SECTION 6 – VULNERABILITY ASSESSMENT

Based on the *Hazard Analysis* for the localities in Planning District 14, as updated, the hazards listed below have been chosen for inclusion in a high-level, detailed vulnerability assessment. This listing differs slightly in terminology and grouping from the *Hazard Identification* and *Hazard Analysis* sections, as those hazards specifically affecting the region are more fully explored in this section. For example, the listing as seen in previous sections for "Winter Storms and Freezes" is now being addressed as "Winter Storms," as freezes have essentially been ruled out as not being a significant threat compared with other hazards.

- **Flood**
- **Hurricanes and Tropical Storms**
- **Severe Thunderstorms and Tornadoes**
- **Wildfire**
- **Drought/Extreme Heat**
- **Winter Storms**
- **Earthquakes**
- **Sinkholes**
- **Landslides**
- **Dam/Levee Failure**

These hazards were chosen from the previous sections due to the higher level of risk for these hazards compared to others. It is important to note that this risk assessment is based on best available data and represents a base-level assessment for the planning area. Additional work will be done on an ongoing basis to enhance, expand and further improve the accuracy of the baseline established here.

44 CFR Requirement

44 CFR Part 201.6(c)(2)(ii): The risk assessment shall include a description of the jurisdiction's vulnerability to the hazards described in paragraph (c)(2)(i) of this section. The description shall include an overall summary of each hazard and its impact on the community. The plan should describe vulnerability in terms of: (A) The types and numbers of existing and future buildings, infrastructure, and critical facilities located in the identified hazard areas; (B) An estimate of the potential losses to vulnerable structures identified in paragraph (c)(2)(ii)(A) of this section and a description of the methodology used to prepare the estimate; (C) Providing a general description of land uses and development trends within the community so that mitigation options can be considered in future land use decisions.

Methodologies Used – Original Plan

For the original Plan, to drive the risk assessment effort, two distinct methodologies were applied. One methodology consists of utilizing HAZUS®, a geographic information system (GIS)-based loss estimation software available from the Federal Emergency Management Agency as well as a detailed GIS-based approach independent of the HAZUS software. These two GIS-based studies, which together form a quantitative assessment, were then combined with a qualitative element to create a hybrid approach. The quantitative assessment focuses on potential loss estimates, while the qualitative assessment is comprised of a scoring system built around values assigned by the Mitigation Advisory Committee to the likelihood of occurrence, spatial extent and potential impact of each hazard studied here.

It is important to note that the determinations presented in this section of the original Plan were developed using best available data, and the methodologies applied resulted in an approximation of risk. The intent was for those estimates to be used to understand relative risk from hazards and the potential losses that may be incurred; however, uncertainties are inherent in any loss estimation methodology, arising in part from incomplete scientific knowledge concerning natural hazards and their effects on the built

environment and also from approximations and simplifications that are necessary in order to provide a comprehensive analysis.

Methodologies used – Original Plan and Plan update

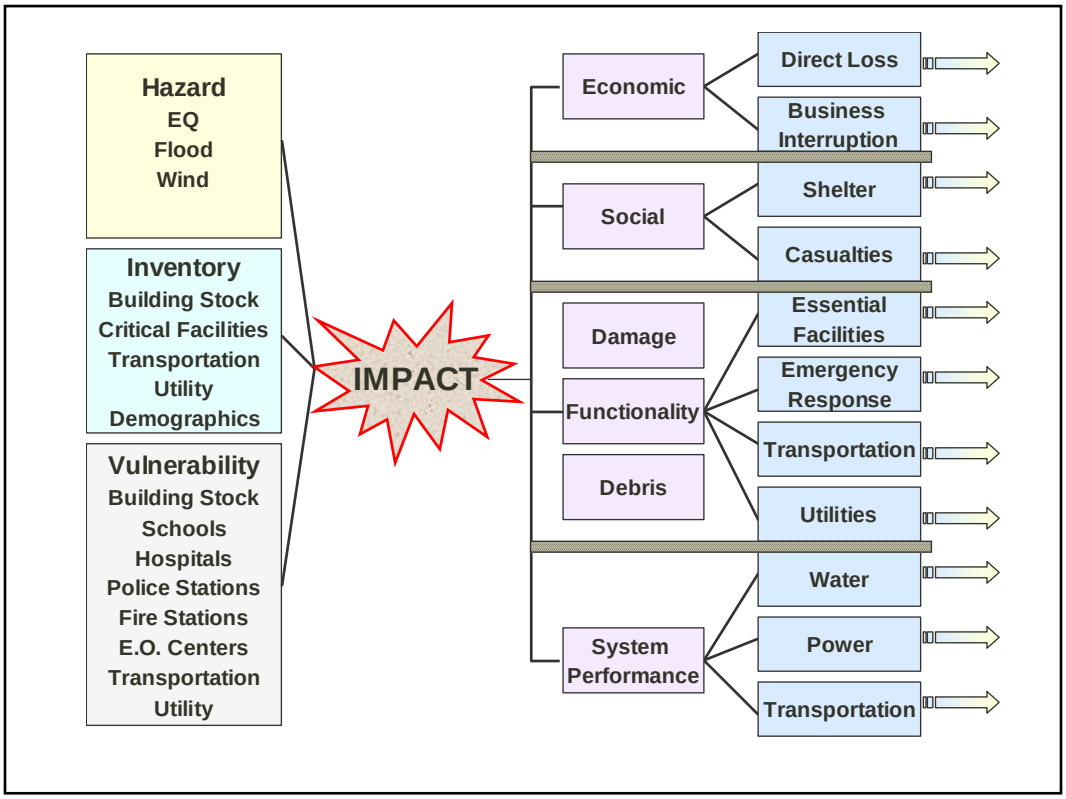
The vulnerability assessment was conducted using a number of different methods:

HAZUS – This is a standardized loss estimation software package from FEMA, built on an integrated GIS platform. Among other things, it can produce regional profiles and estimated losses for different hazards and estimate total dollar exposure. It is described above. ***NOTE:*** *There are compatibility issues with HAZUS on the CRC's operating system. Therefore, the HAZUS data from the original Plan will NOT be updated for the Plan update.*

Explanation of HAZUS Risk Assessment Methodology

HAZUS is FEMA's nationwide standardized loss estimation software package, built on an integrated GIS platform. This risk assessment utilized HAZUS to produce regional profiles and estimated losses for two of the hazards addressed in this section: hurricane winds and earthquake. The HAZUS risk assessment methodology is parametric, in that distinct hazard and inventory parameters—such as wind speed and building type, for example—were modeled using the HAZUS software to determine the impact (damages and losses) on the built environment. **Figure 6.1** shows a conceptual model of HAZUS^{MH} methodology.

Figure 6.1
Conceptual Model of HAZUS Methodology



Explanation of GIS-based (Non-HAZUS) Risk Assessment Methodology
The general steps used in the GIS-based assessment for the original Plan conducted independently of the HAZUS^{MH} software are summarized below:

- GIS data was collected from local, state and national sources (at the time of the original Plan, local GIS data available was severly limited. Since that time, more data has become available).
- For the flood hazard, HAZUS software was used to identify the major stream and river reaches in the region. Then, the number of census blocks within 100 feet of the reaches were identified using ESRI® ArcGIS™ 8. Next, exposure data from within HAZUS (Dunn and Bradstreet data) was calculated for those identified census blocks. Finally, professional planning judgment was used to determine that a value of 15 percent of the total exposure for those identified census blocks can be considered vulnerable to the flood hazard.
- For the severe thunderstorm, tornado, winter storm, drought and wildfire hazards, best available data on historical hazard occurrences (limited to NOAA National Climatic Data Center records and Virginia Department of Forestry data for wildfire) was used to produce an annualized loss estimate of potential damages. Using this data, annualized loss estimates were generated by totaling the amount of property damage over the period of time for which records were available, and calculating the average annual loss. GIS was used to show the correlations between potential future events and residential population distribution throughout the county. In instances where multiple counties are affected and the value for property damage reflects the total for the affected area, professional judgment was used in extracting a reasonable share for each county in Planning District 14 to produce an annualized loss estimate of potential damages in region.
- For the erosion and dam/levee failure hazards, meaningful historical data (meaning data which would have included property damages and other essential indicators) was virtually non-existent, and therefore annualized potential losses for these hazards was assumed to be negligible.

For the 2011 Plan Update, HAZUS was not used for this section due to compatibility issues (the HAZUS software was not compatible with the CRC computer's operating system). However, HAZUS could be used in future plan updated as those compatibility issues are addressed.

Loss estimations from the 2005 Plan were reviewed, and this data was supplemented with data from the State Plan. Information from the State Plan was included in the Plan update. The HAZUS tables from the original Plan can be found in the Appendixes. Updated loss estimation information can be found in the various hazard sections that follow in this chapter.

Data from the State Hazard Mitigation Plan – Data from the State Hazard Mitigation Plan was used to help determine risk and rank hazards. The State Plan used data from a variety of sources to determine risk for the State and individual jurisdictions. As mentioned above, loss estimation data from the State Plan was used to supplement loss estimations from the original regional Plan.

Land Use/Growth Patterns – This data consists of two different components: Maps for each jurisdiction, to show where growth is expected to occur, and building permit data for each jurisdiction (to illustrate growth trends). Future Land Use maps for each locality can be found in the Appendixes.

Other federal/state/local Data – This includes things such as repetitive loss properties in the region, and detailed information on NFIP policies and coverage by jurisdiction.

Mapping Critical Facilities – Critical facilities were mapped, to show where they are located. These maps were updated from the original Plan, to show more up-to-date data and include facilities that were not included in the original Plan. These maps can be compared to Land Use maps and flood maps, to show which facilities are more vulnerable to certain hazards. This section of the revised Plan will also include a listing of critical facilities in the region. Maps of critical facilities, by locality, can be found in the Appendixes.

Mapping Flood Areas – This was done in GIS, using digital data from FEMA. The original Plan only include a flood map for the Town of Farmville, as that was the only jurisdiction for which the data was available in GIS. For the Plan update, this was done for all jurisdictions. Maps of flood areas, by locality, can be found in the Appendixes.

In addition, local input is used to help analyze the risk from each hazard to the region. Members of the Project Management Team and participating localities reviewed the data presented in this section for accuracy.

Ranking of Hazards

Hazard rankings – from the original Plan, and the updated Plan – are based on a point system, as per a qualitative assessment. This assessment is comprised of a scoring system built around values assigned by the Mitigation Advisory Committee and regional stakeholders to the likelihood of occurrence, spatial extent and potential impact of each hazard.

For the Plan update, members of the Project Management Team were asked to rank the hazards for their respective jurisdiction. This section of the Plan includes a cumulative ranking of hazards for the entire region (located in “Conclusions on Hazard Risk” at the end of this section). The rankings were averaged out to get regional scores for each hazard.

Rankings for each county and the Town of Farmville are located in the Appendix for each respective locality.

The scoring system used by each locality is shown in **Table 6.1**.

Using both the qualitative and quantitative analyses to evaluate the hazards that impact the region provides members of the Project Management Team with a dual-faceted look at the hazards. This allows local officials to not only recognize the most costly hazards, but also plan and prepare for other hazards that may not cause much monetary damage, but put a strain on the local resources needed to recover after their impact on the region.

Table 6.1
Criteria for Qualitative Assessment

	Assigned Value	Definition
Likelihood of Occurrence		
Highly Likely	3	Near 100% annual probability
Likely	2	Between 10 and 100% annual probability
Possible	1	Between 1 and 10% annual probability
Unlikely	0	Less than 1% annual probability
Spatial Extent		
Large	3	More than 50% of area affected
Moderate	2	Between 10 and 50% of area affected
Small	1	Less than 10% of area affected
Potential Impact		
Catastrophic	4	High number of deaths/injuries possible. More than 50% of property in affected area damaged or destroyed. Complete shutdown of facilities for 30 days or more.
Critical	3	Multiple deaths/injuries possible. More than 25% of property in affected area damaged or destroyed. Complete shutdown of facilities for more than one week.
Limited	2	Minor injuries only. More than 10% of property in affected area damaged or destroyed. Complete shutdown of facilities for more than one day.
Minor	1	Very few injuries, if any. Only minor property damage and minimal disruption on quality of life. Temporary shutdown of facilities.

The values assigned for each option chosen are added together for each hazard to arrive at a total score. For example, in Planning District 14 (region-wide), the hurricane and tropical storm hazard is considered Possible (1.875 average score), with a Moderate reach (2.625) and a Limited potential impact (2.375). This gives the hurricane and tropical storm flood hazard a total hazard rating of 6.875 (10 being the highest possible score.) This presents the hurricane and tropical storm hazard as one of the highest-ranking hazards for the region.

Overview of Vulnerability in the Region

According to the U.S. Census, the total population of the region in 2010 was 104,609. (The total population in 2010 for the state of Virginia as a whole was 8,001,024). The rate of population change from 2000 to 2010 was 7.7 percent for the region, compared with 13.0 percent for the State of Virginia for the same period. The average number of persons per square mile for the region in 2000, according to the U.S. Census, was 34.88. By 2010, the average for the region was 37.06. **Table 6.2** shows the population change between 2000 and 2010 by county.

Table 6.2
Regional Population Statistics

County	Population (2000)	Population Per Square Mile (2000)	Population (2010)	Population Per Square Mile (2010)	Population Change 2000-2010
Amelia	11,400	31.15	12,690	34.67	+ 11.3%
Buckingham	15,623	26.84	17,146	29.46	+ 9.7%
Charlotte	12,472	26.48	12,586	26.72	+ 0.9%
Cumberland	9,017	30.46	10,052	33.96	+ 11.5%
Lunenburg	13,146	29.67	12,914	29.15	- 1.7%
Nottoway	15,725	51.06	15,853	51.47	+ 0.8%
Prince Edward	19,720	55.24	23,368	65.46	+ 18.5%

Source: U.S. Census Bureau

The total dollar exposure of buildings within the region was estimated in the original Plan to be approximately $4,597,000,000. This is based on a study of 32,000 residential, commercial, industrial and other buildings located throughout the county, derived from HAZUS data. For data used in the original Plan, HAZUS used Census 2000 and Dunn and Bradstreet (2002) data for its default inventories. Any values unavailable in the HAZUS software were not reflected. Total dollar exposure accounts for both the building and the building's contents were based on a percentage of the building's value. As noted before, the HAZUS data was not updated due to compatibility issues with the software. As noted in Table 6.2, the population for the entire region did not change dramatically. For some localities, in fact, population barely changed or even dropped. Therefore, information from original and state plans are still relevant as far as vulnerability. Due to the limited amount of new development in the region as a whole, even though we were not able to run HAZUS numbers for the update, we feel this is an accurate representation of building values in the region.

Development Trends

A general analysis of land uses and development trends within the planning area is an important factor in formulating mitigation options that influence future land use decisions. The land use cover data from the original plan was updated, using data from 2008. Data for Amelia County is included in this Plan Update. Additionally, land use maps for each of the covered jurisdictions are included in the Appendixes.

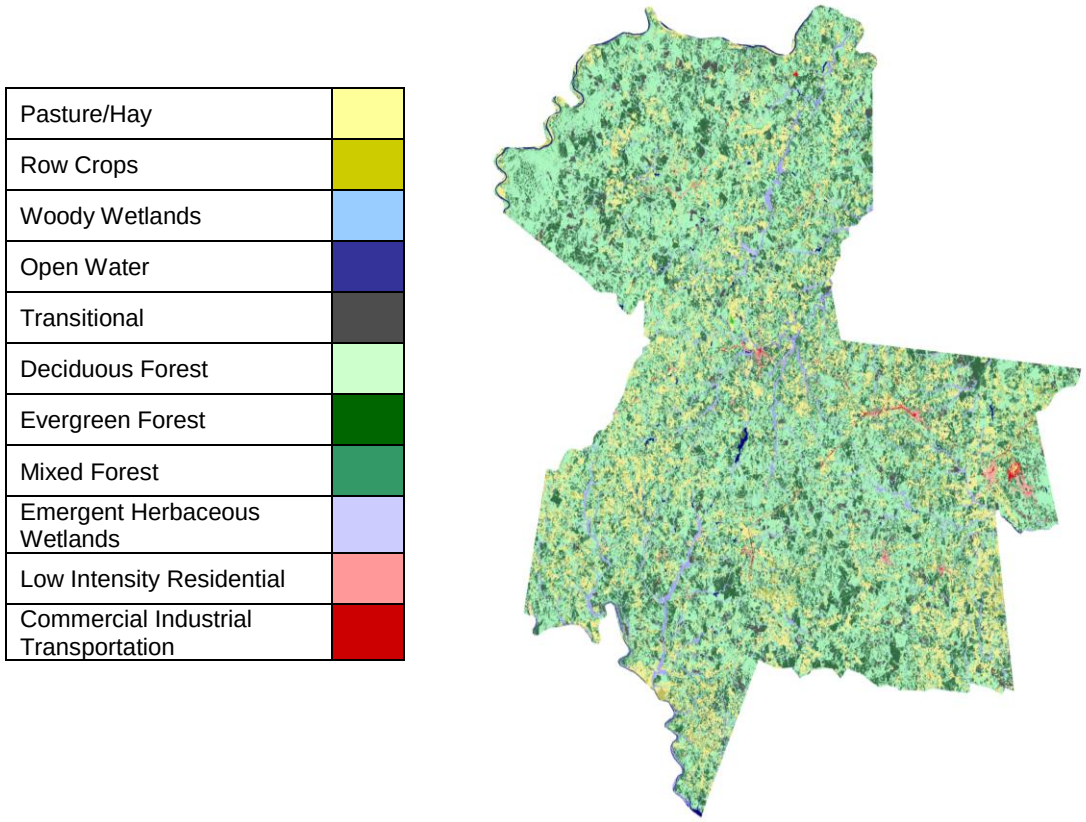
There is little change in the data as per the update. Much of the land in the region remains undeveloped or is in use as farmland (**Table 6.3**). Another factor that contributes to an overall understanding of development trends is population change. According to the U.S. Census Bureau, the rate of population growth in the region from 2000 to 2010 was 7.28 percent, which is less than the State as a whole during the same period (13.0 percent).

Table 6.3
Planning District 14 Land Use Land Cover Data
(As a percentage of total land cover)

Land Cover Type	Amelia	Buckingham	Charlotte	Cumberland	Lunenburg	Nottoway	Prince Edward
Pasture/Hay	20.0	11.8	19.7	17.1	18.9	19.6	18.5
Row Crops	2.8	0.8	2.6	1.3	2.2	2.4	1.1
Woody Wetlands	2.4	1.4	5.0	4.3	3.0	2.5	4.3
Open Water	0.5	1.0	0.8	0.9	Less than 0.5	0.6	0.9
Transitional	3.2	3.4	2.2	2.1	3.0	2.6	1.0
Deciduous Forest	37.2	51.9	38.1	41.0	40.2	37.4	42.5
Evergreen Forest	12.3	12.8	12.8	12.4	14.3	12.2	10.9
Mixed Forest	20.8	16.2	17.8	19.8	17.3	19.3	19.1
Emergency Herbaceous Wetlands	0.6	Less than 0.5	0.5	0.6	Less than 0.5	0.5	Less than 0.5
Low Intensity Residential	Less than 0.5	Less than 0.5	Less than 0.5	Less than 0.5	Less than 0.5	1.9	1.0
Commercial Industrial Transportation	Less than 0.5	Less than 0.5	Less than 0.5	Less than 0.5	Less than 0.5	1.0	Less than 0.5

Source: National Land Cover Dataset, UVA Geostat Center, http://fisher.lib.virginia.edu/collections/gis/nlcd/

Map 6.1
Planning District 14 Land Use Land Cover Map
(Maps for each individual county are located in the Appendixes.)



Overview of Critical Facilities

An important element to consider when developing a hazard mitigation plan is critical facilities. These facilities are crucial during times of disaster and it is important for communities to plan for their protection. For this Plan update, the information critical facilities that were analyzed were taken from the default data included in the HAZUS^{MH} software, double checked for accuracy with local officials from all participating counties and jurisdictions. **The maps in the Appendixes** offer a visual display of the data included in HAZUS^{MH}. **Table 6.4** lists the critical facilities in the region as provided by HAZUS^{MH} along with changes to the default data as provided by the local officials.

Table 6.4
Critical Facilities in Planning District 14 (HAZUS^{MH} Inventory and Local Input)

County	Jurisdiction	Facility Name	Facility Type
Amelia	Amelia C.H.	Amelia County Administration Building	County Office
Amelia	Amelia C.H.	Amelia County Courthouse	Court Facility
Amelia	Amelia C.H.	Amelia County Sheriff Office	Police
Amelia	Amelia C.H.	Amelia County Emergency Operations Ctr.	Public Safety
Amelia	Amelia C.H.	Amelia County Courts Building	Court
Amelia		Fire Station #1	Fire Station
Amelia		Fire Station #2	Fire Station
Amelia		Fire Station #3	Fire Station
Amelia		Fire Station #4	Fire Station
Amelia		Fire Station #5	Fire Station
Amelia		Amelia Rescue Squad	Rescue Squad
Amelia	Amelia C.H.	Amelia High School	School
Amelia	Amelia C.H.	Amelia Middle School	School
Amelia	Amelia C.H.	Amelia Elementary School	School
Amelia	Amelia C.H.	Amelia Academy	School
Amelia		Love Covenant School	School
Amelia		Amelia Healthcare Center	Medical Center
Amelia	Amelia C.H.	Amelia County School Board Office	School Adm.
Amelia	Amelia C.H.	Amelia County School Bus Shop	School Maint.
Amelia		Day Care at Amelia Baptist Church	Day Care
Amelia		James L. Hamner Public Library	Library
Amelia		DaVita	Dialysis Center
Amelia		Amelia Nursing and Rehabilitation Center	Licensed Nursing Home
Amelia		Amelia Head Start	Licensed Daycare Center
Amelia		AmeriKids Child Development Center	Licensed Daycare Center

County	Jurisdiction	Facility Name	Facility Type
Amelia		Little Hands of Hope	Licensed Daycare Center
Amelia		Sheila Walls	Licensed Daycare Center
Amelia		Crossroads CSB	Mental Health
Amelia		Mannboro Healthcare Center	Medical Facility
Amelia		Amelia County Industrial Park	
Amelia		Landfills	Landfills
Amelia	Amelia C.H.	Amelia County Health Department	Healthcare
Amelia		Amelia County Animal Shelter	Animal Control
Buckingham		Arvonia Rescue Squad	Rescue Squad
Buckingham		Arvonia Volunteer Fire Department	Fire Station
Buckingham		Buckingham Correctional Facility	Correctional Facility
Buckingham	Buckingham	Buckingham County High School	School
Buckingham		Buckingham County Industrial Park	
Buckingham		Buckingham County Middle School	School
Buckingham	Buckingham	Buckingham County Primary School	School
Buckingham	Buckingham	Buckingham Sheriff's Department	Police Station
Buckingham	New Canton	Calvary Christian School	School
Buckingham	Curdsville	Curdsville Community Center	Community Center
Buckingham		Dillwyn Correctional Facility	Correctional Facility
Buckingham		Dillwyn Elementary School	School
Buckingham		Dillwyn Primary School	School
Buckingham		Buckingham Rescue Squad	Rescue Squad
Buckingham	Dillwyn	Dillwyn Train Station	
Buckingham		Dillwyn Volunteer Fire Department	Fire Station
Buckingham	Glenmore	Glenmore Rescue Squad	Rescue Squad
Buckingham	Glenmore	Glenmore Volunteer Fire Department	Fire Station
Buckingham	New Canton	Gold Hill Elementary School	School
Buckingham		Gold Hill Village Retirement Community	Retirement Home
Buckingham	Dillwyn	Heritage Hall Nursing Home	Nursing Home
Buckingham		Lookout Tower (non-operational)	Fire Tower
Buckingham		Mary's Rest Home	Rest Home
Buckingham	Dillwyn	New Dominion School	School
Buckingham	Dillwyn	Central Virginia Christian School	School
Buckingham		Old Buckingham County Middle School	School
Buckingham		Toga Volunteer Fire Department	Fire Station

County	Jurisdiction	Facility Name	Facility Type
Buckingham	New Canton	Lindey's Quality Home Care	Nursing Home
Buckingham	New Canton	Central Virginia Community Health Center	Medical Office
Charlotte	Saxe	Bacon District Elementary School	School
Charlotte	Red Oak	Bacon District Volunteer Fire Department	Fire Station
Charlotte	Keysville	Wayland Nursing and Rehabilitation	Nursing Home
Charlotte	Charlotte Court House	Central Middle School	School
Charlotte	Phenix	VDOT Maintenance Facility	State Facility
Charlotte	Crafton's Gate	VDOT Maintenance Facility	State Facility
Charlotte	Charlotte Court House	Charlotte Child Care	Day Care Center
Charlotte	Keysville	Keysville United Methodist Church	Day Care Center
Charlotte	Charlotte Court House	Early Learning Center	School
Charlotte	Drakes Branch	Duck Puddle Day Care	Day Care Center
Charlotte	Wyliesburg	Charlotte County Rescue Squad Satellite Office	Rescue Squad
Charlotte	Keysville	Charlotte County Rescue Squad	Rescue Squad
Charlotte	Charlotte Court House	Charlotte County Sheriff's Office	Police Station
Charlotte	Charlotte Court House	Charlotte Court House Volunteer Fire Department	Fire Station
Charlotte	Cullen	Cullen Volunteer Fire Department	Fire Station
Charlotte	Drakes Branch	Drakes Branch Volunteer Fire Department	Fire Station
Charlotte	Keysville	Eureka Elementary	School
Charlotte	Keysville	Governor's School Econ/Tech	School
Charlotte	Keysville	Heartland Regional Industrial Park	Industrial Park
Charlotte	Keysville	Keysville Volunteer Fire Department	Fire Station
Charlotte	Phenix	Phenix Elementary School	School
Charlotte	Phenix	Phenix Volunteer Fire Department	Fire Station
Charlotte	Charlotte Court House	Randolph Henry High School	School
Charlotte	Red House	Red House Volunteer Fire Department	Fire Station
Charlotte	Keysville	Southside Virginia Community College	Community College
Cumberland	Cumberland	Able Rest Home	Rest Home
Cumberland	Cumberland	Bear Creek State Park	State Park
Cumberland	Cartersville	Cartersville Rescue Squad	Fire Station
Cumberland	Cartersville	Cartersville Volunteer Fire Department	Fire Station
Cumberland	Cumberland	Covance (Research Lab)	Research Facility
Cumberland	Cumberland	Cumberland County High School	School

