

1.0 Jurisdiction Executive Summary

Jurisdiction executive summaries highlight some of the background data gathered and analysis completed for the 2011 Richmond-Crater Multi-Regional Hazard Mitigation Plan Update with emphasis on the results from the Hazard Identification and Risk Assessment (HIRA). Additional details on the region, specifics on analysis methodologies and mitigation action details can be found in the Hazard Mitigation Plan.

1.1 Hazards

The information below summarizes the effects of the region's 10 top hazards on the City of Hopewell.

(1) Flooding (Significant Threat)

- Repetitive Loss (RL) Structures = 1; Severe Repetitive Loss (SRL) Structures = 0; Number of Claims = 2; Total Building and Contents Payment on RL and SRL Properties = \$38,658 (as of 3/22/2011)
- NFIP Flood Policies = 42; Insurance In-Force = \$10,125,600; Number of Claims = 9; Total Building and Contents Payment on Claims = \$97,620 (as of 2/28/2011)
- There are no critical facilities located in the floodplain.
- High Prone Flood Areas =
 - This city is bordered to the east by the James River, and to the north by the Appomattox River, so annualized flood damages are highest along the eastern and northern borders.
 - Flood damages fall within the \$0-\$20,000 category, but most census blocks are on the lower end of the spectrum.

Critical Facilities: No critical facilities are located within mapped floodplains. For this analysis, critical facilities are defined as a facility in either the public or private sector that provides essential products and services to the general public, is otherwise necessary to preserve the welfare and quality of life in the County, or fulfills important public safety, emergency response, and/or disaster recovery functions. Critical facilities examined for the City of Hopewell fall into ten categories including: Medical Facilities/Hospitals, Police Stations, Airports, VDOT Fuel Tanks, VDOT Facilities, E911 Centers, Fire/EMS Stations, Cell/Radio Towers, Utilities, and Public Schools.

Significant Historical Events: Several severe flooding events have had wide spread impact in the City of Hopewell; these include:

- August 2004: Tropical Storm Gaston brought torrential rains and heavy winds. In Hopewell City, there was a possible tornado that caused minor structural damage.
- August 1969: Hurricane Camille: The James River crested at 4 feet and produced nominal flooding along Water Street.

Additional information on flooding can be found in Section 5.6, starting on page 5-9.

(2) Wind (Moderate Threat) This category includes hurricane, thunderstorm and tornado winds.

- Total tornado touchdowns reported at 3 for past 60 years; 1-F3, 1-F2 and 1-F0
- Annualized losses from tornado wind events = \$301,132
- Annualized losses from hurricane wind events = \$129,316
- Annualized losses from thunderstorm and other wind events (excluding tornadoes and hurricanes) = \$877

Significant Historical Events: Wind events have had a widespread impact in the City of Hopewell; these include:

- August 1993: A F1 tornado hit a 20 block area in the northwest corner of Hopewell causing damage to industrial buildings and causing heavy damage to Riverside Park Apartments. 100 people were evacuated and 60 people were homeless. Estimated damages: greater than \$1.2 million.
- May 1984: A severe storm system tracked across Virginia producing a tornado near Cavalier Square Shopping Center tracked through downtown Hopewell to Appomattox Manor in City Point. Damage was primarily to businesses than homes and was estimated at 1.36 million. The Seaboard Coast Line Railway Office was demolished. Fifteen people were injured in Hopewell. It crossed the James River into Charles City County adding another 15 miles to its damage path. Its maximum strength was F2 here and it was about 300 yards wide.
- October 1954: Hurricane Hazel: Damages from high winds and falling trees and power lines. Schools and businesses closed. Damages were estimated at \$18,000.

Additional information on wind can be found in Sections 5.7, 5.8 and 5.9, starting on pages 5-9, 5-50, and 5-91, respectively.

