storms occur with much greater frequency and are usually more severe in terms of cold temperature, wind speed and duration. Sometimes, however, the typical mid-latitude winter storm or nor’easter passes far to the east of Garrett County and the area receives only a dusting of snow while communities east of the mountains receive the bulk of precipitation. The type of storm that is most common in Garrett County in winter months is the “Lake Effect” storm which is generated over the Great Lakes and may continue for days as a time with near constant snowfall, high winds, low visibility and cold temperatures. It is not uncommon for parts of Garrett County to receive 8-10 inches of snow overnight during one of these events, while Allegany County, just to the east and downslope from the Plateau, receives no snow at all. As noted in the County Profile, much of the county receives upwards of 90 inches of snow per season, mostly from this type of storm event.

5.3 WINTER STORM HISTORY:

While each winter season brings with it the possibility of major snow and ice storms, some winter storms do stand out for their severity and duration. As noted on Figure 9, recent storms that stand out include a prolonged mid-latitude storm in February 2003 resulted in 2-3 feet of snow throughout the Appalachians, including Garrett County. Most notably were the storms that occurred in February 2010. They are captured below.

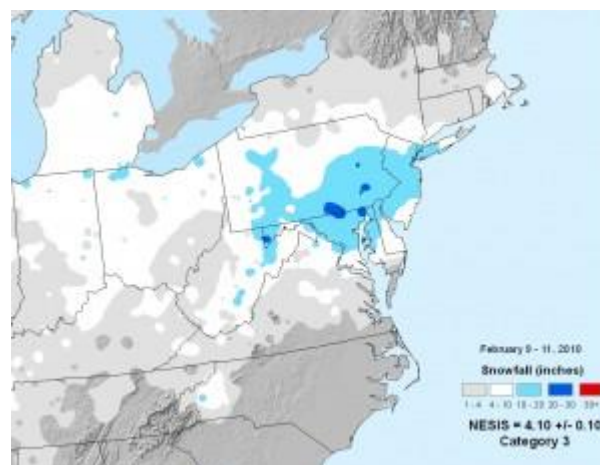


The blizzard of Feb 5-6, 2010 was unusual in that it was a more of a “Miller B” type system (a low originating in the Ohio Valley, then redeveloping over the Carolina Coast) that brought very high snow totals to Garrett County, primarily due to the very high snowfall rates and slow speed of the storm. The blizzard’s reach was widespread and caused the United States Government to shut down for several days due to snow in the D.C. area. Southwestern Pennsylvania was also hit very hard by this storm. Garrett County reported nearly 40 inches of snow.

Source: Northeast Snowfall Impact Scale (NESIS)

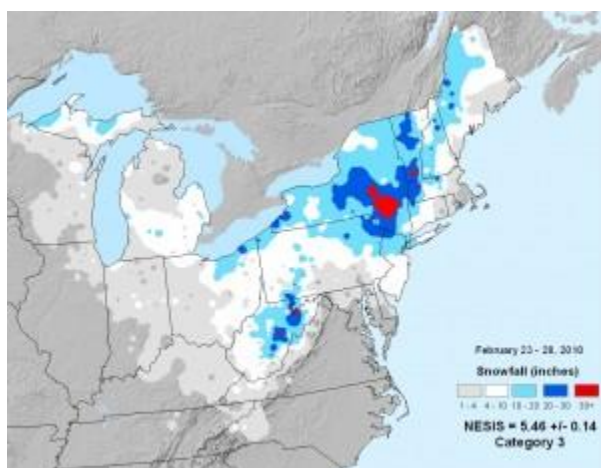
The Blizzard of Feb 9-11, 2010 began as a powerful Alberta Clipper then also experienced cyclogenesis and exploded as it reached the New Jersey Coast. At this point, it also formed an “eye” similar to a hurricane and was said to be of similar strength of a category 1 hurricane. Garrett County experienced very strong winds with this system as well as another 30 inches of snow. Because it came only a few days after the previous blizzard, these two storms became nicknamed in the Mid-Atlantic region as “snowmageddon” and “snowpocalypse” given the high impact they had on regions not normally used to such excessive snow.

Source: Northeast Snowfall Impact Scale (NESIS)



The Blizzard of February 25th and 27th Involved a complex combination of multiple systems, including an upper air low from the northern plains states, and a surface low from the gulf coast states. As the surface low tracked northeast from the Carolina Coast, the upper air low transferred its energy to it, eventually enabling the new storm to undergo rapid intensification near Long Island. A strong blocking regime of high pressure over the Canadian Maritime provinces prevented the storm system from exiting to the east. This resulted in a cutoff low which took a highly unusual track, retrograding west into New York State before looping back out to sea. During the prolonged period of snow due to the cutoff low’s flow over Lake Erie, Garrett County experienced nearly constant moderate to heavy snowfall during the 3-day period. Garrett County ended with 44 inches of snow.

Source: Northeast Snowfall Impact Scale (NESIS)





Snow banks, 495 Near Obrien Road February 2010, Submitted by Surya Chronister



Photos taken in Oakland, MD in February 2010 and submitted by Deanna Fryfogle.

2018 Status Update:

In the month of February 2010, Garrett County experienced the worst series of sustained winter weather in its recorded history. At the end of the month over 110 inches of snow had fallen in the County. In October 2012, Hurricane Sandy produced a blizzard event with snow amounts of more than 2 1/2 feet were reported in Garrett County, Maryland. Almost 95% of residents in Garrett county were without power during the peak of the snow-storm, which outages lasting over a week in many locations. Additionally, in 2016, Winter Storm Jonas produced a severe winter storm and snowstorm during the period of January 22-23, 2016. The highest snow amounts were reported occurred at Redhouse and Oakland in Garrett county Maryland with 38 and 36 inches of snow respectively.

There were a total of 34 substantial winter storm and ice events (caused infrastructure damage, death, or >6 inches of snow) reported by the National Centers for Environmental Information (NCEI) for Garrett County between March 1, 2010 and February 28, 2018.

However, the reporting shown on the Substantial Winter Storm events table below displays a reporting time period from January 24, 2004 through February 28, 2018. Overall, 67 substantial winter storm and ice events (caused infrastructure damage, death, or > 6 inches of snow) affecting Garrett County. Therefore, Garrett County experiences 0.22 substantial winter storm events per year and \$206,000 in damages.

Information gathered during the Plan update on *FEMA Disaster Declaration for Hurricane Sandy DR-4091 (2012)* included Public Assistance projects for several Volunteer Fire & Rescue Departments, Garrett Community College, County Board of Education, Community Action Committee, Emergency Management, County Facilities & Maintenance Department, Health Department, Garrett Regional Medical Center, Roads Department, Sanitary District, Sheriff's Office, Solid Waste & Recycling, and additional departments within the Towns of Loch Lynn Heights, Mountain Lake Park, and Oakland. The total cost of the FEMA Public Assistance for

Garrett County was \$1,767,151.90, with Garrett County being awarded \$1,316,058.41 in public assistance. In addition, *FEMA Disaster Declaration for Severe Winter Storm and Snowstorm Jonas DR-4261 (2016)* included projects for the Town of Friendsville, Mountain Lake Park, Oakland, County Facilities & Maintenance, Roads Division, and Solid Waste & Recycling. The total cost of the FEMA Public Assistance for Garrett County was \$295,052.89, with Garrett County being awarded \$221,289.67 in public assistance.

Table 16: Substantial Winter Storm Events

Location	Date	Event Narrative	Property Damage
January 24, 2004	Heavy Snow	A total of 8 to 9 inches of snow fell from the evening of the 23rd into the morning of the 24th.	Not Available
January 26, 2004	Heavy Snow	Snow began the afternoon of the 25th. Oakland reported 6 inches of snow before 7 AM on 26th.	Not Available
January 27, 2004	Heavy Snow	Snow began the afternoon of the 27th. Oakland reported 8 inches by 3 PM; Friendsville 8 inches by 9 PM.	Not Available
January 26 to 27, 2005	Winter Storm	Snow began about 7 AM on 22nd, changed to freezing rain and sleet around noon or so. By 3 PM, the ice was one quarter inch thick. Precipitation changed back to snow for a time, and by 4 AM on 23rd, Oakland reported 7 inches of snow and ice.	\$6,000
March 1, 2005	Heavy Snow	Rain and snow began early in the morning of Feb 28, changed to snow by noon. The heaviest part ended by noon Mar 1, but off and on snow showers added to the storm total through Mar 3. By 7 AM on the 1st, Friendsville had 16 inches; by 7 AM Mar 3, Savage River reported a total of 23 inches.	Not Available
October 25, 2005	Heavy Snow	The first snow storm of the season started at the highest elevations around 6 PM EDT on 24th. Six inches of snow accumulated by 4 AM on 25th. Redhouse and Oakland totaled 8 to 12" of snow. Snow was wet and heavy, knocking down numerous trees, which fell on power lines.	\$75,000
December 2, 2005	Heavy Snow	Snow started the morning of the 2nd, ended by 8 PM EST. Oakland got 7 inches of snow.	Not Available
December 8 to 9, 2005	Winter Storm	Snow started the evening of the 8th and mixed with sleet and freezing rain; and ended the morning of the 9th. Oakland received 6 inches of snow, followed by a thick glazing of ice. McHenry received 7 inches of snow.	Not Available
January 25 to 26, 2006	Heavy Snow	Snow began just after midnight on the 25th. The first 6 inches accumulated by 11 PM on 25th. By the time it ended, Accident had 7 inches, McHenry 9.	Not Available
February 12, 2006	Heavy Snow	Snow became heavy during the afternoon and diminished by 4 AM on the 12th. Garrett County got 6 inches by 2 AM on 12th and totaled 7 to 9 inches of snow.	Not Available
February 26 to 27, 2006	Heavy Snow	Snow began late in the afternoon of the 27th and ended around 2 AM on 28th. The first six inches accumulated by 10 PM on 27th. By the time it ended, Friendsville accumulated 11 inches of snow; McHenry and Savage River got only 10 inches.	Not Available
February 13 to 14, 2007	Heavy Snow	Six inches of snow fell across Garrett county by midafternoon with a storm total of 13 inches. 2 to 3 inches of sleet also fell with the snow.	Not Available
February 18 2007	Heavy Snow	Snow accumulations averaged 6 to 8 inches with up to 15 inches in the highest elevations.	Not Available
March 6 to 7, 2007	Heavy Snow	Spotters reported 6 to 10 inches of snow across the highest elevations of Garrett county.	Not Available
December 5, 2007	Heavy Snow	A trained spotter reported 8 inches of snow in Friendsville with over 6 inches in other parts of the county.	Not Available
January 1 to 2, 2008	Heavy Snow	Snowfall ranged from 6 to 12 inches across parts of western Pennsylvania, and along the ridges of northern West Virginia	Not Available

		and Garrett county Maryland.	
February 1, 2008	Winter Storm	Ice accumulations ranged from one quarter to nearly one-half inch. Travel was hazardous across the region and some trees and power lines were reported down.	\$25,000
February 29, 2008	Heavy Snow	Snowfall amounts were generally 6 to 8 inches in 12 hours.	Not Available
October 28 to 29, 2008	Heavy Snow	Total snowfall over a 36-hour period was near one foot in higher elevations of northern West Virginia and Garrett county Maryland, with 6 to 8 inches of snow in 36 hours across the lake effect counties and ridges of Pennsylvania.	Not Available
November 17 to 18, 2008	Heavy Snow	Storm total snowfall was up to a foot in the highest elevations with a general snow fall of 8 inches.	Not Available
November 20 to 21, 2008	Heavy Snow	Storm total snowfall was from 6 to 8 inches.	Not Available
November 25 to 26, 2008	Heavy Snow	In the higher elevations of northern West Virginia, western Pennsylvania, and Garrett county Maryland snow showers quickly accumulated from 6 to 12 inches with local amounts of 15 inches in the highest elevations.	Not Available
February 19 to 20, 2009	Heavy Snow	6 to 10 inches of snow fell across portions of Preston and Tucker counties in northern West Virginia as well as Garrett county Maryland.	Not Available
February 22 to 23, 2009	Heavy Snow	Total snowfall was from 8 to 12 inches across the region.	Not Available
December 5, 2009	Heavy Snow	An area of low pressure moving off the Carolina coast produced heavy snow in the ridges of northern West Virginia and Garrett county Maryland with storm totals from 6 to 8 inches in 12 hours.	Not Available
December 18 to 19, 2009	Heavy Snow	Total storm accumulations were from one to 2 feet in Preston and Tucker counties in West Virginia with over a foot in Garrett county Maryland.	Not Available
January 1 to 2, 2010	Heavy Snow	Storm totals ranged from 8 to 12 inches across this region.	Not Available
January 5 to 6, 2010	Heavy Snow	Heavy snow fell across Garrett county Maryland as well as the ridges of northern West Virginia and Fayette county in Pennsylvania. Snow showers accumulated 8 to 16 inches across these regions with the larger amounts across higher elevations.	Not Available
January 7 to 8, 2010	Heavy Snow	Snowfall totals ranged from 8 to 14 inches in Garrett County, with lesser amounts across the remainder of western Pennsylvania and northern West Virginia.	Not Available
February 5 to 6, 2010	Heavy Snow	Over 2 feet of snow fell across portions of Garrett county Maryland, and in Preston and Tucker counties in West Virginia, with locally 3 feet in some locations. Storm totals of 37 inches were reported in Friendsville, MD.	Not Available
February 9 to 11, 2010	Heavy Snow	Over 2 feet of snow fell across Garrett, Preston and Tucker counties with 9 to 24 inches of snow in Fayette and Westmoreland counties. Snowfall amounts ranged from 28 inches at Red House, MD. Winds gusting over 35 MPH in the higher elevations caused whiteout conditions at times with visibilities below one quarter mile for an extended period.	Not Available
February 15 to 18, 2010	Heavy Snow	Snow continued in northwest flow behind the storm into the 18th with storm totals in the ridges of northern West Virginia and Garrett county Maryland from 12 to 18 inches.	Not Available
February 25 to 28, 2010	Heavy Snow	Heavy snow fell in the ridges of Garrett county Maryland with storm totals of 12 to 36 inches. Highest reported storm totals were 34 inches at Red House in Garrett county, MD	Not Available

Source: NWS, NCDC (NOAA)

2018 HMP Update

Note: Due to changes in the data collection and processing procedures over time, there are unique periods of record available depending on the event type. NCEI has performed data reformatting and standardization of event types but has not changed any data values for locations, fatalities, injuries, damage, narratives and any other event specific

<i>information.</i>			
December 5 to 7, 2010	Heavy Snow	Storm total snowfall ranged from 6 to 10 inches with isolated 12-inch reports across northwest Pennsylvania and extended south into Butler county. Amounts in the ridges of western Pennsylvania, northern West Virginia, and Garrett county Maryland ranged from 12 to 18 inches.	0
December 13 to 14, 2010	Heavy Snow	Heavy snow also fell in the ridges of Preston and Tucker counties of West Virginia, and Garrett county Maryland. Storm totals of 6 to 10 inches of snow fell across portions of Pennsylvania, with more than one foot of snow in portions of West Virginia and Garrett county Maryland.	0
January 11 to 13, 2011	Heavy Snow	15-17 inches of snowfall were recorded in Terra Alta, Preston County and Davis, Tucker County over the 48-hour period and 11.2 was recorded in a 24-hour period in Fayette County.	0
January 26 to 17, 2011	Heavy Snow	Most locations received only light snow accumulations during the 24-hour period, but warnings were issued for the higher elevation counties of Preston, Tucker, and Garrett. Snowfall amounts generally ranged from 7 to 9 inches of snow over the warned area.	0
October 28 to 29, 2011	Heavy Snow	Storm totals of 6 to 12 inches of snow fell in 12 hours with some trees and power lines down in parts of Preston county West Virginia, and Garrett county Maryland.	\$100,000
December 7, 2011	Heavy Snow	Eight to twelve inches of heavy wet snow fell over Preston, Tucker, and Garrett counties while Three to five inches of snow fell in the higher ridge tops in Westmoreland and Fayette counties. Little snow accumulated further west. The system quickly moved off to the east late Wednesday night.	0
January 2 to 3, 2012	Heavy Snow	The heaviest snow fell on the higher elevations of northern West Virginia, Garrett county Maryland and southwest Pennsylvania with 6 to 14 inches of snow with blowing snow reducing visibilities.	0
February 10 to 12, 2012	Heavy Snow	Snowfall accumulations over the higher elevations of West Virginia, Pennsylvania, and Garrett county Maryland were around 8-12 inches, with most of the snow falling Saturday.	0
April 23, 2012	Heavy Snow	The heaviest accumulations occurred in the higher elevations; with 8 inches occurring in Oakland, Maryland and Acme, Pennsylvania.	0
October 29 to 31, 2012	Blizzard	Snow amounts more than 2 1/2 feet were reported in Tucker and Preston counties in West Virginia and Garrett county, Maryland. Almost 95% of residents in Preston, Tucker, and Garrett county were without power during the peak of the snow-storm, which outages lasting over a week in many locations.	0
October 31, 2012	Heavy Snow	Snow accumulated rapidly, up to two inches per hour for much of the overnight hours on the 29-30th. Very low visibilities resulting in and indirect fatality in Tucker county. Snow amounts more than 2 1/2 feet were reported in Tucker and Preston counties in West Virginia and Garrett county, Maryland. Almost 95% of residents in Preston, Tucker, and Garrett county were without power during the peak of the snow-storm, which outages lasting over a week in many locations.	0
December 29 to 30, 2012	Heavy Snow	A fast-moving surface low moving from the lower Mississippi Valley to the Ohio Valley brought a quick burst of snow and lingering up-slope snows, with the lagging upper level trough, to the northern West Virginia mountains and Garrett county Maryland. Snow amounts ranged from 7-14 inches in those locations with lower amounts of 2-5 inches recorded elsewhere.	0
January 26 to 26,	Winter	A trained spotter reported 5 to 7 inches of snow over a 30	0

2013	Weather	hours period across much of Garrett county.	
February 4 to 5, 2013	Heavy Snow	A fast-moving low-pressure system crossing the Ohio valley brought widespread snow to the region. While most locations received between 2-5 inches, 6-8 inches of snow was reported in the higher elevations of Preston and Tucker counties in West Virginia and Garrett county in Maryland.	0
March 5 to 6, 2013	Heavy Snow	Snowfall in Garrett county Maryland, Tucker and Preston counties in West Virginia, and the ridges of Fayette and Westmoreland counties received anywhere from 6 to 12 inches of snow in 12 hours.	0
March 24 to 25, 2013	Heavy Snow	Snowfall amounts from 8 to 12 inches in 12 hours fell in the higher elevations of Preston and Tucker counties in West Virginia, Garrett county Maryland, and the ridges of Fayette and Westmoreland counties in Pennsylvania.	0
December 14, 2013	Heavy Snow	Snow totals generally were under 6 inches in 12 hours except in the ridges of West Virginia and Garrett county Maryland.	0
January 23, 2014	Heavy Snow	Snowfall totals were from 8 to 12 inches, with the highest amounts near a foot across the higher elevations of Preston, Garret and Tucker counties.	0
January 25, 2014	Winter Weather	Over a 12 to 18-hour period, snow showers ahead of the front, combined with several lake enhanced and up-slope snow bands behind it, produced a general 3 to 5 inches of snow across the region, with 4 to 8 inches of snow in the higher ridges of West Virginia, western Pennsylvania, and Garrett county Maryland.	0
February 2 to 3, 2014	Heavy Snow	Amounts ranged from 6 to 12 inches, with highest totals of one foot of snow in Wetzel and Greene counties in Pennsylvania, and 10 inches in Garrett county Maryland, and in Monongalia county in West Virginia.	0
February 12 to 13, 2014	Heavy Snow	The deformation band sat over Tucker county in WV and Garrett county MD the longest, bringing 15-20 inches of snow countywide. Preston county also experienced 6-10 inches of snow before the heaviest band moved east. The counties adjacent to Preston, Tucker, and Garrett received 5-7 inches of snow through the afternoon on the 13th.	0
March 29 to 30, 2014	Winter Weather	The system produced light snow across much eastern Ohio, western Pennsylvania, northern West Virginia, and Garrett county Maryland. Colder northwest flow behind the system brought additional snowfall to the Laurel and Chestnut Ridges of Fayette county in Pennsylvania, the higher elevations of Preston and Tucker counties in West Virginia, and Garrett county in Maryland. 24-hour snow amounts were generally 2 to 4 inches in these areas, with isolated 7 to 8-inch reports above 2000 feet.	0
November 26, 2014	Winter Storm	Coastal low-pressure system brought snow to areas south and east of Pittsburgh during the day on the 26th. 6-8 inches of snow was reported across Preston and Tucker counties in West Virginia and Garrett county in Maryland.	0
February 21, 2015	Heavy Snow	Heavy snow fell through the day accumulating 6 to 10 inches across Preston and Tucker counties in West Virginia, and across Garrett county Maryland.	0
March 4 to 5, 2015	Heavy Snow	This brought a transition from rain to snow across eastern Ohio, western Pennsylvania, northern West Virginia, and Garrett county Maryland through the evening hours of the 4th, into the 5th. Six to twelve inches of heavy snow was reported in several counties in OH, WV, MD and southern PA through early afternoon on the 5th.	0
January 22 to 23, 2016	Heavy Snow	The highest snow amounts were reported occurred at Redhouse and Oakland in Garrett county Maryland with 38 and 36 inches of snow respectively. This surpasses the	0

		previous 2-day total for Oakland dating back to 1983. A State of Emergency was declared in Pennsylvania and Maryland, with Presidential declarations added later.	
April 7 to 8, 2016	Winter Weather	Much of the region received a coating to an inch of snow, while snow accumulations ranged from 3 to 7 inches across Garrett county Maryland, as well as Eastern Tucker and Preston counties in West Virginia.	0
April 8 to 9, 2016	Winter Weather	In the highest elevations of Garrett county Maryland, and Preston and Tucker counties of West Virginia, snowfall was from 6 to 10 inches, with amounts over one foot in eastern Preston and Tucker counties.	0
February 8 to 9, 2017	Heavy Snow	A general 6 to 10 inches of snow fell across the highest elevations of Garrett county, Maryland, and Tucker and eastern Preston counties in West Virginia.	0
March 14 to 15, 2017	Heavy Snow	While a pronounced dry slot and weak warm advection limited snow accumulation across much of the Ohio Valley, 6-12 inches of snow, with isolated higher amounts of up to 16 inches, was recorded in the mountains of West Virginia and in Garrett county, Maryland, with additional support from upslope enhancement through the 16th.	0
December 25, 2017	Winter Storm	A rapid warmup followed up a rapid cool down allowed rain to change to snow for Christmas morning. Heavy mountain snows were apparent for several hours of the morning. Oakland, MD, received 6 inches of snowfall over a very short window in the morning hours.	0
December 29, 2017	Winter Storm	An Alberta clipper system moved from the upper Mississippi Valley through the lower Ohio Valley on December 29, spreading a wide swath of 2-4 inches of snow across the region. As the system passed, upslope snow into the mountains intensified as a single dominant lake effect snow band emerged off Lake Erie and was directed at the mountains of southwest Pennsylvania, northern West Virginia, and western Maryland. The heaviest snow fell in the late morning of December 30. Some selected totals are 7 inches at McHenry and 6.4 inches at Oakland.	0
January 29 to 30, 2018	Winter Weather	Fast-moving system moved across the upper Ohio Valley late on the 29th through the morning of the 30th, with lake-enhanced snow bands developing immediately behind. As a result, 1-3 inches of snow was reported in much of western Pennsylvania with some isolated higher amounts from the resultant lake-enhanced snow bands. In addition, upslope enhancement lead to several 4-6 inches of snow across the higher terrain of Pennsylvania, West Virginia, and Garrett county in Maryland.	0
February 17 to 18, 2018	Winter Weather	A quick moving low pressure brought snow to parts of southwestern Pennsylvania, northern West Virginia, and western Maryland starting the afternoon of the 17th and ending early in the morning on the 18th. The snow started fast with 1-2 per hour accumulations. With a recent warm up, accumulation was largely confined to grassy surfaces. The highest snowfall totals fell in the mountains of northern West Virginia, western Maryland, and the Laurels of southwestern Pennsylvania, where the snow ranged from 6-8 inches in the highest peaks.	0

Source: NWS, National Centers for Environmental Information (NOAA)

Table 17: Extreme Cold Events

Date	Event Narrative
January 16 to 17, 2009	The lowest low temperatures ranged from 10 below zero at Pittsburgh to 22 below zero at Accident, Maryland. Low temperatures were generally 10 to 15 degrees below zero elsewhere.
December 11, 2009	Arctic air behind a strong storm system brought wind chill values to between 10 and 15 below zero to the higher elevations of western Pennsylvania, northern West Virginia, and Garrett county Maryland.
<i>Source: NWS, NCDC (NOAA)</i>	
2018 HMP Update	
January 5 to 7, 2014	A low temperature of 15 degrees below zero with a wind chill of 43 degrees below zero was recorded near Oakland the morning of the 7th.
January 21 to 22, 2014	Wind Chill readings near 25 below zero were recorded the morning of January 22nd in Oakland.
January 27 to 29, 2014	Wind chills reached near 30 below just after midnight of the 28th. Morning lows ranged from 5 to 15 below zero the 28th and 29th, with Friendsville recording -13 on the 28th and -14 on the 29th.
February 14 to 16, 2015	A wind chill reading of -32 was recorded near Deep Creek Lake the morning of the 15th, with a low temperature of -11 the morning of the 16th.
February 19 to 20, 2015	The morning low at Accident was -15.
February 24, 2015	A low temperature of -16 was recorded at Friendsville.
January 4 to 6, 2018	Seasonably frigid temperatures were in place at the beginning of January, which resulted in a prolonged period of wind chill headlines across the region. Low temperatures below zero to single digits above resulted in wind chill readings of -10 to -30 from the 3rd of January to the 7th.

Source: NWS, National Centers for Environmental Information (NOAA)

In January 2018, Oakland, Maryland experienced a total snowfall of 20.59 inches, an average high temperature of 31.0°F (normal: 35°F), an average low temperature of 10.4°F (normal: 16°F). The monthly average temperature was 20.7°F (normal: 25°F).

5.4 MUNICIPAL PERSPECTIVE:

2018 Status Update: The chart below shows the number of inclement weather closing for Garrett County Public School from 2004-2017.

Winter storms in Garrett County are normally widespread and affect the municipalities in much the same way as they do the county in general. There are occasions when the northern towns, Accident, Friendsville and Grantsville, are affected more by “Lake Effect” snow than the other towns, but by and large, the towns are similar to the county in terms of winter storm effects.

Table 18: Total Number of Inclement Weather Closings

Study of Garrett County Public Schools (GCPS) Class of 2017	
School Year	School Closings
2004-2005	6
2005-2006	8
2006-2007	7
2007-2008	8
2008-2009	9

2009-2010	17
2010-2011	10
2011-2012	3
2012-2013	14
2013-2014	20
2014-2015	15
2015-2016	4
2016-2017	6
Total	127
Average	9.77

Source: Garrett County Public Schools

5.5 PREVIOUS MITIGATION STRATEGIES:

2018 Status Update: Garret County Emergency Management provides up-to-date information to the residents of the county through media outlet press releases. A toll-free information line was established for citizens during extreme cold weather events for non-life threatening situations. In addition, information on proper generator installation and operation, along with warnings were provided to ensure the safety of its county residents.

Garrett County is probably the best equipped county in the State of Maryland when it comes to dealing with winter storms. Both the State Highway Administration and the County Roads Department have dealt with winter storms for many years and are trained and equipped to do so.

In 2018, according to the Garrett County Public Works Roads Division, the summer and winter operations within the department are as follows:

Roads Division Personnel

- 85 Full-Time Hourly Employees
- 11 Contractual Employees
- 12 Road Foremen for three area garage locations
- 3 Assistant Roads Chiefs (One per garage location at Oakland, Accident, and Grantsville Garage)
- 3 Purchasing/Parts Coordinators (One per garage location at Oakland, Accident and Grantsville Garage)
- Administrative Office Personnel includes:
 - Public Works Director
 - Roads Division Chief
 - Administrative Roads Coordinator
 - Sign Shop Technician
 - Engineering Staff

County Roads Maintenance

- County Roads maintains 682.50 miles of roadway
 - Oakland Area = 246.05 miles

- Accident Area = 227.97 miles
- Grantsville Area = 208.48 miles
- County Roads maintains 127 bridges

Snow Removal Equipment

- Equipment Inventory
 - 53 Single Axle Trucks with plows and spreaders
 - 9 Road Graders with plows and sidewings
 - 6 Loaders
 - 3 Loader mounted Snow Blowers
 - 1 Self-propelled Snow Blower
 - 6 Backhoes
 - 2 – 1-ton Trucks with plows and spreaders
 - 10 Triaxles



Winter Operations Shifts

- Two (2) shifts run during winter operations
 - Day Shift – Normal Work Hours 7 a.m.-3:30 p.m.
 - Night Shift – Normal Work Hours 5 p.m.-1:30 a.m.
- 40 Routes Day Shift / 22 Routes Night Shift
- Average Day Shift routes 35.2 miles and takes approximately 2 to 2 1/2 hours to cover
- Average Night Shift routes 67 miles and takes approximately 4 to 5 hours to cover

Stockpiled Materials

- Current inventory stock 30,000 tons antiskid stockpiled at area garages
- Approximately 1,200 tons of salt mixture stocked (Salt mixture is 70% antiskid/30% salt)
- Salt mixture utilized only on high traffic roads and around school areas

Spring and Summer Operations

- Average 24 miles per year of paving
- Average 42 miles per year of tar and chip surfacing
- Continual cycle of culvert replacement, ditch grading, brush cutting, and other general maintenance work completed throughout seasonal operations

The county's Emergency Management Agency and the local police, fire and rescue departments are also trained to deal with winter storms and the types of situations that result from these storms. Additionally, the County's Building Code contains snow loading and wind load requirements for new structures as shown on Figure 19. These codes have been modified to reflect the climate of the area and include a modified requirement for footings and foundations due to the lower frost line in the county.

RIVERINE FLOODING

6. 1 FLOOD PROFILE:

The FEMA definition for flooding is “a general and temporary condition of partial or complete inundation of normally dry land areas from the overflow of inland or tidal waters or the rapid accumulation of runoff of surface waters from any source.” Floods can be caused by the passage of frontal storms, thunderstorms, hurricanes, snow melt or some combination of the above events. According to an article by Doyle Rice published in USA Today on January 4, 2017, the “US had more floods in 2016 than any other year on record.” In total, 19 separate floods swamped the nation last year (2016), the most in one single year since records began in 1980. Historically, the greatest flood events for Maryland remain the 1936 floods on the Potomac and the 1972 flood resulting from Hurricane Agnes.

There are two different types of flooding that are associated with rivers and streams: flash flooding and riverine flooding. Flash flooding occurs from the combination of rainfall intensity and duration. Typically, the determining characteristics that can induce a flash flood include high rainfall intensity over a short time duration. Flash floods can be further influenced by local topography, the ground’s capacity to hold water and soil moisture content. The sudden release of water can also cause flash floods, such as the breakup of an ice jam or dam.

Flooding is the most common, destructive, and deadliest natural disaster in the nation. Almost 90% of Presidential declarations involve flooding. Annual flood damage nationwide averages six billion dollars. In Maryland, flooding is a concern because it is a coastal state with over 12 percent of its surface area in floodplains and tidal shoreline. In 2003, the Maryland Geological Survey reported that based on a shoreline interpreted from air photos flown between 1988 and 1995, Maryland’s tidal shoreline, bordering the Chesapeake Bay, its tributaries, the coastal bays, and the Atlantic coast, is 7,719 miles long, as reported in *Maryland’s Shoreline Length and Background Guidance, 2013, Maryland Department of Natural Resources*.

6. 2 COUNTY PERSPECTIVE:

2018 Status Update: According to the 2016 *State of Maryland Hazard Mitigation Plan*, Garrett County has a ranking of “Medium” for flooding. The HMPC ranks flooding as “High” due to the high risk of potential loss of life and possible severe property damage both in the upper Youghiogheny and upper Potomac Basins.

The Special Flood Hazard Areas (SFHA) boundaries within Garrett County were updated utilizing new engineering analysis that were performed within the FEMA Flood Risk Project. The updated modeling produced new flood zone areas and new base flood elevations in some areas and leverage recently developed LiDAR-based topographic data. As a result, new Digital Flood Insurance Rate Maps (DFIRMs) for Garrett County were developed and became effective in October 2013.

2018 Status Update continued: Prior to adoption of the floodplain management ordinance, 290 letters were sent to county property owners regarding changes to the FEMA regulated mapped floodplain. Letters included points of contact and additional information. In addition, public meetings were held to discuss changes to the FEMA regulated mapped floodplain and the National Flood Insurance Program. Repetitive Loss and mitigating grant opportunities were highlighted at public meetings.

In Garrett County flooding is normally associated with rapid runoff from excessive rainfall or from rapid snowmelt or some combination of the two. Steep slopes, poor soil condition for retaining moisture and the geologic structure of the County make flooding more likely for a given amount of precipitation than would be the case in an area having mildly sloping terrain and good soil conditions. Man-made activities such as timbering, mining, and road building in this terrain can cause increased runoff that makes downstream areas more susceptible to damage from natural occurring events. Dam failure at one of Garrett County’s large impoundments would also cause flooding on a potentially much larger scale.

With the above factors in mind, Garrett County is not only susceptible to widespread flooding along major streams and rivers as shown on Figure 25 where the 100-year floodplain has been mapped by FEMA but is also subject to flash flooding along smaller tributaries in the headwaters of its steep sloped drainage basins. Because local climatic conditions can produce large amounts of precipitation at any time of the year, the potential for flooding is not limited to any particular season. Historically, however, most major floods have occurred in the late winter or early spring when heavy snow accumulations are melted in conjunction with heavy rainfall, or in late summer or early fall during the hurricane season.

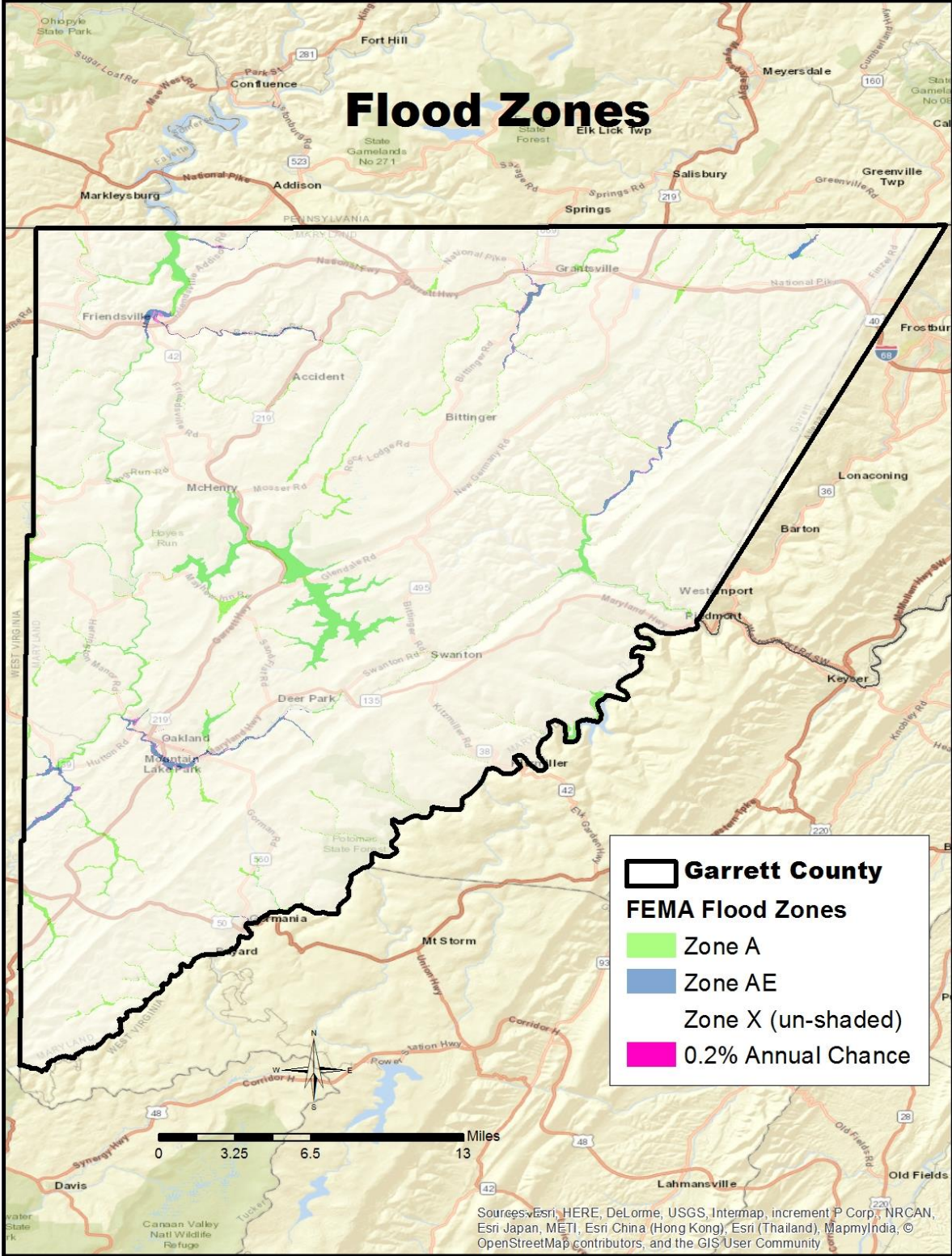
Table 19: Flood Zones in Garrett County

Flood Zone	Description
High Risk Areas	
A	Areas with a 1% annual chance of flooding and a 26% chance of flooding over the life of a 30-year mortgage. Because detailed analyses are not performed for such areas; no depths or base flood elevations are shown within these zones.
AE	The base floodplain where base flood elevations are provided for a 100-year flood event. AE Zones are now used on new format FIRMs instead of A1-A30 Zones.
Moderate Risk Area	
X (Shaded) 0.2% or 500-yr.	Moderate flood area(s), shaded area(s) shown on FIRM, are the areas between the limits of the base flood and the 0.2-percent-annual-chance (or 500-year) flood.
Low Risk Area	
X (Un-shaded)	The areas of minimal flood hazard, which are areas outside the SFHA and higher than the elevation of the 0.2 percent-annual-chance flood, are labeled Zone X (un-shaded).

Source: FEMA

Flood zones are the geographic areas that FEMA has defined according to their varying levels of flood risk. The flood zones for Garrett County are described in the above table, Table 19, along with Map 1 have been added.

Map 1: Flood Zones



6.3 FLOOD HISTORY:

Since 1924, Garrett County has been affected by several high-water events as shown on Figures 20 and 21, with several events surpassing the 100-year base flood recurrence interval in selected watersheds. Being at the headwaters of two major stream basins, the Potomac and Youghiogheny Rivers, and with each containing several significant tributaries, flooding can occur in one part of the county while another basin is relatively unaffected. Examples of major floods since 1924 include:

- The March 1936 snow melt event which affected much of the northern Appalachians,
- the passage of Hurricane Hazel in the fall of 1954, which affected parts of the Potomac Basin;
- The passage of Hurricane Agnes in the summer of 1972, which caused widespread flooding throughout the northeast;
- The flood of 1985 which resulted from excessive rainfall over several days and affected the Potomac Basin, particularly in the South Branch Valley in nearby West Virginia; and
- Flooding from snowmelt accompanied by heavy rain affected both Garrett and Allegany Counties in January 1996, and that same year the County was impacted by the passage of Tropical Storm Fran in September.

More recently, rainfall that started overnight Feb 15, 2018 causing flooding in several areas of Garrett County. Roads that were closed to traffic included Mansfield Road, Silver Knob, Jasper Riley, Crellin Mine, Steyer Gorman, Crellin Underwood and Md. 495 at Maple Grove Road at old Casselman Lumber. Partially flooded roads included Mason School Road (2715 area,) Liberty Street, Bethlehem Road near Combination Road, Garrett Road, Boiling Springs near Filsinger Lane, Herrington Manor Road between big dip and Oakland, U.S. 219 at Blue Ribbon Road, Oakland Drive and Pensinger Boulevard, Jasper Riley, Curts Chapel, Pleasant Valley, and U.S. 219 south of Lake Shore Drive. The photo to the right shows the Little Youghiogheny leaving its banks in Oakland.



Source: *The Garrett County Republican*

2018 Status Update: In terms of number of occurrences, the NWS, National Centers for Environmental Information reported a total of 41 flood events that have occurred in Garrett County between April 19, 1998 and February 28, 2018. Therefore, Garrett County experiences 0.51 flood events per year. The total amount of reported property damage between this period is \$440,000 and according to the data available, most of this property damage was in the form of flooded roads.

Table 20: Flooding Events

Location	Date	Event Narrative	Property Damage
Countywide	April 19, 1998	Heavy rains produced between 2.0 and 3.0 inches of rain across the area. Several small streams briefly came out of their banks and created some minor low-land flooding.	Not Available
Finzel	May 4, 1998	A road was closed due to flooding near Finzel.	Not Available
Countywide	February 18 to 19, 2000	Heavy rains produced road flooding across much of the county. In the Oakland area, water up to one foot deep was reported on some roads.	\$20,000
Countywide	July 30, 2000	Strong, slow-moving thunderstorms produced torrential rainfall of up to 3 inches in just over an hour over portions of Garrett County. In the Keysers Ridge area, minor road flooding was reported on SR 40. Mudslides were also reported along Interstate 68, where nearly half a foot of water and debris covered the roadway. Several other roads in the county reported flooding, including Devils Half Acre Road, which was partially washed away. In the Grantsville area, Mill Camp Road was also flooded.	\$25,000
Countywide	August 6, 2000	Just north of the Friendsville area, a campground was evacuated due to flooding from Mill Run Creek. More than 20 county roads, mostly in the northern portion of the county, were either damaged or temporarily closed due to flooding. In addition, flooding forced the temporary closure of State Route 42 in the Friendsville area and State Route 135 in Bloomington.	\$50,000
Oakland	July 26, 2001	Thunderstorm rains produced minor roadway flooding, including portions of SR 219.	Not Available
Gorman	July 29, 2001	Heavy thunderstorm rains produced over 3 inches of rainfall at several locations across Garrett County. This heavy rain forced creeks out of their banks in the Gorman area, forcing the temporary closure of several roads.	\$50,000
New Germany	August 3, 2001	A nearly stationary thunderstorm over Savage River State Forest produced over 2 inches of rainfall in around an hour. This heavy rainfall forced several streams out of their banks in the Merrill area.	Not Available
Countywide	April 28, 2002	Heavy thunderstorm rains forced Buffalo Run Creek out of its banks, producing minor roadway flooding on Buffalo Run Road. Minor street flooding was also reported in the Oakland area.	\$5,000
Oakland	May 2, 2002	Heavy thunderstorm rains estimated by radar to be between 2 and 3 inches produced roadway flooding in the Oakland area.	Not Available
Countywide	May 10, 2003	Several roads flooded by overflowing small streams and creeks.	Not Available
McHenry	July 6, 2003	Road flooded	Not Available
Oakland	July 9, 2003	1 to 2 feet of water covered numerous roads near Oakland, including Mason School Rd, Pleasant Rd, and Jasper Valley Rd.	Not Available
Oakland	July 28, 2003	Route 219 flooded, south of Oakland.	Not Available
Crellin	August 9, 2003	Basements flooded along Route 39.	\$10,000
Redhouse	August 12, 2003	Flooding on Wilson Carolla Rd near Table Rock.	Not Available
Friendsville	August 27, 2003	Roads flooded.	Not Available
Gorman	September 1, 2003	Route 560 flooded.	Not Available
Countywide	September 19, 2003	After nearly 6 inches of rain, streams overflowed and flooded many roads around Oakland.	Not Available
Grantsville	November 12, 2003	Several roads flooded.	Not Available
Grantsville	November 19, 2003	Route 495 flooded.	Not Available
Not Available	February 6 to 7, 2004	Ice jam break up and movement caused streams to go over their banks. Some roads were flooded.	Not Available
Not Available	March 6, 2004	Floods and mud slides on Route 495 near Grantsville and Route 495 near Swanton.	Not Available
Countywide	August 30, 2004	Post Office flooded in Grantsville. Route 219 flooded in Gortner. Several roads flooded in Oakland.	\$5,000

Not Available	September 8 to 9, 2004	Rain from the remnants of Hurricane Frances began early on the 8th and ended early on the 9th. By 7 PM EDT on 8th, Casselman River went out of its banks, near Grantsville.	Not Available
Not Available	September 17 to 18, 2004	A few roads were flooded near Grantsville.	Not Available
Redhouse	July 13, 2005	20 feet of water covered roads.	\$20,000
McHenry	April 22, 2006	Several roads closed by flooding and mud slides in Mc Henry and Oakland.	\$10,000
Grantsville	June 26, 2006	Roads flooded.	Not Available
McHenry	December 13, 2007	County official reported multiple streams and creeks out of their banks with numerous roads closed due to flooding.	\$10,000
Grantsville	May 31, 2008	Emergency management reported flooding along National Pike, Springs Rd, and River Rd.	\$25,000
Sand Spring	August 2, 2008	Emergency management reported a rock slide on SR 42 near Sand Spring due to heavy rain. Basement flooding was also reported in Accident.	\$25,000
Blooming Rose	May 4, 2009	A trained spotter reported Laurel Run out of banks and flooding roads near Friendsville. Rain amounts over a 24 to 36-hour period were from 2 to 3 inches on top of soils that were already saturated.	\$25,000
Friendsville	June 17 to 18, 2009	Law enforcement reported flooding along Mill Run in Friendsville.	\$25,000

Source: NWS, NCDC (NOAA)

2018 HMP UPDATE

Note: Due to changes in the data collection and processing procedures over time, there are unique periods of record available depending on the event type. NCEI has performed data reformatting and standardization of event types but has not changed any data values for locations, fatalities, injuries, damage, narratives and any other event specific information.

Friendsville	April 19, 2011	Fire rescue reported numerous roads flooded on the west side of Friendsville.	\$25,000
Mtn Lake Park	February 29, 2012	Public submitted photo via media web page showing water flowing over Sand Flat Road.	\$10,000
Deer Park	February 29, 2012	Emergency manager reported numerous roads and streets flooded.	\$50,000
Bond	May 27, 2012	Emergency management reported Spring Lick Road washed out by flash flooding. Trees along roadway washed out blocking road.	\$50,000
Elden	August 28, 2013	State official reported numerous roads closed and basements flooded in Friendsville.	0
Sang Run	August 28, 2013	State official reported that Oakland-Sang Run Road was washed out in several locations.	0
Mtn Lake Park	August 28, 2013	State official reported that several roads and basements were flooded in Mountain Lake Park.	0

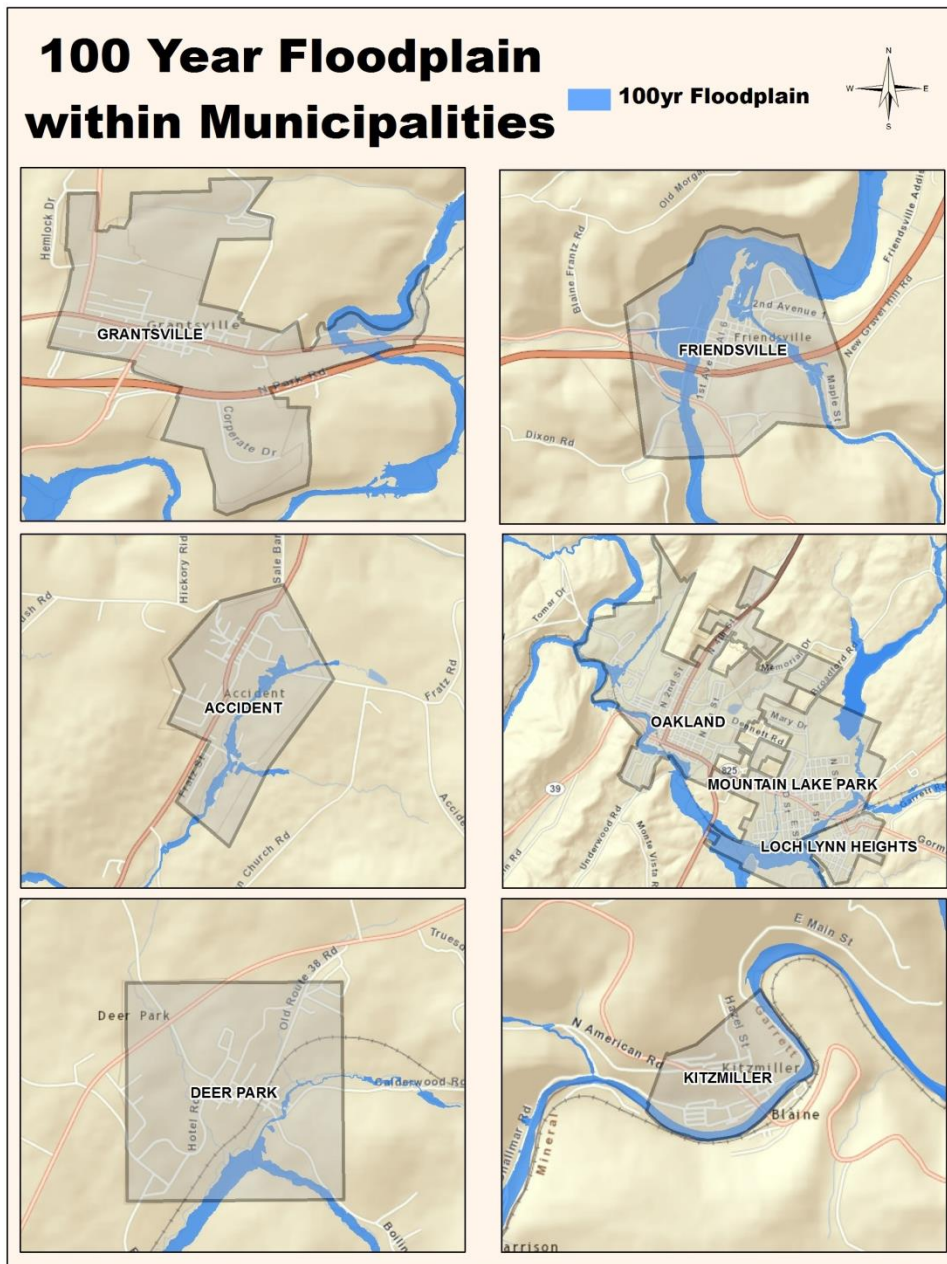
Source: NWS, National Centers for Environmental Information (NCEI)

6. 4 MUNICIPAL PERSPECTIVE:

Of the eight municipalities in Garrett County, three are located within the floodplain of major streams, and five are located along the headwaters of streams but have floodplain areas within the town limits. Kitzmiller, located on the Potomac River upstream of the Bloomington Dam, has suffered flooding during many of the flood events in Garrett County that have affected the Potomac Basin. Friendsville, located on the Youghiogheny River upstream of the Youghiogheny Reservoir, has also suffered flooding during major events in that basin. Oakland, Mountain Lake Park, Loch Lynn Heights, and Deer Park have sustained limited damage from flooding in the Little Youghiogheny watershed. These four communities are also susceptible to stormwater damage from intense localized storms that produce rapid runoff. New urban development upslope of existing urban areas which have inadequate stormwater facilities can cause runoff problems as these communities expand. The final two communities, Grantsville is situated on

higher ground outside mapped floodplains, but is still susceptible to localized flooding from intense storms and from stormwater runoff.

Map 2: Municipalities with Floodplain



6. 5 PREVIOUS MITIGATION STRATEGIES:

As mentioned in the Hazard Mitigation section, Garrett County has purchased a number of homes in the floodplain areas of both the Potomac River and the Youghiogheny River in the communities of Shallmar, Crellin and Oakland. In addition, the County has worked with the Soil Conservation Service (now the Natural Resources Conservation Service) to construct 6 flood

control dams in the upper Youghiogheny basin near Oakland and Mountain Lake Park. The County has also elevated several homes in Crellin and has constructed a flood wall around the Friendsville water treatment plant. The county has installed stream level sensors at Crellin, Kitzmiller and Bloomington. These sensors will be made part of the county’s Hazard Warning System that was recently installed as part of a dam safety initiative.

The County also has adopted a Floodplain Ordinance. The ordinance has been amended various times since it was originally adopted, with the most recent version, recorded August 23, 2013, which establishes criteria for new development in the floodplain of mapped streams. In addition, the 2010 Stormwater Management Ordinance and the 2013 Sediment and Erosion Control Ordinance, which prescribes controls for runoff in newly developing areas. These measures are noted on Figure 24.

2018 Status Update: Mitigation grant projects in Garrett County that have been funded over the course of the last five-year planning cycle (2012-2017) are included on the table below. While all projects listed, except for one (1), are multi-hazard emergency back-up power projects, the Kitzmiller dredging project is categorized as a flood mitigation project.

Table 21: 2012-2017 Grant Funded Mitigation Projects

Project	Location	Amount Awarded
Acquisition of generator for water and sewer systems	Accident	\$8,915
Acquisition of generator for (2) at water treatment plants	Grantsville	\$9,500
Acquisition of generator for municipal building	Loch-Lynn Heights	\$2,134
Acquisition of generator for fire station used as a shelter	Friendsville	\$52,290
Acquisition of generator for fire station used as a shelter	Grantsville	\$134,552
Acquisition of generator for building used as a senior center, homeless housing and office for social service provider	Oakland	\$252,985
Acquisition of generators at (5) senior housing developments	Countywide	\$108,005
Dredging in the Potomac River to prevent flooding	Kitzmiller	\$326,200

Source: Source: Department of Public Works – Roads Division, Hazard Mitigation Planning Committee, and Garrett County Municipalities

2018 Status Update: Frequently flooded roads were identified and ranked by the HMPC in 2011. This listing was reviewed and modified slightly during the 2018 update by the HMPC and Paul Harvey – Department of Public Works – Road Division. In addition, each of the municipalities were asked the following question “Are there any areas of concern within your municipality that repetitively flood, such as roadways?” Information provided by the HMPC, the Department of Public Works – Roads Division, and municipalities were added in the table below.

Table 22: Frequently Flooded Roadways

Road	Maintained By	Municipality	Ranking
Industrial Park Drive (just east of Fratz Street)	Municipal	Accident	M
Route 742 on Maple Street (flooding of Youghiogheny)	Municipal	Friendsville	HIGH
Water Street (flooding of Youghiogheny)	Municipal	Friendsville	HIGH
Maple Street @ Walnut Street (due to Bear Creek)	Municipal	Friendsville	M
Allegheny Drive (from G to Oak Street)	Municipal	Mountain Lake Park	M
N Street (just north of Baltimore Street)	Municipal	Mountain Lake Park	M
Deer Park Avenue (between Dennett Road and Alexander Lane)	Municipal	Mountain Lake Park	M
West Liberty Street (at Bradley Run)	Municipal	Oakland	HIGH
Willow Lane (between Fairway and Woodland Drive)	Municipal	Oakland	M
Second & Green Street	Municipal	Oakland	L
Eighth @ Arch Street	Municipal	Oakland	L
Blue Ribbon Road (at Clark Creek)	County	N/A	M
Silver Knob Road (at Youghiogheny River)	County	N/A	M
Smouse Road (End of Roanoke to Pleasant Valley Road)	County	N/A	M
Pleasant Valley Road (at Trout Run Creek)	County	N/A	M
Jasper Riley Road (at Trout Run Creek)	County	N/A	M
Lynndale Road (at Trout Run Creek)	County	N/A	M
Bethlehem Road (at Laurel Creek Run)	County	N/A	M
Wilson Corona Road (at Shields Run Creek)	County	N/A	L
Althouse Hill Road (along N. Branch Potomac River)	County	N/A	M
North Hill Road (at Wolfden Run Creek)	County	N/A	M
Shallmar Road (along N. Branch Potomac River)	County	N/A	HIGH
Underwood Road (at Youghiogheny River)	County	N/A	HIGH
King Wildersen Road (at Glade Run Creek)	County	N/A	L
Fish Hatchery Road	County	N/A	M
Dung Hill Road	County	N/A	L
Cranesville Road	County	N/A	M
Sang Run Road	County	N/A	M
Glade Road	County	N/A	L
Buffalo Run Road	County	N/A	L

Aiken Miller Road	County	N/A	L
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Source: Department of Public Works – Roads Division, Hazard Mitigation Planning Committee, and Garrett County Municipalities

THUNDERSTORM-LIGHTNING

7.1 THUNDERSTORM PROFILE:

Thunderstorms are usually high intensity storms of short duration originating in a warm moist air mass that either is forced to rise by mountainous terrain or by colliding with a cooler dense air mass. The process of convection in the atmosphere brings about the release of moisture from the warm air mass as it rises, cools and condenses. This condensation proceeds until most of the moisture in the air mass has been precipitated. Since the motion of the air is nearly vertical, and attains high velocities, rainfall is intense and generally concentrated over a small area in a short time frame. Thunderstorms can be 10-15 miles in diameter and normally last 20 to 30 minutes. Lightning, high winds, and occasionally tornadoes are associated with thunderstorms.

When wind speeds exceed 58 mph, thunderstorms are considered severe. One of the most extreme hazards from thunderstorms is a lightning strike. Lightning has been known to strike up to 6-10 miles from the storm in an area of clear sky. It is estimated that more than 30,000,000 points on the ground in the continental 48 states are hit by lightning in a single year.

7.2 COUNTY PERSPECTIVE AND HISTORY:

2018 Status Update: According to the *2016 State of Maryland Hazard Mitigation Plan*, Garrett County has a ranking of “Medium” for thunderstorms. The HMPC ranks the risk higher, at “Medium-High” based on local experience with the frequency of severe storm events.

Garrett County is affected by thunderstorm activity both by the interaction of warm and cool air masses and by the lifting of warm air as it passes over the Appalachian Plateau. Thunderstorms are more common in the spring when frontal zones are passing over the county from west to east and during the summer months when warm, moist air is lifted over the Plateau from the south and west. Intense thunderstorms over the steep terrain in Garrett County result in rapid runoff, particularly in the headwaters of small stream basins. The Potomac, Savage, and Youghiogheny basins are particularly steep and have high runoff rates, particularly where strip mining or timber operations are underway. In urban areas runoff from stormwater is a problem for downstream property owners when new construction occurs upslope from existing developed areas that have inadequate stormwater systems.

2018 Status Update: In terms of number of occurrences, the NWS, National Centers for Environmental Information reported a total of 95 thunderstorms that have occurred in Garrett County between May 10, 1995 and September 2017. Therefore, Garrett County experiences 0.25 thunderstorm events per year. The total amount of property damage reported between the same time was \$894,500 with the winds produced during the thunderstorm causing most of the damage. Seventy-six (76) thunderstorm events with reported property damage are included in 2018 HMP update section below in Table 23. No lightning events were reported during this update period.

Thunderstorm events with reported property damage are included in Table 23 below.

Table 23: Thunderstorm Events

Location	Date	Event Narrative	Property Damage
Friendsville	May 10, 1995	Trees downed by thunderstorm winds.	\$2,000
Countywide	July 15, 1995	Thunderstorm winds downed numerous branches and a few trees across the county.	\$1,000
Countywide	August 6, 1995	A few trees were downed by thunderstorm winds throughout the county.	\$1,000
Swanton	June 11, 1996	Thunderstorm winds downed trees in Swanton.	\$2,000
Bloomington	June 11, 1996	Thunderstorm winds downed trees in Bloomington.	\$2,000
Redhouse	July 18, 1997	Thunderstorm winds downed large trees.	\$2,000
Oakland	July 28, 1997	A tree fell onto a car in Oakland. Numerous trees were downed near Deep Creek Lake and throughout the county.	\$20,000
Oakland	August 17, 1997	Thunderstorm winds downed some trees.	\$2,000
Grantsville	June 2, 1998	Thunderstorm winds blew down several large trees.	\$5,000
Countywide	June 16, 1998	Thunderstorm winds blew down numerous large trees across the county.	\$25,000
Friendsville	June 26, 1998	Thunderstorm winds blew several large trees down.	\$5,000
Friendsville	September 7, 1998	Thunderstorm winds downed several trees onto Friendsville Road.	\$5,000
Kitzmilller	July 17, 1999	Thunderstorm winds downed several trees and power lines.	\$3,000
Oakland	July 31, 1999	Thunderstorm winds downed several trees and power lines.	\$3,000
Grantsville	May 13, 2000	Thunderstorm winds downed several trees.	\$5,000
McHenry	June 2, 2000	Thunderstorm winds downed a few large trees.	\$2,000
Oakland	June 2, 2000	Thunderstorm winds downed several trees.	\$5,000
Kitzmilller	June 2, 2000	Thunderstorm winds downed a few large trees.	\$2,000
Friendsville	June 15, 2000	Thunderstorm winds downed a few trees and power lines.	\$3,000
Countywide	November 9, 2000	Thunderstorm winds downed numerous trees across the county.	\$10,000
Oakland	July 1, 2001	Thunderstorm winds downed a few trees.	\$2,000
Accident	August 28, 2001	Thunderstorm winds downed several large trees.	\$5,000
Countywide	March 9, 2002	As showers formed during the day, strong winds were occasionally brought down to the surface. This combination of strong gradient winds and severe thunderstorm winds produced widespread damage across the area, mostly in the form of downed trees and power lines.	\$10,000
McHenry	May 31, 2002	Thunderstorm winds downed several large trees and power lines in the Deep Creek Lake area.	\$5,000
Altamont	August 1, 2002	Thunderstorm winds downed several trees.	\$5,000
Oakland	August 3, 2002	Thunderstorm winds downed numerous trees in and near the Oakland area.	\$10,000
Thayerville	July 8, 2003	Large tree down in Deep Creek Park.	\$1,000
McHenry	July 12, 2003	Trees down.	\$1,000
Oakland	July 14, 2003	Trees and power lines blown down.	\$1,000
Friendsville	August 3, 2003	Many trees down.	\$3,000
Oakland	August 26, 2003	Trees and power lines blown down by wind.	\$2,000

McHenry	May 15, 2004	Trees snapped off and uprooted along Gap Run Rd. Two sheds damaged.	\$15,000
Oakland	May 21, 2004	72 mph wind gust measured. Numerous large trees down.	\$10,000
Oakland	August 4, 2004	Trees and power lines blown down onto Rte 219.	\$2,000
Oakland	August 20, 2004	Large tree blown down.	\$2,000
Hoyes Run	August 9, 2007	Emergency management reported trees down south of Friendsville.	\$10,000
Blooming Rose	February 6, 2008	Emergency management reported numerous trees and power lines down across the northern part of the county from near Friendsville to Accident.	\$25,000
Neeler Glade	May 31, 2008	An NWS storm survey found a microburst occurred about 5 miles southeast of Friendsville. The path of damage was confined to several hundred yards off of White Rock Rd. The width of damage was 200 to 300 yards. Numerous trees were toppled or snapped.	\$10,000
McHenry	June 10, 2008	The public reported trees down in McHenry.	\$10,000
Friendsville	June 29, 2008	Emergency management reported large trees down in Friendsville.	\$25,000
Kitzmilller	June 17, 2009	The Fire Department reported large trees and power lines down in Kitzmilller.	\$50,000
Bittinger	June 24, 2010	Fire Rescue reported trees down blockong a driveway in the town of Bittinger.	\$25,000
Friendsville	July 25, 2010	Emergency management reported trees down north of Friendsville.	\$25,000
Gortner	July 25, 2010	The public reported trees down and a small metal storage shed destroyed south of Oakland.	\$35,000
Friendsville	August 4, 2010	Emergency management reported numerous trees, power poles and power lines down in Friendsville.	\$75,000
Accident	August 4, 2010	Emergency management reported numerous trees, power poles and power lines down near Accident.	\$75,000
Thayerville	August 4, 2010	Emergency management reported numerous trees, power poles and power lines down in and around Deep Creek Lake Park.	\$100,000

Source: NWS, NCDC (NOAA)

2018 HMP UPDATE

Note: Due to changes in the data collection and processing procedures over time, there are unique periods of record available depending on the event type. NCEI has performed data reformatting and standardization of event types but has not changed any data values for locations, fatalities, injuries, damage, narratives and any other event specific information.

Gortner	March 23, 2011	A state official reports several trees down.	\$10,000
Friendsville	May 26, 2011	State official reports trees down in Friendsville.	\$1,000
Finzel	June 1, 2012	Emergency management reported numerous trees down.	\$5,000
McHenry	June 29, 2012	Emergency management reported numerous trees down county wide.	\$4,000
Bittinger	June 29, 2012	Emergency management reported numerous trees down county wide.	\$4,000
Piney Grove	June 29, 2012	Emergency management reported numerous trees down county wide.	\$4,000
Bittinger	July 24, 2012	The public reported trees down.	\$15,000
Redhouse	June 28, 2013	The public reported large branches down.	\$250
Gorman	June 28, 2013	The public reported large branches down.	\$250
McHenry	July 7, 2013	A trained spotter reported trees down.	\$10,000
Friendsville	July 7, 2013	The 911 Call Center reported multiple trees down in Friendsville.	\$15,000
Elden	November 17, 2013	Law enforcement reported a tree down on Friendsville Road.	\$5,000
Kearney	November 17, 2013	Law enforcement reported a tree down on Gorman Road.	\$5,000
Weber	December 22, 2013	Local 911 call center reported trees down on Underwood Road.	\$500
Big Run	June 8, 2014	Emergency management reported trees down north of the Savage River Reservoir.	\$5,000
Asher Glade	June 11, 2014	Law enforcement reported trees down on Friendsville Road.	\$5,000
Friendsville	July 8, 2014	Emergency management reported large trees down.	\$15,000

Sang Run	July 8, 2014	Emergency management reported Sang Run Road closed due to a large fallen tree.	\$5,000
Thayerville	July 8, 2014	Emergency management reported large trees and utility poles down.	\$35,000
Finzel	July 8, 2014	Emergency management reported numerous trees and utility poles down.	\$35,000
Oakland	September 2, 2014	The 911 Call Center reported trees down.	\$10,000
Redhouse	June 20, 2015	The Fire Department reported a mobile home off the foundation, with siding off a neighboring home. A few trees and 5 utility poles were also snapped.	\$30,000
Redhouse	June 20, 2015	The remnants of tropical System Bill moved across the upper Ohio valley bringing scattered severe thunderstorms and isolated flash flooding. Emergency management reported numerous trees down in Redhouse.	\$5,000
Bond	June 20, 2015	The remnants of tropical System Bill moved across the upper Ohio valley bringing scattered severe thunderstorms and isolated flash flooding. Law enforcement reported trees and power lines down.	\$10,000
Oakland	March 1, 2017	The public reported trees down in the Oakland area.	\$2,000
Friendsville	June 23, 2017	Remnants of tropical storm Cindy interacted with a southward moving cold front in the afternoon of June 23rd. State official reported trees down near Friendsville.	\$5,000
Finzel	June 23, 2017	S Remnants of tropical storm Cindy interacted with a southward moving cold front in the afternoon of June 23rd. State official reported trees down in Finzel.	\$5,000
Swanton	June 23, 2017	Remnants of tropical storm Cindy interacted with a southward moving cold front in the afternoon of June 23rd. State official reported multiple trees down on Bittinger Road.	\$2,500
Selbeysport	July 7, 2017	Local fire department reported a large tree down on a power line.	\$2,000

Source: NWS, National Centers for Environmental Information (NOAA)

7. 3 MUNICIPAL PERSPECTIVE:

The municipalities in Garrett County face the same threat from thunderstorms as the county. In some cases, in older developed areas, inadequate stormwater management contributes to damage from flash flooding in low lying residential areas or in older residential areas downslope from new construction. Low lying and older residential areas downslope of new construction will continue to be more prone to flash flooding in the County. As shown on Table 23, the areas in the County affected by thunderstorms are rather uniform throughout the region.

7. 4 PREVIOUS MITIGATION STRATEGIES:

As mentioned in the Riverine Flooding Profile, the county has purchased several homes in floodplain areas as shown on the mitigation map on Figure 23. These purchases were more the result of chronic stream flooding from large-scale rain or snow melt, rather than from thunderstorm events. The County does, however enforce its Floodplain Ordinance in mapped floodplain areas prone to thunderstorm runoff and requires a setback from unmapped streams. In addition, the Stormwater Management Ordinance requires storage and release of runoff at predetermined rates in newly developing areas.

MAJOR TRANSPORTATION-FOG

8. 1 TRANSPORTATION-FOG PROFILE:

In his Physical Geography Text, Arthur Strahler defines fog as a form of stratus cloud lying close to the earth's surface. The two principal types are radiation and advection fog. Radiation fog commonly occurs at night during a temperature inversion when the air temperature at the base level falls below the dew point. Advection fog results from the movement of warm, moist air over a cold or snow-covered surface. While losing heat to the ground, the lower layers of air undergo a drop in temperature below the dew point and condensation sets in. Some of the most dense fog conditions occur over oceans where air from a warm current blows across the cold surface of adjacent cold currents.

8. 2 COUNTY PERSPECTIVE AND HISTORY:

2018 Status Update: The 2012 HMPC ranked major transportation-fog as "Medium-High". The 2018 HMPC agrees with this ranking.

As shown on Figure 8, Garrett County lies in the area of the eastern U. S. having the greatest number of dense fog days per year. According to the Department of Agriculture's "Climate and Man", most of the Appalachian Plateau has 30 or more dense fog days annually, but the Plateau area from central West Virginia to southern Pennsylvania has more than 50 dense fog days annually. As noted in the County Profile, Garrett County is prone to dense fog conditions in every season, but particularly so during winter and spring months when temperature inversions are common. This condition is more pronounced when the ground is snow covered and warm air flows into the county from the west and south.

This phenomenon produces poor visibility, particularly along I-68 and Rt. 135, the major east-west highways, and Rts. 219 and 495, the primary north-south highways. If dense fog occurs on a weekend when out of area drivers who are not familiar with this type of driving condition are traveling through the county, deteriorating visibility becomes deadly. Unlike most winter storms or heavy rainfall events there is little or no warning before visibility becomes severely limited.

As noted above, dense fog occurs more than 50 times a year on average in Garrett County. While many of these events have resulted in vehicle accidents, the most well known recent event occurred in June 2003, when a very dense fog set in on Big Savage Mountain between Frostburg and the Finzel area along I-68. Before officials could provide a warning or close the highway, two multiple chain reaction accidents occurred, involving more than 70 vehicles and causing 2 deaths.

The Coordinated Highways Action Response Team (CHART) is a joint effort of the Maryland Department of Transportation, Maryland Transportation Authority and the Maryland State Police, in cooperation with other federal, state and local agencies. CHART's mission is to



Source: I-68 Fog Detection System Planning Report

improve "real-time" operations of Maryland's highway system through a series of cameras placed on major highways throughout the State of Maryland. This comprehensive, advanced traffic management system is enhanced by a newly constructed state-of-the-art command and control center called the Statewide Operations Center (SOC). The SOC is the "hub" of the CHART system, functioning 24 hours-a-day, seven days a week with satellite Traffic Operations Centers (TOCs) spread across the state to handle peak-period traffic.

The CHART system is used by State Highway Administration (SHA) to inform the public about local traffic information, winter storm information, visibility, and precipitation for a particular area. This system is used to help inform drivers about poor visibility and other weather-related problems that may be occurring on major road systems within the County.

Ten such weather/camera systems are located in Garrett County. All are on Interstate 68:

- I-68 at West Virginia Line (611004);
- RWIS (Road Weather Information System) I-68 at West Virginia Line;
- I-68 Exit 4 at MD 42, Friendsville Road;
- I-68 West at Old Morgantown Road East;
- I-68 at US-219 (Keyser's Ridge Tower);
- RWIS (Road Weather Information System) I-68 at US 219;
- I-68 at US 219 (Grantsville Tower);
- I-68 West Prior to Lower New Germany Road;
- I-68 at Savage Mountain; and,
- RWIS (Road Weather Information System) I-68 at Savage Mountain.