County	Jurisdiction	Facility Name	Facility Type
Cumberland	Cumberland	Cumberland County Middle School	School
Cumberland	Cumberland	Cumberland County Sheriff's Office	Police Station
Cumberland	Cumberland	Cumberland Elementary School	School
Cumberland	Cumberland	Cumberland Rescue Squad	Fire Station
Cumberland	Cumberland	Cumberland Volunteer Fire	Fire Station
Cumberland	Farmville	Farmville Municipal Airport	Airport
Cumberland	Farmville	G&T Adult Home	Rest Home
Cumberland	Farmville	New Life Christian Academy	School
Cumberland	Farmville	Riverside Industrial Park	Industrial Park
Cumberland	Farmville	Southern Cumberland Community Volunteer Fire Department	Fire Station
Cumberland	Farmville	Southside Enterprises (Crossroads)	
Cumberland	Cumberland	VDOT (Maintenance Shop) – 2 facilities	State Facilities
Cumberland	Cumberland	Virginia State Forest Department	State Facility
Cumberland	Cartersville	Willow Oaks (Treatment Center)	
Cumberland	West of Cumberland C.H.	Cumberland Community Center	Community Center/Educational Facility
Cumberland		Business/Industrial Park	
Lunenburg	Victoria	Central High School	School
Lunenburg	Kenbridge	Cralle Manor Nursing Home	Nursing Home
Lunenburg	Dundas	Dundas Ruritan Club	
Lunenburg	Kenbridge	Kenbridge Elementary	School
Lunenburg	Kenbridge	Kenbridge Fire Department	Fire Department
Lunenburg	Kenbridge	Kenbridge Gym	Gym
Lunenburg	Kenbridge	Kenbridge Police Department/Town Hall	Police Station/Town Office
Lunenburg	Kenbridge	Kenbridge Rescue Squad	Rescue Squad
Lunenburg	Victoria	Lunenburg Community Building	Community Center
Lunenburg		Lunenburg County Airport	Airport
Lunenburg	Kenbridge	Lunenburg County Commerce Park	Business Park
Lunenburg	Lunenburg Court House	Lunenburg County Sheriff's Office	Police Station
Lunenburg	Lunenburg	Lunenburg Crime Solvers	Police Station
Lunenburg	Victoria	Lunenburg Middle School	School
Lunenburg	Meherrin	Meherrin Volunteer Fire Department	Fire Station*
Lunenburg	Victoria	Victoria Elementary School	School
Lunenburg	Victoria	Peoples Community Center	Community Center
Lunenburg	Dundas	Southside Electric Cooperative	

County	Jurisdiction	Facility Name	Facility Type
Lunenburg	Victoria	Old Victoria High School	School/Community Facility
Lunenburg	Victoria	Victoria Fire Department	Fire Station
Lunenburg	Victoria	Victoria Police Department/Town Office	Police Station/Town Office
Lunenburg	Victoria	Victoria Rescue Squad	Rescue Squad
Lunenburg	Victoria	Lunenburg Correctional Center	Correctional Facility
Lunenburg	Lunenburg CH	VDOT Lunenburg Maintenance Facility	VDOT Facility
Lunenburg	Kenbridge	VDOT Kenbridge Maintenance Facility	VDOT Facility
Lunenburg	Kenbridge	Ken Care	Medical Clinic
Lunenburg	Between Kenbridge and Victoria	Lunenburg Medical Center	Medical Clinic
Lunenburg	Lunenburg CH	Lunenburg County Emer. Op. Center	Emergency Op.
Nottoway	Fort Pickett	Allan C. Perkinson Municipal Airport	Airport
Nottoway		Amelia/Nottoway Vocational Center	School
Nottoway		Bellefonte-Grange Community Center	Community Center
Nottoway	Blackstone	Blackstone Memorial Center	Community Center
Nottoway	Blackstone	Blackstone Police Department	Police Station
Nottoway	Blackstone	Blackstone Primary School	School
Nottoway	Blackstone	Blackstone Volunteer Fire Department	Fire Station
Nottoway	Blackstone	James S. Harris Medical Center	Medical Clinic
Nottoway	Blackstone	Virginia United Methodist Assembly Center	Emergency Shelter
Nottoway	Blackstone	Public Works Buildings	Public Utilities
Nottoway	Blackstone	Blackstone Area Bus Service (BABS)	Public Transit
Nottoway	Burkeville	Burkeville Elementary School	School
Nottoway	Burkeville	Burkeville Police Department	Police Station
Nottoway	Burkeville	Burkeville Train Station	Community Facility
Nottoway	Burkeville	Burkeville Volunteer Fire Department	Fire Station
Nottoway	Crewe	Cherry Tree Rest Home	Rest Home
Nottoway	Crewe	Crewe Medical Center	Medical Clinic
Nottoway	Burkeville	Burkeville Medical Center	Medical Clinic
Nottoway	Blackstone	Clay's Rest Home	Rest Home
Nottoway	Crewe	Crewe Community Center	Community Center
Nottoway	Crewe	Crewe Industrial Park	Industrial Park
Nottoway	Crewe	Crewe Municipal Airport	Airport
Nottoway	Crewe	Crewe Police Department	Police Station
Nottoway	Crewe	Crewe Primary School	School

County	Jurisdiction	Facility Name	Facility Type
Nottoway	Crewe	Crewe Volunteer Fire Department	Fire Station
Nottoway	Crewe	Crewe Water Treatment Plant	Water Treatment Plant
Nottoway	Crewe	Norfolk Southern Rail Yard	Rail Yard
Nottoway	Blackstone	Fort Pickett Military Reservation	Military Facility
Nottoway	Blackstone	G&W Adult Home	Nursing Home
Nottoway	Blackstone	Heritage Hall Nursing Home	Nursing Home
Nottoway	Burkeville	Hickory Hill Retirement Community	Retirement Community
Nottoway	Blackstone	Kenston Forest School	School
Nottoway	Blackstone	Lion of Judah Academy	School
Nottoway	Crewe	New Crewe Volunteer Fire Department	Fire Station
Nottoway		Nottoway Civic League Meeting Hall	Community Center
Nottoway	Burkeville	Nottoway Correctional Facility	Correctional Center
Nottoway	Nottoway Court House	Nottoway County Sheriff's Office	Police Station
Nottoway	Nottoway	Nottoway Crime Solvers	Police Station
Nottoway	Nottoway Court House	Nottoway High School	School
Nottoway	Nottoway Court House	Nottoway Intermediate School	School
Nottoway	Nottoway Court House	Nottoway Middle School	School
Nottoway	Crewe	Nottoway Rescue Squad	Rescue Squad
Nottoway	Blackstone	Nottoway Rescue Squad, Branch Station	Rescue Squad
Nottoway	Burkeville	Piedmont Geriatric Hospital	Hospital
Nottoway	Crewe	Southside Electric Cooperative	
Nottoway	Between Burkeville and Crewe	VCBR Virginia Center for Behavioral Rehabilitation	Rehab facility
Nottoway	Near Fort Pickett	Virginia Tech Southern Piedmont Agricultural Research Center	Education/Research
Nottoway	Blackstone	Kenston Forest Day Care Center	Day Care
Nottoway	Blackstone	Margaret Presti	Day Care
Nottoway	Blackstone	Nottoway Head Start II and III at Blackstone	Day Care
Nottoway	Blackstone	Lion of Judah Ministries International	Day Care
Nottoway	Blackstone	Martha Thomas	Day Care
Nottoway	Blackstone	Pickett Park Day Care Center	Day Care
Prince Edward	Farmville	Southside Community Hospital	Hospital
Prince Edward	Farmville	Longwood University	University

County	Jurisdiction	Facility Name	Facility Type
Prince Edward	Farmville	Prince Edward Rescue Squad	Rescue Squad
Prince Edward	Farmville	The Woodland	Retirement Community
Prince Edward	Farmville	Briery Creek Adult Home	Nursing Home
Prince Edward	South of Farmville	Trinity Mission of Farmville	Nursing Home
Prince Edward	Farmville	Farmville Train Station	Community Facility
Prince Edward	Farmville	Farmville Fire Department	Fire Station
Prince Edward	Farmville	Farmville Police Department	Police Station
Prince Edward	Farmville	Fuqua School	School
Prince Edward	Hampden-Sydney	Hampden-Sydney College	College/University
Prince Edward	Hampden-Sydney	Hampden-Sydney Volunteer Fire Department	Fire Station
Prince Edward	West of Farmville	Piedmont Regional Jail	Jail
Prince Edward	West of Farmville	Piedmont Regional Juvenile Detention Facility	Jail
Prince Edward	Farmville	ICE Immigration Facility	Immigration Detention Facility
Prince Edward	Hampden-Sydney	Pine Ridge Home	Nursing Home
Prince Edward	Farmville	Fuqua School Early Learning Center	School/Daycare Center
Prince Edward	Farmville	New Creations Child Learning Center	Licensed Daycare Center
Prince Edward	Farmville	Little Feats Preschool and Childcare	Licensed Daycare Center
Prince Edward	Farmville	Stepping Stones Preschool and Childcare	Licensed Daycare Center
Prince Edward	Farmville	Heritage Weekday Education Center	Licensed Daycare Center
Prince Edward	South of Farmville	Prince Edward County Elementary School	School
Prince Edward	South of Farmville	Prince Edward County High School	School
Prince Edward	South of Farmville	Prince Edward County Industrial Park	Industrial Park
Prince Edward	South of Farmville	Prince Edward County Middle School	School
Prince Edward	Farmville	Prince Edward County Sheriff	Police Station
Prince Edward	Prospect	Prospect Christian Academy	School
Prince Edward	Prospect	Prospect Volunteer Fire Department	Fire Station
Prince Edward	Rice	Rice Volunteer Fire Department	Fire Station
Prince Edward	Darlington Heights	Darlington Heights Volunteer Fire Dept.	Fire Station
Appomattox	Pamplin	Pamplin Volunteer Fire Department**	Fire Station

*The Meherrin Fire Department serves southern parts of Prince Edward County
**The Pamplin Fire Department serves parts of Prince Edward County

Table 6.5
Electric/Water Utility Assets in Planning District 14

County	Community Name	Facility Name	Capacity/ Type	Owner
Amelia		Amelia Sewage Treatment Plant		Amelia County
Amelia		Water Tank		Amelia County
Amelia		Pump Station for Sewer System		Amelia County
Amelia		Pump Station for Sewer System		Amelia County
Amelia		Pump Station for Sewer System		Amelia County
Amelia		Pump Station for Sewer System		Amelia County
Amelia		Well/Well Pump for Water System		Amelia County
Amelia		Well/Well Pump for Water System		Amelia County
Buckingham		Bear Garden Power Station	580 mw	Dominion VA Power
Buckingham	New Canton	Bremo Power Station	250 mw	Dominion VA Power
Buckingham	U.S. 60 near Mt. Rush	Electric Substation		Central VA Elec. Coop.
Buckingham	South of Scottsville	Centenary Substation	7,200 v	Central VA Elec. Coop.
Buckingham		Buckingham Water Plant		Buckingham County
Buckingham	Dillwyn	Dillwyn Waste Water Plant		Buckingham County
Charlotte	On the Staunton River (Charlotte/Halifax County Line)	Clover Power Station	850 mw	Dominion Energy
Charlotte	Drakes Branch	Drakes Branch Substation	28 mw	Southside Electric Coop.
Charlotte	Red House	Red House Substation	10 mw	Southside Electric Coop.
Charlotte	West of Darlington Heights	Madisonville Substation	10 mw	Southside Electric Coop.
Charlotte	Keysville	Keysville Water Treatment Facility		Town of Keysville
Charlotte	Drakes Branch	Drakes Branch Water Treatment Facility		Town of Drakes Branch
Cumberland	Mitchell Junction	Mitchell Junction Tank Farm and Pumping Station		Colonial Pipeline Co.

County	Community Name	Facility Name	Capacity/ Type	Owner
Cumberland		Water Treatment Plant		Cumberland County
Cumberland		Water Tower		Cumberland County
Cumberland	Just north of Farmville	Substation – Plank Road		Dominion Virginia Power
Cumberland	Just north of Farmville	Substation – River Road		Southside Electric Coop
Cumberland	Cartersville	Substation	10 mw	Central Virginia Electric
Cumberland	Cartersville	Substation	25 mw	Dominion Virginia Power
Cumberland	Farmville	Substation (Plank Road)		Dominion Virginia Power
Cumberland	Farmville	Water Tank, Layne Street		Town of Farmville
Cumberland	Farmville	Water Tank, West Osborn Street		Town of Farmville
Lunenburg	Northeast of Victoria	Nutbush Substation	10 mw	Southside Electric Coop
Lunenburg	South of Victoria and Kenbridge	Gary Substation	28 mw	Southside Electric Coop
Lunenburg	Victoria	Victoria Substation	28 mw	Dominion Virginia Power
Lunenburg	Kenbridge	Kenbridge Wastewater Treatment Plant		Town of Kenbridge
Lunenburg	Kenbridge	Kenbridge Water Treatment Plant		Town of Kenbridge
Lunenburg	Kenbridge/Victoria	Elevated Water Tanks (also serve as key communications equipment sites for the County)		Towns
Lunenburg	Victoria	Victoria Wastewater Treatment Plant		Town of Victoria
Lunenburg	Victoria	Victoria Water Treatment Plant		Town of Victoria
Lunenburg	North of Victoria (The Falls/Nottoway River)	Victoria Water Pumping Station		Town of Victoria
Lunenburg	Victoria	Victoria Wastewater Pumping Stations		Town of Victoria
Lunenburg	North of Victoria	Modest Creek Pumping Station		Town of Victoria

County	Community Name	Facility Name	Capacity/ Type	Owner
Lunenburg	Victoria	Lunenburg Lake Pumping Station		Town of Victoria
Lunenburg	Kenbridge	Electric Substation		Dominion Virginia Power
Nottoway	Crewe	Hooper Substation	28 mw	Southside Electric Coop.
Nottoway	Ft. Pickett	Fort Pickett Substation	28 mw	Southside Electric Coop.
Nottoway	Blackstone	Blackstone Power Plant	3000 kw	Town of Blackstone
Nottoway	Blackstone	Blackstone Water Plant		Town of Blackstone
Nottoway	Crewe	Crewe Sewage Facility		Town of Crewe
Nottoway	Crewe/Burkeville	Nottoway Correctional Center Wastewater treatment Plan (serves Correctional Facility and Town of Burkeville)		Nottoway Correctional Center
Prince Edward	Moran (near Rice)	Moran Substation		Southside Electric Coop.
Prince Edward	Farmville	Farmville Water Plant		Town of Farmville
Prince Edward	Farmville	Wastewater Treatment Plant		Town of Farmville
Prince Edward	Farmville	Mottley Lake		Reservoir/Town of Farmville Water System
Prince Edward	Farmville	Appomattox River		Water Intake, Town of Farmville Water System
Prince Edward	Farmville	Waste Water Pump Station, River Road		Town of Farmville
Prince Edward	Farmville	Waste Water Pump Station, East Third Street		Town of Farmville
Prince Edward	Farmville	Waste Water Pump Station, Woodland Place		Town of Farmville
Prince Edward	Farmville	Waste Water Pump Station, High Street		Town of Farmville
Prince Edward	Farmville	Water Tank, Longwood Avenue		Town of Farmville
Prince Edward	Farmville	Water Tank, Andrews Drive		Town of Farmville

County	Community Name	Facility Name	Capacity/ Type	Owner
Prince Edward	Farmville	Water Tank, Dominion Drive		Town of Farmville
Prince Edward	Pamplin	Pamplin Substation		Dominion Virginia Power

Table 6.6
Radio/Communication Facilities in Planning District 14

County	Community Name	Facility Name	Capacity/ Type	Owner
Amelia		Public Safety Communications Tower	Communication Tower	Amelia County
Amelia		Comcast	Cable TV Provider	Comcast
Amelia				
Buckingham	Just north of Dillwyn	WBNN 105.3 FM	Radio Station (Country)	WKGM FM
Buckingham	Just south of Scottsville	Cell Tower, Hancock Hill Road	Communication Tower	U.S. Cellular
Buckingham	New Canton	Cell Tower, Blinky's Road	Communication Tower	Alltel/Verizon
Buckingham	Just south of Scottsville	Cell Tower, Sharron Church Road	Communication Tower	U.S. Cellular
Buckingham	Alpha	Cell Tower, James Madison Highway (U.S. 15)	Communication Tower	AT&T Long Distance
Buckingham	Alpha	Cell Tower, James Madison Highway (U.S. 15)	Communication Tower	Alltel/Verizon
Buckingham	Near Dillwyn	Cell Tower, Station Lane	Communication Tower	U.S. Cellular
Buckingham	Between Dillwyn and Sprouses Corner	Cell Tower, Avalon Farm Road	Communication Tower	Alltel/Verizon
Buckingham	Wingina (western part of County)	Cell Tower, Spears Mountain Road	Communication Tower	Alltel/Verizon
Buckingham	West of Buckingham C.H.	Cell Tower, Old Thirteen Road	Communication Tower	U.S. Cellular
Buckingham	West of Buckingham C.H.	Cell Tower, James River Highway	Communication Tower	Alltel/Verizon

County	Community Name	Facility Name	Capacity/ Type	Owner
Buckingham	South of Dillwyn (Willis Mtn.)	Cell Tower, Willis Mtn. Plant Road	Communication Tower	U.S. Cellular, Alltel/Verizon (co-locate)
Buckingham	North of Farmville	Cell Tower, Crescent Road	Communication Tower	Verizon
Buckingham	North of Dillwyn	Cell Tower, Buffalo Road	Communication Tower	Cable TV Provider
Buckingham	Sprouses Corner	Cell Tower, Anderson Highway (U.S. 60)	Communication Tower	Virginia State Police
Charlotte		Public Safety Communications Tower	Communication Tower	U.S. Cellular
Charlotte		Public Safety Communications Tower	Communication Tower	Blue Ridge Telecom
Charlotte		Public Safety Communications Tower	Communication Tower	Charlotte County Rescue Squad
Cumberland	Just north of Farmville	WFLO 95.7 FM/870 AM	Radio Station (Adult Contemporary/Country)	Colonial Broadcasting Company, Inc.
Cumberland	Near Cartersville	Cell Tower, Cartersville Road	Communication Tower	AT&T Communications of Virginia/American Tower, Inc.
Cumberland	Near Cartersville	Cell Tower, Cartersville Road	Communication Tower	Contel Cellular/Crown Castle
Cumberland		Cell Tower, Oak Forest Road	Communication Tower	U.S. Cellular/Dancell, Inc.
Cumberland	West of Cumberland C.H.	Public Safety Communications Tower (2 towers)	Communication Tower	Virginia State Police
Cumberland	West of Cumberland C.H.	Cell Tower, Putney Road	Communication Tower	SBA, Inc. (Sprint)
Cumberland	North of Farmville	Cell Tower, Holman Mill Road	Communication Tower	American Towers, Inc.
Cumberland		Cell Tower, Cooks Road	Communication Tower	Crown Castle Int. (Verizon) U.S. Transmission
Cumberland	North of Farmville	Cell Tower, River Road	Communication Tower	Southside Electric Coop
Cumberland	Near Cartersville	Cell Tower, Cartersville Ext.	Communication Tower	Verizon
Cumberland	West of Cumberland C.H.	Cell Tower, Range Road	Communication Tower	National Communications Towers LLC

County	Community Name	Facility Name	Capacity/ Type	Owner
Cumberland	West of Cumberland C.H.	Cell Tower, Cumberland Road	Communication Tower	Cumberland County
Cumberland	Farmville	WPAK 1490 AM	Radio Station (Christian Talk)	Great Virginia Ventures, Inc.
Cumberland	Farmville	WXJK 101.3 FM	Radio Station (Classic Rock)	David W. Layne
Lunenburg	Kenbridge/ Victoria	Elevated Water Tanks (also serve as key communications equipment sites for the County)	Water/Communications Towers	Towns
Lunenburg	Kenbridge	WPEX 90.9 FM	Radio Station (Urban Gospel)	Seaview Communications, Inc.
Lunenburg	Victoria	Cell Tower, Tomlinson Road	Communication Tower	
Lunenburg	Kenbridge	Cell Tower, Jansch Farm Road	Communication Tower	
Lunenburg	Broadnax	Call Tower, Dix Drive and Longview Drive	Communication Tower	
Nottoway	Nottoway C.H.	Cell Tower	Communication Tower	Metrocall USA, Inc.
Nottoway		Pole	Cell Tower Equipment	Denbar Communications
Nottoway		Pole	Cell Tower Equipment	New Cingular Wireless
Nottoway		Communications Tower	Cell Tower	New Cingular Wireless
Nottoway	Crewe	Communications Tower	Radio Tower	Colonial Broadcasting
Nottoway		Communications Tower	Radio Tower	Radio One
Nottoway		Communications Tower	Cell Tower	SBA Properties
Nottoway		Communications Tower	Cell Tower	SBA Properties
Nottoway		Communications Tower	Cell Tower	SBA Towers, Inc.
Nottoway		Communications Tower	Cell Tower	SBA Towers, Inc.
Nottoway		Mast	Cell Tower Equipment	SBA Structures, Inc.
Nottoway		Pole	Cell Tower Equipment	Southside Electric Cooperative

County	Community Name	Facility Name	Capacity/ Type	Owner
Nottoway		Communications Tower	Cell Tower	Southside Electric Cooperative
Nottoway	Crewe (Hooper Park)	Communications Tower	Cell Tower	Southside Electric Cooperative
Nottoway		Communications Tower	Cell Tower	Harman Towers
Nottoway	Crewe Industrial Park	Communications Tower	Cell Tower	Harman Towers
Nottoway		Communications Tower	Cell Tower	Harman Towers
Nottoway		Communications Tower	Cell/Wireless Tower	Jet Broadband
Nottoway		Communications Tower	Cell/Wireless Tower	Jet Broadband
Nottoway		Communications Tower	Cell Tower	Crown Castle GT
Nottoway		Communications Tower	Cell Tower	Crown Castle GT
Nottoway		Pole	Cell Tower Equipment	Norfolk Southern
Nottoway		Pole	Cell Tower Equipment	Norfolk Southern
Nottoway		Communications Tower	Cell Tower	Norfolk Southern
Nottoway		Communications Tower	Cell Tower	Norfolk Southern
Nottoway		Communications Tower	Cell Tower	Global Tower, LLC
Nottoway		Communications Tower	Cell Tower	STC Two LLC
Nottoway		Communications Tower	Cell Tower	Alltel
Nottoway	Blackstone	WBBC 93.5 FM	Radio Station (Country)	Denbar Communications, Inc.
Nottoway	Blackstone	WKLV 1440 AM	Radio Station (Sports)	Denbar Communications, Inc.
Nottoway	Crewe	WPZZ 104.7 FM	Radio Station (Urban Gospel)	Radio One Licenses, LLC
Nottoway	Crewe	WSVS 800 AM	Radio Station (Country)	Gee Communications, Inc.
Prince Ed./Charlotte	Near Pamplin	WEQP 90.5 FM	Radio Station	Calvary Chapel of Lynchburg
Prince Edward	Farmville	Communications Tower	Cell Tower	SBA Towers 2 LLC
Prince Edward	Farmville	Communications Tower	Cell Tower	U.S. Cellular
Prince Edward	Hampden-Sydney	WWHS 92.1 FM	Radio Station (Variety)	Hampden-Sydney College

County	Community Name	Facility Name	Capacity/ Type	Owner
Prince Edward	Farmville	WPVA 98.7 FM	Radio Station (Christian Contemporary)	Positive Alternative Radio, Inc.
Prince Edward	Farmville	WVHL 29.9 FM	Radio Station (Country)	The Farmville Herald, Inc.
Prince Edward	Farmville (Longwood University)	WMLU 91.3 FM	Radio Station (Public Radio)	Longwood University

Table 6.7
Essential Bridges in Planning District 14

Jurisdiction	Bridge Name	Location
Amelia	Norfolk Southern Railroad, U.S. 360	Near Amelia/Nottoway County Line
Amelia	Secondary Route 602, Appomattox River	Amelia/Chesterfield County Line
Amelia	Secondary Route 604, Appomattox River	Amelia/Powhatan County Line
Amelia	Secondary Route 607, West Creek	Southern Amelia County, just north of Nottoway County Line
Amelia	Secondary Route 609, Appomattox River	Amelia/Powhatan County Line, near Jones Lake
Amelia	Secondary Route 615, Deep Creek	Southern Amelia County, west of Route 153
Amelia	Secondary Route 620, Appomattox River	Amelia/Cumberland County Line
Amelia	Secondary Route 621, Appomattox River	Amelia/Cumberland County Line
Amelia	Secondary Route 622, Namozine Creek	Amelia/Dinwiddie County Line
Amelia	Secondary Route 623, Appomattox River/Lake Chesdin	Amelia/Dinwiddie County Line
Amelia	Secondary Route 625, Namozine Creek	Amelia/Dinwiddie County Line
Amelia	Secondary Route 636, Flat Creek	North-Central Amelia County, north of U.S. 360
Amelia	Secondary Route 637, Jones Lake	Near Appomattox River, Amelia/Powhatan County Line
Amelia	Secondary Route 640, Buckskin Creek	Southern Amelia County, just north of Nottoway County Line
Amelia	Secondary Route 708, Namozine Creek	Amelia/Dinwiddie County Line
Amelia	State Route 153, Beaverpond Creek	Between State Route 38 and Secondary Route 608
Amelia	State Route 153, Deep Creek	South of Secondary Route 608
Amelia	U.S. 360, Appomattox River	Amelia/Chesterfield County Line
Amelia	U.S. 360, Nibbs Creek	West of Amelia C.H. Village