(3) Winter Weather (Moderate Threat)

- 17 National Weather Service Alerts during past 5 years for winter weather (for Prince George/Hopewell/Petersburg)
- Annualized all winter weather losses = \$14,561

Significant Historical Events

- December 1998: A severe ice storm hit the Tri-Cities area December 23 through December 27. Hopewell had 80 percent of residents without power.
- January 1996: From January 6 through January 15, two snow storms, striking first from the south and then from the north, produced large and prolonged snowfall. Snow and rain froze on roads producing hazardous conditions and numerous accidents. School systems throughout the region were closed for 5 days. Businesses were closed. 360 customers were without power in Stony Creek, Hopewell and Disputanta. Numerous minor injuries were reported from car accidents and falls. Several residents were hospitalized for pneumonia. People sought shelter in hotels and local shelters. Roofs fell in due to the weight of snow.
- December 1993: The Crater region received 14 inches of snow with freezing rain several days after. Primary and secondary roads were covered with snow, ice and slush. Public transit was shut down and various businesses closed early. This event caused 232 traffic accidents in Hopewell City. Interstate 295 near Hopewell had significant ice.
- January 1977: Several weeks of ice, snow (11.1 inches) and record low temperatures produced one of the coldest winter seasons. The James River and Chesterfield County rivers were frozen. Residences and businesses dealt with frozen and burst pipes. Ice and freezing temperatures caused nuclear plant shutdowns. Ice in the James River stopped ferry service. This event caused numerous accidents with several pedestrian injuries and several drowning deaths in Hopewell City.

Additional information on winter weather can be found in Section 5.10, starting on page 5-95.

(4) Thunderstorm (Moderate Threat)

- Annualized losses from thunderstorms including hail and lightning = \$379
- The NCDC database shows that at least two people in the region have been killed and three others injured as a result of lightning since 1993. None of these people were in Hopewell City.

Significant Historical Events

- May 1998: A 12 year old boy was injured when he was struck by lightning at Carter G. Woodson school.

Additional information on thunderstorms can be found in Section 5.9, starting on page 5-91.

(5) Drought (Moderate Threat)

- Annualized losses from drought = \$86,626
- An extended period of abnormally dry weather occurred over a period of four years, from 1998 to 2002.
- This period saw rainfall levels well below normal and caused many communities throughout the state to institute water restrictions.

Significant Major Events:

- 2007 - Unusually dry conditions persisted through a significant portion of the year through much of southern and central Virginia. Virginia as a whole experienced its tenth driest year on record.
- December 2001 – November 2004 - Beginning in the winter of 2001, the mid-Atlantic began to show long-term drought conditions. The National Weather Service made reports of moisture starved cold fronts that would continue throughout the winter. Stream levels were below normal with record lows observed at gages for the York, James, and Roanoke River Basins. By November 2002, the US Secretary of Agriculture had approved 45 counties for primary disaster designation, while 36 requests remained pending.
- June – November 1998 - A heat wave over the southeast produced warm and dry conditions over much of Virginia. Unusually dry conditions persisted through much of the fall. The drought produced approximately \$38.8 million in crop damages over portions of central and south-central Virginia.

- November 1976 – September 1977 - Ten months of below average precipitation. The drought began in November of 1976 when rainfall totaled to only 50 to 75% of normal amounts. During the rest of the winter, storms that would normally bring moisture to the area tracked across the gulf. During the spring and summer, the storms tracked across the Great Lakes. These weather patterns created significant drought throughout most of Virginia.

Additional information on drought can be found in Section 5.11, starting on page 5-109.

(6) Wildfire (Limited Threat)

- Annualized losses from wildfire = \$0
- Total acres burned in the City of Hopewell (1995-2008) = 0.1
- Total dollar damage in the City of Hopewell (1995-2008) = \$0
- Annualized number of events = 0.08
- 0 woodland communities in high fire rank
- 0 homes in woodland communities in high fire rank

Critical Facilities: No critical facilities are located within high potential wildfire areas. For this analysis, critical facilities are defined as a facility in either the public or private sector that provides essential products and services to the general public, is otherwise necessary to preserve the welfare and quality of life in the County, or fulfills important public safety, emergency response, and/or disaster recovery functions. Critical facilities examined for the City of Hopewell fall into ten categories including: Medical Facilities/Hospitals, Police Stations, Airports, VDOT Fuel Tanks, VDOT Facilities, E911 Centers, Fire/EMS Stations, Cell/Radio Towers, Utilities, and Public Schools.