In April 2017, the driver of a logging truck was reportedly uninjured when the trailer overturned in Loch Lynn, spilling cargo into the yard of a nearby house. The truck, owned by North Branch, LLC of Gorman, West Virginia, crashed on Paul Street around 11:15 a.m. It was the second accident involving a tractor-trailer in the county that morning. A tractor-trailer hauling lumber traveled out of control and overturned onto the westbound shoulder of Interstate 698 near Friendsville just before daylight.



Source: Cumberland Times News

Later that year, on October 12, 2017 the fire department responded to Denny’s Garrett Highway in Oakland, Maryland at the request of Columbia Gas. It was reported that a construction company hit a gas line with an active gas leak. The event was resolved, and the scene was cleared.

8. 3 MUNICIPAL PERSPECTIVE:

Like winter storms, there is little difference in the way fog affects municipalities in Garrett County. Fortunately, vehicles are normally traveling slower inside corporate boundaries and existing landmarks do provide some perspective, particularly where lights are on.

2018 Status Update: The Finzel area continues to be monitored for fog using fog detection system and sign boards.

8. 4 PREVIOUS MITIGATION STRATEGIES:

2018 Status Update: Additional weather camera systems were added during the planning cycle as well as mobile message sign boards.

In 2005, the State Highway Administration has installed four “Reduced Visibility Possible” signs placed in two fog-prone areas, one near Big Savage Mountain and the other near Keyzers Ridge in Garrett County to warn drivers to slow down in poor driving conditions. According to the Frederick News Post, May 28, 2014, a study conducted the following year for the SHA found that the system worked as intended — the signs lit up when fog was present — but it did not have a significant impact on drivers’ speed.



Source: I-68 Fog Detection System Planning Report

The report noted, however, that the signs were placed before the drivers encountered foggy areas, so it is possible they slowed down as visibility became worse closer to the bad weather. The warning system has been well-received by area drivers, according to the report. There have been no other major fog-related crashes in Western Maryland since 2003.

HIGH WINDS

9.1 HIGH WIND PROFILE:

Wind is essentially the movement of air in response to pressure differences. A pressure gradient force tends to start the flow of air from higher to lower pressure. The stronger the pressure gradient, the stronger the wind. As shown on Figure 28, wind speeds are graded on the Beaufort Scale from 0 (calm) to 12 (hurricane-75 mph). Normally, damage to trees occurs above number 8 (gale force-39 mph on the Beaufort Scale), while structural damage to buildings starts at number 9 (47 mph), with considerable damage to buildings and trees being uprooted at number 10 (55mph). Winds above this speed are seldom experienced inland with the exception of the passage of tornadoes and hurricanes.

9.2 COUNTY PERSPECTIVE AND HISTORY:

2018 Status Update: According to the *2016 State of Maryland Hazard Mitigation Plan*, Garrett County has a ranking of “Medium” for high winds. The HMPC ranks the risk higher, at “Medium-High” due to recent wind events.

Garrett County is situated in the lower part of the westerly wind belt which extends from latitude 35 to latitude 60. Over time, prevailing winds in Garrett County are from the southwest in summer and the northwest in winter. This northwest wind flow in winter has a strong influence on the “Lake Effect” precipitation that brings snow to Garrett County while areas to the east receive little or no precipitation. In winter these winds are very strong and approach gale force on the Beaufort Scale on numerous days from November through April.

In addition to strong winds associated with winter “Lake Effect” storms, Garrett County is also subject to high winds associated with thunderstorms and the occasional hurricane or tornado that passes through or near the county. Because of the prevalence of high wind conditions, the local Planning Committee has ranked high winds as a high risk in Garrett County.

High wind events may occur within the County independent of thunderstorms. High winds may accompany strong low-pressure systems, cold fronts, remnants of hurricanes, and other meteorological events.

2018 Status Update: There were a total of 28 high wind events reported by the NWS, Nation Centers for Environmental Information (NCEI) for Garrett County between October 5, 1995 and February 28, 2018, shown in the 2018 HMP section below on Table 24. Therefore, Garrett County experiences 0.86 high wind events per year. Also, according to the data from NWS, NCEI, there has been a total of \$422,000 in property damage due to high wind activity during this period.

Table 24 lists high wind events chronologically in order to assess the history of high wind events that have occurred throughout Garrett County. High wind events as characterized by NWS are winds that are over 50 knots (57.5 mph).

Table 24: High Wind Events

Location	Date	Event Narrative	Property Damage
Bittinger	October 5, 1995	A large tree and large limbs along Route 495 near Bittinger were downed by high winds associated with the remnants of what was once Hurricane Opal	\$1,000
McHenry	January 27, 1996	A wind gust to 64 miles an hour was measured at McHenry in Garrett County.	Not Available
Oakland	September 6, 1996	Numerous trees and power lines were downed by high winds associated with the remnants of Hurricane Fran throughout Oakland.	\$8,000
Countywide	February 27, 1996	A strong, fast moving cold front with strong winds ahead and behind it, moved through the western panhandle of Maryland and downed some utility lines in the county and fanned some brush fires near Oakland.	\$3,000
Countywide	February 17, 1998	A few trees, large limbs and power lines were downed by high winds throughout the county. Strong east to southeast winds, in advance of an intensifying storm system moving northeast up the Ohio Valley, caused some wind damage. Much of the damage was confined to the foothills and ridges of the Allegheny Plateau.	\$4,000
Friendsville	January 18, 1999	A front was accompanied by high winds estimated at over 60 MPH, along with a mix of rain, sleet and snow, as it passed across the area. These high winds produced some minor damage across the area as several reports of downed trees were received from around the Friendsville area.	\$5,000
Countywide	December 12, 2000	High winds estimated at 65 MPH downed numerous trees and power lines across the county. A strengthening area of low pressure and associated cold front swept across the area during the overnight hours, bringing a several-hour period of high winds to western Maryland.	\$25,000
Oakland	December 17, 2000	An intensifying area of low pressure moving across the area produced several wind gusts estimated at 60 MPH. A few trees and several large limbs were downed by the high winds in and around the Oakland area.	\$5,000
Countywide	February 10, 2001	Several large trees and power lines were downed by the high wind, with the majority of the damage occurring along the higher elevations of the county.	\$5,000
Countywide	February 25, 2001	Several large trees and power lines were downed by the high wind, with the majority of the damage occurring along the higher elevations of the county.	\$5,000
Oakland	December 14, 2001	High winds associated with a deep area of low pressure passing over the region downed numerous trees and power lines across the Oakland area.	\$5,000
Countywide	February 1, 2002	High winds from the northwest following a cold frontal passage downed numerous trees and power lines across the county. Locations most affected were Oakland, Savage River State Park, and the Deep Creek Lake area.	\$10,000
Countywide	March 9, 2002	A strong cold front across western Maryland during the late afternoon/early evening hours of the 9th. This intensifying low produced a large area of strong low-level winds, both ahead of and behind the cold front, with winds between 70 - 80 MPH.	\$10,000
Grantsville	February 4, 2003	Trees and power lines down in Grantsville.	Not Available
Countywide	September 18, 2003	Remnants of Hurricane Isabel caused wind gusts in the neighborhood of 60 mph, knocking down trees and utility lines.	\$5,000
Countywide	November 13, 2003	Numerous large trees and power lines down in Grantsville and Kitzmiller. Large sign blown down along Route 68 near Kitzmiller.	\$8,000
Countywide	December 1, 2004	About 25 trees blown down county-wide. Skywarn spotter in McHenry measured 68 mph (59 knots) at 550 AM.	\$15,000
Countywide	December 23, 2004	Roof blown off in Oakland. Several trees downed across county.	\$8,000
Oakland	October 28, 2006	Trees and power lines down about 5 miles south of Oakland.	Not Available

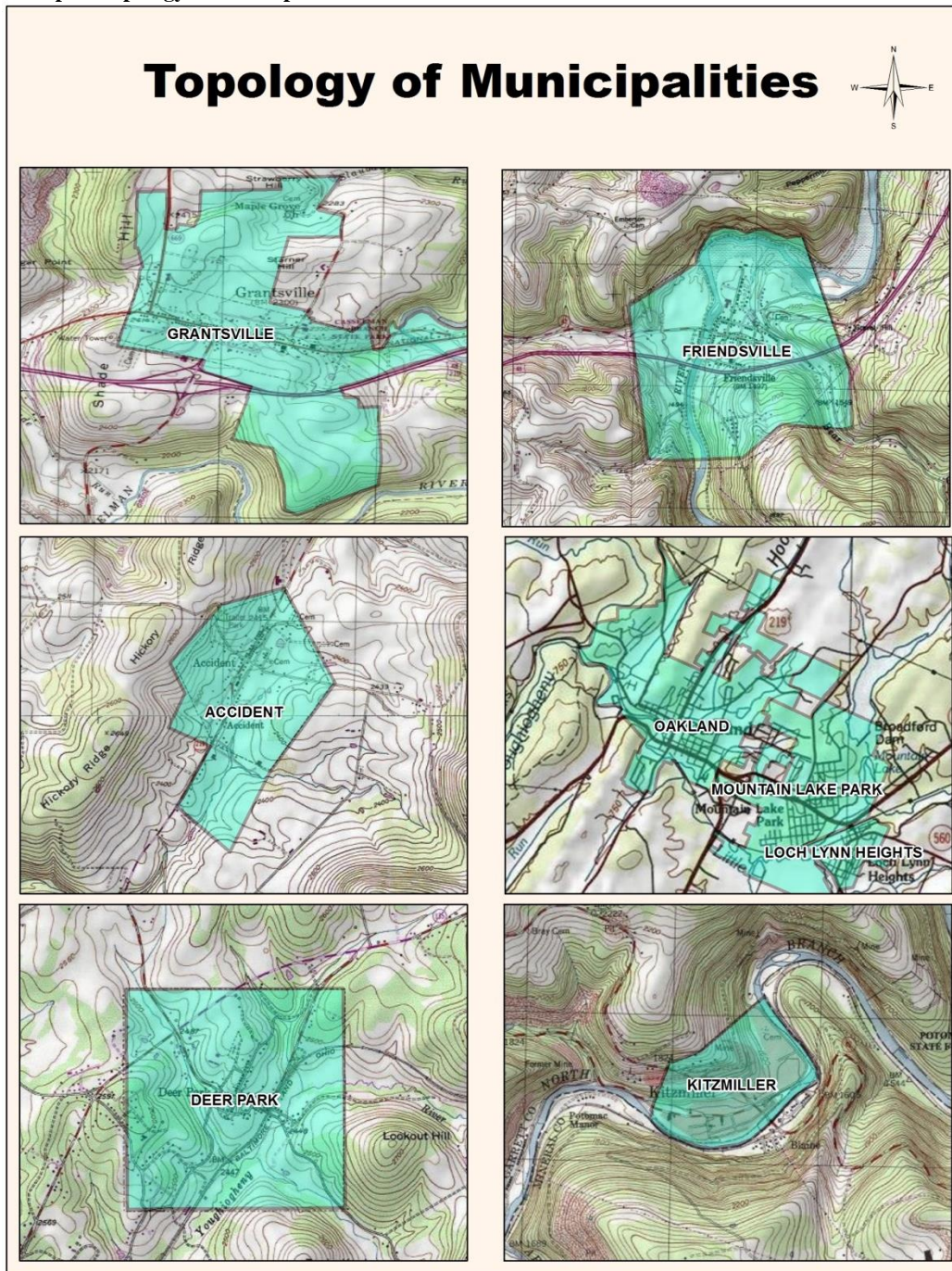
Countywide	December 1, 2006	The Public reported trees down countywide due to high winds	\$20,000
McHenry	December 17, 2007	Law enforcement reported trees down south of Mc Henry. Law enforcement reported trees down in the Oakland area.	\$15,000
Countywide	January 30, 2008	The strong pressure gradient along and behind the front produced wind gusts near 60 MPH in many locations across western Pennsylvania, northern West Virginia, eastern Ohio, and Garrett county Maryland.	\$50,000
Countywide	February 12, 2009	High winds gusting over 60 MPH behind the front in a strong pressure gradient produced wind damage across the entire region into midday on the 12th.	\$75,000
Countywide	December 9, 2009	Sustained winds were from 30 to 40 MPH with gusts over 60 MPH.	Not Available
<i>Source: NWS, NCDC (NOAA)</i>			
2018 HMP Update			
<i>Note: Due to changes in the data collection and processing procedures over time, there are unique periods of record available depending on the event type. NCEI has performed data reformatting and standardization of event types but has not changed any data values for locations, fatalities, injuries, damage, narratives and any other event specific information.</i>			
Countywide	April 16, 2011	Winds across this area gusted to over 60 MPH	\$75,000
Countywide	February 24, 2012	Emergency management reports power lines down.	\$15,000
Countywide	April 2 to 3, 2016	The 911 Call Center reported numerous trees and power lines down.	\$50,000
Countywide	February 12 to 13, 2017	Winds gusted from 40 to 50 MPH with localized gusts over 60 MPH behind a strong cold front moving across the Upper Ohio Valley. Trees and power lines were reported down across the ridges into Garrett county, Maryland. The highest recorded wind gusts were 59 MPH near Accident in Garrett county.	Not Available

Source: NWS, National Centers for Environmental Information(NOAA)

9. 3 MUNICIPAL PERSPECTIVE:

As noted in other hazard profiles, municipalities are subject to the same winds as the remainder of the county. However, Grantsville and Accident are more exposed to wind due to their location on high, nearly level land, whereas Friendsville and Kitzmiller are more protected from high winds due to their valley setting.

Map 3: Topology of Municipalities



9. 4 PREVIOUS MITIGATION STRATEGIES:

Since high winds are usually associated with another event, such as winter storms, thunderstorms, tornadoes and hurricanes, most of the measures associated with those events apply to high winds as well. The county’s Building Code contains provisions for wind loading for new structures and tying down of mobile homes as shown on Figure 19.

TORNADO

10.1 TORNADO PROFILE:

A tornado is defined by Strahler in his Physical Geography Text as a violently rotating column of air extending from a thunderstorm to the ground. Normally thunderstorms and associated tornadoes develop in warm, moist air in advance of strong eastward moving cold fronts in late winter and early spring. Tornadoes can also occur along a “dryline” which separates very warm, moist air to the east from hot, dry air to the west. Both of these scenarios are common in the Central Plains. Another way that tornadoes can be created occurs when warm moist air flows upslope. Under the right temperature and moisture conditions, intense thunderstorms can produce tornadoes in higher terrain.

As shown on Figure 29, tornadoes can occur in every state, although the mid-west states have by far the greatest potential for this type of event. According to the National Centers for Environmental Information, the state had 364 tornado events reported between 1950 and February 28, 2018. The most recent tornado outbreak occurred in the University of Salisbury vicinity in 2017.

2018 Status Update: According to the *2016 State of Maryland Hazard Mitigation Plan*, Garrett County has a ranking of “Medium-High” for tornado. The HMPC ranks the risk lower, at “Medium” due to low frequency and intensity of tornado events in the county.

Table 25: Fujita Scale

Fujita Scale			Derived Enhanced Fujita Scale	Operational Fujita Scale
F Number	Fastest ¼ mile (mph)	3 Second Gust (mph)	3 Second Gust (mph)	3 Second Gust (mph)
F0	<73	45-78	65-85	65-85
F1	73-112	79-117	86-109	86-110
F2	113-157	118-161	111-137	111-135
F3	158-206	162-209	138-167	136-165
F4	207-260	210-261	168-199	166-200
F5	261-318	262-317	200-234	Over 200

Source: NOAA

*** **IMPORTANT NOTE ABOUT ENHANCED F-SCALE WINDS:** The Enhanced F-scale still is a set of wind estimates (not measurements) based on damage. It uses three-second gusts estimated at the point of damage based on a judgment of 8 levels of damage to the 28 indicators listed below. These estimates vary with height and exposure. Important: The 3 second gust is not the same wind as in standard surface observations. Standard measurements are taken by weather stations in open exposures, using a directly measured, "one-minute mile" speed.

10. 2 COUNTY PERSPECTIVE AND HISTORY:

Even though Garrett County is located in mountainous terrain it still has been subjected to violent storms including tornadoes. Between 1950 and 1998 there were 8 reported touchdowns of tornadoes in Garrett County as shown on Figure 31. Two of these events were rated Class F-3 and the remainder were F-1 or F-2. In 1980 Garrett County suffered a string of tornadoes which caused damage to a number of homes in Crellin. In 1998, two outbreaks of tornado activity occurred at the border of Garrett County and Somerset County, Pennsylvania, just to the north. Both of these events were related to thunderstorms developing from passing cold fronts. The combination of warm moist air flowing up slope from the southwest and a cold front passing from the north and west created ideal conditions for tornado activity. One of these tornadoes was rated F-4 after it crossed the county line and hit Frostburg in Allegany County as shown on Figure 30.

Local National Weather Service (NWS) offices are responsible for issuing tornado warnings. Tornado warnings indicate that a tornado has been spotted or that Doppler radar detects a thunderstorm circulation capable of spawning a tornado. Nationally, tornado season is from March through August. According to the Maryland State Archives, tornados most often occur between May and July in Maryland.

In terms of number of occurrences, the NWS, National Centers for Environmental Information(NCEI) listed a total of 10 tornado events affecting Garrett County from July 14, 1954 through February 28, 2018. Therefore, Garrett County has experienced .015 tornado events per year. Also, according to the information from the NWS, NCEI, there has been a total of almost \$2.6 million in property damage due to tornado activity or an average of \$258,250 per tornado event during this period. It should also be noted that the 1967 tornado resulted in one death, the 1954 tornado resulted in eight injuries and the 1980 tornado produced four injuries in the County.

2018 Status Update: No new tornado events or funnel cloud events reported during this update period.

Table 26: Tornado Events

Location	Date	Event Narrative	Magnitude	Width	Property Damage
Garrett County (Unknown)	July 14, 1954	None Reported	F1	880 Yards	\$25,000
Garrett County (Unknown)	May 19, 1967	None Reported	F3	33 Yards	\$25,000
Garrett County (Unknown)	July 13, 1971	None Reported	F1	400 Yards	\$250,000
Garrett County (Unknown)	June 28, 1973	None Reported	F1	33 Yards	\$2,500

Garrett County (Unknown)	June 20, 1977	None Reported	F2	50 Yards	\$25,000
Garrett County (Unknown)	June 3, 1980	None Reported	F3	117 Yards	\$250,000
Finzel	June 2, 1998	An F2 tornado passed through the town of Finzel in extreme northeast Garrett County. Several buildings were destroyed, including a small house and cinder-block garage. This tornado actually began in extreme eastern Fayette County, PA and was on the ground for 33 miles before ending in in Allegany County, MD.	F2	700 Yards	\$500,000
Friendsville	June 2, 1998	Damage included a completely destroyed dairy barn, two completely destroyed house trailers, and at least 21 other structures heavily damaged, many with roofs partially or completely peeled off. Several cows were killed, with one cow thrown through the air over 100 yards.	F2	300 Yards	\$1 Million
Grantsville	July 10, 2001	The tornado moved southeast along a sporadic 4-mile long path to around 5 « miles east of Grantsville. Maximum winds along the 40-yard wide path were estimated to be around 70 MPH. Damage was minimal and consisted of several trees and large branches.	F0	40 Yards	\$5,000
Sand Spring	July 30, 2008	The storm caused EF0 damage in Garrett county with maximum winds estimated at 85 MPH, a path length of nearly four and one quarter miles, and a maximum width of 150 yards. Damage in Friendsville was to 12 homes and 2 businesses with minor roof damage, 2 mobile homes with major damage, and 1 small trailer destroyed. Damage in Accident was to 12 homes with minor roof damage, and 2 homes with major damage.	F0	150 Yards	\$500,000

Source: NOAA

2018 HMP Update – No New Events Reported

Source: NWS, National Centers for Environmental Information (NCEI)

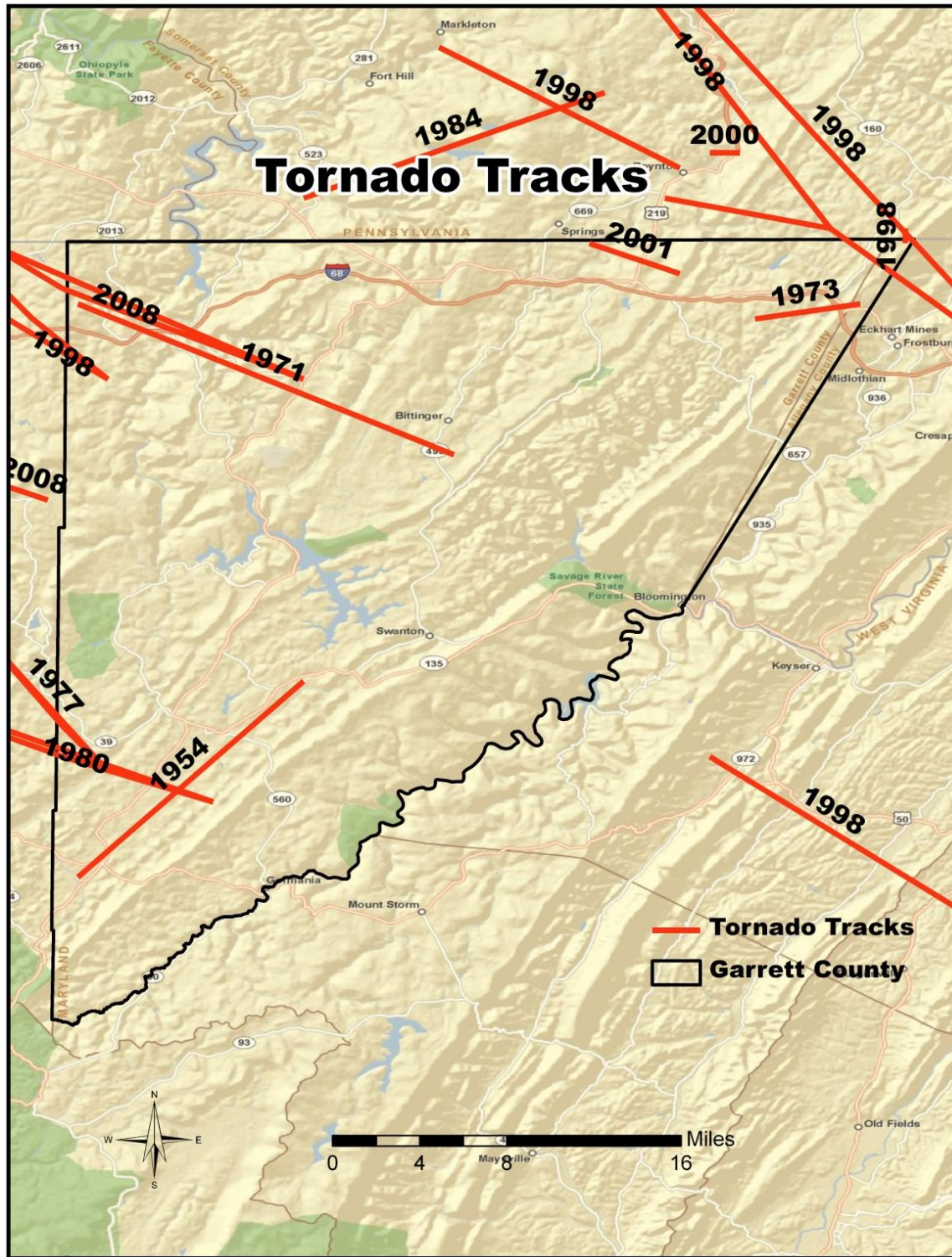
10. 3 MUNICIPAL PERSPECTIVE:

As is the case with most other weather related events, municipalities in Garrett County share the same concerns as the county. Two municipalities, Grantsville and Accident, are located on high, relatively flat land, and are probably more susceptible to wind events than municipalities like Friendsville and Kitzmiller, which are located in a valley setting affording some protection by surrounding mountains.

10. 4 PREVIOUS MITIGATION STRATEGIES:

While mitigating tornado damage is difficult, Garrett County does have a state mandated Building Code which includes wind loading requirements and tie-down requirements for mobile homes as shown on Figure 19. Additionally, the county’s hazard warning system can be activated following notification of impending severe weather by NOAA.

Map 4: Tornado Tracks



SOIL MOVEMENT

11. 1 SOIL MOVEMENT PROFILE:

The most common types of soil movement are the landslide and the slump. According to Strahler’s Physical Geography, a landslide typically involves earth and rock that have been disturbed by some other action or loosened by moisture and slide downslope. A slump is similar but involves the slippage of a mass of earth and rock along a rotational axis (slip plane). Usually this mass rotates backward as it slips downslope. Many small slumps are related to slope disturbance of horizontal or folded rock units during road construction or mining activities. The disturbance of colluvial materials having poor soil characteristics also results in the downslope movement of these materials. In this document soil movement is used interchangeably with slope failure.

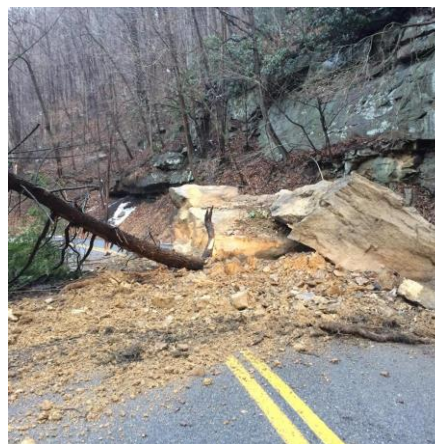
Another common type of soil movement process in Maryland is the soil movement process that is created from expansive soils. Expansive soils have a very slow infiltration rate (high runoff potential) when wet. These soils consist chiefly of clays that have a high shrink-swell potential, soils that have a high-water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission, creating runoff.

2018 Status Update: The 2012 HMPC ranked soil movement as “Medium”. The 2018 HMPC ranked the risk higher, at “Medium-High”.

11. 2 COUNTY PERSPECTIVE:

As noted in the County Profile, Garrett County is underlain by layered sedimentary rocks that have been folded moderately. These rock units alternate between sandstone, shale and limestone. When exposed on steep slopes, as shown on Figure 10, normally the sandstone forms the cap rock at the top of the slope with shale or limestone lying underneath. When these weaker rocks are disturbed, the sandstone eventually fails and moves downslope. The slump type of soil movement is most common, particularly in road cuts and in strip mining operations. While these movements are not normally on a large scale, they do result in road blockage from time to time, particularly where narrow valley floors are shared by a stream and a road or railroad.

Savage River Road and other county roads leading up from the Savage River are prone to this type of slope failure. On March 18, 2017, rocks larger than automobiles fell from cliffs above Savage River Road blocking traffic in both directions. A large amount of



Source: Cumberland Times News

smaller stones, dirt and a tree also covered the road from the slide. Fortunately, much of the extreme steep slope land in Garrett County is located within State Forests or Parks, particularly in the Savage River Basin, the Upper Potomac Basin, and the Youghiogheny Basin.

Homes built on expansive soils have the possibility of being structurally damaged due to the shrink-swell properties of this soil type. Best Management Practices (BMPs) for building on expansive soils include: monitoring for extreme changes in soil moisture content and planting trees 15 to 30 feet away from foundations. The map below illustrates the expansive soils located in Garrett County.

Map 5: Expansive Soils

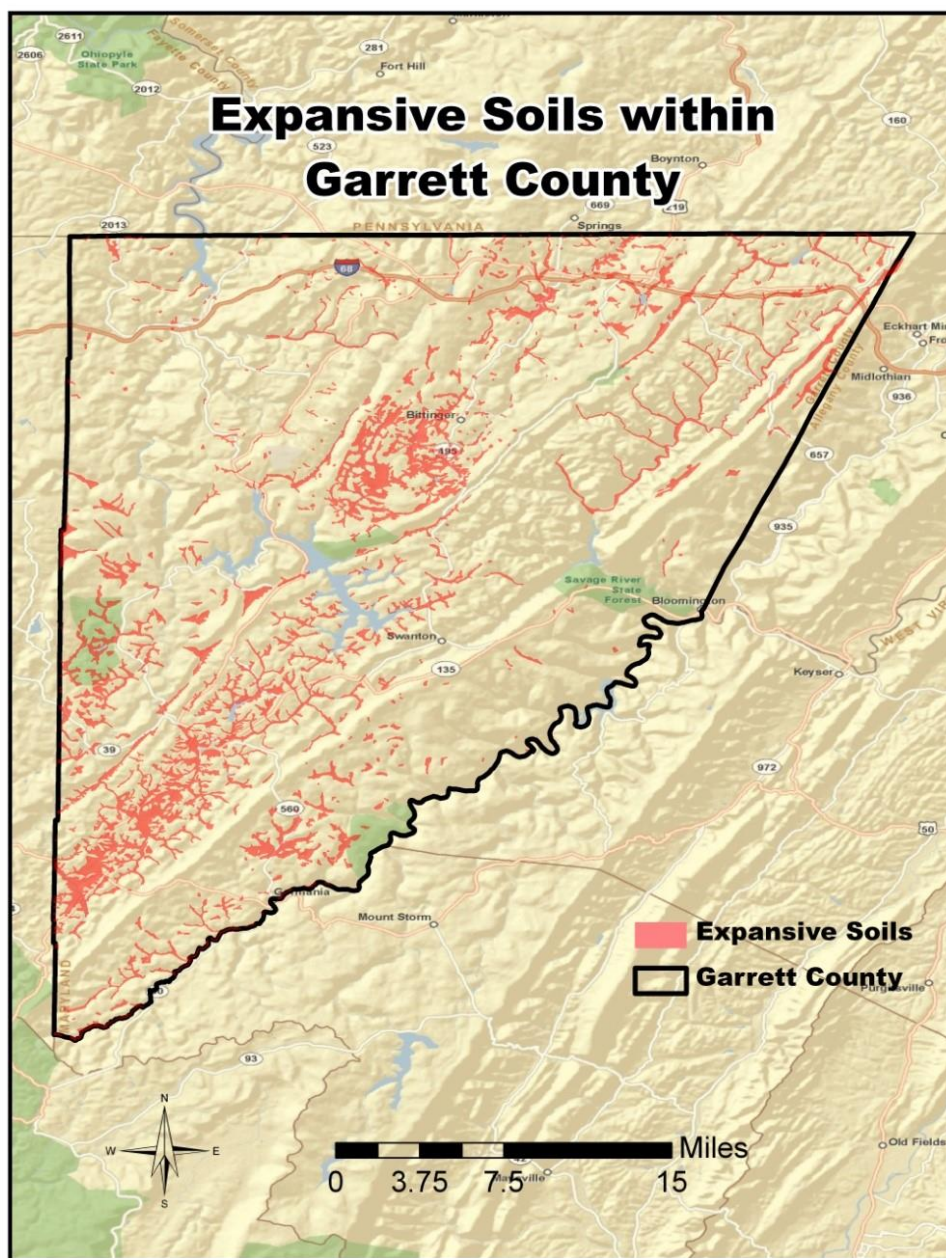


Table 27: Expansive Soils

Map Unit Symbol	Map Unit Name	Acres in County	Percent in County
An	Alluvial Land	1,652.6	0.4
Ar	Armagh Silt Loam	810.2	0.2
At	Atkins Silt Loam	4,733.0	1.1
BrA	Brinkerton and Andover, 0 to 3 percent slopes	6,355.4	1.5
BsC	Brinkton and Andover Silt Loams, 3 to 8 percent slopes	9,765.0	2.3
Ek	Elkins Silt Loam	296.0	0.1
Lc	Lickdale Silt Loam	1,964.9	0.5
Ls	Lickdale Very Stony Silt Loam	334.4	0.1
NoB	Nolo Silt Loam, 0 to 8 percent slopes	1,355.7	0.3
Pe	Peat	401.6	0.1
PuC2	Purdy Silt Loam, 0 to 15 percent slopes, moderately eroded	274.8	0.1
Sw	Swamp	803.6	0.2

Source: 2007 Garrett County Web Soil Survey 2.0

11. 3 SOIL MOVEMENT HISTORY:

Perhaps the most striking example of soil movement in Garrett County occurred during the Flood of 1995 in the Potomac River Basin when a CSX freight train derailed because of slope failure above the Savage River. In this instance heavy rains and subsequent runoff weakened and undermined the slope below the railroad fill. At least one death was attributed to this event.

The mapped expansive soils located in the County were examined and several conclusions were determined. These soils are in the low-lying valley portions of the County or in areas that run parallel stream networks, including surrounding portions of smaller water bodies and constitute the composition of all the swamps within the County.

2018 Status Update: During the 2012-2018 plan cycle, a second landslide occurred on Accident Friendsville Road. This portion of roadway is known for limestone deposits and has had problems previously. As a result, the road was closed from 4500 block of Accident Friendsville Road to Deere Road. Pictures of the slide are captured to the right. In July 2017, the County Commissioners approved a permanent road closure 5,715 feet from Deer Road to 4501 Accident-Friendsville Road. In addition, this section will no longer be a part of the county road system.



Source: Garrett County Department of Public Works – Roads Division

11. 4 MUNICIPAL PERSPECTIVE:

The same geologic conditions that affect the County are also prevalent in the municipalities. Fortunately, most municipalities are located on slopes of 10% grade or less and do not currently have heavy development pressure for new roads or streets in steep slope areas. Small sections of Oakland and Deer Park have slopes up to 15% in grade for short distances, mainly rolling topography rather than steeply sloping topography. However, Kitzmiller and Friendsville are located at the foot of extremely steep slopes and are susceptible to storm water run-off from these slopes. The County's Sensitive Area Regulations protect steep slopes and floodplains from intense development.

Soil movement concerning slopes is mentioned in section 11.2; the information concerning municipalities is still relevant to the County. Although both Friendsville and Kitzmiller are located at the base of very steep slopes due to their location relative to major river networks, Friendsville works with the Garrett County Soil District to utilize BMP's for agriculture in order to reduce erosion, as well as agriculture runoff. In terms of expansive soils within municipalities, Accident is the only municipality that has no expansive soils located within its boundaries.

The remaining municipalities contain scattered amounts of expansive soils shown in the map below.

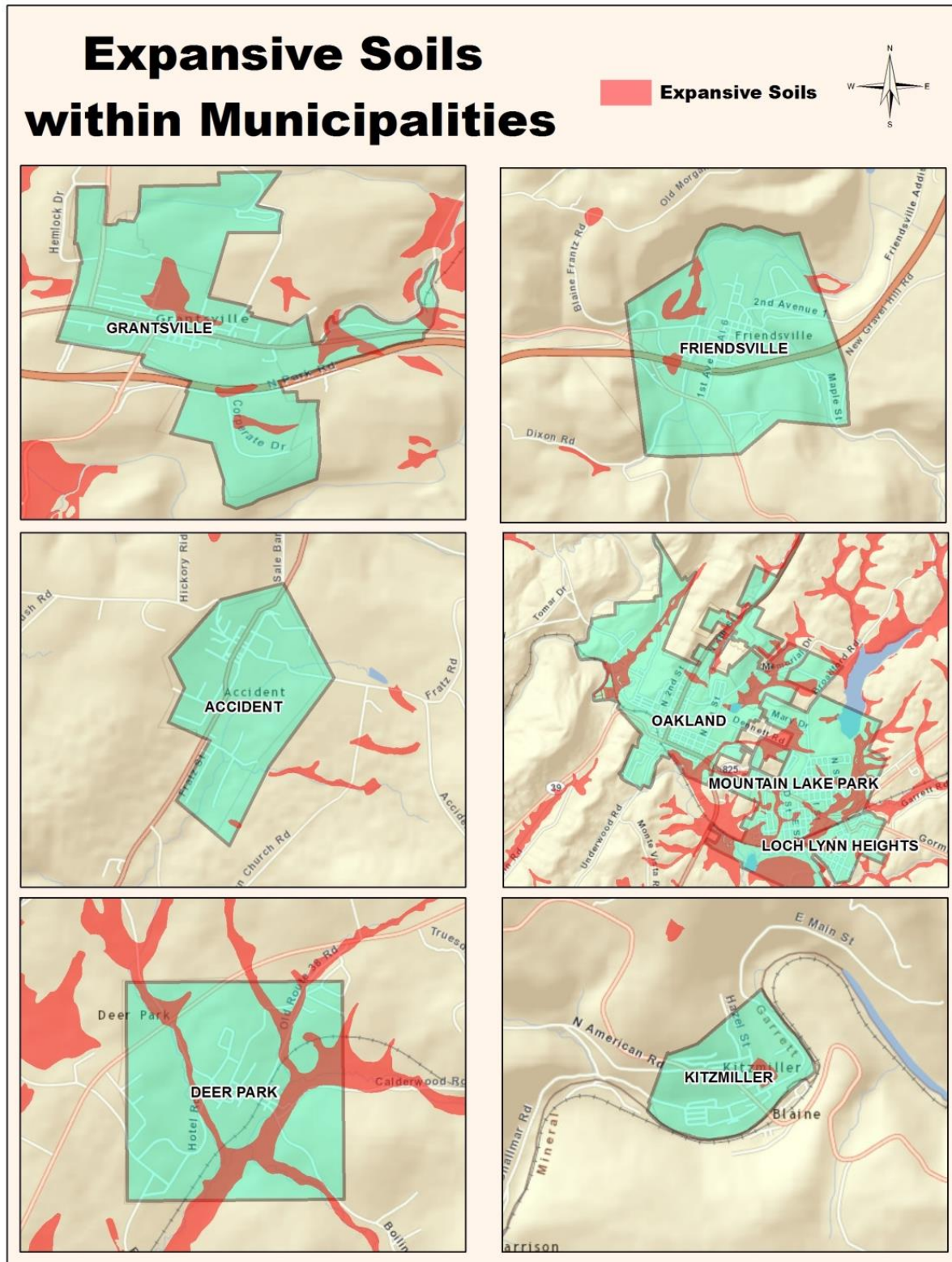
2018 Status Update: In April 2018, the most recent landslide occurred on the road bank at Shallmar in Kitzmiller, specifically, at the area of the cliffs. Warning signs were placed in the area of the bank slide, and the public was advised to exercise caution and watch for debris.

Pictures of the slide is captured on the right.

Source: Garrett County Department of Public Works – Roads Division



Map 6: Municipalities with Expansive Soils



11. 5 PREVIOUS MITIGATION STRATEGIES:

Perhaps the most important mitigation measure taken by the county is the enforcement of sediment control and stormwater management measures and the sensitive area regulations. These measures are mandated by state law and have provisions for development on steep slopes as well as limitations for the amount of water that can be stored and released in conjunction with new development. Highway construction and surface mining are also subject to these measures.

TRANSPORTATION AND ON-SITE HAZMAT

12. 1 HAZMAT PROFILE:

A hazardous material may be defined as a substance or material which, because of its chemical, physical or biological nature, poses a threat to life, health, or property if released from a confined setting. A release may occur by spilling, leaking, emitting toxic vapors, or any other process that enables the material to escape its container, enter the environment, and create a potential hazard. Several common HazMats include materials that are explosive, flammable or combustible, poisonous or radioactive. Related combustible HazMats include oxidizers and reactive materials, while toxins produced by etiological (biological) agents are types of poison that can cause disease.

The release of HazMats while in transit is of great concern to the U. S. Department of Transportation. While most hazardous materials are stored and used at fixed sites, these materials are usually produced elsewhere and shipped to the fixed facility by rail car, truck, or onboard ships or barges. While these vehicles are identified by signs denoting the hazard, the possibility of release is present at any time. Hazardous materials are constantly being moved in Maryland on interstate highways, the rail system and on shipping lanes in the Chesapeake Bay and its tributaries. On site use of HazMats is particularly evident in the Baltimore area near rail, truck and shipping terminals.

12. 2 COUNTY PERSPECTIVE AND HISTORY:

2018 Status Update: The 2012 HMPC ranked HazMat as “Medium”. The 2018 HMPC agrees with this ranking.

Historically, most HazMats moving through Garrett County have been on the CSX rail system and its predecessors, the Baltimore and Ohio Railroad, and the Western Maryland Railroad. Today, however, the bulk of hazardous materials pass through the county by truck, particularly on I-68, which crosses the northern part of the county from west to east as shown on Figure 13. A number of truck related HazMat events have occurred along this highway, particularly in Allegany County just to the east and downgrade from Garrett County. The potential for a HazMat release also exists along the Texas Eastern Pipeline which transports natural gas in twin 36 inch pipes just north of the county border in Pennsylvania. Texas Eastern also maintains a compressor station near Accident.

So far as on-site HazMats are concerned, Garrett County has a record of each site and the materials stored. These sites include water and sewage treatment plants and a number of wholesale and retail concerns as shown on the chart appearing on Figure 32. Although not shown on the chart, a site of concern for hazardous materials is the Verso Corp. Paper Mill at Luke, Md. located just across the county line in Allegany County. A release at this site could affect the community of Bloomington in Garrett County because the Verso Corp. Paper Mill is

near the community of Bloomington. The town of Bloomington is located in a narrow deep valley. The Local Emergency Planning Committee (LEPC) agrees with the on-site HazMat risk ranking as a medium high hazard.

According to the Garrett County Hazardous Materials Commodity Flow Study completed in September 2008, the County receives significant amounts of hazardous material truck traffic daily. This high volume of HazMat truck traffic is due to Interstate 68 East/West, as well as the possibility of the HazMat traffic being diverted from the Pennsylvania Turnpike, which limits HazMat traffic through its tunnels.

Westbound HazMat trucks typically appear to be coming from the Baltimore/Washington area by way of Interstate 70 and 270 with a few from Interstate 81. Most of the HazMat trucks in the Study traveling on Interstate 68 were delivering petroleum products for commercial or industrial use. On US Route 219 HazMat traffic was more local including deliveries of gasoline, propane, ammonia and other products to businesses in Oakland and surrounding areas.

As for MD Route 135 and 560, HazMat traffic was similar to that of US Route 219, with local deliveries of gasoline, ammonia, propane, and carbon/charcoal being hauled to and from Oakland and surrounding areas. The MD Route 135 and 560 intersections had more traffic and variety of HazMat trucks as compared to US Route 219. The Study detail critical and public facilities within 2,000' of the centerline along Interstate 68, MD Route 135, and US Route 219. These facilities, listed in the tables below, may be at risk depending upon the type and quantity of hazardous material spilled during a transportation accident.

Table 28: Interstate 68 Facilities at Risk

Interstate 68		
Facility Type	Facility Name	Location
Park	Friendsville Community	First Avenue
Park	Grantsville Community	Miller Street
Industrial Park	Northern Garrett Industrial	North Park Road
School	Friendsville Elementary	841 First Street
School	Grantsville Elementary	130 Grant
School	Rt. 40 Elementary	17764 National Pike
Post Office	Friendsville P.O.	836 First Avenue
Post Office	Grantsville P.O.	159 Main Street
Town Hall	Friendsville Town Hall	Maple Street
Town Hall	Grantsville Town Hall	171 Hill Street
Library	Friendsville Library	315 Chestnut Street
Library	Grantsville Library	153 Main Street
Fire & Rescue	Fire Co. #110 & Northern Rescue Co. #2	21 Park Street
Fire & Rescue	Fire Co. #80 & Northern Rescue Co. #1	401 Finzel Road
Transportation	SHA - Keyzers Ridge	3876 National Pike
Transportation	County Roads Garage	13266 National Pike
Transportation	SHA Storage Building	13336 Beall School Road
Nursing Home	Mennonite Nursing Home	891 Dorsey Hotel Road
Utility	Friendsville Water Plant	849 First Avenue
Utility	Friendsville WWTP	First Avenue
Utility	Grantsville Water Tank	Alt. Route 40 at Amish Road

Utility	Grantsville WWTP	Alt. Route 40 at Casselman River
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Source: 2008 Garrett County Hazardous Material Commodity Flow Study

Table 29: MD Route 135 Facilities at Risk

MD Route 135		
Facility Type	Facility Name	Location
School	Bloomington E.S.	334 N. Branch Avenue
School	Southern Garrett H.S.	345 Oakland Dr., Mt. Lake Park
School	Dennett Rd. E.S.	770 Dennett Rd., Mt. Lake Park
Post Office	Mt. Lake Park P.O.	1325 MD Highway, Mt. Lake Park
Post Office	Bloomington P.O.	35 N. Hamill Avenue
Fire/Rescue	Bloomington Co. 100	77 N. Branch Avenue
Fire/Rescue	Deer Park Co. 20	5353 Maryland Hwy.
Utility	Bloomington WWTP	1227 Bloomington Hill Rd.
Utility	Bloomington WTP	North Street
Utility	Bloomington Water Tank	North Street
Utility	Deer Park WTP	520 Decost Rd.
Nursing Home	Dennett Rd. NH.	113 Mary Dr., Mt Lake Park
Park	Little Mt. Scenic Overlook	Rt. 135 on Back Bone Mt.
Ind. Park	So. Garrett Ind. & Bus. Park	Rt. 135 near Mt. Lake Park
Ind. Park	So. Garrett Bus. Tech Park	Rt. 135 near Mt. Lake Park
Town Hall	Loch Lynn Town Hall	20011 Bonnie Blvd., Mt. Lake Park
Town Hall	Mt. Lake Park Town Office	1007 Alleghany Dr., Mt. Lake Park
Town Hall	Deer Park Town Hall	100 Church Street
Police/Correction	Boys Forestry Camp	234 Recovery Rd.
Government	MVA Oakland	400 Weber Rd., Oakland

Source: 2008 Garrett County Hazardous Material Commodity Flow Study

Table 30: US Route 219 Facilities at Risk

MD Route 219		
Facility Type	Facility Name	Location
School	Northern Garrett H.S.	86 Pride Parkway
School	Northern Garrett M.S.	371 Pride Parkway
School	Accident E.S.	534 Accident Bittering Rd.
School	Mountain Top Seventh Day Adventist	Rt. 219, near Foster
School	Young Glades E.S.	70 Wolf Acres Dr., Oakland
School	Swan Meadow E.S.	6709 Garrett Highway, Oakland
College	Garrett County Comm. College	687 Mosser Rd.
Park	The Cove Scenic Overlook	Rt. 219 near Northern Garrett H.S.
Park	Deep Creek Scenic Overlook	Rt. 219 near McHenry
Park	Accident Town Park East	Accident Bittering Rd.
Park	Accident Town Park West	Accident Friendsville Rd.
Park	Garrett County Fairgrounds	24086 Garrett Highway
Park	Mt. Nebo Wildlife Area	219 N. of Oakland/Sang Run Road
Industrial Park	Central Garrett Industrial Park	Industrial Park Drive
Post Office	Accident P.O.	103 S. South St.
Post Office	McHenry P.O.	1914 Deep Creek Drive

Post Office	Oakland P.O.	22 Second Street, Oakland
Town Hall	Accident Town Hall	104 S. North St.
Town Hall	Oakland Town Hall	15 S. Third St., Oakland
Library	Accident Library	106 S. North St.
Library	Ruth Enlow Library	315 Chestnut St., Oakland
Fire/Rescue	Fire Company 50	109 S. South St.
Fire/Rescue	Northern Rescue Co. 2	109 S. South St.
Fire/Rescue	Deep Creek Co. 30	1906 Deep Creek Drive
Fire/Rescue	Fire Company 40	MD Highway, Mt. Lake Park
Fire/Rescue	Southern Garrett EMS Co. 9	23 S. Third St., Oakland
Transportation	SHA Keyzers Ridge	13266 National Pike
Transportation	Accident Roads Garage	80 Accident Garage Rd.
Transportation	CSX RR Station	West Liberty St., Oakland
Transportation	SHA Oakland Garage	95 SHA Drive, Oakland
Transportation	Garrett County Roads Dept.	12778 Garrett Highway, Oakland
County & State Government	Garrett County Health Dept.	1025 Memorial Dr., Oakland
County & State Government	Md. Dept. of Natural Resources	Rt. 219 near Merrill Lane
County & State Government	Md. Dept. of Agriculture	152 Oakland Sang Run Rd., Oakland
County & State Government	Garrett County Courthouse/Jail	203 S. Fourth St., Oakland
County & State Government	MVA Oakland	400 Weber Rd., Oakland
County & State Government	National Guard Armory	High Street, Oakland
County & State Government	Animal Shelter	152 Oakland Sang Run Rd., Oakland
County & State Government	Dept. of Social Services	12594 Garrett Highway, Oakland
County & State Government	Md. Employment Office	216 S. Third St., Oakland
County & State Government	Community Action Agency	104 East Center St., Oakland
Police	Garrett County Public Safety Center	311 East Alder St., Oakland
Police	State Police, DNR Police, Fire Marshall	67 Friendsville Rd.
Hospital	Garrett Memorial	251 S. Fourth St., Oakland
Shopping Center	Thayer Shopping Center	N/A
Shopping Center	Wal-Mart	13164 Garrett Hwy., Oakland
Shopping Center	Market Square Shopping Center	N/A
Utility	Accident WWTP	Near Fratz St.
Utility	Sewage Pump Station	Industrial Park Drive
Utility	Water Pump Station	Accident Bittering Rd.
Utility	Water Tank	Accident Friendsville Rd.
Utility	Oakland Dump Site	10810 Garrett Highway, Oakland
Comm.	Spectra Tower	Near Keyzers Ridge
Comm.	USCOC Tower	Near Keyzers Ridge
Comm.	Tower	Near Keyzers Ridge
Nursing Home	Cuppett/Weeks NH	706 East Alder St., Oakland

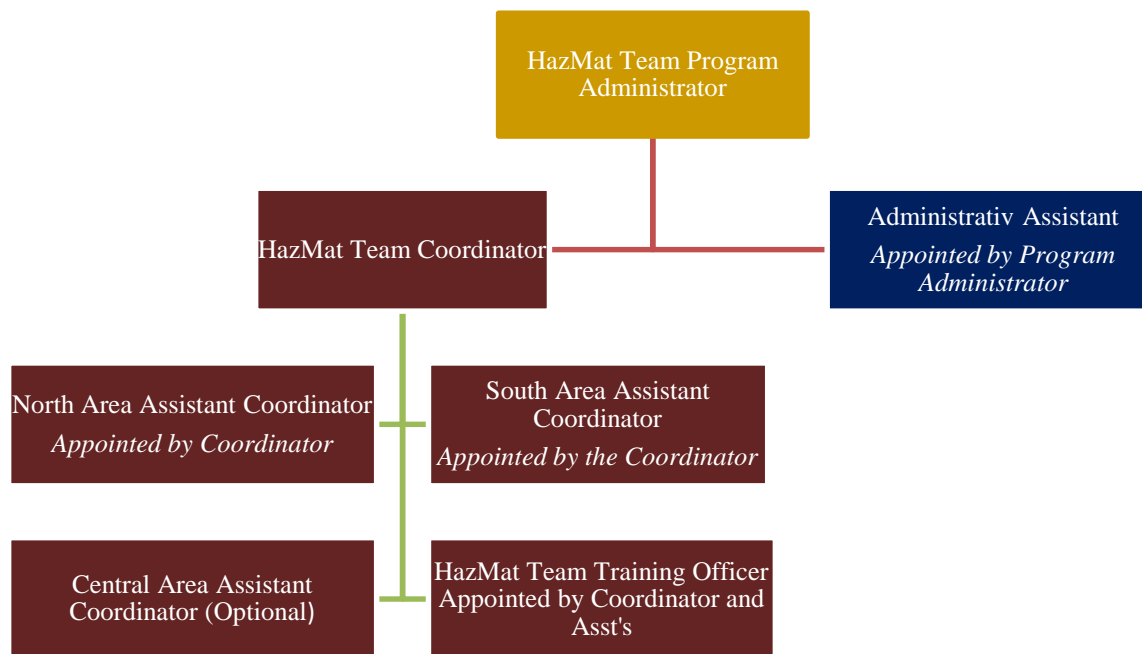
Source: 2008 Garrett County Hazardous Material Commodity Flow Study

2018 Status Update: While no hazardous materials commodity flow studies were conducted during the 2012-2018 planning cycle, findings from the previous studies were used for training and exercise purposes.

The Garrett County Hazardous Materials Commodity Flow Study completed in September 2008, also collected information pertaining to the CSX Railroad. While collecting data on HazMat trucks on the intersection near MD Route 135 and MD Route 560, the data collector also observed the CSX railroad that crossed through that area over a twelve-day period. The observer witnessed 2-3 westbound and eastbound trains per day. The westbound trains had no visible HazMat labels and the eastbound trains contained three separate trains with HazMat materials on them. The materials observed included: 1075-Propane, Butane: 16 Tankers; 1824-Caustic Soda Sodium Hydroxide: 18 Tankers; 1993-Flammable Weed Killer: 2 Tankers.

2018 Status Update: The Garrett County Hazardous Materials Emergency Response Plan was completed in July 2007 and updated in 2014. The plan discusses hazardous materials in the County and “responsibilities designed to minimize the threat to life, the environment and property caused by the release of any hazardous substance.” Fixed facility sites that use hazardous materials in Garrett County and are required to report these materials under the Emergency Planning and Community Right-To-Know Act (EPCRA) also known as the SARA Title III are included in the Hazardous Materials Response Plan. In addition, facilities that produce toxic releases into the environment must also report these on an annual basis. Finally, Garrett County has recently formed a Hazardous Material Response Team in 2017. The by-laws for the team were completed in April 2018. The table below includes Hazmat Team positions.

Table 31: HazMat Team Positions



Source: 2011 Garrett County Hazardous Materials Response Plan

12. 3 MUNICIPAL PERSPECTIVE:

The municipalities most susceptible to transportation HazMat incidents include Friendsville and Grantsville, which are adjacent to I-68, and Oakland, Mountain Lake Park, Loch Lynn Heights and Deer Park which are near the CSX rail line that crosses the southern part of the county. On site HazMats include water and sewer plants located in municipalities and the hospital in Oakland.

2018 Status Update: The U.S. Department of Transportation Pipeline and Hazardous Materials Safety Administration’s Office of Hazardous Materials Safety keeps a searchable database on all HazMat incidents that occur during the transportation of these products including air, water, rail, highway, and other. Between July 19, 2008 and January 9, 2018, Garrett County had 3 HazMat reported transportation incidents from the U.S. Department of Transportation Pipeline and Hazardous Materials Safety Administration’s, Office of Hazardous Materials Safety. In addition, several other incidents were provided by the Hazard Mitigation Planning Committee to be included in the update. Although a HazMat incident is more likely to occur on high traffic roads such as highways, there is no way to predict precisely where an event could take place.

As for the data shown in the 2018 HMP update section of the table below, the municipalities where these events have transpired are Grantsville and Friendsville. The most expensive incident, in terms of clean up and damages was the Friendsville incident on April 17, 2013 costing \$21, 800 in damages.

Table 32: HazMat Transportation Incidents

Date	Location	Carrier	Shipper	Amount of Damages	Commodity	Quantity Released
April 21, 2000	Finzel	Dart Trucking Co. INC	Spring Groove Resources	\$500	Flammable Liquids, N.O.S	.03125 LGA
August 9, 2002	Grantsville	Marten Transport LTD	Coca-Cola INC	\$1,530	Phosphoric Acid	4 LGA
February 2, 2006	Keysers Ridge	Robbie D Wood INC	Metachem	\$1,650	Toxic Liquids, Organic, N.O.S	5 LGA
June 3, 2008	Grantsville	Distributor Service INC	Distributor Service INC	\$106,500	Paint or Paint Related Material	80 LGA
July 18, 2008	Oakland	CLI Transport LP	Petroleum Products Corp.	\$2,686	Gasoline	N/A
2018 HMP Update						
April 17, 2013	Friendsville	Estes Express Lines, Inc.	Thor Industries	\$21,800	Corrosive Liquid, Acidic, Organic, N.O.S.	200 LGA
September 17, 2013	Grantsville	UPS Freight Services, Inc.	Valspar Corporation	\$2,500	Paint Including Paint, Lacquer, Enamel, Stain, Shellac Solutions, Varnish, Polish,	3 LGA

					Liquid Filler and Liquid Lacquer Base	
November 5, 2015	Grantsville	Trimac Transportation Central, Inc.	Arkema Inc.	\$4,500	Corrosive Liquid, Acidic, Organic, N.O.S.	10 LGA

Source: U.S. Department of Transportation Pipeline and Hazardous Materials Safety Administration's, Office of Hazardous Materials Safety

In addition to the incidents reported through the U.S. Department of Transportation Pipeline and Hazardous Materials Safety Administration's, Office of Hazardous Materials Safety, several other hazmat incidents occurred in Garrett County. They are described below:

- February 11, 2015 – Due to valves being left opened during a fuel delivery there was discharge of approximately 60-80 gallons of kerosene to the ground from two 275-gallon tanks. The incident occurred on 708 Teets Road in Garrett County, Maryland.
- January 5, 2016 – An overturned crane at Interstate 68 and Route 495 in Grantsville spilled less than 50 gallons of fuel. No hazmat team required for cleanup.
- January 7, 2016 – A tractor trailer hauling steel drums containing Molly Oxide (dry powder similar to concrete) lost approximately 73 drums, each weighing approximately 500 pounds, 200 yards in between the 11 and 12-mile markers on east bound on Interstate-68.

12. 4 PREVIOUS MITIGATION STRATEGIES:

With the new added capability of a hazardous materials response team in 2017 and a strong mutual aid relationship with Allegany County, Garrett County is more prepared to deal with hazmat incidents than in previous years. In addition, the county can also call on a team from Somerset County, Pennsylvania for assistance with a HazMat incident. In addition, the State of Maryland has HazMat capabilities through the Department of the Environment, the Department of Transportation and the Department of Health and Mental Hygiene. These agencies are all on call through the Emergency Management Agency.

2018 Status Update: The newly formed HazMat team now has fifteen trained HazMat personnel at the technician level. These technicians are composed of members from local volunteer fire departments within the County. Volunteer fire companies with these qualified persons include the Friendsville Volunteer Fire Department (VFD) with three technicians, Grantsville VFD with three technicians, Eastern Garrett VFD with one technician, and Deep Creek VFD with one technician. These technicians have the ability to be first responders if a HazMat incident were to occur in the County. In the event of a HazMat incident, Garrett County may call upon Allegany County's HazMat Team.

DAM FAILURE

13. 1 DAM FAILURE PROFILE:

Dam failure refers to a collapse, overtopping, breaching or any related condition that causes downstream flooding. Approximately one-third of all dam failures are caused by overtopping due to inadequate spillway capacity, one-third are caused by seepage through or under the structure, and the remainder from improper design or construction or because of earthquake or landside events which trigger the failure of the dam. Examples of dam failure in the United States include the Johnstown Flood in 1889 resulting in 2,209 deaths, the Saugus, California Dam collapse in the Los Angeles Aqueduct system in 1928 resulting in 450 deaths, and the Teton Dam breach on the Snake River in Idaho during a flash flood in 1976 resulting in 11 deaths. During Hurricane Agnes in 1972, concern about the Conowingo Dam on the Susquehanna River led to the opening of all flood gates to release pressure when the water level was three feet higher than the dam's rated capacity.

13. 2 COUNTY PERSPECTIVE AND HISTORY:

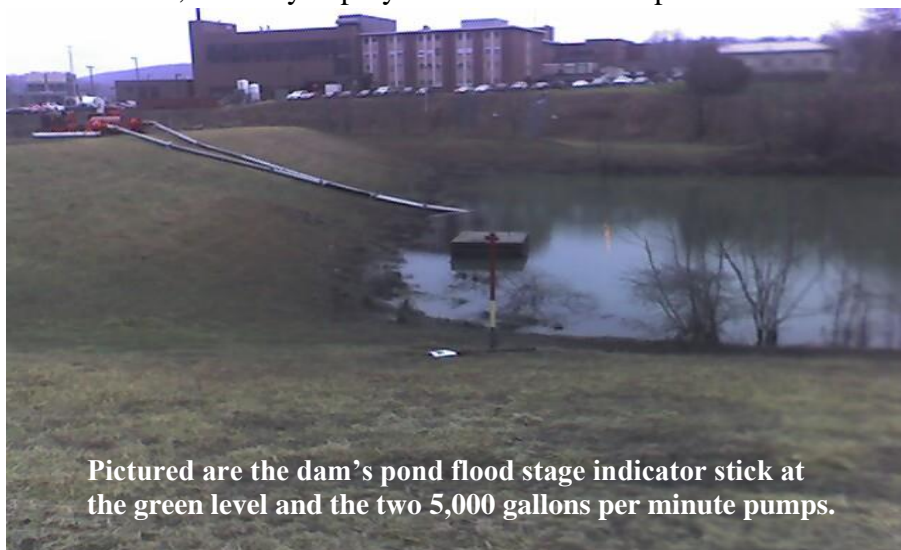
2018 Status Update: The 2012 HMPC ranked the risk higher, at "Medium" possibly due to the 2007 emergency at the Garrett Memorial Flood Control Dam within the town of Oakland in 2007. The 2018 HMPC agrees with this ranking.

The largest dams in the county include the Savage River Dam, the Bloomington Dam on the Potomac River, and the Deep Creek Lake Dam as shown on the map on Figure 23. Smaller dams include the Piney Creek Dam and the New Germany Dam. Two other dams of significance to the county include the Mt. Storm Dam and the Stony River Dam, both of which are in West Virginia on the Stony River, a tributary of the Potomac. Failure of either of these dams would affect the downstream communities of Kitzmiller and Bloomington and would also impact the Bloomington Dam.

The most recent dam failure event occurred in March of 2007. Debris clogged the discharge pipe at one of the flood control dams designed to protect the town of Oakland from flooding. The obstruction, apparently created by beavers, at the dam caused a backup of Wilson Run (shown on the map on Figure 34), resulting in flooding along North Fourth Street and eventually raised water levels in the dam to the critical stage, prompting officials to consider evacuating the town. In an attempt to mitigate the crisis, the decision was made to locate a dive team to clear the debris. With an impending snow storm forecast for later that night, a request for assistance was sent out across the State through the MDJOC (Maryland Joint Operations Center) located in MEMA headquarters. A team of divers from Baltimore County was dispatched and transported to Oakland in two Blackhawk helicopters provided by the Maryland Air National Guard. Although the divers were not able to clear the debris, they were able to evaluate the extent of the problem, which led to the decision to bring in two high-volume water pumps to lower the water

level down. This served two purposes, in that it reduced the water level in the dam below the danger level and it allowed workers to better access the discharge pipe.

The two pumps and a diesel fuel tank had to be placed on the dam, so once again the Maryland National Guard was summoned to assist, and they deployed a Chinook helicopter and two support Blackhawk helicopters to place the equipment on the breast of the dam. Once the piping was assembled and put into place, the pumps began discharging water at a combined rate of approximately 10,000 gpm. Within a matter of a few days the water level was down to the point that workers could clear the debris and restore the dam to normal operation.



Pictured are the dam's pond flood stage indicator stick at the green level and the two 5,000 gallons per minute pumps.

13. 3 MUNICIPAL PERSPECTIVE:

As noted above, the town of Kitzmiller is downstream from both the Stony River Dam and the Mt. Storm Dam. In addition, the town of Friendsville is located downstream from the Deep Creek Lake Dam. Finally, six flood control impoundments constructed by the Soil Conservation Service in the 1970's are located upstream of parts of Oakland, Mountain Lake Park, Loch Lynn Heights and Deer Park in the Little Youghiogheny Watershed as shown on Figure 34. All other municipalities are located on high ground above dam structures.

13. 4 PREVIOUS MITIGATION STRATEGIES:

In 2001, Garrett County joined with Allegany County and Mineral County to institute a telephone warning system for communities downstream of the Savage River and Bloomington Dams. This system has since been expanded to include the entire county for all hazards.

The Savage River and Bloomington Dams are maintained by the Upper Potomac River Commission and are subject to regular inspection and maintenance by the Corps of Engineers. All dams are subject to inspection by the state through its Dam Safety Program, and by the Corps of Engineers.

In addition, the Garrett Soil Conservation District has initiated studies of the flood control dams in the Little Youghiogheny Watershed. Studies of Dams 1, 2 and 3 in Oakland are complete, while the study of Dam 7 above Deer Park is in preliminary form. Figure 51 and Figures 55

2018 Status Update: Garrett County now utilizes Everbridge. This emergency mass notification system enables the County to provide citizens with critical information quickly in a variety of situations, such as severe weather, unexpected road closures, missing persons, and evacuations. Citizens can sign-up and receive time-sensitive messages wherever they specify, such as home, cell or business phone, email, text messages, hearing impaired receiving devices, etc.

through 65 show the inundation areas and the number of structures potentially affected by the major dams in Garrett County. Future studies of Dam 5, upstream from Oakland, and Dam 6 (Broadford Lake) will provide maps showing the inundation area should either of these dams fail.

In 2010, all Emergency Action Plans (EAP's) for all five flood control dams within the town of Oakland have been updated. In 2011, the Savage River Dam EAP was updated to include more accurate flood stage levels.

According to the Maryland's Dam Safety Program, the primary purpose of an EAP is to establish procedures to warn the population at risk to reduce the potential for loss of life and property damage in the event that dam failure is imminent or has already occurred. Some EAPs also include procedures for operation of a dam if spillway releases may cause downstream flooding and actions to be taken if an emergency situation is identified during routine inspection by the dam's owner or MDE's Dam Safety Division. Agencies and individuals involved with the development and execution of EAPs include dam owners, local government and emergency response agencies, consulting engineers and field inspection staff, local equipment suppliers, police and fire officials, radio and television outlets, and Maryland's Dam Safety Division for technical advice. The goal of all EAPs is to ensure public safety by monitoring general conditions during extreme weather events, inspecting high and significant hazard dams for problems, mobilizing emergency agencies, enlisting technical advice to inform decision making, and evacuating downstream communities if needed. Dam owners are responsible for developing and updating EAPs.

For more information, please call MDE's Dam Safety Program at 410-537-3538. Or visit www.mde.maryland.gov/damsafety.

WILDFIRE

14. 1 WILDFIRE PROFILE:

A wildfire is defined as any large fire that spreads rapidly and is difficult to extinguish. In the United States more than 2,000,000 acres burn each year as a result of wildfire. Since 1960, more than 6,000,000 acres have been consumed during 8 fire seasons, with more than 8,000,000 acres in 2000, and nearly 7,000,000 acres in 2002. Estimated fire suppression costs for federal agencies topped \$1 billion in 2000 and \$1.6 billion in 2002. Most of the acreage involved and the accompanying suppression efforts are in the western states on land managed by the U.S. Forest Service, the Bureau of Land Management, the Bureau of Indian Affairs, the U.S. Fish and Wildlife Service and the National Park Service. Unfortunately, in recent years, more private property has been affected by wildfires as urban development encroaches on forest and range land.

According to the Maryland Department of Natural Resources, some wildfires in Maryland can burn hundreds or even thousands of acres, most are smaller in size, burning less than 10 acres. However, in 1990, one fire burned 1,360 acres, and in 1947 more than 5,000 acres burned in Anne Arundel and Baltimore counties. Occasionally brush fires threaten urban development where homes are built in close proximity to forest or brush covered land. As more former agriculture land reverts to brush, this problem will become more prevalent. An example of a forest fire threatening residential properties occurred in Allegany County in the late 1990's when a forest fire on Wills Mountain threatened homes built on the ridgetop within the city of Cumberland.

Wildfires are fueled by natural cover, including trees, brush, grasses, and crops. Available fuel, topography, and weather provide the conditions that encourage wildfires to spread. Wildfires pose serious threats to human safety and property in rural and suburban areas. They can destroy crops, timber resources, recreation areas, and habitat for wildlife. Wildfires are a growing problem in the wildland/urban interface of the eastern United States, including Maryland.

Climatic and meteorological conditions that influence wildfires include solar insolation, atmospheric humidity, and precipitation, all of which determine the moisture content of wood and leaf litter. Dry spells, heat, low humidity, and wind increase the susceptibility of vegetation to fire. Natural and human agents can be responsible for igniting wildfires. Natural agents include lightning, sparks generated by rocks rolling down a slope, friction produced by branches rubbing together in the wind, and spontaneous combustion. Most wildfires in Maryland are caused from humans, such as arson and accidents from equipment operations.

14. 2 COUNTY PRESPECTIVE AND HISTORY:

2018 Status Update: According to the *2016 State of Maryland Hazard Mitigation Plan*, Garrett County has a ranking of "Medium-High" for wildfire. The county's HMPC ranks the risk lower, at "Medium".

Because more than 70% of Garrett County’s land surface is covered by forests, wildfire is a major concern. With 70,000 acres owned by the State of Maryland, the Department of Natural Resources takes a leading role in fire suppression throughout the county. According to records kept by Department of Natural Resources, Garrett County averages about 17.2 wildfires per year, with 53 fires recorded during 1995 and 45 fires recorded in 2001, both particularly dry years in the county. Table 33 shows the number of wildfires in the county each year since 1990.

2018 Status Update: In terms of number of occurrences, the Maryland Forest Service listed a total of 465 wildfire events affecting Garrett County from 1990-2016. Therefore, Garrett County experiences 17.2 wildfire events per year. As shown in the table below, the number of fires and the acres burned per year has decreased over the years in Garrett County. There are several explanations for the decrease in wildfires, including wildfire awareness in the County, loss of forestland due to development and agriculture, and an increase in response time by fire departments.

Table 33: Wildfire Statistics

Year	Number of Fires	Acres Burned
1990	17	78.5
1991	36	89.3
1992	20	93.2
1993	8	19.4
1994	28	63.1
1995	53	84.3
1996	22	27.9
1997	28	14.7
1998	14	51.1
1999	22	26.7
2000	26	10.9
2001	45	36.0
2002	24	15.2
2003	4	0.4
2004	6	17.6
2005	19	24
2006	17	14.1
2007	15	17.1
2008	14	9.1
2009	26	98.2
2010	6	16.4
2011	0	0.0
2012	3	21.7
2013	2	3.9
2014	1	2.0
2015	5	29.7
2016	4	18.5
Average	17.2	32.70

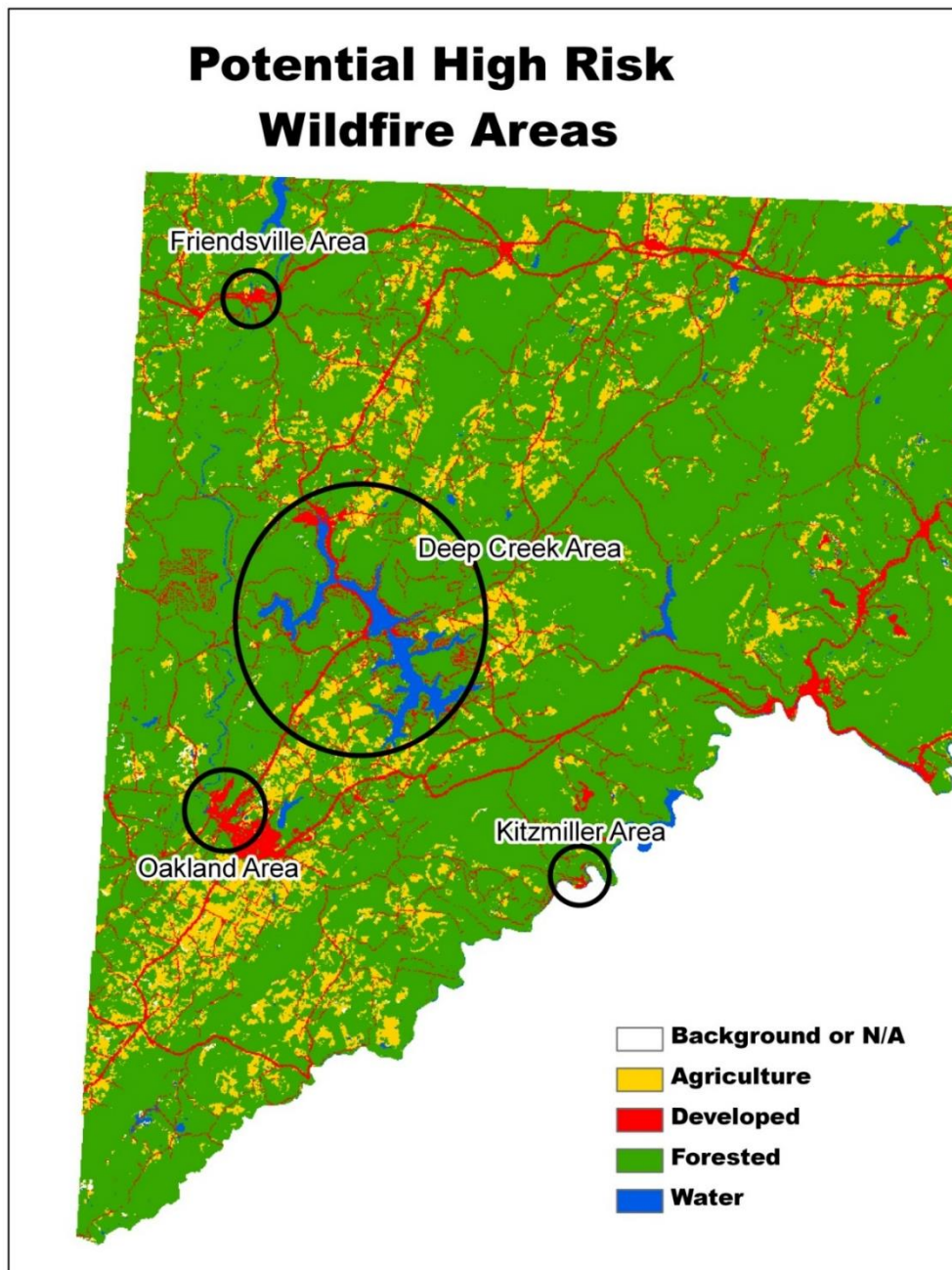
Source: Maryland Forest Service

Map 7 was produced using 2009 imagery from the United States Department of Agriculture (USDA) and the Natural Resources Conservation Services (NRCS) – National Cartography and Geospatial Center, Cropland Data Layer. All agriculture, development, and forested areas were

grouped together in order to show the relationship between forested areas and development. Areas of high concern for wildfire risk based on this data are the Deep Creek area (in particular McHenry), Kitzmiller area, Oakland area, and the Friendsville area.