Jurisdiction	Bridge Name	Location
Buckingham	Buckingham Branch Railroad, James River	Runs parallel to U.S. 15 bridge in same location
Buckingham	Secondary Route 602, James River	NW Buckingham, near border with Nelson and Albemarle Counties
Buckingham	Secondary Route 605, Seven Branch	Buckingham/Appomattox County Line
Buckingham	Secondary Route 608, Appomattox River	Between U.S. 15 and Holiday Lake State Park
Buckingham	Secondary Route 609, Appomattox River	Between U.S. 15 and Holiday Lake State Park
Buckingham	Secondary Route 612, Appomattox River	Just east of Holiday Lake State Park
Buckingham	Secondary Route 614, Holiday Creek	Just west of Holiday Lake State Park
Buckingham	Secondary Route 640, Holiday Creek	Just west of Holiday Lake State Park
Buckingham	State Route 20	Scottsville
Buckingham	State Route 20, Muddy and Maxeys Creeks (2)	Just north of Slate River Bridge on Route 20
Buckingham	State Route 20, Slate River	About 6 miles north of Dillwyn
Buckingham	State Route 20, Little Georgia Creek	About 4 miles south of Scottsville
Buckingham	State Route 24, Grease Creek	About 3 miles south of intersection with U.S. 60
Buckingham	State Route 24, Slate River	About 4 miles north of Appomattox County Line
Buckingham	State Route 24, Sliders	Just north of Buckingham/Appomattox County Line
Buckingham	*State Route 56, James River*	Buckingham/Nelson County Line
Buckingham	State Route 56, North River	About 1 mile west of intersection with U.S. 60
Buckingham	U.S. 15, Appomattox River	Buckingham/Prince Edward County Line
Buckingham	U.S. 15, James River	Bremo Bluff/New Canton
Buckingham	U.S. 15, Willis River	About 6-8 miles north of Prince Edward County Line
Buckingham	U.S. 60, Austin Creek	About 4-5 miles west of intersection with State Route 24
Buckingham	U.S. 60, David Creek	Buckingham/Appomattox County Line
Buckingham	U.S. 60, Iron Branch	About 2 miles north of Appomattox County Line
Buckingham	U.S. 60, Slate River	About 1 mile west of Buckingham Court House
Buckingham	U.S. 60, Whispering Creek (2)	About 3-4 miles east of intersection with U.S. 15
Charlotte	Secondary Route 604, Norfolk Southern RR	South of Route 671, near Prince Edward County Line
Charlotte	Secondary Route 617, Norfolk Southern RR	South of Intersection with Route 675
Charlotte	Secondary Route 620, Roanoke River	Halifax County Line, SW corner of Charlotte County
Charlotte	Secondary Route 629, overpass at U.S. 360	East side of Keysville
Charlotte	Secondary Route 649, Norfolk Southern RR	South of Intersection with Route 650

Jurisdiction	Bridge Name	Location
Charlotte	Secondary Route 650, Norfolk Southern RR	SE of Intersection with Route 660
Charlotte	Secondary Route 655, Norfolk Southern RR	South of Intersection with Route 658
Charlotte	Secondary Route 658, Norfolk Southern RR	West of Intersection with Route 655
Charlotte	Secondary Route 672, Norfolk Southern RR	South of Intersection with Route 693, north of Route 678
Charlotte	Secondary Route 675, Norfolk Southern RR	SW of Phenix
Charlotte	Secondary Route 693, Norfolk Southern RR	North of Intersection with Route 619
Charlotte	Secondary Route 707, Norfolk Southern RR	South of Route 671, West of Route 604, near Prince Edward County Line
Charlotte	Secondary Route 712, overpass at U.S. 360	East side of Keysville
Charlotte	Secondary Route 746, Roanoke River	Halifax County Line, just south of Route 607
Charlotte	State Route 40, overpass at U.S. 360	East side of Keysville
Charlotte	State Route 40, Cub Creek	East side of Phenix
Charlotte	State Route 40, Cub Terrys Creek	West side of Phenix
Charlotte	State Route 40, Louse Creek	West of Route 617
Charlotte	State Route 40, Norfolk Southern RR	Town of Phenix
Charlotte	State Route 40, Turnip Creek	Near Campbell County Line
Charlotte	State Route 40, Wards Fork Creek	Just west of Charlotte Court House
Charlotte	State Route 47, Norfolk Southern RR	NW of Intersection with Route 660, near Cullen
Charlotte	State Route 47, Roanoke Creek	Between Charlotte Court House and Drakes Branch
Charlotte	State Route 47, Twittys Creek	Town of Drakes Branch
Charlotte	State Route 47, Wards Fork Creek (2)	Between Route 660 and the Town of Charlotte Court House
Charlotte	State Route 92, Bluestone Creek	Just west of Mecklenburg County Line
Charlotte	State Route 92, Staunton River	Charlotte/Halifax County Line*
Charlotte	U.S. 15, Hogan Creek	Just north of Mecklenburg County Line
Charlotte	U.S. 15, Interchange with U.S. 360	North of Keysville
Charlotte	U.S. 15/360 overpass at Bus. 15/360	East side of Keysville
Charlotte	U.S. 360, Beries Creek	Between Routes 608 and 631
Charlotte	U.S. 360, Staunton River	Charlotte/Halifax County Line
Cumberland	Secondary Route 600, Little Willis River	Buckingham County Line, north of Farmville Airport
Cumberland	Secondary Route 620, Appomattox River	Amelia County Line, near Stony Point Mills
Cumberland	Secondary Route 621, Appomattox River	South of State Route 13 (Sunny Side)

Jurisdiction	Bridge Name	Location
Cumberland	Secondary Route 690, James River	Just south of Columbia
Cumberland	State Route 45, James River	Cumberland/Goochland County Line
Cumberland	U.S. 60, Payne Creek	East of Route 724
Cumberland	U.S. 60, Rock Creek	East of Route 633
Cumberland	U.S. 60, Willis River	Route 632 and 633
Lunenburg	Secondary Route 624, Nottoway River	Lunenburg/Prince Edward County Line
Lunenburg	Secondary Route 625, Nottoway River	Nottoway/Lunenburg County Line
Lunenburg	Secondary Route 626, Nottoway River	Nottoway/Lunenburg County Line
Lunenburg	Secondary Route 627, Nottoway River	Nottoway/Lunenburg County Line
Lunenburg	Secondary Route 632, Meherrin River	Lunenburg/Mecklenburg County Line
Lunenburg	Secondary Route 633, Meherrin River	Lunenburg/Mecklenburg County Line
Lunenburg	Secondary Route 634, Meherrin River	Lunenburg/Mecklenburg County Line
Lunenburg	Secondary Route 635, Meherrin River	Lunenburg/Mecklenburg County Line
Lunenburg	Secondary Route 636, Meherrin River	Lunenburg/Mecklenburg County Line
Lunenburg	Secondary Route 637, Meherrin River	Lunenburg/Mecklenburg County Line
Lunenburg	Secondary Route 723, Nottoway River	Nottoway/Lunenburg County Line
Lunenburg	State Route 138	About one mile south of intersection with State Route 137
Lunenburg	State Route 138	Near intersection with Route 619
Lunenburg	State Route 138	Between Routes 753 and 660
Lunenburg	State Route 138	Between Routes 611 and 612
Lunenburg	State Route 138	Near intersection with Route 668
Lunenburg	State Route 138/ Meherrin River	Lunenburg/ Mecklenburg County Line, north of South Hill
Lunenburg	State Route 138/ Meherrin River	Lunenburg/Mecklenburg County Line
Lunenburg	State Route 40	Near Intersection with Route 626
Lunenburg	State Route 40, Couches Creek	Near Intersection with Route 722
Lunenburg	State Route 40, Couches Creek (2)	Between Routes 680 and 670
Lunenburg	State Route 40, North Meherrin River (2)	Between Routes 689 and 682
Lunenburg	State Route 40, Nottoway River	Nottoway/Lunenburg County Line, between Blackstone and Kenbridge
Lunenburg	State Route 40, Seay Creek	South of Route 601, near Lunenburg/Nottoway County Line
Lunenburg	State Route 40/49, Reedy Creek	Between Victoria and Lunenburg Court House
Lunenburg	State Route 49, Couches Creek (2)	Just west of Lunenburg Court House
Lunenburg	State Route 49, Falls Creek	Near intersection with Route 664
Lunenburg	State Route 49, Kitts Creek	Between Routes 731 and 690

Jurisdiction	Bridge Name	Location
Lunenburg	State Route 49, Meherrin River	Lunenburg/Mecklenburg County Line, north of Chase City
Lunenburg	State Route 49, Middle Meherrin River	Near intersections with Routes 771 and 727
Lunenburg	State Route 49, North Meherrin River	Between Route 40 and 674
Lunenburg	State Route 49, North Meherrin River	Near intersection with Route 674
Lunenburg	State Route 49, Nottoway River	The Falls, Nottoway/Lunenburg County Line
Lunenburg	State Route 49, St. Johns Creek (2)	Between Routes 771/727 and 622
Nottoway	Secondary Route 606 at US 460	Just north of Blackstone
Nottoway	Secondary Route 611 at US 460	Just north of Blackstone
Nottoway	Secondary Route 614, Little Creek	Nottoway/Amelia County Line
Nottoway	Secondary Route 625, Nottoway River	Nottoway/Lunenburg County Line
Nottoway	Secondary Route 626, Nottoway River	Nottoway/Lunenburg County Line
Nottoway	Secondary Route 627, Nottoway River	Nottoway/Lunenburg County Line
Nottoway	Secondary Route 639, Namozine Creek	NE Nottoway at the Nottoway/Dinwiddie County Line
Nottoway	Secondary Route 640, Namozine Creek	NE Nottoway at the Nottoway/Dinwiddie County Line
Nottoway	Secondary Route 645, Nottoway River	Nottoway/Lunenburg County Line
Nottoway	Secondary Route 723, Nottoway River	Nottoway/Lunenburg County Line
Nottoway	State Route 40, Little Nottoway River	About 2-3 miles south of Blackstone
Nottoway	State Route 40, Nottoway River	Nottoway/Lunenburg County Line, between Blackstone and Kenbridge
Nottoway	State Route 46, Nottoway River	Nottoway/Brunswick County Line, south of Blackstone
Nottoway	State Route 49, Deep Creek	Just north of Crewe
Nottoway	State Route 49, Little Nottoway River	About 4-5 miles south of Crewe
Nottoway	State Route 49, Norfolk Southern RR	Just south of the intersection with U.S. 460, Crewe
Nottoway	State Route 49, Nottoway River	The Falls, Nottoway/Lunenburg County Line
Nottoway	State Route 49, Whitestone Creek (2)	About 5-6 miles north of The Falls
Nottoway	U.S. 360, Mallory's Creek	Just west of Burkeville
Nottoway	U.S. 360/460 Interchange	About a half mile east of Burkeville
Nottoway	U.S. 360/460, Flat Creek	Just east of Burkeville
Nottoway	U.S. 360/460, Norfolk Southern RR	Just west of Burkeville
Nottoway	U.S. 360/460, Norfolk Southern RR	East side of Burkeville
Nottoway	U.S. 460 Bus., Norfolk Southern RR	Between Blackstone and Fort Pickett, just south of intersection with U.S. 460
Nottoway	U.S. 460 Business at US 460	Near Nottoway Court House
Nottoway	U.S. 460 Ellis Creek	Just east of Prince Edward County Line
Nottoway	U.S. 460, Flat Creek	Between Burkeville and Prince Edward County Line

Jurisdiction	Bridge Name	Location
Nottoway	U.S. 460, Lazaretto Creek	Piedmont Geriatric Hospital, between Burkeville and Crewe
Prince Edward	U.S. 15, Appomattox River	Buckingham/Prince Edward County Line
Prince Edward	Secondary Route 608, Appomattox River	Between U.S. 15 and Holiday Lake State Park
Prince Edward	Secondary Route 609, Appomattox River	Between U.S. 15 and Holiday Lake State Park
Prince Edward	Secondary Route 627, Vaughans Creek	Prince Edward/Appomattox County Line
Prince Edward	U.S. 460, Vaughans Creek	Prince Edward/Appomattox County Line
Prince Edward	Secondary Route 624, Nottoway River	Lunenburg/Prince Edward County Line
Prince Edward	Secondary Route 623, Norfolk Southern RR	Green Bay, near U.S. 360
Prince Edward	State Route 307 Little Sailors Creek	Just east of Route 745
Prince Edward	U.S. 460, Sandy River	Between Routes 601 and 640
Prince Edward	U.S. 460, Bush River	Between Routes 630 and 636
Prince Edward	U.S. 15	Near Route 758
Prince Edward	U.S. 15, Briery Creek	Between Routes 665 and 790
Prince Edward	U.S. 15, Briery Creek	Just south of Route 790
Prince Edward	U.S. 15, Norfolk Southern RR	Just north of Charlotte County Line
Prince Edward	U.S. 460 at US 15 interchange	Just south of Farmville Town Limits
Prince Edward	U.S. 460, Buffalo Creek	Near Route 628 Bridge
Prince Edward	Secondary Route 628, at U.S. 460	Near intersection with Route 642
Prince Edward	Secondary Route 643, at U.S. 460	Between Routes 642 and 644
Prince Edward	U.S. 460	South of Norfolk Southern RR bridge
Prince Edward	U.S. 460, Norfolk Southern RR	East of U.S. 15 interchange west of Farmville
Prince Edward	U.S. 15, at U.S. 460	Dowdy's Corner, west of Farmville
Prince Edward	U.S. 460	West of Route 695
Prince Edward	U.S. 460	East of Route 649
Prince Edward	U.S. 460	East of Route 652
Farmville	East Third Street	Near intersection with Main Street
Farmville	East Third Street	Near interchange with U.S. 460 By-pass
Farmville	State Route 45, Appomattox River	North Main Street, dividing the Prince Edward and Cumberland sections of town
Farmville	U.S. 460 interchange at Third Street	East side of town
Farmville	West Third Street, Buffalo Creek	Near Southside Community Hospital
Farmville	West Third Street, High Bridge Trail State Park	Near Industrial Park Road

**The Route 92 bridge (Charlotte/Halifax County line) has been closed indefinitely by VDOT.*

Other critical infrastructure elements in the region that have not been listed in the tables above are:

- The Plantation Pipeline, which runs through Amelia, Nottoway, Charlotte and Lunenburg Counties. This pipeline transports petroleum products and could cause tremendous damage if impacted by an earthquake, landslide, or other event. Exact location of the pipeline is not known, but is generally marked by line markers. More information on the pipeline can be obtained by contacting Mr. D.B. Henderson at (804) 275-5444.

- Colonial Pipeline, which runs through Charlotte, Prince Edward, Buckingham, and Cumberland Counties. This pipeline transports petroleum products and could cause tremendous damage if impacted by an earthquake, landslide, or other event. Exact location of the pipeline is not known, but is generally marked by line markers. More information can be obtained by calling (678) 762-2200 or (678) 762-2589.

- Williams Gas Pipeline Transco Pipeline, which runs through Charlotte County. This pipeline transports natural gas, and could cause tremendous damage if impacted by an earthquake, landslide, or other event. Exact location of the pipeline is not known, but is generally marked by line markers. More information on the pipeline can be obtained by calling (434) 973-4384.

Flood

The HAZUS^{MH} flood module was used in the original Plan to determine the vulnerability of the region to the flood hazard. For the Plan update, data from the State Plan was used to determine vulnerability. This is because of software compatibility issues, which prevented us from using HAZUS for the Plan Update.

For the State Plan, flood risk by locality was determined by intersecting floodplain mapping and demographic information. The method used by the State (and accepted by the HIRA subcommittee) involved using census data, hazard information derived from HAZUS, Benefit Cost Analysis (BCA) tool kit documentation and FEMA flood zones. To calculate annualized loss, a set of simplifying assumptions was used. This included determining the building value per unit area, and setting reasonable flood depths that would be used for calculating the percent building damage. Total building value, or "exposure", in each census block was derived from the HAZUS census data geodatabase. Building value (in dollars) per unit area of the census block was calculated by dividing the total building value exposure by the census block area. The FEMA floodplains were intersected with the census blocks to determine the percentage in the different SFHA zones. The total building value exposure for each flood zone was calculated based on the area of special flood hazard areas (SFHA) in the census block.

To calculate annualized loss, certain probabilities and depths of flooding were established. Each building type would yield slightly different results; one story without basement seemed to be a moderate representation of building stock in Virginia for the general jurisdictional risk and annualized loss based on census block data. All buildings within mapped SFHA areas were assumed to be subject to 100-yr flooding.

Table 6.8 shows estimated annualized losses for the Counties in Planning District 14, based on data from the State Plan.

Table 6.8
Estimated Annualized Flood Losses in Planning District 14 (based on State Plan)

COUNTY	Amelia County	Buckingham County	Charlotte County	Cumberland County	Lunenburg County	Nottoway County	Prince Edward County
ANNUALIZED LOSSES	$48,680	$44,122	$28,383	$56,326	$15,317	$11,961	$190,153

Annualized Losses for Flood

According to historical data, flood losses in the region since 1993 have totaled $3,447,000. That equates to annualized looses in the region of $202,765 (rounded). Based on the data from the State Plan, annualized loss from flood for the entire region is estimated at $394,942. Flood risk varies by jurisdiction, as seen in the **Table 6.11** later in this section.

National Flood Insurance Program Data

It is relevant to note in this discussion of flood hazard vulnerability certain vital statistics with regard to the National Flood Insurance Program. As of November 16, 2010, there were 69 flood insurance policies in Planning District 14. These policies amounted to $12,196,000 in total insurance coverage (**Table 6.9**). There has been $534,737 (rounded) in total losses paid. Nottoway County modified its Zoning Ordinance in 2000, so that the County and its Towns (Blackstone, Burkeville, and Crewe) could participate in the Program.

Table 6.9
National Flood Insurance Policy Information for Planning District 14

Jurisdiction	NFIP Entry Date	Effective FIRM*	Policies in Force	Insurance in force, whole	Number of Claims	Total Losses Paid
Amelia County	09/01/1987	04/16/2009	6	$1,890,000	10	$116,518.24
Buckingham County	07/17/1978	06/17/2008	5	$746,900	7	$25,511.29
Dillwyn	06/17/2008	06/17/2008	0	$0	0	0
Charlotte County	11/01/1997	07/20/2009	2	$30,300	0	$0
Charlotte Court House	07/20/2009	07/20/2009	0	$0	0	0
Drakes Branch	06/11/1982	07/20/2009	0	$0	1	$1,709.48
Keysville	NP		N/A	N/A	N/A	N/A
Phenix	02/25/1983	07/20/2009	0	$0	0	$0
Cumberland County	02/15/1979	06/16/2009	8	$1,606,200	4	$20,880.62
Lunenburg County	02/25/1983	07/20/2009	1	$105,000	0	$0
Kenbridge	NP		N/A	N/A	N/A	N/A
Victoria	NP		N/A	N/A	N/A	N/A
Nottoway County	09/01/1987	06/02/2009	1	$280,000	1	$1,407.71
Blackstone	10/27/2008	06/02/2009	0	$0	0	$0
Burkeville	2/13/2009	06/02/2009	0	$0	0	0
Crewe	04/16/1998	06/02/2009	1	$15,000	0	$0
Prince Edward County	07/01/1978	10/02/2009	7	$1,167,500	0	$0
Farmville	09/01/1978	10/02/2009	38	$6,355,100	32	$368,709.74
REGIONAL TOTAL			**69**	**$12,196,000**	**55**	**$534,737.08**

Data current as of November 16, 2010; Source: Virginia Department of Conservation and Recreation
* FEMA recently revised its flood maps and underwent a process to digitize them. The dates for the current effective maps in the above table reflect those changes.

Repetitive Loss Properties

The identification of repetitive loss properties is an important element to conducting a local flood risk assessment, as the inherent characteristics of properties with multiple flood losses strongly suggest that they will be threatened by continual losses. Repetitive loss properties are also important to the National Flood Insurance Program, since structures that flood frequently put a strain on the National Flood Insurance Fund. Under the NFIP, FEMA defines a repetitive loss property as "any insurable building for which two or more claims of more than $1,000 were paid by the NFIP within any rolling 10-year period since 1978. At least two of the Part VI Award Administration Information 47 claims must be more than 10 days apart but within 10 years of each other. A repetitive loss property may or may not be currently insured by the NFIP." According to data provided by VDEM, there are currently over 148,000 repetitive loss properties nationwide. A strong goal of FEMA is to reduce the numbers of structures that meet these criteria, whether through elevation, acquisition, relocation or a flood control project that lessens the potential for continual losses.

According to FEMA, there are currently six (6) repetitive loss properties within the jurisdictions of Planning District 14. (**Table 6.10 – Data provided to CRC by VDEM and the Department of Conservation and Recreation**). However, because of the relatively low amount of claims paid for these properties, none of these properties are on FEMA's national "Target 10,000" list of the most concerning repetitive loss properties in the Nation.

NFIP repetitive loss data is protected under the federal Privacy Act of 1974 (5 U.S.C. 552a), which prohibits personal identifiers (owner names, addresses, etc.) from being published in local hazard mitigation plans. Therefore, specific addresses of the properties shown in here are deliberately not included in this Plan as required by law.

Table 6.10
NFIP Repetitive Loss Properties in Planning District 14

Jurisdiction	Type	Number of Insured Losses	Total NFIP Claims Paid	Mitigated?
Amelia County	Residential	4	$67,506.04	No
Amelia County	Residential	4	$40,001.10	No
Town of Farmville	Commercial	2	$4,737.60	No
Town of Farmville	Commercial	2	$12,058.89	No
Town of Farmville	Commercial	2	$56,354.88	No
Town of Farmville	Commercial	2	$4,972.06	No
TOTAL	**----------**	**16**	**$185,630.57**	**----------**

Source: Federal Emergency Management Agency

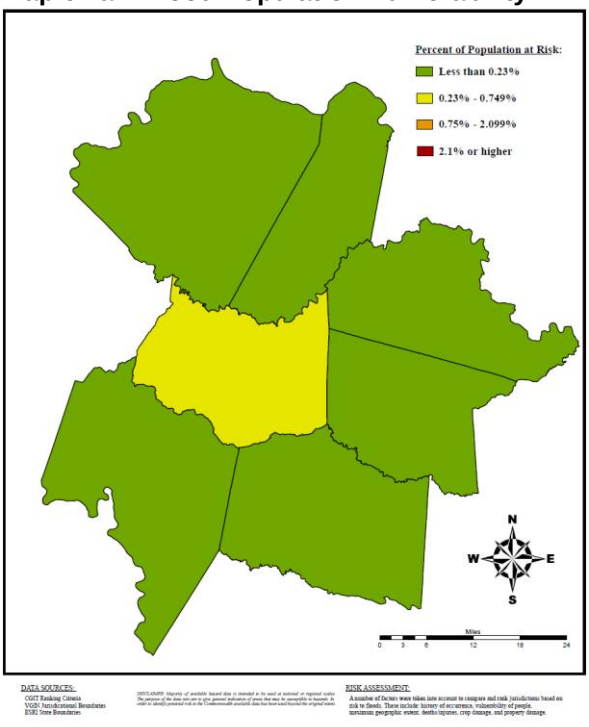
Each jurisdiction within the region experiences a different level of flood risk than the other jurisdictions. Local characteristics such as terrain, local floodplain development procedures, properly sized culverts, and many others factors, all play an important role in determining the flood risk of a locality. **Table 6.11** provides a general overview as to the flood risk for each jurisdiction in the region. This general assessment is based on local input, plus the data in Maps **6.2a – 6.2h**.

Table 6.11
Summary of Flood Risk by Jurisdiction

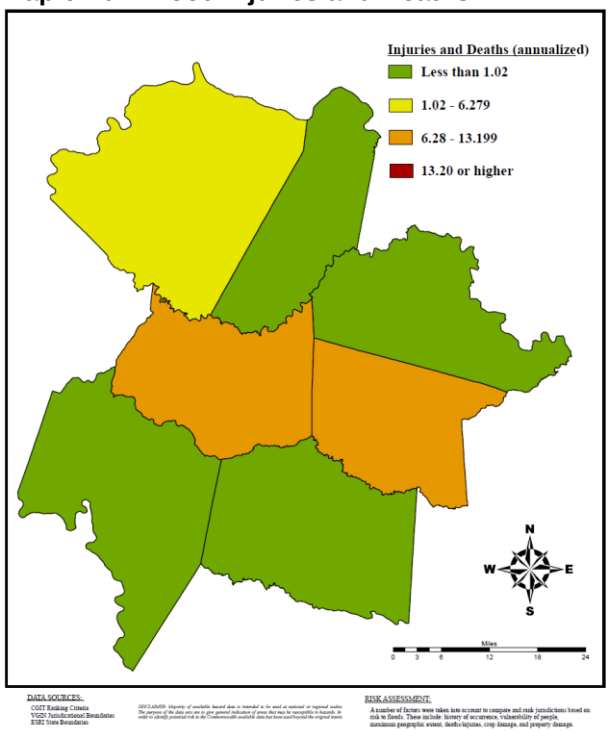
Jurisdiction	HAZARD RATING
Amelia County	Low/Moderate
Buckingham County	Moderate
Dillwyn	Low
Cumberland County	Moderate
Charlotte County	Moderate
Charlotte Court House	Low
Drakes Branch	Moderate
Keysville	Low
Phenix	Moderate
Lunenburg County	Moderate
Kenbridge	Low
Victoria	Low
Nottoway County	Moderate
Blackstone	Moderate
Burkeville	Moderate
Crewe	Moderate
Prince Edward County	Moderate
Farmville	**High**

Maps 6.2a – 6.2h illustrate the risk from flooding for the counties in this region (Maps prepared by VDEM/CGIT, 2008 – updated by CRC, 2010).