Significant Major Events: Within the City of Hopewell, wildfires have been experienced one year.

- 2001 – 1

Additional information on wildfire can be found in Section 5.13, starting on page 5-117.

(7) Earthquake (Limited Threat)

- Annualized losses from earthquake = \$43,615
- Significant earthquakes were first recorded in Virginia in 1774. Virginia has had over 160 earthquakes since 1977, of which 16% were felt. This averages to approximately one earthquake every month, with two felt each year.
- There have been five significant earthquakes centered in the region.

Additional information on earthquake can be found in Section 5.16, starting on page 5-141.

(8) Landslide and Shoreline/Coastal Erosion (Limited Threat)

- The greatest landslide hazards are found in the higher elevations of western and southwestern Virginia. Analysis of the hazard here is limited by the availability of data. There is no comprehensive database documenting all landslide occurrences within the Commonwealth.

Additional information on landslide and shoreline/coastal erosion can be found in Section 5.14, starting on page 5-132.

(9) Land Subsidence/Karst/Sinkholes (Limited Threat)

- According to the Virginia State Hazard Mitigation Plan, there have been no Federal Declared Disasters or NCDC recorded events for karst related events in the Commonwealth. Land subsidence is very site-specific. There is no comprehensive long-term record of past events in Virginia.

Additional information on land subsidence/karst/sinkholes can be found in Section 5.15, starting on page 5-138.

(10) Mass Evacuation (Moderate Threat)

- Mass evacuations from urban areas can strain a community's resources and cause gridlock on major transportation routes, overcrowding of hospitals and shelters, and increased load on local utility infrastructures leading to potential failure.

Additional information on mass evacuation can be found in Section 5.12, starting on page 5-115.

1.2 Demographic Characteristics¹

- Population (2010): 22,591
- Land Area (2010): 10.28 sq. miles
- Density (2010): 2,198 persons per sq. mile
- Median household income (2009): \$38,892
- Percent below poverty level (2009): 21.3%
- Race characteristics (2010):
 - White: 55.4%
 - Black: 37.0%
 - American Indian and Alaska Native: 0.4%
 - Asian: 0.8%
 - Native Hawaiian and other Pacific Islander: 0.1%
 - Persons reporting two or more races: 3.2%(of the abovementioned races, 6.6% are of Hispanic or Latin origin)

¹ Source U.S. Census Bureau: State and County QuickFacts.

1.3 City of Hopewell Mitigation Actions

Number in 2011 Plan	Strategy	Addresses Goals?	Hazards Addressed	Responsible Department	Resources	Timeframe	Priority
Hopewell-1	Integrate the jurisdiction’s mitigation plan into future capital improvement plans to ensure that new city facilities are located out of harm’s way.	2, 4	All hazards	Emergency Management	Staff time	Short-term	High
Hopewell-2	Continue to enforce zoning and building codes, with emphasis on floodplain management.	1, 2, 4	Flood, wind, earthquake, land subsidence, winter weather	Development	Staff time	Ongoing	High
Hopewell-3	Target FEMA’s Repetitive Loss Properties for specialized outreach and mitigation activities.	1	Flood	Emergency Management	Staff time	Short-term	Medium
Hopewell-4	Inspect and clear debris from stormwater drainage system.	1	Flood	Public Works	Staff time	Ongoing	Medium
Hopewell-5	Review locality’s compliance with the National Flood Insurance Program with an annual review of the Floodplain Ordinances and any newly permitted activities in the 100-year floodplain.	4	Flood	Development	Staff time	Ongoing	Medium