2018 Status Update: Wildfire Urban Interface maps were added following a review of the Garrett County Wildfire Protection plans. Those maps have been added, Figures 54 and 55, as part of the Plan update.

Map 7: Wildfire Risk

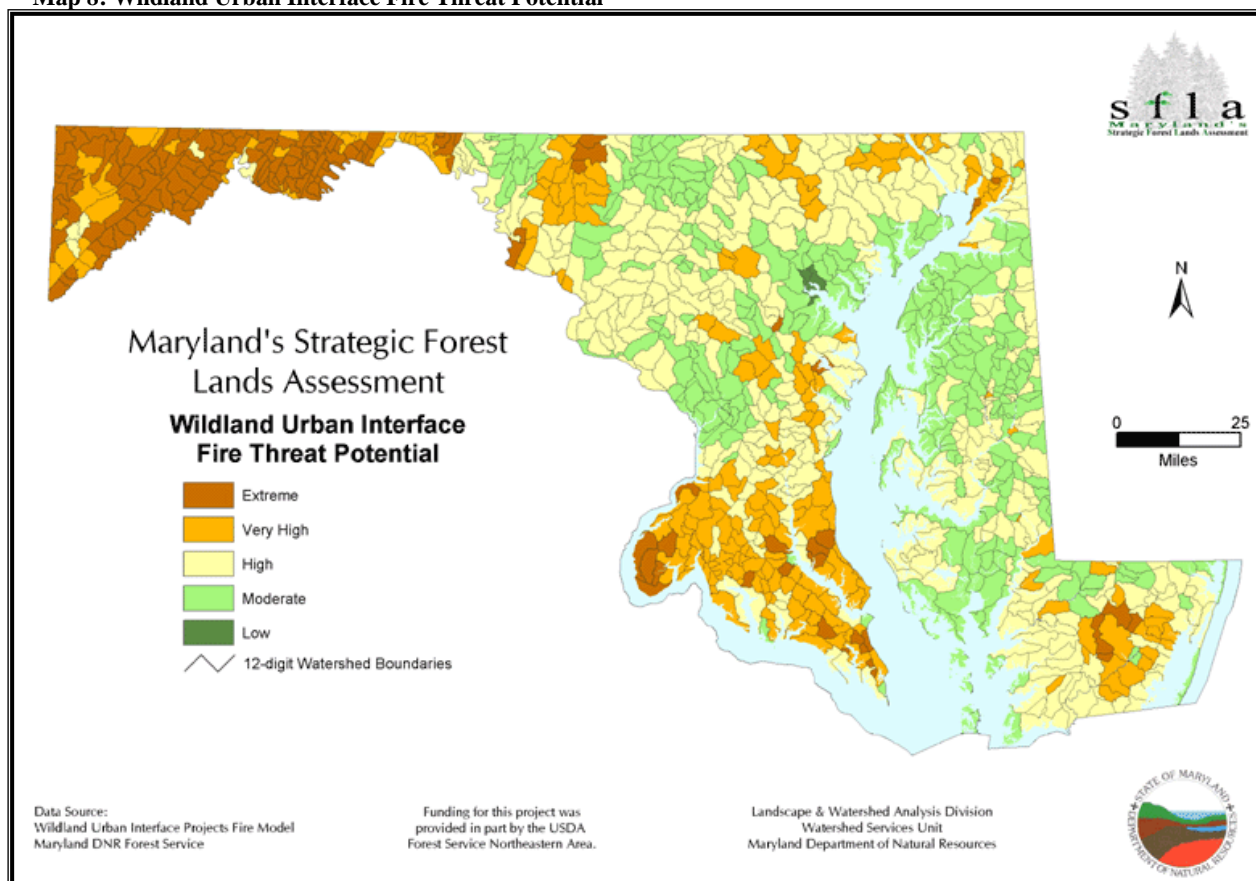


14.3 MUNICIPAL PERSPECTIVE:

All municipalities in Garrett County are near or adjacent to forest land or agricultural land. As urban development extends into these forest or brush covered lands the possibility of wild fire in urban areas increases as it does throughout the county.

Maryland’s Strategic Forest Lands Assessment is conducted by the Maryland Department of Natural Resources with financial assistance from the United States Department of Agriculture Forest Service and is composed of many types of vulnerability studies applying to the forests of Maryland. Map 8 depicted below shows one of the studies conducted on wildland/urban interface fire threat potential. As shown in this figure, the entire County is at a high to extreme urban interface fire threat. When compared to the rest of the State, proper forest management and planning should be an important part of Garrett County’s future.

Map 8: Wildland Urban Interface Fire Threat Potential



Source: Maryland DNR Forest Service

14.4 PREVIOUS MITIGATION STRATEGIES:

As noted above, the Maryland Department of Natural Resources is the lead agency in forest fire suppression in the Western Part of the State. Through the years, this agency has developed working relationships with Garrett County agencies including Emergency Management to

suppress and control wildfires. Local volunteer fire companies, police and the Sheriff's office assist with fire suppression and traffic control in fire situations. The county's hazard warning system also can be activated to warn citizens in a fire threatened area.

2018 Status Update: According to the Maryland Department of Natural Resources, wildfires occur every month in Maryland, but peak in the spring and fall. To that end, Garrett County is particularly vigilant in monitoring the county for fire activity and/or peak fire alert day(s). Alerting of citizens within a geographical area is now possible with the county's emergency notification system or reverse 9-1-1. The county can utilize the system to call all phone numbers associated within the geographical area designated. This system enhances overall emergency notification.

Finally, the Maryland Forest Service offers wild fire certified training periodically at Garrett College in McHenry, Maryland for members of the Maryland Fire Department. Additionally, on-line training is offered for agency certification as a Maryland Wildland Firefighter I or to be eligible for NWCG Firefighter Type 2 (FFT2). Offering training locally and on-line and Garrett County's wildfire preparedness efforts.

MAJOR FIRE/EXPLOSION

15.1 FIRE/EXPLOSION PROFILE:

In this document, fire/explosion refers to a major incident involving a commercial/industrial or transportation fire or explosion. Fire is defined as the state, process, or instance of combustion in which fuel or other material is ignited and combined with oxygen, giving off heat, light and flame. An explosion is defined as an expansion with violent force of materials through a chemical change or through decomposition. More than 8,700 fires and 4 explosions occur each year in the state with a damage toll of more than \$15,000 per event. The field of Emergency Management emerged as a way to coordinate fire control activities. Fire insurance itself dates to attempts to alleviate the damage from fires during the early settlement of the colonies in New England.

15.2 COUNTY PERSPECTIVE AND HISTORY:

2018 Status Update: The 2012 HMPC ranked fire/explosion as “Medium”. The 2018 HMPC agrees with this ranking.

According to the National Fire Protection Association, Marylanders over 65 years old are at highest risk of dying in a residential fire. The Maryland Office of the Fire Marshall in 2014 reported the estimated property loss due to fires was \$129,743, 640, loss of contents was \$36,529,195 for a total of fire-related loss of \$166,272,835 in Maryland. Garrett County is no different than other rural counties throughout the country, having a network of volunteer fire companies whose primary role historically has been to suppress fires and minimize damage to life and property because of these fires.

2018 Status Update: According to the Garrett County Health Department website, a new Maryland law, effective July 1, 2013, requires homeowners to upgrade their smoke alarms to the latest technology when replacing their older units. Smoke alarms have a life expectancy of not more than 10 years. When replacing your outdated smoke alarms, a new smoke alarm with a sealed 10-year battery will be required. In addition, there are new requirements on where smoke alarms are to be placed and the number of smoke alarms per level of your home. The deadline to be in compliance with the Maryland’s smoke detector law – Maryland Senate Bill 969 is January 1, 2018.

In addition, as of July 1, 2015, automatic sprinkler systems are a requirement in the 2015 International Residential Code, Section R313 for new one-and two-family dwellings.

Table 34: Fire Deaths per Year for Garrett County

Year	Fire Deaths
2000	1
2001	0
2002	0
2003	0
2004	0
2005	1
2006	0
2007	0
2008	0
2009	0
2010	1
2011	0
2012	0
2013	1
2014	0
2015	0
2016	1

Source: Office of the State Fire Marshal-Western Region

Table 35: Fire Investigated Arsons for Garrett County

Year	Arsons
2010	1
2011	1
2012	3
2013	2
2014	2
2015	1
2016	3

Source: Office of the State Fire Marshal-Western Region

15. 3 MUNICIPAL PERSPECTIVE:

All municipalities in Garrett County share the threat of fire to residential, commercial or other structures. The municipalities of Oakland, Mt. Lake Park, Loch Lynn Hts, Deer Park and Kitzmiller which are near CSX rail lines face the threat of fire or explosion from a transportation incident while Friendsville and Grantsville have the possibility of a similar incident along I-68.

Grantsville and Accident have a higher threat of fire to industrial because they are the only municipalities in the County with industrial or technological parks. Due to the age of structures and less building setback in older communities, the threat of fire spreading to other structures is greater than in newly developed areas in the County.

15. 4 PREVIOUS MITIGATION STRATEGIES:

As noted earlier, most early efforts at hazard suppression revolved around fire. Garrett County has volunteer fire companies that cover the urban and rural areas of the county. Most of these companies date to the early 20th century when vehicles became available that could cover the

distance from a fire station to the fire scene in a relatively short period of time. Over the years, training standards and improved methods of fire fighting have been developed by the Maryland Fire and Rescue Institute and implemented at the local level. The Maryland Fire Marshall's office provides expertise in tracing the origins of fires and explosions at the local level. Educational efforts aimed at alerting residents and property owners to fire prevention measures are transmitted through the Emergency Management Agency.

Finally, the county along with the Maryland Fire Marshall's Office encourages the reports of suspicious activity about a crime. Anonymous reporting can be done through the creation of an arson hotline (800-492-7529) and a suspicious activity hotline (800-492-TIPS).

HURRICANE

16.1 HURRICANE PROFILE:

According to Strahler’s Physical Geography text, a hurricane is essentially a tropical cyclone which develops over oceans in latitudes between 8 and 15 degrees N and S of the equator where the water temperature is normally over 80 degrees Fahrenheit. Warming of the air at low levels creates instability, and along with an easterly “wave” creates a deep circular low pressure area. Once formed, the storm moves north and west in the northern hemisphere. The diameter of a hurricane may be 100-300 miles with wind velocities more than 75 miles per hour and the barometric pressure in the center or eye of the storm commonly falling to 965 mb or lower. Hurricanes are rated for intensity by using the Saffir-Simpson Scale which gives an estimate of the potential damage that a hurricane may cause based on wind speed and surface pressure. This scale, shown in Table 36, ranges from Category 1 to 5, with Category 1 having winds from 74-95 mph and pressure greater than 980 mb, while a Category 5 hurricane can have winds in excess of 157 mph and pressure of less than 919 mb. Some notable hurricanes that have affected Maryland include Fran in 1996, Category 3; Camille in 1969, Category 5; Donna in 1960, Category 4; Hazel in 1954, Category 4; David in 1979, Category 5, Isabel in 2003, rated at Category 5 at sea, but Category 2 at landfall, and Sandy in 2012, Category 1.

Although high winds and excessive amounts of precipitation are common and cause tremendous damage, the most serious effect of hurricanes is coastal destruction caused by storm waves or surge. If a hurricane strikes at high tide, the storm surge can be devastating as was the case in Galveston, Texas in 1900 when more than 6,000 people drowned in a sudden hurricane generated storm surge. In India more than 300,000 people died in 1737 as a result of a 40-foot storm surge accompanying a severe tropical cyclone in the Bay of Bengal. Damage estimates for the 1900 Galveston hurricane topped \$30,000,000 in 1998 dollars.

2018 Status Update: The Saffir-Simpson Hurricane Wind Scale (SSHWS) underwent a minor modification for 2012 in order to resolve awkwardness associated with conversions among the various units used for wind speed in advisory products. The change broadens the Category 4 wind speed range by one mile per hour (mph) at each end of the range, yielding a new range of 130-156 mph. *This change does not alter the category assignments of any storms in the historical record, nor will it change the category assignments for future storms.*

Table 36: Saffir-Simpson Hurricane Wind Scale

Saffir-Simpson Hurricane Wind Scale Categories	
Category Sustained Winds	Types of Damage Due to Hurricane Wind
Category 1 74-95 mph	Very dangerous winds will produce some damage: Well-constructed frame homes could have damage to roof, shingles, vinyl siding and gutters. Large branches of trees will snap, and shallowly rooted trees may be toppled. Extensive damage to power lines and poles likely will result in power outages that could last a few to several days.

Category 2 96-110 mph	Extremely dangerous winds will cause extensive damage: Well-constructed frame homes could sustain major roof and siding damage. Many shallowly rooted trees will be snapped or uprooted and block numerous roads. Near-total power loss is expected with outages that could last from several days to weeks.
Category 3 111-129 mph	Devastating damage will occur: Well-built framed homes may incur major damage or removal of roof decking and gable ends. Many trees will be snapped or uprooted, blocking numerous roads. Electricity and water will be unavailable for several days to weeks after the storm passes.
Category 4 130-156 mph	Catastrophic damage will occur: Well-built framed homes can sustain severe damage with loss of most of the roof structure and/or some exterior walls. Most trees will be snapped, or uprooted and power poles downed. Fallen trees and power poles will isolate residential areas. Power outages will last weeks to possibly months. Most of the area will be uninhabitable for weeks or months.
Category 5 >157 mph	Catastrophic damage will occur: A high percentage of framed homes will be destroyed, with total roof failure and wall collapse. Fallen trees and power poles will isolate residential areas. Power outages will last for weeks to possibly months. Most of the area will be uninhabitable for weeks or months.

Source: NOAA, National Hurricane Center

16. 2 COUNTY PERSPECTIVE AND HISTORY:

2018 Status Update: According to the *2016 State of Maryland Hazard Mitigation Plan*, Garrett County has a ranking of “Medium-Low” for hurricanes. The county’s HMPC agrees with this ranking.

With its inland situation, Garrett County is not normally as affected by the high winds associated with the passage of a hurricane as a coastal community would be. However, hurricanes do still carry a lot of moisture over the mountainous terrain and the amount of runoff associated with the resulting precipitation can be deadly. As mentioned in the Riverine Flooding Profile, Garrett County has been affected over the years by the passage of hurricanes as shown on Figure 36, including Hurricane Hazel in 1954, Hurricane Agnes in 1972, Hurricane David in 1979, Hurricane Fran in 1996 and most recently, Hurricane Isabel in 2003. As shown on Map 9, hurricanes that track through the Gulf of Mexico or move inland from the Atlantic and then pass over the Appalachians have the greatest potential for excessive rainfall in the mountainous area extending from Alabama to New York. In 1969 Hurricane Camille stalled over the Blue Ridge in central Virginia, and dropped an estimated 30” of rain on the mountains in Nelson County in a 24-hour period. More than 250 people died in the resulting floods which were accompanied by landslides and slope failure of massive proportions.

In terms of number of occurrences, the NWS, National Centers for Environmental Information(NCEI) listed a total of 2 hurricane events affecting Garrett County from September 6, 1996 through February 28, 2018. Therefore, Garrett County has experienced 0.10 hurricane events per year. No property damage reported during this period.

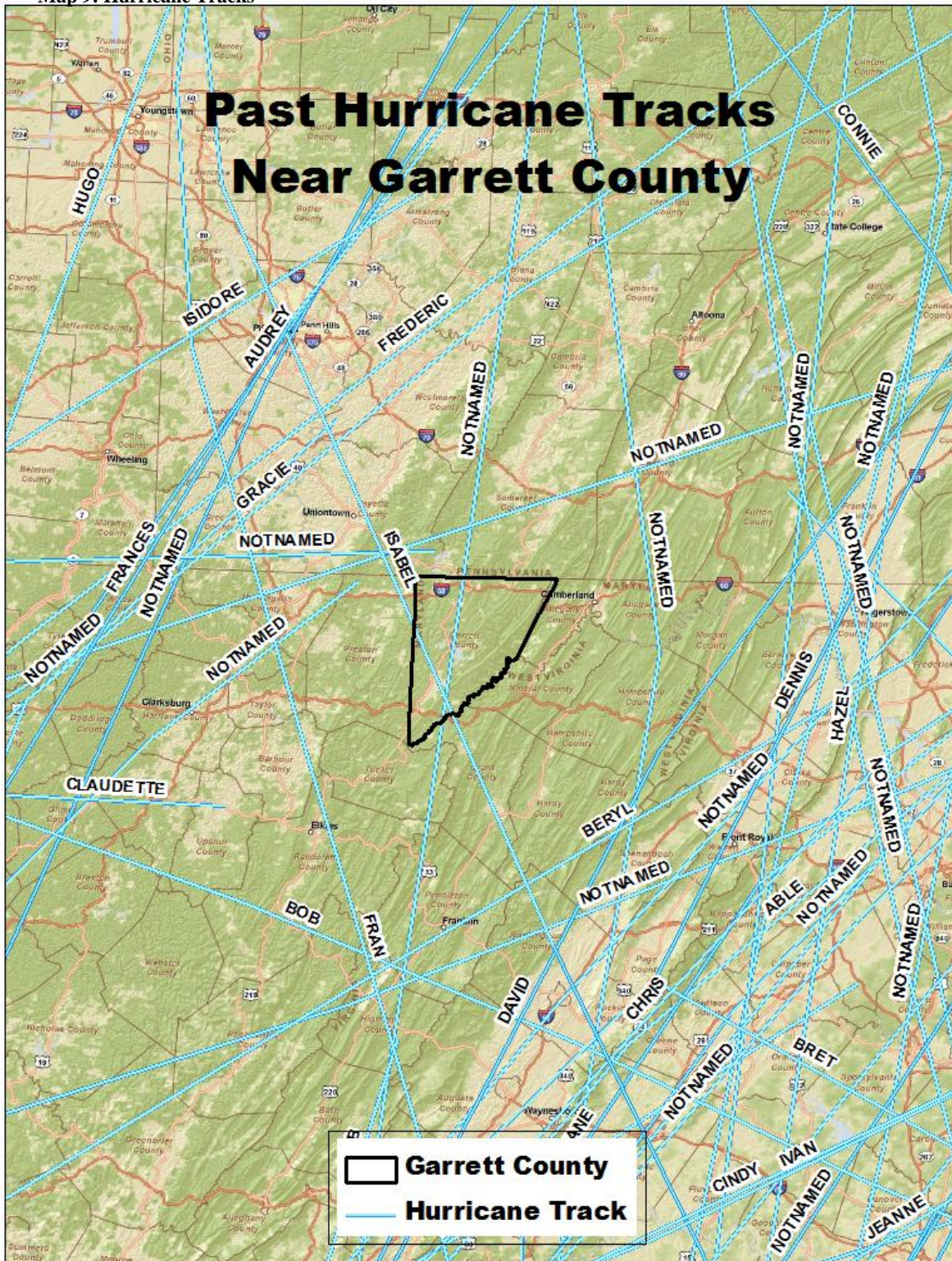
2018 Status Update: There were no new Hurricane Events reported from September 10, 1996 – February 28, 2018.

Table 37: Hurricane Events

Location	Date	Event Narrative
Oakland	September 6, 1996	Widespread flooding occurred across the county as the remnants of Hurricane Fran dumped heavy amounts of rain. A total of 8 roads were flooded, including 2 that were closed. Some storm totals include: Oakland 4.20 inches, Savage River Dam 4.60 inches and Kitzmiller 4.86 inches.
Grantsville	September 8 to 9, 2004	Rain from the remnants of Hurricane Frances began early on the 8th and ended early on the 9th. By 7 PM EDT on 8th, Casselman River went out of its banks, near Grantsville.
<i>Source: NWS, NCDC (NOAA)</i>		
2018 HMP Update – No New Events Reported		

Source: NWS, National Centers for Environmental Information (NOAA)

Map 9: Hurricane Tracks



16. 3 MUNICIPAL PERSPECTIVE:

As with other weather phenomenon, the Garrett County municipalities share the same concerns as the county. The towns of Friendsville and Kitzmiller face more danger from flooding associated with the passage of a hurricane because of their floodplain location, while the towns of Accident and Grantsville are more susceptible to wind damage because of their exposed location on higher, more level ground.

16. 4 PREVIOUS MITIGATION STRATEGIES:

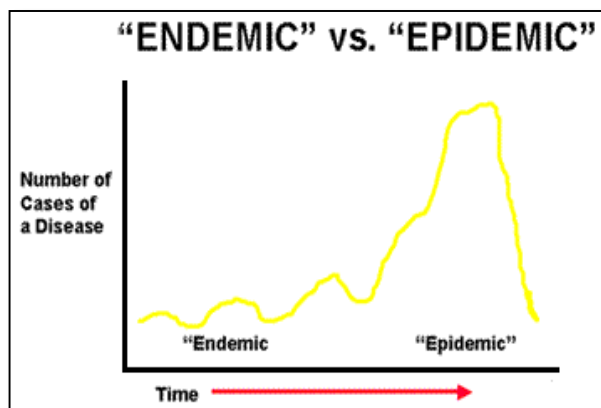
As noted under the Riverine Flooding Profile, Garrett County has purchased a number of buildings in floodplain areas, which could have been affected by flooding associated with hurricanes. In addition, the county's hazard warning system can be activated in advance of a hurricane's approach on advice from NOAA.

Finally, the county's Building Code contains requirements for wind loading of new structures, while the Stormwater Management Ordinance and Floodplain Ordinance regulate development in floodplain areas.

EPIDEMIC (OPIOID CRISIS)

17. 1 EPIDEMIC PROFILE:

According to the Centers for Disease Control and Prevention (CDC), sometimes the amount of disease in a community rises above the expected level; this is known as an epidemic. Epidemics are characterized by an increase, often sudden, in the number of cases of a disease above what is normally expected in that population in that area. While some diseases are so rare in a given population that a single case warrants an epidemiologic investigation (e.g., rabies, plague, polio), other diseases occur more commonly so that only deviations from the norm warrant



Source: health.mo.gov

investigation. The figure to the left provides a visual representation of the difference between endemic and epidemic.

Epidemics may also take the form of large scale incidents of food or water contamination, infestations of disease bearing insects or rodents, or extended periods without adequate water or sewer service. An epidemic may also be a secondary effect from other disasters such as flooding, tornadoes, hurricanes, or hazmat incidents.

The Maryland Department of Health (MDH) maintains counts for 86 diseases, conditions, outbreaks, and unusual manifestations as reported by health care providers and 43 diseases notifiable by laboratories in Maryland. The surveillance and reporting of these diseases is the responsibility of the local health department, which investigates and completes reporting both electronically and manually as per MDH regulations. Example of notifiable diseases include measles, Hepatitis B, salmonellosis, giardiasis, malaria, Lyme disease and rabies.

2018 Status Update: According to the 2017 study *America’s Health Rankings* by United Health Foundation, Maryland ranked 16st overall in the U.S. based on health information such as behaviors, public and health policies, community and environmental conditions and clinical care data. Areas where the State ranked well were a low percentage of children in poverty, ranking 4th and the availability of primary care physicians ranked 8th in the Country. A significant improvement since our last update; Maryland went from 50th in the U.S. for infectious disease to 16th.

17. 2 COUNTY PERSPECTIVE:

2018 Status Update: The 2012 HMPC ranked epidemic as “Medium”. The 2018 HMPC ranked epidemic, which includes opioid, as “Medium-High”.

In 2015, the county’s reporting’s for hepatitis B is 1, salmonellosis is 1, lyme disease is 3, animal bites are 40, and giardiasis is 1. Based on this state provided information, the county Planning Committee has increased the risk for epidemic to “Medium-High” during this planning cycle.

The Maryland Department of Health collects statistics from the County. Table 38 depicts Garrett County’s reportable conditions between 2010 and 2015.

Table 38: Reportable Conditions

Condition	2010	2011	2012	2013	2014	2015
Animal Bites	63	84	64	48	55	40
Arboviral Infection (other than west nile)	1	0	0	0	0	0
Campylobacteriosis	2	6	1	6	5	11
Chlamydia	39	43	57	59	57	42
Cryptosporidiosis	0	0	0	0	0	1
Cyclosporiasis	0	0	3	1	0	0
Giardiasis			3	1	2	1
Gonorrhea	2	9		3	5	3
H. influenzae - Invasive Disease	1	1	0	2	0	0
Hepatitis A (Acute-Symptomatic)	1	0	0	1	0	0
Hepatitis B (Acute-Symptomatic)	0	0	0	1	0	1
Hepatitis C (Acute-Symptomatic)	0	2	0	1	0	1
Listeriosis	1	0	0	0	0	0
Lyme Disease	0	0	0	3	1	3
Meningitis, Aseptic	0	1	0	1	0	0
Meningitis, Aseptic/Unspecified	1	0	0	0	0	0
Mycobacteriosis, Other than TB & Leprosy	1	0	0	2	0	0
Pertussis	0	0	5	2	6	4
Pneumonia - Hospitalized Healthcare Worker	0	0	0	1	0	0
Rabies - Animal	6	2	6	2	1	15
Salmonellosis - Other than Typhoid Fever	1	2	5	2	3	1
Shinga Toxin Producing E. Coli (STEC)	0	1	0	0	0	0
Strep Group B - Invasive Disease	0	0	1	1	5	1
Strep pneumoniae - Invasive Disease	2	3	1	2	2	0
Yersiniosis	0	0	0	0	1	0

Source: Maryland Department of Health – only conditions reported in Garrett County during 2010-2015 are listed on this table. For a complete listing of reported conditions, please refer to the Maryland Department of Health Website at: <https://health.maryland.gov/pages/index.aspx>.

17.3 MUNICIPAL PERSPECTIVE:

Because the statistics for disease and epidemics are gathered on a county basis, municipalities are included in the overall risk analysis performed by the state.

17. 4 PREVIOUS MITIGATION STRATEGIES:

Unlike mitigation strategies for most other hazards, disease and epidemic mitigation measures are handled by the state through the Maryland Department of Health. County Health Departments are essentially an extension of the state agency, and any mitigation strategies would have to be addressed at that level. According to Maryland Department of Health, the state has plans in place to respond to disease outbreaks.



The Garrett County Health Department website has a public health preparedness website containing information and links on bioterrorism, fact sheets, articles, documents, and education and training including self-learning modules. The site not only consists of epidemic information, but all health-related topics including how to prevent and prepare different types of disasters.

OPIOID CRISIS

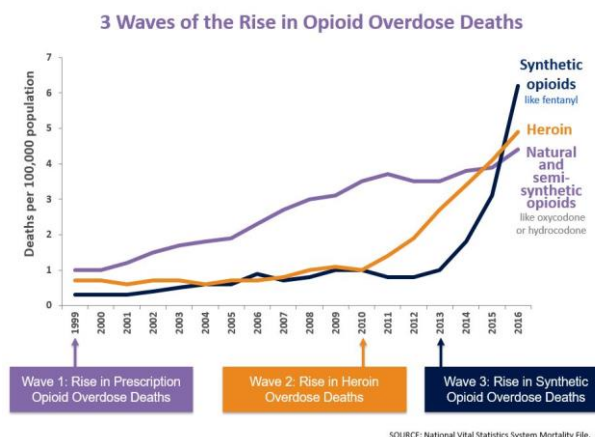
17. 5 OPIOID CRISIS PROFILE:

According to the Center for Disease Control’s website, overdose deaths continue to increase in the United States.

- From 1999 to 2016, more than 630,000 people have died from a drug overdose.
- Around 66% of the more than 63,600 drug overdose deaths in 2016 involved an opioid.
- In 2016, the number of overdose deaths involving opioids (including prescription opioids and illegal opioids like heroin and illicitly manufactured fentanyl) was 5 times higher than in 1999.
- On average, 115 Americans die every day from an opioid overdose.

There are three waves of the rise in opioid overdose deaths. The three waves are described below:

1. The first wave began with increased prescribing of opioids in the 1990s, with overdose deaths involving prescription opioids (natural and semi-synthetic opioids and methadone) increasing since at least 1999.
2. The second wave began in 2010, with rapid increases in overdose deaths involving heroin.
3. The third wave began in 2013, with significant increases in overdose deaths involving synthetic opioids – particularly those involving illicitly-manufactured fentanyl (IMF). The IMF market continues to change, and IMF can be found in combination with heroin, counterfeit pills, and cocaine.



The Maryland Department of Health released in June 2017, the 2016 Drug- and Alcohol-Related Intoxication Deaths in Maryland Report. The report found that 2,089 people died from overdoses last year, a 66 percent increase from 2015’s data. The largest surge was seen in residents 55 and older.

17. 6 COUNTY PERSPECTIVE:

Maryland’s Opioid Operational Command Center, Department of Health, and the Governor’s Office of Crime Control & Prevention today announced more than \$22 million to fight the heroin and opioid epidemic. Eighty percent will go to Maryland’s 24 local jurisdictions and service providers to fund prevention, enforcement, and treatment efforts throughout the state. For fiscal year 2018, local Opioid Intervention Teams will receive direct funding as noted below for each jurisdiction to determine how best to use to fight the heroin and opioid epidemic. This amount does not include other grants and additional funding distribution. Garrett County received \$71,273.19. This will include:

- Expand emergency room-based peer recovery support
- Develop heroin and opioid education and prevention in public schools
- Support emergency room-based intervention for non-fatal overdoses, including overdose response and naloxone education (Naloxone is a narcotic blocker used to temporarily reverse the effects of opioid medications)

The table below shows the composition of the Garrett County Opioid Intervention team.

Table 39: Garrett County Opioid Intervention Team

Garrett County Opioid Intervention Team	
Chair	Health Officer
Coordinator	Director of Emergency Management
Public Information Officer	Health Department PIO
Law Enforcement Lead	Sheriff
<ul style="list-style-type: none"> ✓ Sheriff’s Office ✓ City of Oakland Police ✓ Maryland State Police ✓ Department of Natural Resources Police ✓ Allied Law Enforcement Agencies 	
Fire, EMS, 9-1-1 Lead	EMS Chief
<ul style="list-style-type: none"> ✓ Medical Director ✓ Emergency Medical Services ✓ 9-1-1 Communication ✓ MIEMSS Regional Liaison ✓ Forensic Investigator 	
Health & Medical Lead	Health Officer
<ul style="list-style-type: none"> ✓ Health Department ✓ Behavioral/Mental Health ✓ Garrett Regional ✓ Medical Clinics ✓ Pharmacies ✓ Crisis Intervention Team 	
Human Service Lead	Deputy Director Department of Social Services
<ul style="list-style-type: none"> ✓ Human Resources ✓ Social Services ✓ Family Services ✓ Youth Services 	

Justice System Lead	State's Attorney
✓ State's Attorney's Office	
✓ Correctional Services	
✓ Detention Center	
✓ Juvenile Court-Services	
✓ Parole & Probation	
Education Lead	Superintendent
✓ Board of Education	
✓ Garrett College	

Source: Garrett County Department of Emergency Services

Garrett County has implemented a program which includes two committees, Opioid (meets monthly) and the Drug Overdose Committee (meets quarterly).

The Garrett County Sheriff's Office tracks drug related calls, starting in July 2017 to present. This tracking yielded eighty-eight (88) calls that were in some way drug related.

2017 was a record year in Maryland for drug overdose statistics. Garrett County had (7), of these (3) were opioid, while the remaining cases were any other drug (except heroin) related overdoses. The Director of Emergency Services reported that County EMS statistics indicate that EMS administered Narcan thirty-nine (39) times.

The Garrett County Health Department reported treatment statistics, eighty-two (82) in 2014, as compared to two hundred-thirty (230) in 2017. In the future, Garrett County plans to:

- Increase Recovery Support- (2) Coaches;
- Provide Narcan in Hospital-staff to provide training of the use of Narcan to family members;
- Educate children on drug abuse-Public Schools & Health Department;
- Emergency Declaration still in-place-moving from a response phase to a recovery phase; and,
- Funding secured to hire a coordinator- hire pending.

According to the Maryland Department of Education, in 2017 the Maryland General Assembly Enacted Senate Bill 1060 - The Heroin and Opioid Education and Community Action Act of 2017. The legislation creates a workgroup to review behavioral and substance abuse disorder services in Maryland Public Schools. The table below show the findings and recommendations that are specific to Garrett County public schools.

Table 40: Behavioral and Substance Abuse Programs and Services Workgroup

Heroin and Opioid Education and Community Act of 2017 Start Talking Maryland Behavioral and Substance Abuse Programs and Services Workgroup Prevention/Educational								
Type of Program	Name of Program	Behavioral, Substance Abuse, or Both	Grade Level(s)	Local Education Agencies(s)	Key Outcomes	Heroin and Opioid	Evidence-Based (Y/N)-Comments	Contact Information
Prevention/Educational	State Council on Child Abuse and Neglect (SCAN)	Behavioral/ Men Health	Adult Training	State- wide	Provides information and training through agencies and service providers.	Addressed by individual agencies and service providers.	N	Claudia Remington Executive Director, Maryland State Council on Child Abuse and Neglect 410-767-7868
Prevention/Educational	Maryland Comprehensive Health Education Program	COMAR 13A.04.18	All public-school students in State.	State-wide	Standard 2: Alcohol, Tobacco, and Other Drugs. Students will demonstrate the ability to use drug knowledge, decision-making skills, and health enhancing strategies to address the non-use, use, and abuse of medication, alcohol, tobacco, and other drugs.	Comprehensive Health Education Programs in each local school system are required to include instruction related to heroin and opioid addiction and prevention, including information relating to the lethal effect of fentanyl. Instructions must be delivered in elementary, middle, and high school grades and must be a stand-alone unit in the program.	N	Kirsten Roller Health Education Specialist Kirsten.roller@maryland.gov 410-767-0330

Prevention/Educational Programs and Treatment/Intervention/Clinical Programs									
Type of Program	Name of Program	Behavioral, Substance Abuse, or Both	Grade Level(s)	Local Education Agencies(s)	Key Outcomes	Heroin and Opioid	Evidence-Based (Y/N)-Comments	Contact Information	
Prevention/Educational and Treatment/Intervention/Clinical	Coordinated Student Services/School Psychologists	Behavioral/Mental Health	K-5 6-8 9-12 As Appropriate	All	Improve conditions for learning for students with mental health and behavioral concerns through attendance, engagement in learning, and more productive student/staff relationships.	N/A	Y-Howard Adelman and Linda Taylor Deborah.nelson@maryland.gov 410-767-0294	Deborah Nelson Section Chief, School Safety and Climate Deborah.nelson@maryland.gov 410-767-0294	
Prevention/Educational and Treatment/Intervention/Clinical	Level 1 and 0.5 Substance Related Disorder (SRD) Treatment	Substance Abuse	9-12 (N=30)	Garrett County Public Schools	Provide SRD early intervention services and treatment for high school students.	Provides addiction treatment for students with a SRD diagnosis and early intervention for students at risk of addiction.	N-SRD treatment is the standard of care and meets all State licensing requirements.	Robert T. Stephens Health Officer RobertLstephens@maryland.gov 301-334-7670	
Prevention/Educational Programs; Treatment/Intervention/Clinical Programs; Recovery/Post-Venture Programs									
Type of Program	Name of Program	Behavioral, Substance Abuse, or Both	Grade Level(s)	Local Education Agencies(s)	Key Outcomes	Heroin and Opioid	Evidence-Based (Y/N)-Comments	Contact Information	
Prevention/Educational and Treatment/Intervention/Clinical Recovery Postvention	Guidance document for use of Naloxone in the school setting (frequently asked questions document).	Substance Abuse	Unknown	State-wide	Save lives and prevent deaths due to opioid abuse.	Provides information about Naloxone administration in public schools.	N	Alicia Mezu Health Services Specialist Alicia.mezu@maryland.gov 410-767-0353	
Prevention/Educational and Treatment/Intervention/Clinical	Garrett County Drug Free Communities	Substance Abuse	K-5 6-8 9-12	Garrett County Public Schools	Assist in promoting treatment, intervention, and	Services include: Prevention (drug take back,			

Intervention/ Clinical Recovery Postvention	Coalition	(N=3,684)	prevention services to those people affected by alcohol and other drug abuse in Garrett County.	Prescription Drug Monitoring Program (PDMP) promotion, school workshops, permanent drop boxes, safe medication storage and disposal, intervention (Naloxone training), treatment (medication assisted treatment options),).	Y	Jonathan Turner Lead Specialist-School Counseling Jonathan.turner@maryland.gov 410-767-0288
Prevention/ Educational and Treatment/ Intervention/ Clinical Recovery Postvention	Comprehensive School Counseling Program Plan	All Students	School counselors use data to show the impact of the school counseling program on student achievement, attendance, and behavior and analyze school counseling program assessments to guide future action and improve results for all students.	Classroom guidance and small group lessons cover substance use awareness, risks, and strategies for assistance and support.	Y	Jonathan Turner Lead Specialist-School Counseling Jonathan.turner@maryland.gov 410-767-0288

Source: Maryland Department of Education, 2017

Furthermore, on March 5, 2018, a press release from the Board of Garrett County Commissioners announced that Garrett County has joined Montgomery County, and other counties in Maryland, in litigation seeking compensation for the damage caused by the production and distribution of opioids. To date, there has been no ruling on this federal court claim.

17.7 WESTERN MARYLAND REGIONAL PERSPECTIVE

The Western Maryland Regional hospital systems, health departments, medical professionals, social services agencies, law enforcement, education, and local organizations continue to fight this crisis through prevention, intervention, treatment, and recovery.

According to the 2017 report on Impacts of Addiction Issues as Related to Economic Development in Western Maryland, the table below shows an increase in opioid-related deaths for Western Maryland over the 2007 to 2016 period from 23 to 118 deaths or 3.7% of the state total to 6.4%.

Table 41: Number of Opioid-Related Intoxication Deaths

Jurisdiction	Number of Opioid-Related Intoxication Deaths – Maryland, 2007-2016 and YTD 2017 Through June													
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	Total 2007-2016	% of State 2007-2016	2017 YTD	% of State 2017
Maryland	628	523	570	504	529	648	729	888	1089	1856	7964	100.0%	1029	100.0%
Western Maryland Region	23	30	23	25	25	30	41	47	81	118	443	5.6%	53	5.2%
Allegany	12	7	6	11	8	10	11	11	20	55	151	1.9%	26	2.5%
Garrett	0	2	3	1	1	0	4	2	4	0	17	0.2%	2	0.2%
Washington	11	21	14	13	16	20	26	34	57	63	275	3.5%	25	2.4%

Source: *Impact on Addiction Issues Related to Economic Development in Western Maryland, 2017*

For more information, links, and resources, the Garrett County Department of Behavioral Health Substance Use Disorder Program “working together for a healthier tomorrow” website provides additional resources on prevention, recovery support, and treatment. Furthermore, throughout Maryland, the Overdose Response Programs (ORP) is a part of the Department of Health’s strategy to reduce the number of overdose deaths. Launched in 2014, this program offers training in overdose response and certify individuals to assist someone at risk of dying of an opioid overdose when emergency medical services are not possible. The ORP reports that 62,661 individuals have been trained; 74,879 doses of Naloxone have been dispensed; and 2,340 administrations of Naloxone have been reported from March 2014 through August 2017.

17. 8 MUNICIPAL PERSPECTIVE:

The statistics for the opioid crisis is gathered on a county basis, municipalities are included in the overall risk analysis performed by the state.

CYBER-THREAT

18. 1 CYBER-THREAT PROFILE:

According to the Department of Homeland Security – Industrial Control Systems Cyber Emergency Response Team, cyber threats to a control system refer to persons who attempt unauthorized access to a control system device and/or network using a data communications pathway. This access can be directed from within an organization by trusted users or from remote locations by unknown persons using the Internet. Threats to control systems can come from numerous sources, including hostile governments, terrorist groups, disgruntled employees, and malicious intruders. To protect against these threats, it is necessary to create a secure cyber-barrier around the Industrial Control System (ICS). Though other threats exist, including natural disasters, environmental, mechanical failure, and inadvertent actions of an authorized user, this discussion will focus on the deliberate threats mentioned above.

For this discussion, deliberate threats will be categorized consistent with the remarks in the Statement for the Record to the Joint Economic Committee by Lawrence K. Gershwin, the Central Intelligence Agency's National Intelligence Officer for Science and Technology, 21 June 2001. These include: national governments, terrorists, industrial spies, organized crime groups, hacktivists, hackers, and the GAO Threat Table. Activities could include espionage, hacking, identity theft, crime, and terrorism.

National Governments

National cyber warfare programs are unique in posing a threat along the entire spectrum of objectives that might harm U.S. interests. These threats range from propaganda and low-level nuisance web page defacements to espionage and serious disruption with loss of life and extensive infrastructure disruption. Among the array of cyber threats, as seen today, only government-sponsored programs are developing capabilities with the future prospect of causing widespread, long-duration damage to U.S. critical infrastructures.

The tradecraft needed to effectively employ technology and tools remains an important limiting factor, particularly against more difficult targets such as classified networks or critical infrastructures. For the next 5 to 10 years, only nation states appear to have the discipline, commitment, and resources to fully develop capabilities to attack critical infrastructures.

Their goal is to weaken, disrupt or destroy the U.S. Their sub-goals include espionage for attack purposes, espionage for technology advancement, disruption of infrastructure to attack the US economy, full scale attack of the infrastructure when attacked by the U.S. to damage the ability of the US to continue its attacks.

Terrorists

Traditional terrorist adversaries of the U.S., despite their intentions to damage U.S. interests, are less developed in their computer network capabilities and propensity to pursue cyber means than

are other types of adversaries. They are likely, therefore, to pose only a limited cyber threat. Since bombs still work better than bytes, terrorists are likely to stay focused on traditional attack methods in the near term. We anticipate more substantial cyber threats are possible in the future as a more technically competent generation enters the ranks.

Their goal is to spread terror throughout the U.S. civilian population. Their sub-goals include: attacks to cause 50,000 or more casualties within the U.S. and attacks to weaken the U.S. economy to detract from the Global War on Terror.

Industrial Spies and Organized Crime Groups

International corporate spies and organized crime organizations pose a medium-level threat to the US through their ability to conduct industrial espionage and large-scale monetary theft as well as their ability to hire or develop hacker talent.

Their goals are profit based. Their sub-goals include attacks on infrastructure for profit to competitors or other groups listed above, theft of trade secrets, and gain access and blackmail affected industry using potential public exposure as a threat.

Hactivists

Hactivists form a small, foreign population of politically active hackers that includes individuals and groups with anti-U.S. motives. They pose a medium-level threat of carrying out an isolated but damaging attack. Most international hactivist groups appear bent on propaganda rather than damage to critical infrastructures.

Their goal is to support their political agenda. Their sub-goals are propaganda and causing damage to achieve notoriety for their cause.

Hackers

Although the most numerous and publicized cyber intrusions and other incidents are ascribed to lone computer-hacking hobbyists, such hackers pose a negligible threat of widespread, long-duration damage to national-level infrastructures. Most hackers do not have the requisite tradecraft to threaten difficult targets such as critical U.S. networks and even fewer would have a motive to do so.

Nevertheless, the large worldwide population of hackers poses a relatively high threat of an isolated or brief disruption causing serious damage, including extensive property damage or loss of life. As the hacker population grows, so does the likelihood of an exceptionally skilled and malicious hacker attempting and succeeding in such an attack.

In addition, the huge worldwide volume of relatively less skilled hacking activity raises the possibility of inadvertent disruption of a critical infrastructure. For the purposes of this discussion, hackers are subdivided as follows:

- Sub-communities of hackers

- Script kiddies are unskilled attackers who do NOT have the ability to discover new vulnerabilities or write exploit code and are dependent on the research and tools from others. Their goal is achievement. Their sub-goals are to gain access and deface web pages.
- Worm and virus writers are attackers who write the propagation code used in the worms and viruses but not typically the exploit code used to penetrate the systems infected. Their goal is notoriety. Their sub-goals are to cause disruption of networks and attached computer systems.
- Security researcher and white hat have two sub-categories; bug hunters and exploit coders. Their goal is profit. Their sub-goals are to improve security, earn money, and achieve recognition with an exploit.
- Professional hacker-black hat who gets paid to write exploits or actually penetrate networks; also falls into the two sub-categories-bug hunters and exploit coders. Their goal is profit.

NATURE OF THE COMPUTER SECURITY COMMUNITY

Hackers and researchers interact with each other to discuss common interests, regardless of color of hat. Hackers and researchers specialize in one or two areas of expertise and depend on the exchange of ideas and tools to boost their capabilities in other areas. Information regarding computer security research flows slowly from the inner circle of the best researchers and hackers to the general IT security world, in a ripple-like pattern.

GAO Threat Table

Table 42, below, is an excerpt from NIST 800-82, "Guide to Supervisory Control and Data Acquisition (SCADA) and Industrial Control System Security (SME draft), provides a description of various threats to CS networks:

Table 42: GAO Threat

Threat	Description
Bot-network operators	Bot-network operators are hackers; however, instead of breaking into systems for the challenge or bragging rights, they take over multiple systems in order to coordinate attacks and to distribute phishing schemes, spam, and malware attacks. The services of these networks are sometimes made available in underground markets (e.g., purchasing a denial-of-service attack, servers to relay spam, or phishing attacks, etc.).
Criminal groups	Criminal groups seek to attack systems for monetary gain. Specifically, organized crime groups are using spam, phishing, and spyware/malware to commit identity theft and online fraud. International corporate spies and organized crime organizations also pose a threat to the United States through their ability to conduct industrial espionage and large-scale monetary theft and to hire or develop hacker talent.
Foreign intelligence services	Foreign intelligence services use cyber tools as part of their information-gathering and espionage activities. In addition, several nations are aggressively working to develop information warfare doctrine, programs, and capabilities. Such capabilities enable a single entity to have a significant and serious impact by disrupting the supply,

	communications, and economic infrastructures that support military power - impacts that could affect the daily lives of U.S. citizens across the country.
Hackers	Hackers break into networks for the thrill of the challenge or for bragging rights in the hacker community. While remote cracking once required a fair amount of skill or computer knowledge, hackers can now download attack scripts and protocols from the Internet and launch them against victim sites. Thus, while attack tools have become more sophisticated, they have also become easier to use. According to the Central Intelligence Agency, most hackers do not have the requisite expertise to threaten difficult targets such as critical U.S. networks. Nevertheless, the worldwide population of hackers poses a relatively high threat of an isolated or brief disruption causing serious damage.
Insiders	The disgruntled organization insider is a principal source of computer crime. Insiders may not need a great deal of knowledge about computer intrusions because their knowledge of a target system often allows them to gain unrestricted access to cause damage to the system or to steal system data. The insider threat also includes outsourcing vendors as well as employees who accidentally introduce malware into systems.
Phishers	Individuals, or small groups, who execute phishing schemes to steal identities or information for monetary gain. Phishers may also use spam and spyware/malware to accomplish their objectives.
Spammers	Individuals or organizations who distribute unsolicited e-mail with hidden or false information to sell products, conduct phishing schemes, distribute spyware/malware, or attack organizations (i.e., denial of service).
Spyware/malware authors	Individuals or organizations with malicious intent carry out attacks against users by producing and distributing spyware and malware. Several destructive computer viruses and worms have harmed files and hard drives, including the Melissa Macro Virus, the Explore.Zip worm, the CIH (Chernobyl) Virus, Nimda, Code Red, Slammer, and Blaster.
Terrorists	Terrorists seek to destroy, incapacitate, or exploit critical infrastructures to threaten national security, cause mass casualties, weaken the U.S. economy, and damage public morale and confidence. Terrorists may use phishing schemes or spyware/malware to generate funds or gather sensitive information.

Source: Government Accountability Office (GAO), Department of Homeland Security's (DHS's) Role in Critical Infrastructure Protection (CIP) Cybersecurity, GAO-05-434 (Washington, D.C.: May 2005).

18. 2 COUNTY PERSPECTIVE:

2018 Status Update: This is a new hazard identified as part of the 2018 Plan Update.

In today's threat landscape, defenders have a huge disadvantage. Meaning, attacker has to get it right once to accomplish their goal. Whereas the defender must patch, keep up on every possible vulnerability in all the systems, as you are only as strong as the weakest link. We attempt to keep up with the latest cyber threat trends and do everything with the tools, manpower and skills we have. We take a layered approach to cyber security and try to adhere to cyber security best practice.

- 1) Least privilege model: In general, we grant only the required rights for user to get the job done. Users have limited rights to their workstations. Users are only granted permissions to files they should have access to. This prevents user from installing software, viruses etc., as well as prevents unauthorized access to files.
- 2) Windows Update: We utilize WSUS server to auto deploy critical security updates to PCs and servers in a timely manner. This happens at least every month. This applies only to Windows PCs and Servers.
- 3) Anti-Virus: We use Carbon Black CB Defense "Next-Gen" endpoint protection solution. We believe this protects county data more effectively by looking for nefarious processes on a machine instead of just looking for known bad virus files (it does that too). This software can look at PC/Server activity and block/ alert based on suspect behavior.
- 4) Host based firewall: We use windows firewall on all Windows endpoints and servers. This prevents un-solicited/unwanted requests coming into server and clients across the network.
- 5) Perimeter network firewall: We use Palo Alto firewalls for perimeter defense. (from Internet) protection.
 - Credential phish protection – This Palo alto feature prevents the use of GCGOV credentials on malicious/fake password stealing sites.
 - SSL decryption – This Palo alto feature allows us to inspect all network traffic to and from servers and PCs for viruses and threats.
 - DDoS mitigation – Allows us to sense flood attacks and throttle traffic to ensure availability.
 - URL filtering – We filter/block access to known malicious websites.
- 6) End user education: Educate users on best practice and latest schemes the attackers use. Information sharing thru email.
- 7) Dual-Factor authentication: Where enforceable, Email, SharePoint files accessible from the Internet are protected with DFA. This increases security by forcing user to know her password and have her phone to gain access.
- 8) Mobile device always on VPN. GCSO/Public safety MDT's are securely tunneled back to GCGOV where security/network inspection can take place (client certificate as second factor). Availability/Business continuity/Disaster recovery
- 9) Backups: We use Veeam to ensure backup of county data. We have several backup schedules that ensure restoration of data up to 1 year. These backups are not accessible by end users over the network. This helps ensure restore capability in the event of ransomware attack.
- 10) Hyper-V replica: Critical server infrastructure is replicated (every 5-30 minutes) offsite to Garrett College. This DR mechanism helps with business continuity in the event of a critical virtual server or entire datacenter going offline.

What we can do to improve security posture:

With more and more data accessible from anywhere in the world, passwords are not enough protection alone. The breaches we have experienced at Garrett County have all been tied back to a password compromise/password re-use. Our plan is to continue to implement Dual-Factor authentication on all systems accessed from the internet. As a small support group, we have no other choice but to trust our cyber vendors. Effectively choosing a good vendor requires us to be trained in the latest trends and technology. Quality, time efficient training is another area that would help our posture.

18. 3 MUNICIPAL PERSPECTIVE:

As noted within the County Perspective, password compromise/password re-use is a common problem.

18. 4 MITIGATION STRATEGIES:

2016 Cybersecurity Legislation - Legislation was introduced/considered in at least 28 states in 2016. Fifteen of those states enacted legislation, many addressing issues related to 1) security practices and protection of information in government agencies, 2) exemptions from state Freedom of Information or public records acts for information that could jeopardize security of critical information or infrastructure, and 3) cyber/computer crimes.

H.B. 1168 - Status: Signed by Governor. Chap. 504

Provides that the amount of a credit against the state income tax is 50 percent, not to exceed \$500,000, of the investment in a qualified Maryland cybersecurity company located in Allegany County, Dorchester County, Garrett County, or Somerset County or Baltimore City; applies the act to initial tax credit certificates issued after June 30, 2016.

S.B. 412 - Status: Failed.

Requires that the statewide information technology master plan developed by the Secretary of Information Technology include a cybersecurity framework; requires that the Secretary consider materials developed by the National Institute of Standards and Technology in developing or modifying the cybersecurity framework.

S.B. 681 - Status: Failed-Adjourned.

Provides that the amount of a credit allowed against the state income tax is 50 percent, not to exceed \$ 500,000, of the investment in a qualified Maryland cybersecurity company located in Allegany County, Dorchester County, Garrett County, or Somerset County or Baltimore City; applies the Act to initial tax credit certificates issued after June 30, 2016.

Before A Cyber Incident

You can increase your chances of avoiding cyber risks by setting up the proper controls. The following are things you can do to protect yourself, your family, and your property before a cyber incident occurs.

- Only connect to the Internet over secure, password-protected networks
- Do not click on links or pop-ups, open attachments, or respond to emails from strangers.
- Always enter a URL by hand instead of following links if you are unsure of the sender.
- Do not respond to online requests for Personally Identifiable Information (PII); most organizations – banks, universities, companies, etc. – do not ask for your personal information over the Internet.
- Limit who you are sharing information with by reviewing the privacy settings on your social media accounts.
- Trust your gut; if you think an offer is too good to be true, then it probably is.

Password protect all devices that connect to the Internet and user accounts.

- Do not use the same password twice; choose a password that means something to you and you only; change your passwords on a regular basis.
- If you see something suspicious, report it to the proper authorities.
- Familiarize yourself with the types of threats and protective measures you can take by:
 - Sign up for the United States Computer Emergency Readiness Team mailing list.
 - Sign up for the Department of Homeland Security's Stop.Think.Connect. Campaign and receive a monthly newsletter with cybersecurity current events and tips.

During A Cyber Incident

Immediate Actions

- Check to make sure the software on all your systems is up-to-date.
- Run a scan to make sure your system is not infected or acting suspiciously.
- If you find a problem, disconnect your device from the Internet and perform a full system restore.
- If in a public setting immediately inform a librarian, teacher, or manager in charge to contact their IT department.
- Report the incident to your local police so there is a record of the incident. You may also contact federal agencies able to aid and investigate the incident:
 - FBI field offices and Internet Crime Complaint Center
 - National Cyber Investigative Joint Task Force or call 855-292-3937
 - United States Secret Service
 - U.S. Immigration and Customs field offices or cybercrimes or call 866-347-2423
 - National Cybersecurity and Communications Integration Center or call 888-282-0870
 - U.S. Computer Readiness Team

At Work

- If you have access to an IT department, contact them immediately. The sooner they can investigate and clean your computer, the less damage to your computer and other computers on the network.
- If you believe you might have revealed sensitive information about your organization, report it to the appropriate people within the organization, including network administrators. They can be on alert for any suspicious or unusual activity.

Immediate Actions if your Personally Identifiable Information (PII) is compromised:

PII is information that can be used to uniquely identify, contact, or locate a single person. PII includes but is not limited to:

- Full Name
- Social security number
- Address
- Date of birth
- Place of birth
- Driver's License Number
- Vehicle registration plate number
- Credit card numbers
- Physical appearance
- Gender or race

If you believe your PII is compromised:

- Immediately change all passwords; financial passwords first. If you used the same password for multiple resources, make sure to change it for each account, and do not use that password in the future.
- Contact companies, including banks, where you have accounts as well as credit reporting companies.
- Close any accounts that may have been compromised. Watch for any unexplainable or unauthorized charges to your accounts.

After a Cyber Incident

- File a report with the local police so there is an official record of the incident.
- Report identity theft to the Federal Trade Commission.
- Contact additional agencies depending on what information was stolen. Examples include contacting the Social Security Administration if your social security number was compromised, or the Department of Motor Vehicles if your driver's license or car registration has been stolen.
- Report online crime or fraud to your local United States Secret Service (USSS) Electronic Crimes Task Force or the Internet Crime Complaint Center.
- For further information on preventing and identifying threats, visit US-CERT's Alerts and Tips page.

COMMUNITY CAPABILITY

19.1 GENERAL OVERVIEW:

2018 Status Update: The Garrett County Emergency Management Office has update the Emergency Operation Plan as of December 2017.

Through its Emergency Management Office, Garrett County has developed a network of trained agency and volunteer personnel through the Maryland Emergency Management Assistance Compact (MEMAC). This network includes state agencies such as the Maryland State Police, Department of Natural Resources, Department of the Environment, Maryland Department of Health, State Highway Administration and the Maryland Emergency Management Agency. County agencies include the Department of Public Works -Roads Department and Public Utilities, Department of Planning and Land Development, Board of Education, the Community Action Agency, the Health Department, Department of Social Services, Department of Information Technology and the Sheriff's Office.

19.2 MUTUAL AID:

The county has mutual aid agreements with all surrounding counties and has also developed working relationships with volunteer organizations including the fire and rescue units that are active in incorporated communities and in rural areas. Fire and rescue units and their service areas are shown on Figure 33. The County also has mutual aid agreements with the American Red Cross and other groups, such as the Allegany County HazMat team, that may be called upon in special circumstances. In addition, the county has agreements to coordinate mitigation activities with private utility companies, including FirstEnergy and Verizon and with private transportation companies such as CSX for rail transportation HazMat events.

In addition, the Maryland Emergency Management Assistance Compact (MEMAC) is a state-wide mutual aid system within Maryland that allows any jurisdiction in Maryland to request and receive assets from another Maryland jurisdiction, and all the requesting procedures, and financial and liability issues are worked out through MEMAC ahead of time. When an incident surpasses the response capabilities of a local jurisdiction, the local jurisdiction may request state-level support through the Maryland Joint Operation Center and/or State Emergency Operations Center. Finally, if the needed assets are not available within the State or have been exhausted, and the Governor has declared a state of emergency, then MEMA can reach out to other states through the EMAC. EMAC works in a similar manner to facilitate the sharing of resources within the region, but now on a state-to-state basis.

Through its Department of Planning and Land Development, Garrett County has developed a system to regulate land use in sensitive areas, including 100-year floodplains, stream buffer areas, wetlands and steep slopes. The county also has subdivision regulations for the creation of new lots and a zoning ordinance for the Deep Creek Watershed, 2010 Stormwater Management

Ordinance, and the 2013 Sediment and Erosion Control Ordinances. Each municipality has similar regulations that are administered through the county Department of Planning and Land Development.

2018 Status Update: Garrett County Department of Public Works – Roads Division has a current fiscal year budget of 7.9 million. The Roads Division includes three maintenance area garages; Accident, Grantsville, and Oakland. These three garages are responsible for 682.50 miles of roadway and 127 bridges. Throughout the capital budget planning process in recent years, new trucks and equipment have been added to the fleet. Manpower remains consistent, and eleven contractual workers were recently hired. Paving has remained consistent with material readily available at local quarries. Antiskid for winter operations is well stocked.

19.3 MULTI-HAZARD WARNING & NOTIFICATION CAPABILITY:

On Monday December 6, 2017, the National Weather Service (NWS) recognized Garrett County, Maryland as a StormReady community. Fred McMullen, Warning Coordinator of the NWS office in Pittsburgh presented a recognition letter and special StormReady signage during the ceremony. Weather stations strategically located throughout the County's 650 plus square miles or varied mountainous terrain, located at locations that are constantly monitored, specifically the three County Roads locations and the Garrett County Emergency Operations Center increases our capability to provide timely warning and notification. Garrett County now has weather stations at all three County Roads Garage locations and the following schools:

- Route 40 Elementary;
- Friendsville Elementary;
- Southern High School; and,
- Northern High School.

The map below shows the three County Road Garage and the Garrett County Emergency Operations Center locations.

19.4 NEW FIRST RESPONDER EQUIPMENT CAPABILITY:

In 2017, Garrett County has received an anonymous donated 18-foot, 2000 model freightliner (Rehab 80) that has been reconditioned to be used by the Eastern Garrett Volunteer Fire Department. The truck will be used to supply food and water to first responders during an emergency response. The truck also carries a few cooling mist units to aid overheated and exhausted volunteers. A generator for the unit was donated by the Frostburg Volunteer Fire Department. Future plans for Rehab 80 include a microwave, air conditioning, and a rest room. Ultimately, Rehab 80 will be equipped with medical equipment to actively perform check-ups on volunteers at the scene. This unit will be make available throughout Allegany and Garrett counties as well as counties in West Virginia and nearby Pennsylvania.

WEATHER RELATED EVENTS

19.5 WINTER STORM CAPABILITY:

As noted in the Introduction, Garrett County is probably the best-prepared county in the state of Maryland when it comes to dealing with winter storms. The County Roads Department, the County Public Utilities Division, the School Board and other local agencies, along with the State Highway Regional Office have long been equipped to deal with major snowstorms and the almost daily occurrence of “Lake Effect” snow that develops in the mountainous terrain from November through March due to the lifting of air that picks up moisture as it crosses the Great Lakes and is carried across the Appalachians. As mentioned in the county profile, the county also has to deal with the occasional ice storm during the winter months and the occurrence of fog on days when the temperature is inverted or when low hanging clouds hamper visibility.

In addition to the County Roads Department and State Highway Administration, the Emergency Management Office has close ties with both FirstEnergy and Verizon which provide electrical and telephone service respectively to the citizens of the county. Both of these utility companies clear dead or overhanging trees from utility rights-of-way during summer months so that ice and wind damage is lessened during winter storms.

With respect to new construction, the county’s Building Code has wind and snow loading requirements and footer depth standards that are tailored to the Garrett County climate.

2018 Status Update: In FY 2018, Garrett County released the Freezing & Inclement Weather Plan. This plan provides critical information on plan activation; decision markers; key department and agencies; warming centers; cold weather shelter locations and security; outreach; role of Emergency Management; Homeless Management Information System (HMIS); plan development and evaluation; and identification of gaps.



Source: Garrett County Emergency Management

19.6 RIVERINE FLOODING CAPABILITY:

During major flood events, including thunderstorms and the passage of hurricanes, most of the agency and volunteer groups mentioned in the General Overview are called upon for assistance by the Emergency Management Office. Garrett County’s capabilities are similar to other mountainous counties that deal with chronic flooding. With its recently activated warning system, residents can be made aware of rising stream levels, particularly along major streams which have monitoring stations. Usually roads or highways are blocked to some extent and people have to evacuate in lower lying areas. Emergency Management has a plan which coordinates evacuation activities with the Roads Department and State Highway Administration

and with local fire and rescue units, the Health Department and the Red Cross. While Garrett County makes a great effort to mitigate flood events, the character of the natural environment, with steep slopes and rapid runoff in narrow, confined valleys, lends itself to further mitigation efforts, particularly that of moving people and structures from harm's way.

The county also has the capability to mitigate future flood losses through its Sensitive Areas Ordinance, its Subdivision Regulations, its Floodplain Management Ordinance and its Stormwater Management Ordinance. The Floodplain ordinance requires the base elevation for new structures be 1 foot above the base flood level and that stream setbacks be observed in unmapped stream basins. The county also requires utilities to be elevated 3 feet above the base flood elevation. Finally, as noted in the section on Previous Mitigation Efforts, the county participates in the Flood Insurance Program. This allows property owners to purchase insurance through this federally sponsored program.

2018 Status Update: Garrett County adopted the 2013 Floodplain Management Ordinance on August 3, 2013. According to the Garrett County Department of Permit and Inspection Services, pursuant to the Code of Federal Regulations – 44 C.F.R. Section 59.22, this action is necessary to update the County's current Flood Management Regulations to reflect the adoption of a revised "Flood Insurance Study for Garrett County, Maryland and Incorporated Areas" effective October 2, 2013. The update will include adoption of all accompanying updated Flood Insurance Rate Maps (FIRMs) effective October 2, 2013 and amendments to the current Ordinance. The Garrett County Department of Permit and Inspection Services handles floodplain permits for the county and all municipalities.

19.7 TRANSPORTATION-FOG CAPABILITY:

2018 Status Update: Garrett County Traffic Advisory Committee meets on the third Wednesday of the month at the State Police Barracks.

During the winter season of 2017, State Highway Administration used automated Variable Message Signs (VMS) indicating a "Icy Roads Possible" message to travelers. The Road Weather Information System (RWIS) stations sense weather and road conditions and post messages automatically. However, these messages can be overridden if needed by the Statewide Operations Center (SOC). In addition, fog warning signs are also controlled by RWIS stations. They consist of amber flashing lights mounted to the appropriate static signs.

The agencies most involved in dealing with fog conditions are many of the same as involved with winter storms and stream flooding, namely state and county highway departments, state and local police departments and the Emergency Management Agency along with fire and rescue units. Unlike most winter storms and heavy rainfall events, there is usually little warning before visibility becomes severely limited. Warning devices placed outside the fog area have had some

positive effect but drivers have to be conscious of the limitations of their field of view and drive accordingly. Methods for mitigating this hazard are reviewed and discussed periodically by a task force of state and county highway and police personnel, along with the Emergency Management Agency.

As described in Chapter 8: Major Transportation-Fog, the County utilizes the Coordinated Highways Action Response Team (CHART) to monitor local traffic information, winter storm information, visibility, and precipitation for a particular area. There have also been several display warning signs installed on Interstate 68 in Garrett County to alert motorists of expected traffic conditions, including road closures and fog and ice hindering roadways. Weather events and traffic incidents are reported on the CHART website as well, which may be accessed by the public at: <http://www.chart.state.md.us/>.

19. 8 HIGH WIND CAPABILITY:

Normally the same agencies and utilities involved in providing assistance during winter storms and flood events are involved in dealing with high wind events. This includes winds associated with cold front passage, blizzard conditions, tornado, or hurricane passage. Once again, the county's warning system can be activated in the event of a tornado or hurricane watch or warning. The Emergency Management Agency coordinates this warning and ensures that local agencies and utilities are on alert for high wind events.

As noted above, the county's Building Code has provisions for wind loading for new construction. These provisions take into account the severe climatic conditions that are common in Garrett County during the winter months. The code also calls for tie-downs for newly installed mobile homes.

2018 Status Update: The 2015 Garrett County Building Code adopts the 2015 International Building Code, 2015 International Residential Code and 2015 Energy Conservation Code with certain modifications and amendments, July 1, 2015. Additionally, all codes adopted by the Maryland Codes Administration through the Maryland Building Performance Standards are in force in Garrett County. The ordinance can be found at:
<https://www.garrettcountry.org/resources/permits-inspections/pdf/Building/2015-BuildingCode.pdf>

19. 9 HEAT AND DROUGHT CAPABILITY:

As noted in the Hazard Profile, heat and drought are normally not a problem in Garrett County. However, when dry conditions disrupt water service in an area of the county, the County Emergency Management Agency can ask the Maryland Emergency Management Agency to request the Maryland National Guard to provide temporary water storage tanks for emergency use. Additionally, the Health Department monitors well development through the building permit process and has access to well records through the Department of the Environment to

monitor ground water use and replenishment. The Department of Agriculture also monitors soil moisture conditions and provides farmers with information on crop development through the Soil Conservation District during low soil moisture conditions.

Garrett County Department of Emergency Services holds briefings with the Health Department, Area Agency on Aging, and other allied agencies during extreme heat events, which are rare.

19. 10 EPIDEMIC (OPIOID CRISIS) CAPABILITY:

As noted in the Epidemic Profile, the Maryland Department of Health administers the county Health Department. This administrative setup allows the full capabilities of the state to be utilized to mitigate an epidemic or other outbreak of disease in Garrett County. Health related Disaster Planning meetings are held quarterly. These meetings are made-up of a cross-section of agencies and community groups. The Garrett County Health Department website contains fact-sheets on many epidemics from the Center for Disease Control and the Maryland Department of Health, which include the Avian Influenza, Ebola, Influenza, Pandemic Flu, Zika, and the Opioid Crisis.

2018 Status Update: Garrett County has a program in place, which includes two committees, Opioid (meets monthly) and the Drug Overdose Committee (meets quarterly). Also, an Opioid Interdiction Coordinator was hired by the Health Department.

On June 8, 2017, The Greater Cumberland Committee held an addiction symposium at Frostburg State University to educate the community on the regional efforts and shared best practices to combat addiction. In addition, throughout 2018, the Garrett County Health Department offered an overdose response training classes to members of the community. After the completion of the course, participants will be given a free prescription for the antidote (Naloxone/Narcan). Additional resources can be found online at: www.garretthealth.org.

According to the Garrett County Health Department FY 2017 Annual report, “the Garrett County Health Department’s mission is to promote, protect, and improve the health of citizens and visitors of Garrett County.”

The Health Department helped in preventing the spread of disease through:

✓ HIV/AIDS

Provide prevention services, educational awareness, confidential testing, and case management to eligible individuals.

✓ Communicable Disease Surveillance

Provide surveillance, investigation, and education regarding the spread and prevention of reportable communicable diseases.

The Health Department helped in promoting healthy behavior by:

✓ Health Education & Outreach

Provide services to promote and encourage healthy behaviors to prevent alcohol/drug abuse, tobacco use, obesity, injuries, and teen pregnancy.

19. 11 SOIL MOVEMENT CAPABILITY:

As noted in the County Profile, soil movement, particularly on steep slopes, poses a significant hazard in Garrett County. Mitigation measures currently in place include county-wide ordinances for Sensitive Areas, including steep slopes and 100-year floodplains, Sediment Control and Stormwater Management. Plans for new construction are reviewed for compliance with these ordinances by county staff and the Soil Conservation District, while inspections are performed by county staff. State agencies such as the Department of the Environment and the Bureau of Mines ensure compliance with these measures on state construction projects and during mining activities.

In addition the county's Building Code has provisions for soil testing in areas where soil conditions are favorable to slippage or other mass movement.

2018 Status Update: As noted in *Chapter 3: Previous Mitigation Efforts*, Garrett County revised their Stormwater Management Ordinance in June 2010. This Ordinance will manage stormwater by using Environmental Site Design (ESD) to Maximum Extent Practicable (MEP) to maintain post-development conditions as nearly as possible to pre-development runoff characteristics, and to reduce stream channel erosion, pollution, siltation, sedimentation, and local flooding, and use appropriate structural Best Management Practices (BMPs) only when necessary. In addition, Garrett revised their Erosion and Sediment Control Ordinance in February 2013. This Ordinance prescribes controls for runoff in newly developing areas.