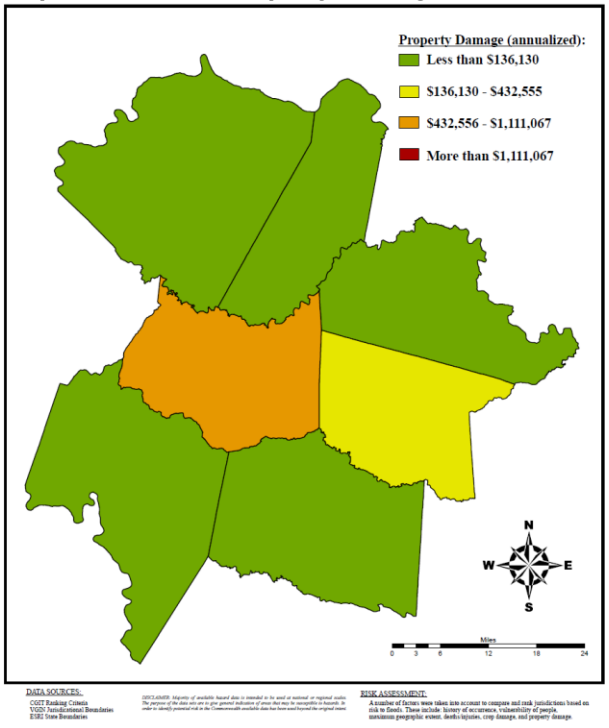
Map 6.2a – Flood Population Vulnerability



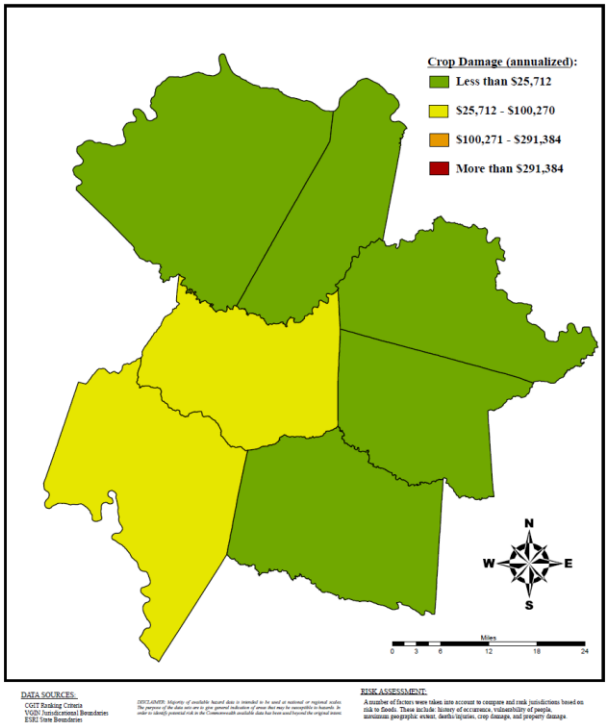
Map 6.2b – Flood Injuries and Deaths



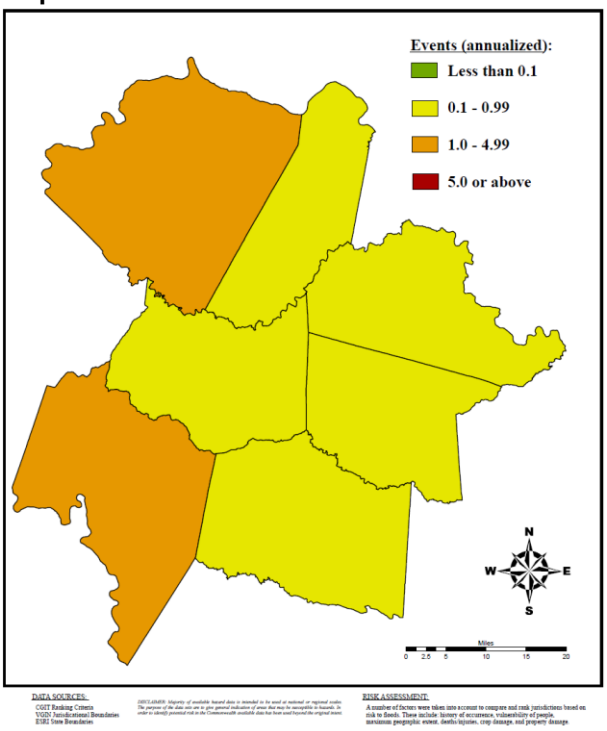
Map 6.2c – Flood Property Damage



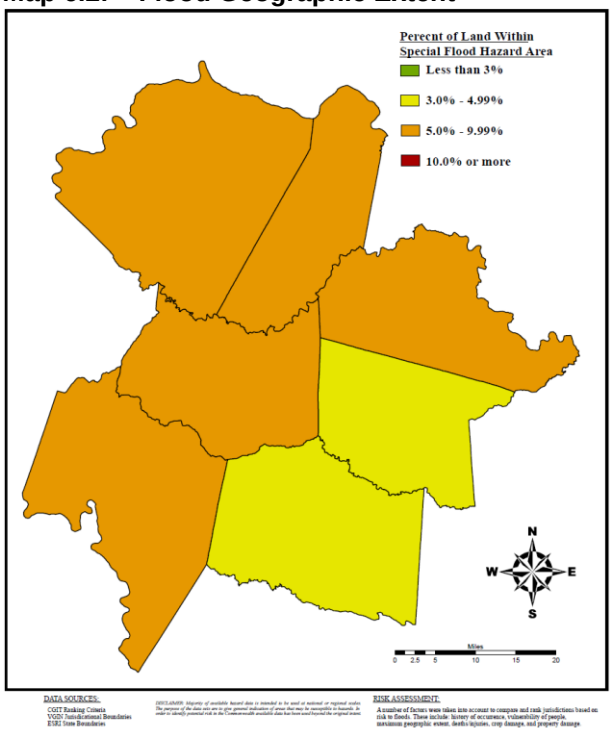
Map 6.2d – Crop Damage



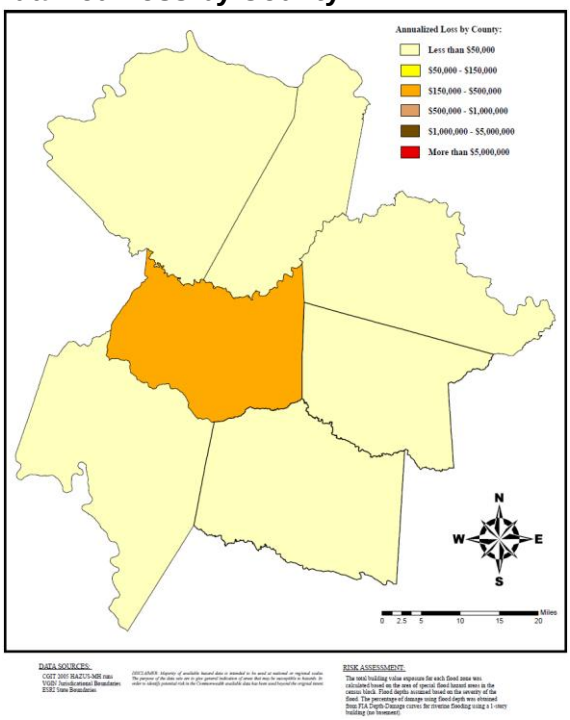
Map 6.2e – Flood Events



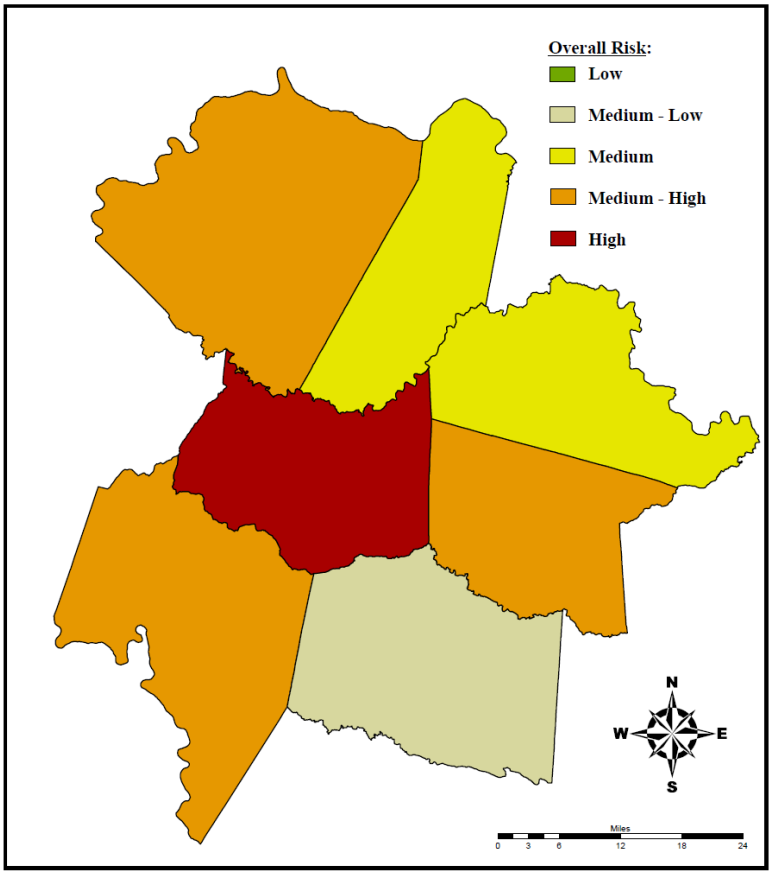
Map 6.2f – Flood Geographic Extent



Map 6.2g – Flood Annualized Loss by County



Map 6.2h – Flood Overall Risk by County (based on VDEM/CGIT data)



Hurricanes and Tropical Storms

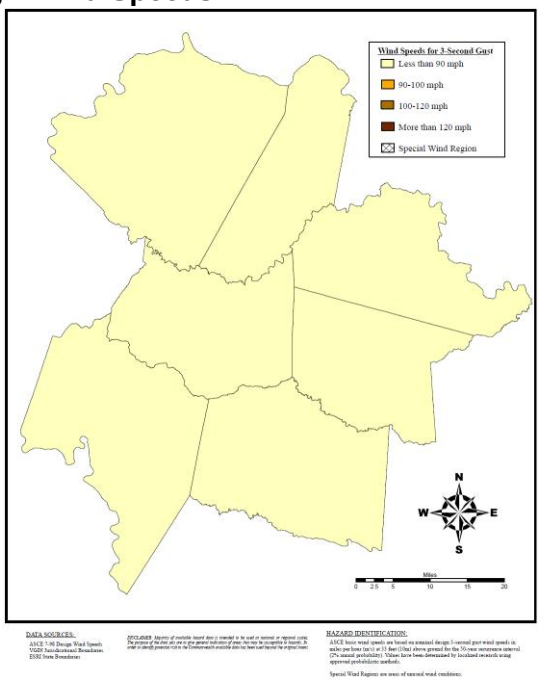
Historical evidence shows that the region is vulnerable to damaging hurricane and tropical storm-force winds. Refer to the *Hazard Analysis* section of this Plan for historical information. Loss estimates for wind in the original Plan were developed based on probabilistic scenarios using HAZUS^{MH} (Level 1 analysis). According to FEMA's HAZUS Web site, "a Level 1 analysis yields a rough estimate based on the nationwide database and is a great way to begin the risk assessment process and prioritize high-risk communities."

For the Plan Update, due to compatibility issues with the software, HAZUS was not used to estimate losses from these events. Instead, estimated annualized losses were obtained from the State Plan. Losses were calculated using HAZUS in September 2005 for a special Virginia Department of Emergency Management (VDEM) initiative. Separate runs were conducted for each jurisdiction in the State, and results were included in the State Plan. Probabilistic loss results represent a range of probable losses estimated from a 100,000-year simulation of expected hurricane activity. The results are based solely on the total direct losses for the entire study region, to ensure that all of the results for a given period come from the same simulated event. Annualized losses are simply the total losses summed over the entire simulation period divided by 100,000 years. Estimated annualized losses for Planning District 14 are $274,179, with a breakdopwn by county shown in **Table 6.12**. **Maps 6.3** and **6.4a – 6.4h** illustrate the risk to this region from Hurricanes and Tropical Storms (Maps prepared by VDEM/CGIT, 2008 – updated by CRC, 2010).

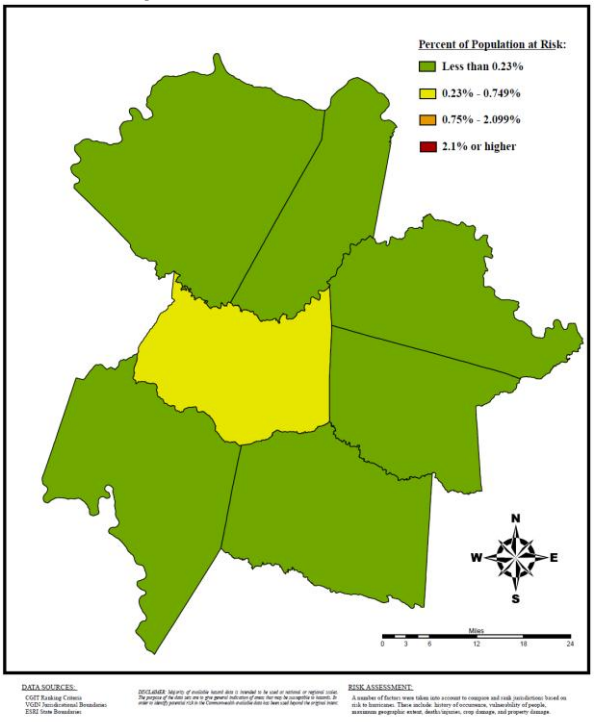
Table 6.12
Estimated Annualized Hurricane Wind Losses in Planning District 14

COUNTY	Amelia County	Buckingham County	Charlotte County	Cumberland County	Lunenburg County	Nottoway County	Prince Edward County
ANNUALIZED LOSSES	$41,947	$23,423	$34,668	$24,302	$50,981	$59,214	$39,644

Map 6.3 – ASCE Design Wind Speeds



Map 6.4a – Hurricane/Tropical Storm Vulnerability

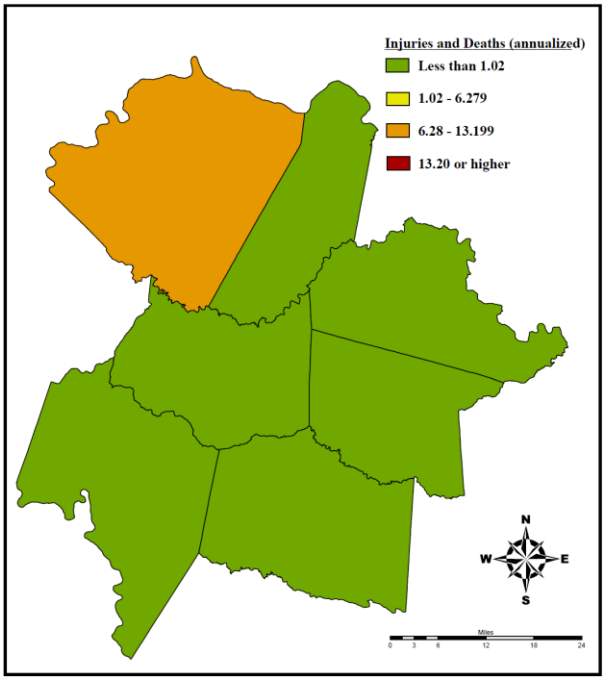


DATA SOURCES:
CGIT Ranking Criteria
VGIN Jurisdictional Boundaries
ESRI State Boundaries

DISCLAIMER: Majority of available hazard data is intended to be used at national or regional scales. The purpose of the data sets are to give general indication of areas that may be susceptible to hazards. In order to identify potential risk in the Commonwealth available data has been used beyond the original intent.

RISK ASSESSMENT:
A number of factors were taken into account to compare and rank jurisdictions based on risk to hurricanes. These include: history of occurrences, vulnerability of people, maximum geographic extent, deaths/injuries, crop damage, and property damage.

Map 6.4b – Hurricane/Tropical Storm Injuries and Deaths

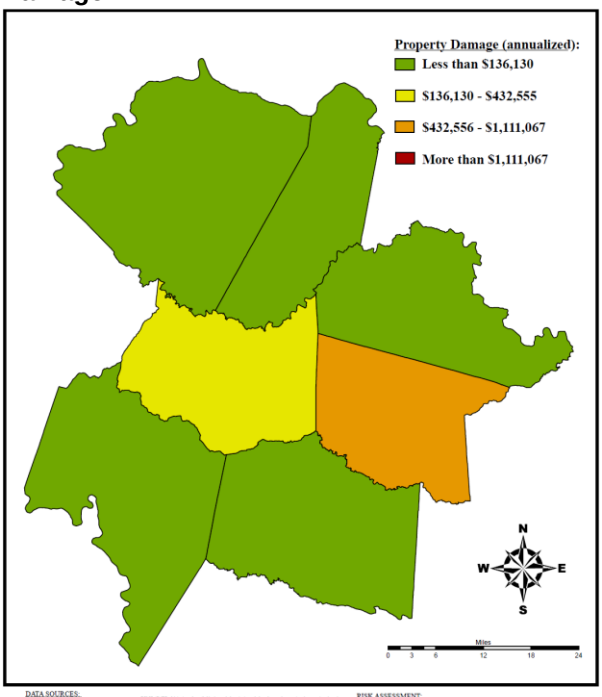


DATA SOURCES:
CGIT Ranking Criteria
VGIN Jurisdictional Boundaries
ESRI State Boundaries

DISCLAIMER: Majority of available hazard data is intended to be used at national or regional scales. The purpose of the data sets are to give general indication of areas that may be susceptible to hazards. In order to identify potential risk in the Commonwealth available data has been used beyond the original intent.

RISK ASSESSMENT:
A number of factors were taken into account to compare and rank jurisdictions based on risk to hurricanes. These include: history of occurrences, vulnerability of people, maximum geographic extent, deaths/injuries, crop damage, and property damage.

Map 6.4c – Hurricane/Tropical Storm Property Damage

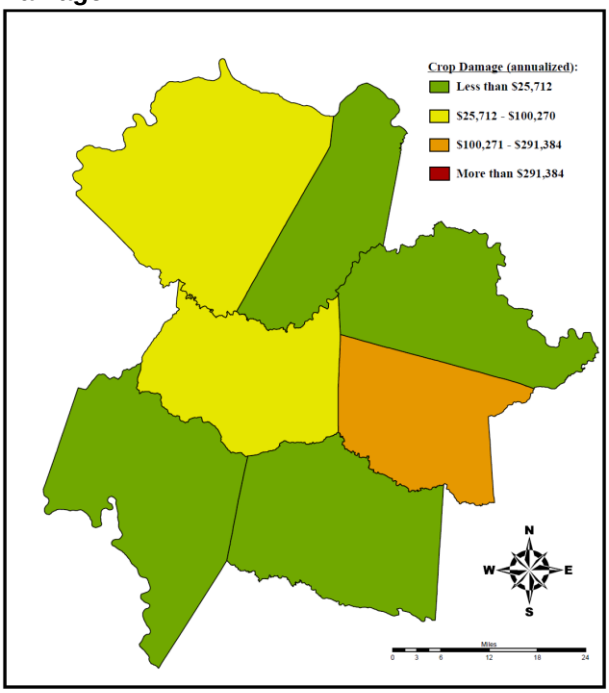


DATA SOURCES:
CGIT Ranking Criteria
VGIN Jurisdictional Boundaries
ESRI State Boundaries

DISCLAIMER: Majority of available hazard data is intended to be used at national or regional scales. The purpose of the data sets are to give general indication of areas that may be susceptible to hazards. In order to identify potential risk in the Commonwealth available data has been used beyond the original intent.

RISK ASSESSMENT:
A number of factors were taken into account to compare and rank jurisdictions based on risk to hurricanes. These include: history of occurrences, vulnerability of people, maximum geographic extent, deaths/injuries, crop damage, and property damage.

Map 6.4d – Hurricane/Tropical Storm Crop Damage

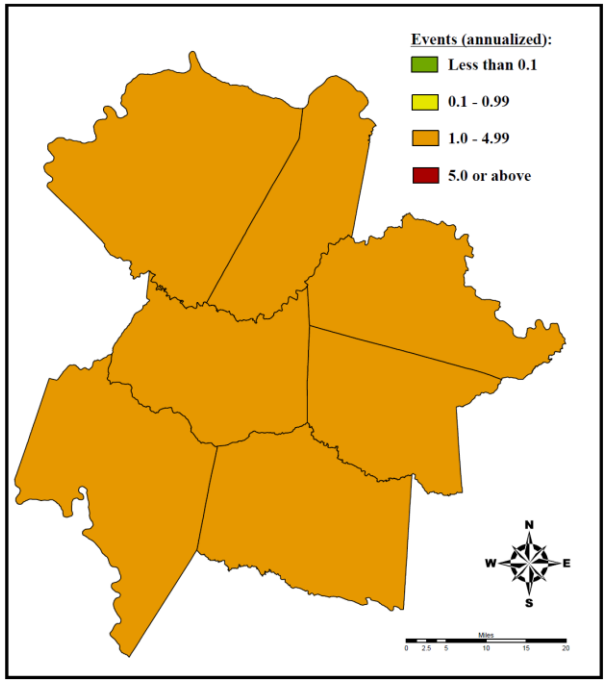


DATA SOURCES:
CGIT Ranking Criteria
VGIN Jurisdictional Boundaries
ESRI State Boundaries

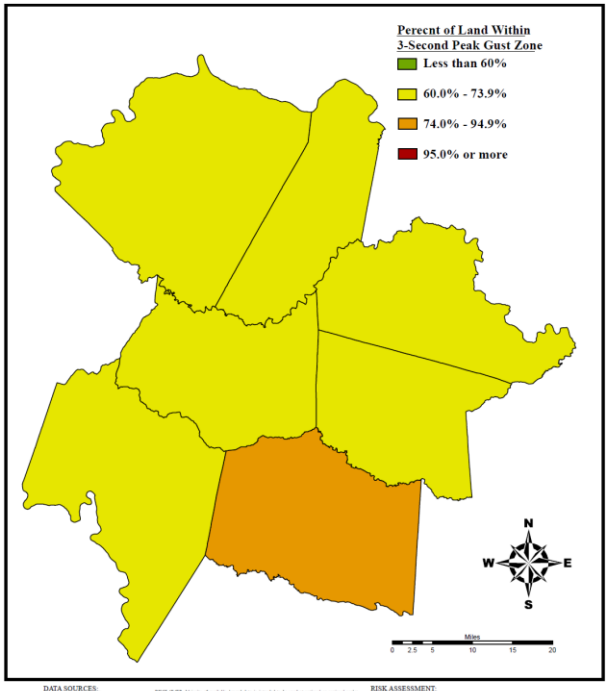
DISCLAIMER: Majority of available hazard data is intended to be used at national or regional scales. The purpose of the data sets are to give general indication of areas that may be susceptible to hazards. In order to identify potential risk in the Commonwealth available data has been used beyond the original intent.

RISK ASSESSMENT:
A number of factors were taken into account to compare and rank jurisdictions based on risk to hurricanes. These include: history of occurrences, vulnerability of people, maximum geographic extent, deaths/injuries, crop damage, and property damage.