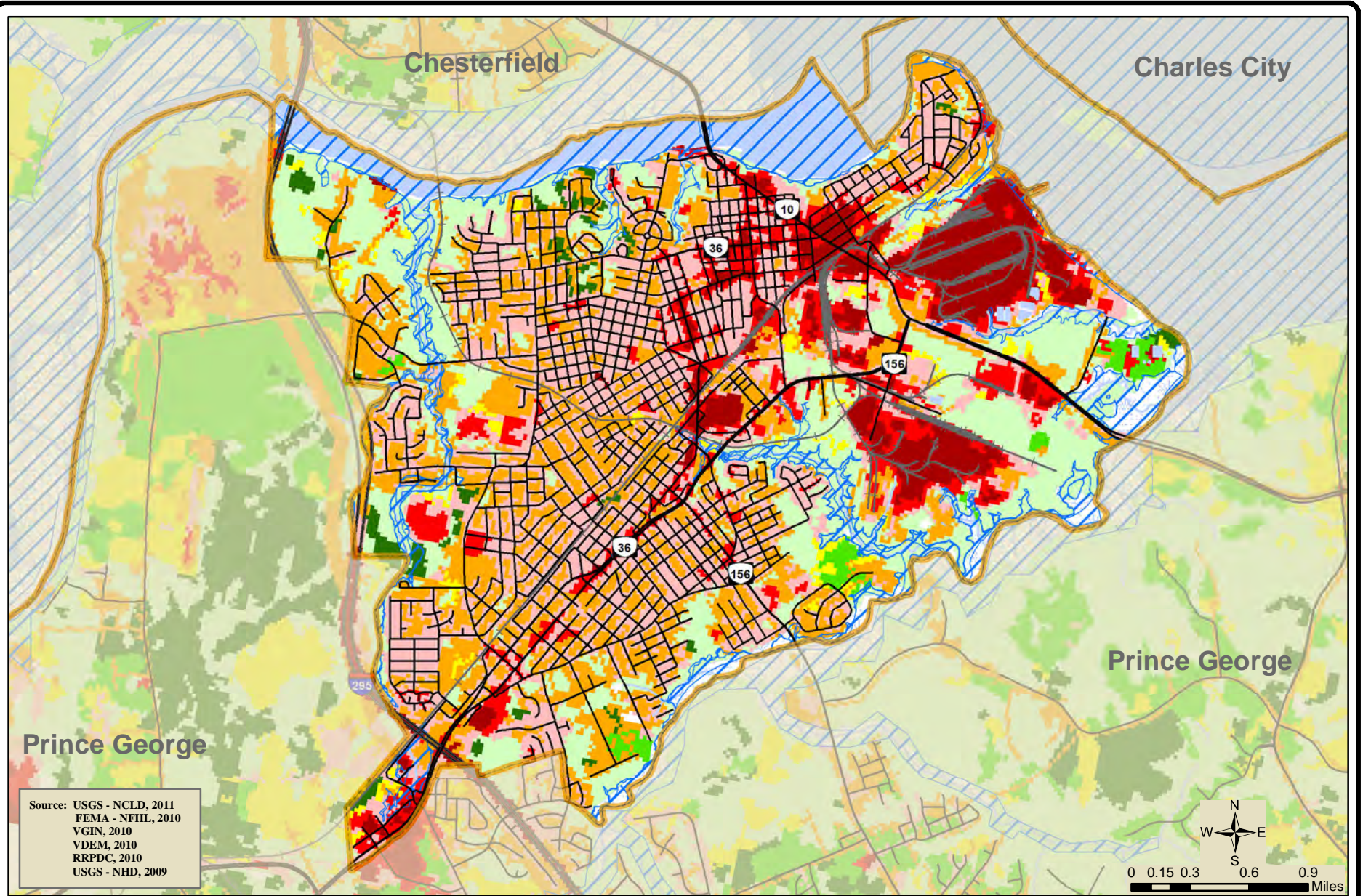
Number in 2011 Plan	Strategy	Addresses Goals?	Hazards Addressed	Responsible Department	Resources	Timeframe	Priority
Hopewell-6	Support mitigation of priority flood-prone structures through promotion of acquisition/demolition, elevation and flood proofing projects where feasible using FEMA HMA programs where appropriate.	1, 2	Flood	Emergency Management	Staff time	Ongoing	Medium
Hopewell-7	Consider participating in FEMA's Community Rating System (CRS).	1, 4	Flood	Development	City budget	Short-term	Medium
Hopewell-8	Relocate public safety facility outside of .5 evacuation zone for industrial plants and as far as possible from train yards/tracks.	1, 2, 4	All hazards	Emergency Management	City budget, grant funds	As funding becomes available	High
Hopewell-9	Discuss opportunities to harden industrial facilities with owners.	1	All hazards	Emergency Management	Staff time	Short-term	Medium
Hopewell-10	Flood proof First Street sewer pump station to reduce flood damage.	2	Flood	Wastewater Treatment	City funds	Short-term	High
Hopewell-11	Raise and make permanent the floodwall at pump station (0 Riverside Avenue).	1, 2	Flood	Virginia American Water Company	Grant funds; owner funds	Long-term	Medium
Hopewell-12	Increase capacity of Cabin Creek drainage system including 1) debris clearing and revetment and 2) if necessary re-alignment of channel.	1	Flood	Public Works	City funds, grant funds	Short-term	High
Hopewell-13	Develop a debris removal plan.	2, 4	All hazards	Public Works	Staff time	Short-term	Medium