TECHNOLOGICAL OR OTHER EVENTS

19. 12 FIRE OR EXPLOSION CAPABILITY:

As noted in the Fire/Explosion Profile, Garrett County developed its fire and rescue capability as a response to fire hazard early in the 20th Century. More recently, fire prevention measures such as regulatory requirements mandated through the county's Building Code and the dissemination of public information through the State Fire Marshall's office have become the norm. Safety requirements for explosive materials in containers being shipped by rail or truck are enforced by the Department of Transportation.

2012 Status Update: Improvements have been made to special operation teams and Emergency Management planning. Special operation teams include HazMat, Swift Response Water Rescue, including Dive Team, as well as response to Marcellus shale.

19. 13 WILDFIRE CAPABILITY:

The Department of Natural Resources is the lead agency in wildfire suppression and works with local fire departments in training related to wildfire suppression. In addition, the Department of

Natural Resources and Health Department have strict requirements for burning in outdoor areas to help prevent forest and brush wildfires.

19. 14 DAM FAILURE CAPABILITY:

As noted in the Hazard Profile, Garrett County's two largest Dams, Savage River and Bloomington are subject to annual inspection by the Upper Potomac River Commission and the Corps of Engineers. All other dams in the county are subject to inspections by the state's Dam Safety Division and the Corps of Engineers. As also noted in the Hazard Profile section, the Soil Conservation District is working to complete studies for the six flood control dams in the Little Youghiogheny Watershed to determine inundation areas below these dams. A warning system, originally designed to warn residents in the downstream area of the Savage River and Bloomington dams has been expanded to cover the smaller dams in the county.

2018 Status Update: Emergency Action Plans (EAP) are updated annually for the Savage River Dam, Deep Creek Dam, and the Oakland Flood Control Dam.

19. 15 HAZMAT CAPABILITY:

As noted in the Hazard Profile, Garrett County has a strong mutual aid relationship with the Allegany County HazMat Team to be called upon in the event of a HazMat incident. A team from Somerset County, Pennsylvania can also be called on for assistance at a HazMat event. The state Department of the Environment is also on call to assist in the cleanup of hazardous materials. In addition, the county's hazard warning system can be activated in the event of an onsite or transportation incident.

2018 Status Update: In 2015, the HazMat Response Plan was updated and adopted. New equipment purchases, and additional HazMat Technicians have been added during this Planning Cycle. Currently, Garrett County has fifteen HazMat Technicians.



As shown in the picture on the left, Garrett County HazMat Response Team is utilizing a newly purchased HazMat decontamination tent. These tents are essential to any emergency response team for decontamination of accident victims and self-decontamination of the operational technicians and/or units.

*Source: Garrett County Department of
Emergency Management*

19. 16 CYBER-THREAT CAPABILITY:

2018 Status Update: This is a new hazard identified as part of the 2018 Plan Update.

As noted in the Hazard Profile, Garrett County takes a layered approach to cyber security and try to adhere to cyber security best practice. They include: Least privilege model, Windows Update, Anti-Virus: We use Carbon Black CB Defense "Next-Gen" endpoint protection solution, Host based firewall, Perimeter network firewall, End user education, Dual-Factor authentication, Mobile device always on VPN, Backups, and Hyper-V replica.

With more and more data accessible from anywhere in the world, passwords are not enough protection alone. The breaches we have experienced at Garrett County have all been tied back to a password compromise/password re-use. Our plan is to continue to implement Dual-Factor authentication on all systems accessed from the internet. As a small support group, we have no other choice but to trust our cyber vendors. Effectively choosing a good vendor requires us to trained in the latest trends and technology. Quality, time efficient training is another area that would help our posture.

VULNERABILITY ASSESSMENT

20. 1 HAZARD PRIORITY:

Based upon hazard frequency damages, and other related data, a composite risk and probability prioritization ranking was completed as part of the 2018 update. The table below, as shown in *Chapter 4: Hazard Identification and Risk Assessment* provides the results of this assessment.

Table 43: Summary of Combined Risk & Probability

Hazard	Damages	Frequency	Fatalities	Injuries	Local Assessment	Combined Risk & Probability*
Riverine Flooding	\$440,000	0.49	0	0	High	16-Medium-High
High Wind	\$422,000	0.82	0	0	Medium-High	15-Medium-High
Hurricane	0	0.10	0	0	Medium-Low	8-Medium-Low
Thunderstorm	\$894,500	0.65	0	0	Medium-High	16-Medium-High
Tornado	\$2.6 M	0.16	1	12	Medium	22-High
Winter Weather	\$206,000	0.22	0	0	High	16-Medium-High

Source: Combined Risk is the total of all five categories added together – 30-20= "High"; 19 -15= "Medium-High"; 14-10= "Medium"; 9-5= "Medium-Low"; 4-0= "Low"

**Damages, frequency, fatalities, and injuries data from NCEI data tables presented within hazard chapters.*

Hazards that were ranked for risk purposes as “High” or “Medium-High” during this assessment process included riverine flooding, high wind, thunderstorm, winter weather, and tornado. These hazards are considered priority hazards and have been included in the Vulnerability Assessment on Table 46. For purposed of the vulnerability Assessment, severe weather includes tornado, high wind, and thunderstorm. In addition, due to the number of dams located in Garrett County, as well as the ability to easily map and assess dam inundation areas, dam failure has also been included in Table 46 as part of the Vulnerability Assessment.

20. 2 CRITICAL AND PUBLIC FACILITIES:

According to the *2016 State of Maryland Hazard Mitigation Plan*, critical facilities refer to structures that the state determines must continue to operate before, during, and after an emergency and/or hazard event and/or are vital to health and safety. Maryland published *Local Hazard Mitigation Plan Guidance in May of 2015* to ensure continuity between local and State Hazard Mitigation Plan documents. Considering that there are various perspectives on types of facilities designated as critical, the HAZUS-MH User’s Manual essential facility definition and facility types were adopted as the basis for the minimum critical facility types in Maryland. As part of the local guidance, the following critical facilities must be included in both the State and local plan update process at a minimum. These facilities include the following facility types and

corresponding number of facilities per type within Garrett County listed on the table below. Hazus refers to these five facility types as essential facilities.

Table 44: Garrett County Essential Facilities Planning Cycle (2012-2018)

Essential Facility Type	Number of Facilities
Emergency Operations Center	1
Fire	15 (Fire & Rescue)
Medical	7 (Garrett Regional Medical Centers, Medicals Centers, and Nursing Homes)
Police	3 (Sheriff’s Office, Oakland Police Department, and Maryland State Police/Maryland DNR/State Fire Marshall – McHenry)
Schools	23 (13-Public, 2-College, 8-Private/Church)

Source: Garrett County Department of Planning and Land Management GIS Database

During the 2018 update, these essential facilities were reviewed and verified. These facilities were mapped. The new map replaces the old existing map and shown on Figure 24. The term “Critical and Public Facility” is used to encompass a broader definition of what facilities impacted by the selected priority hazards are important to the public and Garrett County Government. Critical and Public Facilities have been classified by Fire Districts as shown on Table 47. This inventory includes schools, libraries, government buildings, transportation facilities, post offices, fire and rescue stations, utility structures, hospitals and nursing homes, police and corrections, and communication structures.

During the 2018 Update, new Critical and Public Facilities that were updated during the planning cycle (2012-2018) were analyzed and are listed in Table 45. These new facilities were assessed using the FEMA Insurance Rate Maps and all were constructed outside the 100-year floodplain.

In addition, facilities that changed names, locations, or were previously omitted from Table 46 have been added as part of the 2018 update.

Table 45: Critical and Public Facilities 2018 Update

Facility	Address	Year Built	Fire District	Value
Emergency Operations Center – Garrett County Airport	771 Airport Road	2014	Accident	\$100,000
Laurel Mountain Medical Center - Grantsville	104 Parkview Drive	2015	Grantsville	\$507,600
Garrett Medical Center – Friendsville	250 Maple Street	1998	Friendsville	\$400,000
Garrett Medical Center – Oakland	251 N 4 th Street	1975	Oakland	\$756,700
Urgent Care	24441 Garrett Highway	1986	McHenry	\$338,900
Garrett College Career Technology Training Center (CTTC)	116 Industrial Drive Accident, MD	2010	Accident	\$1,042,000
Goodwill Mennonite N.H.	891 Dorsey Hotel	1958	Grantsville	\$11,337,700

	Road			
Oakland Police Department	15 South Third Street	1940	Oakland	\$461,700
Grantsville VFD Co. 60	178 Spring Street	2009	Grantsville	\$4,115,500
Casselman Valley School	1317 River Road	-	Grantsville	\$300,000
Pleasant View Baptist Church Homeschool Association	8931 Garrett Highway	1953	Oakland	\$756,000
Victory Baptist Church Homeschool Association	3173 Hutton Road	1991	Oakland	\$410,100

Source: Garrett County Department of Planning and Land Management GIS Database

20.3 ESTIMATED VALUE:

The estimated replacement value of vulnerable Critical and Public Facilities and residential structures for flooding and dam failure hazards is shown on Tables 48 and 49. These values were completed for the previous plan version using the FEMA guidelines shown on Figure 25 in Appendix A for estimating values of various structures, the value of Critical and Public Facilities affected by flooding are estimated at more than \$116,000,000 while the value of Critical and Public Facilities at risk in the event of dam failure (for all dams studied) is more than \$92,000,000. Also, please be aware that the value of bridges and certain utilities is not based on FEMA guidelines, but is estimated from information provided by local construction engineers.

As part of the 2018 update, a Flood Hazus Analysis was conducted to determine flood loss estimations. Tables 48 and 49 reflect previous indicated replacement value of residential structures at-risk for flooding has been updated to reflect 2018 Hazus results. The replacement value of residential structures in dam failure inundation areas (for all dams studied) is estimated at nearly \$87,000,000. The total replacement value for residential structures and Critical and Public Facilities for flooding is estimated at more than \$151,000,000, while the combined replacement value for structures due to dam failure is more than \$179,000,000.

20.4 HAZARD RATING SYSTEM:

As noted in section 20.1 of this chapter, hazards that were ranked “High” or “Medium-High” will be included in the Vulnerability Assessment to determine which Critical and Public Facilities could be affected by these hazards. These hazards include riverine flooding, high wind, thunderstorm, winter weather, and tornado. Tornado, high wind and thunderstorm have been combined under the hazard heading “Severe Weather” in Table 43. In addition, due to the number of dams located in Garrett County, as well as the ability to easily map and assess its inundation area, dam failure has also been included in Table 46 as part of the Vulnerability Assessment.

The estimated values for those Critical and Public Facilities having a high risk for riverine flooding and dam failure can be quantified based on the FEMA DFIRM floodplain and dam inundation mapping areas. Of those facilities listed on the Vulnerability Assessment Table, 89 have been identified as having a high risk for riverine flooding and 79 have been identified as having a high risk for inundation as a result of dam failure.

In terms of vulnerability to other hazards, virtually every Critical and Public Facility is rated as “high” with respect to winter storms and “medium” with respect to fog and “low” with respect to severe weather. Winter weather can occur on more than 120 days per year on a county-wide basis, while fog events usually occur no more than 50 days per year and are more likely to affect ridge-top areas or low-lying areas along river valleys. Severe weather can occur at any place in the county. With these factors in mind, it would be difficult to quantify the at-risk value for winter storms, fog and tornado without knowing which Critical and Public Facilities would be directly affected by a specific event.

Note: Table 46 Critical and Public Facilities are based on tax map parcel information.

**Critical and Public Facilities
Garrett County
Hazard Data**

Table 46: Vulnerability Assessment

Fire District	Facility Type	Facility Name	Hazard Type					Location	Estimated Value	Essential Facility
			Flood	Winter	Fog	Severe Weather	Dam Failure			
New Facilities added during Update										
Accident	Airport	Garrett Airport		H	H	H		771 Airport Road		
	EOC	Emergency Operations Center		H	H	H		771 Airport Road		X
*	School	Garrett College (CTC)		H	M	L		116 Industrial Drive		X
*	Park	Accident Town Park West						Accident Friendsville Rd.		
		Accident Town Park East						Accident Bittering Rd.		
	School	Northern High		H	M	L		86 Pride Parkway		X
		Northern Middle		H	M	L		371 Pride Parkway		X
		Accident Elementary		H	M	L		534 Accident Bittering Rd.		X
		Hickory Environmental Center		H	M	L		604 Pride Parkway		X
*	Town Gov't.	Accident Town Hall		H	M	L		104 S. North St.		
*	Library	Accident Library		H	M	L		106 S. North St.		
*	Post Office	Accident Post Office		H	M	L		103 S. South St.		
*	Fire/Rescue	Accident Co. VFD #50		H	M	L		109 S. South St.		X
	Transportation	Accident Roads Garage		H	M	L		80 Accident Garage Rd.		
*	Utility	Accident WW Treatment Plant	H					Near Fratz St.	\$500,000.00	
*		Sewage Pump Station	H					Industrial Park Drive	\$100,000.00	
*		Water Pump Station	H					Accident Bittering Rd.	\$100,000.00	
		Water Tank					L	Accident Friendsville Rd.		
		Texas East. Comp. Station						Texas Eastern Dr.		
	Communication	Spectra Tower		H	M	L		Near Keyseys Ridge		
		USCOC Tower		H	M	L		Near Keyseys Ridge		
		Tower		H	M	L		Near Keyseys Ridge		
*	Ind. Park	Central Garrett Ind. Park		H	M	L		Industrial Park Drive		
	Bridge	Accident Bittering Rd.	H	H	M			Bear Creek	\$1,500,000.00	
		Accident Bittering Rd.	H	H	M			Cherry Creek	\$1,500,000.00	
		Fish Hatchery Rd.	H	H	M			Bear Creek	\$1,500,000.00	
		Fish Hatchery Rd.	H	H	M			Bear Creek	\$1,500,000.00	
		Rabbit Hollow Rd.	H	H	M			Little Bear Creek	\$1,500,000.00	
		Route 219-Bear Creek	L	H	M			North of Accident		

*Municipal

**Critical and Public Facilities
Garrett County
Hazard Data**

Table 46: Vulnerability Assessment

Fire District	Facility Type	Facility Name	Hazard Type					Location	Estimated Value	Essential Facility
			Flood	Winter	Fog	Severe Weather	Dam Failure			
Bittinger	Park	Pleasant Valley 4-H	L	H	H	L		4-H Camp Rd.		
	School	Bittinger Menmonite School		H	M	L		10707 Bittinger Rd.		X
	Post Office	Bittinger Post Office		H	M	L		11357 Bittinger Rd.		
	Fire/Rescue	Bittinger Fire Co. 90		H	M	L		176 Brenneman Rd.		X
	Police/Corr.	Boys Forestry Camp		H	M	L		234 Recovery Rd.		
	Bridge	Dung Hill Rd.	H	H	M			Casselman River	\$1,500,000.00	
		Maynardier Ridge Rd.	H	H	M			So. Branch Casselman River	\$1,500,000.00	
		Frank Brenneman Rd.	H	H	M			So. Branch Casselman River	\$1,500,000.00	
		Lageer Rd.	H	H	M			No Branch Casselman River	\$1,500,000.00	
		Rock Lodge Rd.	H	H	M			No Branch Casselman River	\$1,500,000.00	
Deer Park*	Dam	Cunningham Lake					L	4-H Camp Rd.		
	Town Gov't.	Deer Park Town Hall		H	M			100 Church St.		
	State Gov't.	Pot/Garrett For. Headquarters		H	M			1523 Potomac Camp Rd.		
	Comm. Bldg.	Swanton Community Center	L	H	M	L		3335 Swanton Rd.		
	Post Office	Swanton Post Office		H	M			3320 Swanton Rd.		
	Fire/Rescue	Deer Park Co. 20		H	M			5353 Maryland Hwy.		X
	Utility	Deer Park Water Treatment						520 Decost Rd.		
		Swanton Dump Site		H	M			12091 Maryland Hwy.		
		Mount Zion Sub-Station		H				Near Rt. 135 and Backbone Mt.		
	Ind. Park	S. Garrett Ind. & Bus. Park	L	H	M		L	Rt. 135 Near Mt. Lake Park		
*	Dam	Bloomington Dam					H	Near Walnut Bottom Rd.		
		SCD Dam #7					H	Little Yough near Deer Park		
	Bridge	Route 495 N. Fk. Crabtree	L	H	M			Near Swanton		
		Fricks Xing Road	H	H	M		H	West of Deer Park	\$1,500,000.00	
		Calderwood Road	H	H	M		H	East of Deer Park	\$1,500,000.00	
		Boiling Springs Rd. at L. Yough	H	H	M		H	Deer Park	\$1,500,000.00	
		Swanton Road S. Fk. Crabtree	H	H	M			Near Swanton	\$1,500,000.00	
		Garrett Rd.	H	H	M			Black Run	\$1,500,000.00	
	RR Xing	Fricks Xing Road	H		L			Near Deer Park		
	*	Boiling Spring Road	H		L			Near Deer Park		

*Municipal

**Critical and Public Facilities
Garrett County
Hazard Data**

Table 46: Vulnerability Assessment

Fire District	Facility Type	Facility Name	Hazard Type					Location	Estimated Value	Essential Facility
			Flood	Winter	Fog	Severe Weather	Dam Failure			
Bloomington	Park	Big Run State Park	L					Savage River Rd. @ Big Run Rd.		
	Post Office	Bloomington Post Office		H	L	L		35 N. Hamill Avenue	\$115,000.00	
	Fire/Rescue	Bloomington Co. 100		H	L	L		77 N. Branch Avenue	\$650,000.00	X
	Police/Corr.	Boys Forestry Camp		H	M	L		124 Camp Four Rd.		
	Utility	Waste Water Treatment Plant	H					1227 Bloomington Hill Rd.	\$500,000.00	
		Water Treatment Plant						North Street	\$100,000.00	
		Water Tank						North Street	\$250,000.00	
	Dam	Savage River Dam						Savage River Rd.		
		Piedmont Weir	L					Savage River Rd.		
	Bridge	Route 135-CSX RR		H	L			Bloomington	\$10,000,000.00	
		Route 135 at Savage River						Bloomington	\$5,000,000.00	
		Savage River Road	H	H	L			Savage River Dam	\$1,500,000.00	
		Savage River Road	H	H	L			Savage River	\$1,500,000.00	
		Savage River Road	H	H	L			Big Run	\$1,500,000.00	
		Savage River Road	H	H	L			Dry Run	\$1,500,000.00	
		Savage River Road	H	H	L			Crabtree Creek	\$1,500,000.00	
		CSX RR-No. Br. Pot.	L					Main CSX Line	\$5,000,000.00	
		CSX RR-No. Br. Pot.	L					Former WMRY	\$5,000,000.00	
	Tunnel	CSX RR-Hitchcock Tunnel						Near Spring Lick Rd.		
	RR Xing	Bloomington Hill Rd. at CSX RR			L			Near Savage River Rd.		

**Critical and Public Facilities
Garrett County
Hazard Data**

Table 46: Vulnerability Assessment

Fire District	Facility Type	Facility Name	Hazard Type					Location	Estimated Value	Essential Facility
			Flood	Winter	Fog	Severe Weather	Dam Failure			
Deep Creek	Medical	Urgent Care		H	M	L		24441 Garrett Highway		X
	County Gov't	Airport Terminal		H	M	L		771 Airport Road		
		T-Hanger		H	M	L		815 Airport Road		
	College	Aquatic & Fitness Center		H	M	L		827 Airport Road		
		New Gymnasium		H	M	L		695 Mosser Road		
		Garrett Community College		H	M	L		65 Laker Drive		
	Park	Garrett County Fair		H	M	L		687 Mosser Rd.		X
		Deep Creek Lake State Park		H	M	L		24086 Garrett Highway		
		Ag-Trade Center		H	M	L		73 Brant Rd.		
	Post Office	McHenry Post Office		H	M	L		24086 Garrett Highway		
	Fire/Rescue	Deep Creek VFD Co. 30		H	M	L		1914 Deep Creek Drive		
		Northern Garrett Rescue Squad St. 2		H	M	L		1906 Deep Creek Drive		X
	Police/Corr.	State Police/ MD DNR Police		H	M	L		26017 Garrett Highway		X
	Utility	Sithe Energies HP Plant		H	M	L		67 Friendsville Rd.		X
		Deep Creek WW Treatment						Near Oakland Sang Run Rd.		
		Sewage Pump Stations (15)						90 Towne Centre Way		
		McHenry Water Tank						Near Lake Perimeter		
		McHenry Dump Site		H	M	L		McHenry		
		Garrett Sub-Station		H				1367 Bumblebee Rd.		
		Hoyes Sub-Station		H				Rt. 219 North		
		Thayerville Sub-Station		H				Rt. 219 Near Rt. 42		
	Communication	Tower		H	M	L		Rt. 219 Near Glendale Rd.		
		Tower		H	M	L		Near McHenry		
		Tower		H	M	L		Deep Creek Lake State Park		
		Route 219-Deep Creek Lake		H	M	L		1094 Mountainview Drive		
	Bridge	Glendale Road-Deep Creek		H	M	L		Near Rt. 219 Glendale Rd.		
		Sang Run Road	H	H	M			Deep Creek Lake		
		Oak-Sang Run Road	H	H	M			Deep Creek Lake		
		Hoyes Run Bridge	H	H	M			Youghiogeny River	\$1,500,000.00	
			H	H	M			Deep Creek	\$1,500,000.00	
			H	H	M			Hoyes Run	\$1,500,000.00	

Flood	Winter	Fog	Severe Weather	Dam Failure
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**Critical and Public Facilities
Garrett County
Hazard Data**

Table 46: Vulnerability Assessment

Fire District	Facility Type	Facility Name	Hazard Type				Location	Estimated Value	Essential Facility
			Flood	Winter	Fog	Severe Weather			
		Rock Lodge Rd.	H	H	M		\$1,500,000.00		
	Dam	Deep Creek Dam				H			
		Water Front Green				L			

**Critical and Public Facilities
Garrett County
Hazard Data**

Table 46: Vulnerability Assessment

Fire District	Facility Type	Facility Name	Hazard Type					Location	Estimated Value	Essential Facility
			Flood	Winter	Fog	Severe Weather	Dam Failure			
Eastern Garrett	Park School	E. Garrett Rec. Area Rt. 40 E.S.		H	M	L		Finzel Rd.		
	Fire/Rescue	E. Garrett Co. 80		H	M	L		17764 National Pike		X
	Utility	Frostburg Water Pump Station						401 Finzel Rd.		X
	Transportation	MVA Weigh Station		H	M	L		Piney Run Rd.		
		SHA Storage Building		H	M	L		31120 National Freeway		
	Bridge	I-68 -- Green Lantern Rd.		H	M			13336 Beall School Rd.		
		I-68 -- Old Frostburg Rd.		H	M			Near Avilton		
		I-68 -- Beall School Rd.		H	M			Near Long Strech		
		Rt. 40 -- Beall School Rd.		H	M			Near Finzel		
		Rt. 40 -- Rt. 946		H	M			Near Finzel		
		Avilton Lonaconing Rd.	H	H	M			Savage River	\$1,500,000.00	
		Piney Run Rd.	H	H	M			Piney Run	\$1,500,000.00	
		Beall School Rd.	H	H	M			Savage River	\$1,500,000.00	
		Old Frostburg Rd.	H	H	M			Savage River	\$1,500,000.00	
		Avilton Lonaconing Rd.	H	H	M			Little Savage River	\$1,500,000.00	
	Dam	Piney Creek Reservoir					H	Piney Run Rd.		
		Church Run					L	Church Run Rd.		
		Little Savage Reservoir					L	Little Savage River		
		Carlos Reservoir					H	Staub Run		
		Klondike Reservoir					H	Woodland Creek		
	Communication	Finzel Fire Tower		H	M	L		Finzel Rd.		
		WFRB Radio Tower		H	M	L		242 Finzel Rd.		
		FCC Tower		H	M	L		Big Savage Mt.		
		FAA Facility		H	M	L		Pea Ridge Rd.		
		Columbia Gas Tower		H	M	L		Big Savage Mt.		
		CMA Cablevision		H	M	L		Big Savage Mt.		
		CMA Cablevision		H	M	L		Big Savage Mt.		
		American Towers Inc.		H	M	L		Big Savage Mt.		
		Crown Castle Int. Tower		H	M	L		Big Savage Mt.		
		Crown Comm. Tower		H	M	L		Big Savage Mt.		

**Critical and Public Facilities
Garrett County
Hazard Data**

Table 46: Vulnerability Assessment

Flood	Winter	Fog	Severe Weather	Dam Failure
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Fire District	Facility Type	Facility Name	Hazard Type					Location	Estimated Value	Essential Facility
			Flood	Winter	Fog	Severe Weather	Dam Failure			
Friendsville*	Medical Park	Garrett Medical Center – Friendsville	H	M	L			250 Maple Street		X
*	School	Friendsville Community Park	H					Second Ave/Community Park Dr.		
*	Library	Friendsville Elementary		H	M	L		841 First Avenue	\$2,534,000.00	X
*	Town Gov't.	Friendsville Library	L	H	M	L		315 Chestnut St.	\$193,000.00	
*	Comm. Bldg.	Friendsville Town Hall	L	H	M	L		313 Chestnut St.	\$100,000.00	
*	Post Office	Friendsville Comm. Bldg.	L	H	M	L		947 Second Avenue	\$295,000.00	
*	Fire/Rescue	Friendsville Post Office	L	H	M	L		836 First Avenue	\$112,000.00	
*		Friendsville Co. 110	H	H	M	L		122 Walnut St.	\$1,433,000.00	X
		Northern Garrett Rescue Squad St. 3		H	M	L		320 Chestnut St.	\$750,000 (GC Permits)	X
	Utility	Friendsville Water Treatment						849 First Avenue	\$100,000.00	
*		Water Pump Station						Near Water St.	\$100,000.00	
*		Waste Water Treatment Plant	H					First Avenue	\$500,000.00	
		Friendsville Dump Site		H	M	L		8397 Friendsville Rd.	\$50,000.00	
	Communication	Tower		H	M	L		Near I-68 East of Friendsville		
		Tower		H	M	L		Near I-68 West of Friendsville		
*	Bridge	I-68-Youghiogheny		H	M	L		Friendsville		
*		Route 42 at Youghiogheny	L	H	M	H		Friendsville	\$5,000,000.00	
*		Maple Street	H	H	M	H		Friendsville	\$1,500,000.00	
		Cranesville Rd.	H	H	M			Salt Block Run	\$1,500,000.00	
		White Rock Rd.	H	H	M			Salt Block Run	\$1,500,000.00	
		White Rock Rd.	H	H	M			White Rock Glade Run	\$1,500,000.00	
*		Bear Creek Rd.	H	H	M	H		Bear Creek	\$1,500,000.00	
		Accident Friendsville Rd.	H	H	M	H		Bear Creek	\$1,500,000.00	
		Buffalo Run Rd.	H	H	M			Buffalo Run	\$1,500,000.00	
		Old Morgantown Rd.	H	H	M			Buffalo Run	\$1,500,000.00	
	Dam	Kemp Farm Dam	H	H	M			Buffalo Run	\$1,500,000.00	
								Near Rt. 42 & PA State Line		

*Municipal

**Critical and Public Facilities
Garrett County
Hazard Data**

Table 46: Vulnerability Assessment

Fire District	Facility Type	Facility Name	Hazard Type					Location	Estimated Value	Essential Facility
			Flood	Winter	Fog	Severe Weather	Dam Failure			
New Facilities added during Update										
Grantsville *	Fire/Rescue	Grantsville VFD Co. 60		H	M	L		178 Spring Street		X
*	Medical	Laurel Mountain Medical Center		H	M	L		104 Parkview Drive		X
*	School	Goodwill Menmonite N.H.		H	M	L		891 Dorsey Hotel Road		X
	Park	Casselman Valley School						1317 River Road		X
*		New Germany State Park	L					349 Headquarters Lane		
		Grantsville Comm. Park						Miller St.		
*	Schools	Grantsville E.S.		H	M	L		130 Grant St.		X
		The Salem School		H	M	L		605 Salem Dr.		X
*		Grantsville Outreach Community Center		H	M	L		28 Hershberger Lane		
*	Library	Grantsville Library		H	M	L		153 Main St.		
*	Town Govt.	Grantsville Town Hall		H	M	L		171 Hill St.		
	State Govt.	New Germany Park HQ.		H	M	L		349 Headquarters Lane		
*	Post Office	Grantsville P.O.		H	M	L		159 Main St.		
*	Fire/Rescue	No. Garrett Res. Squad St. 1		H	M	L		124 Miller St.		X
	Utility	Grantsville WWTP	H					Near Atl. Rt. 40 & Casselman R.	\$500,000.00	
		Water Tank				L		Alt. Rt. 40 near Amish Rd.		
*		Water Tank				L		Alt. Rt. 40 near Amish Rd.		
		Water Tank				L		Near Miller St.		
		Grantsville Dump Site		H	M	L		13168 National Pike		
		Grantsville Sub-Station		H				Near Alt. Route 40		
		Jennings WWTP-Private	H					Near Rt. 495	\$500,000.00	
		Jennings Sub-Station		H				Near Rt. 495		
		New Germany WWTP						Near McAndrew Hill Rd.		
*	Ind. Park	No. Garrett Ind. Park		H	M	L		Near North Park Rd.		
	Transportation	SHA -- Keyzers Ridge		H	M	L		3876 National Pike		
		County Roads Garage		H	M	L		13266 National Pike		
		County Roads Garage		H	M	L		13272 National Pike		
	Communication	Tower		H	M	L		Chestnut Ridge		
		Tower		H	M	L		Near I-68 West of Keyzers Ridge		
		Tower		H	M	L		Near I-68 West of Keyzers Ridge		
	Bridge	I-68 -- L. N. Germany Road		H	M	L		Near Red Ridge		

**Critical and Public Facilities
Garrett County
Hazard Data**

Table 46: Vulnerability Assessment

Fire District	Facility Type	Facility Name	Hazard Type				Location	Estimated Value	Essential Facility
			Flood	Winter	Fog	Severe Weather			
		I-68 -- Route 219 No.		H	M		Near Grantsville		
		I-68 -- N. Germany Road		H	M		Near Grantsville		
Grantsville (cont'd)		I-68 -- Route 495		H	M		Near Grantsville		
		I-68 -- Casselman River	L	H	M		Near Grantsville		
		Rt. 40 -- Casselman River	L	H	M		Near Grantsville		
		Rt. 495 -- No. Br. Cass	H	H	M		Near Jennings	\$5,000,000.00	
		Westernport Rd.	H	H	M		Savage River	\$1,500,000.00	
		Savage River Rd.	H	H	M		Savage River	\$1,500,000.00	
		Jennings Rd.	H	H	M		So. Branch Casselman River	\$1,500,000.00	
		Savage River Rd.	H	H	M		Poplar Lick Run	\$1,500,000.00	
		Savage River Rd.	H	H	M		Bear Pen Run	\$1,500,000.00	
		River Road	H	H	M		Casselman River	\$1,500,000.00	
		Maple Grove Rd.	H	H	M		Casselman River	\$1,500,000.00	
		Hare Hollow Rd.	H	H	M		So. Branch Casselman River	\$1,500,000.00	
		Durst Rd.					No. Branch Casselman River	\$1,500,000.00	
	Dam	New Germany Lake					Near McAndrew Hill Rd.		
		Meadow Run					Near Chestnut Ridge Rd.		
		Lake Louise					Near Spring Valley Farm Lane		

*Municipal

**Critical and Public Facilities
Garrett County
Hazard Data**

Table 46: Vulnerability Assessment

Fire District	Facility Type	Facility Name	Hazard Type				Location	Estimated Value	Essential Facility
			Flood	Winter	Fog	Severe Weather			
* Kitzmilller	Town Gov't	Company Store/Visitors Center	L	H	M	L	236 West Main St.	\$150,000.00	
		Kitzmilller Municipal Building	L	H	M	L	610 Third St.	\$100,000.00	
*	Library	Kitzmilller Library	L	H	M	L	288 West Main St.		
*	Comm. Bldg.	Kitzmilller Comm. Bldg.	L	H	M	L	104 Centre St.	\$150,000.00	
*	Post Office	Kitzmilller Post Office	L	H	M	L	103 Centre St.	\$80,000.00	
*	Fire/Rescue	Kitzmilller Co. 70	L	H	M	L	249 East Main St.	\$908,000.00	X
	Utility	Kitzmilller WTP	L			H	200 East Main St.	\$100,000.00	
		Water Tank				L	North American Rd.		
*		Water Tank				L	Near Oak St.		
		Kitzmilller WWTP	H			H	East Main St.	\$500,000.00	
	Dam	Kitzmilller Reservoir				L	North American Rd.		
	Bridge	CSX RR at No. Br. Pot.	L			H	Lake Jennings Randolph	\$5,000,000.00	
*		Route 38 at No. Br. Pot.	L	H	M	H	Kitzmilller	\$5,000,000.00	
Gorman	Comm. Bldg.	White Ch. Community Bldg.		H	M	L	3420 White Church Sreyer Rd.		
	Fire/Rescue	Gorman VFD Co. 120		H	M	L	270 Gorman Rd.		X
	Communication	Tri-State Cell Tower		H	M	L	Near Rt. 50 & Table Rock Rd.		
	Utility	Mettiki Sub-Station		H			Near Table Rock Rd.		
		Gorman Sub-Station		H			Near Rt. 50 & Gorman Rd.		
	Bridge	Route 50 at No. Br. Pot.	L	H	M		Gorman		
		Kempton Road	H	H	M		Laurel Run	\$1,500,000.00	
		Laurel Run Rd.	H	H	M		Laurel Run	\$1,500,000.00	
		Wilson Corona Rd.	H	H	M		Shields Run	\$1,500,000.00	
		CSX RR at No. Br. Pot.	L			H	Near Alt House Hill Rd.	\$5,000,000.00	
		CSX RR at No. Br. Pot.	L				Near Wallman Rd.		
		CSX RR at No. Br. Pot.	L				Near Kempton Rd.		

*Municipal

**Critical Facilities and Hazard Data
Garrett County
Hazard Data**

Table 46: Vulnerability Assessment

Fire District	Facility Type	Facility Name	Hazard Type					Estimated Value	Essential Facility
			Flood	Winter	Fog	Severe Weather	Dam Failure		
	Dam	Koontz Run Reservoir					H	Near Beechwood Rd.	
Barton	Dam	Barton Reservoir					H	Near Bartlett Run Rd.	
Westernport	Transportation	Moran Air Strip		H	M	L		Near Westernport Rd.	
	Utility	Westernport Landfill		H	M			Near Westernport Rd.	
	Communication	High Rock Fire Tower		H	M	L		Near Swamp rd.	
		U.S. Cellular Tower		H	M	L		Near Westernport Rd.	

**Critical and Public Facilities
Garrett County
Hazard Data**

Table 46: Vulnerability Assessment

Flood	Winter	Fog	Severe Weather	Dam Failure
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Fire District	Facility Type	Facility Name	Hazard Type					Location	Estimated Value	Essential Facility
			Flood	Winter	Fog	Severe Weather	Dam Failure			
New Facilities added during Update										
OK	Police	Oakland Police Department		H	M	L		15 South Third Street		X
	School	Victory Baptist Church Homeschool Association		H	M	L		3173 Hutton Road		X
	Park	Pleasant View Baptist Church Homeschool Association		H	M	L		8931 Garrett Highway		X
		Swallow Falls State Park	L					Swallow Falls Rd.		
		Herrington Manor						222 Herrington Lane, Oakland		
		Crellin Comm. Park	H					Crellin Underwood Rd.		
		Broadford Rec. Area						Broadford Rd.		
MLP	School	Southern H.S.		H	M	L		345 Oakland Dr., Mt. Lake Pk.		X
MLP		Southern M.S.		H	M	L		605 Harvey Winters Rd., Mt. Lake Pk.		X
MLP		Broadford E.S.		H	M	L		607 Harvey Winters Rd., Mt. Lake Pk.		X
		Yough Glades E.S.		H	M	L		70 Wolf Acres Dr., Oakland		X
		Swan Meadow E.S.		H	M	L		6709 Garrett Highway, Oakland		X
		Crellin E.S.		H	M	L		115 Kendall Dr., Oakland	\$912,000.00	X
		Mt. Top Sev. Day Advent		H	M	L		16335 Garrett Highway		X
		Gortner Amish Church School		H	M	L		4251 Mason School Rd., Oakland		X
		Ferndale Christian School		H	M	L		15211 Garrett Highway		X
OK	Library	Ruth Enlow Library		H	M	L		315 Chesnut St., Oakland		
OK	Town Govt.	Oakland Town Hall	H	H	M	L	H	15 S. Third St., Oakland	\$902,000.00	
MLP		Mt. Lake Pk. Town Hall		H	M	L	H	1007 Alleghany Dr., Mt. Lake Park	\$121,000.00	
LLH		Loch Lynn Town Hall		H	M	L		20011 Bonnie Blvd., Mt. Lake Park		
OK	County Govt.	Garrett Co. Court House		H	M	L		203 S. Fourth St., Oakland		
OK		Garrett Co. Health Dept		H	M	L		1025 Memorial Dr., Oakland		
OK		Garrett Co. Animal Shelter		H	M	L		152 Oakland-Sang Run Rd., Oakland		
		C&W Plaza		H	M	L		2008 Md Highway, Mt. Lake Park		
		Dept. of Public Utilities		H	M	L		14689 Garrett Highway, Oakland		
	State Govt.	Dept. of Natural Resources		H	M	L		Rt. 219 near Merrill Lane		
		Motor Vehicle Admin.		H	M	L		400 Weber Rd., Oakland		
OK		Dept. Ag. Animal Health		H	M	L		152 Oakland Sang Run Rd.		

**Critical and Public Facilities
Garrett County
Hazard Data**

Table 46: Vulnerability Assessment

Flood	Winter	Fog	Severe Weather	Dam Failure
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Fire District	Facility Type	Facility Name	Hazard Type					Location	Estimated Value	Essential Facility
			Flood	Winter	Fog	Severe Weather	Dam Failure			
OK		Dept. of Social Services		H	M	L		12594 Garrett Highway, Oakland		
OK		MD Employment Office		H	M	L		216 S. Third St., Oakland		
OK		Community Action Agency		H	M	L		104 East Center Street, Oakland		
	Federal Govt.	NRCS and SCD		H	M	L		1916 Maryland Hwy.		
OK	Community Bldg Transportation	Pleasant Valley Comm. SHA -- Oakland		H	M	L		975 Joni Miller Rd., Oakland		
OK		Garrett Co. Roads		H	M	L	H	95 SHA Drive, Oakland		
		Gortner Airport		H	M	L		12778 Garrett Highway, Oakland	\$400,000.00	
		Mason Airport		H	M	L		4166 Mason School Rd., Oakland		
OK		CSX RR Station	H	H	M	L	H	216 Chloma Lane, Oakland		
OK	Post Office	Oakland P.O.	H	H	M	L	H	West Liberty Street, Oakland	\$296,000.00	
MLP		Mt. Lake Pk. P.O.	H	H	M	L	H	22 S. Second Street, Oakland	\$154,000.00	
OK	Fire/Rescue	Oakland VFD Co. 40		H	M	L	H	1325 Md Highway, Mt. Lake Park	\$930,000.00	X
MLP		Southern Garrett Rescue Squad #9		H	M	L	H	23 S. Third St., Oakland	\$1,200,000(GC Permits)	X
OK	Utility	Oakland WWTP	H				H	200 Baltimore Ave.	\$1,000,000.00	
		Mountain Lake WWTP	H				H	27 Oakland-Rosedale Rd., Oakland	\$1,000,000.00	
		Crellin WWTP	H					Near Powells Dr.	\$500,000.00	
OK		Oakland WTP						Near Hutton Rd.		
OK		Water Tank #1				L		Water Plant Rd., Oakland		
OK		Water Tank #2				L		Near Pennington St.		
MLP		Water Tank #3				L		Near Pennington St.		
OK		Water Pump Station	H				H	Near Pittsburgh Ave.		
		Crellin Water Tank				L		Near West Liberty St.	\$100,000.00	
		Crellin WTP	H					Near Hutton Rd.		
		Oakland Dump Site		H	M	L		Near Crellin Rd.	\$100,000.00	
		Kings Run Dump Site		H	M	L		10810 Garrett Highway, Oakland		
		Garrett Co. Landfill		H	M	L		1631 Kings Run Rd., Oakland		
MLP		Broadford Sub-Station		H				3118 Oakland Sang-Run Rd., Oakland		
OK		Oak Park Sub-Station		H				Near Rt. 135		
OK		Oakland Sub-Station		H				Near West Liberty St.		
OK	Medical	Garrett Regional Medical Center		H	M	L		Near Rt. 135		
OK		Cuppert/Weeks N.H.		H	M	L		251 N. Fourth St., Oakland		X
				H	M	L		706 East Alder St., Oakland		X

**Critical and Public Facilities
Garrett County
Hazard Data**

Table 46: Vulnerability Assessment

Fire District	Facility Type	Facility Name	Hazard Type					Location	Estimated Value	Essential Facility
			Flood	Winter	Fog	Severe Weather	Dam Failure			
OK	Medical	Laurel Mountain Medical Center		H	M	L		1027 Memorial Drive		X
MLP		Dennett Road N.H.		H	M	L		113 Mary Dr., Mt. Lake Park		X
OK	Military	National Guard Armory		H	M	L		High St., Oakland		
OK	Police/Corr	Sheriff/Jail		H	M	L		311 East Alder		X
OK	Communication	Tower		H	M	L		17070 Garrett Hwy., Oakland		
		Tower		H	M	L	H	17 East Oak Street, Oakland	\$150,000.00	
MLP	Dam	Broadford Dam SCD #6					H	Near Broadford St.		
OK		SCD Dam #1					H	Fourth St. & Memorial Dr.		
OK		SCD Dam #2					H	Rt. 219 near Merrill Lane		
OK		SCD Dam #3					H	Memorial Dr. & Eighth St.		
		SCD Dam #5					H	Near Smouse Rd.		
MLP		Mt. Lake					L	Near Oakland Ave.		
		Herrington Lake					L	Herrington Manor State Park		
		Lake Koshare					L	Herrington Manor State Park		
		Browning Dam					L	Muddy Creek		
	Bridge	Rt. 39 in Crellin	L	H	M			Youghiogheny River		
		Rt. 219 South	L	H	M		L	Little Yough. River		
OK		Rt. 39 -- CSX RR		H	M			Downtown Oakland		
OK		Rt. 39 in Oakland	L	H	M			Little Yough. River		
		Rt. 135 in Mt. Lake Park			M		H	Little Yough. River	\$5,000,000.00	
		Rt. 135 in Mt. Lake Park			M		H	Little Yough. River	\$5,000,000.00	
OK		CSX RR -- Youghiogheny R.	L					West of Oakland		
OK		Liberty Street in Oakland	H	H	M		H	Youghiogheny River	\$1,500,000.00	
		Underwood Rd. -- CSX RR		H	M			Oakland		
		Mansfield Rd. near Redhouse	H	H	M			Youghiogheny River	\$1,500,000.00	
		Swallow Falls Rd.	H	H	M			Youghiogheny River	\$1,500,000.00	
		Silver Knob Rd.	H	H	M			Youghiogheny River	\$1,500,000.00	
		Underwood Rd.	H	H	M			Youghiogheny River	\$1,500,000.00	
		Oakland Rosedale Rd.	H	H	M			Little Yough. River	\$1,500,000.00	
		Pleasant Valley Rd	H	H	M		H	Trib. to Little Yough.	\$1,500,000.00	
		Cranesville Road	H	H	M			Muddy Creek	\$1,500,000.00	

**Critical and Public Facilities
Garrett County
Hazard Data**

Flood	Winter	Fog	Severe Weather	Dam Failure
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Table 46: Vulnerability Assessment

Fire District	Facility Type	Facility Name	Hazard Type				Location	Estimated Value	Essential Facility
			Flood	Winter	Fog	Severe Weather			
		Jasper Riley Rd.	H	H	M		Trout Run	\$1,500,000.00	
		Pleasant Valley Rd	H	H	M		Trout Run	\$1,500,000.00	
		Mason School Rd.	H	H	M		Cherry Creek	\$1,500,000.00	
		Blue Ribbon Rd.	H	H	M		Clark Run	\$1,500,000.00	
		Mansfield Rd.	H	H	M		Cherry Creek	\$1,500,000.00	
		Underwood Rd.	H	H	M		Cherry Creek	\$1,500,000.00	
		Crellin Mine Rd.	H	H	M		Snowy Creek	\$1,500,000.00	
		Oakland Sang Run Rd.	H	H	M		Miller Run	\$1,500,000.00	
		Herrington Manor Rd.	H	H	M		Herrington Run	\$1,500,000.00	
		Kings Run Rd.	H	H	M		Broadford Run	\$1,500,000.00	
		Broadford Run Rd.	H	H	M		Broadford Run	\$1,500,000.00	
OK	RR Xing	Oak-Rosedale Rd. -- CSX			M		Oakland		
OK		2nd Street -- CSX			M		Downtown Oakland		
MLP		Rt. 560 -- CSX			M		Near Loch Lynn Heights		
		Fingerboard Rd. -- CSX			M		Hutton		

OK - Oakland

MLP - Mt. Lake Park

LLH - Loch Lynn Heights

Table 47: Critical and Public Facilities by Fire District Garrett County

Type of Facility	Accident	Bittinger	Bloomington	Barton	Deer Park	Deep Creek	Eastern Garrett	Friendsville	Grantsville	Gorman	Kitzmiller	Lonaconing	Oakland	Westernport	Total
Park	2	1	1			3	1	1	2				4		15
School	5	1					1	1	4				11		23
College						3									3
Library	1							1	1		1		1		5
County Govt.						3							5		8
State Govt.				1					1				6		8
Federal Govt.													1		1
Town Govt.	1			1				1	1		2		3		9
Community Bldg				1				1		1	1		1		5
Hosp./N. Home						1		1	1				4		7
Post Office	1	1	1	1	1	1		1	1		1		2		10
Fire/Rescue	1	1	1	1	1	2	1	2	2	1	1		2		15
Transportation	1						2		3				5	1	12
Police/Corr.		1	1			2						1	2		7
Military													1		1
Utility	5		3		3	22	1	4	9	2	4		16	1	70
Communication	3					4	10	2	3	1			2	2	27
Ind. Park	1				1				1						3
Major Bridge	6	5	9		6	6	10	10	16	7	2		27		104
RR Xing		1	1		2								4		7
Dam		1	2	1	2	2	*5	1	3	2	1	1	9		30
Tunnel			1												1
Total	27	11	20	1	19	49	31	26	48	14	13	2	106	4	371

Sources: Maryland Property View Tax Maps, Garrett Co. Addressing System, ADT Map of Garrett Co.
 *Includes two dams in the Shaft Fire District served from Allegany County Fire Districts

Table 48: Damage Estimates by Fire District Garrett County Critical Facilities and Residential Property Flooding and Dam Failure

	Accident	Bittering	Bloomington	Barton	Deer park	Deep Creek	Eastern Garrett	Friends ville	Grants ville	Gorman	Kitz miller	Lona coning	Oakland	Western port	Total	
Flood																
School													.912			0.912
Post Office													.450			0.45
Fire/Rescue								1.433								1.433
Utility	.700		.500					.500	1.000		.500		2.700			5.9
Town Govt'													.902			0.902
Bridge	7.500	7.500	7.500	7.500	7.500	6.000	7.500	12.000	17.000	4.500			28.500			105.5
Total Critical	8.200	7.500	8.000	7.500	7.500	6.000	7.500	13.933	18.000	4.500	.500		33.464			115.097
Residential	1.155		1.848		1.733			9.818	4.620	2.887	2.310		10.395			34.766
Grand Total	9.355	7.500	9.848		9.233	6.000	7.500	23.751	22.620	7.387	2.810		43.859			149.863
Dam Failure																
School			1.922					2.534			1.716					6.172
Post Office			.115					.112			.080		.450			0.757
Fire/Rescue			.650					2.183			.908		2.13			5.871
Utility			.850					.750			.500		2.100			4.2
Town Govt'								.100			.250		1.023			1.373
Comm. Bldg.								.295			.150					0.445
Library								.193								0.193
Transportation													.400			0.4
Communication													.150			0.15
Bridge			28.000		4.500	4.500		9.500		5.000	10.000		13.000			74.5
Total Critical			31.537		4.500	4.500		15.667		5.000	13.604		19.253			94.061
Residential			10.626		3.696	1.155		29.222			22.523		19.750			86.972
Grand Total			42.163		8.196	5.655		44.889		5.000	36.127		39.003			181.033

Note: Damage Estimates in Millions of Dollars

Estimates for buildings based on FEMA Criteria: Residential - \$77/sq. ft. @ 1500 sq ft. avg
 School - \$91/sq. ft.
 Fire/Rescue - \$130/sq. ft.
 General - \$87/sq. ft.

Estimates for utilities: WWTP- \$.5M

WTP - \$.1M

GARB - \$.05M

Estimates for bridges: County - \$1.5M

Pump Station-\$.1M

Water Tank - \$.25M

Communication Tower - \$.15M

*For updated Hazus flood loss estimations, please refer to Chapter 6.

Table 49: Damage Estimates for Garrett County Critical Facilities and Residential Structures

Type of Facility	Stream Flooding		Value in Dollars	Dam Failure	
	Number of Structures	Value in Dollars		Number of Structures	Value in Dollars
School					
Post Office	2	450,000		3	\$6,172,000
Fire/Rescue				5	757,000
Utility	13	5,900,000		6	5,871,000
Town Govt'	1	902,000		12	4,200,000
Commun. Bldg.				4	1,373,000
Library				2	445,000
Transportation	1	N/A CSA RR		1	193,000
Communication				1	400,000
Bridge	68	105,500,000		1	150,000
Total Critical	85	116,597,000		23	74,500,000
				58	94,061,000
Residential	301	34,766,000		753	86,972,000
Grand Total	386	\$149,018,000		811	\$179,033,000

Note: Estimates for buildings based on FEMA Criteria: Residential - \$77/sq. ft. @ 1500 sq ft. avg
 School - \$91/sq. ft.
 Fire/Rescue - \$130/sq. ft.
 General - \$87/sq. ft.

Estimates for utilities: WWTP- \$.5M Pump Station-\$.1M
 WTP - \$.1M Water Tank - \$.25M
 GARB - \$.05M Communication Tower - \$.15M

Estimates for bridges: County - \$1.5M
 State - \$5-10M depending on size
 RR - \$5M

*For updated Hazus flood loss estimations, please refer to Chapter 6.

20.5 HAZUS RIVERINE LOSS ESTIMATIONS:

Debris Generation

The Hazus flood model debris estimation methodology evaluates building-related debris by major component yet recognizes a fundamental difference in the type of debris generated, most flood-related debris are contents and finishes. Hazus estimates the amount of debris that will be generated by the flood. The model breaks debris into three general categories: 1) Finishes (dry wall, insulation, etc.), 2) Structural (wood, brick, etc.) and 3) Foundations (concrete slab, concrete block, rebar, etc.). This distinction is made because of the different types of material handling equipment required to handle the debris. The debris module will determine the expected amounts of debris generated within each census block. Output from this module is the debris weight (in tons).

The model estimates that a total of 1,836 tons of debris will be generated. Of the total amount, Finishes comprises 55% of the total, Structure comprises 19% of the total. If the debris tonnage is converted into an estimated number of truckloads, it will require 73 truckloads (@25 tons/truck) to remove the debris generated by the flood.

Table 50: Garrett County, Maryland –Debris Generation Summary for 1%-Annual-Chance Flood Event (Riverine Areas)

Debris Types	Total (tons)	Percentage of Total	Total Truckloads (@25 tons/truck)
Finishes	1,002	55%	40
Structure	353	19%	14
Foundation	481	26%	19
TOTAL	1,836	100%	73

Source: Hazus 3.1: Flood Modual – Garrett County Study Area/ General Building Stock

Potential Shelter Needs

The displaced population is based on the inundation area. Individuals and households will be displaced from their homes when the home has suffered little or no damage either because they were evacuated (i.e., a warning was issued) or there is no physical access to the property because of flooded roadways. Those displaced persons using shelters will most likely be individuals with lower incomes and those who do not have family and friends within the immediate area.

Consequently, modification factors for flood are based primarily on income. Age plays a secondary role in that there are some individuals who will seek shelter even though they have the financial means of finding their own shelter. These will usually be younger, less established families and elderly families.

Hazus estimates the number of households that are expected to be displaced from their homes due to the flood and the associated potential evacuation. Hazus also estimates those displaced people that will require accommodations in temporary public shelters. The model estimates 204 households will be displaced due to the flood. Displacement includes households evacuated from within, or very near, to the inundated area. Of these, 106 people (out of a total population of 30,097) will seek temporary shelter in public shelters.

Table 51: Garrett County, Maryland – Projected Shelter Needs Summary for 1%-Annual-Chance Flood Event (Riverine Areas)

Projected Shelter Needs	Total Number of Households Affected	Displaced Population	Population in need of Temporary Shelter
Sheltering	204	613	106

Source: Hazus 3.1: Flood Modual – Garrett County Study Area/ General Building Stock

User Defined Facilities Loss Estimations

Garrett County’s Riverine Flood Risk Project incorporated newly modeled floodplain boundaries and flood depths for the 1-percent-annual-chance flood event, along with User Defined Facilities (UDFs) developed from local parcel, assessor, and building footprint data. Potential flood losses and loss ratios for the 1-percent-annual-chance flood event were calculated using Hazus-MH, version 3.1.

Table 52: Garrett County Residential and Commercial At-Risk Summary

At-Risk Summary				
Community Name	Total	Residential	Commercial	Other
Garrett County Unincorporated Areas	\$21,443,700	\$13,875,150	\$1,266,000	\$6,302,550
Town of Accident	\$477,400	\$473,400	\$0	\$4,000
Town of Deer Park	\$0	\$0	\$0	\$0
Town of Friendsville	\$5,209,200	\$3,949,800	\$808,200	\$451,200
Town of Grantsville	\$2,517,750	\$217,200	\$1,992,800	\$196,960
Town of Kitzmiller	\$0	\$0	\$0	\$0
Town of Loch Lynn Heights	\$0	\$0	\$0	\$0
Town of Mountain Lake Park	\$268,250	\$125,500	\$0	\$137,750
Town of Oakland	\$1,884,750	\$530,550	\$1,009,000	\$34,520
Garrett County, Maryland Riverine Study	\$31,801,050	\$19,171,600	\$5,076,000	\$7,126,980

Source: Hazus analysis (Version 3.1) results stored as the User Defined Facilities (UDFs) Flood Risk Assessment Dataset

Table 53: Garrett County Residential and Commercial Loss Estimations

Loss Estimations				
Community Name	Total	Residential	Commercial	Other
Garrett County Unincorporated Areas	\$2,965,282	\$1,946,159	\$305,777	\$713,347
Town of Accident	\$19,481	\$19,481	\$0	\$0
Town of Deer Park	\$0	\$0	\$0	\$0
Town of Friendsville	\$1,109,794	\$661,541	\$232,785	\$124,467
Town of Grantsville	\$810,386	\$46,647	\$596,531	\$167,108
Town of Kitzmiller	\$0	\$0	\$0	\$0
Town of Loch Lynn Heights	\$0	\$0	\$0	\$0
Town of Mountain Lake Park	\$3,915	\$3,915	\$0	\$165
Town of Oakland	\$491,961	\$108,926	\$253,584	\$129,450

Garrett County, Maryland Riverine Study	\$5,400,819	\$2,786,669	\$1,388,677	\$1,134,537
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Source: Hazus analysis (Version 3.1) results stored as the User Defined Facilities (UDFs) Flood Risk Assessment Dataset

20.6 CRITICAL AND PUBLIC FACILITY – MAPPING:

The Critical and Public Facilities are shown on a series of maps running from Figures 26 through 37 and include the following: County wide facilities-Figure 26; Parks-Figure 27; Community Buildings-Figure 28; Schools and Libraries-Figure 29; Government Buildings-Figure 30; Hospitals and Nursing Homes-Figure 31; Public Works-Figure 32; Fire and Rescue Facilities-Figure 33; Police and Corrections-Figure 34; Transportation Facilities-Figure 35; Communication Towers-Figure 36; and Utility Lines and Substations-Figure 37. Fire District boundaries are also shown on Figure 33. Facilities within Municipalities are shown on Figure 38 through 45 and include the following: Accident-Figure 38; Deer Park-Figure 39; Friendsville-Figure 40; Grantsville-Figure 41; Kitzmiller-Figure 42; Loch Lynn Heights-Figure 43; Mountain Lake Park-Figure 44; and Oakland-Figure 45. New facilities added during the Update are shown on Figure 24.

20.7 RESIDENTIAL STRUCTURES - FLOODING AND DAM FAILURE:

Garrett County has also chosen to identify residential and commercial structures at risk for flooding and dam failure by Fire District. These structures are undifferentiated except in the Oakland, Mountain Lake Park, Friendsville and Kitzmiller communities which are susceptible to flooding and possibly dam failure. As shown on Table 49, more than 300 residential structures have been identified as at-risk for flooding, and more than 750 residential structures have been identified as at-risk for inundation in the event of dam failure. Those communities at risk for dam failure include: Friendsville, downstream of Deep Creek Lake; Kitzmiller and Shallmar, downstream of Stony River Dam and Mt. Storm Lake; Bloomington, downstream of both Bloomington Dam and Savage River Dam; Oakland, which is affected by Soil conservation District Dams #1, 2 and 3 in the downtown area; and Oakland, Mountain Lake Park, Loch Lynn Heights and Deer Park which are affected by Soil Conservation District Dams #5, 6, and 7 which are located in the Little Youghiogheny Basin.

The Soil Conservation District has prepared Emergency Action Plans for Dams #1, 2, and 3 in Oakland and has identified more than 130 residential structures and nearly 20 commercial structures in the inundation area of these three dams. The SCD has also prepared a preliminary inundation map for Dam #7 which is located above Deer Park. Failure of this dam could affect more than 70 residences and 6 businesses in Deer Park, Loch Lynn Heights and Mountain Lake Park. One of the county’s proposed mitigation actions is to complete the Dam 7 study and prepare Emergency Action Plans for Dams 5, 6, and 7.

A listing of the number of residential and commercial structures subject to inundation by dam failure is shown on Figures 46 through 53. This includes the inundation areas of Deep Creek Lake-Figure 46, Savage River Dam- Figure 47, Bloomington Dam- Figure 48, Stony River Dam and Mt. Storm Lake-Figure 49, SCD Dams #1, 2, and 3- Figure 50, and SCD Dam #5- Figure 51. Maps showing Dam Inundation areas include: Deer Park, Loch Lynn Heights,

Mountain Lake Park - Figure 51; and Figures 52 and 53 show detail for SCD Dams 1, 2, and 3 in downtown Oakland.

Garrett County has not identified residential structures at risk for other hazards, but certainly recognizes that most structures are vulnerable to winter storms, tornado activity, wildfire and hazardous material events. Once again, because of the nature of these events it would be difficult to quantify the risk for residential and commercial structures. However, there are a significant number of residential structures inside the perimeter of the Savage River State Forest and a significant number of structures within close proximity to the private forest land encircling Deep Creek Lake that are vulnerable to wildfire.

MUNICIPAL SYNOPSIS

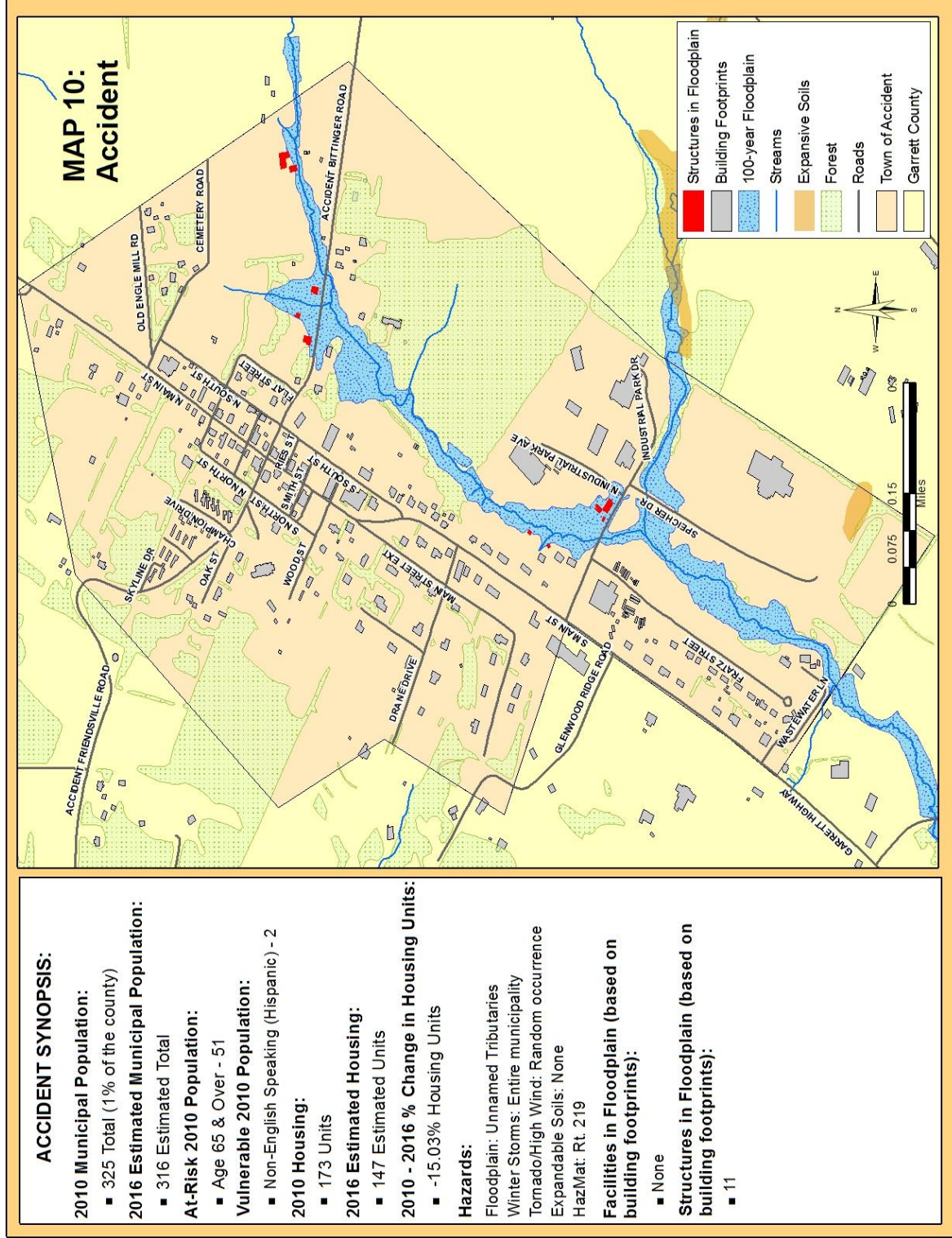
21. 1 MUNICIPAL SYNOPSIS:

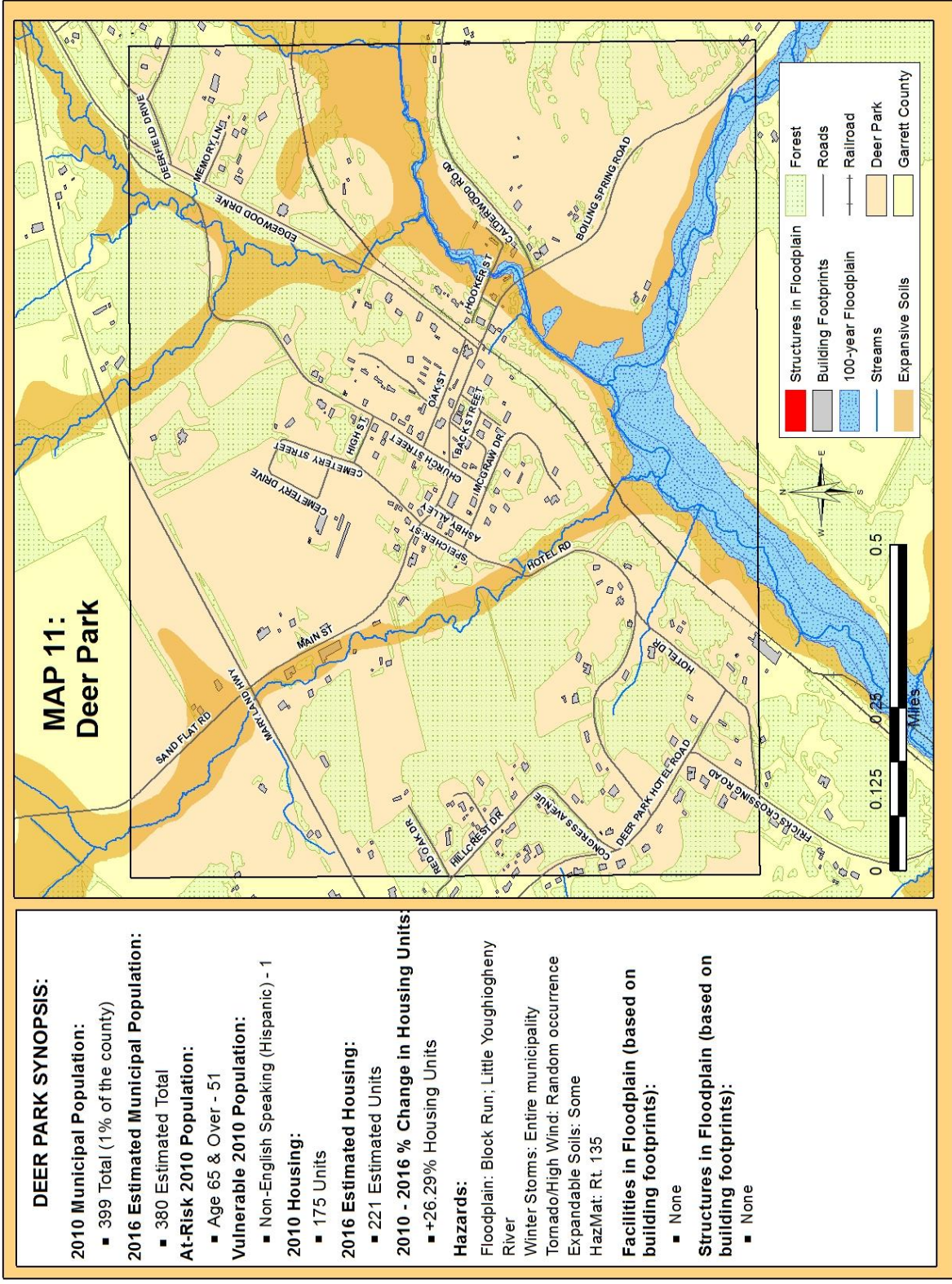
2018 Status Update: This Chapter provides a summary of Garrett County’s municipal characteristics. Maps provided in this Chapter were updated to include 2016 U.S. Census estimates. The 100-year floodplain on all maps was updated utilizing the new FEMA DFIRMs for Garrett County, which became effective on March 10, 2017.

Garrett County has seven municipalities, with a combined population of 29,425 people according to the U.S. Census estimates for 2016. This municipal population included 1,311 residents aged 65+, and 46 residents of Hispanic origin, according to the 2010 U.S. Census. In terms of percentages, the municipal population represented 21% of the total county population, while the elderly population in municipalities represented 25% of the county total for residents over age 65. The Hispanic population in municipalities represented 21% of the county total for Hispanics. The municipalities had a combined total of 3,567 housing units in 2016. The municipal housing units represented 19% of the total for Garrett County.

As noted on the municipal synopsis maps, the municipalities face many of the same risks as the county. These sheets show in synoptic form basic population and housing data for each municipality in Garrett County as well as the flooding hazard faced by those municipalities. Maps showing various hazards for each municipality follow. For details on each hazard, a listing of Critical and Public Facilities, and detailed mitigation measures, the reader should refer to Chapter 19 of the Plan.

Note: Expansive soils were included on these municipal maps due to their very slow infiltration rate (high runoff potential) when wet. These soils consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission, creating runoff. Homes built on expansive soils have the possibility of being structurally damaged due to the shrink-swell properties of this soil type. Best Management Practices (BMPs) for building on expansive soils include: monitoring for extreme changes in soil moisture content and planting trees 15 to 30 feet away from foundations.