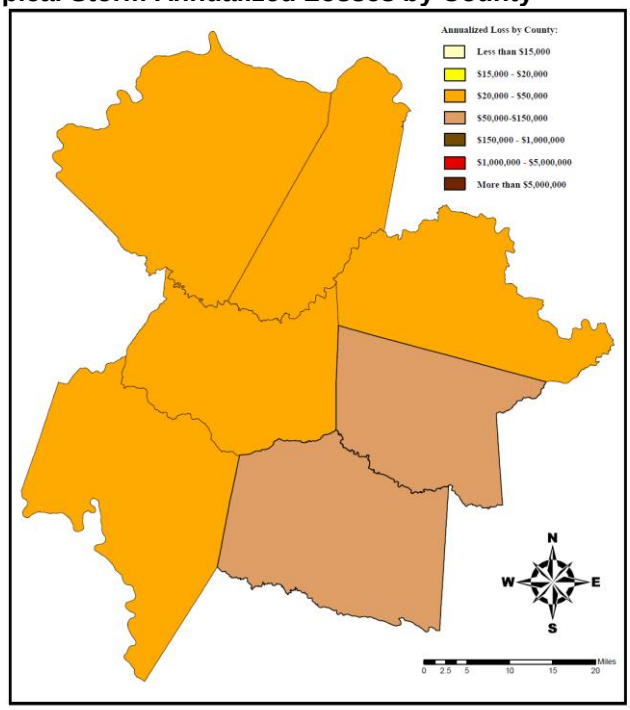
Map 6.4e – Hurricane/Tropical Storm Events



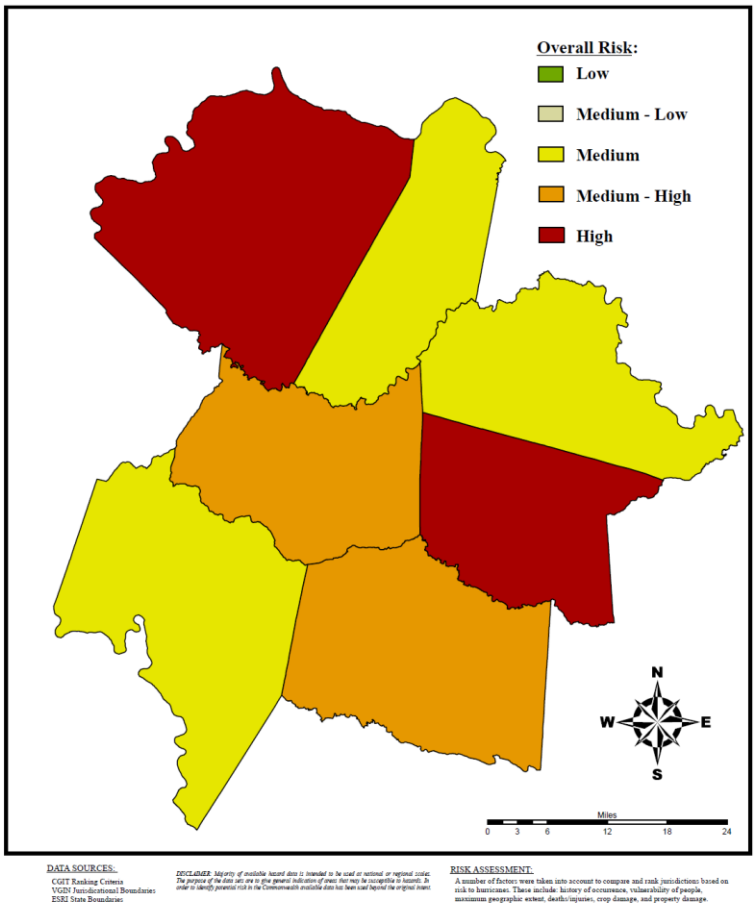
Map 6.4f – Hurricane/Tropical Storm Geographic Extent



Map 6.4g – Hurricane/Tropical Storm Annualized Losses by County



Map 6.4h – Hurricane and Tropical Storm Overall Risk



Severe Thunderstorms and Tornadoes

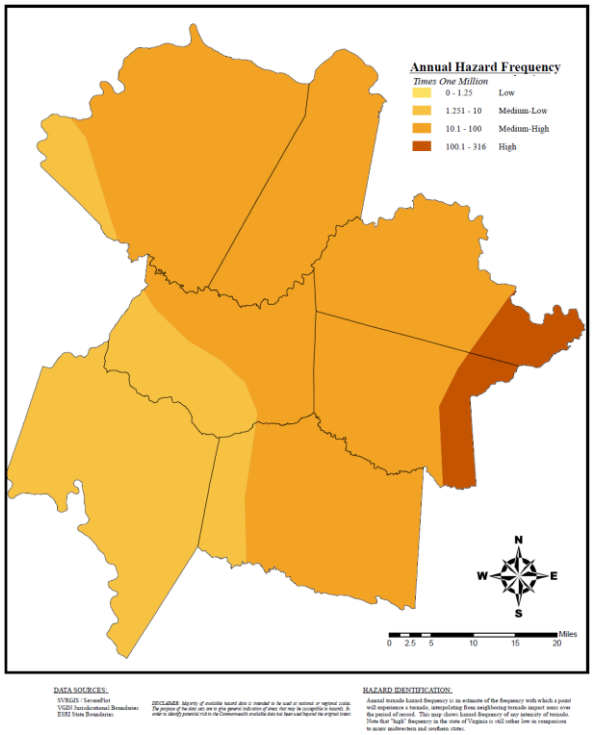
Historical evidence shows that most of the state is vulnerable to thunderstorm and tornado activity. These particular hazards are often associated with one another, as tornadoes often result from severe thunderstorm activity. Tornadoes may also occur during a tropical storm or hurricane. However, because it cannot be predicted where thunderstorm and tornado damage may occur, the total dollar exposure figure of $4,597,000,000 for buildings and facilities within the region (from the original plan – not updated due to software compatibility issues with HAZUS) is considered to be exposed and could potentially be affected.

For the severe thunderstorm and tornado hazards, best available data on historical hazard occurrences (limited to NOAA National Climatic Data Center records) was used to produce an annualized loss estimate of potential damages for each county. Using this data, annualized loss estimates were generated by totaling the amount of property damage for each county over the period of time for which records were available, and calculating the average annual loss. The date was updated to include events through 2010. In instances where multiple counties are affected and the value for property damage reflects the total for the affected area, the average property damage for each county was calculated to produce an annualized loss estimate of potential damages for each county. Based on historic property damages, a regional annualized loss estimate of $66,494 was generated for severe thunderstorms. A regional annualized estimate of

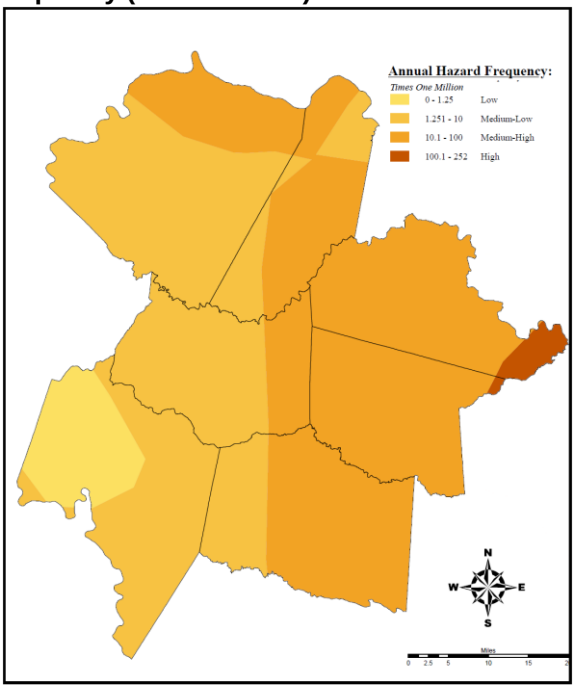
$61,000 was generated for hail storms. A regional annualized loss of $126,783 was generated for tornadoes.

Maps 6.5a – 6.5*c* illustrate the risk to this region from Tornadoes (Maps prepared by VDEM/CGIT, 2008 – updated by CRC, 2010).

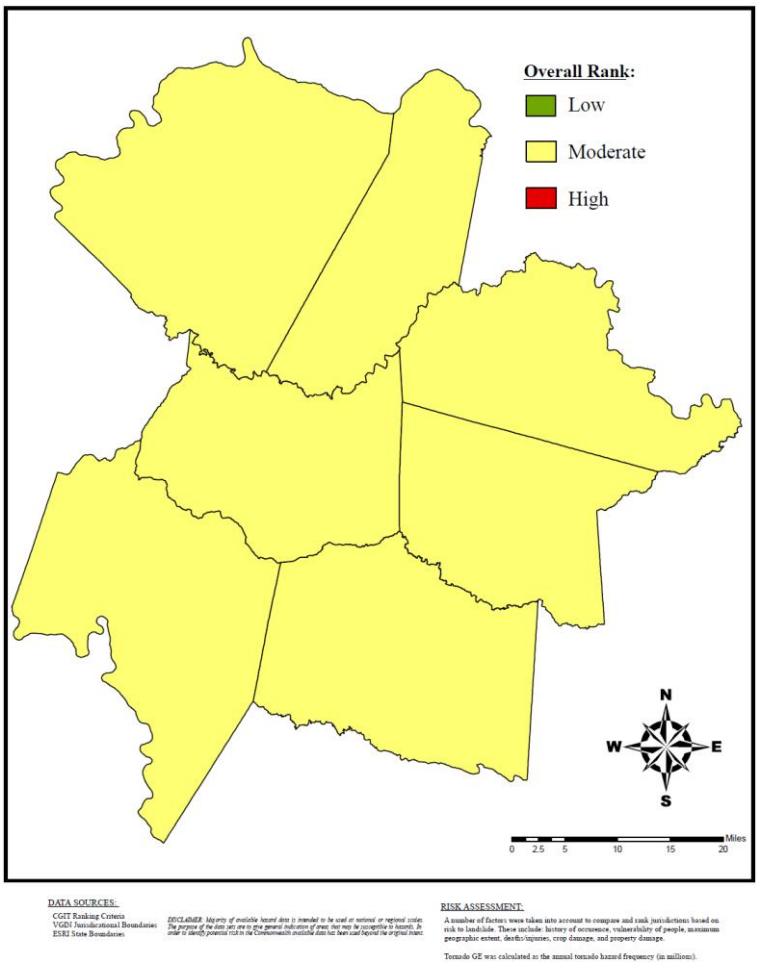
Map 6.5a – Tornado Hazard Frequency



Map 6.5b – Significant Tornado Hazard Frequency (F2 or Greater)



Map 6.5c – Tornado Hazard Rank

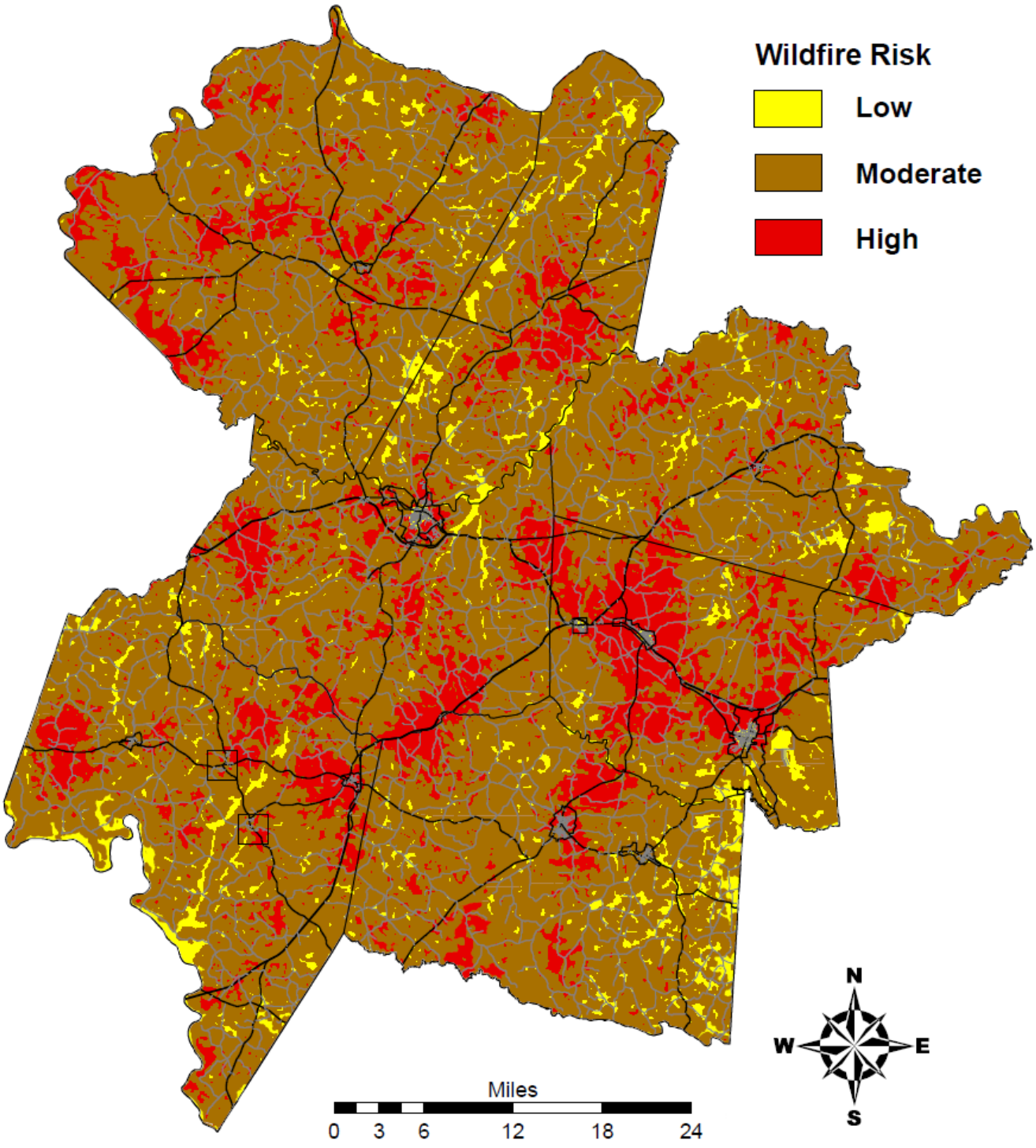


Wildfire

Based on information obtained from the Virginia Department of Forestry for events reported from 1994–2010, the annualized loss for the region is $228,726. One thing to consider when evaluating the wildfire vulnerability is that as the region continues to grow and develop, there will be more and more buildings and people put into areas that have been identified as high and moderate potential for wildfire. It is important that community leaders recognize this and attempt to keep up with the development with proper staffing levels of firefighters and firefighting equipment.

Map 6.6 illustrates the risk to wildfire in the region. As can be seen, much of the region is at either moderate or high risk to wildfire.

Map 6.6 – Wildfire Risk



Map created by CRC – May 2011
Source: VDOF

Drought

The entire region is vulnerable to drought. Since 1993 the region has been severely impacted by drought, with damages totaling approximately $510,280,000. However, before this period, very little historical data exists on past drought events. Therefore it is very difficult to determine an annualized loss that can be expected for the region for drought. Based upon the events discussed in the *Hazard Analysis* section, the regional annualized loss estimate for the region is $3,954,588. The bulk of that value is for losses to crops and farmlands caused by drought events from 1993 to 2010. In the NCDC database, the value associated with each event is not broken down by county so it is difficult to determine separate annualized losses by county. It is assumed that all buildings and facilities are exposed to drought but would experience negligible damage in the occurrence of a drought event, but crop damages would naturally suffer the greatest amount of damage. This is of particular importance to officials in this region, as farming is a major industry.

The annualized loss estimate for drought is somewhat inflated because of the unusually high periods of drought that have occurred recently and the lack of historical drought data before 1993 to counterbalance the recent events. Based on historical occurrences, droughts are likely to occur in the future.

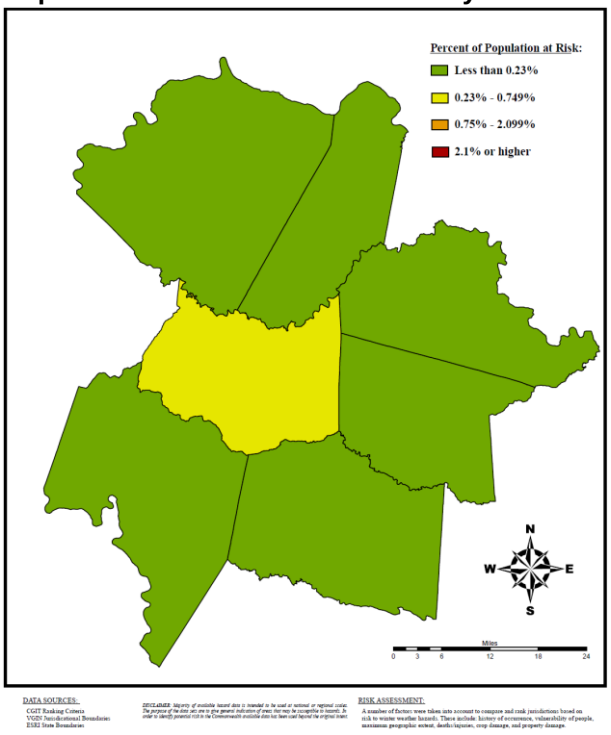
Winter Storms

For the winter storm hazard, best available data on historical hazard occurrences (limited to NOAA National Climatic Data Center records) was used to produce an annualized loss estimate of potential damages for each county. Using this data, annualized loss estimates were generated by totaling the amount of property damage for each county over the period of time for which records were available, and calculating the average annual loss. In instances where multiple counties are affected and the value for property damage reflects the total for the affected area, the average property damage for each county was calculated to produce an annualized loss estimate of potential damages for each county.

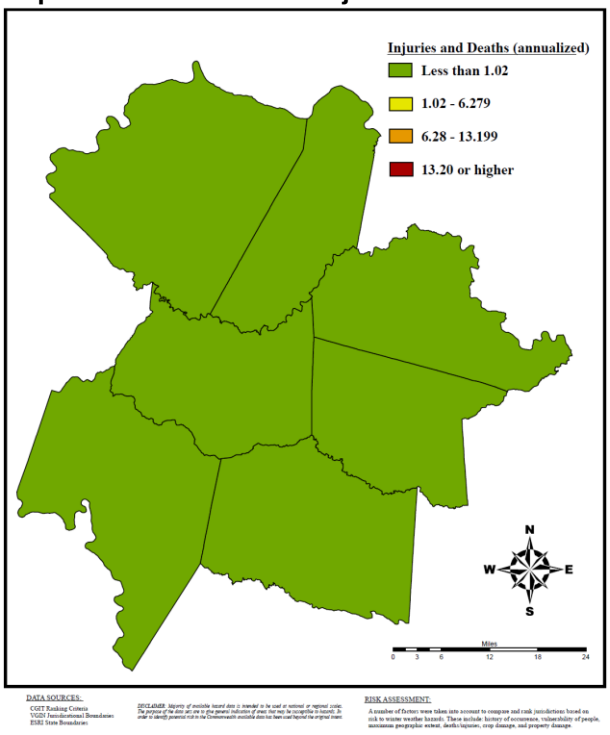
Unlike hazards such as tornadoes that typically impact a specific location, winter storms most often affect large geographic areas and often impact multiple counties. Based on estimated historical property damages for the Piedmont Region due to winter storms (see data in Section V), annualized losses for the region are estimated at $5,715,666. Potential losses may be further inflated by additional factors not represented in this estimate, such as costs associated with the removal of snow from roadways, debris clean-up, some indirect losses from power outages, etc.

Maps 6.7a – 6.7g illustrate the risk to this region from Winter Storms (Maps prepared by VDEM/CGIT, 2008 – updated by CRC, 2010).

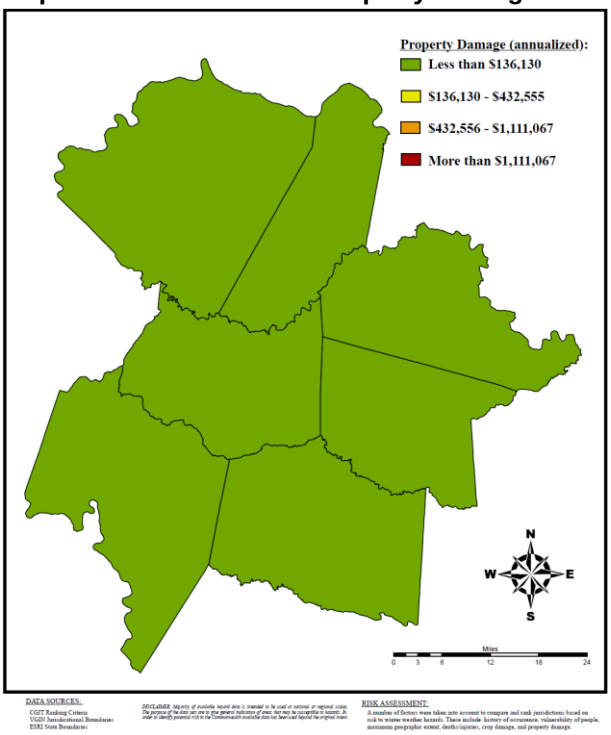
Map 6.7a – Winter Storm Vulnerability



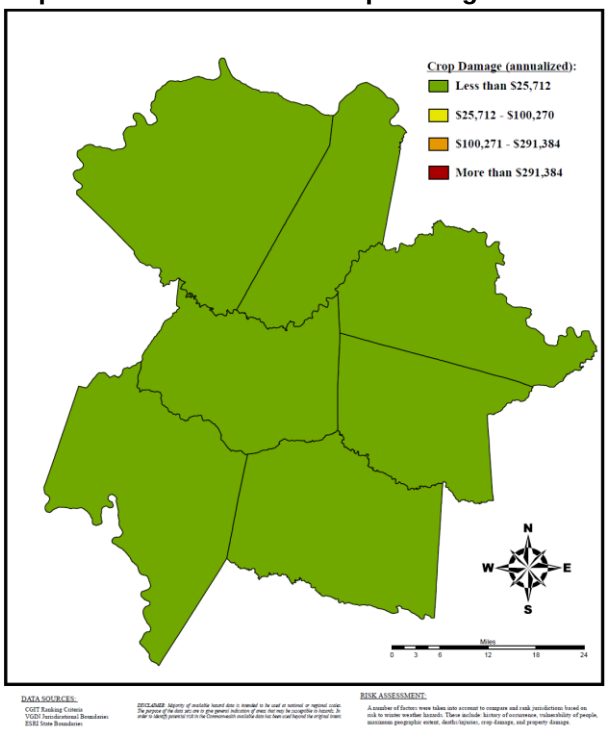
Map 6.7b – Winter Storm Injuries and Deaths



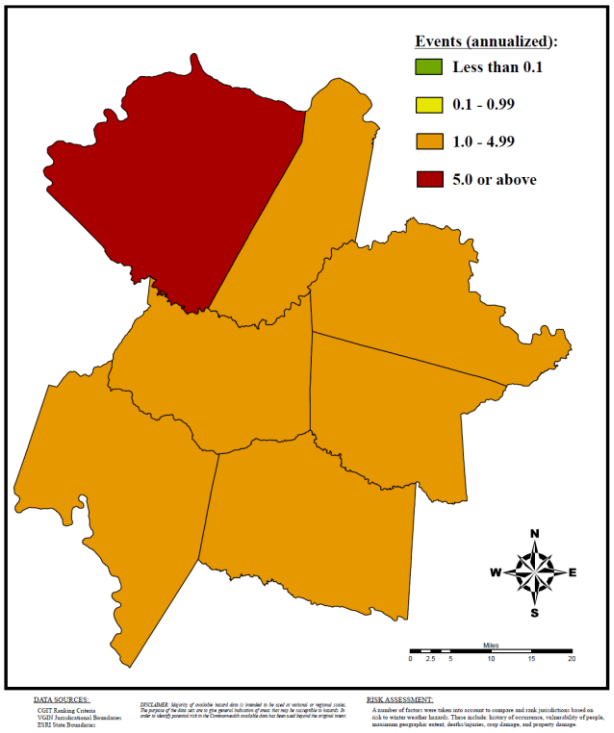
Map 6.7c – Winter Storm Property Damage



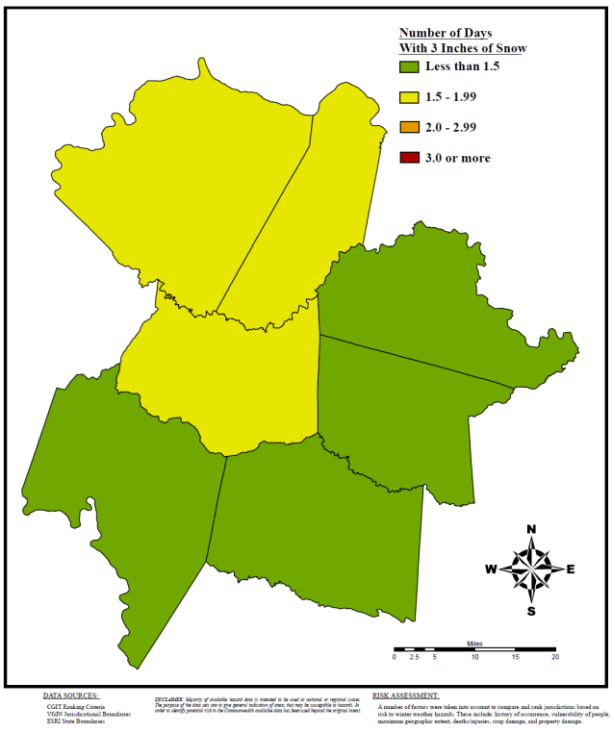
Map 6.7d – Winter Storm Crop Damage



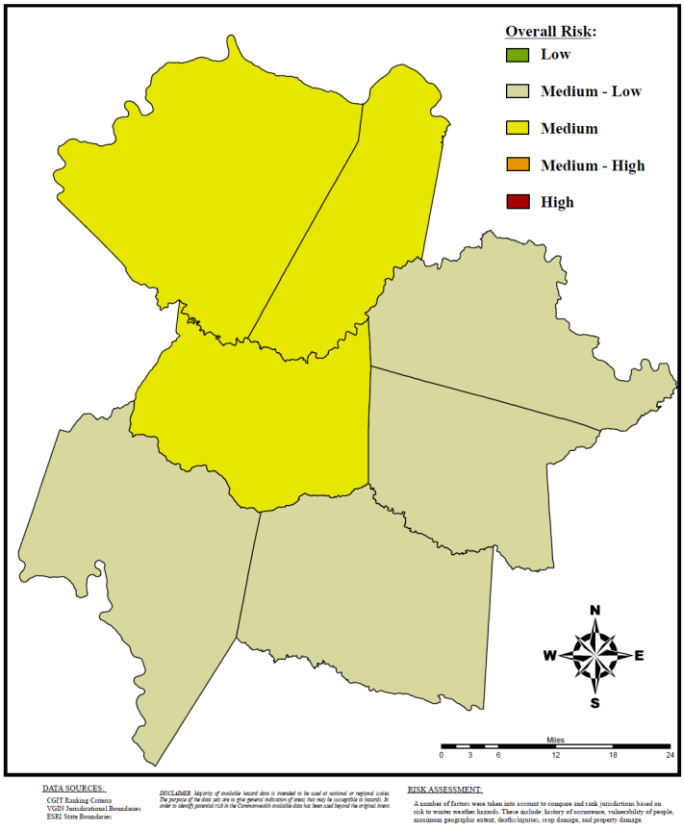
Map 6.7e – Winter Storm Events



Map 6.7f – Winter Storm Geographic Extent

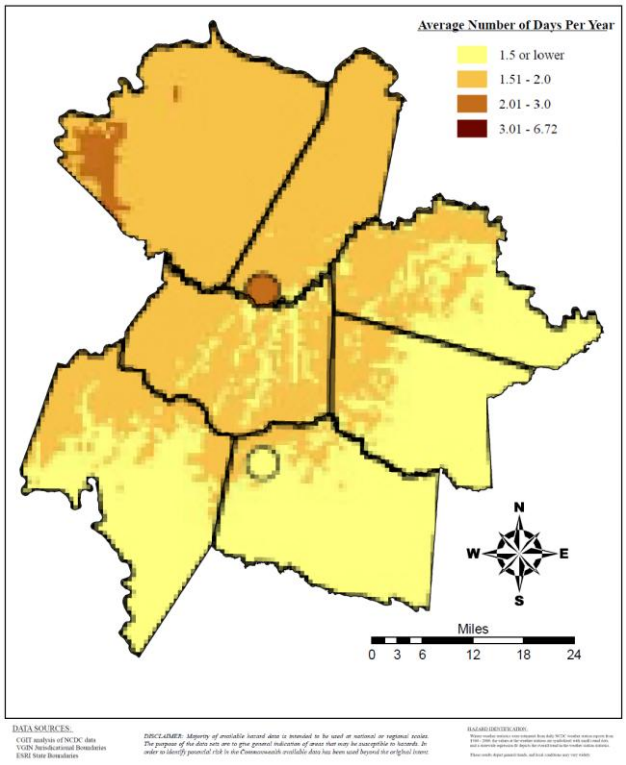


Map 6.7g – Winter Storm Overall Risk

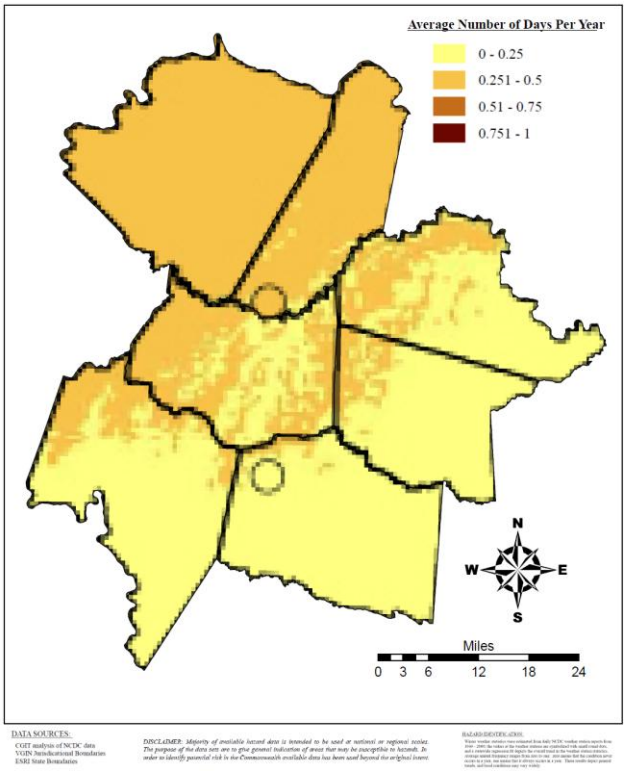


Maps 6.7h – 6.7m Illustrate winter storm probablity for the state and region (maps crated by VDEM and CGIT, based on 2008 data). Given this data, and the hisrorical occurrence of winter storms in the past, the probablity of winter storms occuring in this region is high.