Richmond-Crater Multi-Regional Hazard Mitigation Plan

Number in 2011 Plan	Strategy	Addresses Goals?	Hazards Addressed	Responsible Department	Resources	Timeframe	Priority
Hopewell-14	Review and revise, if needed, local floodplain ordinances.	4	Flood	Development	Staff time	Short-term	Medium
Hopewell-15	Request list from VDEM/DCR and conduct annual review of repetitive loss and severe repetitive loss property list to ensure accuracy. Review will include verification of the geographic location of each repetitive loss property and determination if mitigated and by what means. Provide corrections if needed by filing form FEMA AW-501.	1	Flood	Emergency Management	Staff time	Ongoing	Low
Hopewell-16	Distribute brochures and use other means to educate the public regarding preparedness and mitigation.	3	All hazards	Emergency Management	Staff time, free FEMA and other agency publications	Ongoing	Medium
Hopewell-17	Install NWS-grade tide gauge at confluence of James and Appomattox Rivers. Include acoustic water level sensor, protective well components, data collection platform, GOES satellite telemetry, enclosure, stand, batteries, antenna and solar panels.	3, 4	Flood	Emergency Management	Grant funds	As funding becomes available	Low
Hopewell-18	Complete Continuity of Operations plan.	4	All hazards	Emergency Management	Staff time	Short-term	Low

Number in 2011 Plan	Strategy	Addresses Goals?	Hazards Addressed	Responsible Department	Resources	Timeframe	Priority
Hopewell-19	Identify means to coordinate, collect and store damage assessment data in GIS format for each natural hazard event, which causes death, injury and or property damage.	4	All hazards	Development	City funds	Short-term	Low
Hopewell-20	Identify training opportunities for staff to enhance ability to use GIS for emergency management needs.	4	All hazards	Emergency Management	Staff time	As funding becomes available	Low

Figure . City of Hopewell: Annualized Land Coverage and FEMA Mapped Floodplain



Land Coverage Categories		High Intensity Development	Grassland/Pasture	Stream	Jurisdictional Boundary	Interstate	Railroad
Developed Open Space	Barren Land	Agriculture	Waterbody	US Highway	Primary Highway	Local Road	 Prepared: June, 2011
Low Intensity Development	Deciduous/Mixed Forest	Swamp/Marsh	FEMA Floodplain	Interstate	US Highway	Primary Highway	
Medium Intensity Development	Evergreen Forest						