DEER PARK SYNOPSIS:

- 2010 Municipal Population:**
 - 399 Total (1% of the county)
- 2016 Estimated Municipal Population:**
 - 380 Estimated Total
- At-Risk 2010 Population:**
 - Age 65 & Over - 51
- Vulnerable 2010 Population:**
 - Non-English Speaking (Hispanic) - 1
- 2010 Housing:**
 - 175 Units
- 2016 Estimated Housing:**
 - 221 Estimated Units
- 2010 - 2016 % Change in Housing Units:**
 - +26.29% Housing Units

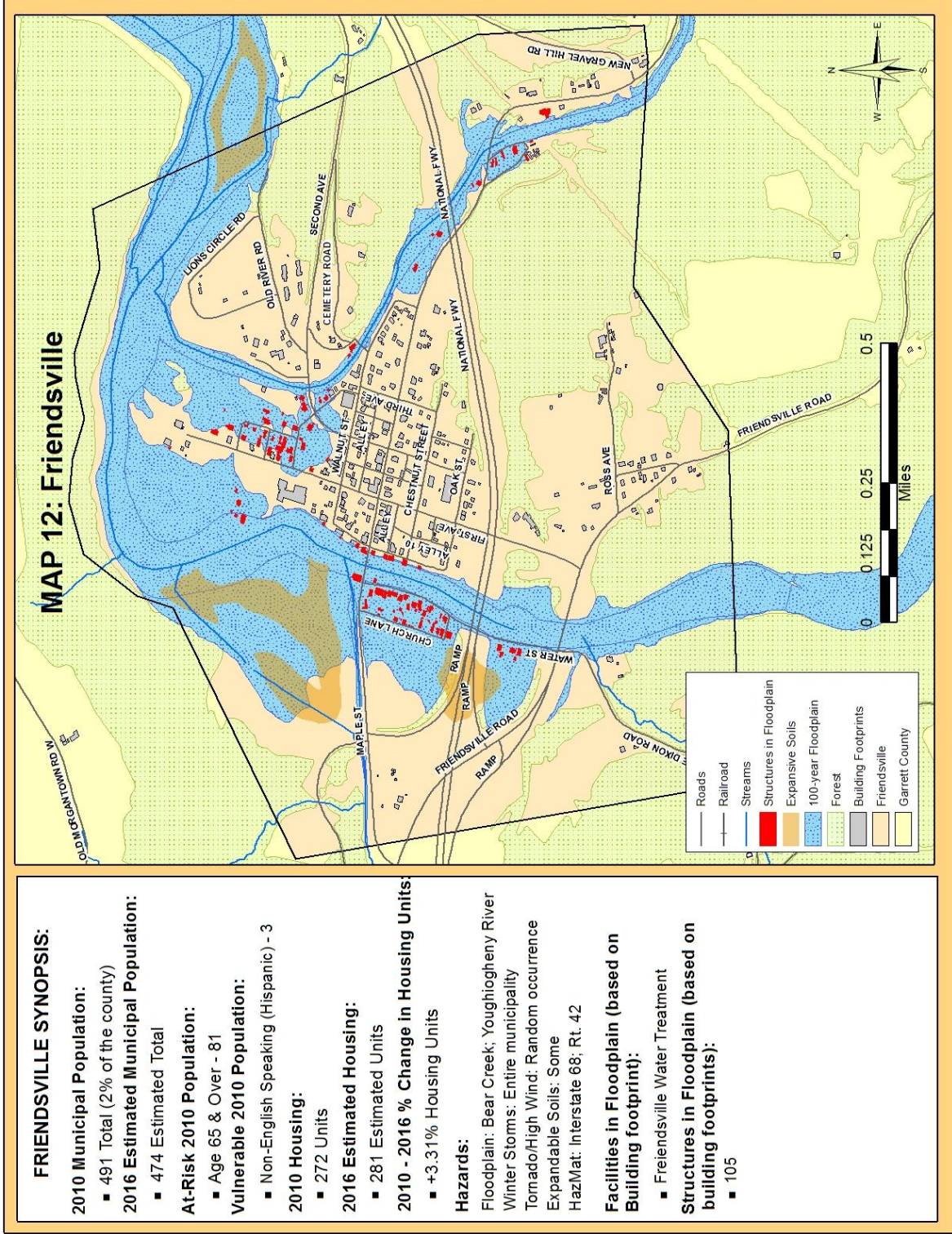
Hazards:
 Floodplain: Block Run; Little Youghiogheny River
 Winter Storms: Entire municipality
 Tornado/High Wind: Random occurrence
 Expandable Soils: Some
 HazMat: Rt. 135

Facilities in Floodplain (based on building footprints):

- None

Structures in Floodplain (based on building footprints):

- None



FRIENDSVILLE SYNOPSIS:

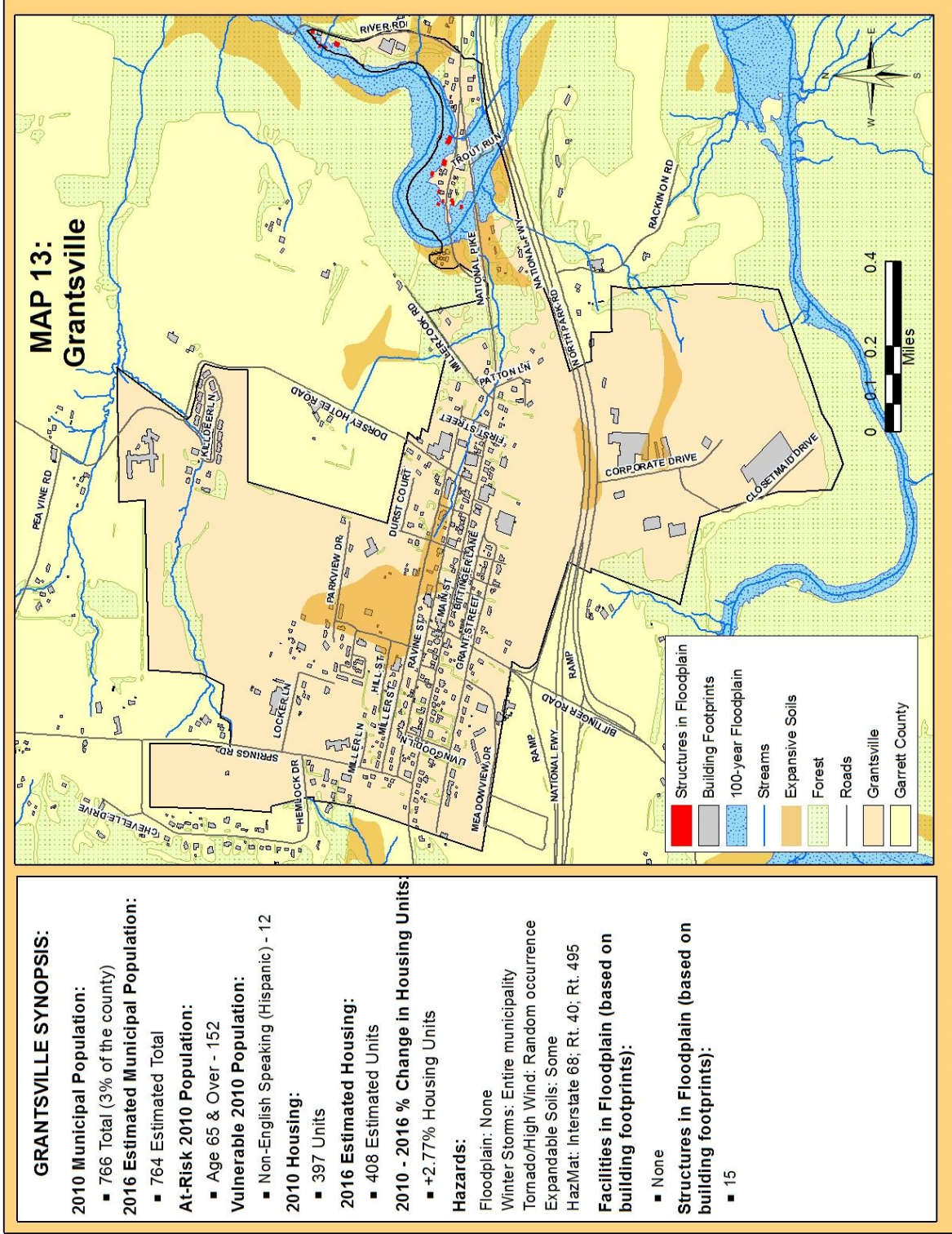
- 2010 Municipal Population:**
 - 491 Total (2% of the county)
- 2016 Estimated Municipal Population:**
 - 474 Estimated Total
- At-Risk 2010 Population:**
 - Age 65 & Over - 81
- Vulnerable 2010 Population:**
 - Non-English Speaking (Hispanic) - 3
- 2010 Housing:**
 - 272 Units
- 2016 Estimated Housing:**
 - 281 Estimated Units
- 2010 - 2016 % Change in Housing Units**
 - +3.31% Housing Units

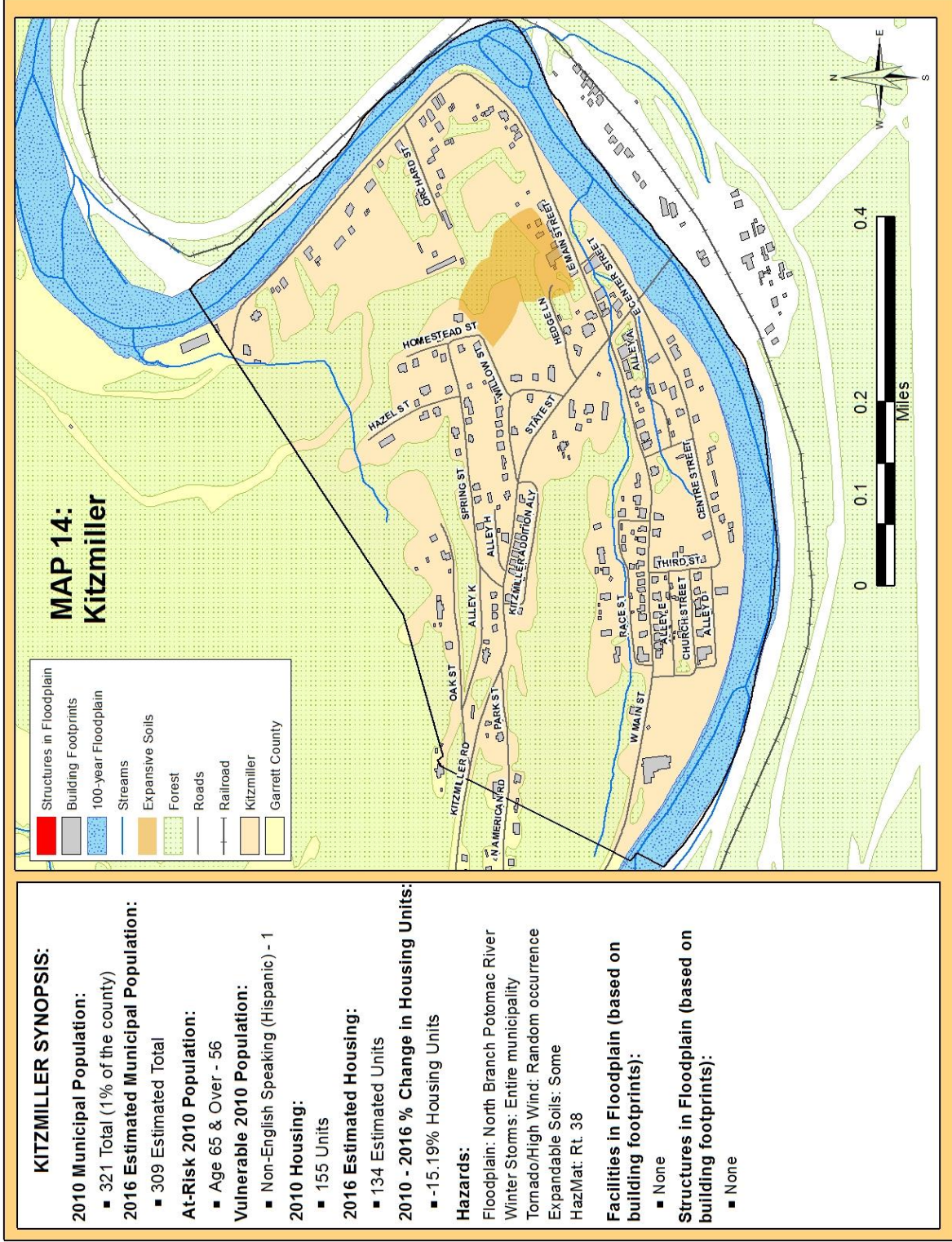
Hazards:

Floodplain: Bear Creek; Youghiogheny River
 Winter Storms: Entire municipality
 Tornado/High Wind: Random occurrence
 Expandable Soils: Some
 HazMat: Interstate 68; Rt. 42

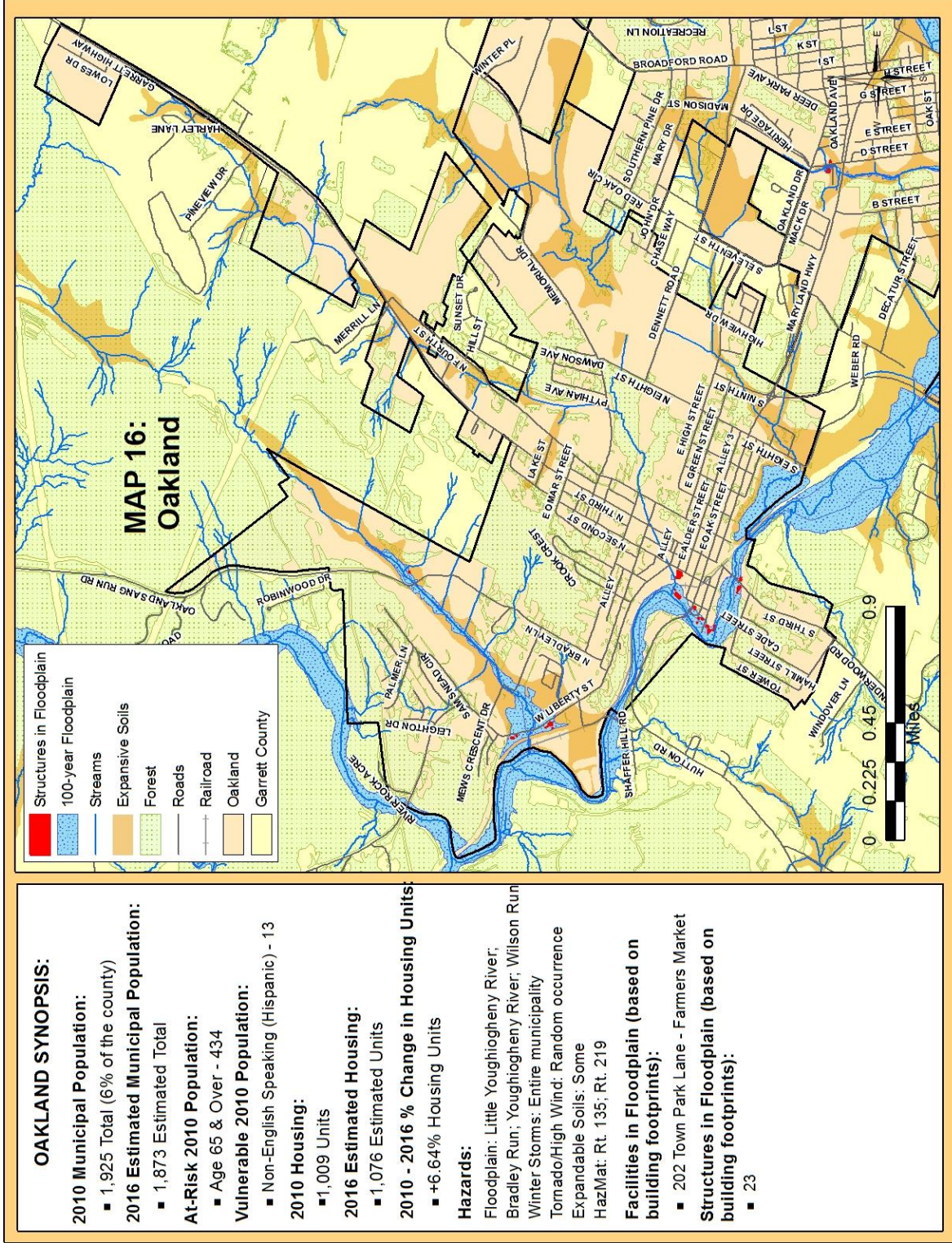
Facilities in Floodplain (based on Building footprint):

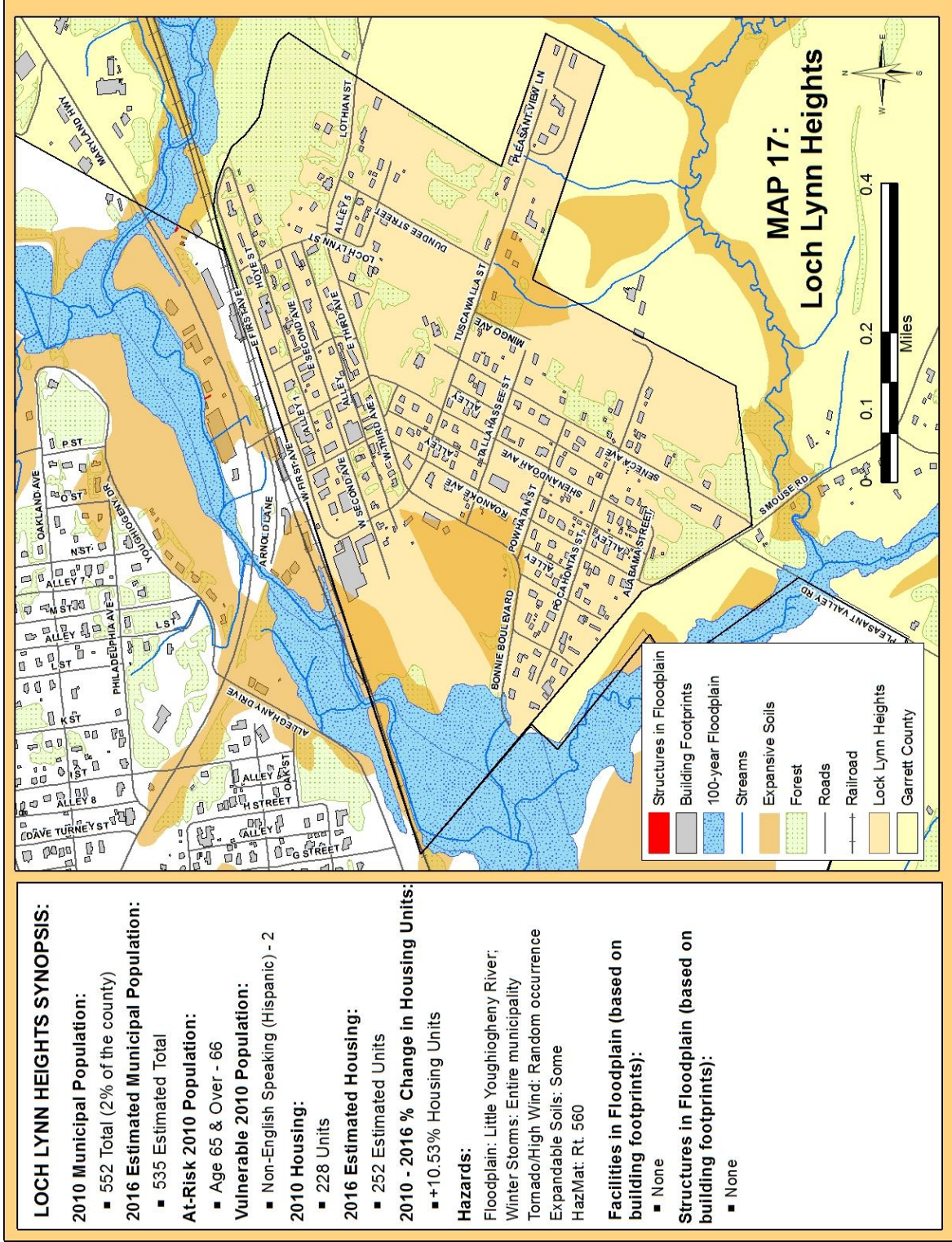
- Friendsville Water Treatment
- Structures in Floodplain (based on building footprints):**
- 105











LOCH LYNN HEIGHTS SYNOPSIS:

2010 Municipal Population:

- 552 Total (2% of the county)

2016 Estimated Municipal Population:

- 535 Estimated Total

At-Risk 2010 Population:

- Age 65 & Over - 66

Vulnerable 2010 Population:

- Non-English Speaking (Hispanic) - 2

2010 Housing:

- 228 Units

2016 Estimated Housing:

- 252 Estimated Units

2010 - 2016 % Change in Housing Units:

- +10.53% Housing Units

Hazards:

Floodplain: Little Youghiogheny River;
Winter Storms: Entire municipality
Tornado/High Wind: Random occurrence
Expandable Soils: Some
HazMat: Rt. 560

Facilities in Floodplain (based on building footprints):

- None

Structures in Floodplain (based on building footprints):

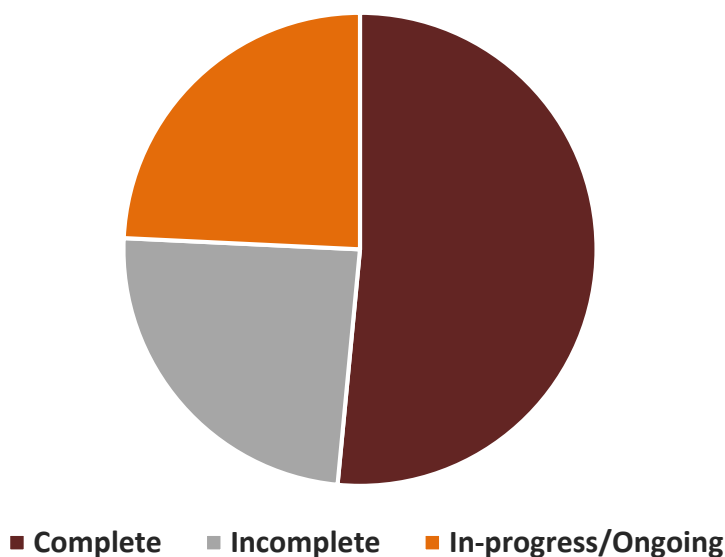
- None

MITIGATION STRATEGIES

22.1 MITIGATION STATUS REPORT:

Mitigation action items from the *2012 Garrett County Hazard Mitigation Plan* were reviewed by various stakeholders and staff to determine the current status of those items. Each action item was provided a status updated and documented in **Appendix B**. The graphic below provides a brief snapshot of the results.

2012 Mitigation Action Item Status



In addition, the *Maryland Hurricane Sandy Action Plan* provided details on mitigation measures that were implemented during the 2012-2017 planning cycle. Following Hurricane Sandy, a total of \$19 million was approved to fund thirty-one (31) projects and related administrative costs to counties throughout the State of Maryland. The majority of the funding was allocated to assist with recovery and mitigation. The projects approved by the Department of Housing and Community Development (DHCD) to the Department of Housing and Urban Development (HUD) specific to Garrett County are show in the table below:

Table 54: Mitigation Measures Awarded During the 2012-2017 Plan Cycle – Garrett County

Applicant	Project	Location	Amount Awarded
Garrett County	Acquisition of generator for water and sewer systems	Accident	\$8,915
Garrett County	Acquisition of generator for water system	Grantsville	\$9,500
Garrett County	Acquisition of two generators at water treatment plants	Oakland	\$104,750
Garrett County	Acquisition of generator for municipal building	Lock Lynn Heights	\$2,134

Garrett County	Acquisition of generator for fire station used as a shelter	Friendsville	\$52,290
Garrett County	Acquisition of generator for fire station used as a shelter	Grantsville	\$134,552
Garrett County	Acquisition of generator for building used for a senior center, homeless housing and office for social services provider	Oakland	\$252,985
Garrett County	Dredging in Potomac River to prevent flooding	Kitzmiller	\$326,200
Garrett County	Acquisition of generators at five senior housing developments	Countywide	\$108,005
Total			\$999,331

Source: Maryland Hurricane Sandy Funding Action Plan

22. 2 GOALS AND OBJECTIVES:

2018 Status Update: Additions to goals and objectives are denoted in **red**.

Following the completion of the vulnerability analysis, the Garrett County Hazard Mitigation Planning Committee developed a mitigation strategy that includes a set of goals and objectives which serves as the basis for implementing a number of mitigation action items for mitigating the hazards. The nine goals from the 2012 Plan were retained, while one new goal was added. New objectives were added as part of the Plan update process, as well, and are displayed in **red**.

Goals as identified in this plan are broad-based and long-term in nature. The following goals identify what Garrett County and its municipalities expect to accomplish through mitigation actions during the next five years. Objectives as identified in this plan are more specific and narrow in scope than goals. They expand upon the goals and provide more details on how to accomplish them.

*These goals, objectives, and mitigation action items apply to **municipal participants** as well as the **unincorporated part of the county**.*

GOAL 1 Maintain and enhance Garrett County’s Department Emergency Service’s capacity to continuously make Garrett County less vulnerable to hazards.

Objective 1.1 Institutionalize hazard mitigation.

Objective 1.2 Improve organizational efficiency.

Objective 1.3 Maximize utilization of best technology.

Objective 1.4 Maximize utilization of GIS software and applications. **Clean-up county GIS mapping for seamless integration with public safety, specifically 9-1-1 communications.**

Objective 1.5 Maximize use of hazard vulnerability data, such as Hazus Risk Map products.

Objective 1.6 Coordinate efforts with the Health Department and other organizations for intervention and interdiction related to Epidemic (Opioid).

GOAL 2 Build and support municipal capacity and commitment to become continuously less vulnerable to hazards.

- Objective 2.1 Increase awareness and knowledge of hazard mitigation principles and practice among local and municipal public officials.
- Objective 2.2 Provide assistance to municipal officials and help municipalities obtain funding for mitigation planning and project activities.
- Objective 2.3 Prepare technical reports for critical facilities as necessary

GOAL 3 Improve coordination and communication with other relevant organizations.

- Objective 3.1 Establish and maintain lasting partnerships.
- Objective 3.2 Streamline policies to eliminate conflicts and duplication of effort.
- Objective 3.3 Incorporate hazard mitigation into activities of other organizations.

GOAL 4 Increase public understanding, support, and demand for hazard mitigation.

- Objective 4.1 Identify hazard specific issues and needs.
- Objective 4.2 Heighten public awareness of natural hazards.
- Objective 4.3 Publicize and encourage the adoption of appropriate hazard mitigation actions.
- Objective 4.4 Increase the number of business that have developed a business risk reduction plan.
- Objective 4.5 Increase by 25% the proportion of businesses and residences that have flood insurance.

GOAL 5 Protect existing and future properties (residential, commercial, public, and critical facilities).

- Objective 5.1 Utilize the most effective approaches to protect buildings from flooding, including acquisition and elevation.
- Objective 5.2 Enact and enforce regulatory measures to ensure that new development will not increase hazard threats from flooding, steep slope failure and the threat of wildfire at the urban/forest interface.
- Objective 5.3 Within 2 years, reduce by 20% the number of houses in the floodplain that are subject to repetitive losses from flooding.
- Objective 5.4 Within 5 years, increase by 25% the number of critical facilities that have carried out mitigation measures to ensure their functionality in a 100-year flood event, winter storm or high wind event.
- Objective 5.5 Review and update Building Codes to ensure that manufactured housing, including mobile homes, are constructed and installed in a manner to minimize wind damage.
- Objective 5.6 Ensure existing high-risk residential structures are utilizing retrofitting techniques to mitigate repetitive flooding.

GOAL 6 Ensure that public funds are used in the most efficient manner.

- Objective 6.1 Prioritize new mitigation projects, starting with sites facing the greatest threat to life, health, and property.
- Objective 6.2 Use public funding to protect public services and critical facilities.
- Objective 6.3 Use public funding on private property where benefits exceed costs.
- Objective 6.4 Maximize the use of outside funding sources.
- Objective 6.5 Encourage property-owner self-protection measures.

GOAL 7 Promote sustainable development to improve the quality of life.

- Objective 7.1 Establish open space parks and recreational areas in flood hazard areas.
- Objective 7.2 Provide for the conservation and preservation of natural resources.
- Objective 7.3 Limit additional housing (especially elderly and high density) in areas of high hazard risk.

GOAL 8 Prevent destruction of forests and structures in the Urban Wildland Interface.

- Objective 8.1 Improve communications capability between municipal and county emergency management and law enforcement personnel.
- Objective 8.2 Identify specific high hazard areas in the Urban Wildland Interface and notify residents of measures to protect their property from wildfire damage.
- Objective 8.3 Develop evacuation procedures to enable residents near forested areas to evacuate safely.

GOAL 9 Protect public infrastructure

- Objective 9.1 Upgrade or replace public roads and stormwater management features to include mitigation into the project design and construction.
- Objective 9.2 Improve routes utilized in flood hazard events to mitigate life-threatening road conditions and road closures.
- Objective 9.3 Mitigate problem road sections within the County and municipalities.
- Objective 9.4 Ensure continuous power supply to critical and public facilities.
- Objective 9.5 Mitigate cyber threats to ensure the continuous operation of county Information Technology Infrastructure.

GOAL 10 Integrate plans and policies across disciplines and agencies within the County through the consideration of potential hazards and future development.

- Objective 10.1 Integrate hazard mitigation into areas such as land use, transportation, climate change, natural and cultural resource protection, water resources, and economic development.
- Objective 10.2 Solicit participation and offer opportunities for various departments to work together on a regular basis.
- Objective 10.3 Clearly define roles of, and improve intergovernmental coordination between planners, emergency managers, engineers, and other staff, and municipal and regional partners in improving disaster resiliency.

22. 3 MITIGATION ACTIONS:

Mitigation Actions address the goals and objectives developed by the Hazard Mitigation Planning Committee and the Local Emergency Planning Committee. These actions form the core of the Garrett County Hazard Mitigation Plan. The Mitigation Actions are grouped into the following six broad categories:

1. **Prevention.** Government administrative or regulatory actions or processes that influence the way land and buildings are developed and built. These actions also include public activities to reduce hazard losses. Examples include planning and zoning, building codes, capital improvement programs, open space preservation, and storm water management regulations.
2. **Property Protection.** Actions that involve the modification of existing Critical Facilities and other buildings or structures to protect them from hazards. Examples include acquisition, elevation, relocation, structural retrofits, and storm shutters.
3. **Public Education and Awareness.** Actions to inform and educate citizens, elected officials, and property owners about the hazards and potential ways to mitigate them. Such actions include outreach projects, real estate disclosure, hazard information centers, and school-age and adult education programs.
4. **Natural Resource Protection.** Actions that, in addition to minimizing hazard losses, also preserve or restore the functions of natural systems. These actions include sediment and erosion control, stream corridor restoration, watershed management, forest and vegetation management, and wetland restoration preservation.
5. **Emergency Services.** Actions that protect people and property during and immediately after a disaster or hazard event. Services include warning systems and emergency response services.
6. **Structural Projects.** Actions that involve the construction of structures to reduce the impact of a hazard. Such structures include dams, levees, floodwalls, seawalls, retaining walls, and safe rooms.

Upon completion of the goals and objectives, the Planning Committee developed six broad categories of mitigation action items. These actions include Prevention, Property Protection, Public Education and Awareness, Natural Resource Protection, Emergency Services and Structural Projects. The Planning Committee has retained or added new action items and prioritized nearly twenty-four separate action items that address one or more of the plan goals.

In terms of hazards, the mitigation action items relate back to the high-risk hazards described and prioritized in Chapter 4 of the Plan. Many of the action items apply to more than one hazard, while some are all-hazard in nature.

22. 4 MITIGATION ACTION RATINGS:

The following table lists 2018 Mitigation Action Items for Garrett County and denotes which goals and objectives are met by each item. The table also includes the time frame for completion and priority rating established for each item by the 2018 HMPC. The ratings were prioritized based on mitigation projects that would have the most benefit and likelihood of being completed

within the next five years. The mitigation action table shows a composite of the committee's ratings. Both new actions or actions that were carried over from the 2012 Plan were rated during the 2018 Plan Update process. Overall, ten action items were rated as high and thirteen action items were rated as medium, while two action items were rated as low. The ten action items rated as high are shown in **bold** text on the following table

22. 5 POTENTIAL MITIGATION PROJECTS:

The last pages of this chapter provide potential Mitigation Project sheets that address the highest rated Mitigation Actions. These projects include:

- **Project A:** Install back-up generator at new E-911 back-up facility and EOC. Ensure that designated Primary Shelters have adequate back-up power. These shelters include:
 - Northern and Southern High Schools
 - Northern and Southern Middle SchoolsInstall back-up emergency generator at Deep Creek Volunteer Fire Department. In addition, Garrett County Ambulance and Chase can operate out of this facility.
- **Project B:** Build an E-911 back-up facility and EOC in the County.
-
- **Project C:** Mitigate and upgrade flood prone roadways when funding is available. Specifically, roads that were identified as “High” by the HMPC in Table 22 in *Chapter 6: Riverine Flooding*.
- **Project D:** Adopt the new 2018 International Building Code, including the International Energy Conservation Code (IECC). Adopt new floodplain management ordinance. FEMA has made distinctions between accessory structures and pertinent structures.
- **Project E:** Create a “Speakers Bureau” consisting of various stakeholders and partners including medical, prevention, treatment, recovery, legal, affected family members, etc. Speakers Bureau members will receive consistent training and informational resources in order to present a uniform messaging in the community.
- **Project F:** Deliver “mini” Screening, Brief Intervention, and Referral to Treatment (SBIRT) training to medical offices on local and regional treatment and recovery resources.

Most of these projects can be accomplished at minimum expense to the County but do require some staff time. The Office of Emergency Management will coordinate these activities.

Mitigation action items identified and ranked in the 2012 Plan were discussed at the 2018 HMPC January Meeting; the status of all completed items is provided in Appendix B.

During the development of the 2018 Hazard Mitigation Plan update, new mitigation action items were identified. In addition, mitigation action items from the 2012 Plan that were identified as incomplete were carried over into the new mitigation action items below. Both the new and incomplete action items were ranked by the 2018 HMPC as low, medium or high. The ranking system methodology is described in Appendix C. Those mitigation items that have been carried over from the 2012 Plan are denoted in gray. Also, those actions that do not refer to a specific location, apply to the **entire County**. In addition, those items associated with flooding that may be undertaken and documented for the National Flood Insurance Program (NFIP) –Community Rating System (CRS) are denoted with the following: ***CRS**.

Table 55: 2018 Action Items and 2012 Uncompleted Ranked Action Items

2018 ACTION ITEMS AND 2012 UNCOMPLETED RANKED ACTION ITEMS						
NUMBER	ACTION	GOALS	OBJECTIVES	TIMEFRAME	HAZARD	PRIORITY
Prevention						
1	The current Sensitive Areas Ordinance allows for development on slopes up to 30%. Reduce this to 20 or 25%.	3 4 5 6 7	3.3 4.1; 4.2; 4.3 5.2 6.3 7.3	Short-term	Flood, Soil Movement	Medium
2	Review new 2018 Hazard Mitigation Plan and integrate with new Comprehensive Plan slated for completion in 2019. In addition municipal comprehensive plans, 2002 Oakland, 2005 Grantsville, 2009 Accident, 2009 Friendsville, 2009 Kitzmiller, 2009 Loch Lynn, and 2010 Mountain Lake Park.	3 7 10	3.1; 3.2; 3.3 7.1; 7.2; 7.3 10.1; 10.2; 10.3	Short-term	All	Medium
3	*CRS Consider placing development restrictions on land use for vacant parcels within hazard areas.	2 4 5 6	2.1 4.1; 4.3 5.1; 5.2; 5.6 6.1	Long-term	All	Medium

2018 ACTION ITEMS AND 2012 UNCOMPLETED RANKED ACTION ITEMS						
NUMBER	ACTION	GOALS	OBJECTIVES	TIMEFRAME	HAZARD	PRIORITY
4	Review and discuss with FEMA the Flood Insurance Study(FIS) specific to the Town of Friendsville . Maps are incorrect in the area of Water Street-Floodway.	2 5	2.1 5.2	Short-term	Flood	Medium
5	Adopt the new 2018 International Building Code, including the International Energy Conservation Code (IECC) (including all municipalities).	3 4 5 6 7	3.3 4.1; 4.2; 4.3 5.2 6.3 7.3	Short-term	Flood, Winter Storm, High Wind	HIGH
6	Adopt new floodplain management ordinance. FEMA has made distinctions between accessory structure and pertinent structure.	3 4 5 6 7	3.3 4.1; 4.2; 4.3 5.2 6.3 7.3	Short-term	Flood	HIGH
7	Complete a hazardous materials commodity flow study on MD 560. Monitoring site possibly at Dundee Street or Shenandoah Avenue (Town of Loch Lynn). Include information on hazardous materials carried by rail into the study.	3 6	3.1 6.2 6.5	Short-term	HazMat	Medium
Property Protection						
8	Target Water Street properties in Friendsville for the Flood Acquisition Program.	1 2 5 6	1.1; 1.3 2.1; 2.2; 2.3 5.1; 5.3 6.2; 6.3; 6.4; 6.5	Long-term	Flood	Medium

2018 ACTION ITEMS AND 2012 UNCOMPLETED RANKED ACTION ITEMS						
NUMBER	ACTION	GOALS	OBJECTIVES	TIMEFRAME	HAZARD	PRIORITY
9	Target properties on the FEMA NFIP Repetitive Loss Property (RLP) listing for mitigation, specifically flood buy-out program (Unincorporated County and Town of Friendsville). Particularly the RLP on Stanley Lane. This property experiences frequent flooding from both small and large storm events.	4 5	4.5 5.1 5.3 5.4	Long-term	Flood	Medium
10	For the critical facilities listed as having a high vulnerability in the risk assessment and identified by the planning committee as a high priority, a technical report should be completed to provide information on first floor elevation and the base flood elevation. Mitigation alternatives and a detailed benefit/cost analysis should be completed.	2 5 6	2.3 5.4 6.2; 6.4	Long-term	Flood	Medium
11	Identify structures that would be candidates for retrofit projects.	2 5	2.2 5.1; 5.3; 5.4 6.2; 6.3; 6.4	Long-term	Flood, Winter Storm	Low
Public Education and Awareness						
12	*CRS Target residence for public outreach campaign preparedness in high hazard areas such as the 100-year floodplain.	4 6 7	4.2; 4.3 6.3; 6.5 7.3	Short-term	Flood	Medium

2018 ACTION ITEMS AND 2012 UNCOMPLETED RANKED ACTION ITEMS						
NUMBER	ACTION	GOALS	OBJECTIVES	TIMEFRAME	HAZARD	PRIORITY
13	Distribute annual mitigation informational brochure or newsletter to residents and business owners. Add emergency contact and citizen alert notification information to Garrett County <i>Chamber of Commerce 2018 Community Profile and Directory</i> . Distributed to both business owners and tourists.	4 6	4.2; 4.4 6.5	Ongoing	All	Medium
14	Work with the County Visitors/Tourism Bureau, MD DNR to alert tourists to potential hazard areas and what to do in the event that a man-made or natural hazard event occurs. This would include brochures to be left at hotels, visitor centers, and attractions to inform visitors about evacuation routes, and sheltering information. Include emergency related information on Chamber of Commerce and tourism Facebook pages, Twitter, and Instagram.	4 8	4.2 8.1; 8.3	Short-term	All	Medium
15	Develop a one-page handout on flood insurance and distribute to local insurance companies, municipal buildings, police stations, and county office buildings.	4	4.1; 4.2	Long-term	Flood	Low

2018 ACTION ITEMS AND 2012 UNCOMPLETED RANKED ACTION ITEMS						
NUMBER	ACTION	GOALS	OBJECTIVES	TIMEFRAME	HAZARD	PRIORITY
16	Create a “Speakers Bureau” consisting of various stakeholders and partners including medical, prevention, treatment, recovery, legal, affected family members, etc. Speakers Bureau members will receive consistent training and informational resources in order to present a uniform messaging in the community.	1	1.6	Short-term	Epidemic (Opioid)	HIGH
17	Deliver “mini” Screening, Brief Intervention, and Referral to Treatment (SBIRT) training to medical offices on local and regional treatment and recovery resources.	1	1.6	Short-term	Epidemic (Opioid)	HIGH
Natural Resource Protection						
18	Work with the Department of Natural Resources (DNR) to identify soil movement mitigation measures on State land, specifically the three rock slide locations identified in <i>Chapter 11: Soil Movement (Kitzmilller)</i> .	2 3 9	2.1 3.1;3.2 9.3	Long-term	Soil Movement	Medium
Emergency Services						
19	Build an E-911 back-up facility and EOC in the County.	1 2 6	1.2 2.2 6.1; 6.2; 6.4	Long-term	All	HIGH
20	Install back-up generator at new E-911 back-up facility and EOC.	1 2 6 9	1.2 2.2 6.1; 6.2; 6.3 9.4	Long-term	All	HIGH

2018 ACTION ITEMS AND 2012 UNCOMPLETED RANKED ACTION ITEMS						
NUMBER	ACTION	GOALS	OBJECTIVES	TIMEFRAME	HAZARD	PRIORITY
21	Ensure that designated Primary Shelters have adequate back-up power. These shelters include: <ul style="list-style-type: none"> Northern and Southern High Schools Northern and Southern Middle Schools 	1 2 6 9	1.2 2.2 6.1; 6.2; 6.3 9.4	Long-term	All	HIGH
22	Install back-up emergency generator at Deep Creek Volunteer Fire Department. In addition, Garrett County Ambulance and Chase can operate out of this facility.	1 2 6 9	1.2 2.2 6.1;6.2;6.3 9.4	Short-term	All	HIGH
Structural Projects						
23	*CRS Mitigate and upgrade flood prone roadways when funding is available. Specifically, roads that were identified as “High” by the HMPC in Table 19 in <i>Chapter 6: Riverine Flooding</i> includes Towns of Accident, Friendsville, Mountain Lake Park, and Oakland.	9	9.1; 9.2; 9.3	Ongoing	Flood	HIGH
24	Determine additional mitigation measures to protect IT infrastructure, including hardware, software, networks, and other equipment.	9	9.5	Long-term	Cyber-threat	Medium

2018 MITIGATION PROJECTS

During the April 17, 2018 meeting of the HMPC, mitigation actions were prioritized. Ten action items were rated as “High”. These action items are a priority and potential mitigation projects have been created based on the mitigation actions, as follows.

PROJECT A: Installing a New Generator

Action item #20 directly relates to obtaining funding to obtain an independent generator for the new E 9-1-1 Center, while action items #21 and #22 include essential facilities and may be implemented separately or concurrently, as discussed in the following project.



utilized, ensuring continuous operation of the new Center.

In addition, during the Plan update process, additional essential facilities were identified as in need of energy back-up power. Four public schools were identified as primary shelters in the *Garrett County Emergency Operations Plan, Mass Care & Sheltering-Essential Support Function #6*. Garrett County primary shelter sites listed below have emergency generators for minimal operations such as: heat, emergency lights, and refrigeration. Additional generator capabilities are needed. Current Capabilities are as follows:

- Southern High School – 150 KW #2 Fuel Oil
- Northern High School – 50 KW #2 Fuel Oil
- Southern Middle School – 125 KW #2 Fuel Oil (*Note: Facility is air conditioned*)
- Northern Middle School – 40 KW #2 Fuel Oil (*Note: Facility is air conditioned*)

Finally, the Deep Creek Volunteer Fire Company has received an estimate for the site plan and cost for the emergency generator project. The plans include all site preparation, installation, and training on the new generator. The size of the generator needed is 60 KW, 120V/240 VAC

Project A: Related Actions

Action #20: Install back-up generator at new E-911 back-up facility and EOC.

Action #21: Ensure that designated Primary Shelters have adequate back-up power. These shelters include:

- Northern and Southern High Schools
- Northern and Southern Middle Schools

Action #22: Install back-up emergency generator at Deep Creek Volunteer Fire Department. In addition, Garrett County Ambulance and Chase can operate out of this facility.

DISCUSSION: The availability of backup power sources for the new center is crucial for efficient function of a community during a disaster. The new Garrett County EOC and back-up 9-1-1 facility will be constructed during the 2018-2023 planning cycle. An alternate source of power is necessary for the new EOC to be operational during a hazard event. Therefore, installation of a new generator (including the necessary wiring) will allow an alternate source of power to be

single-phase diesel engine-driven standby generator, automatic transfer switch. The total estimated cost for the project is \$48,950.00.

PROJECT: Utilize electrical engineering services in order to determine necessary specifications for a new generator to be installed at each identified site. Once specifications are determined, use available grant funding sources to implement the construction phase.

Responsible Organizations: Department of Public Safety and Emergency Management, Garrett County Public Schools, and Deep Creek Volunteer Fire Department

Estimated Costs: TBD, except for Deep Creek Volunteer Fire Department - \$48,950.00

Possible Funding Sources: FEMA Hazard Mitigation Grant Program, FEMA Pre Disaster Mitigation Grant Program, Emergency Operations Center (EOC) Grant Program.

Timeline for Implementation: 1 - 2 years

PROJECT B: Emergency Infrastructure Planning

Action item #19 directly relates to emergency infrastructure planning for a new Emergency Operation Center (EOC) with E-9-1-1 back-up.

Project B: Related Actions

Action #19: Build an E-911 back-up facility and EOC in the County.

DISCUSSION: An E-911 back-up facility would provide a necessary fall back plan in the event of a partial or complete failure to the main E-911 Center. Additionally, having a permanent Emergency Operations Center (EOC) within the county is important as it would provide a



location for strategic oversight and planning during a disaster. Currently, Garrett County is the only jurisdiction within Maryland that does not have an approved EOC, yet it has many documented hazard events. At this time, a small community room with the Garrett County Airport functions as an interim EOC until such time as new EOC and E-911 backup center is constructed.

PROJECT: Construct new EOC and E-9-1-1 back-up center at county-owned property, which is adjacent to the Oakland Roads Garage. Design of the new facility has been completed. Securing proper funding for construction is necessary. The Department of Public Works is completing site preparations.

Responsible Organizations: Department of Public Safety, Department of Planning and Land Management, Department of Engineering.

Estimated Costs: \$1.2 Million

Possible Funding Sources: Garrett County and The State of Maryland

Timeline for Implementation:
2 - 3 years

PROJECT C: Mitigating Roadway Flooding

Action item #23 directly relates to roadway flooding, specifically on the five roadways identified as a “high priority”.

Project C: Related Actions

Action #23: Mitigate and upgrade flood prone roadways when funding is available. Specifically, roads that were identified as “High” by the HMPC in Table 22 in *Chapter 6: Riverine Flooding*.

DISCUSSION: Thirty-one roadways in Garrett County which experience repetitive flood related issues. These roadways were ranked based on their mitigation importance. Of these roadways, five ranked as high priority for mitigation by the HMPC. Those five roadways were extracted from Table 22 and are listed below. The roads ranked as “High” include: West Liberty Street, Shallmar Road, Underwood Road, Route 742 on Maple Street, and Water Street. The flood issues experienced by these roads are caused by storm water and low elevation.

Excerpt from Table 22 showing the top six roads picked by the HMPC for mitigation.

Road	Maintained By	Municipality	Ranking
West Liberty Street (at Bradley Run)	Municipal	Oakland	High
Shallmar Road (along N. Branch Potomac River)	County	N/A	High
Underwood Road (at Youghiogheny River)	County	N/A	High
Route 742 on Maple Street (flooding of Youghiogheny)	Municipal	Friendsville	High
Water Street (flooding of Youghiogheny)	Municipal	Friendsville	High

PROJECT: Conduct engineering studies for West Liberty Street, Shallmar Road, Underwood Road, Route 742 on Maple Street, and Water Street to determine the most effective mitigation measures to ensure the prevention of future flooding to these roadways. After the study is complete, use available grant funding sources to implement the construction phase.

Responsible Organizations: Garrett County Department of Public Works – Roads Division, Private Engineering Firm, and Municipalities.

Estimated Costs: To be determined during the conceptual design phase process.

Possible Funding Sources: FEMA Hazard Mitigation Grant Program, FEMA Pre Disaster Mitigation Grant Program, Emergency Advance Measures for Flood Prevention

Timeline for Implementation: 2 - 5 years

PROJECT D: Adopt New 2018 International Building Codes and Floodplain Management Ordinance

Action item #5 & 6 directly relates to the adoption of the latest International Building Code, International Energy Conservation Code, and Floodplain Management Ordinance.

DISCUSSION: Garrett County is currently operating under the International Building Code, 2015 International Residential Code and 2015 Energy Conservation Code with certain modifications and amendments. Additionally, all codes that have been adopted by the Maryland Codes Administration through the Maryland Building Performance Standards are currently in force in Garrett County.



In addition, Garrett county is currently operating under the 2013 Floodplain Management Ordinance. The Floodplain Management Ordinance provides a community with the flood hazard information upon which floodplain management regulations are based, the community is required to adopt a floodplain management ordinance that meets or exceeds the minimum NFIP requirements. The overriding purpose of the floodplain management regulations is to ensure that participating communities consider flood hazards, to the extent that they are known, in all official actions relating to land management and use.

Furthermore, FEMA has refined the definition of accessory or appurtenant structures. Accessory structures are also referred to as appurtenant structures. An accessory structure is a structure which is on the same parcel of property as a principal structure and the use of which is incidental to the use of the principal structure. For example, a residential structure may have a detached garage or storage shed for garden tools as accessory structures. Other examples of accessory structures include gazebos, picnic pavilions, boathouses, small pole barns, storage sheds, and similar buildings. National Flood Insurance Program (NFIP) regulations for new construction generally apply to new and substantially improved accessory structures.

Project D: Related Actions

Action #5: Adopt the new 2018 International Building Code, including the International Energy Conservation Code (IECC)

Action #6: Adopt new floodplain management ordinance. FEMA has made distinctions between accessory structures and pertinent structures.

Hazard Mitigation Grant Program (HMPG) Additional 5 Percent Initiative

The additional 5 percent Initiative under the HMPG set-aside can be used to fund activities beyond those funded by the standard 5 percent Initiative; the applicant may set aside up to 5 percent of the total HMGP funds to pay for such activities. This funding that has been set aside to help communities enhance disaster resilience related to building codes, such as adopting the current International Building Code® and improving a community's BCEGS score.

Source: FEMA

PROJECT: Initiate process to adopt new 2018 International Building Code, including the International Energy Conservation Code (IECC). In addition, amend current floodplain management ordinance. Accessory structures are also referred to as appurtenant structures. An accessory structure is a structure which is on the same parcel of property as a principal structure and the use of which is incidental to the use of the principal structure.

Responsible Organizations: Department of Planning & Land Management

Estimated Costs: TBD

Possible Funding Sources: Hazard Mitigation Grant Program (HMPG) Additional 5 Percent Initiative

Timeline for Implementation: 1-2 Years

PROJECT E: Create a “Speakers Bureau” for Community Public Outreach

Action item #16 directly relates to providing training and informational resources to various stakeholders to create a “Speakers Bureau” for community public outreach.

DISCUSSION: By definition, a “Speakers Bureau” is a collection of speakers who talk about a particular subject, or a company, which operates to facilitate speakers for clients requiring motivational speakers, celebrity appearances, conference facilitators, or keynote speakers. With the growing opioid crisis in Garrett County, as well as the State of Maryland, it would be beneficial in forming a “Speakers Bureau” to initiate the introduction between opioid educators and Garrett County citizens. Traditional speakers' bureaus can provide a more hands on experience for the County and handle other issues that may arise in the process. Few online platforms would the County and educators to connect with each other directly and without the need of an agency.

PROJECT: Garrett County needs to prepare for multiple public health emergencies, from the growing opioid epidemic. Work with local municipalities and State agencies to improve local response readiness, expand medical countermeasure partnerships, and strengthen emergency management programs.

Project D: Related Actions

Action #16: Create a “Speakers Bureau” consisting of various stakeholders and partners including medical, prevention, treatment, recovery, legal, affected family members, etc. Speakers Bureau members will receive consistent training and informational resources in order to present a uniform messaging in the community.

Responsible Organizations: Garrett County Health Department

Estimated Costs: \$5,000

Possible Funding Sources: Opioid Intervention Team Grant Funding

Timeline for Implementation: 1-2 Years



PROJECT F: “Mini” SBIRT Training on Treatment and Recovery Resources

Action item #17 directly relates to conducting training related to opioid crisis to medical offices and regional recovery resources.

Project D: Related Actions

Action #17: Deliver “mini” Screening, Brief Intervention, and Referral to Treatment (SBIRT) training to medical offices on local and regional treatment and recovery resources.

DISCUSSION: The Substance Abuse and Mental Health Services Administration (SAMHSA) is the agency within the U.S. Department of Health and Human Services that leads public health efforts to advance the behavioral health of the nation. Screening, Brief Intervention, and Referral to Treatment (SBIRT) is a comprehensive, integrated, public health approach to the delivery of early intervention and treatment services for persons with substance use disorders, as well as those who are at risk of developing these disorders.



PROJECT: Garrett County must maintain preparedness capabilities for multiple public health emergencies. This includes the growing opioid epidemic crisis. It is critical to provide training to Garrett County primary care centers, hospital emergency rooms, trauma centers, and other community settings to enable opportunities for early intervention with at-risk substance users before more severe consequences occur. The following training will include:

- Screening quickly assesses the severity of substance use and identifies the appropriate level of treatment.
- Brief intervention focuses on increasing insight and awareness regarding substance use and motivation toward behavioral change.
- Referral to treatment provides those identified as needing more extensive treatment with access to specialty care.

Responsible Organizations: Garrett County Health Department & Partners

Estimated Costs: TBD

Possible Funding Sources: Opioid Intervention Team Grant Funding

Timeline for Implementation: 1-2 Years

PLAN MAINTENANCE AND IMPLEMENTATION

23. 1 PLAN ADOPTION:

The Disaster Mitigation Act of 2000 requires that local Hazard Mitigation Plans and any updates be formally adopted by the County Commissioners following review by the Maryland Emergency Management Agency and FEMA. The Plan and any updates will be subject to a public hearing prior to adoption by the Commissioners.

23. 2 PLANNING PROCESS:

The Disaster Mitigation Act of 2000 requires local Hazard Mitigation Plans to be monitored, evaluated, and updated during a five-year cycle. The County's Planning Committee, which was instrumental in developing the Hazard Mitigation Plan, will continue to meet on a regular basis during the five-year cycle to monitor and evaluate mitigation projects and to keep the plan current. Annual status reports will be submitted to the County Commission to update that group on the progress of various mitigation activities. Copies of these reports will be made available to the general public.

The annual status report will detail mitigation activities undertaken over the course of the year and will highlight completed activities. The report will also address the following points:

- Evaluate the goals and objectives to ensure they address current and expected conditions.
- Determine if the nature or magnitude of risk has changed.
- Evaluate whether current resources are adequate for implementing the plan.
- Document any technical, legal or coordination issues.
- Document agency and partner participation along with public involvement.

Copies of the annual status report will be made available to Planning Committee members, local governments, participating agencies and partners and citizens.

The Hazard Mitigation Plan is to be updated and readopted at the end of each five-year cycle. In the event of a significant disaster or any substantial changes in land use or regulations that impact mitigation efforts, more frequent updates may be required. The Planning Committee and the Emergency Management Agency will be responsible for overseeing the update to the Hazard Mitigation Plan. The process used to update the plan would follow the procedure used to prepare the original plan. This would include participation by the Planning Committee and would also include municipal and citizen involvement.

23. 3 IMPLEMENTATION:

The Disaster Mitigation Act of 2000 also requires that the County implement the Plan through existing programs. This can be accomplished through inclusion of mitigation measures in the Comprehensive Plan, the Land Use and Building Codes, the Floodplain Ordinance and through Federal grant programs which are identified in the previous Section. As these documents are

updated, reference to the mitigation measures included in the Hazard Mitigation Plan can be amended into various plans and regulations.

Appendix A: Figures

APPENDIX A: FIGURES

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Deer Park Critical Facilities..... Figure 39

Friendsville Critical Facilities..... Figure 40

Grantsville Critical Facilities..... Figure 41

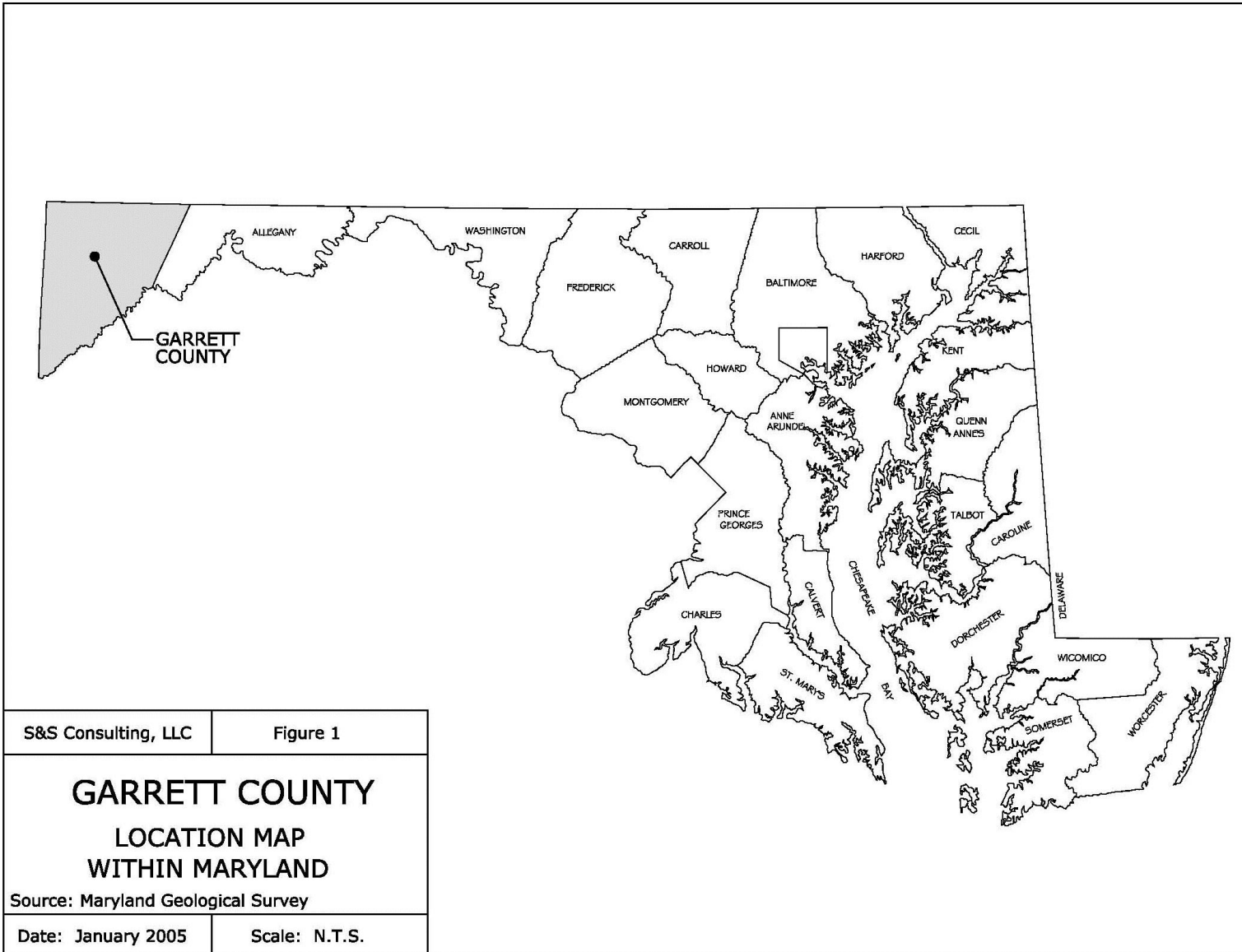
Kitzmilller Critical Facilities..... Figure 42

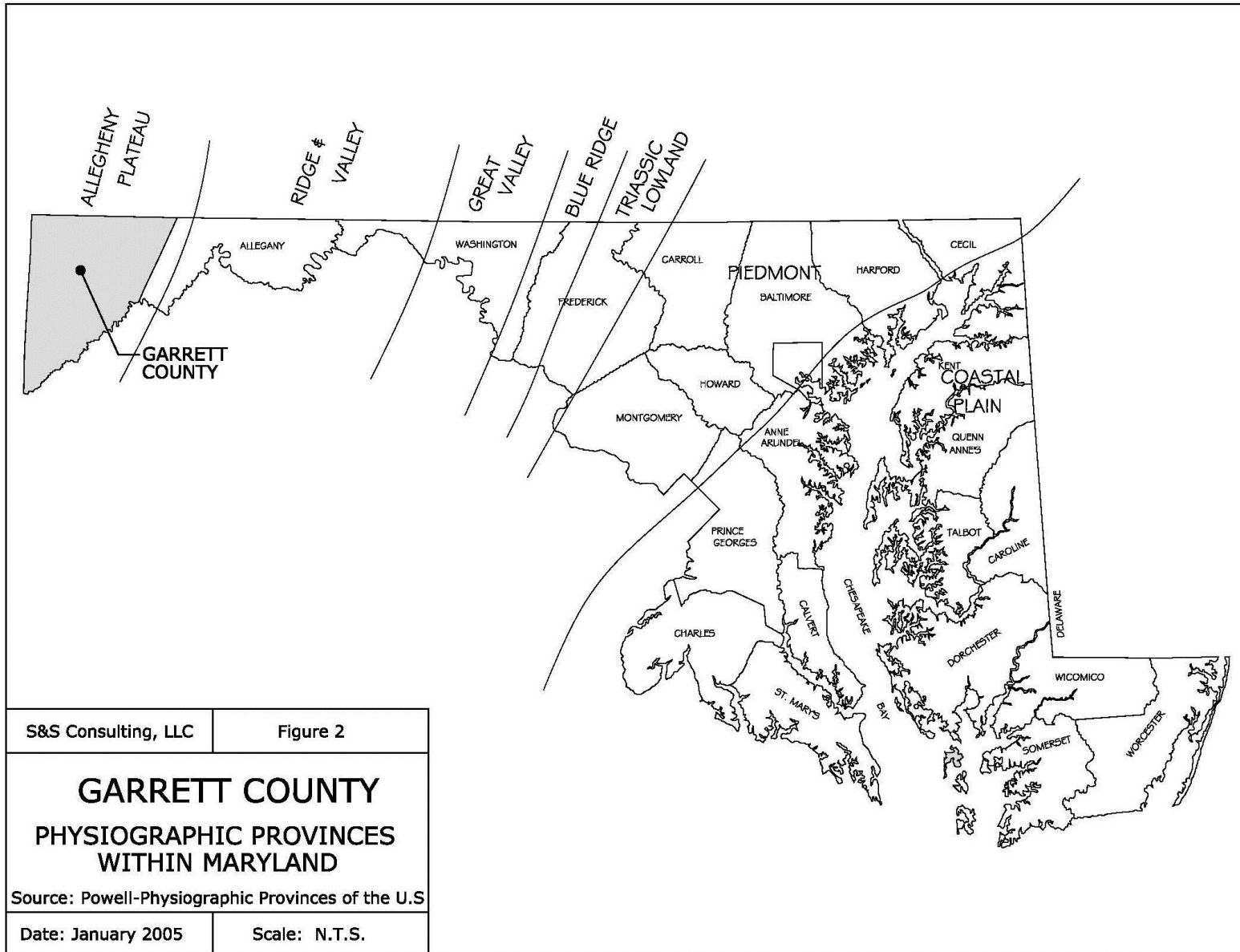
Loch Lynn Heights Critical Facilities..... Figure 43

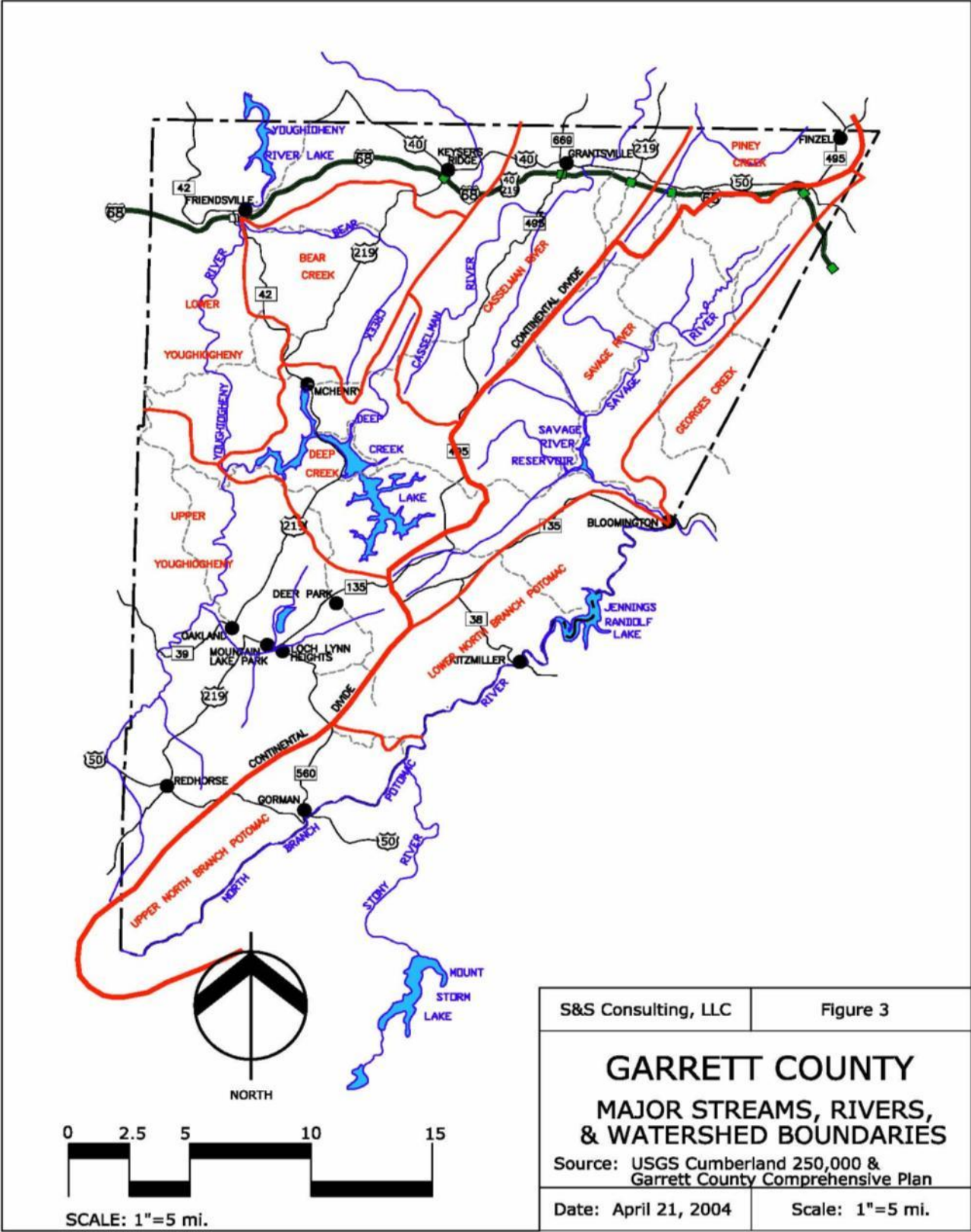
Mountain Lake Park Critical Facilities..... Figure 44

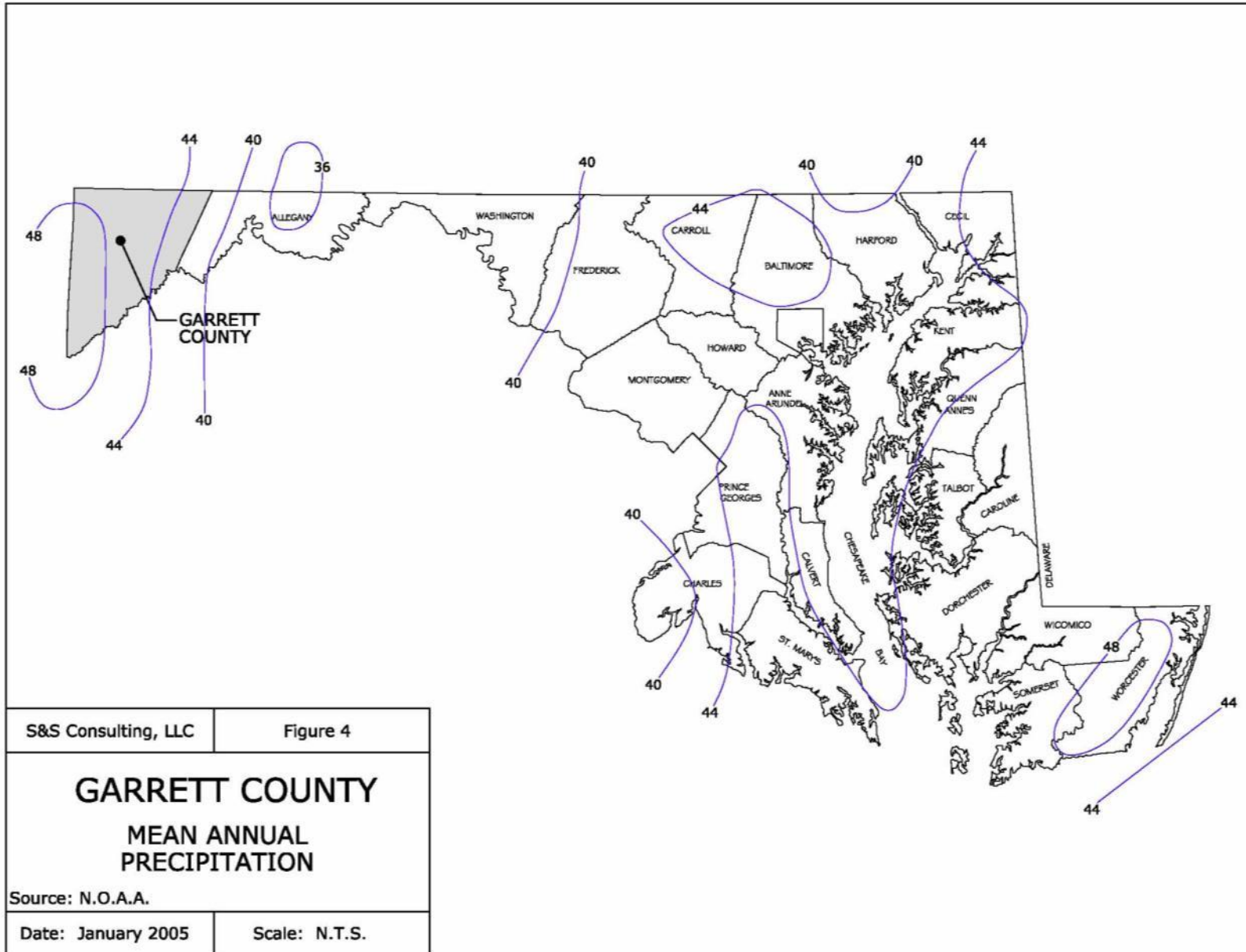
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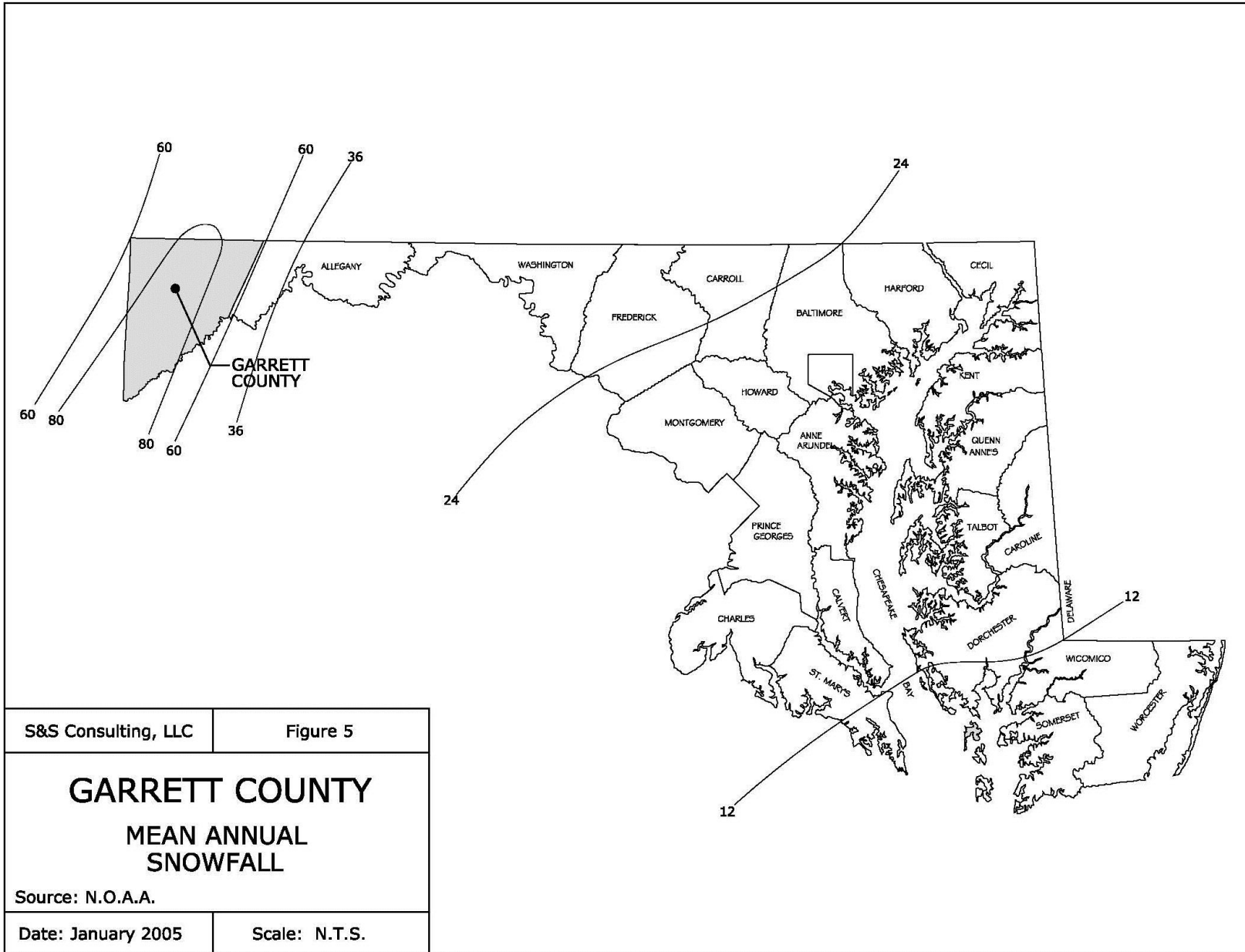
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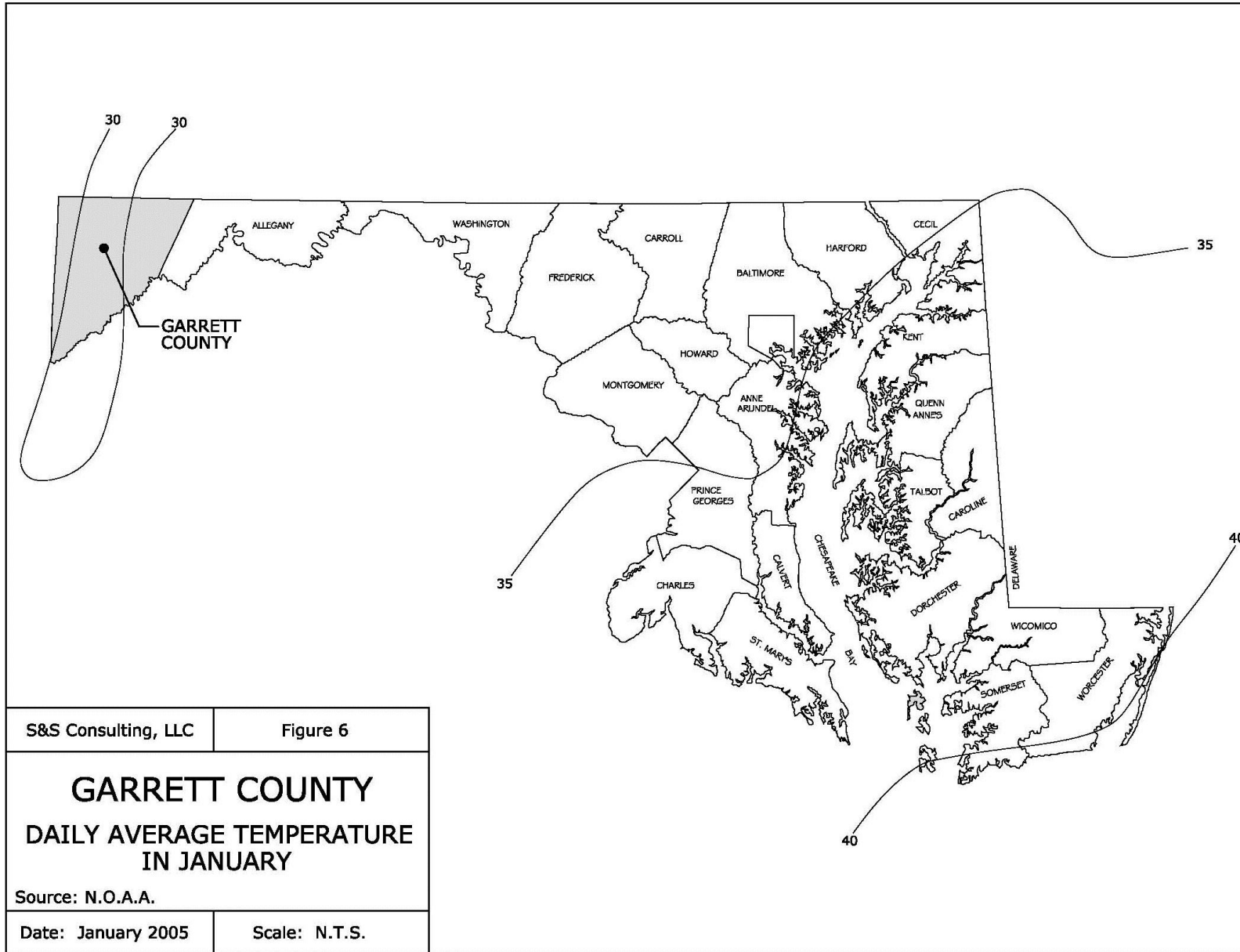