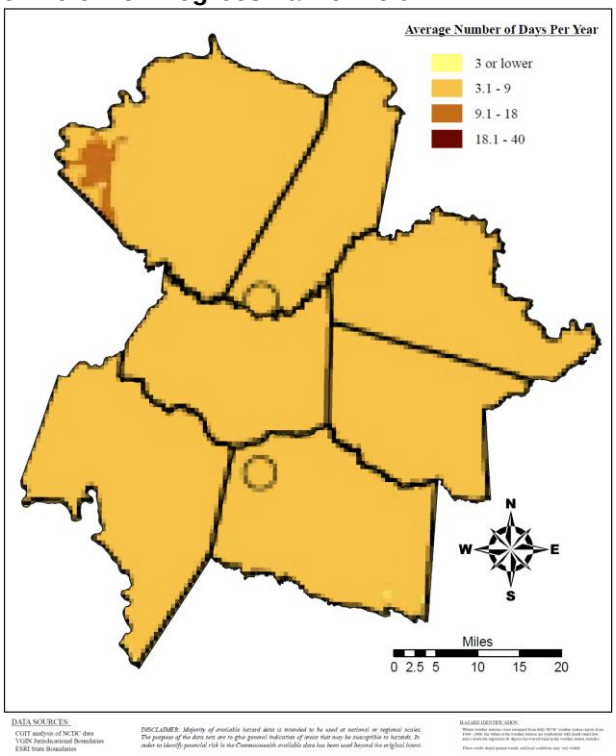
Map 6.7h – Average Number of Days with At Least Three Inches of Snow



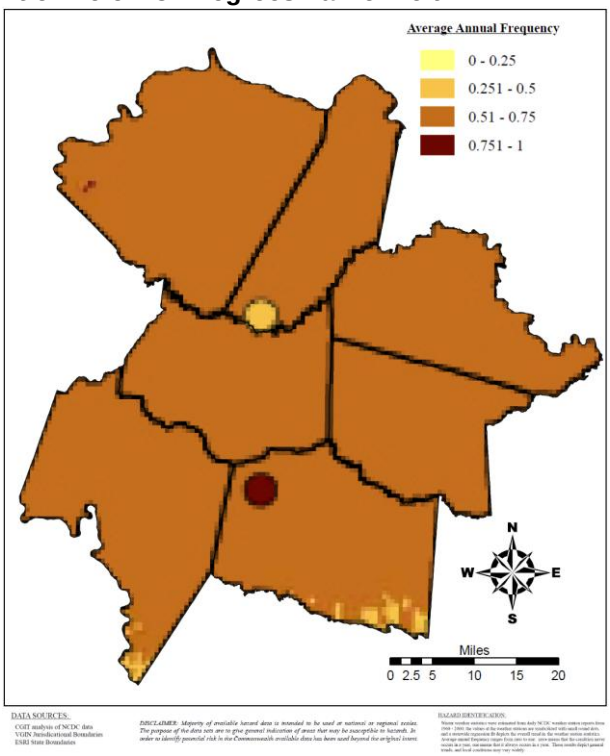
Map 6.7i –Frequency of Three or More Days with At Least Three Inches of Snow



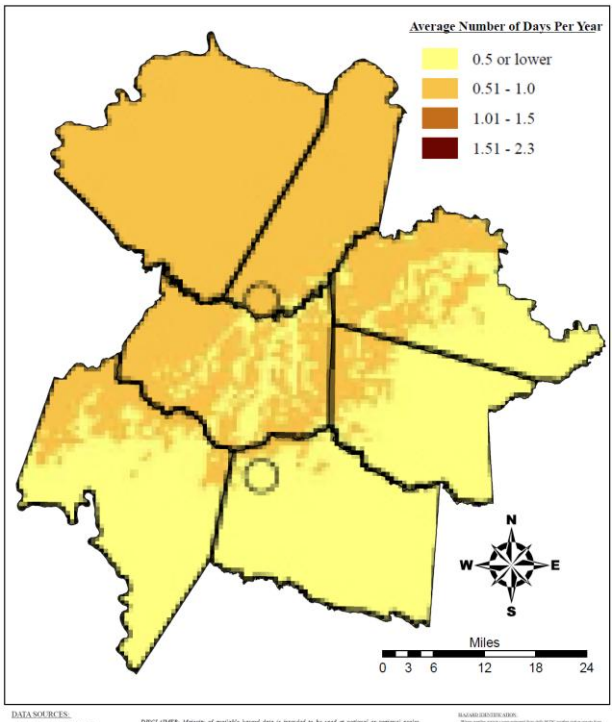
Map 6.7j – Average Number of Days Entirely At or Below 32 Degrees Fahrenheit



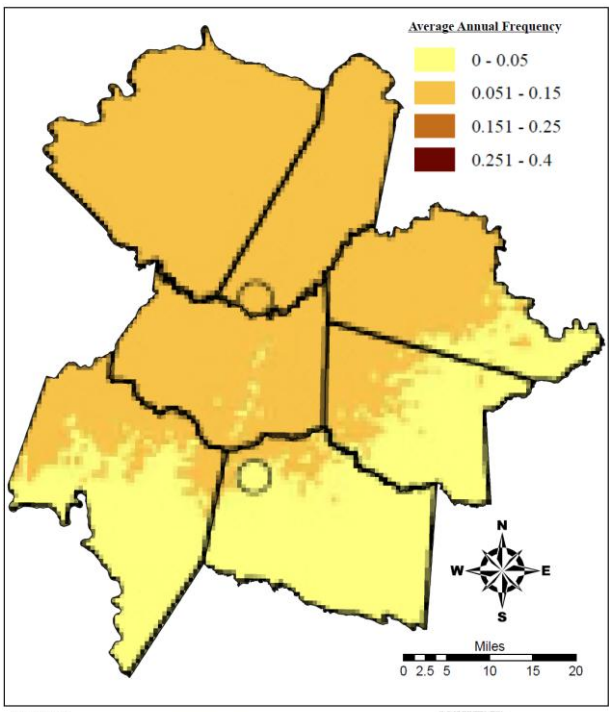
Map 6.7k – Frequency of Five or More Days Entire At or Below 32 Degrees Fahrenheit



Map 6.7l – Average Number of Days with At Least Six Inches of Snow



Map 6.7m – Frequency of One or More Days with At Least 12 inches of Snow



Erosion

Erosion vulnerability for the region is difficult to determine because there are no historical records for previous occurrences of erosion events. Vulnerability is limited to areas along rivers, creeks and streams to areas of steep slopes. There is no new data with which to conduct a risk analysis for the updated Plan. Furthermore, there is no data on erosion probability. Future updates to this Plan will attempt to address erosion vulnerability in greater detail, dependent upon the availability of data.

Earthquakes

According to the maps in the *Hazard Analysis* section, the region's risk to earthquakes can be considered limited; however, potential losses should a significant earthquake event occur—for example an earthquake registering 8.5 on the Richter Scale—is considered to be moderate.

Estimated annualized losses from earthquakes for this Plan update were based on data from the State Plan. The State Plan used HAZUS to generate damage and loss estimates for the probabilistic ground motions associated with each of eight return periods (100, 250, 500, 750, 1000, 2000, and 2500 years). The building damage estimates were then used as the basis for computing direct economic losses. These include building repair costs, contents and business inventories losses, costs of relocation, capital-related, wage and rental losses. Annualized loss was computed, in HAZUS, by multiplying losses from eight potential ground motions by their respective annual frequencies of occurrence, and then summing the values. The HAZUS census tract annualized loss values were joined to the county boundaries and summarized. Census tracts that did not intersect with a county boundary were assigned to jurisdictions based on the first five digits of the census tract that represent the FIPs code for the community.

Table 6.13 provides generalized loss estimates in Planning District 14 for the 100-, 500-, 1,000- and 2,500-year return periods based on data from the State Plan (which used probabilistic scenarios using HAZUS$^{MH)}$. Based on these numbers, total annualized losses for the region are estimated at $247,919.

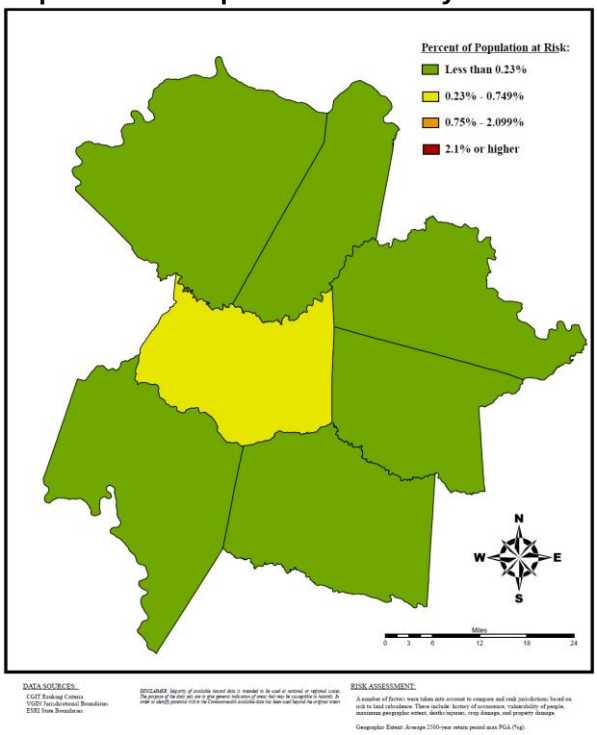
Table 6.13
Estimated Annualized Earthquake Losses in Planning District 14

COUNTY	Amelia County	Buckingham County	Charlotte County	Cumberland County	Lunenburg County	Nottoway County	Prince Edward County
ANNUALIZED LOSSES	$27,946	$32,975	$27,730	$29,264	$21,142	$40,286	$68,576

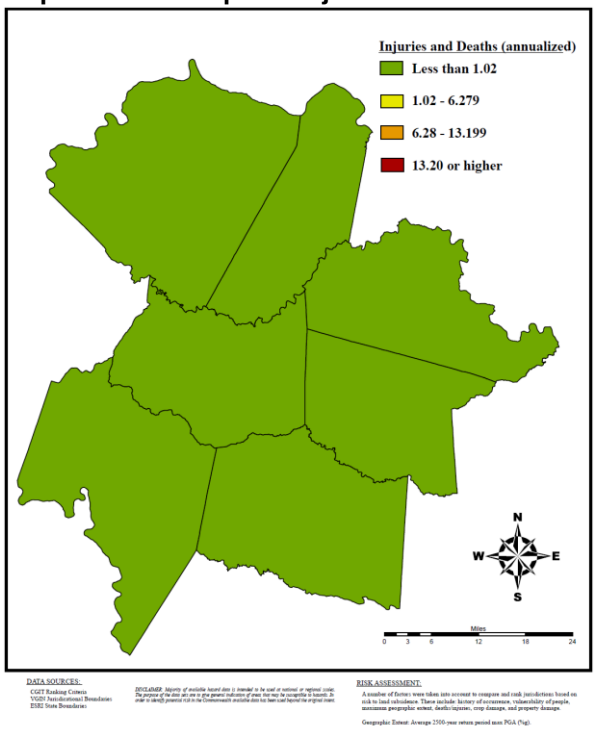
NOTE: Does not include damages from the August 23, 2011 earthquake in Louisa County.

Maps 6.8a – 6.8m illustrate the risk to this region from Earthquakes (Maps prepared by VDEM/CGIT, 2008 – updated by CRC, 2010).

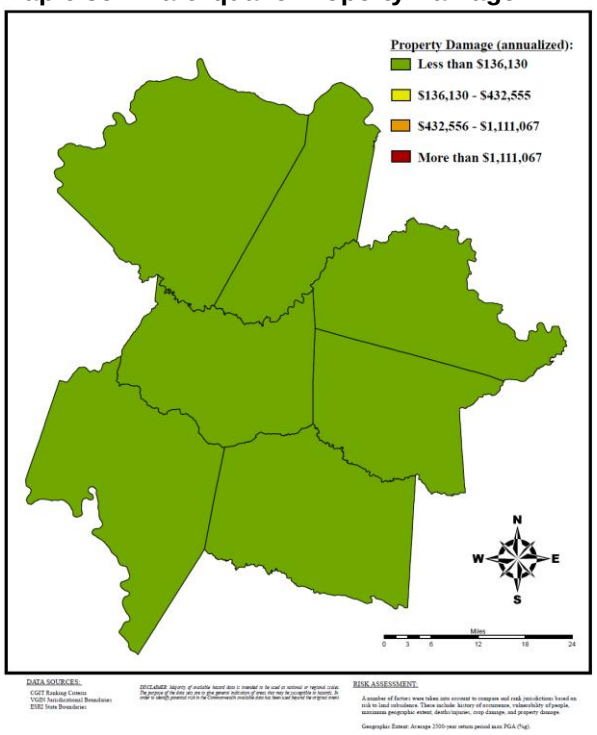
Map 6.8a – Earthquake Vulnerability



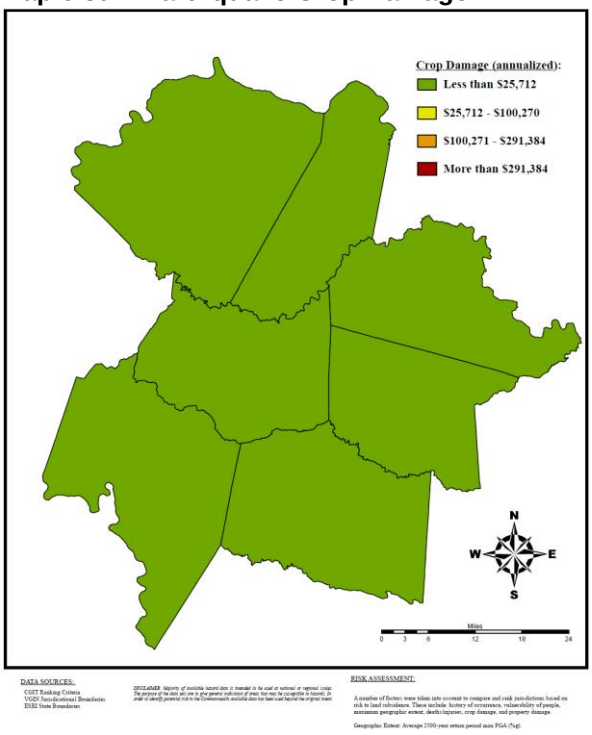
Map 6.8b – Earthquake Injuries and Deaths



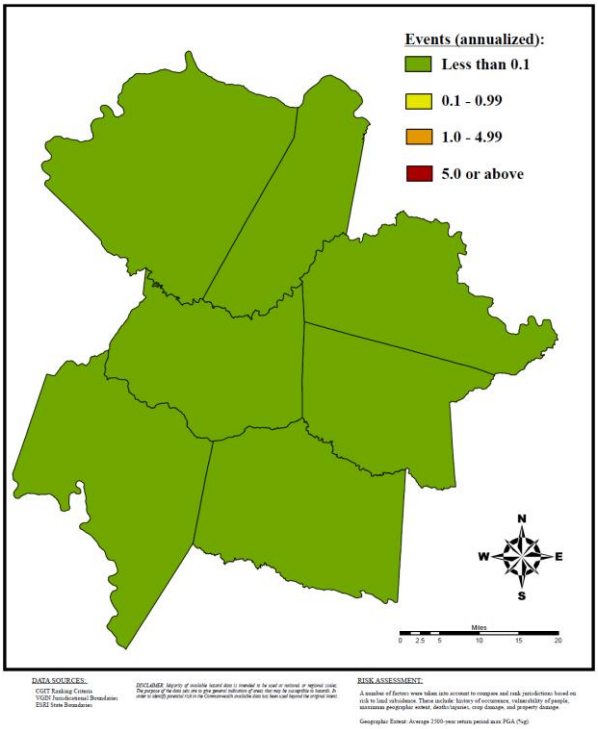
Map 6.8c – Earthquake Property Damage



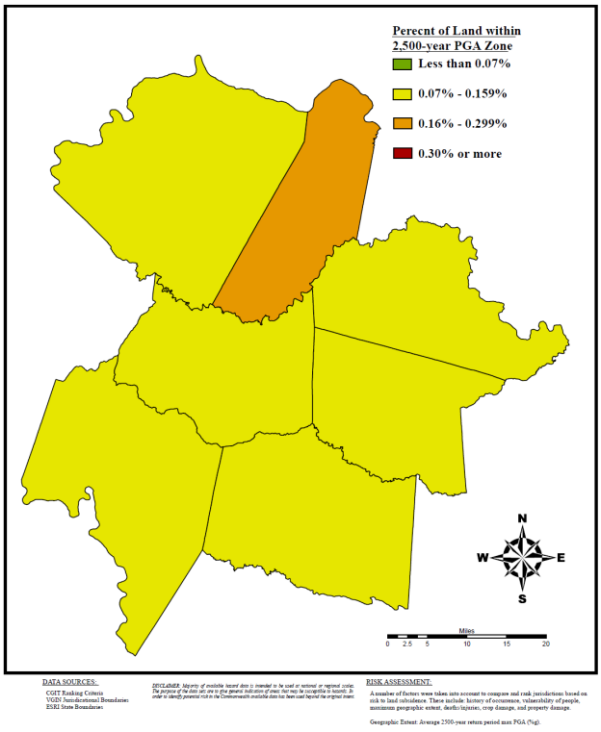
Map 6.8d – Earthquake Crop Damage



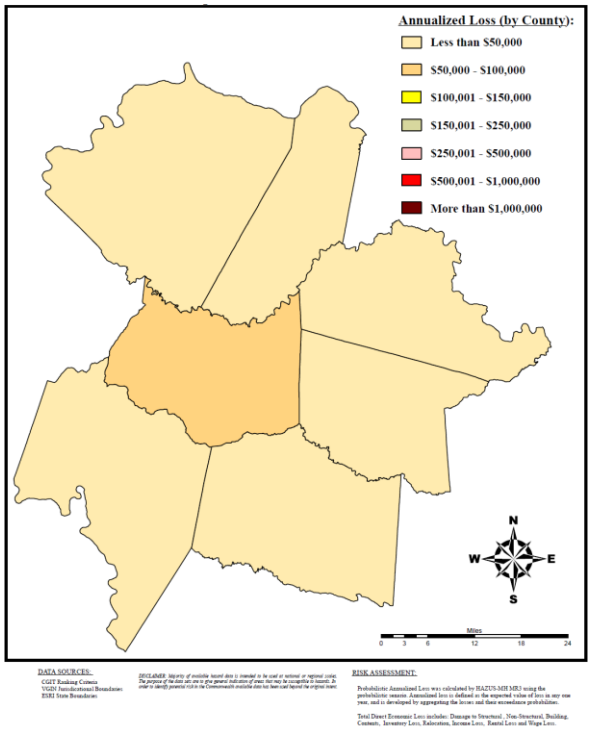
Map 6.8e – Earthquake Events



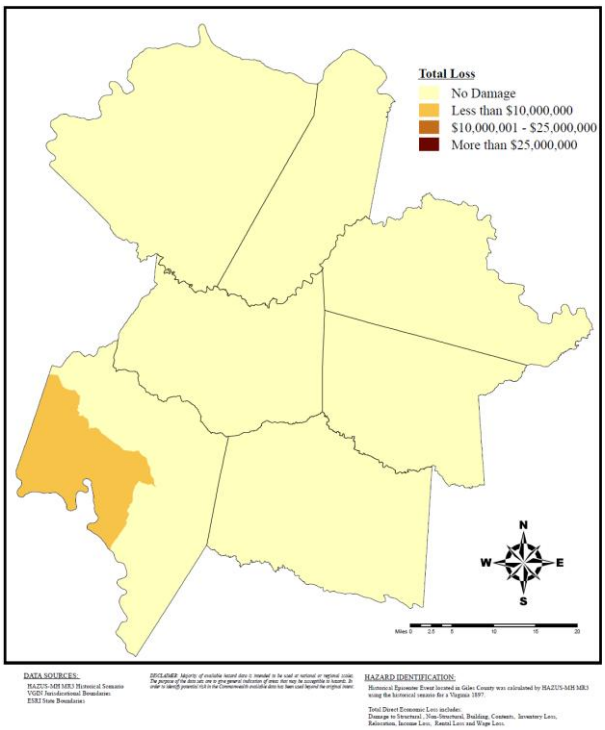
Map 6.8f – Earthquake Geographic Extent



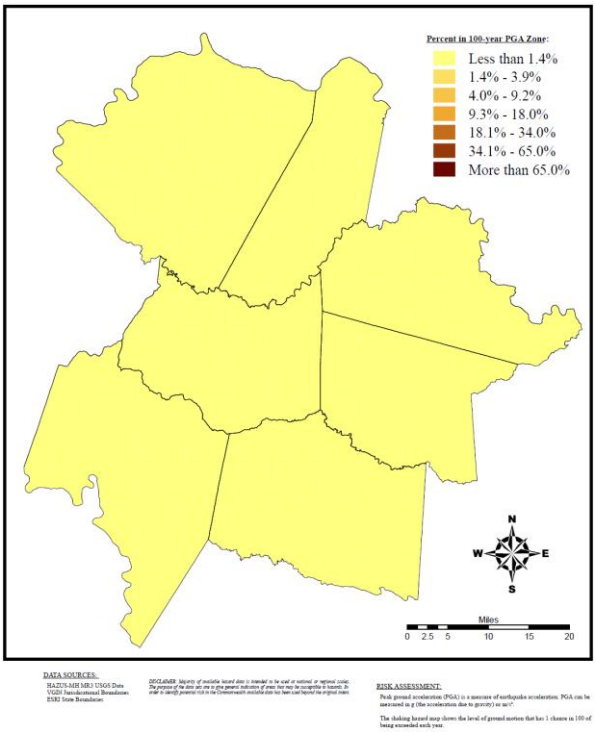
Map 6.8g – Earthquake Probabilistic Annualized Losses



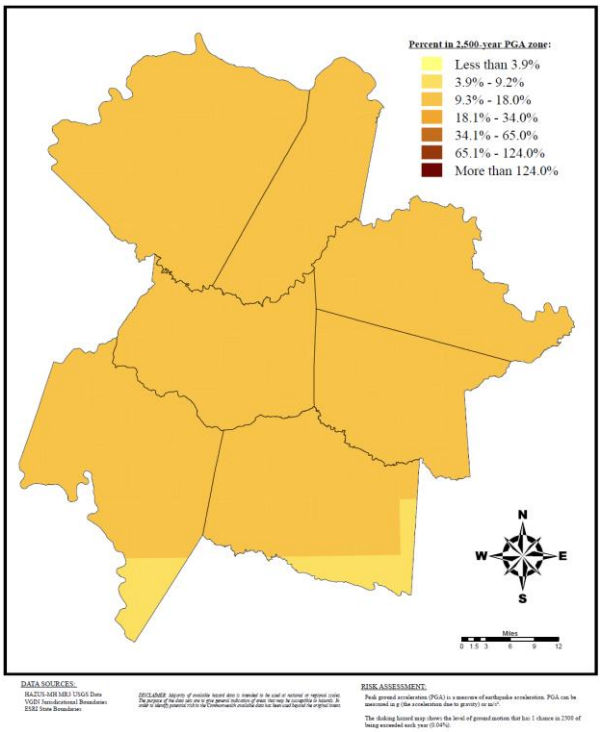
Map 6.8h – Total loss from 1897 Event, Giles County (Magnitude 5.8)