Figure . City of Hopewell: Annualized Land Coverage and FEMA Mapped Floodplain

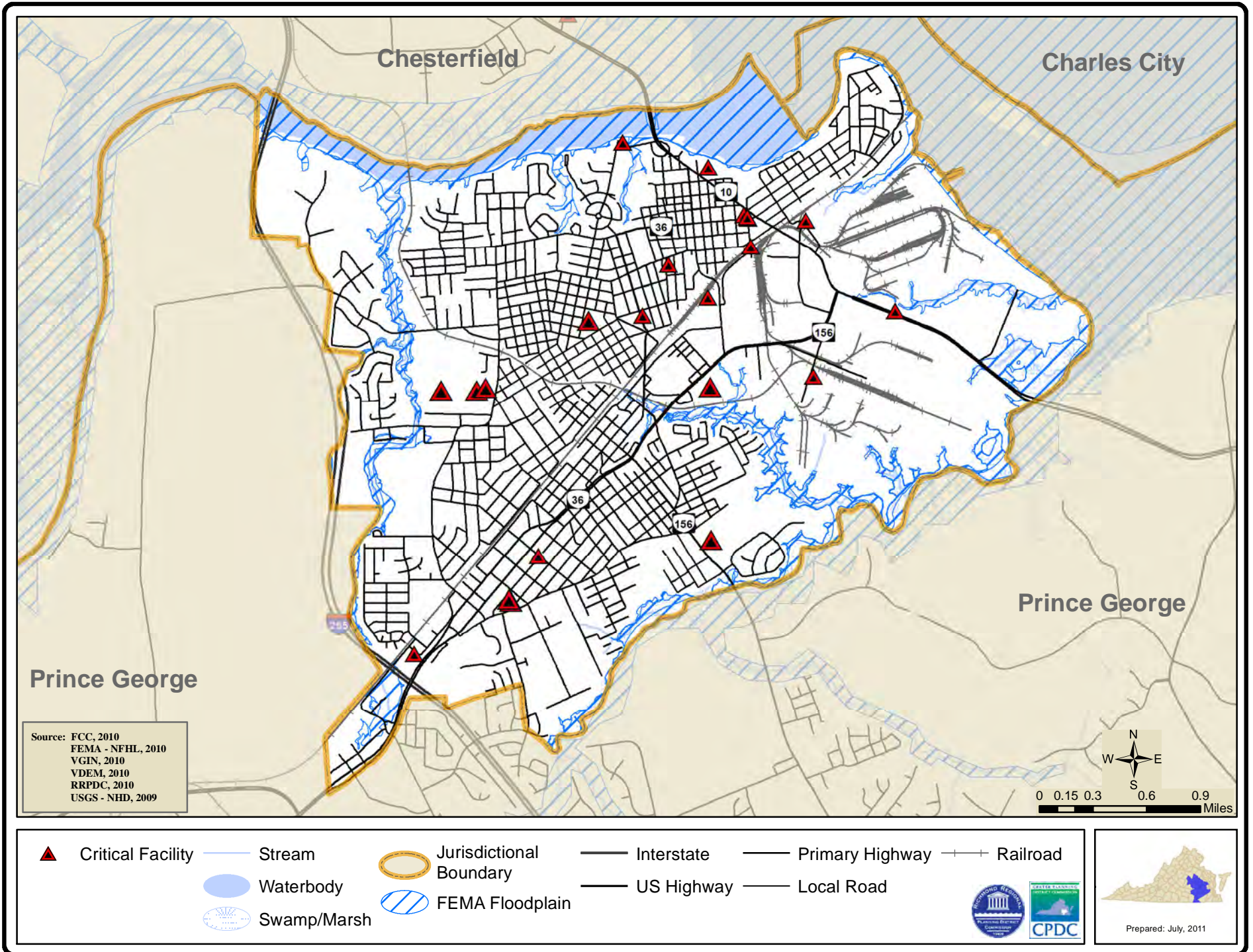


Figure . City of Hopewell: Annualized Flood Loss Damage and FEMA Mapped Floodplain