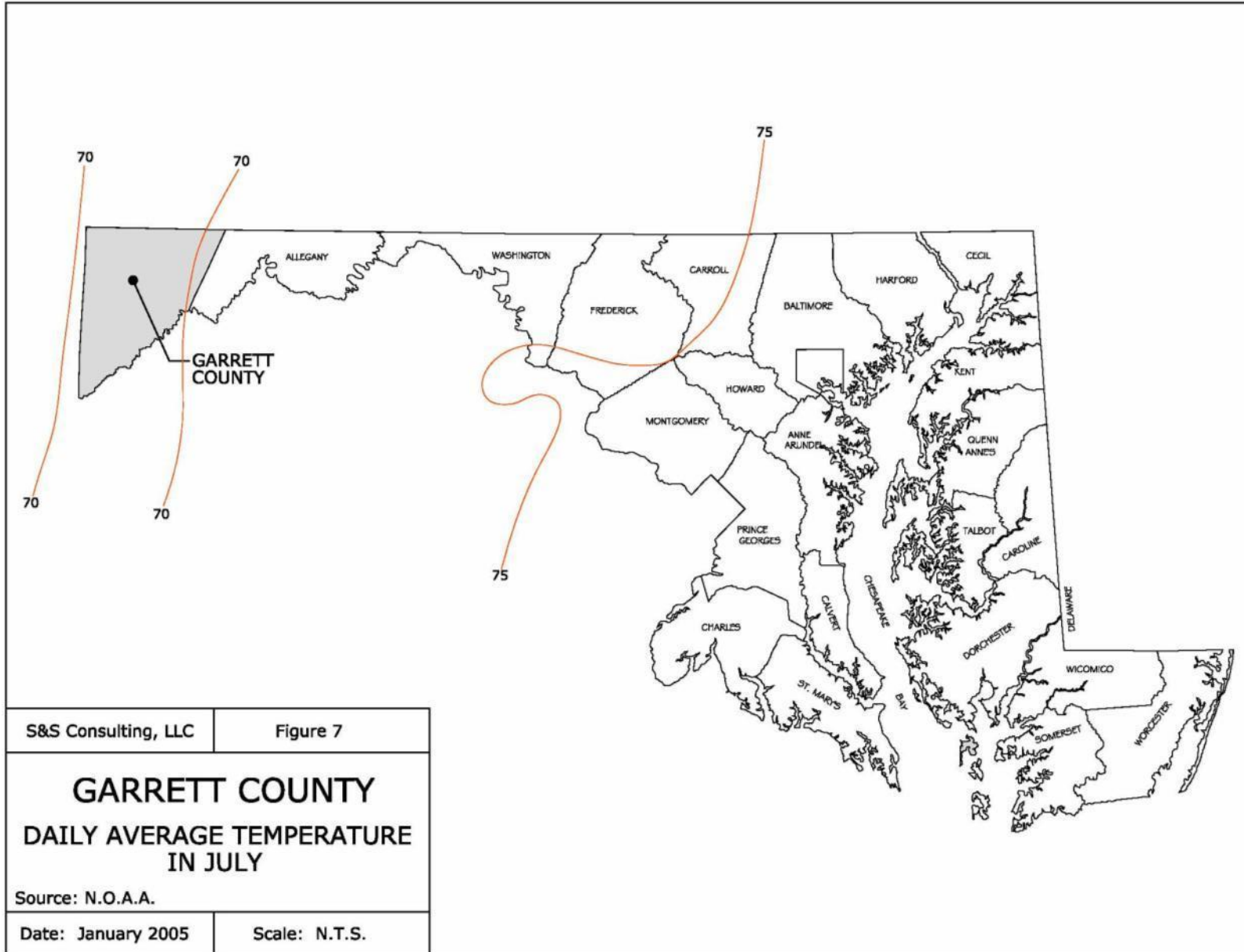


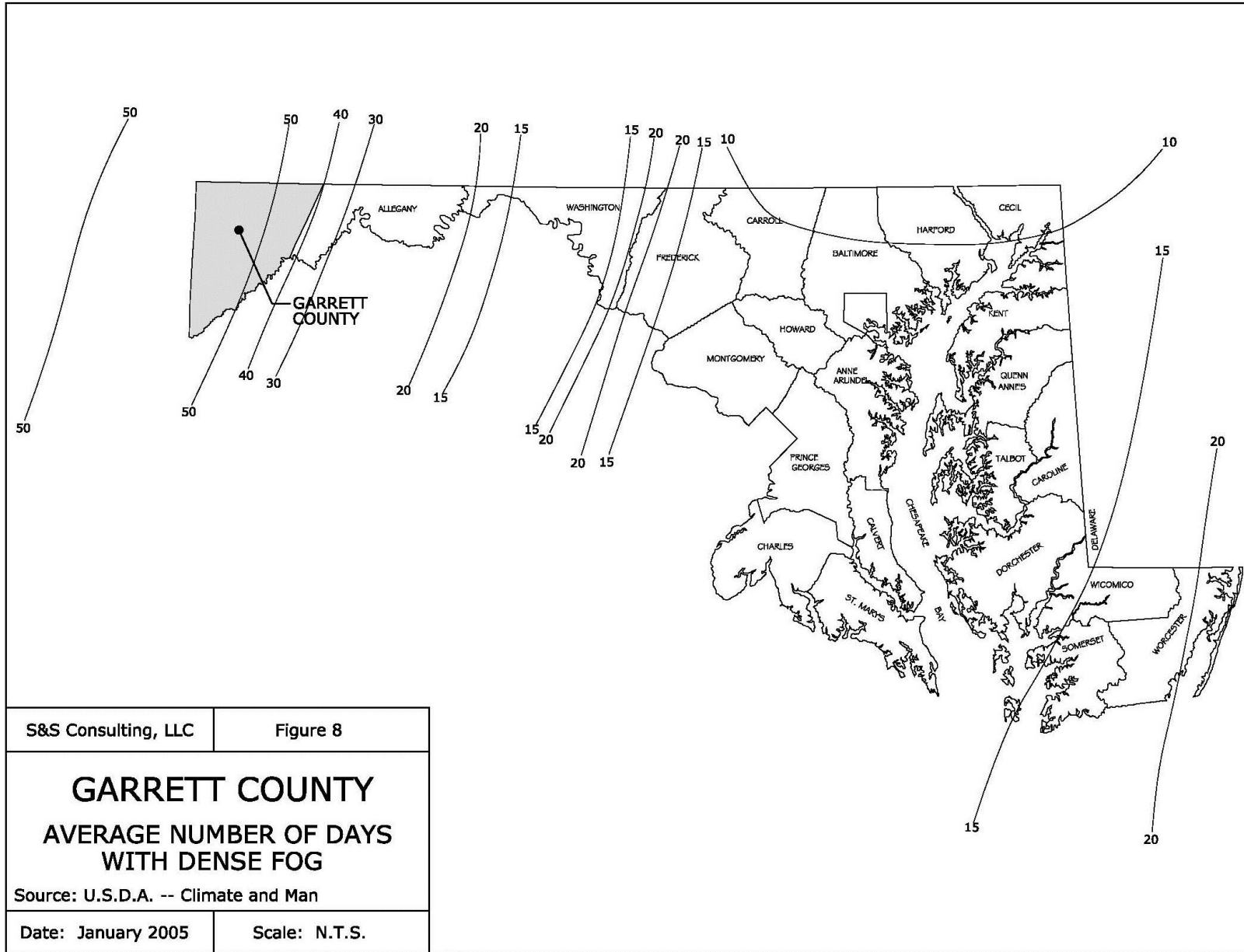












Weather & Climate Data

OAKLAND, MD

Average Annual Precipitation - Rainfall	47.83”
Average Annual Snowfall	107”
Average Summer Temperature	67.5°
Average Winter Temperature	28.3°
Days Below Freezing	137.6

Source: US Climate Data - (1981-2010 normals)

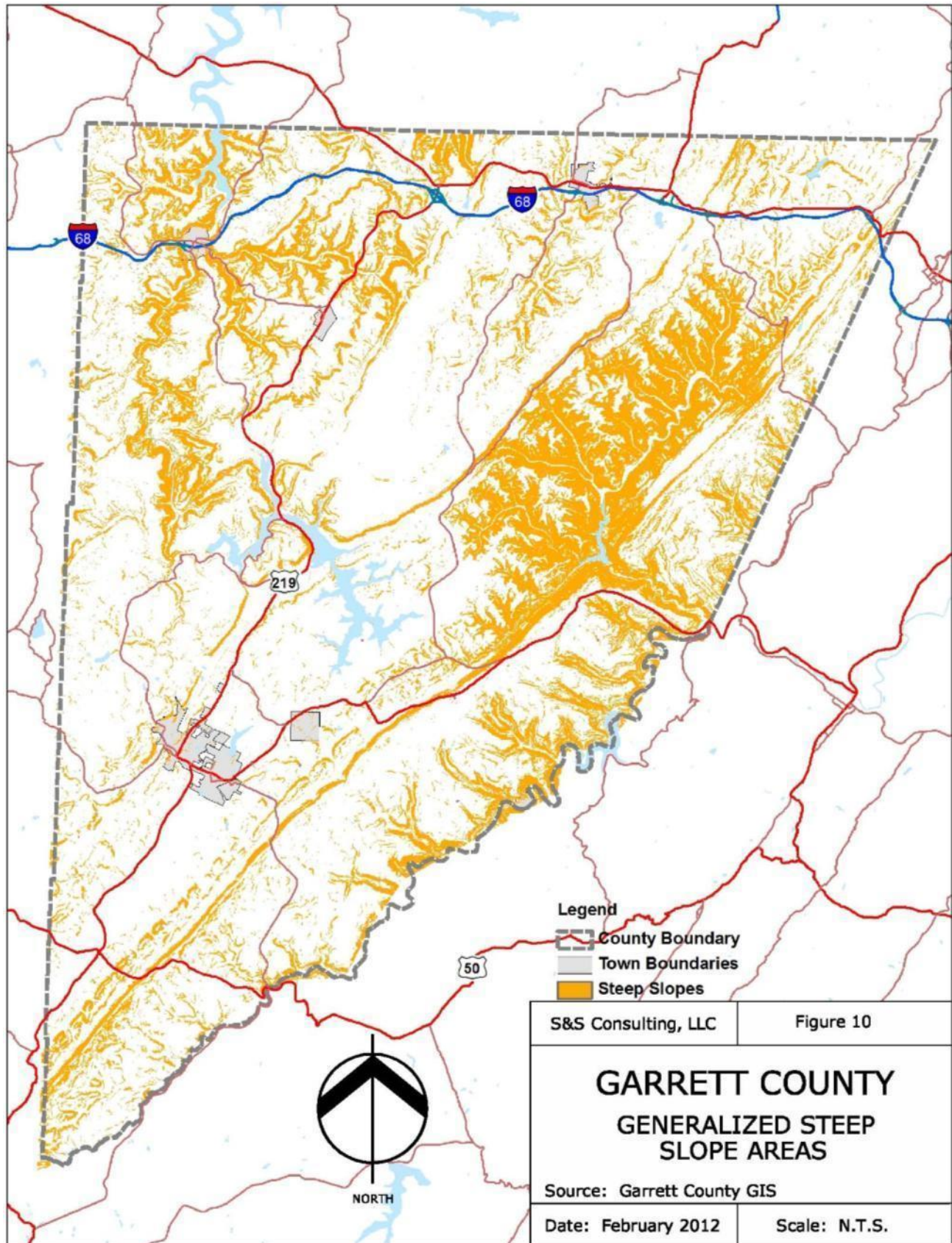
Oakland Average Low Temperatures - January		Oakland Average High Temperatures - January	
2010	15.1°	2010	27.3
2011	14.5	2011	29.8
2012	20.5	2012	41.0
2013	20.8	2013	39.4
2014	8.7	2014	29.7
2015	13.9	2015	32.9
2016	10.9	2016	35.7
2017	25.5	2017	41.7
2018	10.4	2018	31.0

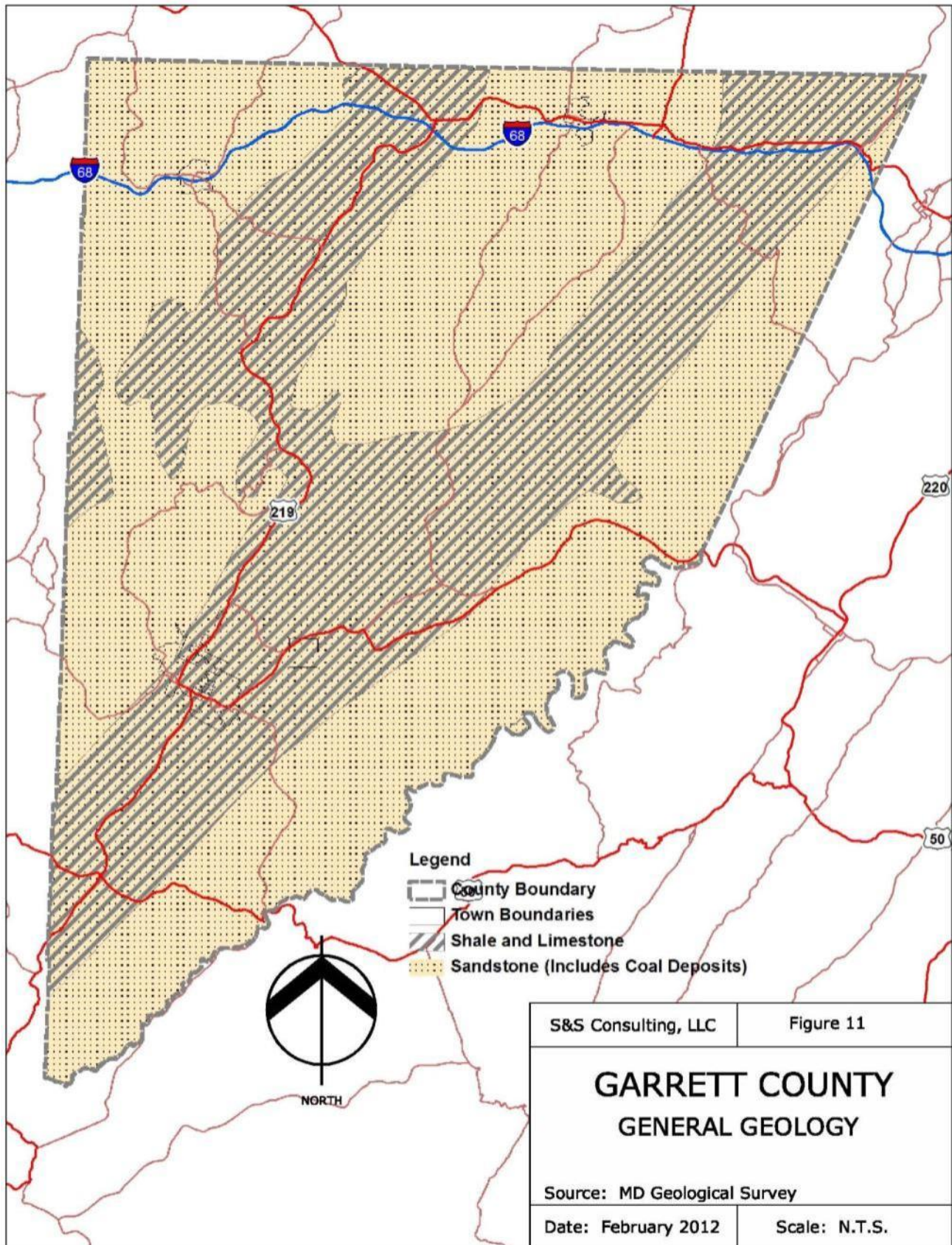
Source: US Climate Data - (1981-2010 normals)

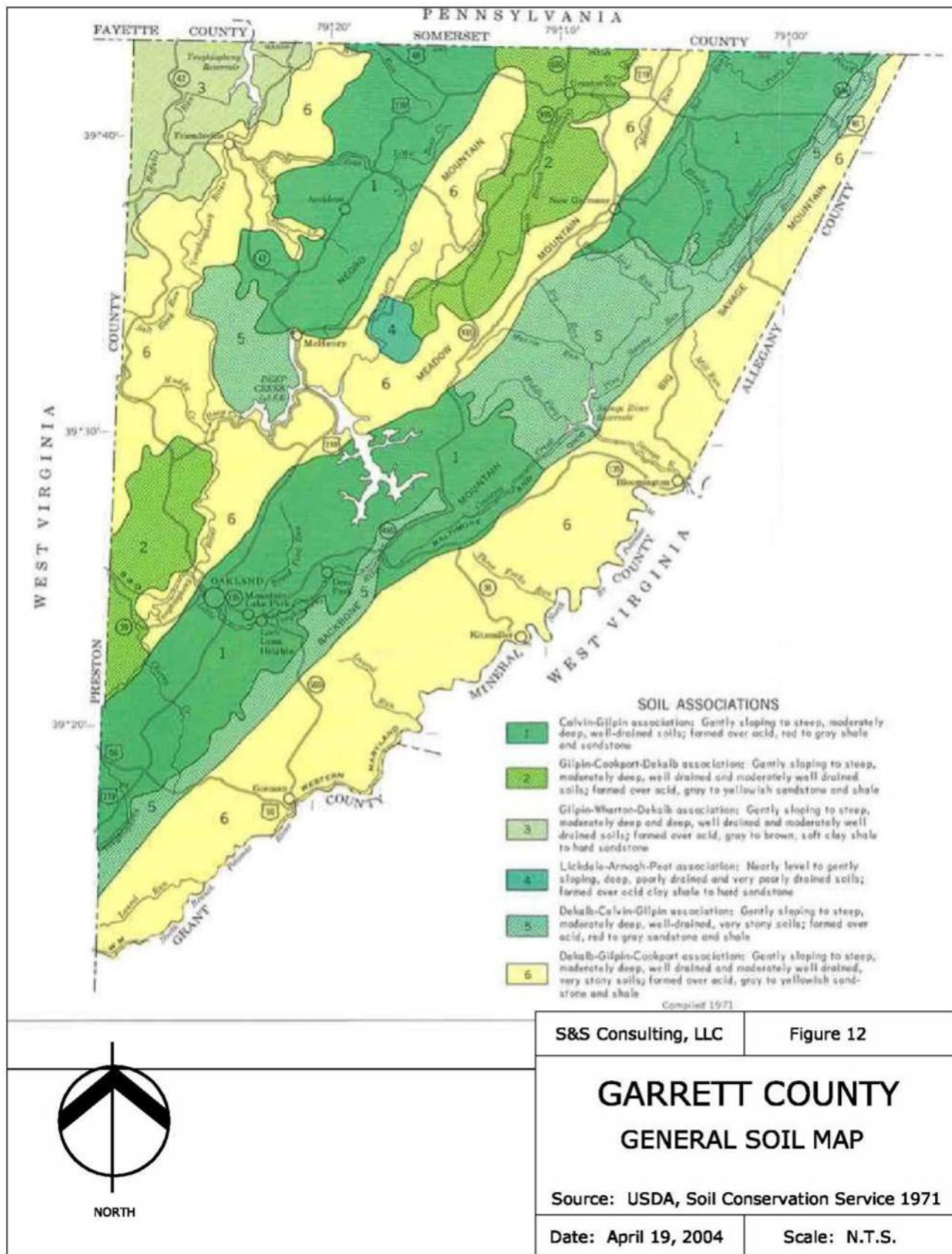
Garrett Annual Snowfall		Garrett Major Snowfalls	
2000-01	151”	Feb 03	25”
2001-02	77”	Mar 05	23”
2002-03	234”	Feb 10	48” +
2003-04	180	Oct 12	54”
2004-05	136	Jan 16	36”
2005-06	124		
2006-07	141		
2007-08	109		
2008-09	136		
2009-10	262” * All Time Garrett County Record		
2010-11	160		
2011-12	192		
2012-13	205		

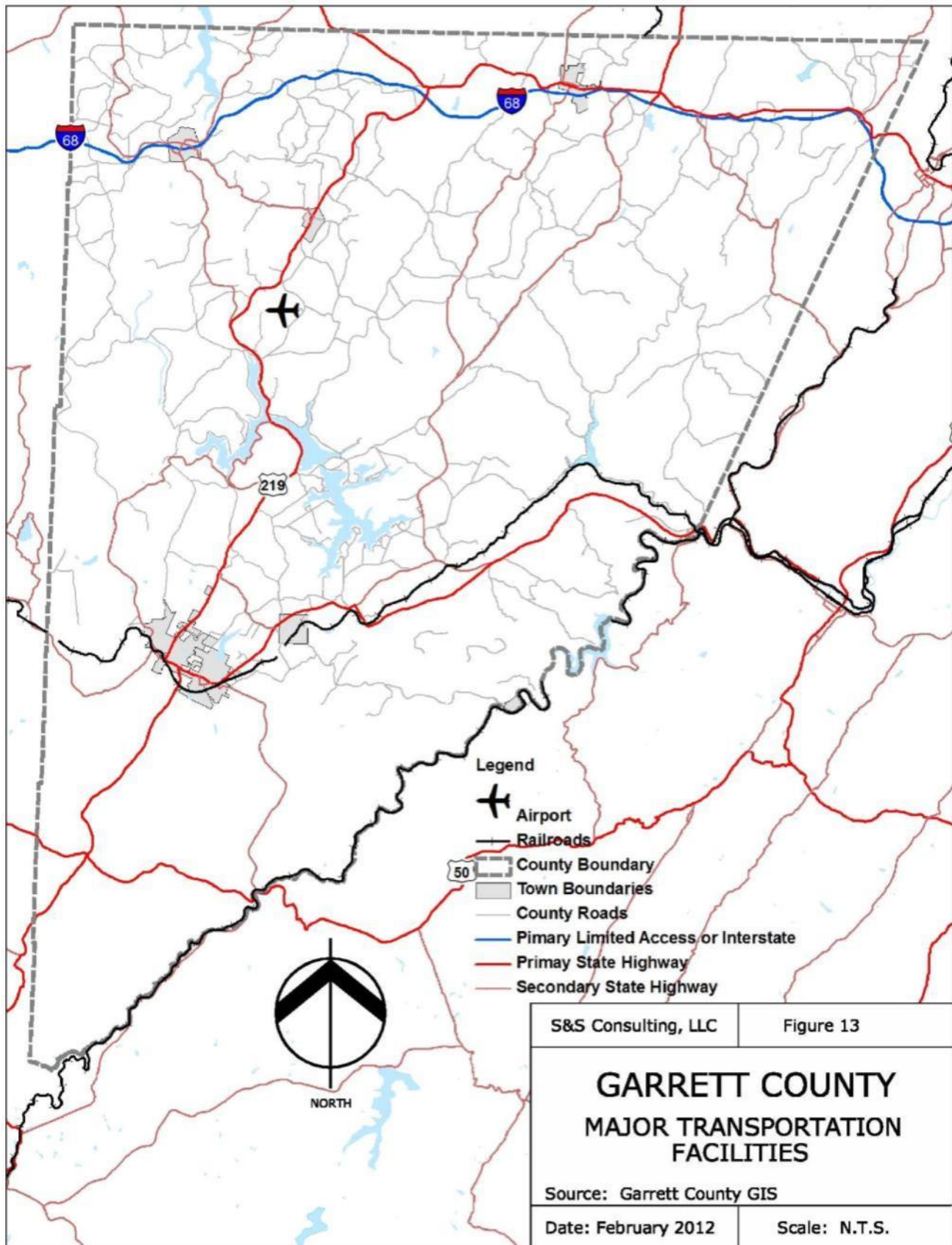
Source: <http://garrettcountryweather.com/garrett-annual-snowfall/>, National Weather Service, National Centers for Environmental Information (NOAA)

Figure 9









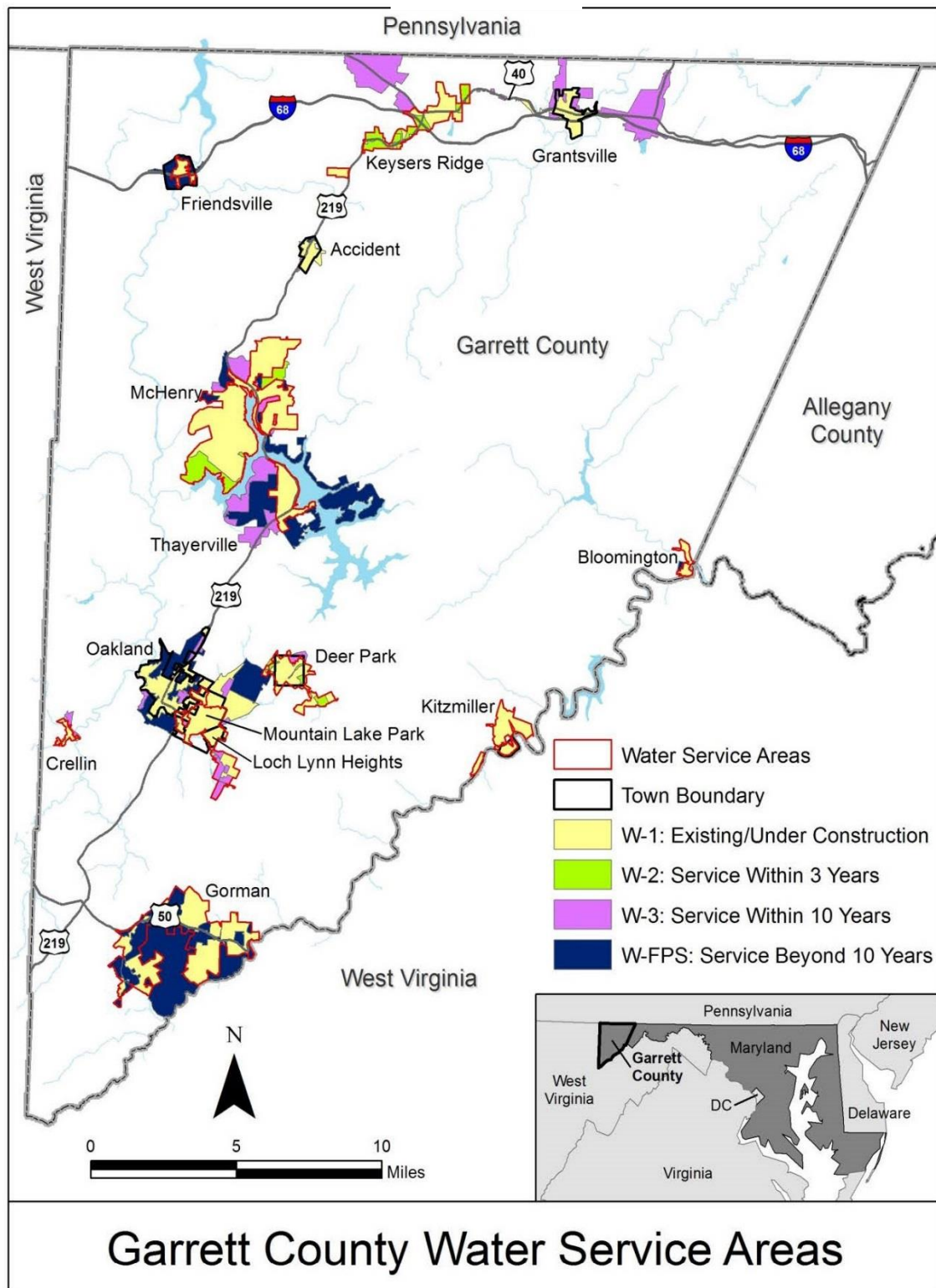
APPROVED BUILDING PERMITS (Updated 2013 - 2017)

YEAR	2013		2014		2015		2016		2017	
	Total	DCWS	Total	DCWS	Total	DCWS	Total	DCWS	Total	DCWS
Total Permits Issued	325	110	348	131	468	165	323	113	313	127
Builder Declared Value	\$35,967,836	\$22,399,911	\$89,901,933	\$26,717,891	\$125,603,147	\$44,202,657	\$40,597,246	\$19,446,131	\$44,157,599	\$30,728,453
SF Homes	59	33	81	37	183	98	43	23	67	37
Builder Declared Value	\$20,745,242	\$15,406,447	\$30,524,922	\$20,348,633	\$57,403,232	\$41,285,107	\$16,866,782	\$12,593,648	\$24,416,765	\$16,314,500
SF Doublewide	10	-	13	-	12	-	5	2	7	2
Builder Declared Value	\$675,000	-	\$1,171,699	-	\$1,081,285	-	\$440,800	\$233,800	\$586,468	\$132,000
SF Mobile Home	8	-	9	-	13	1	11	1	9	2
Builder Declared Value	\$110,700	-	\$261,500	-	\$286,900	\$70,000	\$193,200	\$13,000	\$112,300	\$75,000
Apartment Building	-	-	-	-	1 (with 32 units)	-	-	-	-	-
Builder Declared Value	-	-	-	-	\$4,000,000	-	-	-	-	-
Commercial	40	10	54	9	42	12	48	7	21	5
Builder Declared Value	\$6,567,731	\$1,288,700	\$48,058,350	\$3,804,200	\$41,212,887	\$15,304,310	\$7,620,393	\$4,139,000	\$3,241,750	\$7,101,000

Source: Garrett County Permit & Inspection Services – January 2018

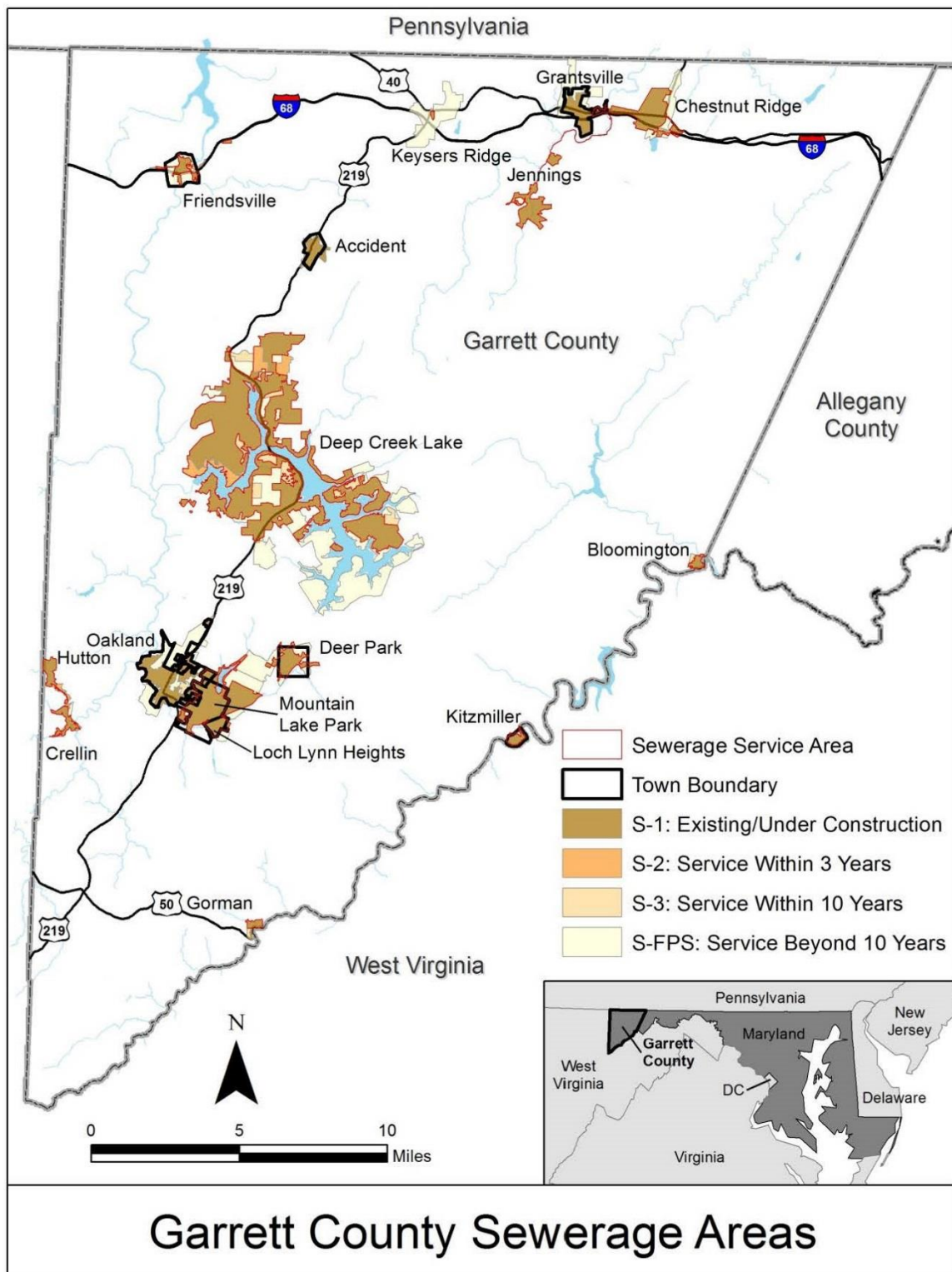
Figure 14

Figure 15

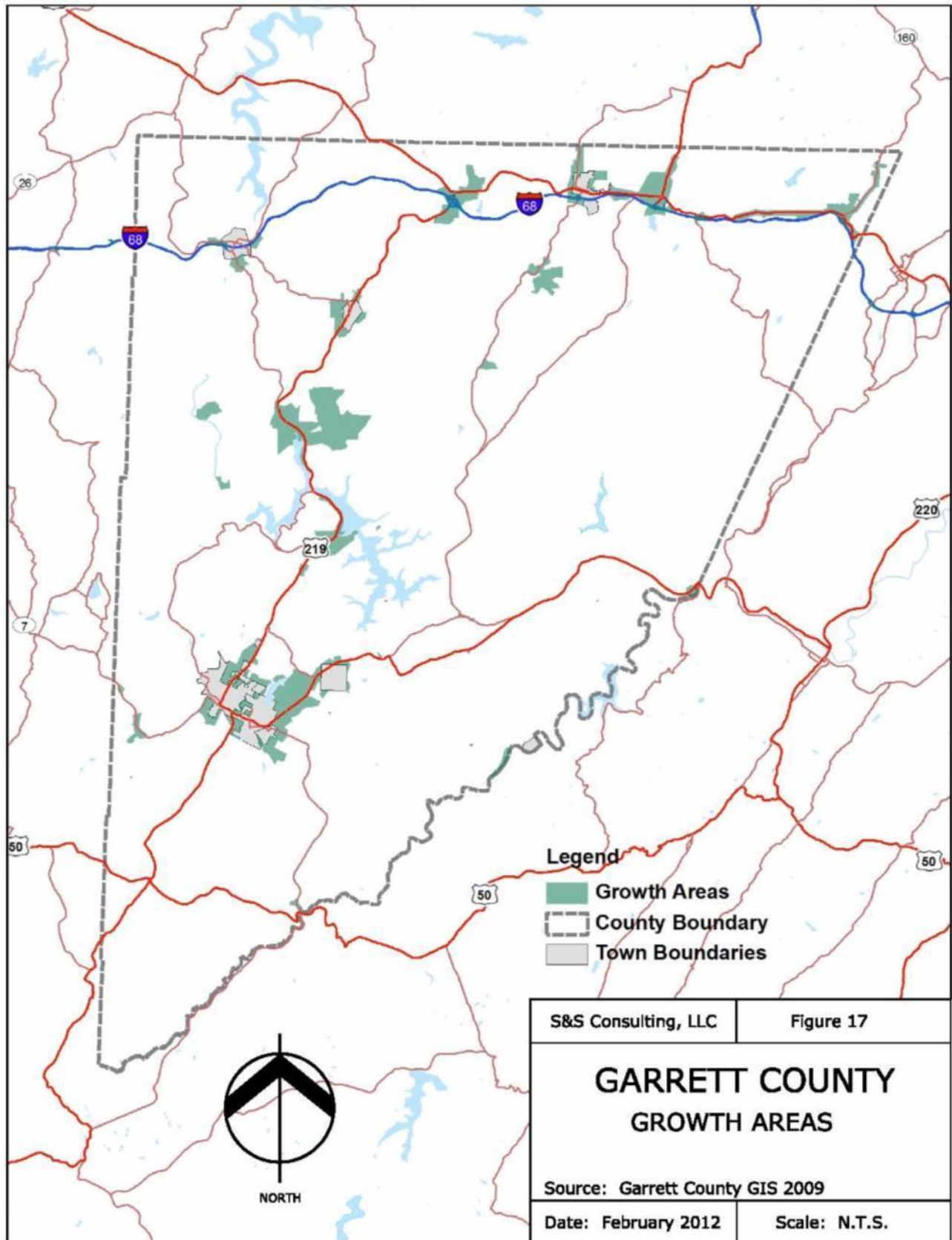


Source: Garrett County Water & Sewerage Plan December 2014

Figure 16



Source: Garrett County Water & Sewerage Plan December 2014



GARRETT COUNTY

Information specific to FEMA’s Repetitive Loss Properties was collected during the 2018 Plan update presented below.

REPETITIVE LOSS PROPERTIES			
Comm. Number	Insured	Street Location	Mitigated Y/N
240035 Friendsville	YES	MAPLE ST	N
240034 Unincorporated Area of the County	NO	BITTINGER RD	N
	YES	BITTINGER RD	N
	NO	CRELLIN UNDERWOOD RD	Y
	NO	CRELLIN MINE RD	Y
	NO	CRELLIN MINE RD	Y
	NO	GORMAN RD	N
	NO	KENDALL DR	N
	NO	OAKLAND DR	N
	YES	OAKLAND SAND RUN RD	N
	NO	PRESTON LANE	N
	NO	PRESTON LANE	N
	NO	STEYER RD	N
	NO	STANLEY LN	Y
	SDF	STANLEY LN	N
	NO	STEYER RD	N
YES	STEYER GORMAN RD	N	

A review of the Repetitive Loss Property data for Garrett County was conducted. Data was obtained through Kevin Wagner, State National Flood Insurance Program Coordinating Office. Data was reviewed by Garrett County Floodplain Coordinator and planning staff. Results of this review found that four (4) properties on the listing have been acquired and demolished using FEMA grant funds in the 1990’s.

Note: No active policies were found for the Town of Deer Park or the Town of Lock Lynn Heights.

Note: Finally, no claims were found for the Town of Accident, Town of Deer Park, Town of Grantsville, or the Town of Lock Lynn heights.

Figure 18
**BUILDING CODE REQUIREMENTS
GARRETT COUNTY**

New Construction

Wind Speed/Load	115 mph
Ground Snow Load	40 psf
Frost Line Depth	36"
Mobile Home Tie Down	Yes
Winter Design Temperature	-10 degrees F

Floodplain Requirements

First Floor - 1 ft above Base Flood Elevation

Utilities

- (A) **Electric.** All electric utilities to the building side of the meter, both interior and exterior to the building, are regulated by this chapter. Distribution panel boxes must be at least 2 feet above the flood protection elevation. All outlets and electrical installations, such as heat pumps, air conditioners, water heaters, furnaces, generators, distribution systems, must be installed at or above flood protection elevation.
- (B) **Plumbing.** Toilets, sinks, showers, water heaters, pressure tanks, furnaces, and other permanent plumbing installations must be installed at or above the flood protection elevation.
- (C) **Gas.** Gas meters, distribution lines, and gas appliances must be installed at or above the flood protection elevation.
- (D) **Water supply and sanitary facilities.** Water supply distribution and sanitary disposal collection systems must be designed to minimize or eliminate the infiltration of flood waters into the systems or discharges from the systems into flood waters and shall be located and constructed so as to minimize or eliminate flood damage. On-site sewage disposal systems including septic tanks, cesspools, seepage pits, and drain fields are prohibited in all floodplain zones.

Setback - 25 ft from edge of stream bank

Source: Garrett County Department of Permits and Inspection Services, 2013 Garrett County Floodplain Ordinance

Note: All jurisdictions in Garrett County have adopted the 2015 Garrett County Building Code. It adopts the 2015 International Building Code, 2015 International Residential Code and 2015 Energy Conservation Code with certain modifications and amendments. Additionally, all codes adopted by the Maryland Codes Administration through the Maryland Building Performance Standards are in force in Garrett County.

Figure 19
Top 3 Highest Historical Peak Streamflow
Garrett County – Potomac Basin

Stream	Gauge Number/Location	Year	Event Cubic Feet/Second – Approx.
North Branch Potomac River	#01595000 Steyer, MD	1985	11,500
		1954	11,300
		1985	9,860
North Branch Potomac River	#01595500 Kitzmilller, MD	1985	50,000
		1953	33,400
		2003	29,200
Crabtree Creek	#01597000 Near Swanton, MD	1949	3,260
		1954	2,290
		1974	1,290
Savage River	#01596500 Near Barton, MD	1954	7,510
		1996	6,700
		1985	4,320
Savage River	#01597500 Near Bloomington, MD	1996	9,190
		1985	8,550
		1954	6,530
2018 Update – Additional Sites Added			
Laurel Run at Dobbin Road	#01594930 Near Wilson, MD	1996	788
		1995	684
		1994	662
North Fork Sand Run	#01594936 Near Wilson, MD	1985	895
		2003	497
		1985	481
McMillian F	#01594950 Near Fort Pendleton, MD	2003	534
		2001	465
		2017	456
Nydegger Run	#01594963 Near Gorman, MD	2015	210
		2013	201
		2016	188

Stream	Gauge Number/Location	Year	Event Cubic Feet/Second – Approx.
Savage River	# 01596050 Near Avilton, MD	2016	453
		2015	400
		2013	372

Source: U. S. Geological Survey, Water Resources Division, updated for 2018 Plan

Figure 20

Top 3 Highest Historical Peak Streamflow Garrett County – Youghiogheny Basin

Stream	Gauge Number/Location	Year	Event Cubic Feet/Second – Approx.
Youghiogheny River	#03075500 Near Oakland, MD	1996	14,100
		1954	11,800
		1985	11,700
Youghiogheny	#03076500 Near Friendsville, MD	1996	16,100 ⁶
		1924	15,600
		2000	13,100 ⁶
Casselman River	#03078000 At Grantsville, MD	1954	8,400
		1996	6,410
		1948	5,110
2018 Update – Additional Sites Added			
Poland Run	#03075800 Near Swanton, MD	2008	29
		2012	28
		2010	25
North Glade Run	#03075825 Near Swanton, MD	2017	140
		-	-
		-	-
Arrowhead Run	#03075850 Near Thayerville, MD	2017	66.5
		-	-
		-	-
Cherry Creek at State Park	#03075905 Near McHenry, MD	2010	853
		2017	647
		2015	502 ²
Youghiogheny River	#03076100 At Hoyes, MD	2017	11,600 ⁶
		2015	9,470 ⁶
		2012	8,850 ⁶
Bear Creek	#03076600 At Friendsville, MD	1971	4,650
		1996	4,310
		200	3,790

Stream	Gauge Location	Year	Event Cubic Feet/Second – Approx.
Buffalo Run	#03076700 Near Friendsville, MD	2015	1,020
		2013	1,010
		2014	834
Mill Run	#03076800 At Mineral Springs, MD	2014	1,610
		2015	1,500
		20134	75

Source: U. S. Geological Survey, Water Resources Division, updated for 2018 Plan

Figure 21

DAMS IN GARRETT COUNTY (Updated)

Dam Name	Hazard Class	Year Built	Modified	EAP Date	EAP Status	Condition	Max Dis. CFS	Max Stor. Acre/ft	Dam Type	Purpose
Koontz Run	High	1930E	1990,2010	3/9/2010	2010-01 EAP prepared by Dam Safety	Fair	340	5	Earth, Masonry	Wtr supply
Frostburg Reservoir	High	1990	1990,HS	3/1/2011	revised Plan being prepared by CME	Fair	22188	3276	Earth	Wtr supply
Deep Creek Dam	High	1925	1993,O	8/1/2009	Old format EAP with contact information updated annually	Good	65570	145000	Hydraulic fill	Hydroelectric, recreation
Savage River Dam	High	1952	2010,S (replacement of 4 gates)	2/15/2011	Plan--prepared by Hazen and Sawyer	Acceptable	97200	31800	Earth, Rockfill	Flood ctrl, wtr supply, recreation
Little Youghiogheny Site 7	High	1960	1960	7/30/2007	EAP revised by NRCS	Good	7560	1155	Earth	Flood ctrl
Little Youghiogheny Site 2	High	1962	1962	7/30/2007	Draft EAP revised by NRCS in 2007	Good	2720	222	Earth	Flood ctrl
Little Youghiogheny Site 6 (Broadford)	High	1971	1971	7/30/2007	Draft EAP revised by NRCS in 2007	Good	17000	5000	Earth	Wtr supply, recreation, flood ctrl
Little Youghiogheny Site 1	High	1964	1988,O	7/30/2007	Draft EAP revised by NRCS in 2007	Fair	5450	346	Earth	Flood ctrl
Little Youghiogheny Site 3	High	1965	1965	7/30/2007	Draft EAP revised by NRCS in 2007	Fair	4020	374	Earth	Flood ctrl
Little Youghiogheny Site 5	High	1968	1968	7/30/2007	EAP revised by NRCS in 2007	Good	13500	1500	Earth	Flood ctrl
Meadow Run Dam	High	1969	1969	11/22/2006	2006 EAP updated by BWH 1994-BWH upgraded to hazard class to High	Fair	800	750	Earth	Recreation
Jennings Randolph	High	1981	1981	6/1/2005	2005 Excellent plan prepared by Corps of Engineers	Unsafe (inadequate spillway)	193000	130900	Rockfill	Wtr supply, recreation, flood ctrl, other

Dam Name	Hazard Class	Year Built	Modified	EAP Date	EAP Status	Condition	Max Dis. CFS	Max Stor. Acre/ft	Dam Type	Purpose
Bittinger Farm Pond	Low	1968	1993,S			Good	121	91	Earth	Recreation
Lake Minnetoska Dam	Low	1924	1924			Breached	800	52	Earth	Recreation
Kemp Farm Pond	Low	1971	1971			Good	186	33	Earth	Recreation, wildlife, fire/stock
Western Maryland 4-H Center	Low	1937	1937			Fair	1034	270	Earth	Recreation
Herrington Manor	Low	1938	1998,S			Fair	3235	722	Earth	Recreation, other
New Germany State Park Dam	Low	1930	2008,S			Acceptable	380	79	Earth	Recreation
Mountain Lake Park	Low	1920	1996,O			Breached	477	150	Earth	Recreation
Kitzmiller	Low	1985	1996,O			Fair	13	1	Rockfill	Wtr supply
Piedmont Water Supply Intake Dam	Low	1911	1998,S			Very poor	0	60	Gravity	Wtr supply
Platter Farm Pond	Low	1968	1968			Good	133	8	Earth	Recreation
Browning Dam	Low	1930	1930			Breached	0	0	Gravity	Other
Waterfront Greens Community Pond	Low	1986	1986		Low Hazard-No plan required.	Good	35	40	Earth	Recreation
Rock Lodge Dam	Low	1920	2007			Fair	1289	2	Concrete	Recreation
Lake Louise	Significant	1930E	2001,SH	6/1/1998	EAP drafted and approved in June 1998, Updated 2007	Good	532	389	Rockfill	Recreation
Klondike Reservoir No. 2(Upper)	Significant	1930E	1988,O			Fair	4535	9	Earth	Wtr supply
Borden Shaft-Carlos Reservoir	Significant	1960	1960			Very poor	300	20	Earth	Wtr supply
Thousand Acres Dam	Significant	2007	2008	7/1/2008	Draft EAP Prepared July 08	Good	200	36	Earth	Irrigation
Barton Reservoir	N/A	1968	1977,HS			Breached	2660	15	Earth	Wtr supply

Figure 22

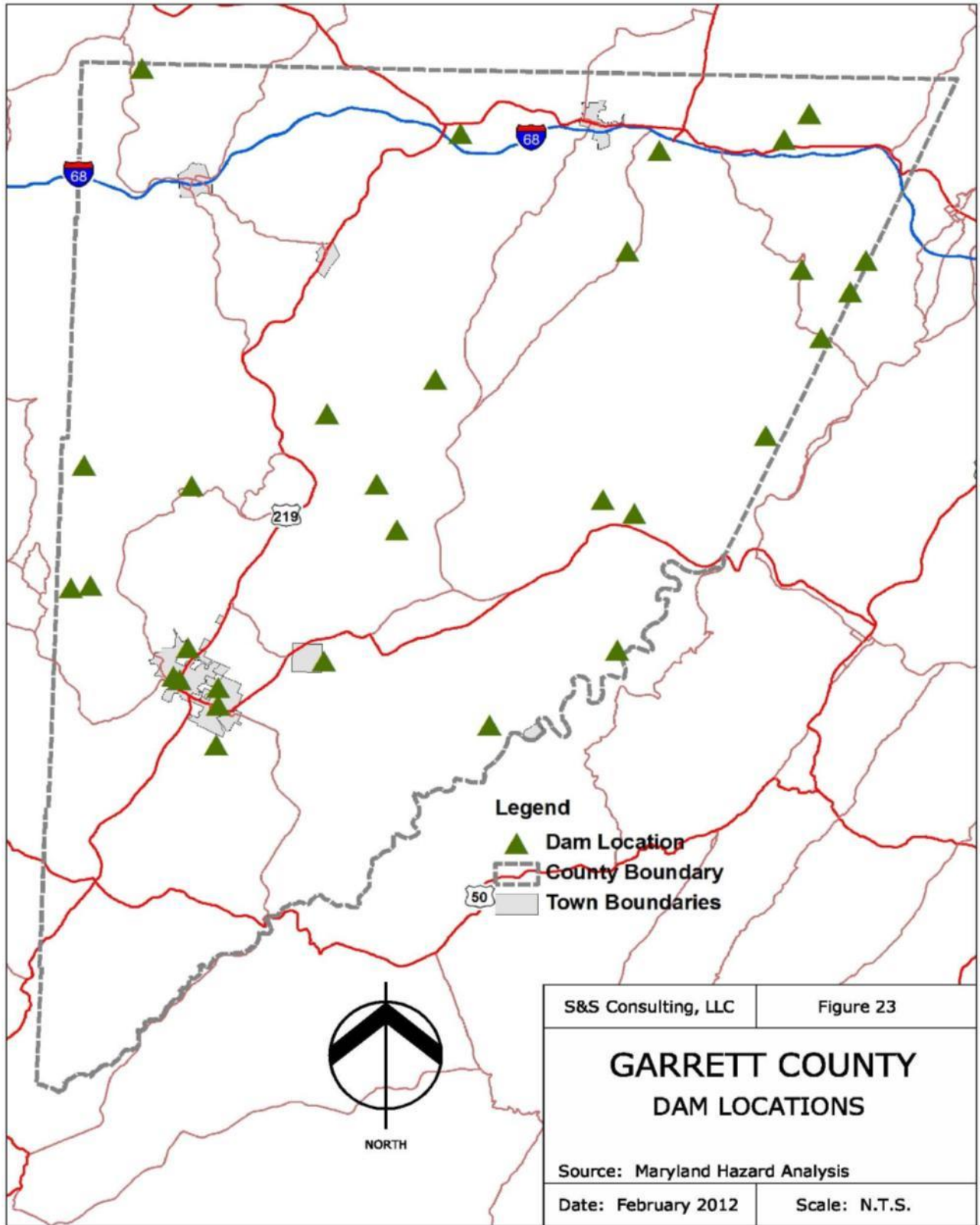
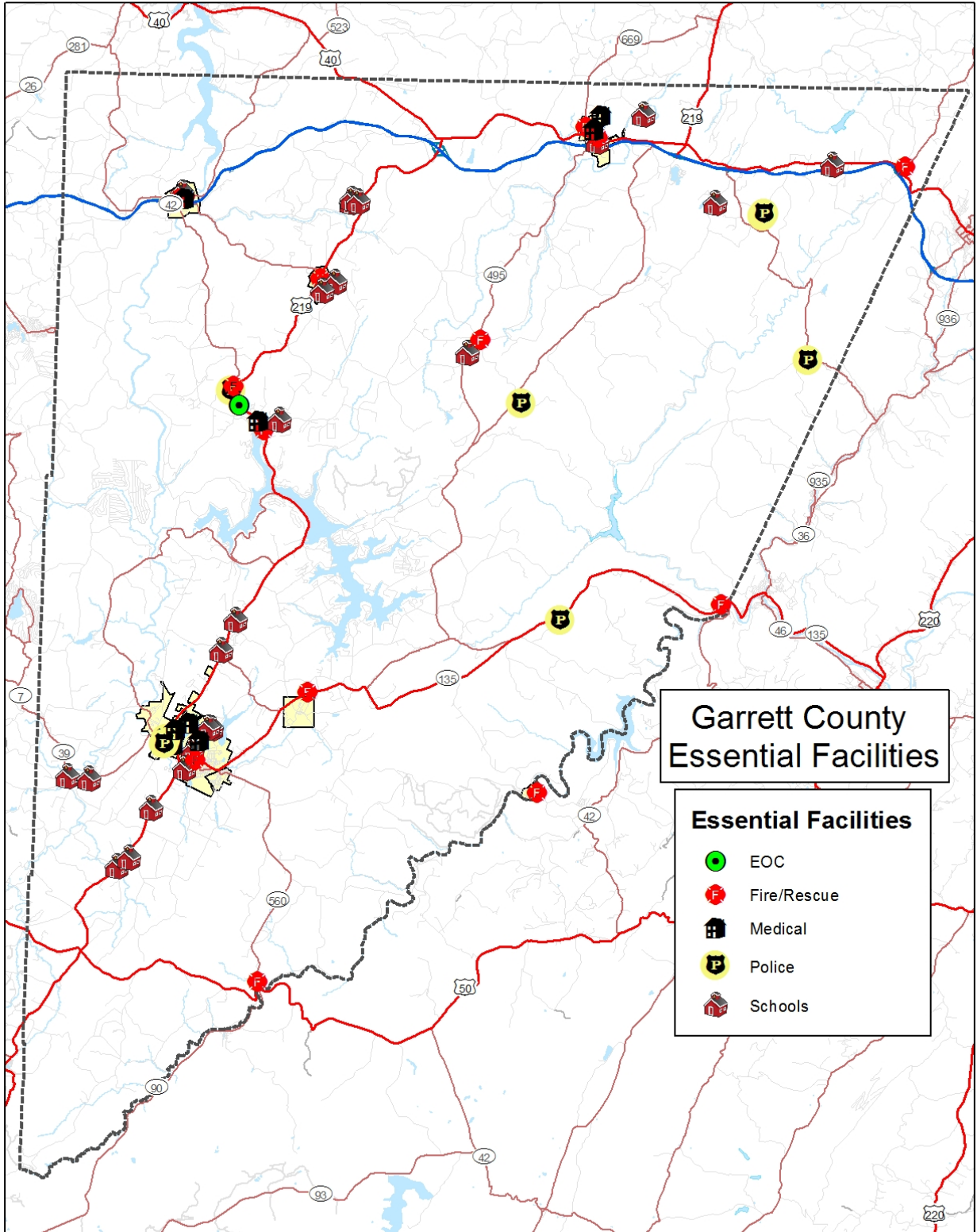


Figure 24



Source: Garrett County GIS 2018

FEMA REPLACEMENT VALUES

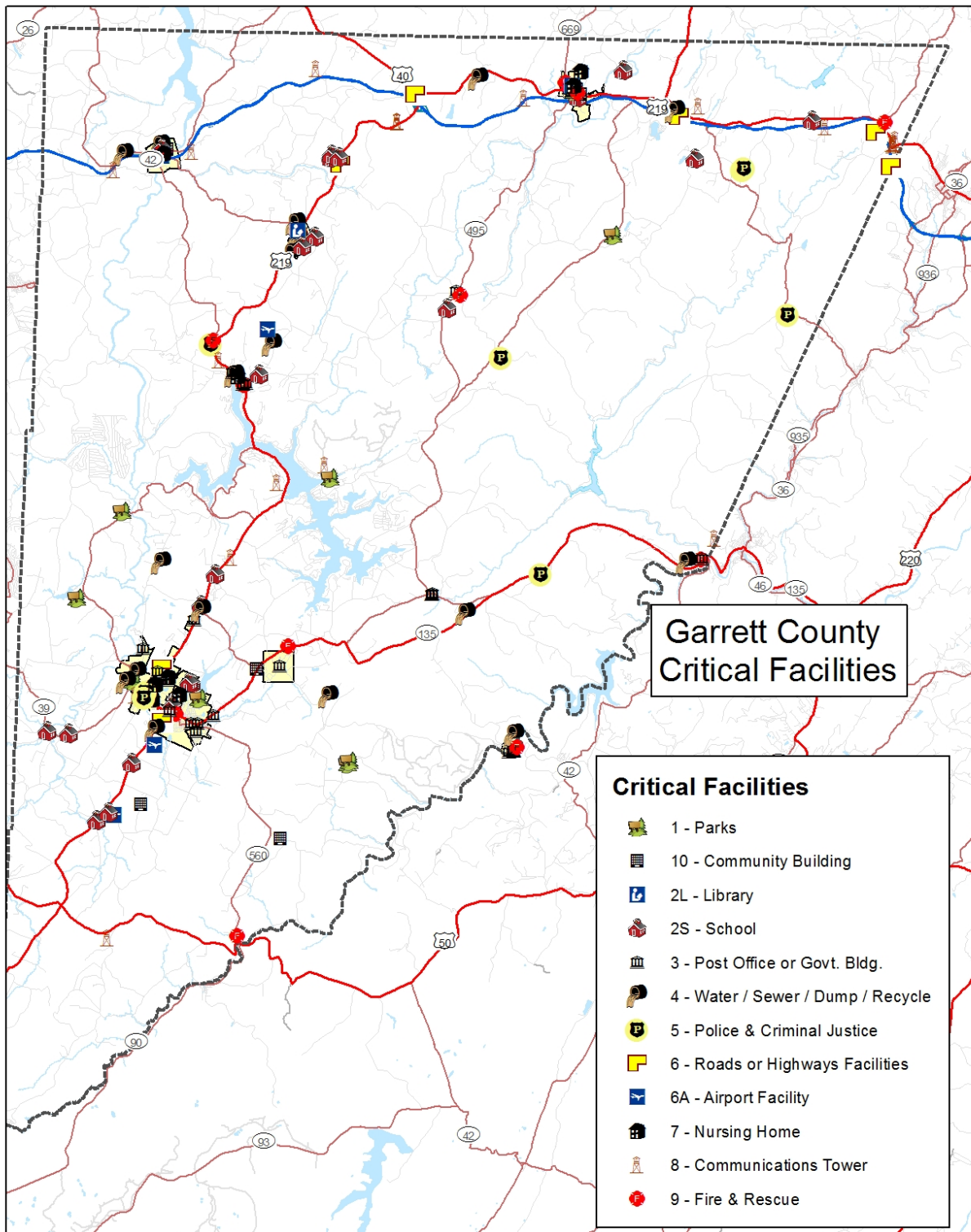
BUILDING REPLACEMENT VALUE/SQUARE FOOT	
Occupancy Class	Total Value per Square Foot
Single Family Dwelling	\$77
Mobile Home	52
Multi-Family Dwelling	98
Dormitory	98
Nursing home	89
Retail Trade	67
Wholesale Trade	53
Repair Services	92
Prof/Technical Services	87
Banks	151
Hospitals	145
Medical Office/Clinic	112
Entertainment	131
Theatres	98
Industrial	69
Construction	69
Agriculture	26
Church/Non-Profit	113
General Government	88
Emergency Response	130
Schools	91
College	115

CONTENTS VALUE	
Occupancy Class	Contents as Percent of Building Value
Residential(all types)	50%
Commercial	100%
Hospital/Clinic/Medical Office	150%
Industrial	150%
Construction	100%
Agriculture	100%
Church/Non-Profit	100%
General Government	100%
Emergency Response	150%
Schools	100%
Colleges	150%