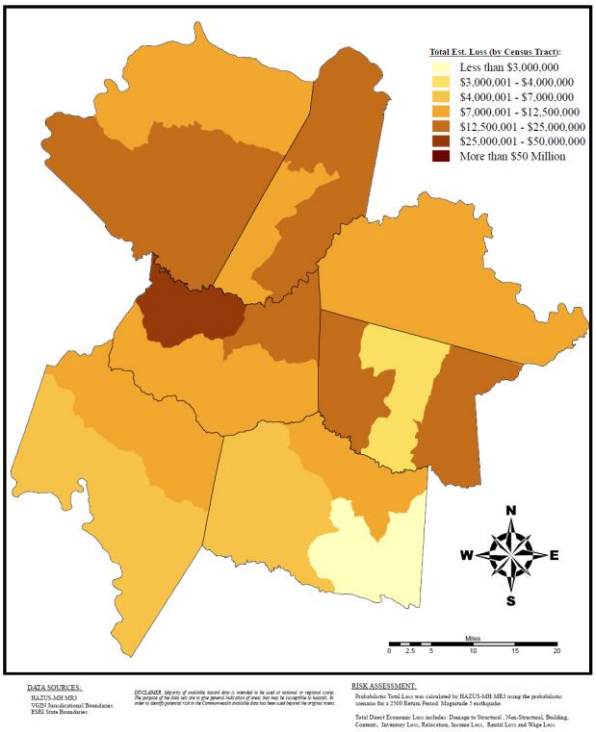
Map 6.8i – 100 Return Period Peak Ground Acceleration



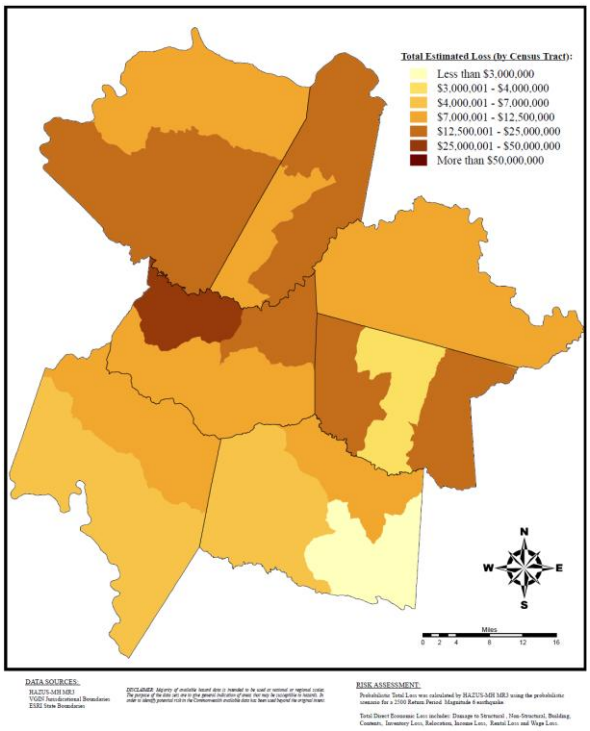
Map 6.8j – 2500 Return Period Peak Ground Acceleration



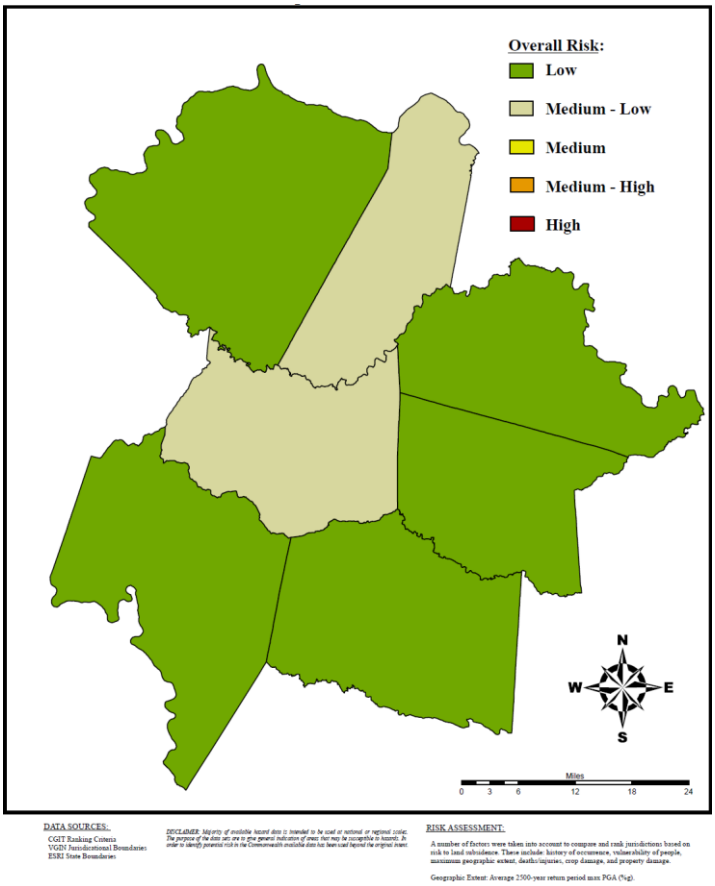
Map 6.8k – Earthquake Probabilistic Loss from 2500 Return Period Magnitude 5



Map 6.8l – Earthquake Probabilistic Loss from 2500 Return Period Magnitude 6



Map 6.8m – Earthquake Overall Risk

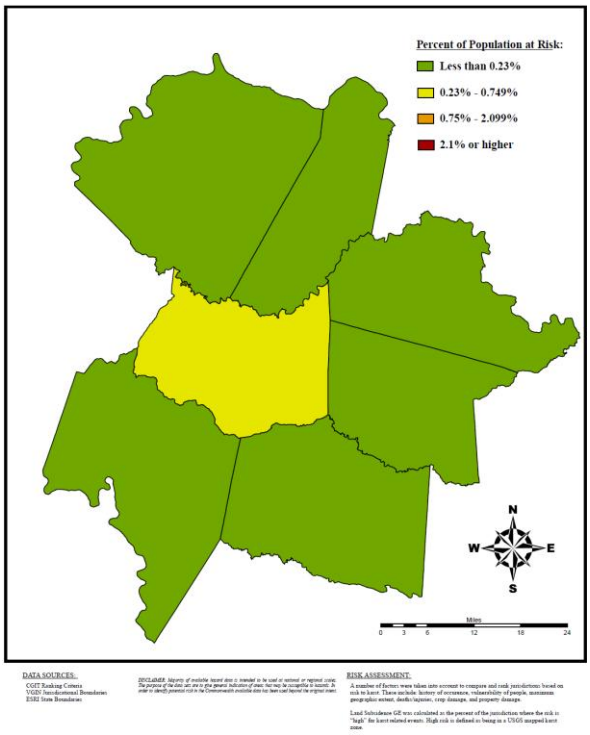


Sinkholes

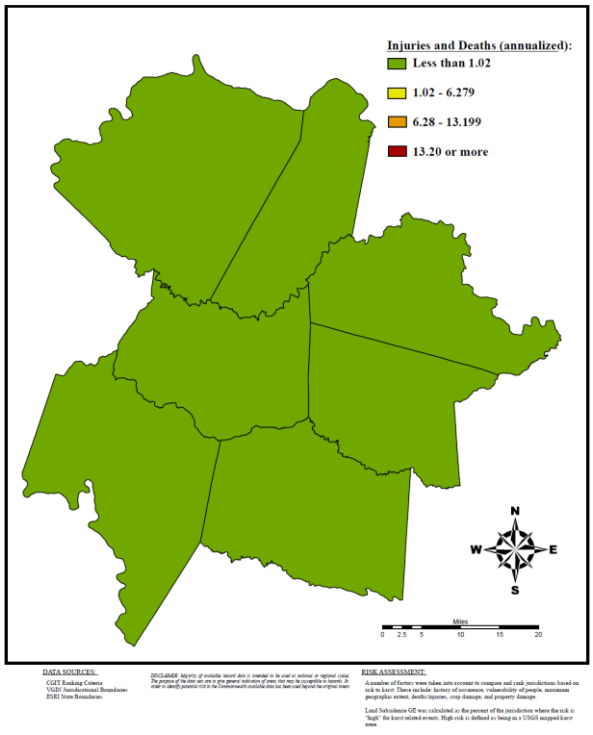
Any damage resulting from a sinkhole (also known as Karst) or landslide would be localized. The only data available for this hazard is from the State Plan, and is illustrated on **Maps 6.9a – 6.9g** (Maps prepared by VDEM/CGIT, 2008 – updated by CRC, 2010).

Because sinkholes have occurred in the region in the past, it can be expected that they will occur again in the future, however, vulnerability is considered to be negligible because these events are very random and do not effect a large area. There have been no historical events since the original Plan was completed.

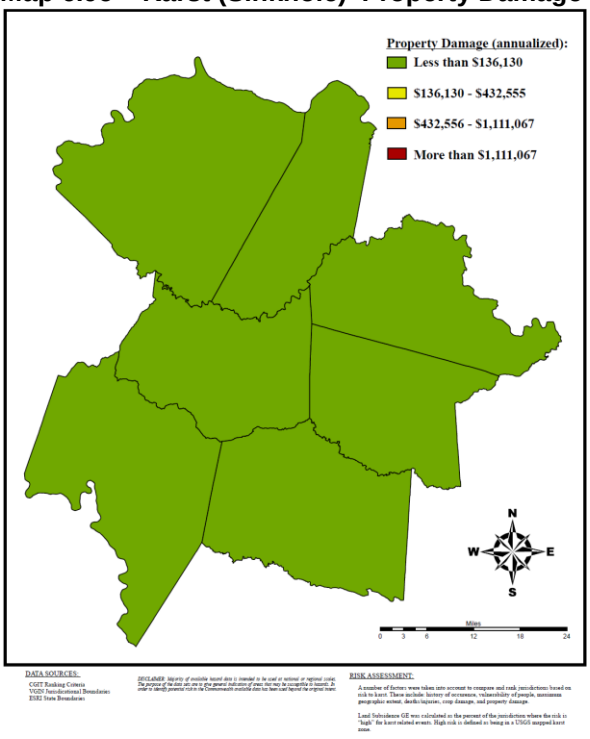
Map 6.9a – Karst (Sinkhole) Vulnerability



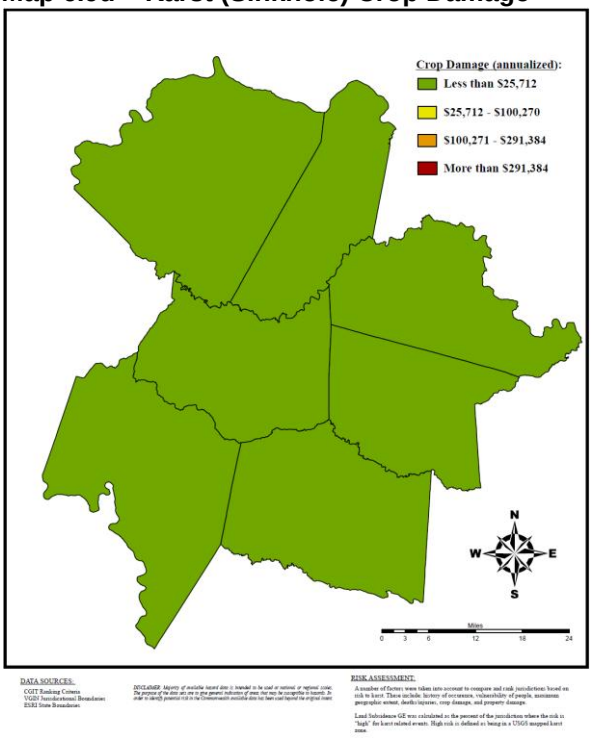
Map 6.9b – Karst (Sinkhole) Injuries and Deaths



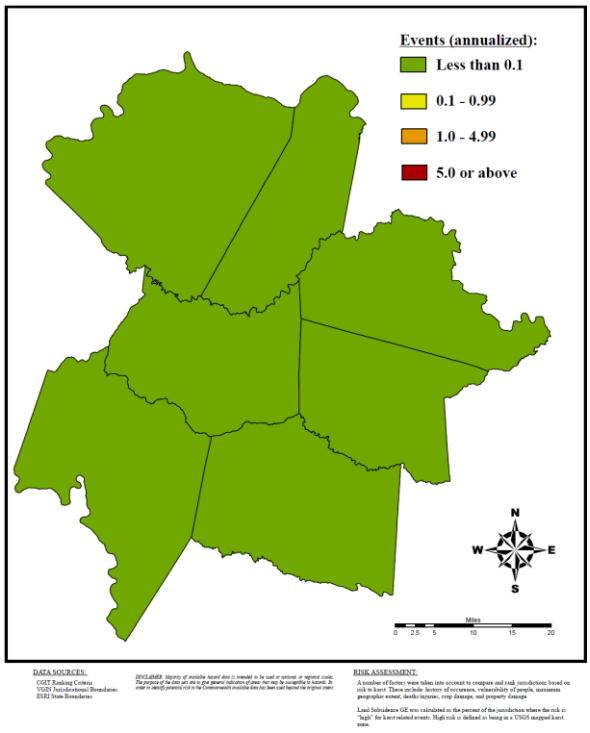
Map 6.9c – Karst (Sinkhole) Property Damage



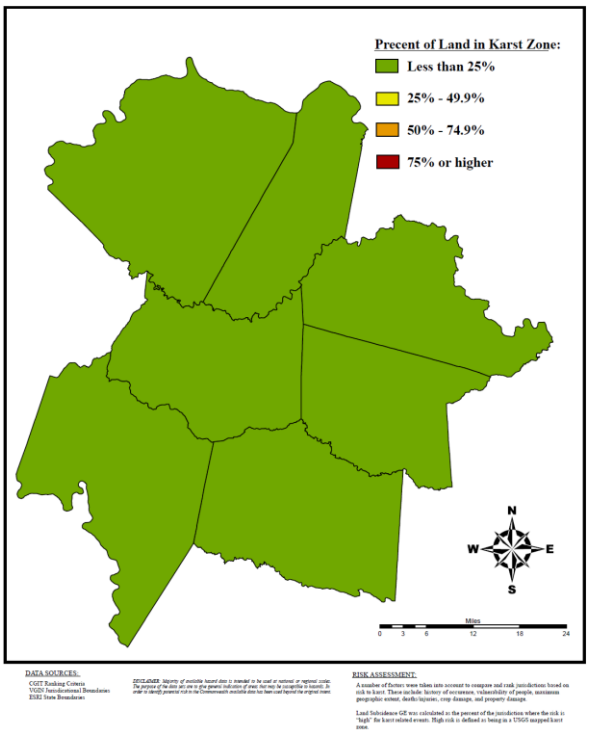
Map 6.9d – Karst (Sinkhole) Crop Damage



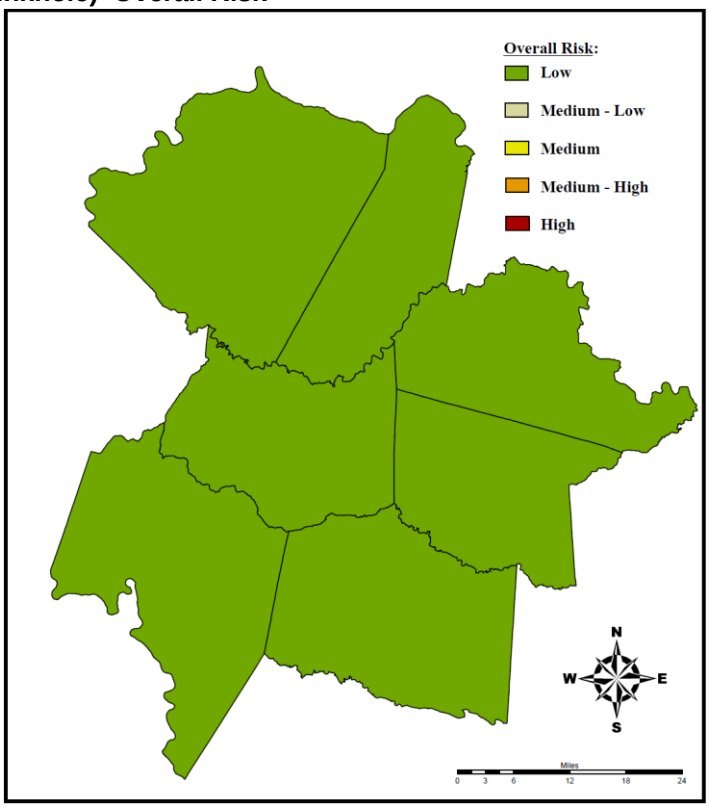
Map 6.9e – Karst (Sinkhole) Events



Map 6.9f – Karst (Sinkhole) Geographic Extent



Map 6.9g – Karst (Sinkhole) Overall Risk

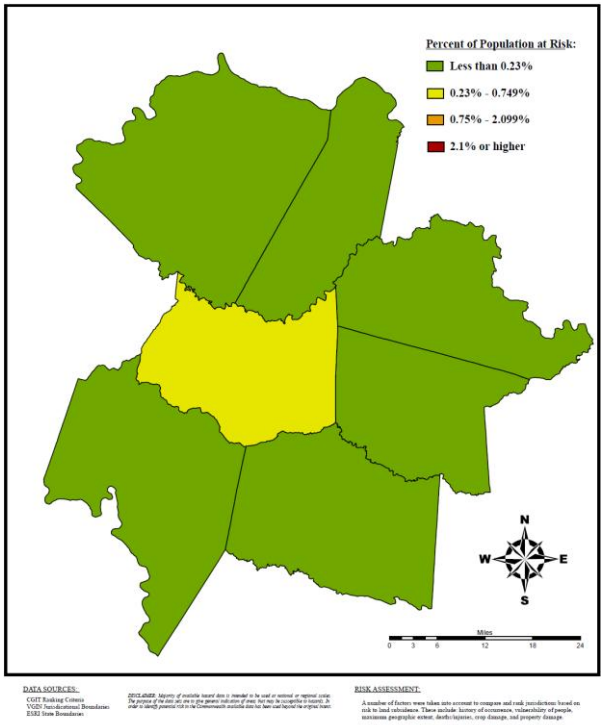


Landslides

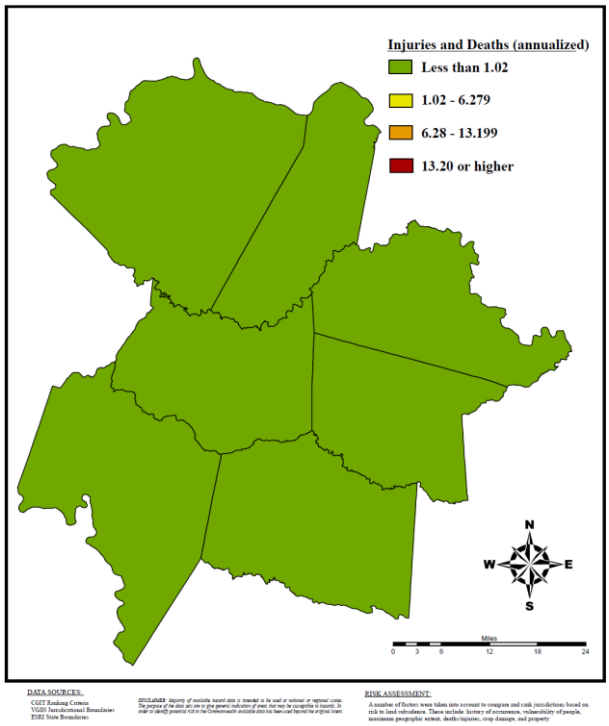
Other than data from the State Hazard Mitigation Plan, there is not much data to determine the region's vulnerability to landslides. It is extremely difficult to determine the number of buildings and people at risk. That having been said, there are no known historical events since the original Plan was completed.

There is some data from the State Plan, which helps to illustrate the risk of landslides in the region. That is illustrated on Maps **6.10a – 6.10** (Maps prepared by VDEM/CGIT, 2008 – updated by CRC, 2010).

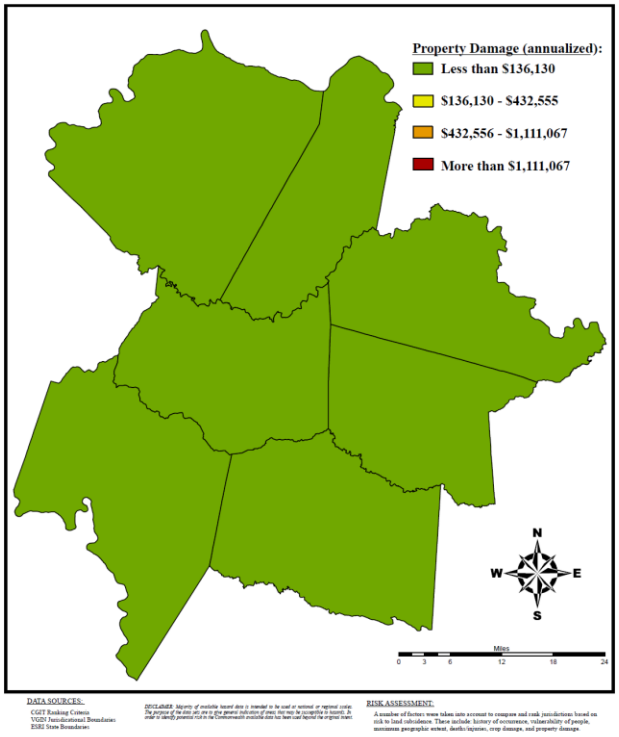
Map 6.10a – Landslide Vulnerability



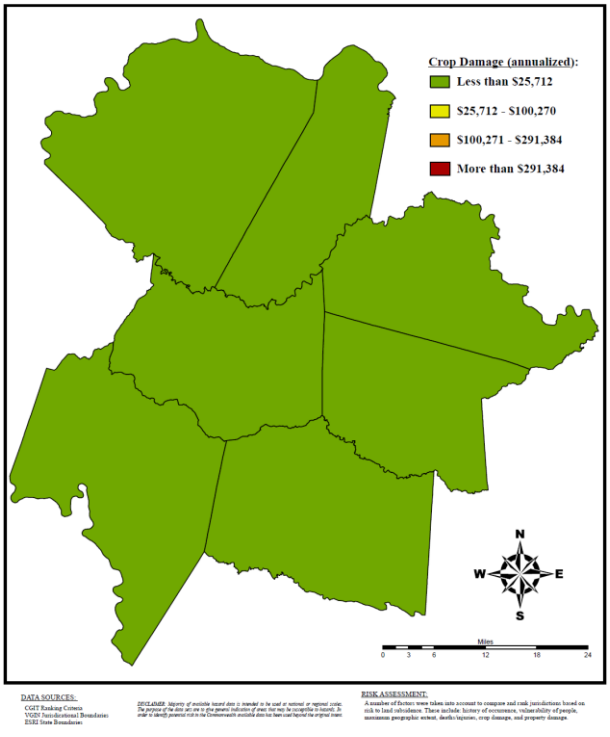
Map 6.10b – Landslide Injuries and Deaths