Source: FEMA State and Local Mitigation Planning Guide

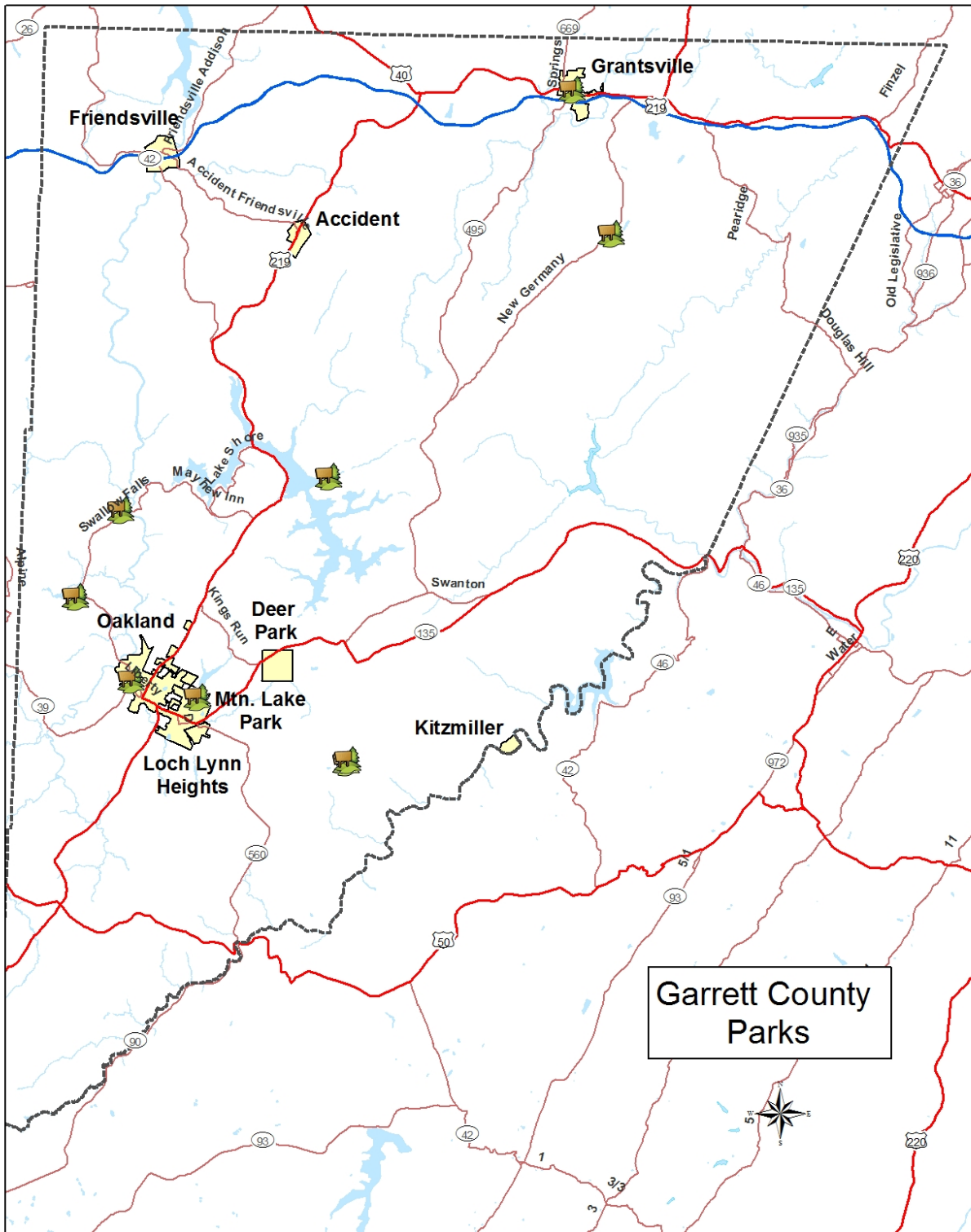
Figure 25

Figure 26



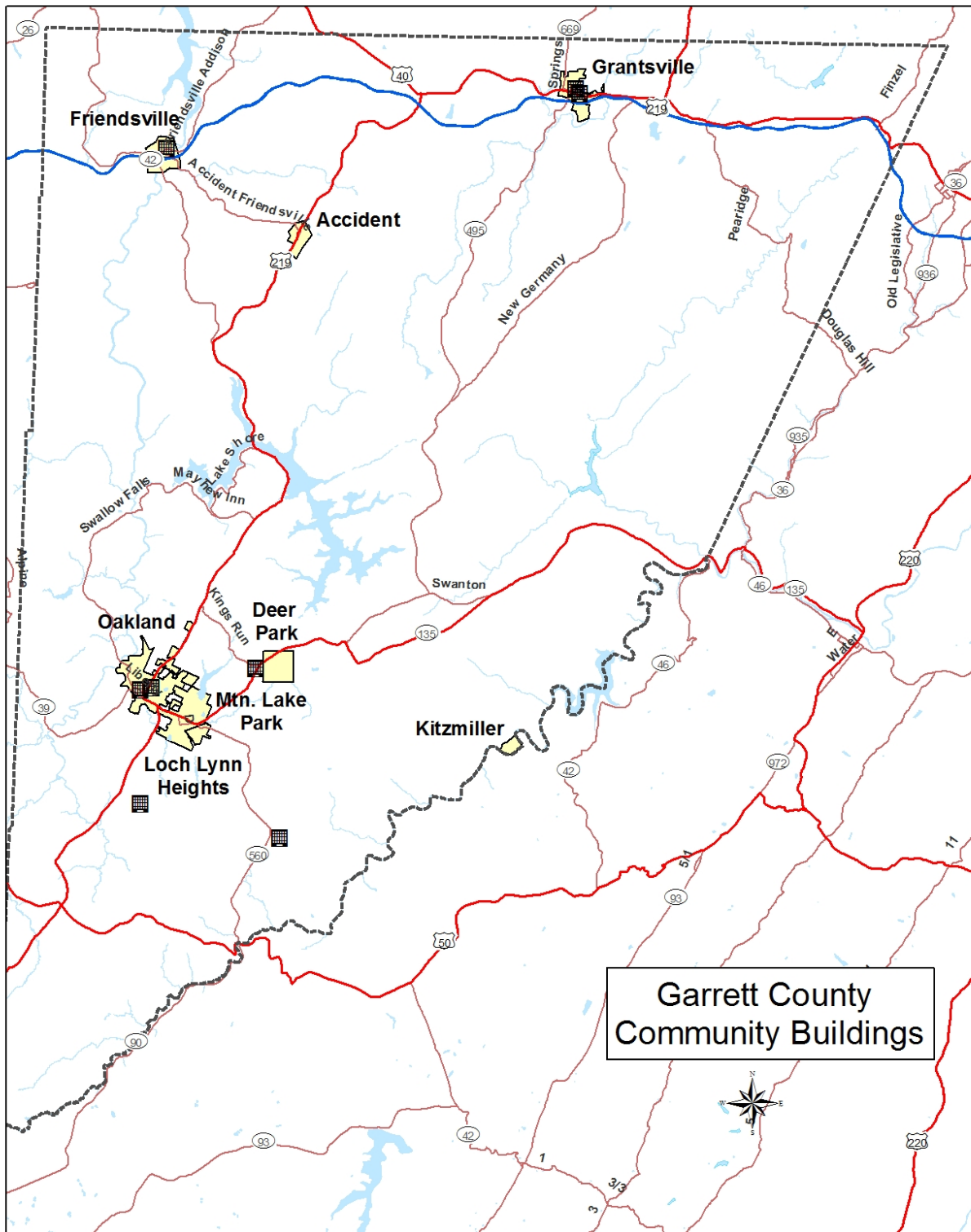
Source: Garrett County GIS 2018

Figure 27



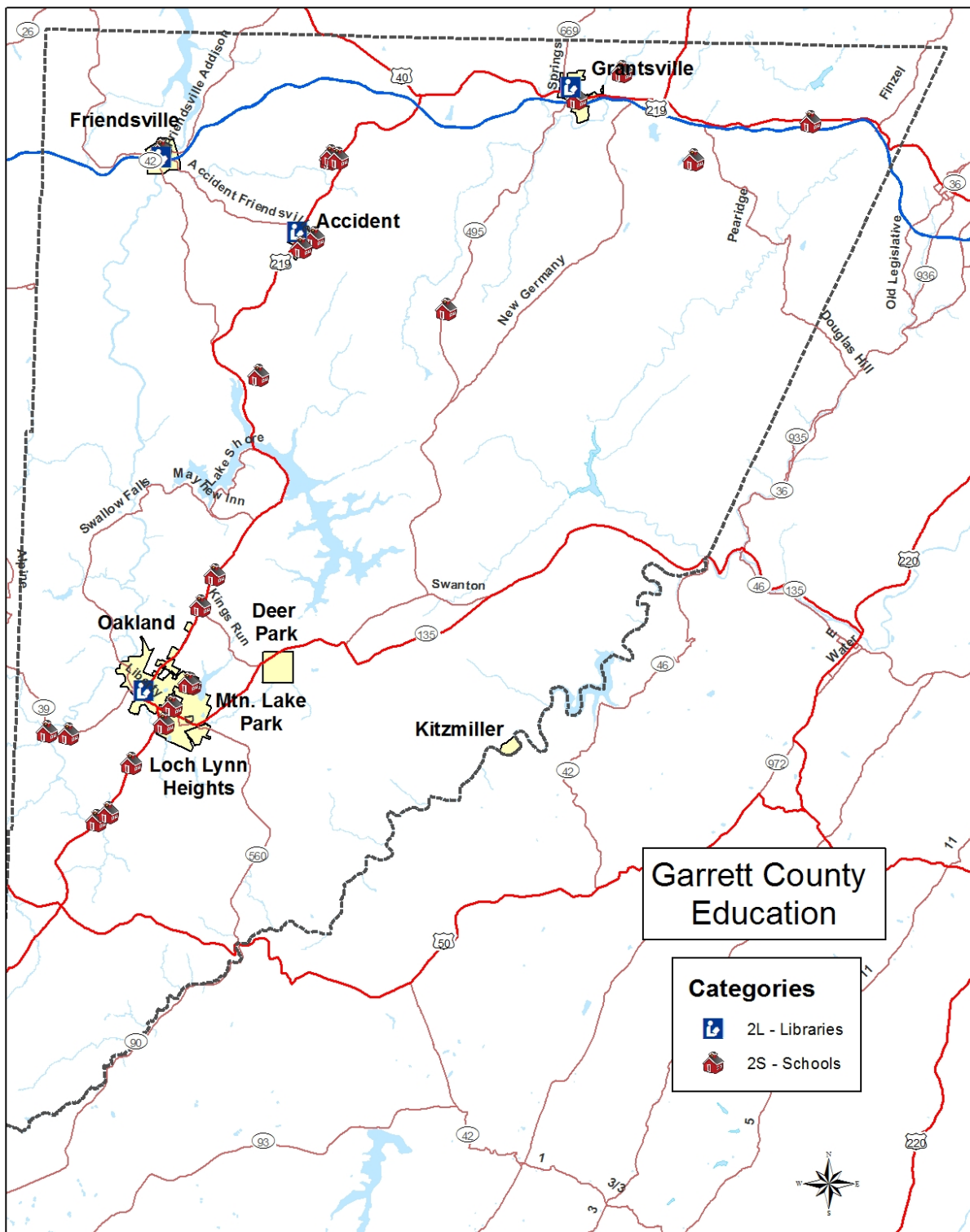
Source: Garrett County GIS 2018

Figure 28



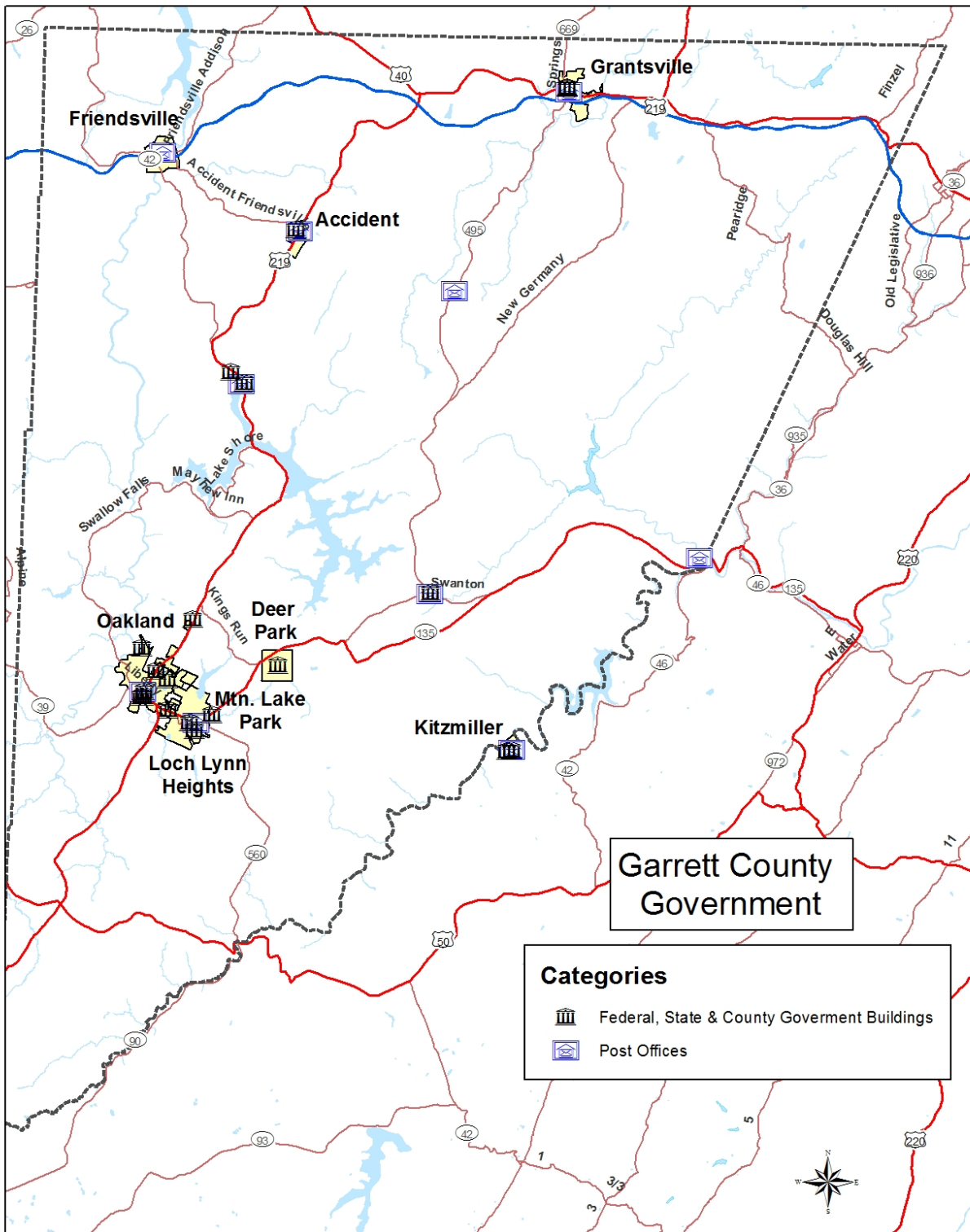
Source: Garrett County GIS 2018

Figure 29



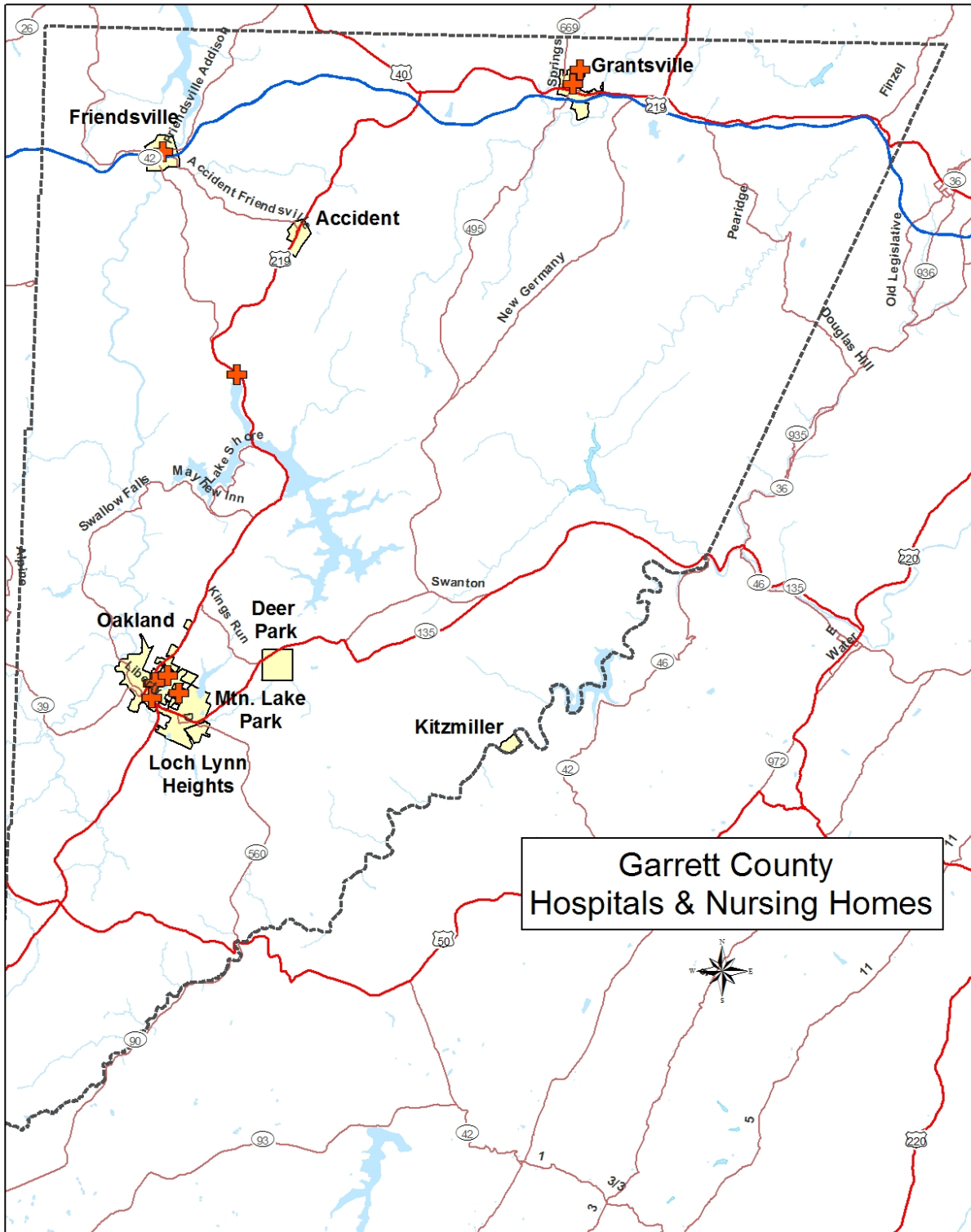
Source: Garrett County GIS 2018

Figure 30



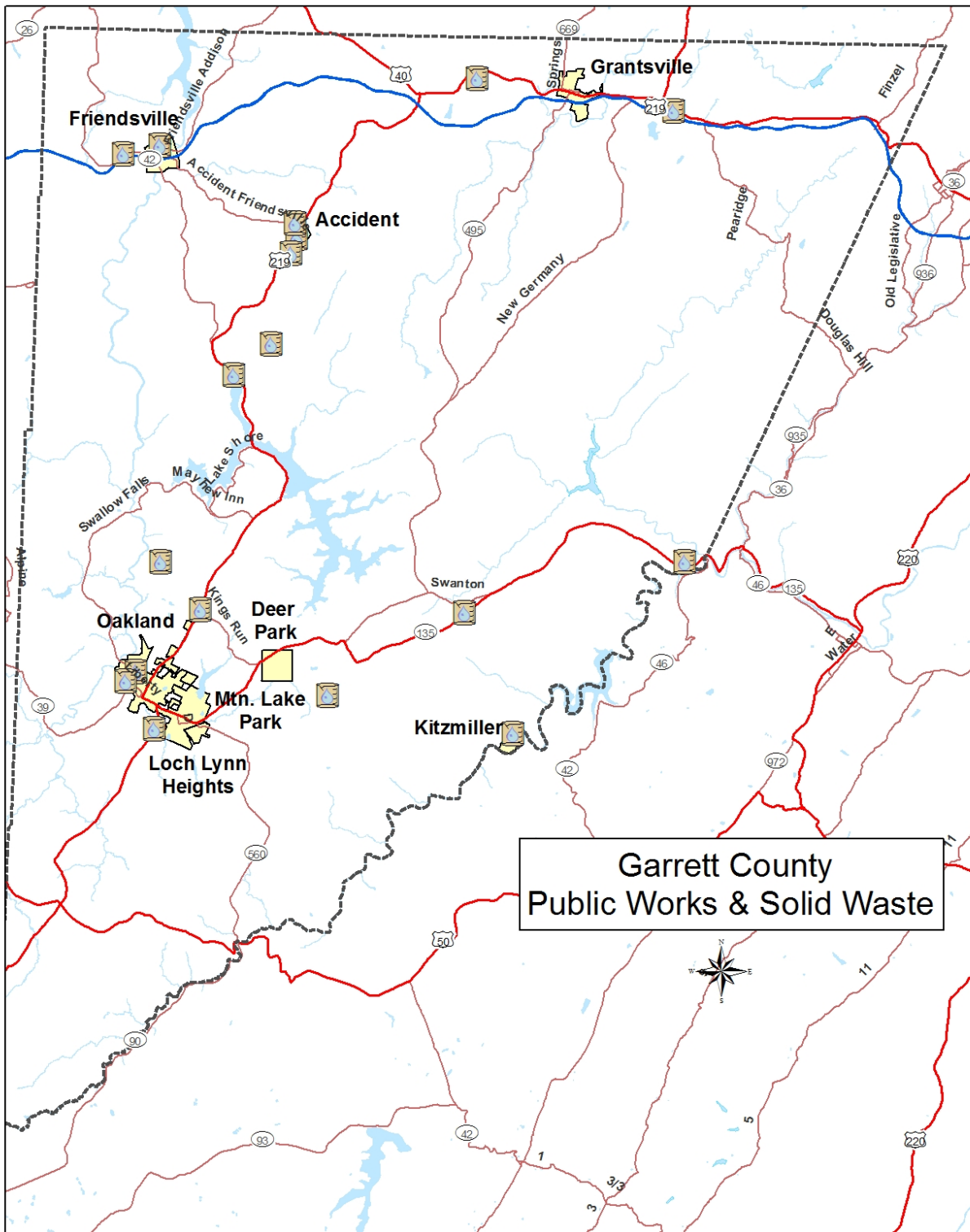
Source: Garrett County GIS 2018

Figure 31



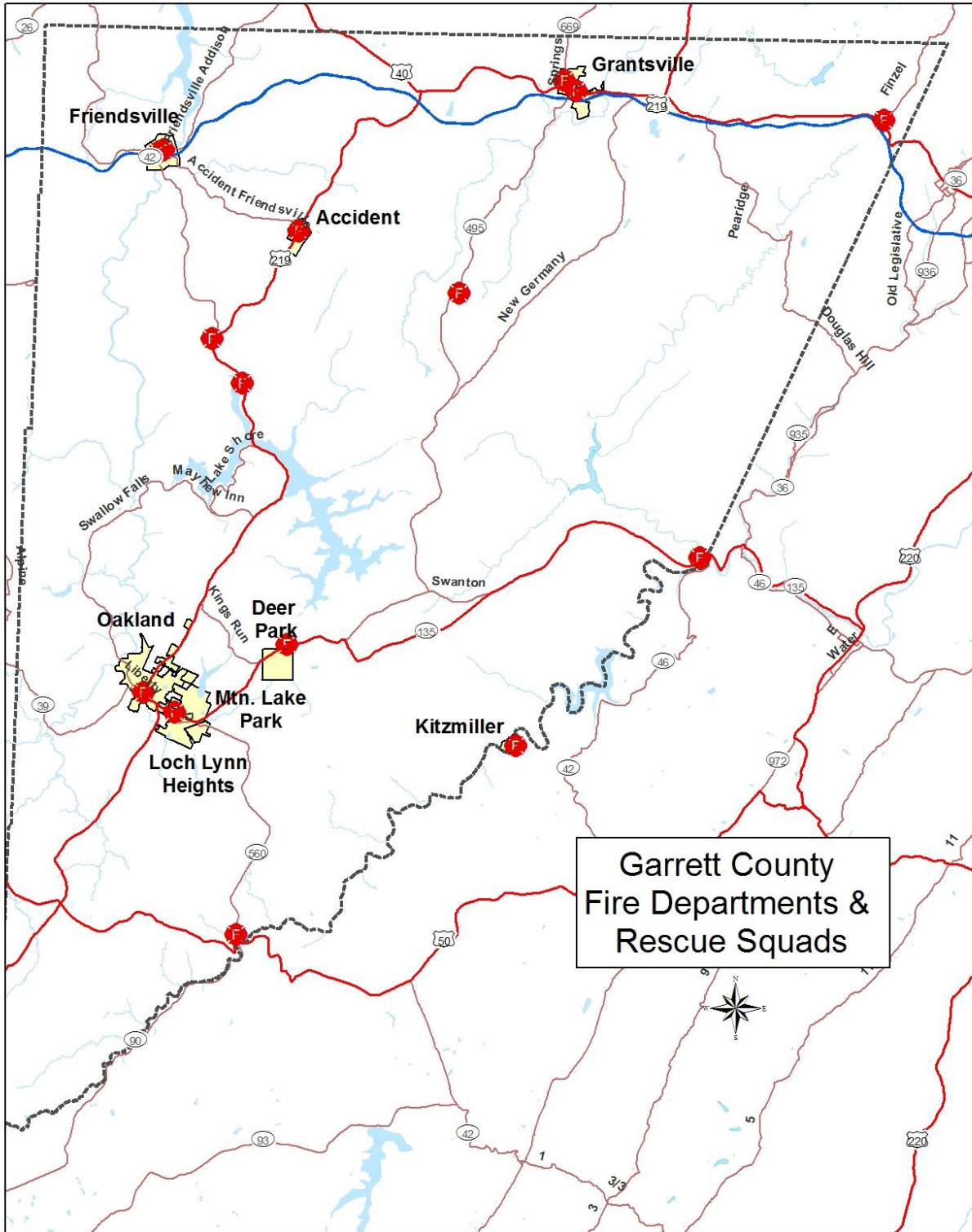
Source: Garrett County GIS 2018

Figure 32



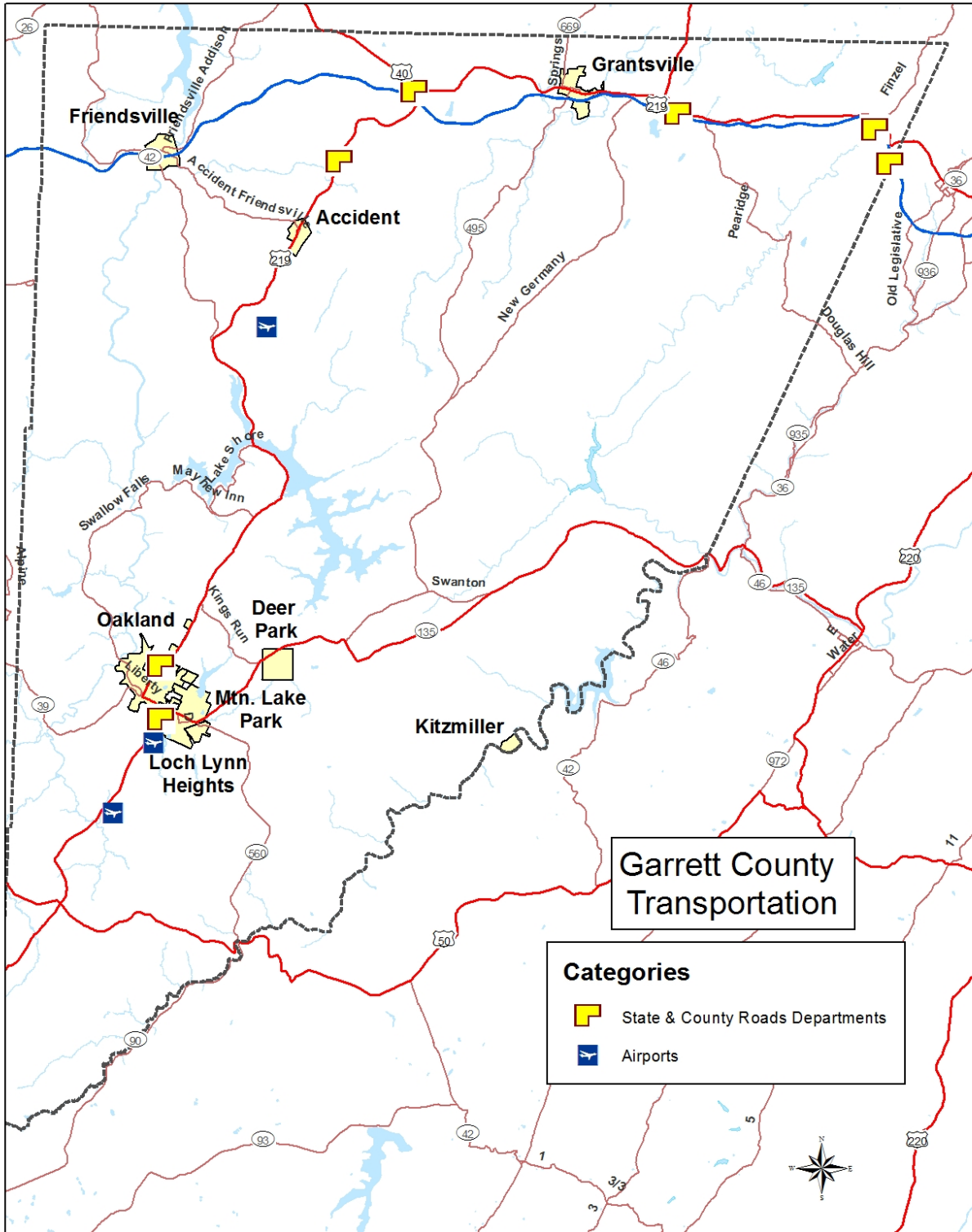
Source: Garrett County GIS 2018

Figure 33



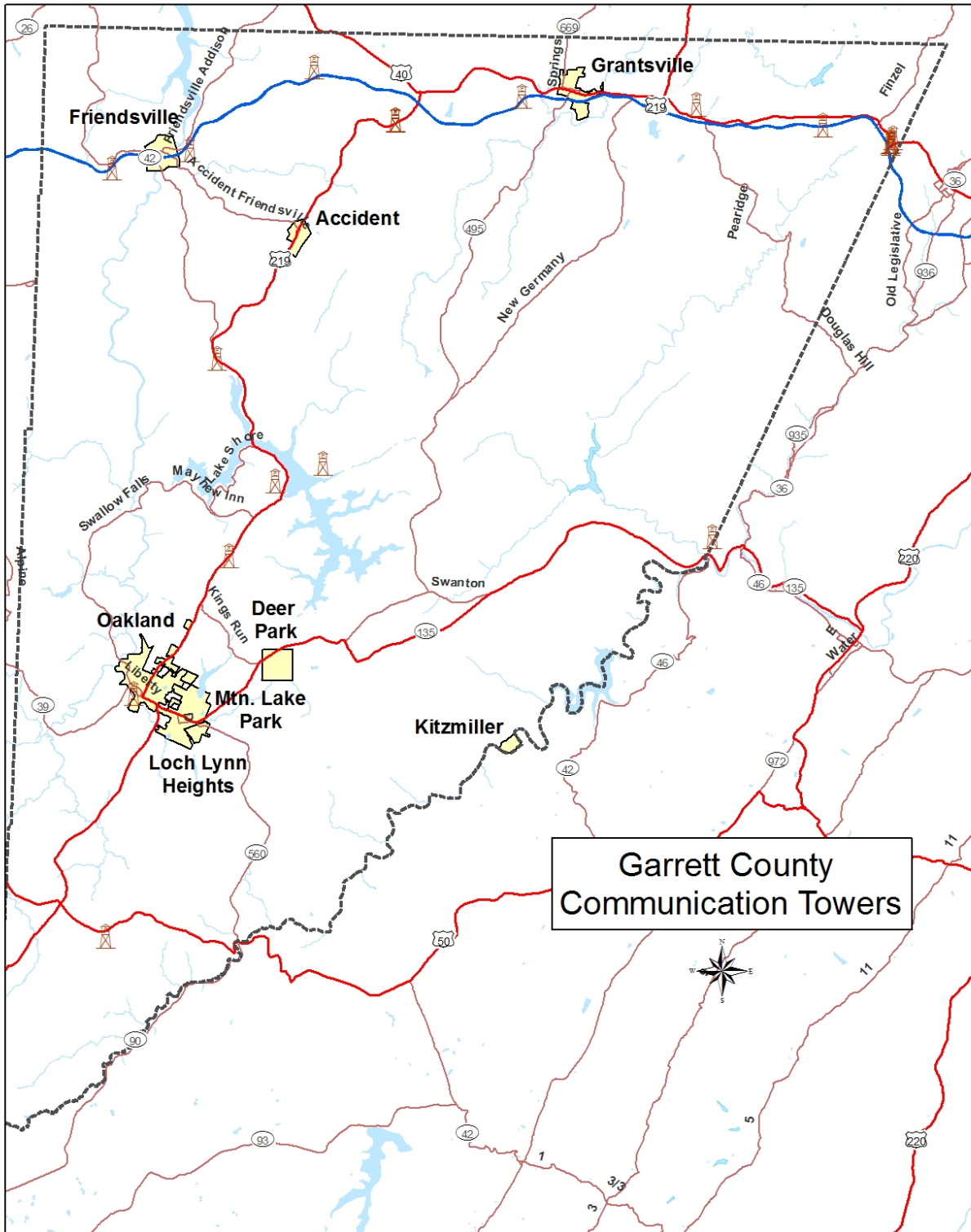
Source: Garrett County GIS 2018

Figure 35



Source: Garrett County GIS 2018

Figure 36



Source: Garrett County GIS 2018

Figure 38

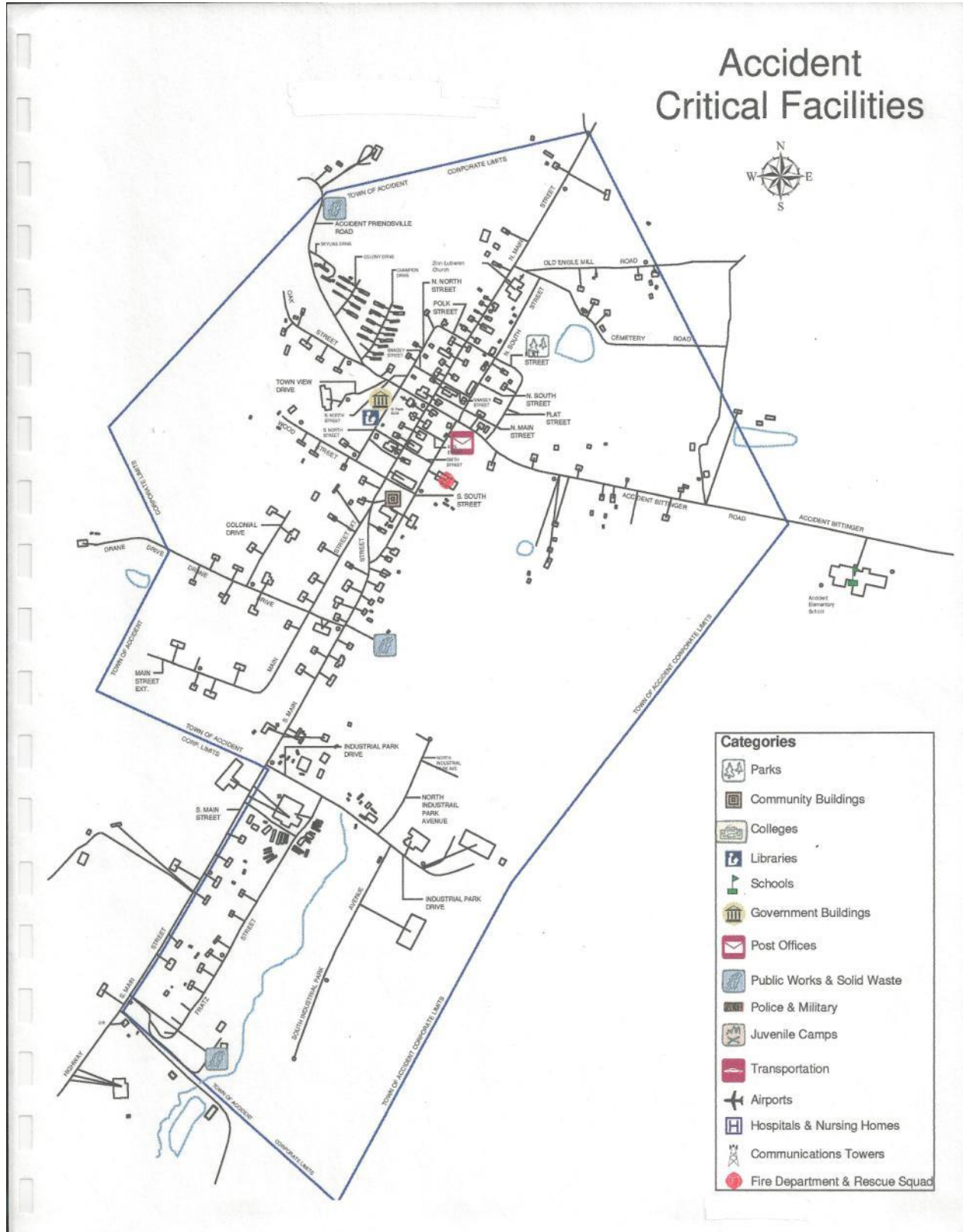


Figure 39

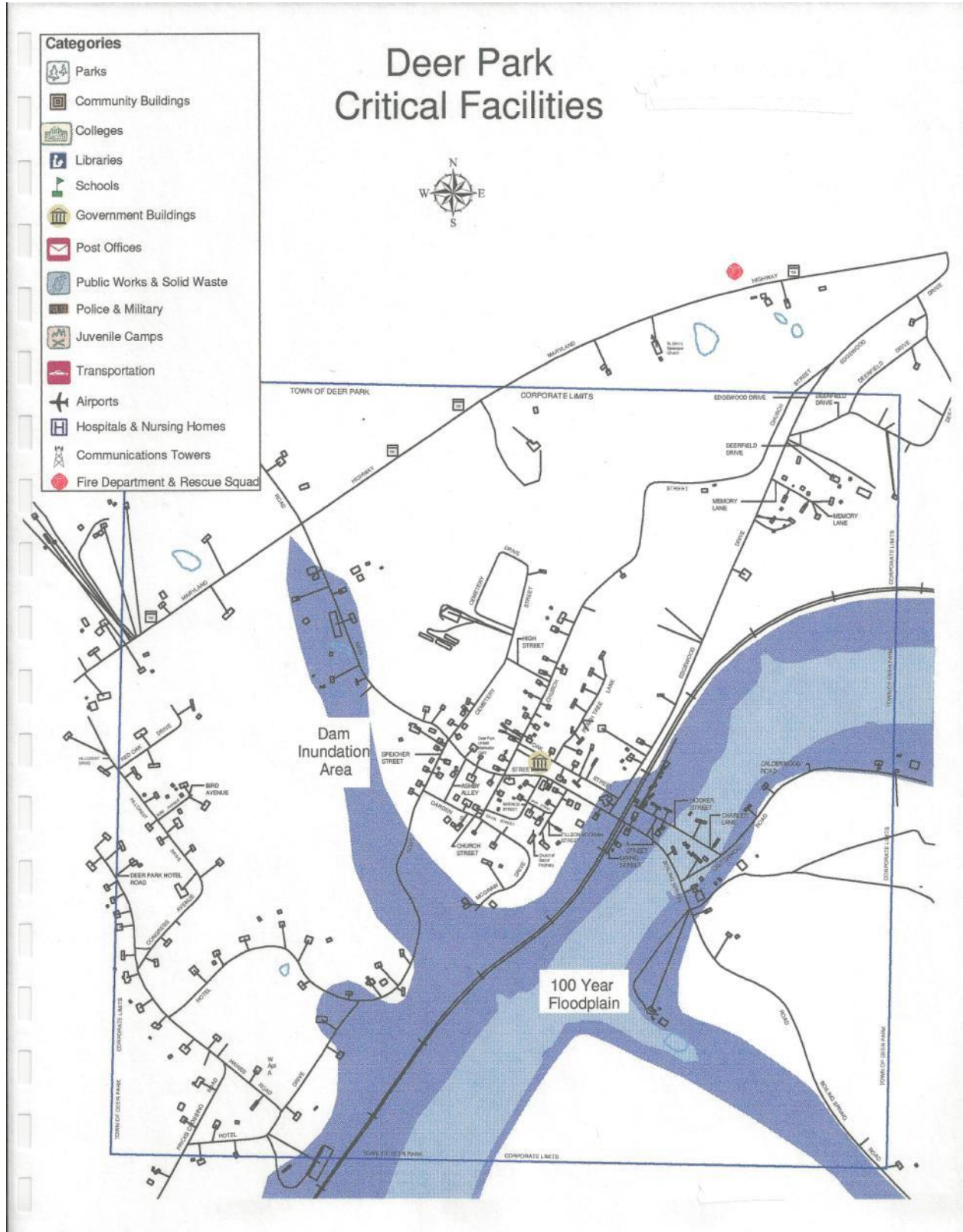


Figure 41

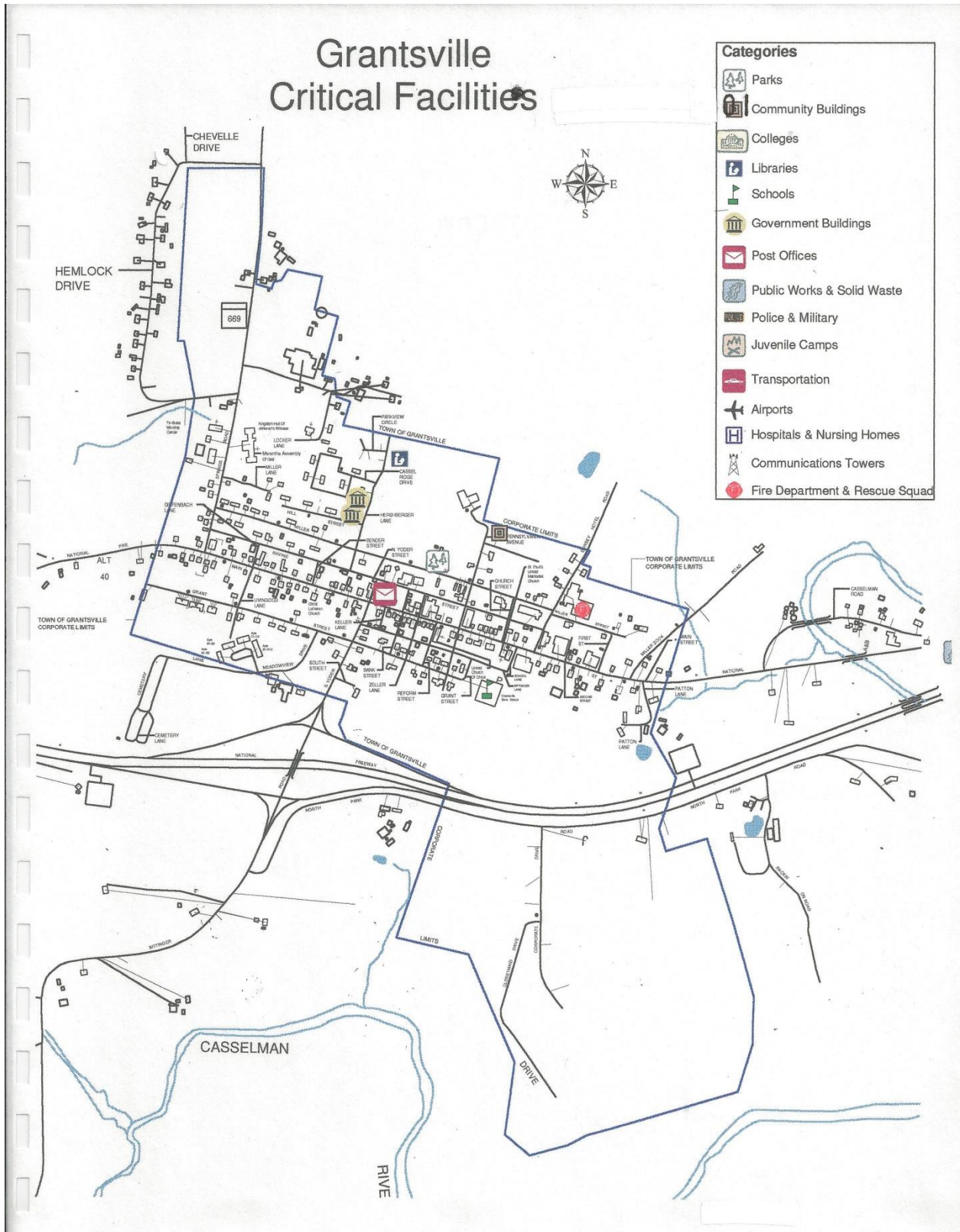


Figure 42



Figure 44

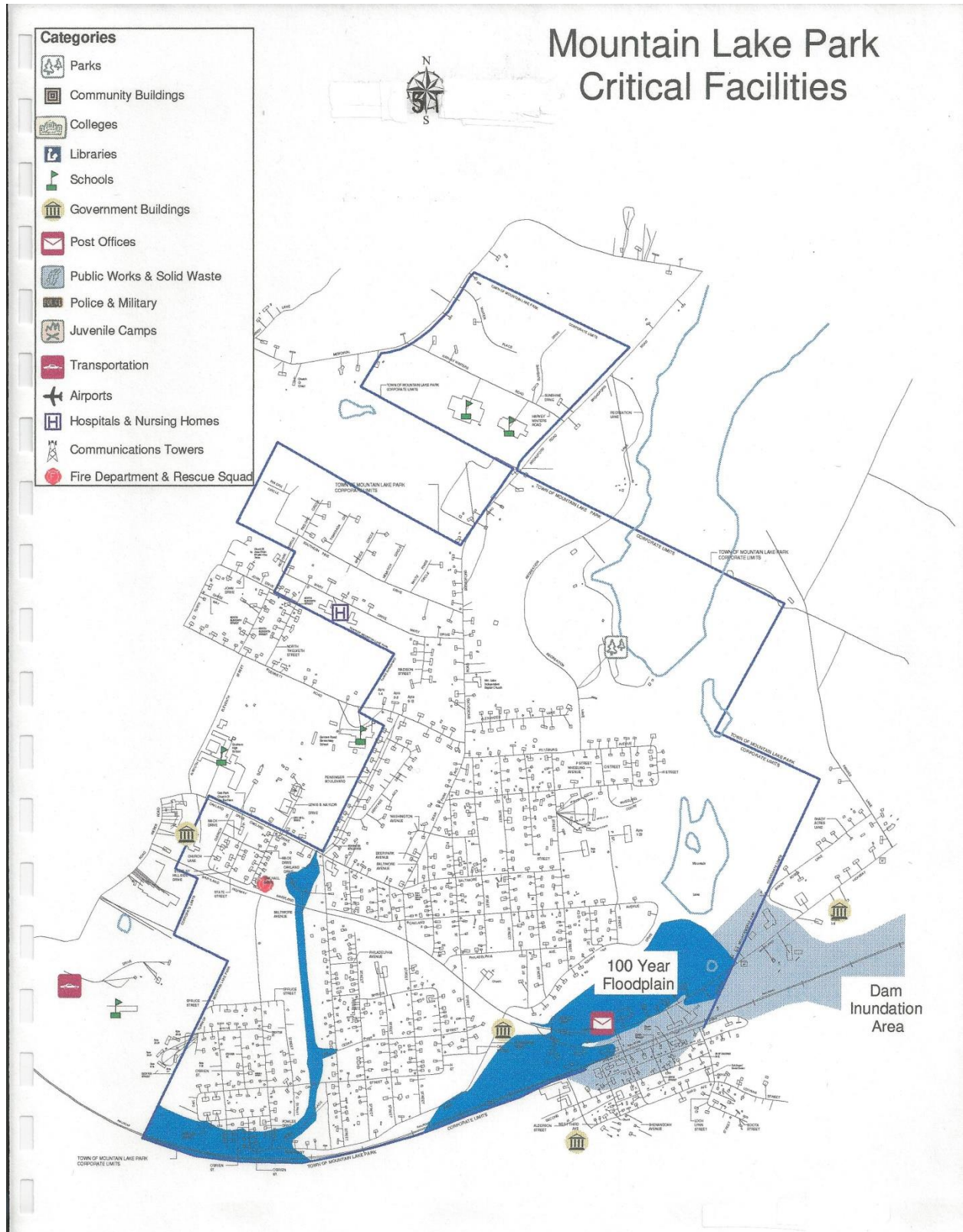
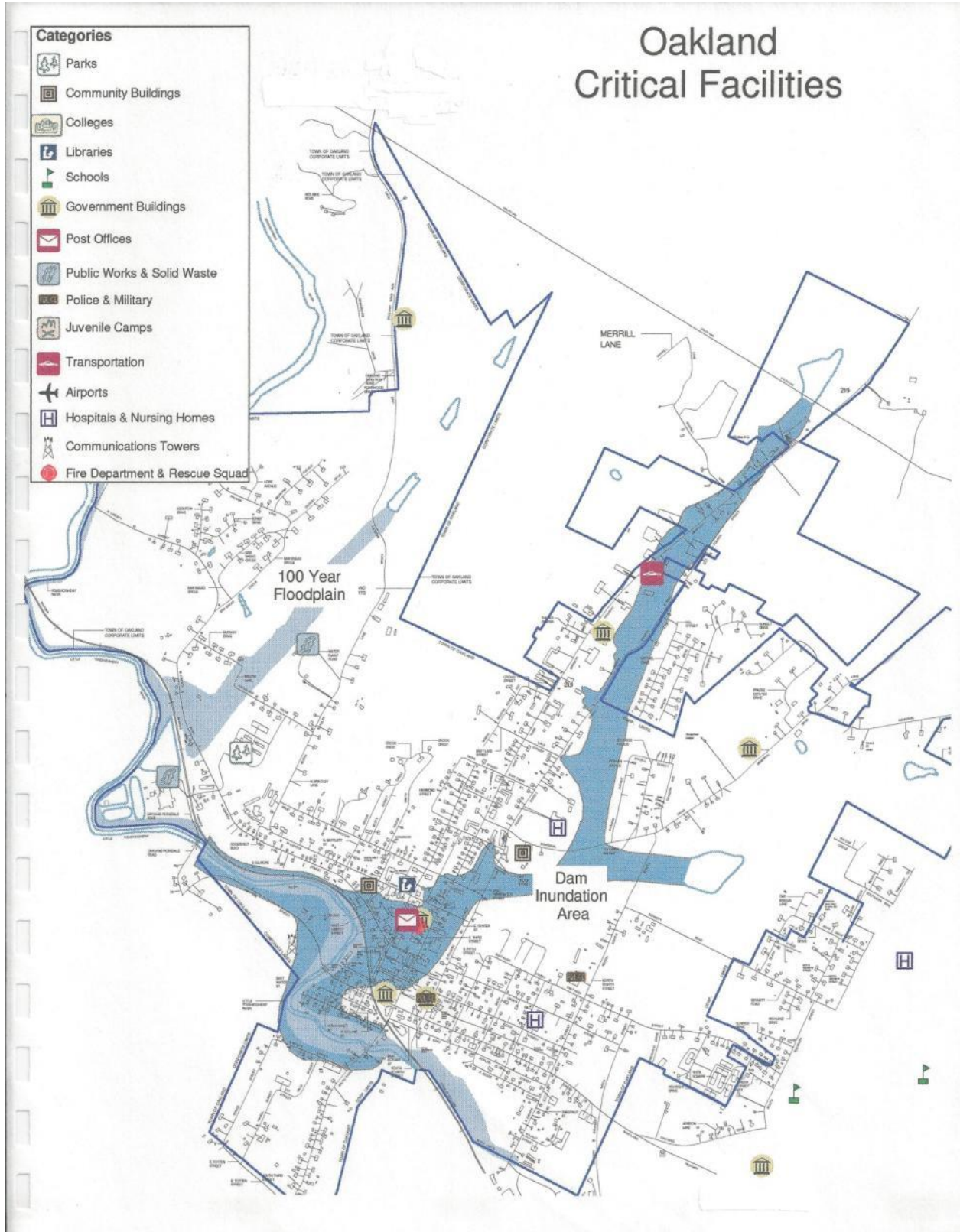


Figure 45



DAM INUNDATION AREA –DEEP CREEK DAM

FRIENDSVILLE

STREET	RESIDENTIAL	COMMERCIAL
FIRST AVE	29	2
SECOND AVE	23	
THIRD AVE	1	
DAVE DIXON RD	6	
WATER ST	18	
CHURCH LANE	5	
ROSS AVE	9	
MAPLE ST	55	2
CHESTNUT ST	7	
OAK ST	12	
WALNUT ST	34	
PARK ST	9	
SAWMILL LANE	4	
CEMETARY RD	3	
MORRIS AVE	13	
OLD RIVER RD	7	
BEAR CREEK CT	8	
	243	4
<u>UNINCORPORATED</u>		
SANG RUN RD	10	
GRAND TOTAL	253	4

Source: Garrett County Department of Planning and Land Development
Maryland Department of Assessments and Taxation

Figure 46

DAM INUNDATION AREA –SAVAGE RIVER DAM

BLOOMINGTON

STREET	RESIDENTIAL	COMMERCIAL
SAVAGE RIVER RD.	1	
RALEY AVE	1	
NORTH ST	5	
PARSON AVE	4	
HAMPSHIRE AVE	5	
BRICK ROW	1	
KNIGHT ST	6	
NORTH BRANCH AVE	14	1
NO. HAMMIL AVE	5	
PATTISON AVE	7	
WARNICK AVE	3	
HOWARD AVE	1	
MARYLAND AVE	1	
HAMMILL AVE	5	1
LONG AVE	4	
BRUSTER DR	2	
POTOMAC AVE	4	
OWENS AVE	7	
TOTAL	76	2
SAVAGE RIVER RD	16	
GRAND TOTAL	92	2

Source: Garrett County Department of Planning and Land Development
Maryland Department of Assessments and Taxation

Figure 47

DAM INUNDATION AREA –BLOOMINGTON DAM

BLOOMINGTON

STREET	RESIDENTIAL	COMMERCIAL
SAVAGE RIVER RD.	1	
RALEY AVE	1	
NORTH ST	5	
PARSON AVE	4	
HAMPSHIRE AVE	5	
BRICK ROW	1	
KNIGHT ST	6	
NORTH BRANCH AVE	14	1
NO. HAMMIL AVE	5	
PATTISON AVE	7	
WARNICK AVE	3	
HOWARD AVE	1	
MARYLAND AVE	1	
HAMMILL AVE	5	1
LONG AVE	4	
BRUSTER DR	2	
POTOMAC AVE	4	
OWENS AVE	7	
TOTAL	76	2

Source: Garrett County Department of Planning and Land Development
Maryland Department of Assessments and Taxation

Figure 48

DAM INUNDATION AREA –STONEY RIVER/MT. STORM

KITZMILLER-SHALLMAR

STREET	RESIDENTIAL	COMMERCIAL
KITZMILLER RD	25	
OAK ST	5	
SPRING ST	9	
HAZEL ST	3	
HOMESTEAD ST	4	
WILLOW ST	5	
STATE ST	10	
PARK ST	8	
W. MAIN ST	35	
E. MAIN ST	30	
RACE ST	3	
FOURTH ST	-	
CHURCH ST	10	1
THIRD ST	4	
CENTRE ST	16	
SECOND ST	1	
E. CENTRE ST	2	
UNION ST	-	
HEDGE LANE	1	
ORCHARD ST	3	
TOTAL	175	1
SHALLMAR RD	20	
GRAND TOTAL	195	1

Source: Garrett County Department of Planning and Land Development
Maryland Department of Assessments and Taxation

Figure 49

DAM INUNDATION AREA –SCD SITES 1, 2, & 3

OAKLAND

STREET	RESIDENTIAL	COMMERCIAL
ALL THREE SITES		
NORTH FOURTH ST	2	1
EAST CROOK ST		1
NORTH THIRD ST	8	1
EAST CENTER ST	1	1
SOUTH THIRD ST	17	
EAST GREEN ST	5	
EAST ALDER ST	15	
SOUTH SECOND ST	24	
EAST LIBERTY ST	12	
WEST LIBERTYST		1
SOUTH FIRST ST	1	1
TOWN PARK LA	1	
EAST OAK ST	9	
EAST WATER ST	26	
EAST MASON ST	3	
TOTAL	124	6
SITE 2 ONLY		
GARRETT HIGHWAY	6	13
MERRILL LANE	1	
MITCHEL DRIVE	1	
TOTAL	8	13
GRAND TOTAL FOR SITE 2	132	19

Source: Garrett Soil Conservation District
Garrett County Department of Planning and Land Development
Maryland Department of Assessments and Taxation

Note: This data is based on an Emergency Action Plan prepared by the Garrett SCD.

Figure 50

DAM INUNDATION AREA –SCD SITE 5

DEER PARK-LOCH LYNN HTS-MTN. LAKE PARK

STREET	RESIDENTIAL	COMMERCIAL
DEER PARK		
EDGEWOOD DR	1	
MAIN ST	7	
MCGRAW DR	1	
HOTEL DR	4	
SIDING ST	1	
BOILING SP. RD	3	
CALDERWOOD RD	4	
HOOKER ST	5	
TOTAL	26	
LOCH LYNN HTS		
FIRST AVE	10	
HOYE ST	3	
SECOND ST	10	
PAUL ST	1	
LEWIS ST	1	
TOTAL	25	
MTN LAKE PARK		
MARYLAND HIGHWAY	3	6
UNINCORPORATED		
BOILING SP. RD	1	
FRICKS CROSSING RD	1	
LEON WHITE RD	1	
MARYLAND HIGHWAY	3	
GARRETT ROAD	11	
TOTAL	17	
GRAND TOTAL	71	6

Source: Garrett Soil Conservation District
Garrett County Department of Planning and Land Development
Maryland Department of Assessments and Taxation

Note: This data is based on a preliminary map compiled from SCD data and has not been field verified.

Figure 51

Figure 52

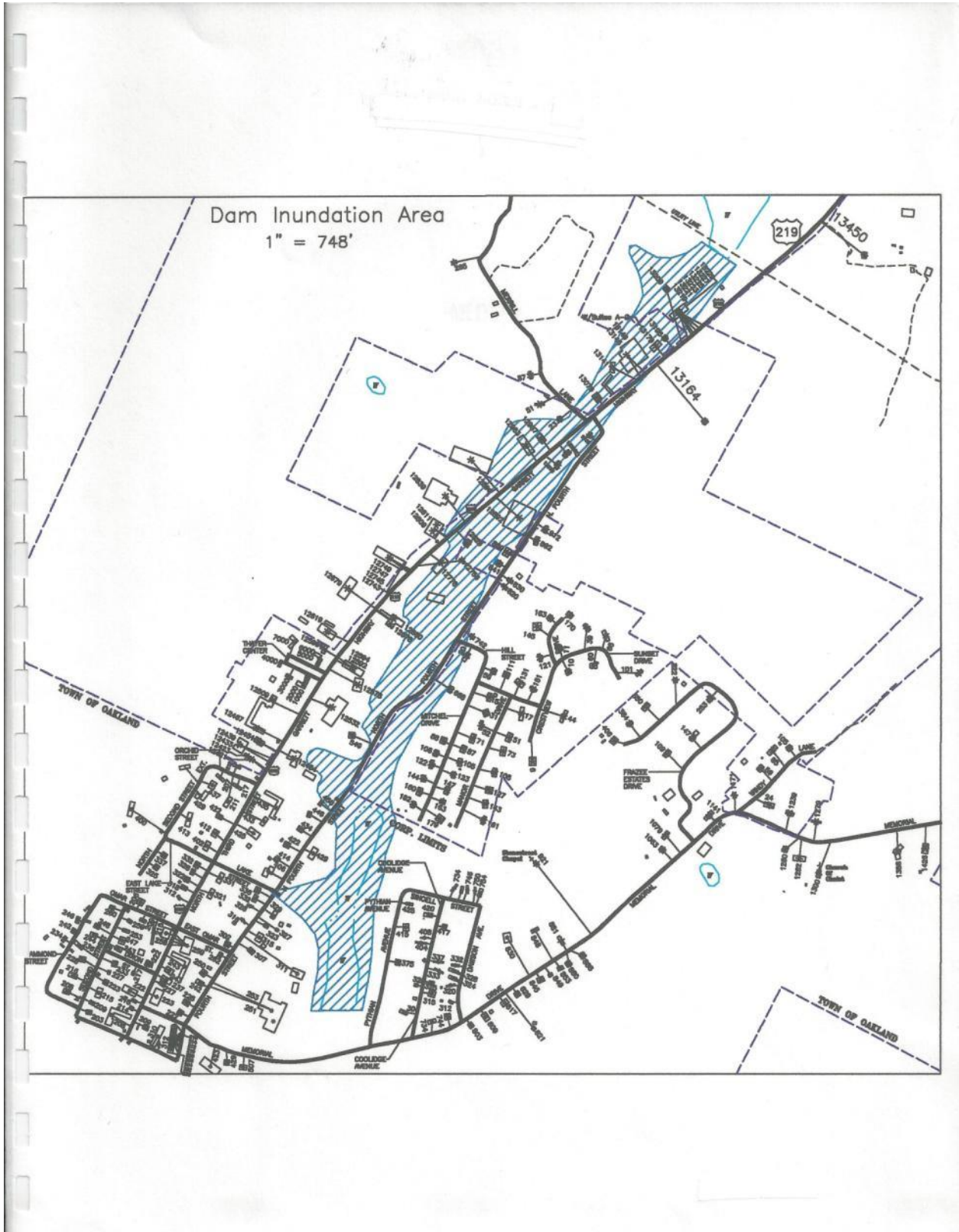


Figure 53

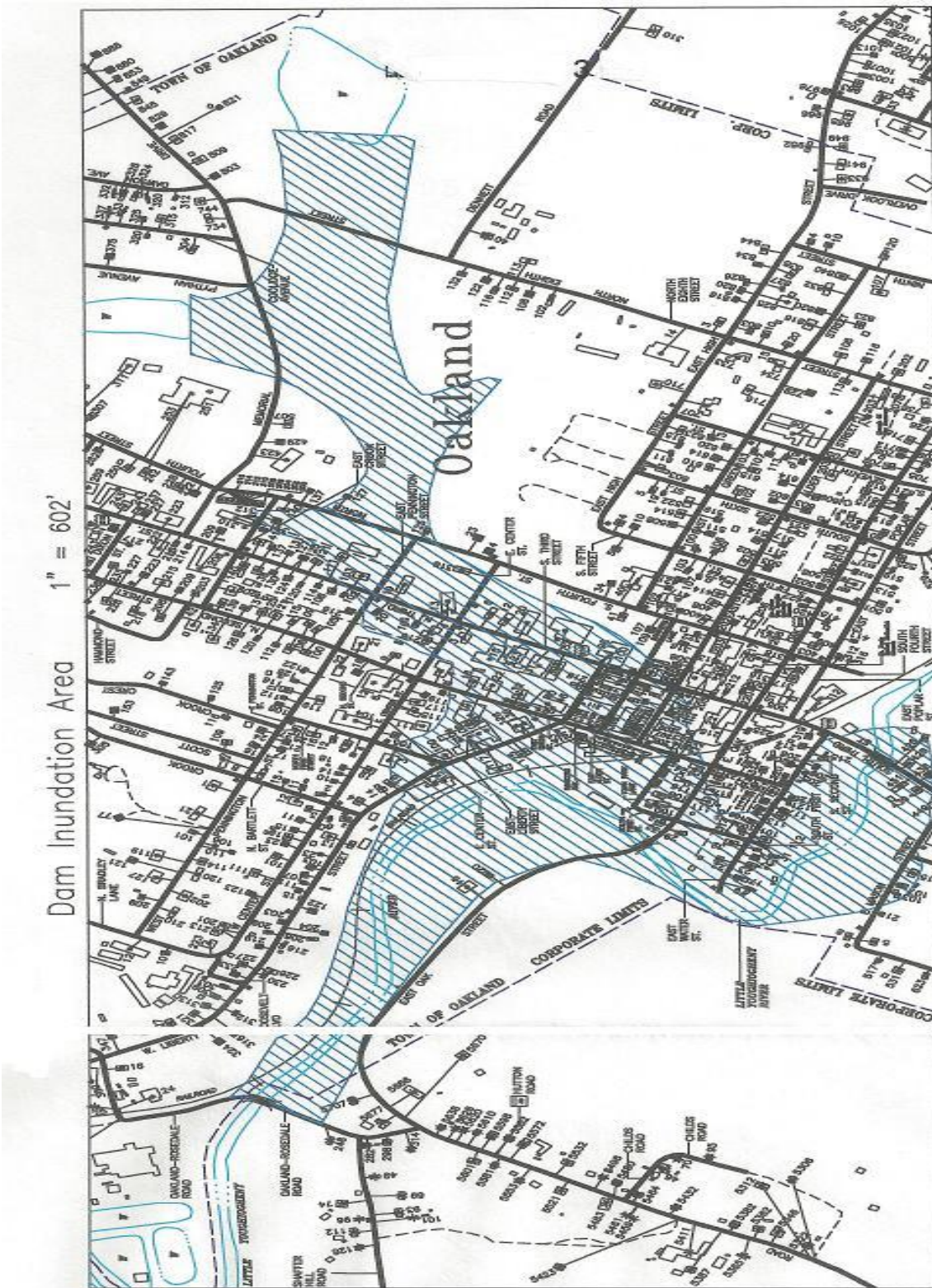
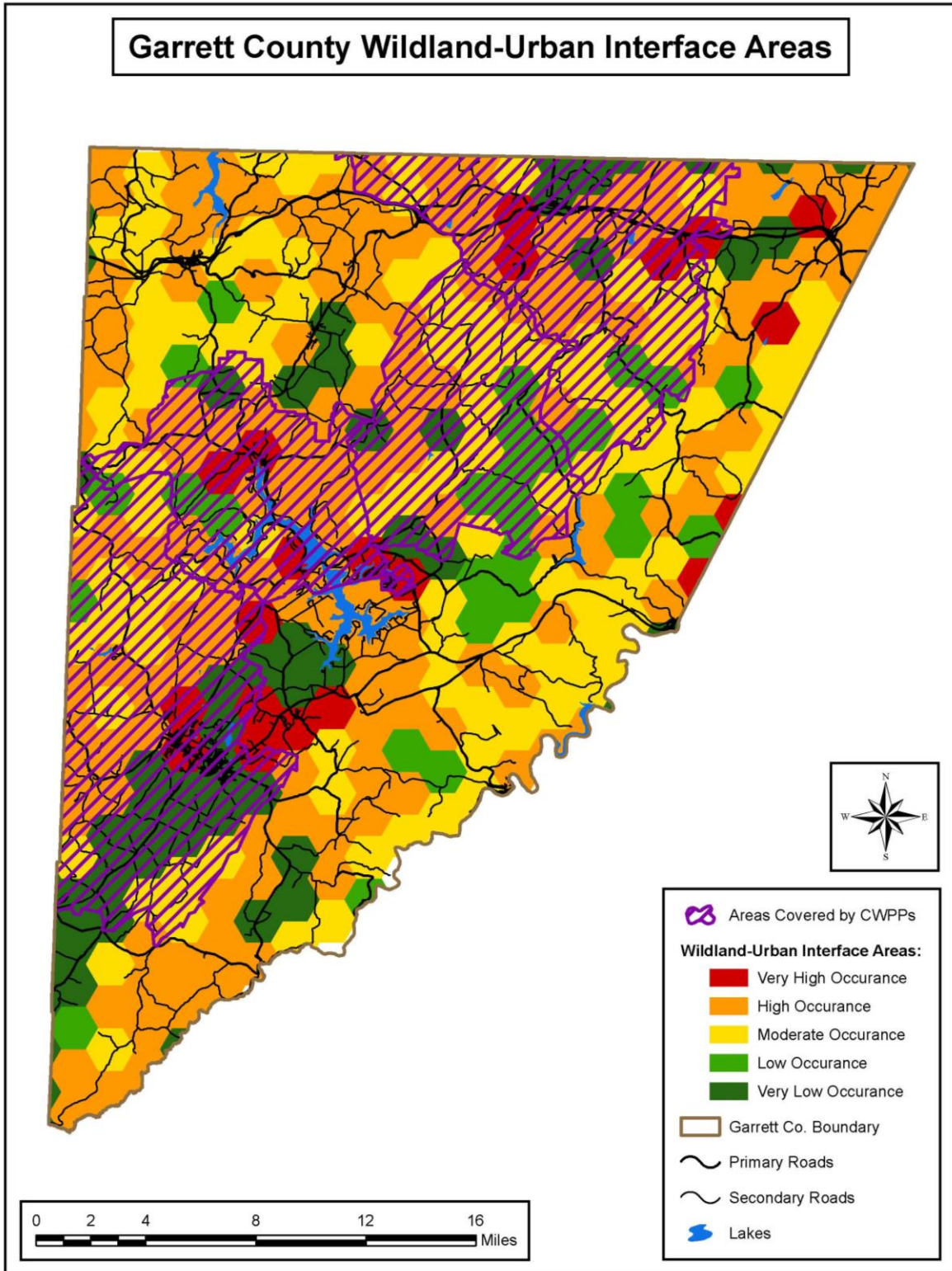
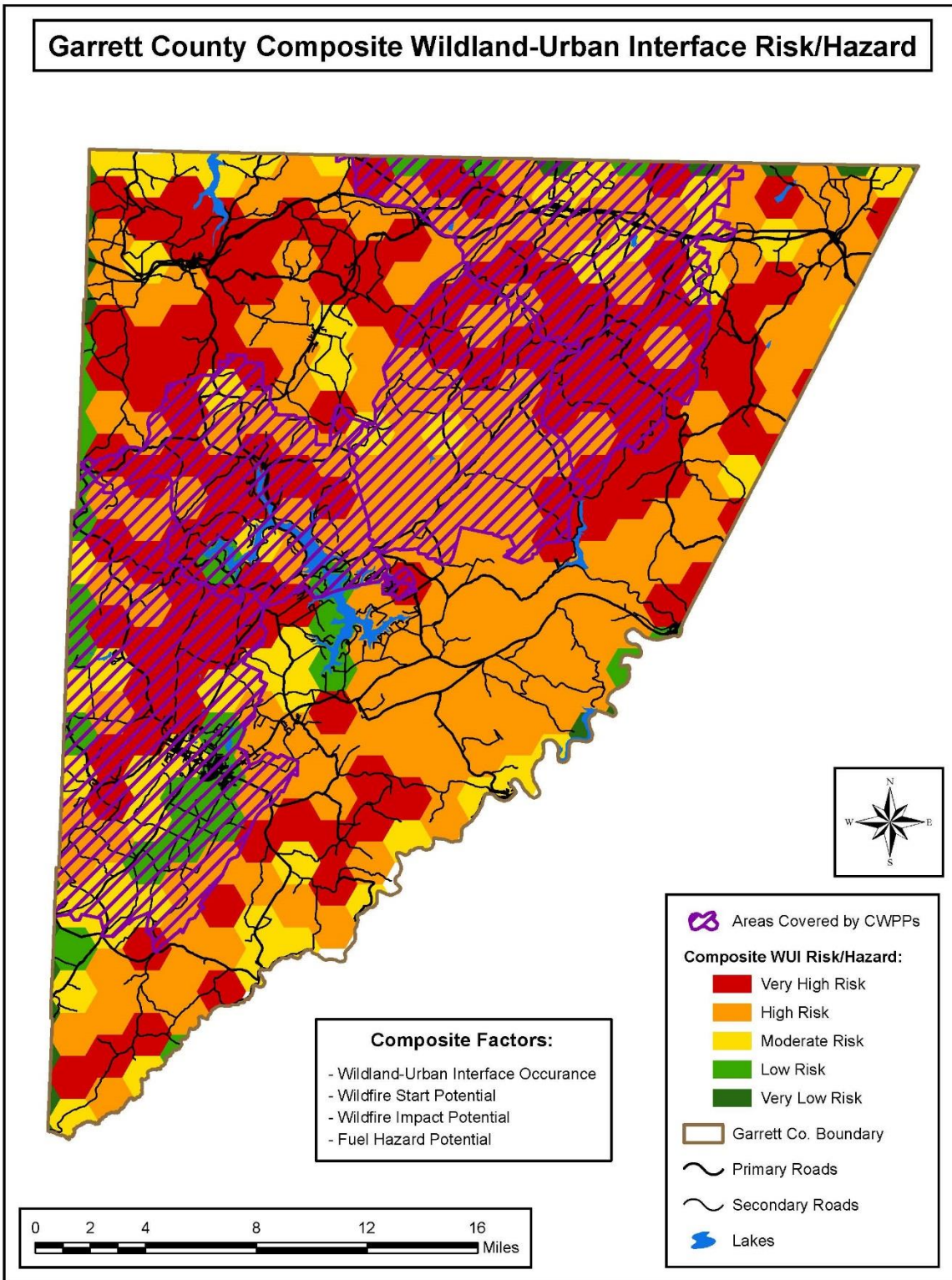


Figure 54



Source: Garrett County GIS 2018

Figure 55



Source: Garrett County GIS 2018

Appendix B: Status Report of 2012 Mitigation Action Items

MITIGATION ACTIONS

Mitigation action items identified and ranked in the 2012 Plan were discussed at the 2018 HMPC Midpoint Meeting. A status update has been provided for each 2012 mitigation action item, as shown in red on the table below.

Mitigation action items from the 2012 Plan that were identified as incomplete and applicable for the 2018 Plan were carried over into the new mitigation action items within *Chapter 22 Mitigation Strategies*.

ACTION	GOALS	OBJECTIVES	TIMEFRAME	HAZARD	RATING
Prevention Review and where necessary revise and update local floodplain ordinances. Possible changes include vegetative buffers and freeboard requirements. Status: Complete New Floodplain Ordinance was adopted following the effective FEMA Floodplain Mapping and Flood Insurance Study in 2015.	4 5 7	4.3 5.2 7.3	Short-term	Flood	Medium High
Prohibit or restrict additional housing in areas of high risk, particularly in the 100-year floodplain. Status: Incomplete No new restrictions have been implemented.	4 5 7	4.3 5.2 7.3	Short-term	Flood	Medium High
Prepare CRS (Community Rating System) application to reduce the cost of flood insurance within the county. Status: Incomplete No incorporated or unincorporated areas in Garrett County are currently enrolled in the CRS program.	1 2 4 6	1.1 2.1 4.1; 4.3 6.5	Long-term	Flood	Medium

ACTION	GOALS	OBJECTIVES	TIMEFRAME	HAZARD	RATING
<p>Expand the mission of the Local Emergency Planning Committee to include All Hazards disaster planning. Status: Complete Membership of the LEPC has doubled since the previous planning cycle and is now an all hazard disaster planning committee.</p>	<p>1 3</p>	<p>1.1; 1.2 3.1; 3.2</p>	<p>Short-term</p>	<p>All</p>	<p>High</p>
<p>Work with FEMA, MEMA, and MDE to develop digital FIRMS and identify areas for revision of FIRMS. Status: Complete Digital Flood Insurance Rate Maps (DFIRMs) are being developed by FEMA and a preliminary product was released in November 2011 and the final product was made effective in September 2013.</p>	<p>1 4 5 6</p>	<p>1.1; 1.2; 1.3 4.1; 4.3 5.1; 5.2 6.5</p>	<p>Long-term</p>	<p>Flood</p>	<p>High</p>
<p>Conduct a Hazardous Materials Survey to identify all hazardous materials that are either stored or traveling through the county. Status: Complete The <i>Garrett County Hazardous Materials Emergency Response Plan</i> was completed in 2007 and was updated in 2012 and again in 014. In 2009 the <i>Garrett County Hazardous Materials Commodity Flow Study</i> was also completed. Five sites throughout the County were surveyed.</p>	<p>4</p>	<p>4.1; 4.2</p>	<p>Long-term</p>	<p>HazMat</p>	<p>Medium</p>

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ACTION	GOALS	OBJECTIVES	TIMEFRAME	HAZARD	RATING
<p>Using Hazardous Materials Survey results, develop a plan to mitigate any identified risks. Status: Complete Risks identified in the <i>2009 Garrett County Hazardous Materials Commodity Flow Study</i> were incorporated into the <i>2012 Garrett County Hazardous Materials Emergency Response Plan, as well as the 2014 update.</i></p>	4	4.1; 4.2	Long-term	HazMat	Medium
<p>Allocate county resources and assistance to mitigation projects when possible. Include mitigation projects in Capital Improvement Plan. Status: Complete Mitigation projects are stated in the Garrett County Budget Report. Matching funds for various projects have been allocated and utilized during the <i>2012-20017 plan cycle.</i></p>	2 6	2.2 6.1; 6.2; 6.3; 6.4	Long-term	All	Medium High
<p>Work with the Soil Conservation District, NRCS and MDE to complete mapping of flood inundation areas to complete plans for the six SCD Flood Control Dams in the Little Youghiogeny Basin. Status: Complete The EAP for the six SCD Flood Control Dams in the Little Youghiogeny Basin were completed in 2007. The <i>Deep Creek Hydroelectric Emergency Action Plan</i> was updated during this planning cycle.</p>	1 3 4 5 6	1.3 3.1; 3.2; 3.3 4.1; 4.2; 4.3 5.1; 5.2 6.2	Long-term	Flood, Dam Failure	High

ACTION	GOALS	OBJECTIVES	TIMEFRAME	HAZARD	RATING
<p>Work with SHA, County Roads, State Police, Sheriff and Fire & Rescue organizations to develop a fog monitoring and warning system.</p> <p>Status: Complete</p> <p>Camera/weather systems are located on I-68. The County also utilizes the Coordinated Highways Action Response Team (CHART) to inform the public about local traffic information, winter storm information, visibility, and precipitation for a particular area. In addition, electric signboards are located on Interstate 68 to inform motorists of fog warnings in the area.</p>	<p>1 3 4</p>	<p>1.2; 1.3 3.1; 3.3 4.3</p>	<p>Short-term</p>	<p>Fog</p>	<p>High</p>
<p>Work DNR, Allegheny Power, Verizon and other utilities to promote an ongoing tree-trimming program.</p> <p>Status: Complete</p> <p>All utility companies must be licensed by the State and obtain roadside tree cutting permits. State Highway Administration and the County Roads Department work with all utility companies to mitigate the effects of severe weather disrupting their services.</p>	<p>1 3 6</p>	<p>1.1 3.1; 3.3 6.4</p>	<p>Ongoing</p>	<p>Winter Storms, Thunderstorm, Lightning, High Winds, Tornado, Hurricane</p>	<p>Medium High</p>
<p>Initiate a program to inspect and ensure operation of power generators at pre-identified critical facilities.</p> <p>Status: In-Progress</p> <p>At this time fire companies inspect generators at scene by not all facilities.</p>	<p>1 3 4</p>	<p>1.1 3.3 4.3</p>	<p>Ongoing</p>	<p>All</p>	<p>Medium Low</p>

ACTION	GOALS	OBJECTIVES	TIMEFRAME	HAZARD	RATING
<p>Work with DNR to monitor and warn residents of Wildfires dangers. Status: Complete The Maryland DNR Forest Service develops and maintains a list of qualified personnel who meet or exceed the minimum requirements necessary in order to be eligible for dispatch. The agency actively recruits department and fire service personnel to participate in this program with many of the participants returning year after year for fire duty. The National Weather Service also monitors wildfires across the U.S. and will issue a fire weather watch for the area if a wildfire threat exists in the area.</p>	<p>3 8</p>	<p>3.1; 3.3 8.2; 8.3</p>	<p>Long-term</p>	<p>Wildfire</p>	<p>Medium</p>
<p>Review and update Building Codes with respect to wind loads and 100-year flood elevations. Status: In-Progress Building codes were updated for the County utilizing the 2009 International Building Code (IBC) and adopted with revisions on 27 June 2010.</p>	<p>4 5 7</p>	<p>4.3 5.2 7.3</p>	<p>Short-term</p>	<p>Flood, High Winds, Tornado</p>	<p>Medium</p>
<p>Work with Public Utility Companies to identify and prioritize facilities at risk in high hazard areas. Status: In-Complete</p>	<p>2 3 4 5 6</p>	<p>2.1 3.1 4.1 5.4 6.4; 6.5</p>	<p>Long-term</p>	<p>All</p>	<p>Medium</p>

ACTION	GOALS	OBJECTIVES	TIMEFRAME	HAZARD	RATING
<p>Property Protection Elevate, relocate or acquire property affected by flooding in targeted areas. Status: In-Progress In 1999, six homes located within the 100-year floodplain were purchased and demolished in the Shallmar community. Since that time, no additional structures have been modified for flood protection.</p>	<p>1 2 5 6</p>	<p>1.1; 1.3 2.1; 2.2; 2.3 5.1; 5.3 6.2; 6.3; 6.4; 6.5</p>	<p>Long-term</p>	<p>Flood</p>	<p>Medium</p>
<p>For the critical facilities listed as having a high vulnerability in the risk assessment and identified by the planning committee as a high priority, a technical report should be completed to provide information on first floor elevation and the base flood elevation. Mitigation alternatives and a detailed benefit/cost analysis should be completed. Status: In-Complete</p>	<p>2 5 6</p>	<p>2.3 5.4 6.2; 6.4</p>	<p>Long-term</p>	<p>All</p>	<p>Medium High</p>
<p>Identify structures that would be candidates for retrofit projects. Status: Incomplete</p>	<p>2 5</p>	<p>2.2 5.1; 5.3; 5.4 6.2; 6.3; 6.4</p>	<p>Long-term</p>	<p>All</p>	<p>Medium High</p>
<p>Public Education and Awareness</p>					
<p>Distribute annual mitigation informational brochure or newsletter to residents and business owners. Status: In-Complete</p>	<p>4 6</p>	<p>4.2; 4.4 6.5</p>	<p>Ongoing</p>	<p>All</p>	<p>Medium Low</p>

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ACTION	GOALS	OBJECTIVES	TIMEFRAME	HAZARD	RATING
<p>Work with the County Visitors/Tourism Bureau, MD DNR to alert tourists to potential hazard areas and what to do in the event that a man-made or natural hazard event occurs. This would include brochures to be left at hotels, visitor centers, and attractions to inform visitors about evacuation routes, and sheltering info. Status: In-Complete</p>	<p>4 8</p>	<p>4.2 8.1; 8.3</p>	<p>Short-term</p>	<p>All</p>	<p>Medium</p>
<p>Work with the County Health Department to provide information to citizens on infectious diseases. Status: In-Progress Information on infectious disease is available at the Garrett County Health Department website.</p>	<p>4</p>	<p>4.1; 4.2; 4.3</p>	<p>Ongoing</p>	<p>Epidemic</p>	<p>Medium</p>
<p>Incorporate information about disaster preparedness and mitigation activities and opportunities on the County's website. Status: Complete Disaster preparedness information is available from the Garrett County Emergency Service website and the County's Health Department: Public Health Preparedness website.</p>	<p>4 6</p>	<p>4.1; 4.2 6.5</p>	<p>Ongoing</p>	<p>All</p>	<p>Medium High</p>
<p>Work with representatives from the National Flood Insurance Program to hold courses in the County for real estate and flood insurance agents. Status: In-Progress The National Flood Insurance Program holds regional training, workshops and conferences for adjusters, agents, and lenders on flood insurance dealing with real estate.</p>	<p>3 4</p>	<p>3.1; 3.3 4.1; 4.2; 4.4; 4.5</p>	<p>Short-term</p>	<p>Flood</p>	<p>Medium High</p>

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ACTION	GOALS	OBJECTIVES	TIMEFRAME	HAZARD	RATING
<p>Work with FEMA & MEMA to hold Business Continuity Training Workshops. Status: Complete The MEMA website provides information on business continuity. Additional information is available in the County's Emergency Health Plan Appendix H: Business Continuity Plan.</p>	<p>3 4</p>	<p>3.1 4.1; 4.2; 4.3; 4.4; 4.5</p>	<p>Short-term</p>	<p>All</p>	<p>Medium</p>
<p>Partner with the National Weather Service to provide training to people throughout the county on Storm Spotting. Status: Complete The National Weather Service conducts free classes on its SWYWARN program regularly for citizens in the County. The two areas that provide training to Garrett County residents are Pittsburgh, PA and Baltimore, MD.</p>	<p>3 4</p>	<p>3.1 4.1; 4.2</p>	<p>Short-term</p>	<p>Winter Storms, Flood, Fog, Thunderstorm, Lightning, High Winds, Tornado, Wildfire, Hurricane</p>	<p>Medium High</p>
<p>Develop a one-page handout on flood insurance and distribute to local insurance companies. Status: In-Complete</p>	<p>4</p>	<p>4.1; 4.2</p>	<p>Long-term</p>	<p>Flood</p>	<p>Medium</p>
<p>Develop and administer outreach programs to identified business organizations that should prepare for flood events. Status: In-Complete</p>	<p>3 4</p>	<p>3.1 4.1; 4.2; 4.3; 4.4</p>	<p>Short-term</p>	<p>Flood</p>	<p>Medium</p>

ACTION	GOALS	OBJECTIVES	TIMEFRAME	HAZARD	RATING
<p>Conduct natural hazards awareness programs in schools and community centers. Status: Complete Rick Cain from the National Weather Service conducted presentations at County schools. Garrett College also conducted SKYWARN classes.</p>	<p>3 4</p>	<p>3.1; 3.3 4.1; 4.2; 4.3</p>	<p>Short-term</p>	<p>Winter Storms, Flood, Fog, Thunderstorm, Lightning, High Winds, Tornado, Wildfire, Hurricane</p>	<p>Medium</p>
<p>Natural Resource Protection</p>					
<p>Pursue vegetation and restoration practices that assist in enhancing and restoring the natural and beneficial functions of the watershed. Status: In-Progress Restoring the natural and beneficial functions of watersheds in the County is primarily conducted by the Department of Natural Resources (DNR) and Maryland Department of the Environment (MDE). Restoration projects such as protecting the North Branch of the Potomac from Acid Mine Drainage with the installation of lime dosers and protecting Deep Creek's shoreline will continue through State and Federal funding.</p>	<p>1 7</p>	<p>1.3 7.1; 7.2; 7.3</p>	<p>Short-term</p>	<p>Flood</p>	<p>Medium</p>
<p>Promote community & neighborhood planning for wildfire protection. Status: In-Progress The Garrett County Health Department's Environmental Health Division provides information on wildfire protection.</p>	<p>8</p>	<p>8.1; 8.2; 8.3</p>	<p>Short-term</p>	<p>Wildfire</p>	<p>Medium</p>

ACTION	GOALS	OBJECTIVES	TIMEFRAME	HAZARD	RATING
<p>Emergency Services</p> <p>Coordinate with the American Red Cross to upgrade all shelter resources. Status: Complete The Red Cross has a regional chapter located in Baltimore; however, a part-time point of contact is located in Garrett County.</p>	<p>1 3</p>	<p>1.2 3.1</p>	<p>Short-term</p>	<p>All</p>	<p>Medium High</p>
<p>Teach CERT (Community Emergency Response Training) classes to interested citizens to assist first responders at specified emergencies throughout the county. Status: Complete The CERT program conducts CERT Basic Training Course twice a year with a total of 180 individuals that have completed this training. CERT also participates in various disaster type exercises and conducts training for basic first aid and additional CBRNE awareness.</p>	<p>1 3 4, 6</p>	<p>1.2 3.1; 3.2 4.1; 6.5</p>	<p>Ongoing</p>	<p>All</p>	<p>Medium High</p>
<p>Hold disaster exercises in various areas of the county. Types of exercise: flood, high wind, winter storm. Hazardous Materials spills, Weapons of Mass Destruction, and Bio-Terrorism exercises. Status: In-Progress Garrett County's Emergency Management Division conducts disaster exercises on a regular basis in different locations across the County. Recent exercises include: HazMat exercise, Interoperability Regional exercise, and Hospital Evacuation exercise.</p>	<p>1 2 3 4 8</p>	<p>1.1; 1.2; 1.3 2.1 3.1; 3.2 4.1 8.1</p>	<p>Ongoing</p>	<p>All</p>	<p>Medium High</p>

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ACTION	GOALS	OBJECTIVES	TIMEFRAME	HAZARD	RATING
<p>Develop list of all training opportunities and distribute to all local emergency responders. Status: Complete Training opportunities are advertised, and registration is handled by Garrett College Continuing Education or the MEMA Learning Management System.</p>	<p>1 3</p>	<p>1.1; 1.2 3.1; 3.3</p>	<p>Ongoing</p>	<p>All</p>	<p>Medium High</p>
<p>Review and update all annexes in the County Emergency Operations Plan. Include participation from all municipalities. Status: In-Progress Modification and updates were made to the Mass Care and Sheltering and Debris Management Annexes.</p>	<p>1 2 3</p>	<p>1.1; 1.2 2.1 3.2</p>	<p>Long-term</p>	<p>All</p>	<p>High</p>
<p>Utilize and where necessary update hazard warning systems. Status: Complete Garrett County Emergency Management utilizes a Reverse 911 Public Notification System. Reverse 9-1-1 is a communications tool that combines the 9-1-1 database with GIS mapping technology to deliver outbound emergency notification from the 9-1-1 Center. Users can quickly target a precise geographic area and place literally thousands of calls in a short time to residents that might be impacted of an incident. In addition, a citizen alert sign-up system has been added to the tools used by Garrett County for notification.</p>	<p>1 6 8</p>	<p>1.2; 1.3 6.4 8.1</p>	<p>Long-term</p>	<p>All</p>	<p>Medium High</p>

Appendix C: Mitigation Action Rating System

APPENDIX C: MITIGATION ACTIONS RATING SYSTEM

The mitigation actions evaluation will utilize the FEMA “STAPLEE” evaluation criteria comprised of action items for the County that will be detailed in the Plan. STAPLEE evaluation criteria stands for and uses Social, Technical, Administrative, Political, Legal, Economic, and Environmental rankings in order to prioritize mitigation actions. The following are examples from FEMA to consider when examining each of these categories:

Social - The public must support the overall implementation strategy and specific mitigation actions. Therefore, the projects will have to be evaluated in terms of community acceptance by asking:

- Will the action adversely affect one segment of the population?
- Will the action disrupt established neighborhoods, break up voting districts, or cause the relocation of lower income people?
- Is the action compatible with present and future community values?

Technical - It is important to determine if the action is technically feasible; this will help to reduce losses in the long term, and has minimal secondary impacts. To determine whether the alternative action is a whole or partial solution, or not a solution at all, by considering the following types of issues:

- How effective is the action in avoiding or reducing future losses?
- Will it create more problems than it solves?
- Does it solve the problem or only a symptom?

Administrative - Under this part of the evaluation, you will examine the anticipated staffing, funding, and maintenance requirements for the mitigation action to determine if the jurisdiction has the personnel and administrative capabilities necessary to implement the action or whether outside help will be necessary.

- Does the jurisdiction have the capability (staff, technical experts, and/or funding) to implement the action, or can it be readily obtained?
- Can the community provide the necessary maintenance?
- Can it be accomplished in a timely manner?
- Is this action a project for the County staff or contractor or both?

Political - Understanding how your current community and state political leadership feels about issues related to the environment, economic development, safety, and emergency management will provide valuable insight into the level of political support you will have for mitigation activities and programs. Proposed mitigation objectives sometimes fail because of a lack of political acceptability. This can be avoided by determining:

- Is there political support to implement and maintain this action?
- Have political leaders participated in the planning process so far?
- Is there a local champion willing to help see the action to completion?
- Who are the stakeholders in this proposed action?
- Is there enough public support to ensure the success of the action?

- Have all of the stakeholders been offered an opportunity to participate in the planning process?
- How can the mitigation objectives be accomplished at the lowest “cost” to the public?

Legal - Without the appropriate legal authority, the action cannot lawfully be undertaken. When considering this criterion, you will determine whether your jurisdiction has the legal authority at the state, or local level to implement the action, or whether the jurisdiction must pass new laws or regulations. Each level of government operates under a specific source of delegated authority. You should identify the unit of government undertaking the mitigation action, and include an analysis of the interrelationships between local, regional, state, and federal governments.

- Does the state, county, or community have the authority to implement the proposed action?
- Is there a technical, scientific, or legal basis for the mitigation action (i.e., does the mitigation action “fit” the hazard setting)?
- Are the proper laws, ordinances, and resolutions in place to implement the action?
- Are there any potential legal consequences?
- Will the community be liable for the actions or support of actions, or lack of action?
- Is the action likely to be challenged by stakeholders who may be negatively affected?

Economic - Every local and state government experiences budget constraints at one time or another. Cost-effective mitigation actions that can be funded in current or upcoming budget cycles are much more likely to be implemented than mitigation actions requiring general obligation bonds or other instruments that would incur long-term debt to a community. Economic considerations must include the present economic base and projected growth and should be based on answers to questions such as:

- Are there currently sources of funds that can be used to implement the action?
- What benefits will the action provide?
- Does the cost seem reasonable for the size of the problem and likely benefits?
- What burden will be placed on the tax base or local economy to implement this action?
- Does the action contribute to other community economic goals, such as capital improvements or economic development?
- What proposed actions should be considered but be “tabled” for implementation until outside sources of funding are available?

Environmental - You will need to evaluate whether, when implementing mitigation actions, there would be negative consequences to environmental assets such as threatened and endangered species, wetlands, and other protected natural resources.

- How will this action affect the environment (land, water, endangered species)?
- Will this action comply with local, state, and federal environmental laws or regulations?
- Is the action consistent with community environmental goals?

Appendix D: Grant Funding Sources

APPENDIX D: GRANT FUNDING SOURCES

The following is a list of Federal and State Grants that may assist in implementing local All Hazard Mitigation Plans. This information is subject to change at any time; contact the federal or state agency for current grant status. **Updated March 2018.**

Grant Program Name	Address and Telephone Contact Information	Eligible Activities	Federal, State and Local Cost Share Requirements	Other Program Characteristics	Grant Application Due Date
Federal Emergency Management Agency, Hazard Mitigation Grant Program (HMGF)	Maryland Emergency Management Agency 5401Rue Saint Lo Drive Reisterstown, MD 21136	All Hazards Mitigation Planning. Acquisition, relocation, elevation and flood-proofing of flood-prone insured properties, flood mitigation planning, wind retrofit, stormwater improvements, education and awareness.	Federal - 75% State - 25%	Local government must be in compliance with the National Flood Insurance Program to be eligible. Projects must be cost effective, environmentally sound and solve a problem. Repetitive loss properties are a high priority.	After a Presidential Disaster Declaration
Federal Emergency Management Agency, Pre-Disaster Mitigation Grant Program (PDM)	Maryland Emergency Management Agency 5401Rue Saint Lo Drive Reisterstown, MD 21136	Funding these plans and projects reduces overall risks to the population and structures, while also reducing reliance on funding from actual disaster declarations.	Federal - 75% Non-Federal - 25%	PDM grants are to be awarded on a competitive basis and without reference to state allocations, quotas, or other formula-based allocation of funds.	Annual Spring/Summer
Federal Emergency Management Agency, Flood Mitigation Assistance Program (FMA)	Maryland Emergency Management Agency 5401Rue Saint Lo Drive Reisterstown, MD 21136	Assist States and communities to implement measures that reduce or eliminate the long-term risk of flood damage to buildings, manufactured homes, and other structures insured under the National Flood Insurance Program.	RL: Federal - 90% Non-Federal - 10% SRL: Federal - 100% Non-Federal - 0%	Available once a Flood Mitigation Plan has been developed and approved by FEMA.	Annual Spring/Summer
National Flood Insurance Program (NFIP)	Maryland Emergency Management Agency 5401Rue Saint Lo Drive Reisterstown, MD 21136	Provides financial protection by enabling persons to purchase insurance against floods, mudslide or flood related erosion.	Varies	Includes Federally backed insurance against flooding, available to individuals and businesses that participate in the NFIP.	Anytime

Grant Program Name	Address and Telephone Contact Information	Eligible Activities	Federal, State and Local Cost Share Requirements	Other Program Characteristics	Grant Application Due Date
Increased Cost of Compliance	Maryland Emergency Management Agency 5401 Rue Saint Lo Drive Reisterstown, MD 21136	ICC coverage provides payment to help cover the cost of mitigation activities that will reduce the risk of future flood damage to a building. If a Flood Insurance Policy Holder suffers a flood loss and is declared to be substantially or repetitively damaged, ICC will pay up to 30,000 to bring the building into compliance with State or community floodplain management laws or ordinances. Usually this means elevating or relocating the building so that it is above the base flood elevation (BFE).	Varies	Once the local jurisdiction determines the building is substantially or repetitively damaged, the policy holder can contact insurance agent to file an ICC claim.	Anytime
U.S. Economic Development Administration, Economic Adjustment Program	U.S. Department of Commerce Economic Development Administration Curtis Center, 601 Walnut Street, Ste 140 South Philadelphia, PA 19106-3323 215-597-4603	Improvements and reconstruction of public facilities after a disaster or industry closing. Research studies designed to facilitate economic development.	Federal - 50%-70% Local - 30%-50%	Documenting economic distress, job impact and proposing a project that is consistent with a Comprehensive Economic Development Strategy are important funding selection criteria.	Anytime
U.S. Economic Development Administration, Public Works and Development Facilities	U.S. Department of Commerce Economic Development Administration Curtis Center, 601 Walnut Street, Ste 140 South Philadelphia, PA 19106-3323 215-597-4603	Water and sewer, Industrial access roads, rail spurs, port improvements technological and related infrastructure	Federal - 50%-70% Local - 30%-50%	Documenting economic distress, job impact and projects that is consistency with a Comprehensive Economic Development Strategy are important funding selection criteria.	Quarterly Basis
Small Business Administration (SBA) Pre-disaster Mitigation Loan Program	James Rivera, Office of Disaster Assistance, Small Business Administration, 409 3rd Street, SW, STE 6050 Washington, DC 20416; 202-205-6734	Activities done for the purpose of protecting real and personal property against disaster related damage.	No information	The mitigation measures must protect property or contents from damage that may be caused by future disasters and must conform to the priorities and goals of the state or local government's mitigation plan.	
Community Development Block Grants / States Program	U.S Department of Housing and Urban Development, Office of Block Grant Assistance, 451 7th Street SW., Washington, DC 20410-7000; 202-708-1112	Used for long-term recovery needs, such as: rehabilitation residential and commercial building; homeownership assistance, including down-payment assistance and interest rate subsidies; building new replacement housing; code enforcement; acquiring, construction, or reconstructing public facilities.	No information	Citizen participation procedures must be followed. At least 70 percent of funds must be used for activities that principally benefit persons of low and moderate income. Formula grants to States for non-entitlement communities.	After a Presidential Disaster Declaration

Grant Program Name	Address and Telephone Contact Information	Eligible Activities	Federal, State and Local Cost Share Requirements	Other Program Characteristics	Grant Application Due Date
Fire Suppression Assistance Program	Infrastructure Division, Response and Recovery Directorate, FEMA, 500 C Street SW., Washington DC 20024; 202-646-2500.	Provides real-time assistance for the suppression of any fire on public (non-Federal) or privately-owned forest or grassland that threatens to become a major disaster.	Federal - 70% Local - 30%	The State must first meet annual floor cost (f percent of average fiscal year fire costs) on a single declared fire. After the State's out-of-pocket expenses exceed twice the average fiscal year costs, funds are made available for 100 percent of all costs for each declared fire.	Funds from President's Disaster Relief Fund for use in a designated emergency or major disaster area.
Historic Preservation: Repair and Restoration of Disaster-Damaged Historic Properties	Infrastructure Division, Response and Recovery Directorate, FEMA, 500 C Street SW., Washington DC 20024; 202-646-4621.	To evaluate the effects of repairs to, restoration of, or mitigation hazards to disaster-damaged historic structures working in concert with the requirements of the Stafford Act.	Federal - 75% Local - 25%	Eligible to State and local governments, and any political subdivision of a State. Also, eligible are private non-profit organizations that operate educational, utility, emergency, or medical facilities.	After a Presidential Disaster Declaration
Transportation: Emergency Relief Program	Federal Transit Authority, FHWA, DOT, 1200 New Jersey Avenue Washington, DC 20590; 202-366-4043	Provides aid for the repair of Federal-aid roads and roads on Federal lands.	Federal - 100%	Application is submitted by the State department of transportation for damages to Federal-aid highway routes, and by the applicable Federal agency for damages to roads on Federal lands.	After serious damage to Federal-aid roads or roads on Federal lands caused by a natural disaster or by catastrophic failure.
Animals: Emergency Haying and Grazing	Emergency and Non-insured Assistance Programs, FSA, USDA, 1400 Independence Ave, SW, Washington, DC 20013; 202-720-4053	To help livestock producers in approved counties when the growth and yield of hay and pasture have been substantially reduced because of a widespread natural disaster.	No information	Assistance is provided by the Secretary of Agriculture to harvest hay or graze cropland or other commercial use of forage devoted to the Conservation Reserve Program (CRP) in response to a drought or other similar emergency.	Anytime
Emergency Watershed Protection Program	Natural Resources Conservation Service 1400 Independence Avenue, SW Washington, DC 20250	Implementing emergency recovery measures for runoff retardation and erosion prevention to relieve imminent hazards to life and property created by a natural disaster that causes a sudden impairment of a watershed.	Federal - 75% Local - 25%	It cannot fund operation and maintenance work or repair private or public transportation facilities or utilities. The work cannot adversely affect downstream water rights and funds cannot be used to install measures not essential to the reduction of hazards.	TBD
Watershed Protection and Flood Prevention Program	Natural Resources Conservation Service 1400 Independence Avenue, SW Washington, DC 20250	To provide technical and financial assistance in carrying out works of improvement to protect, develop, and utilize the land and water resources in watersheds.	Varies due to project type.	Watershed area must not exceed 250,000 acres. Capacity of a single structure is limited to 25,000 acre-feet of total capacity and 12,500 acre-feet of floodwater detention capacity.	TBD

Grant Program Name	Address and Telephone Contact Information	Eligible Activities	Federal, State and Local Cost Share Requirements	Other Program Characteristics	Grant Application Due Date
Watershed Surveys and Planning	Natural Resources Conservation Service 1400 Independence Avenue, SW Washington, DC 20250	To provide planning assistance to Federal, State, and local agencies for the development of coordinated water and related programs in watersheds and river basins. Emphasis is on flood damage reduction, erosion control, water conservation, preservation of wetlands and water quality improvements.	No information	These watershed plans form the basis for installing needed works of improvement and include estimated benefits and costs, cost-sharing, operation and maintenance arrangements, and other information necessary to justify the need for Federal assistance in carrying out the plan.	Anytime
Emergency Advance Measures for Flood Prevention	USACE 441 G Street, NW, Washington DC 20314; 202-761-0011	To perform activities prior to flooding or flood fight that would assist in protecting against loss of life and damages to property due to flooding.	No information	There must be an immediate threat of unusual flooding present before advance measures can be considered. Any work performed under this program will be temporary in nature and must have a favorable benefit cost ratio.	Governor of State must request assistance
Emergency Streambank and Shoreline Protection	USACE 441 G Street, NW, Washington DC 20314; 202-761-0011	Authorizes the construction of emergency streambank protection measures to prevent damage to highways, bridge approaches, municipal water supply systems, sewage disposal plants, and other essential public works facilities endangered by floods or storms due to bank erosion.	No information	Churches, hospitals, schools, and other non-profit service facilities may also be protected under this program. This authority does not apply to privately-owned property or structures.	TBD
Small Flood Control Projects	USACE 441 G Street, NW, Washington DC 20314; 202-761-0011	Authorizes the construction of small flood control projects that have not already been specifically authorized by Congress.	No information	There are two general categories of projects: structural and nonstructural. Structural projects may include levees, floodwalls, diversion channels, pumping plants, and bridge modifications. Nonstructural projects have little or no effect on water surface elevations, and may include flood proofing, the relocation of structures, and flood warning systems.	TBD
Flood: Emergency Advance Measures for Flood Prevention	USACE 441 G Street, NW, Washington DC 20314; 202-761-0011	To mitigate, before an event, the potential loss of life and damages to property due to floods. Initiates a short reconnaissance effort to determine Federal interest in proceeding. If there is interest, a feasibility study is performed.	No information	Assistance may consist of temporary levees, channel cleaning, preparation for abnormal snowpacks, etc.	Governor of State must request assistance
Continuing Authorities Program (CAP)	USACE 441 G Street, NW, Washington DC 20314; 202-761-0011		Federal - 65% Local- 35%	A local sponsor must identify the problem and request assistance. Small flood control projects are also available.	Anytime

Grant Program Name	Address and Telephone Contact Information	Eligible Activities	Federal, State and Local Cost Share Requirements	Other Program Characteristics	Grant Application Due Date
Hazardous Materials: State Access to the Oil Spill Liability Trust Fund	Director, USCG National Pollution Funds Center, U.S. Coast Guard Stop 7605 2703 Martin Luther King Jr. Avenue, SE Washington, DC 20593-7605 202-795-6000	To encourage greater State participation in response to actual or threatened discharges of oil.	No information	Eligible to States and U.S. Trust Territories and possessions.	Anytime
Emergency Management Assistance (EMA)	Maryland Emergency Management Agency 5401Rue Saint Lo Drive Reisterstown, MD 21401	Funds may be used for salaries, travel expenses, and other administrative cost essential to the day-to-day operations of State and Local emergency management agencies. Program also includes management processes that ensure coordinated planning, accountability for progress, and trained qualified staffing.	Federal - 50%	EMA funded activities may include specific mitigation management efforts not otherwise eligible for Federal funding. Management Assistance program funds may not be used for construction, repairs, equipment, materials or physical operations required for damage mitigation projects for public or private buildings, roads, bridges, or other facilities.	Anytime
Assistant to Firefighters Grant	Source: U.S. Fire Administration CFDA Number: 97.044	Vehicles, safety equipment, protective equipment, etc.	Federal Grant Funds match depended upon population served by Fire Departments and nonaffiliated EMS organizations	Provides assistance to local fire department to protect citizens and firefighters against the effects of fire and fire-related incidents.	Annually in September projects are due.
Emergency Management Assistance (EMA)	Maryland Emergency Management Agency 5401Rue Saint Lo Drive Reisterstown, MD 21136	Funds may be used for salaries, travel expenses, and other administrative cost essential to the day-to-day operations of State and Local emergency management agencies. Program also includes management processes that ensure coordinated planning, accountability for progress, and trained qualified staffing.	Federal - 50%	EMA funded activities may include specific mitigation management efforts not otherwise eligible for Federal funding. Management Assistance program funds may not be used for construction, repairs, equipment, materials or physical operations required for damage mitigation projects for public or private buildings, roads, bridges, or other facilities.	Anytime
Maryland Program Open Space	Department of Natural Resources 580 Taylor Ave. Annapolis, MD 21401 410-260-8445	Local provides financial and technical assistance to local subdivisions for the planning, acquisition, and/or development of recreation land or open space areas.	A local governing body may use up to \$25,000 annually from its 100% (Acquisition) money to fund planning projects that update the Local Land Preservation and Recreation Plans.	Acquires outdoor recreation and open space areas for public use. Administers funds made available to local communities for open and recreational space by the Outdoor Recreation Land Loan of 1969 and from the Land and Water Conservation Fund of the National Park Service, U.S. Department of the Interior.	July 1 st

Grant Program Name	Address and Telephone Contact Information	Eligible Activities	Federal, State and Local Cost Share Requirements	Other Program Characteristics	Grant Application Due Date
Maryland Recreational Trails Program	<p>Maryland Scenic Byways /Recreational Trails Program* Office of Planning & Preliminary Engineering State Highway Administration 707 N Calvert Street Baltimore, MD 21201 (p) 410.545.8637 (f) 410.209-5012 tmaxwell@sha.state.md.us</p>	<p>Maintenance and restoration of existing recreational trail; Development and rehabilitation of trailside facilities and trail linkages; Purchase and lease of trail construction equipment; Construction of new trails; Acquisition of easements or property for recreational trails or recreational trail corridors; and Implementation of interpretive/educational programs to promote intrinsic qualities, safety, and environmental protection, as those objectives relate to the use of recreational trails.</p>	<p>Administered by the State Highway Administration (SHA), this program matches federal funds with local funds or in-kind contributions to implement trail projects. Projects can be sponsored by a county or municipal government, a private non-profit agency, a community group or an individual (non-governmental agencies must secure an appropriate government agency as a co-sponsor). Federal funds administered by the State Highway Administration are available for up to 80% of the project cost, matched by at least 20% funding from the project sponsor. Matching funds must be committed and documented in the local jurisdiction's budget.</p>	<p>Projects must meet state and federal environmental regulatory requirements (NEPA, MEPA, Section 106, Section 4(f)). SHA will provide assistance to the project sponsor to acquire these approvals.</p>	July 1 st
CoastSmart Communities Grant (CCG) Program	<p>Maryland Department of Natural Resources Chesapeake and Coastal Service (p) 410.260.8718 (f) 410.260.8739 sasha.land@maryland.gov</p>	<p>Municipalities and counties in the coastal zone are eligible to apply for and receive funds: Anne Arundel, Baltimore, Calvert, Caroline, Cecil, Charles, Dorchester, Harford, Kent, Prince George's, Queen Anne's, St. Mary's, Somerset, Talbot, Wicomico, and Worcester counties and Baltimore City. Funding for a one-year project that contributes to understanding, planning for, or implementing planning and outreach measures to address coastal hazard issues.</p>	<p>Up to \$75,000 annually</p>	<p>Track A can fund flood vulnerability and risk assessments, updates to planning documents (e.g. hazard mitigation plans, zoning ordinances, building codes, floodplain ordinances, comprehensive plans), education and outreach campaigns and materials, applications to FEMA's Community Rating System in concert with other task outcomes, support for adopting an updated plan and integrating the plan into day-to-day existing planning processes that reduce overall flood risk due to tidal events or stormwater and rain events.</p>	TBD

Grant Program Name	Address and Telephone Contact Information	Eligible Activities	Federal, State and Local Cost Share Requirements	Other Program Characteristics	Grant Application Due Date
Green Infrastructure Resiliency Grant Program	Maryland Department of Natural Resources Chesapeake and Coastal Service (p) 410.260.8799 (f) 410.260.8739 (e) megan.granato@maryland.gov	Municipalities and counties within the Maryland portion of the Chesapeake Bay watershed are eligible to apply for and receive funds. Please note that projects proposed in Cecil, Garrett and Worcester counties must be located within the portions of those counties that are within the watershed in order to be eligible. Funding for one year for Phase 1 and Phase 2 projects and up to 2 years for Phase 3 projects that will assess stormwater management needs associated with localized flooding and design or construct targeted green infrastructure practices to address those needs.	Up to \$100,000 per project	Track B can fund watershed assessments that focus on determining local flood risks and how green infrastructure can be used to address those risks, site or watershed-level green infrastructure implementation plans, and green infrastructure project designs. This track can also fund construction of green infrastructure projects. In order to apply for construction funding, all applicable permit preapplication meetings must be complete.	TBD
Maryland Community Parks and Playgrounds Program	Department of Natural Resources 580 Taylor Ave. Annapolis, MD 21401 410-260-8445	<ol style="list-style-type: none"> 1) development of new parks 2) rehabilitation of existing parks 3) expansion or improvement of existing parks 4) purchase and installation of playground equipment 5) development of environmentally oriented parks and recreation projects 6) development of new trails or extension of existing trails 7) creation of access points to water recreation resources 8) acquisition of land to create new parks. 	The source of funds for this program is primarily State General Obligation Bonds, which may be authorized on an annual basis. The Community Parks and Playgrounds Program provides funding to incorporated municipalities and Baltimore City. Grants may be for up to 100% of the project cost and are selected on a competitive basis. Each applicant will be limited to one (1) Grant Proposal List submission package, which may contain several prioritized projects, per award cycle.	The Department of Natural Resources works to provide opportunities for Marylanders, especially our children, to experience nature. The Department has developed a website that provides information about Nature Play Spaces. Nature Play Spaces are one of the many types of public recreation projects eligible for consideration for Community Parks and Playgrounds grant funding. While land acquisition costs may be considered for project funding, the highest priority will be placed on capital costs associated with park development and improvement.	TBD

Appendix E: Compliance with NFIP

APPENDIX E: COMPLIANCE WITH NFIP

As requested by the Federal Emergency Management Agency (FEMA), additional information regarding Garrett County and its municipalities' strategy for complying with the National Flood Insurance Program (NFIP) has been provided.

Participation in the NFIP is based on a voluntary agreement between the County and its communities and FEMA; however, complying with the NFIP extends beyond participation. Three components are utilized for complying with the NFIP and include: 1) floodplain identification and mapping risk, 2) responsible floodplain management and 3) flood insurance.

NATIONAL FLOOD INSURANCE PROGRAM (NFIP) SURVEY

MUNICIPALITY: GARRETT COUNTY, MD

1. FLOODPLAIN IDENTIFICATION AND MAPPING			
Requirement	Recommended Action	Yes/No	Comments
a. Does the municipality maintain accessible copies of an effective Flood Insurance Rate Map (FIRM)/Digital Flood Insurance Rate Map (DFIRM)? Does the municipality maintain accessible copies of the most recent Flood Insurance Study (FIS)?	Place these documents in the local libraries or make available publicly.	Yes Yes	Hard copies available at Garrett County Permits & Inspections Office. Electronically available on Garrett County Web Map and MD DFIRM Outreach Flood Risk Application https://maps.garrettcounty.org/maps/3x/pz/ http://www.mdloodmaps.net/dfirmimap/
b. Has the municipality adopted the most current DFIRM/FIRM and FIS?	State the date of adoption, if approved.	Yes	Effective 2 October 2013
c. Does the municipality support request for map updates?	If yes, state how.	Yes	The County supports updates for projects that would alter the floodplain and/or floodway
d. Does the municipality share with Federal Emergency Management Agency (FEMA) any new technical or scientific data that could result in map revisions within 6 months of creation or identification of new data?	If yes, specify how.	Yes	The County would share with FEMA any data presented to the County.

e. Does the municipality provide assistance with local floodplain determinations?	If yes, specify how.	Yes	The County provides GIS data for floodplain determinations and provides recommendations elevation surveys
f. Does the municipality maintain a record of approved Letters of Map Change?	If yes, specify the responsible office.	Yes	Garrett County Department of Permits & Inspections

2. FLOODPLAIN MANAGEMENT

Requirement	Recommended Action	Yes/No	Comments
a. Has the municipality adopted a compliant floodplain management ordinance that, at a minimum, regulates the following: (1) Does the municipality issue permits for all proposed development in the Special Flood Hazard Areas (SFHAs)? (2) Does the municipality obtain, review, and utilize any Base Flood Elevation (BFE) and floodway data, and/or require BFE data for subdivision proposals and other development proposals larger than 50 lots or 5 acres? (3) Does the municipality identify measures to keep all new and substantially improved construction reasonably safe from flooding to or above the BFE, including anchoring, using flood-resistant materials, and designing or locating utilities and service facilities to prevent water damage? (4) Does the municipality document and maintain records of elevation data that document lowest floor elevation for new or substantially improved structures?	If yes, answer questions (1) through (4) below. If yes, specify the office responsible. If yes, specify the office responsible. If yes, specify the office responsible. If yes, specify the office responsible.	Yes Yes Yes Yes	https://www.garrettcountry.org/resources/permits-inspections/pdf/GC-Floodplain-Management-Ordinance-8-23-13.pdf Garrett County Department of Permits & Inspections Garrett County Department of Permits & Inspections § 151.058 Garrett County Department of Permits & Inspections Garrett County Department of Permits & Inspections

2. FLOODPLAIN MANAGEMENT			
<i>Requirement</i>	<i>Recommended Action</i>	<i>Yes/No</i>	<i>Comments</i>
b. If a compliant floodplain ordinance was adopted, does the municipality enforce the ordinance by monitoring compliance and taking remedial action to correct violations?	If yes, specify how.	Yes	Consultation with the Maryland Department of the Environment and the Garrett County Health Department During construction, the Permits and Inspection Services Office or an authorized representative shall inspect the site to determine that the work is in compliance with the permit. Any work found to be in noncompliance must be corrected before any additional work is undertaken.
c. Has the municipality considered adopting activities that extend beyond the minimum requirements? Examples include: <ul style="list-style-type: none"> • Participation in the Community Rating System • Prohibition of production or storage of chemicals in SFHA • Prohibition of certain types of structures, such as hospitals, nursing homes, and jails in SFHA • Prohibition of certain types of residential housing (manufactured homes) in SFHA • Floodplain ordinances that prohibit any new residential or nonresidential structures in SFHA 	If yes, specify activities.	Yes	“Materials which are buoyant, flammable, explosive, hazardous to health, or which at times of flooding may be injurious to human, animal, or plant life, shall not be stored below the Flood Protection Elevation.” 1’ Freeboard required

3. FLOOD INSURANCE			
<i>Requirement</i>	<i>Recommended Action</i>	<i>Yes/No</i>	<i>Comments</i>
a. Does the municipality educate community members about the availability and value of flood insurance?	If yes, specify how.	Yes	Link to NFIP provided on County website Emergency Management recommends:

				“Consider purchasing flood insurance through the National Flood Insurance Program. Regular homeowners’ insurance does not cover flood losses.”
b. Does the municipality inform community property owners about changes to the DFIRM/FIRM that would impact their insurance rates?	If yes, specify how.	Yes	Press Release/ Mailings	
c. Does the municipality provide general assistance to community members regarding insurance issues?	If yes, specify how.	Yes	General information is provided, when applicable	

Appendix F: Combined Risk Rating

APPENDIX F: COMBINED RISK RATING

Combined Risk Rating:

The following was utilized to develop a scoring method for the Combined Risk Rating.

Information was obtained from the National Centers for Environmental Information (NCEI), including damages, frequency, fatalities, and injuries. The local assessment was completed by the 2018 HMPC for all identified hazards. A scoring point system was established between 1- 5. This point system is detailed in the table below:

Point Value	Damages	Frequency (years)	Fatalities	Injuries	Local Assessment	Combined Risk **
1	\$0	0 – 0.49	0	0	Low	Low
2	\$0 - \$50,000	0.5 – 0.99	N/A	N/A	Medium-Low	Medium-Low
3	\$50,000 - \$500,000	1 – 1.49	N/A	1	Medium	Medium
4	\$500,000 - \$1M	1.5 – 1.99	N/A	2 - 5	Medium-High	Medium-High
5	> \$1M	> 2	> 1	> 5	High	High

** Combined Risk is the total of all five categories added together – 30-20=”High”; 19 -15=”Medium-High”; 14-10=”Medium”; 9-5=”Medium-Low”; 4-0=”Low”

The subsequent equation was developed in order to establish the combined risk rating:

$$Damage + Frequency + Fatalities + Injuries + Local\ Assessment(x2) = Combined\ Risk$$

Appendix G: Sources

APPENDIX G: SOURCES

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Appendix H: Public Meeting Minutes

APPENDIX H: PUBLIC MEETING MINUTES

This information will be added following the receipt of the FEMA APA letter.

Appendix I: HMPC Meeting Minutes

APPENDIX I: HMPC MEETING MINUTES

Garrett County, Maryland Local Emergency Planning Committee

Minutes

Meeting:	Local Emergency Planning Committee		
Date of Meeting:	16 May 2017	Time:	9:30 am – 12:00 pm
Meeting Facilitator:	John Frank, Director Emergency Management	Location:	Garrett County-EOC Airport Road

Meeting Topics Discussed

LEPC Meeting Topics

- ✓ Review & Approval 22 February 2017 Meeting Minutes;
- ✓ EOC Design & Construction Project Update;
- ✓ Exercise & Training;
- ✓ EMS Status Update;
- ✓ HazMat Team Update;
- ✓ EOP Basic Plan Update;
- ✓ Active Shooter Response Planning;
- ✓ Opioid Epidemic; and
- ✓ Department/Agency/Organization Updates.

Hazard Mitigation Planning Topics

- ✓ 2017 Planning Committee-LEPC;
- ✓ Planning Process Overview;
- ✓ 2017 Planning Committee Hazard Identification and Risk Ranking; and,
- ✓ Municipal Participation and Outreach Strategy.

Attendees

Name	Organization	Name	Organization
Don Beatty	FirstEnergy	Dwayne Kitis	MIEMSS
John Frank	GC Emerg. Mgt.	Nathaniel Watkins	GC DoIT
Wayne Tiemersma	GC EMS	William Swift	GC Public Schools
Virginia Smith	GC Emerg. Mgt.	Paul Harvey	GC Roads
Don McLaughlin	EPA	Jeff Hinebaugh	Garrett Regional MC
Jay Moyer	GC Public Works	Craig Umbel	GC Health Dept.

Exercise & Training

Virginia Smith distributed a training opportunities handout during the meeting (attached). LEPC members called attention to several additional training opportunities, which have been added to the attached handout. Garrett County EM has requested an 8 hr. Public Information Officer (PIO) course; detailed information will be distributed in the next few weeks.

Wayne Tiemersma reported on proposed training including:

- ✓ TECC Course (EMS care in warm zone and rescue task force)-Summer 2017;
- ✓ “Stop the Bleed” training for VFD’s; and,
- ✓ ICS training for Division/Group Leaders.

Craig Umbel reported on HazMat training. Oakland VFD will host leaking oil drum training on May 20th with Oakland Oil Company staff serving as the trainers.

William Swift reported that 5-6 people in Garrett County have completed the ALICE Train-The-Trainer and are approved to teach the course.

Emergency Medical Services Status Update

All County Paid EMS positions have been filled with one exception. Interviews for the Coordinator position are underway.

Wayne Tiemersma reported that EMS has applied for a grant (\$21K) to fund training and additional equipment such as: ARC bags portable liters, quick clot, tourniquets, and other training materials.

HazMat Team Update

HazMat Team organization has been drafted and the team is working on designating team members to fulfill positions. *Draft HazMat Team Organization Chart-Attached*

Oakland VFD obtained a used bread truck that they have converted into a Special Response Unit. Craig Umbel reported that Friendsville is seeking funding to obtain both a hazmat truck and spill response trailer, as well. The truck will be used as a Special Response Unit, located in the northern portion of the county, and will be equipped with the same resources as the Oakland unit.

HMEP Grant-\$2,000 for training, grant performance period ends September 30, 2017.

The team plans to host both the 40 hr. HazMat Technician and Specialized Meter training within the next year. The EPA offers both trainings and exercise development and facilitation free of charge. Must be formally requested.

Emergency Operation Plan

Draft of the Basic Plan has been completed. Review and comment period is underway at this time.

Active Shooter Response Planning

Committee met on March 16, 2017 immediately following the LEPC meeting. The committee made changes to the Capability and Gap Assessment and discussed actions for plan implementation. The Draft Plan will be completed and distributed for review and comment prior to finalization.

Opioid Crisis

John Frank reported that Garrett County has a designated Overdose Review Team in-place and therefore rather than form a new committee to meet the State mandate, the Overdose Review Team will be utilized and possibly expanded. The organization structure of the current team and formal establishment of the team will be discussed at upcoming meeting on May 25th.

Maryland State of Emergency-Opioid Crisis

- ✓ Committing \$50 million over the next five years to beef up enforcement, prevention, and treatment services.
- ✓ The State of Emergency is an instrument that jurisdictions may use to coordinate anti-opioid and heroin strategies.
- ✓ Heroin and fentanyl, a powerful synthetic opioid, killed 1,468 Maryland residents in the first nine months of 2016, up 62 percent from the same period in 2015, according to state data.
- ✓ Clay Stamp, Senior Emergency Management Adviser, and Opioid Operational Command Center Director will lead the statewide effort.

Department/Agency Updates

Nathaniel Watkins, Garrett DoIT discussed the large Ransomware attack in the news. **Ransomware** is a type of malicious software that carries out the cryptoviral extortion attack from cryptovirology that blocks access to data until a ransom is paid and displays a message requesting payment to unlock it. Nathaniel shared that this most recent attack has an estimated damage cost of \$4 billion dollars worldwide.

Broadband is being expanded to the underserved areas of Garrett County. There has been a setback with the MPT tower, however they are working through the issue and should be back on track shortly.

William Swift, Public Schools reported he has included bleeding control stations for all schools in the upcoming budget. New Weather Bug stationed has been installed and is operational at the Route 40 school.

Don McLaughlin, EPA reported that the EPA assists in hazmat exercise planning, development, and execution. These services must be requested in advance.

Don Beatty-First Energy reported that the Great Cumberland Committee is hosting an Addition Symposium on June 8, 2017 at Frostburg State University from 10AM-2PM. This is a free event and lunch is included. The keynote speakers include: retired MD State Police Major, James Pyles, Director of Safety and Security, MD Department of Health and Mental Hygiene as well as former Maryland Health Secretary, Dr. Joshua Sharfstein with John Hopkins University/ The Bloomberg Health Initiative. Please see the attached flyer. They are requesting that attendees register by June 1st by emailing Sharon Corwell: assistant@greatercc.org.

Jay Moyer, Public Works reported that the Traffic Advisory Committee (TAC) is pushing for Oakland control of traffic lights. Issues with funding will determine when light project will take place.

Paul Harvey, Roads reported that on upcoming paving project and a bridge replacement of Sang Run Road. In addition, the roads department recently purchased a 3rd bucket truck. Upcoming training includes safety training (bucket truck) and basic first aid.

Hazard Mitigation Plan Update

Garrett County has received grant funding to complete the 5-year update of the Hazard Mitigation Plan. The Plan was originally completed and adopted by the County in 2012.

Virginia Smith provided an overview of the plan update process and the need for a planning committee. The committee decided that rather than forming a new committee, comprised of the same participants as the LEPC, the LEPC would serve as the planning committee. The LEPC is an all-hazards committee and is comprised of a broad cross-section of stakeholders, which meets the criteria for stakeholder participation under the Disaster Mitigation Act of 2000.

A handout containing hazards identified in the 2012 plan as well as risk rankings for each hazard was distributed. The committee decided to keep all of the hazards identified in the previous plan, however they elected to add, “cyber-threat” as a hazard and to include opioid abuse under epidemic. Modifications were made to the hazard risk rankings by the 2017 planning committee following a review and discussion period. *2017 Hazard Mitigation Planning Committee Risk Analysis for Garrett County-Attached*

Finally outreach strategies were discussed. The committee decided that attendance and presentation of the hazard mitigation plan update process at the municipal mayors meeting was a good outreach strategy. Also, municipal information and feedback packets will be prepared and distributed in order to encourage participation from the beginning of the process.

Meeting Date(s)

- LEPC Committee Meeting Date: **September 19, 2017**

Location: **Garrett County Airport-EOC Room**

Time: **9:30 AM**

Please note the meeting start time has been changed from our usual 10 AM to 9:30 AM.

Garrett County, Maryland Local Emergency Planning Committee

Minutes

Meeting:	Local Emergency Planning Committee		
Date of Meeting:	19 September 2017	Time:	9:30 am – 12:00 pm
Meeting Facilitator:	John Frank, Director Emergency Management	Location:	Garrett County-EOC Airport Road

Meeting Topics Discussed

LEPC Meeting Topics

- ✓ Review & Approval 16 May 2017 Meeting Minutes;
- ✓ EOC Design & Construction Project Update;
- ✓ Exercise & Training;
- ✓ EMS Status Update;
- ✓ HazMat Team Update;
- ✓ EOP Basic Plan Update;
- ✓ NWS Storm Ready;
- ✓ Opioid Epidemic; and
- ✓ Department/Agency/Organization Updates.

Hazard Mitigation Planning Topics

- ✓ 2012-2017 Mitigation Action Items and Projects Status Report; and,
- ✓ Municipal Participation and Outreach Strategy.

Attendees

Name	Organization	Name	Organization
Don Beatty	FirstEnergy	Jeff Hinebaugh	Garrett Regional MC
John Frank	GC Emerg. Mgt.	Alicia Streets	DHS
Robert Stephens	GC Health Dept.	Bradley Williams	MSP
Virginia Smith	GC Emerg. Mgt.	John Reginaldi	MEMA
Craig Umbel	GC Health Dept.	Shelia McHafey	GC Emerg. Mgt.
Lou Battistella	Emerg. Services Board		

Review of 16 May 2017 Meeting Minutes

No comments. Minutes approved as read.

Emergency Operations Center Status Update

EOC facility design with mission critical communications are completed. The EOC design exceeds standard county building codes and includes communications redundancy. The budget for the EOC is \$1.8M. EOC design has resulted in a significant construction budget cost overrun and will need to be examined further to determine next steps.

Exercise & Training

Virginia Smith distributed a training opportunities handout during the meeting (attached). Please note, Garrett County is hosting a Public Information Awareness one-day course on October 11th from 9AM-4PM, at the Garrett Career Technology Training Center. MEMA will be providing the training free of charge. In order to register, please use the MEMA Learning Management System (LMS). If you need assistance with registration, please do not hesitate to contact John Frank or Ginny Smith.

Emergency Medical Services Status Update

There are currently (36) paid EMS providers working in Garret County, comprised of both full & part-time staff. Recently, county EMS providers worked the Savage Man event at Deep Creek State Park. Volunteer fire & rescue were able to provide an ambulance but did not have the manpower available to staff the ambulance.

TCC training completed by all county EMS personnel. Finally, it was reported that response times for second-line calls have been delayed due to volunteer staffing.

HazMat Team Update

HMEP Grant-\$2,000 for gas detection/meter training.

Craig Umbel reported that Oakland VFD has the majority of the hazmat equipment and responds countywide on HazMat incidents.

The team plans to host both the 40 hr. HazMat Technician and Specialized Meter training in 2018-2019. In addition, Garrett County is planning a drill/exercise for 2019. The EPA offers both trainings and exercise development and facilitation free of charge. The training and exercise request will be formally made to EPA by Emergency Management staff.

Emergency Operation Plan (EOP)

Plan will be presented to the GC County Commissioners on November 6, 2017. The *Active Shooter Response Plan*, an annex to the EOP, will be presented, as well.

NWS Storm Ready

The National Weather Service has approved Garrett County as a *Storm Ready* community. A presentation will be given to the Board of County Commissioners on November 6, 2017.

Opioid Epidemic

Bob Stephens, GC Health Officer, reported that each MD jurisdiction has received a grant award to assist in the opioid crisis. GC received \$71,273.19 in grant funding. Funding will be used for coordination, education, and Narcan. Narcan nasal spray is indicated for the emergency treatment of known or suspected opioid overdose.

GC has the lowest reported opioid related deaths in the state. In fact, GC has had on average, 2 deaths/year over that last five years.

Department/Agency Updates

Alicia Streets, Dept. of Human Services, reported that she is working with John Frank to equip a second shelter trailer that will serve up to 100 people. This improved capability will allow for both a northern and southern shelter response trailer deployment.

Main shelters within GC are Northern High School, Southern High School, Northern Middle School, and Southern Middle School. Garrett College CARC is a state approved shelter. The state will provide the facility with back-up generator power.

Jeff Hinebaugh reported that Garrett Regional plans to participate in an Ebola exercise on October 4th. The hospital has been running at or near capacity.

Bradley Williams, MSP reported that the McHenry Barracks now have (16) all-wheel drive vehicles in their motor pool. A new projector and WIFI have been installed in the conference room. Also, the McHenry Barracks has been/is short-staffed over that last two-years, 7 troopers have been removed and not replaced from their roster.

Don Beatty, First Energy, reported that 900 employees have been deployed to Florida to assist in the recovery efforts.

Hazard Mitigation Plan Update

Garrett County has received grant funding to complete the 5-year update of the Hazard Mitigation Plan. The Plan was originally completed and adopted by the County in 2012. A handout containing mitigation action items and high priority projects identified in the 2012 plan was distributed for review and discussion. Four “High” Priority projects were identified in the 2012 plan, one of which has been completed. Mitigation grant projects in Garrett County that have been funded over the course of the last five-year planning cycle (2012-2017) are included on the table below.

PROJECT	LOCATION	AMOUNT AWARDED
Acquisition of generator for water and sewer systems	Accident	\$8,915
Acquisition of generator for (2) at water treatment plants	Grantsville	\$9,500
Acquisition of generator for municipal building	Loch-Lynn Heights	\$2,134
Acquisition of generator for fire station used as a shelter	Friendsville	\$52,290
Acquisition of generator for fire station used as a shelter	Grantsville	\$134,552
Acquisition of generator for building used as a senior center, homeless housing and office for social service provider	Oakland	\$252,985

Acquisition of generators at (5) senior housing developments	Countywide	\$108,005
Dredging in the Potomac River to prevent flooding	Kitsmiller	\$326,200

Planning committee members are requested to communicate any mitigation ideas to Virginia Smith, at their earliest convenience. New ideas will be discussed at the next meeting.

Finally, John Frank reported that EM staff will present information on the hazard mitigation plan update process at the next municipal mayors meeting. This will also serve as an outreach opportunity and will be documented within the plan update. Also, municipal information and feedback packets will be prepared and distributed in order to encourage participation from the beginning of the process.

Meeting Date(s)

- LEPC Committee Meeting Date: **January 16, 2018**
 Location: **Garrett County Airport-EOC Room**
 Time: **9:30 AM**

Please note the meeting start time has been changed from our usual 10 AM to 9:30 AM.

Garrett County, Maryland Local Emergency Planning Committee

Minutes

Meeting:	Local Emergency Planning Committee		
Date of Meeting:	January 16, 2018	Time:	9:30 am – 12:00 pm
Meeting Facilitator:	John Frank, Director Emergency Management	Location:	Garrett County-EOC Airport Road

Meeting Topics Discussed

LEPC Meeting Topics

- ✓ Review & Approval 19 September 2017 Meeting Minutes;
- ✓ EOC Design & Construction Project Update;
- ✓ Exercise & Training;
- ✓ EMS Status Update;
- ✓ HazMat Team Update;
- ✓ EOP Basic Plan Adoption & NWS Storm Ready Designation;
- ✓ Opioid Epidemic; and
- ✓ Mass Care Shelter Update.

Hazard Mitigation Planning Topics

- ✓ Power-Point Presentation.

Attendees

Name	Organization	Name	Organization
John Reginaldi	MEMA	Brian Kloos	MSP
John Frank	GC Emerg. Mgt.	Alicia Streets	DHS
Robert Stephens	GC Health Dept.	Bradley Williams	MSP
Virginia Smith	GC Emerg. Mgt.	Paul Harvey	GC Roads Division
Shelley Menear	Garrett College	Shelia McHafey	GC Emerg. Mgt.
Lou Battistella	Emerg. Services Board	William Swift	GC BOE
Dwayne Kitis	MIEMSS	Jim Hinebaugh	GC Commissioner
Nathaniel Watkins	GC DoIT	Rick Cosner	SHA
Kevin Null	GC Administrator	Jay Moyer	GC Public Works
Katie Salesky	Office of Preparedness & Response	Mike Friend	NRP

Review of 19 September 2017 Meeting Minutes

No comments. Minutes approved as read.

Emergency Operations Center Status Update

Kevin Null reported that the original EOC facility design submitted by the contractor had an estimated price of construction at \$5.6 million. No additional funding has been found. Therefore, Garrett

County has requested a modified design specification package from the architect using a budget of \$1.5 million.

Exercise & Training

Virginia Smith distributed a training opportunities handout during the meeting (attached). Garrett County is hosting several courses this quarter. Additional training and exercise opportunities were discussed by meeting attendees, additional training announcement have been added as attachments.

Emergency Medical Services Status Update

Challenges still exist with coverage. WV is now unable to provide back-up assistance, function as a second due response company, in the southern portion of the County. Dwayne Kitis indicated that there is a thirty-year Interstate Mutual Aid Agreement. For the most part, mutual aid agreements are between individual response companies.

John Frank reported that (4) County EMS responders will attend tactical paramedic training.

HazMat Team Update

John Frank reported that hazmat team members participated in a gas meter detection training using the new gas meter equipment purchased by LEPC hazmat grant funding. Ironically enough, the gas meters were used on a hazmat call that occurred shortly after the training ended. John Frank reported that there have been an estimated 10-15 hazmat responses in GC, either fuel spill or gas leak related.

In addition, the team has worked on their overall organization chart but has yet to finalize their newly created by-laws. This is an outstanding item that they will work on during this quarter.

The team plans to host both the 40 hr. HazMat Technician course funded by the EPA, which is thereby free of charge to Garrett County. The EPA anticipates scheduling this training in 2018 and will provide additional details as they become available. In addition, Garrett County is planning an exercise for 2019/2020. The EPA offers both trainings and exercise development and facilitation free of charge. The exercise request has been formally made to EPA by Emergency Management staff.

In addition, WV will be hosting a regional hazmat & interoperability exercise program in 2018. They have invited all three Western Maryland counties to participate.

- ✓ Table-Top Exercise-April 24th at Davis Center;
- ✓ Functional Exercise held-TBD (late June or early July); and,
- ✓ Full-Scale Exercise will be held over the course of two weekends. TBD (September/October)

Emergency Operation Plan (EOP)

The Board of Commissioners adopted the *Garrett County Emergency Operations Plan* on December 4, 2017. The *Active Shooter Response Plan*, an annex to the EOP, was included.

NWS Storm Ready

The National Weather Service has approved Garrett County as a *Storm Ready* community. A presentation was given to the Board of County Commissioners on December 4, 2017. Garrett County now has weather stations at all three County Roads Garage locations and the following schools:

- * Route 40 Elementary;
- * Friendsville Elementary;
- * Southern High School; and,
- * Northern High School.

Opioid Epidemic

Garrett County has a program in-place, which includes two committees, Opioid (meets monthly) & the Drug Overdose Committee (meets quarterly).

The GC Sheriff's Office tracks drug related calls, starting in July 2017 to present. This tracking yielded eighty-eight (88) calls that were in some way drug related.

2017 was a record year in Maryland for drug overdose statistics. Garrett County had (7), of these (3) were opioid, while the remaining cases were any other drug (except heroin) related overdoses. John Frank reported that County EMS statistics indicate that EMS administered Narcan 39 times.

Bob Stephens reported treatment statistics, (82) in 2014, as compared to (230) in 2017. Going forward, GC plans to:

- ✓ Increase Recovery Support- (2) Coaches;
- ✓ Provide Narcan in Hospital-staff to provide training of the use of Narcan to family members;
- ✓ Educate children on drug abuse-Public Schools & Health Department;
- ✓ Emergency Declaration still in-place-moving from a response phase to a recovery phase; and,
- ✓ Funding secured to hire a coordinator- hire pending.

Mass Care Shelter Updates

Alicia Streets, Dept. of Human Services, reported that second shelter response trailer acquired that will serve up to 100 people. This improved capability will allow for both a northern and southern shelter response trailer deployment. Garrett County now has two shelter response trailers, capable of serving (200) people. MOU was drafted detailing agreement between GC Public Schools and the GC Board of Commissioners. Main shelters within GC are Northern High School, Southern High School, Northern Middle School, and Southern Middle School. Garrett College CARC is a state approved shelter. The state will provide the facility with back-up generator power.

Updates will be made to the Cold Weather Plan to include additional information on warming centers.

Hazard Mitigation Plan Update

Virginia Smith presented a power-point presentation highlighted updated plan elements and next steps. In addition, information from the National Flood Insurance Program was presented and discussed. Garrett County has **(17) Repetitive Loss Properties and (1) Severe Loss Property**. Flooding has been ranked as a "High-Risk" hazard within the plan.

*A **Repetitive Loss (RL) property** is any insurable building for which two or more claims of more than \$1,000 were paid by the National Flood Insurance Program (NFIP) within any rolling ten-year period, since 1978. A **RL property** may or may not be currently insured by the NFIP.*

*The **Severe Repetitive Loss** SRL group consists of any NFIP-insured residential property that has met at least 1 of the following paid flood loss criteria since 1978, regardless of ownership:*

- *4 or more separate claim payments of more than \$5,000 each (including building and contents payments); or*
- *2 or more separate claim payments (building payments only) where the total of the payments exceeds the current value of the property.*

In either case, 2 of the claim payments must have occurred within 10 years of each other.

Multiple losses at the same location within 10 days of each other are counted as 1 loss, with the payment amounts added together.

In addition, current capabilities were reviewed and discussed. New capabilities that were added since the previous 2012 plan included:

- **New Weather Stations**
- **Storm Ready**
- **New Communication Tower/Equipment**
- **Everbridge-Citizen Alert Sign-Up**
- **Mass Care & Shelter**
- **Incident Command**
- **Additional Message Sign Boards**
- **Ordinance Updates-Floodplain & Sediment & Erosion Control**
- **Plan Integration-Comprehensive Plan Update**

Next steps in the planning process include:

- **Meeting(s) with specific County Departments**
 - **Planning & Permits: January 30th**
- **Vulnerability Assessment Update**
 - **Riverine Hazus Run-TBD**
 - **New Flood Insurance Rate Maps & Study**
 - **Update Municipal Synopsis Maps**
 - **Focus of Essential Facilities-All Hazards**
- **Municipal Packets & Meeting**
- **New Hazard Chapters-Cyber Attack & Opioid Crisis**
- **New Mitigation Actions & Projects**

Planning committee members are requested to communicate any mitigation ideas to Virginia Smith, at their earliest convenience. New ideas will be discussed at the next meeting.

Finally, John Frank reported that EM staff plan to present information on the hazard mitigation plan update process at the next municipal mayors meeting. This will also serve as an outreach opportunity and will be documented within the plan update. Also, municipal information and feedback have been prepared and distributed in order to encourage participation throughout the planning process.

Meeting Date(s)

- LEPC Committee Meeting Date: **April 17, 2018**
Location: **Garrett County Airport-EOC Room**
Time: **9:30 AM**
Please note the meeting start time has been changed from our usual 10 AM to 9:30 AM.

Garrett County, Maryland Local Emergency Planning Committee

Minutes

Meeting:	Local Emergency Planning Committee		
Date of Meeting:	April 17, 2018	Time:	9:30 am – 12:00 pm
Meeting Facilitator:	John Frank, Director Emergency Management	Location:	Garrett County-EOC Airport Road

Meeting Topics Discussed

LEPC Meeting Topics

- ✓ Review & Approval 16 January 2018 Meeting Minutes;
- ✓ FirstNet Presentation: Lori Stone-First Net & Jack McArdle-AT&T;
- ✓ EOC Design Project Update;
- ✓ Training Opportunities;
- ✓ HazMat Team Update;
- ✓ EMS;
- ✓ Opioid Epidemic; and
- ✓ Department Updates.

Hazard Mitigation Planning Topics

- ✓ PowerPoint Presentation & Discussion-FEMA Flood Hazus Results & Mitigation Strategies.

Attendees

Name	Organization	Name	Organization
John Reginaldi	MEMA	Ronald Bray	GC BOE
John Frank	GC Emerg. Mgt.	Alicia Streets	DHS
Craig Umbel	GC Health Dept.	Bradley Williams	MSP
Virginia Smith	GC Emerg. Mgt.	Paul Harvey	GC Roads Division
Shelley Menear	Garrett College	Shelia McHafey	GC Emerg. Mgt.
Mike Friend	NRP	William Swift	GC BOE
Dwayne Kitis	MIEMSS	Jess Hinebaugh	Garrett Regional Medical
Nathaniel Watkins	GC DoIT	Rick Cosner	SHA
Katie Salesky	Office of Preparedness & Response	Jay Moyer	GC Public Works

Review of 18 January 2018 Meeting Minutes

No comments. Minutes approved as read.

FirstNet Presentation

First responders, AT&T and the First Responder Network Authority have come together to build **FirstNet, a dedicated purpose-built communications tool created for and by public safety.** Please find attached the PDF-FirstNet PowerPoint presented at the meeting.

Contact information for Maryland FirstNet presenters:

Lori Stone, Region III Lead

First Responder Network Authority
202.997.7594 | lori.stone@firstnet.gov

Keli Page, Principal Consultant

FirstNet Program
301.256.1019 | keli.page@att.com

Robert Holgate, Principal Consultant

FirstNet Program
410.533.8855 | rh834m@att.com

Emergency Operations Center Status Update

John Frank reported that a final cost analysis for the EOC construction project is scheduled for May 1st. The expectation is that this cost analysis will be within the allocated budget, which will ensure that the overall building is constructed at a minimum. The earliest expectation for the start of construction is possibly September/October 2018.

Upcoming Local Training Events

ICS 300 April 25-27, 2018 & ICS 400 April 30-May 1, 2018
Garrett College-Accident Career & Technology Training Center

Public Information Course

Start: **5/15/2018**, 8:30 AM End: **5/17/2018**, 4:00 PM Training Location: Garrett College Career Technology Training Center (CTTC)

The G290 Basic Public Information Course emphasizes the basic skills and knowledge needed for emergency management public information activities. Topics include the role of the PIO in emergency management, conducting awareness campaigns, news release writing, and television interviews. **May 15-16, 2018**

The G291 Joint Information Center/Joint Information System Course discusses how to work in a multi-jurisdiction and/or multi-agency JIC, JIC concept of operations and how to plan for and equip a JIC. **May 17, 2018**

The Schedule is as followed:

The G289 course is taught all of Day 1- **Completed: This is the course that was presented in the Fall of 2017 at Garrett College Career Technology Training Center (CTTC).**

The G290 course will be taught on Days 2-3.

The G291 course will be taught on Day 4 and will include the practical exam.

Registration for this course is through the MEMA Learning Management System (LMS). To [access or register for the MEMA LMS](#), please visit the following webpage: <https://memamaryland.csod.com>

Additional Training Flyers are attached: **Critical Decision Making for Complex Events & Grants Training for Western Maryland Nonprofits.**

HazMat Team Update

Craig Umbel reported that the HazMat Team has approved the by-laws and will present to the Board of County Commissioners. The team is currently working on streamlining the alerting process.

The team plans to host the 40 hr. HazMat Technician course funded by the EPA, which is thereby free of charge to Garrett County. The 4-day training is scheduled as follows:

September 8th-9th and September 29th-30th. In addition, Garrett County is planning an exercise for 2019/2020. The EPA offers both trainings and exercise development and facilitation free of charge. The exercise request has been formally made to EPA by Emergency Management staff.

Finally, WV will be hosting a regional hazmat & interoperability exercise program in 2018. They have invited all three Western Maryland counties to participate.

- ✓ **Table-Top Exercise-April 24th at Davis Center;**
- ✓ Functional Exercise held-TBD (late June or early July); and,
- ✓ Full-Scale Exercise will be held over the course of two weekends. TBD (September/October)

Katie Salesky reported that the Health Department's Radiological Plan is due by the end of 2018. Regional funds may be available in the near future for radiological detection equipment.

Emergency Medical Services (EMS)

John Frank reported that EMS is experiencing a high call volume. Aid requested from both PA & WV is contributing to this high volume of calls for response.

Opioid Epidemic

Garrett County has a program in-place, which includes two committees, Opioid (meets monthly) & the Drug Overdose Committee (meets quarterly). Recently, an Opioid Interdiction Coordinator was hired by the Health Department using grant funding. Bulk purchasing for Narcan is available under state contract. Garrett Regional Medical Center is now discharging identified patients with information and Narcan Kits.

Mass Care Shelter Updates

Alicia Streets, Dept. of Human Services, reported that grant funds have been obtained to supply the second shelter response trailer, which will serve up to 100 people. This improved capability will allow for both a northern and southern shelter response trailer deployment. Garrett County now has two shelter response trailers, capable of serving (200) people.

Hazard Mitigation Plan Update

Virginia Smith presented a power-point presentation highlighting hazus vulnerability assessment results, mitigation strategies, and next steps.

Items completed since the last planning committee meeting included:

- **Meeting(s) with specific County Departments**
 - **Planning & Permits: January 30th**
- **Vulnerability Assessment Update**
 - **Riverine Hazus Run**
 - **New Flood Insurance Rate Maps & Study**
 - **Update Municipal Synopsis Maps**
 - **Focus of Essential Facilities-All Hazards**
- **Municipal Packets Distribution- (6) of (8) municipalities have participated to date.**
- **Meeting with County Tourism/Chamber of Commerce on April 19, 2018**

- **New Hazard Chapters drafted for review -Cyber Attack & Opioid Crisis**
- **New Mitigation Goals, Objectives, and Actions**

During the meeting planning committee members discussed mitigation goals, objectives, and actions. Applicable mitigation actions carried over from the previous plan were assessed for 2018 priority ranking. In addition, new actions were reviewed and assessed for priority ranking. Finally, members of the committee discussed four new mitigation actions for inclusion into the mitigation action table.

- Emergency Generators-Primary Shelters
- Opioid Outreach-Speaker's Bureau
- Opioid Intervention & Interdiction Training
- Cyber Threat Mitigation & Preparedness

Planning committee members are requested to communicate any additional mitigation ideas to Virginia Smith, at their earliest convenience. Also, municipal information and feedback will continue to be sought. The two remaining municipalities will be encouraged to participate.

Department/Agency Updates

Alicia Streets-DHS reported that the Vulnerable Populations Committee held a winter storm after action meeting. They committee recommended the scheduling of joint training with both DHS-nursing and Health Department shelter staff. In addition, each county DHS has received an ebola quarantine push-pack.

William Swift-Public Schools discussed recent incidents indicates Family Reunification Planning is of vital importance. Alicia Streets expressed her concern over the lack of a plan for Garrett County. The next step is to establish a committee and begin the planning process. Mr. Swift indicated that (15) trauma kits have been obtained and installed at all GC public schools. All administrators have had the "Stop the Bleed" training. Nurses are scheduled for training on April 23, 2018. Mr. Swift also reported that as a result of new legislation, school safety & security funds will be made available to local jurisdictions. Funds will be available for additional School Resource Officers.

Finally, Mr. Swift is in the beginning stages of coordination with MVIEW to integrate public schools cameras into the system.

- **MVIEW camera feeds are available for streaming on tablets, smart phones, and other mobile devices.** MVIEW has the ability to group cameras together for ease of use by first responder. Past special events such as the Preakness, the Baltimore Grand Prix, and the 2014 Star-Spangled Spectacular have utilized MVIEW camera groupings so that first responders, command centers, and users can easily access CCTV from their portable handheld devices.

Dwayne Kitis-MIEMSS reported that Garrett County was awarded \$6K for "Stop the Bleed" training and EMS Protection (PPE).

Jeff Hinebaugh reported that GRMC successfully completed the Joint Commission Survey.

Evacuation Surge Drill was conducted at Garrett Regional Medical Center with participation from 9-1-1, community action, and emergency management. The drill was very successful. **Katie Salesky** indicated that the health department & hospital is expected to participate in an annual drill going

forward. However, the drills will not include a physical evacuation every year. Additional grant funds will be obtained to continue these efforts. Training and resources will be provided to additional entities such as long-term care and dialysis centers.

Nathaniel Watkins, DoIT reported on cyber-attacks. Ironically, Mr. Watkins dealt with an attack while attending the meeting. Problems with hackers tapping into GC government phone system for internationally calling, resulting in illegal use and expensive charges to the county has occurred several times.

Paul Harvey, Roads reported that they are beginning spring cleanup efforts and the paving program will begin sometime in May.

Brad Williams, MSP reported that the motor pool has been replaced, as needed, with all-wheel drive vehicles. The McHenry Barracks will continue to operate despite rumors. Also, new staff is needed to fill-in positions, at least (4).

Shelley Menear, Garrett College reported that they are interested in the "Stop the Bleed" training. The summer has been targeted for this training.

Meeting Date(s)

- LEPC Committee Meeting Date: **September 11, 2018**
Location: **Garrett County Airport-EOC Room**
Time: **9:30 AM**

Appendix J: 2012 HMPC Rankings

APPENDIX J: 2012 HAZARD MITIGATION PLANNING COMMITTEE RANKINGS

Hazard Mitigation Planning Committee Risk Analysis Ranking for Garrett County, 2012

HAZARD	High	Medium High	Medium	Medium Low	Low
Drought				X	
Extreme Heat					X
Riverine Flooding		X			
High Wind		X			
Hurricane			X		
Thunderstorm		X			
Tornado			X		
Winter Weather	X				
Soil Movement			X		
Wildfire			X		
Fire/Explosion			X		
Dam Failure			X		
Epidemic			X		
HazMat			X		
Transportation - Fog		X			