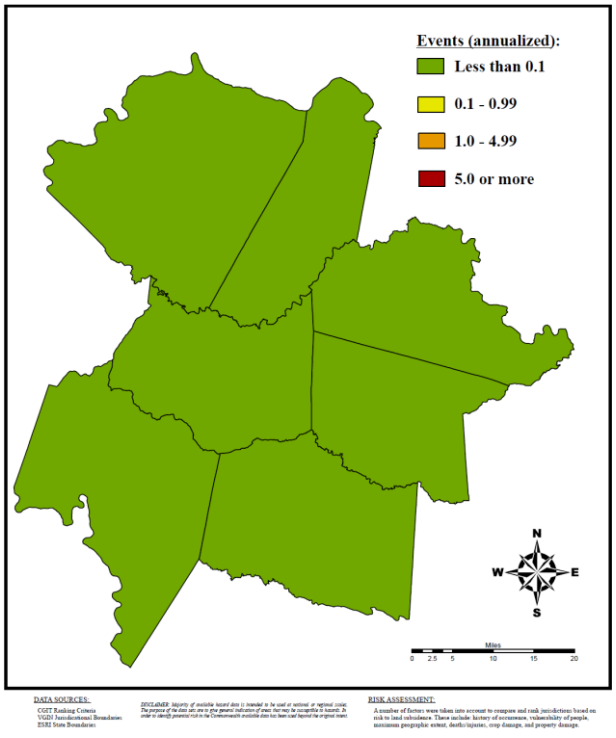
Map 6.10c – Landslide Property Damage



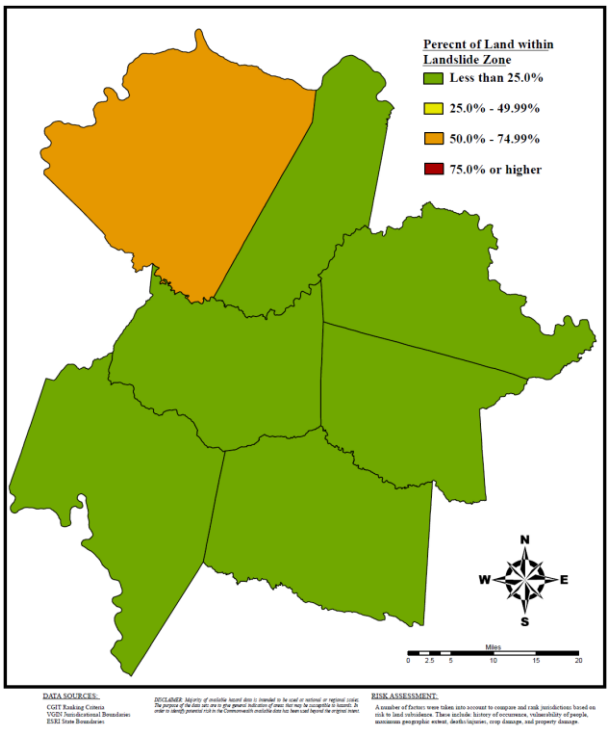
Map 6.10d – Landslide Crop Damage



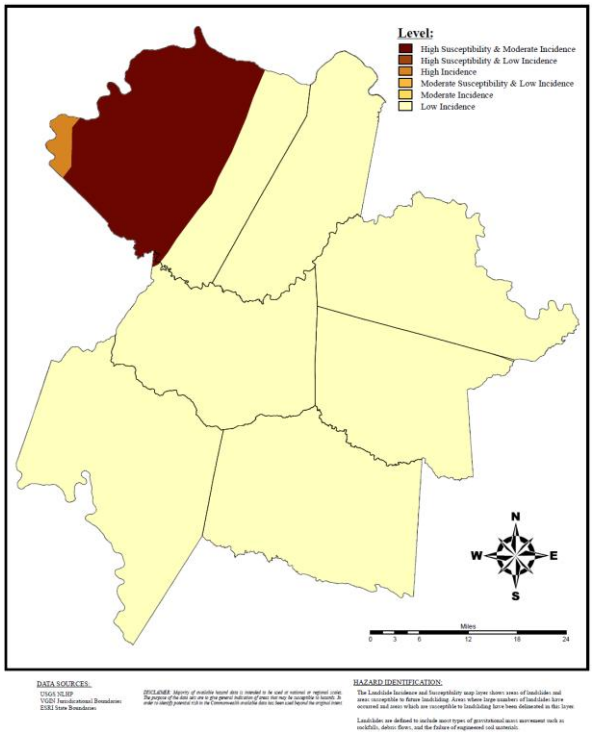
Map 6.10e – Landslide Events



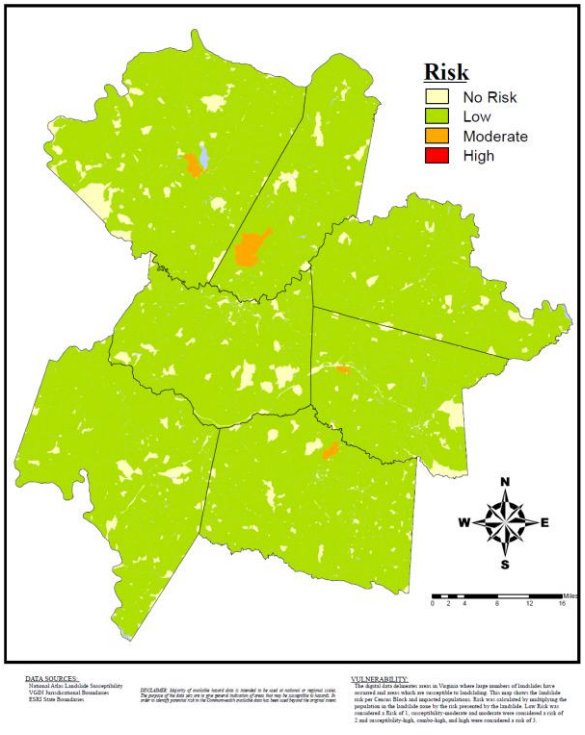
Map 6.10f – Landslide Geographic Extent



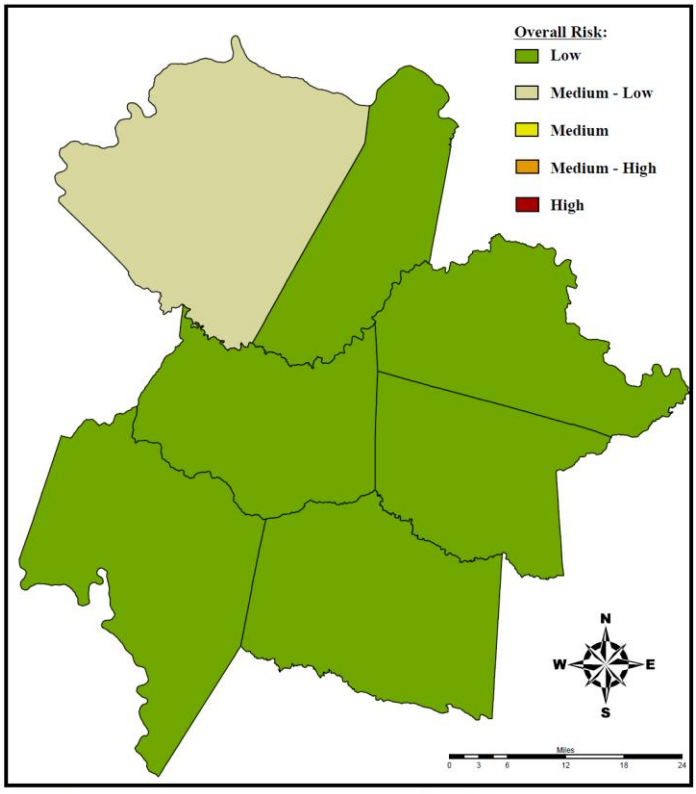
Map 6.10g – Landslide Incidence and Susceptibility



Map 6.10h – Landslide Risk by Census Block



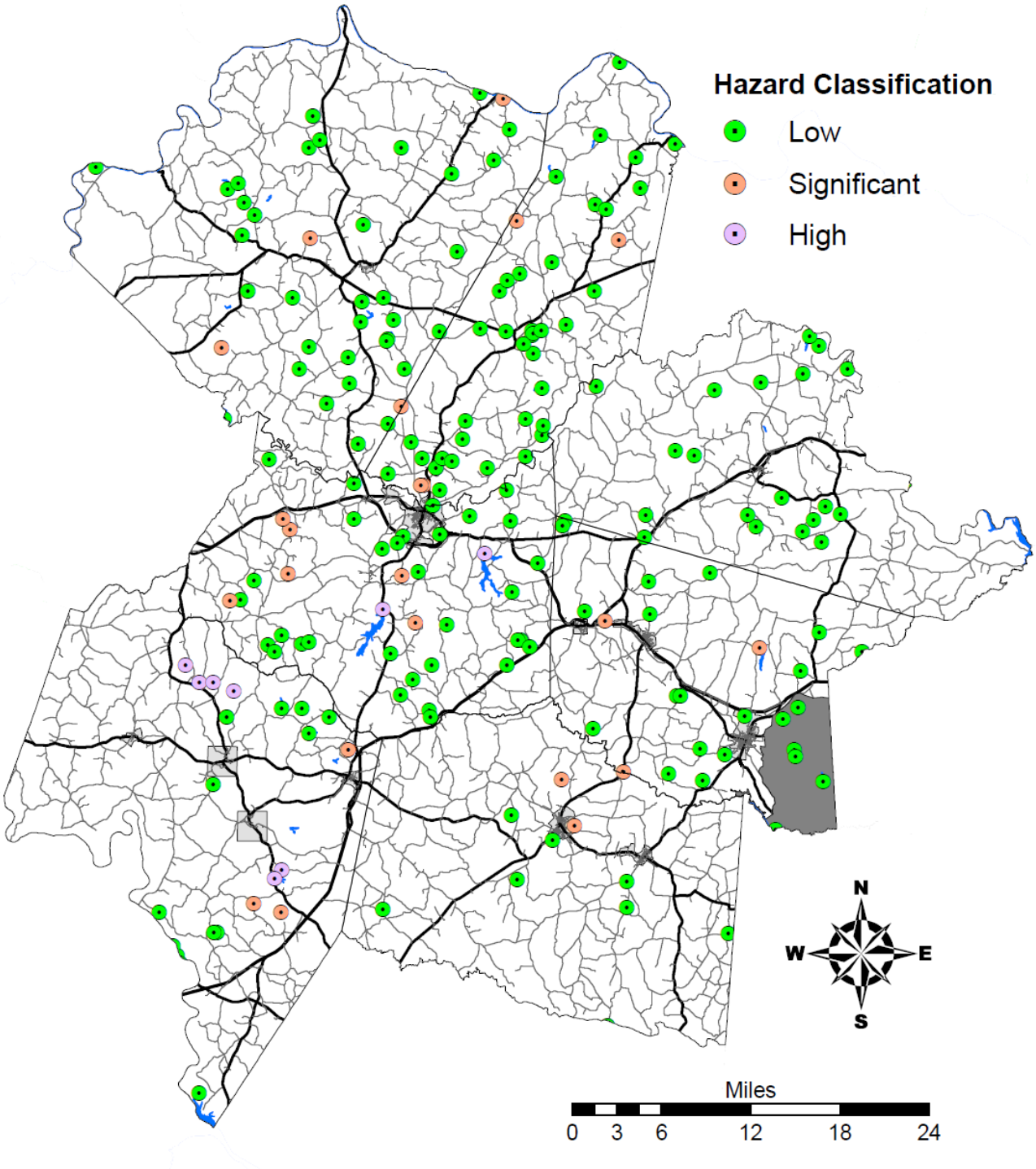
Map 6.10i – Landslide Overall Risk



Dam/Levee Failure

Map 6.11 shows the location of dams in the region. Given the proximity of dams to the region's population centers, dam/levee failure does not pose significant risk to life.

Map 6.11
Dams Located Within Planning District 14



Map created by CRC – July 2011
Source: VDEM, National Inventory of Dams, local input

A listing of dams for each county in the region is below. Dams are categorized by potential downstream impacts. There is no data available on the probability of dam/levee failure.

Table 6.14
High (H), Significant (S) and Low (L) Hazard Dams

County	Dam Name	Hazard Classification	Inundation Zone Mapped?
Amelia County	Amelia Dam	L	N
Amelia County	Amelia Estates Dam	L	N
Amelia County	Anderson Dam	L	N
Amelia County	Bardens Dam	L	N
Amelia County	Barnard Dam	L	N
Amelia County	Beaver Dam	L	N
Amelia County	Bultje Dam	L	N
Amelia County	Chesapeake Dam	L	N
Amelia County	Crawford Dam	L	N
Amelia County	Davenports Pond Dam	L	N
Amelia County	Jones Dam	L	N
Amelia County	Manns Dam	L	N
Amelia County	Sanderson Dam	L	N
Amelia County	Stark Dam	L	N
Amelia County	Sunders Dam	L	N
Amelia County	Swiss Dixie Dam	L	N
Amelia County	Vaughans Dam	L	N
Amelia County	Whitakers Dam	L	N
Amelia County	Whittington Dam	L	N
Buckingham County	Anderson Dam	L	N
Buckingham County	Solite Corp. Dam	L	N
Buckingham County	Doug Branch Pond	L	Y
Buckingham County	Slate River Dam #8	L	Y
Buckingham County	Slate River Dam #14	L	Y
Buckingham County	Kyanite East Ridge Dam	L	N
Buckingham County	Monroe, Melvin and Johns Dam	L	N
Buckingham County	Orange Dam	L	N
Buckingham County	Fitzgerald Dam	L	N
Buckingham County	Fender Dam	L	N
Buckingham County	Martin Dam	L	N
Buckingham County	Carter Dam	L	N
Buckingham County	Lucas Dam	L	N
Buckingham County	Slate River Dam #13	L	Y
Buckingham County	Kyanite Dam #3	L	N
Buckingham County	Turner Dam	L	N
Buckingham County	Willis River Dam #6A	L	Y
Buckingham County	Willis River Dam #2	L	Y
Buckingham County	Sutherland Dam	L	N
Buckingham County	Kennedys Dam	L	N
Buckingham County	Kyanite Mine Waste Dam #1	L	N
Buckingham County	Kyanite Mine Waste Dam #2	L	N
Buckingham County	Horsepen Creek Dam	L	N

Buckingham County	Slate River Dam #7	S	**Y**
Buckingham County	Slate River Dam #2	S	**Y**
Buckingham County	Muddy Creek Dam #2	L	**Y**
Buckingham County	Muddy Creek Dam #1	L	**Y**
Buckingham County	Willis River Dam #7	L	**Y**
Buckingham County	Willis River Dam #6	S	**Y**
Buckingham County	Willis River Dam #5F	L	**Y**
Buckingham County	Willis River Dam #5E	L	**Y**
Buckingham County	Willis River Dam #4	L	**Y**
Buckingham County	Willis River Dam #3	L	**Y**
Buckingham County	Willis River Dam #1B	L	**Y**
Buckingham County	Willis River Dam #1A	L	**Y**
Buckingham County	Willis River Dam #9	L	**Y**
Buckingham County	Brill Dam	L	**N**
Buckingham County	Central VA Water Storage Corp.	L	**Y**
Fluvanna County	Bremo Power Station Dam	S	**Y**
Campbell County	Perron Dam	L	**N**
Charlotte County	Roanoke Creek Dam #6A	H	**N**
Charlotte County	Roanoke Creek Dam #5B	H	**N**
Charlotte County	Roanoke Creek Dam #68	L	**N**
Charlotte County	Roanoke Creek Dam #35A	L	**N**
Charlotte County	Roanoke Creek Dam #72A	S	**N**
Charlotte County	Roanoke Creek Dam #70A	L	**N**
Charlotte County	Roanoke Creek Dam #67	L	**N**
Charlotte County	Devin Lower Dam	L	**N**
Charlotte County	Roanoke Creek Dam #49A	S	**N**
Charlotte County	Roanoke Creek Dam #62	H	**N**
Charlotte County	Devin Upper Dam	L	**N**
Charlotte County	Willies Dam	L	**N**
Charlotte County	Eastern Pines Dam	L	**N**
Charlotte County	Roanoke Creek Dam #43A	L	**N**
Charlotte County	Four Locusts Dam	S	**N**
Charlotte County	Roanoke Creek Dam #54	L	**N**
Charlotte County	Roanoke Creek Dam # 31B	H	**N**
Charlotte County	Roanoke Creek Dam #61A	H	**N**
Charlotte County	Roanoke Creek Dam #4A	H	**N**
Cumberland County	Clements Dam	L	**Y**
Cumberland County	Knorr Dam	L	**N**
Cumberland County	T. Edward Stimpson Dam	L	**N**
Cumberland County	Leon Hanson Dam	L	**N**
Cumberland County	Atkins Dam	L	**N**
Cumberland County	Wilcks Dam	L	**N**
Cumberland County	Swans Dam	L	**N**
Cumberland County	Ca Ira Dam	L	**N**
Cumberland County	Wilsons Dam	L	**N**
Cumberland County	Pearsall Dam	L	**N**
Cumberland County	Lower Ayers Dam	S	**N**
Cumberland County	Clayton Dam	L	**N**
Cumberland County	Collins Upper Dam	L	**N**

Cumberland County	Bear Creek Dam	L	**N**
Cumberland County	Trices Lake Dam	L	**N**
Cumberland County	Flippen Dam	S	**N**
Cumberland County	Robertson Dam	L	**N**
Cumberland County	Barrett Dam	L	**N**
Cumberland County	Wilck Dam	L	**N**
Cumberland County	Rogers Dam	L	**N**
Cumberland County	Lancaster Dam	L	**N**
Cumberland County	Upper Ayers Dam	S	**N**
Cumberland County	Collins Lower Dam	L	**N**
Cumberland County	Bish Dam	L	**N**
Cumberland County	Gnegy Dam	L	**N**
Cumberland County	Landis Dam	L	**N**
Cumberland County	Jones Dam	L	**N**
Cumberland County	Benelli Dam	S	**N**
Cumberland County	Winston Lake Dam	L	**N**
Cumberland County	Simanske Dam	L	**N**
Cumberland County	Ortel Dam	L	**N**
Cumberland County	Frost Dam	L	**N**
Cumberland County	Ingle Dam	L	**N**
Cumberland County	Sports Dam	L	**N**
Cumberland County	Blanton Dam	L	**N**
Cumberland County	Arrowhead Lake Dam	L	**N**
Cumberland County	Jamerson (Po Boy) Dam	L	**N**
Cumberland County	Lafoon, Watkins & Perry Dam	L	**N**
Cumberland County	Oak Hill Lake Dam	L	**N**
Cumberland County	Bonbrook Lake Dam	L	**N**
Cumberland County	Sanderson Dam	L	**N**
Cumberland County	L.G. Atkins Dam	L	**N**
Lunenburg County	Nottoway Falls Dam	S	**Y**
Lunenburg County	Lunenburg Beach Dam	S	**Y**
Lunenburg County	Modest Creek Dam	S	**Y**
Lunenburg County	Dixons Dam	L	**N**
Lunenburg County	Thowhorn	L	**N**
Lunenburg County	Kenbridge Dam	L	**N**
Lunenburg County	Sneads Dam	L	**N**
Lunenburg County	Kirk Dam	L	**N**
Lunenburg County	Marshall Dam	L	**N**
Lunenburg County	Bragg Dam	L	**N**
Nottoway County	Hurts Dam	L	**N**
Nottoway County	Lee Dam	L	**N**
Nottoway County	Williams Dam	L	**N**
Nottoway County	Hamilton Dam	L	**N**
Nottoway County	Crystal Dam	L	**N**
Nottoway County	Hobbs Dam	L	**N**
Nottoway County	Epes Dam	L	**N**
Nottoway County	Gravatts Dam	L	**N**
Nottoway County	Walkers Dam	L	**N**
Nottoway County	Terzs Dam	L	**N**

Nottoway County	Lush Dam	L	**N**
Nottoway County	Piedmont State Hospital Dam	S	**N**
Nottoway County	Arnolds Dam	L	**N**
Nottoway County	Sheltons Dam	L	**N**
Nottoway County	Fort Pickett Reservoir Dam	L	**N**
Nottoway County	Nottoway River Dam	S	**N**
Nottoway County	Nottoway Dam	L	**N**
Nottoway County	Birchin Lake Dam	L	**N**
Nottoway County	VPI Dam	L	**N**
Nottoway County	Butterwood Lake Upper Dam	L	**N**
Nottoway County	Butterwood Lower Dam	L	**N**
Nottoway County	Horners Dam	L	**N**
Nottoway County	Austin Dam	L	**N**
Nottoway County	Tommehet on Creek Dam	L	**N**
Nottoway County	Holtes Dam	L	**N**
Nottoway County	Daniels Dam	L	**N**
Nottoway County	Davis Dam	L	**N**
Nottoway County	Tactical Dam	L	**N**
Nottoway County	Sheltons Dam	L	**N**
Nottoway County	Arnolds Dam	L	**N**
Prince Edward County	Ancel Dam	L	**N**
Prince Edward County	R. A. Smith Dam	L	**N**
Prince Edward County	Briery Creek Lake	H	**N**
Prince Edward County	Bush River Dam #7	L	**Y**
Prince Edward County	Bush River Dam #12	H	**N**
Prince Edward County	Bush River Dam #2	S	**Y**
Prince Edward County	Watson Dam	L	**N**
Prince Edward County	Millwood Pond Dam	L	**N**
Prince Edward County	Sterling Lake Dam	L	**N**
Prince Edward County	Miller Lake Dam	L	**N**
Prince Edward County	Borum Dam	L	**N**
Prince Edward County	Winkeljohn Dam	L	**N**
Prince Edward County	Bush River #4B	L	**N**
Prince Edward County	Murphy Dam	L	**N**
Prince Edward County	Brisentine Dam	S	**N**
Prince Edward County	Mottley Dam	L	**N**
Prince Edward County	Farmville Dam	S	**N**
Prince Edward County	Moores Dam	L	**N**
Prince Edward County	Industrial Waste Dam	S	**N**
Prince Edward County	Carlton Dam	L	**N**
Prince Edward County	Wilsons Dam	L	**N**
Prince Edward County	Buffalo Creek Dam #9	L	**Y**
Prince Edward County	Buffalo Creek Dam #8	L	**Y**
Prince Edward County	Bridge St Lagoons	L	**N**
Prince Edward County	Bush River Dam #5	L	**N**
Prince Edward County	Bush River Dam #6	L	**N**
Prince Edward County	Buffalo Creek Dam #5	L	**Y**
Prince Edward County	Buffalo Creek Dam #7	L	**Y**
Prince Edward County	Buffalo Creek Dam #2	S	**Y**

Prince Edward County	Goodwin Dam	L	**N**
Prince Edward County	Prince Edward Dam	L	**N**
Prince Edward County	Buffalo Creek Dam #4	L	**Y**
Prince Edward County	Buffalo Creek Dam #3	L	**Y**
Prince Edward County	Buffalo Creek Dam #1 "Grandview Lake"	S	**Y**
Prince Edward County	Buffalo Creek #6	L	**Y**
Prince Edward County	Hines Dam	L	**N**
Prince Edward County	Gentry Dam	L	**N**
Prince Edward County	Herzig Dam	L	**N**
Prince Edward County	Wells Dam	L	**N**
Prince Edward County	Carter Dam	L	**N**
Prince Edward County	Atkins Dam	L	**N**
Prince Edward County	Poplar Hill Dam	L	**N**
Prince Edward County	Pondview II Dam	L	**N**

Source: National Inventory of Dams (Army Corps of Engineers), USGS, Piedmont Soil and Water Conservation District, Virginia Department of Conservation and Recreation (VDCR), Virginia Department of Mines, Minerals, and Energy (VDMME).

NOTES:

- VDCR is in the process of updating hazard rankings on dams statewide. Hazard rankings for some dams have already been revised, while others are currently going through the process.
- A few dams marked with an "N" have an agricultural exemption; therefore, they are not regulated. According to VDCR, these dams are not required to have inundation zones mapped.
- A few dams marked with an "N" are size exempt (do not met the size requirements for current regulations); therefore, they are not regulated. According to VDCR, these dams are not required to have inundation zones mapped.
- A few dams marked with an "N" are mining exempt. These maps – mainly in Buckingham County – do not have zones mapped at this time (according to VDCR and VDMME).

Future Vulnerability

The vulnerability of future buildings, infrastructure and critical facilities is a great concern to community leaders across the region. As discussed in the *Capability Assessment* section of this Plan, many of the day-to-day activities in local governments in the region are designed to deal with these challenges.

Land uses and development trends in the region are briefly discussed in this section and in the *Community Profile*. Future land use maps were updated for this Plan, and included in the Appendixes. Another illustrator of development trends is the amount of new building permits issued by locality. That information is listed below.

Unique Risks for Local Jurisdictions

Drought, hurricanes, tropical storms, winter storms, and severe thunderstorms can all be expected to affect the entire region uniformly. Maps for spatially defined hazards have been included in the *Hazard Analysis* section of this plan. In order to further determine unique risks between jurisdictions, Project Management team members were asked during the Mitigation Strategy Workshop to identify local risk areas that were not identified in the overall risk assessment for the entire region or if they felt their

jurisdiction was more vulnerable to a certain hazard than the other localities. No jurisdictions indicated that their risk was any different than the risk of the entire region except for the flood hazard. Differences in flood risk between localities has been discussed in depth earlier in this section.

Conclusions on Hazard Risk

Table 6.15
Summary of Potential Annualized Losses
(From Quantitative Assessment)

Hazard	Estimated Annualized Losses
Winter Storms	$6,052,175
Drought	$3,954,588
Hurricanes and Tropical Storms	$274,179
Earthquakes	$247,919
Wildfire	$228,726
Flood	$202,765
Tornadoes	$126,783
Severe Thunderstorms	$97,336
Sinkholes	Negligible
Landslides	Negligible
Erosion	Negligible
Dam/Levee Failure	Negligible

Based upon the qualitative approach defined in detail under Methodologies Used (**Table 6.1** on page 4 of this section), the risk from natural hazards in the Piedmont Region was weighed by the Mitigation Advisory Committee and criteria was used to assign values to the likelihood of occurrence, spatial extent affected, and potential impact of each hazard. These values combined to form a total rating for each hazard (**Table 6.16**, next page). The top four hazards identified through this process, on a regional level, are hurricanes and tropical storms, winter storms, severe thunderstorms and tornadoes, and drought.

Table 6.16
Hazard Risk Ratings – Average for all localities (From Qualitative Assessment)

Hazard	Likelihood	Spatial Extent	Potential Impact	HAZARD RATING (AVG.)
Winter Storms	Possible (1.875)	Moderate (2.625)	Limited (1.75)	**6.25**
Severe Thunderstorms and Tornadoes	Likely (2.625)	Small (1.875)	Minor (1.75)	**6.25**
Hurricanes and Tropical Storms	Possible (1.75)	Moderate (2.25)	Limited (2.125)	**6.125**
Drought	Likely (2)	Moderate (2.375)	Minor (1.375)	**5.75**
Flood	Possible (1.875)	Small (1.25)	Minor (1.25)	**4.375**
Wildfire	Possible (1.625)	Small (1)	Minor (1.125)	**3.75**
Dam/Levee Failure	Unlikely (0.75)	Small (1.125)	Minor (1.375)	**3.25**
Earthquakes	Unlikely (0.75)	Moderate (1.5)	Minor (1)	**3.25**
Erosion	Unlikely (0.75)	Small (1)	Minor (1)	**2.75**
Landslides	Unlikely (0.375)	Small (1)	Minor (1)	**2.375**
Sinkholes	Unlikely (0.125)	Small (1)	Minor (1)	**2.125**

It should be noted that the rankings for flood vary by jurisdiction. While there is some variation on the other hazards, the rankings show more consistency. Based on these rankings, severe thunderstorms and tornadoes, hurricane and tropical storms, winter storms, and drought ranked highest. The two moderate-risk hazards identified are the flood hazard and the wildfire hazard. All other hazards are classified as low risk.

Table 6.17
Estimated Risk Levels for Planning District
(Combination of Qualitative and Quantitative Assessments)

HIGH RISK HAZARDS	**Winter Storms** **Severe Thunderstorms and Tornadoes** **Hurricanes and Tropical Storms** **Drought**
MODERATE RISK HAZARDS	Flood Wildfire
LOW RISK HAZARDS	Dam/Levee Failure Earthquakes Sinkholes Landslides Erosion

It should be noted that although some hazards may show Moderate or Low risk, hazard occurrence is still possible. Also, any hazard occurrence could potentially cause a sizable impact and losses could be extremely high (i.e., an F5 tornado or a destructive earthquake). The flood hazard throughout the region varies from jurisdiction to jurisdiction and has not been included in this overall hazard ranking. To see the flood hazard risk rating for each jurisdiction, please refer to **Table 6.10**.