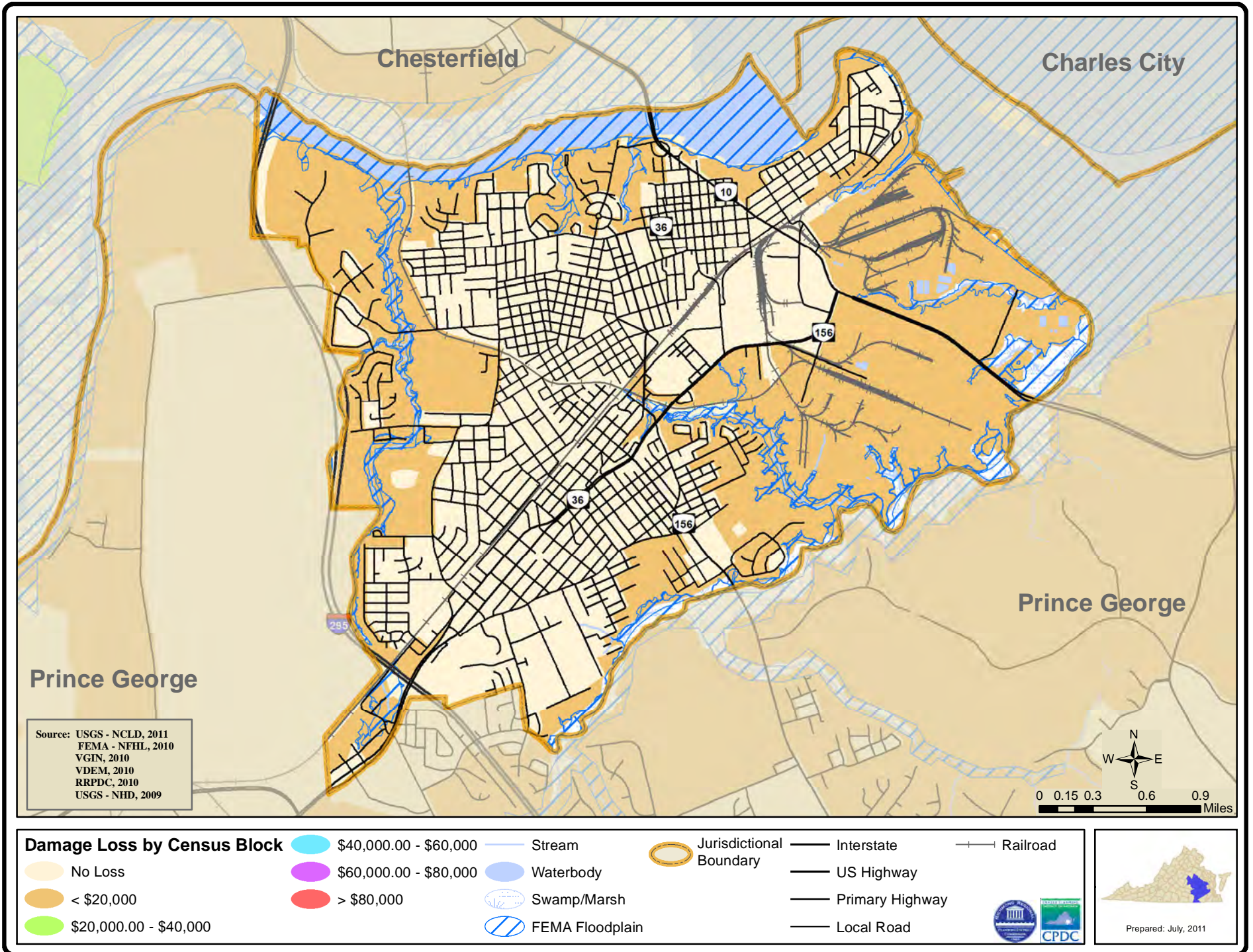
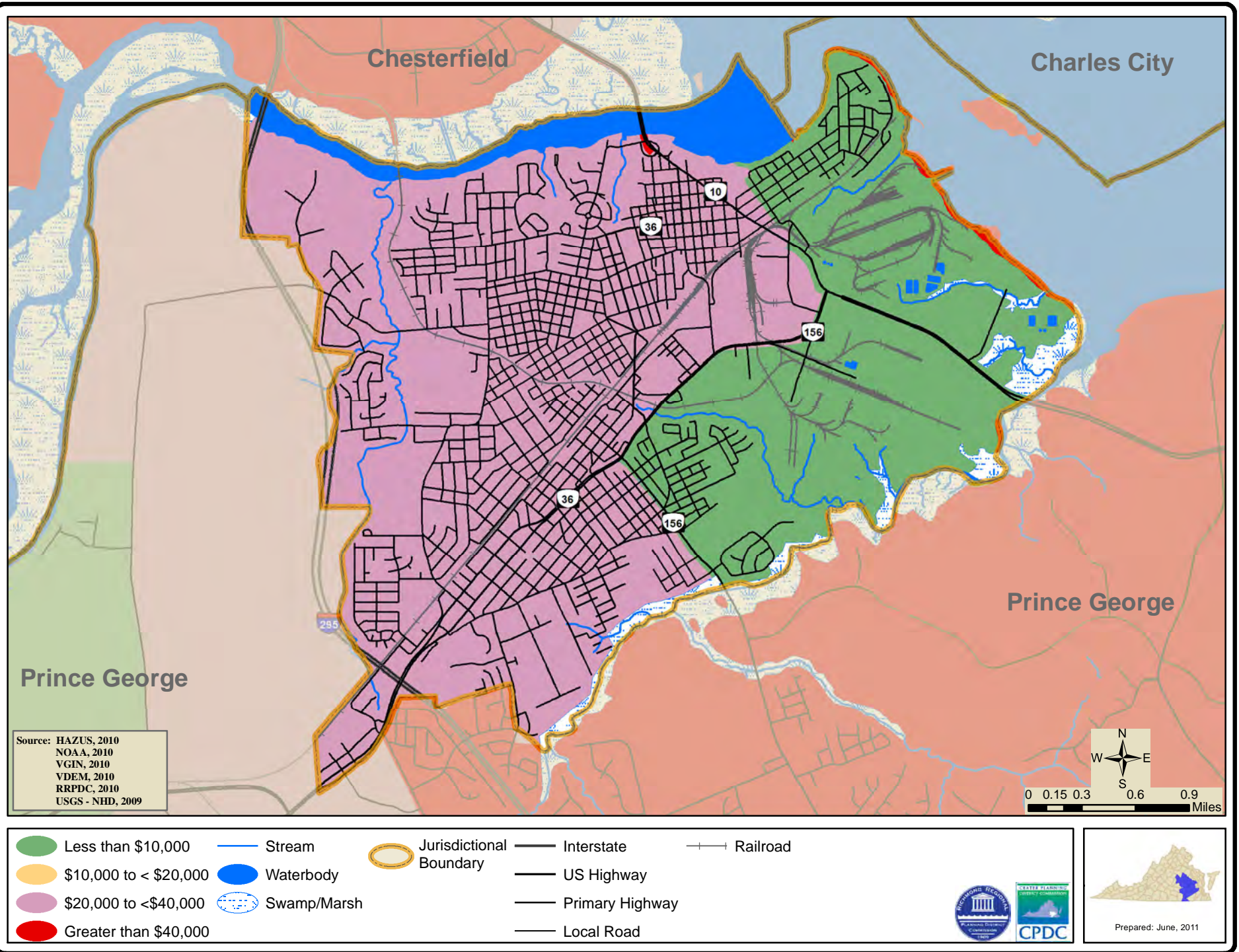


Figure . City of Hopewell: Annualized Loss Due to Wind Damage



Source: HAZUS, 2010
 NOAA, 2010
 VGIN, 2010
 VDEM, 2010
 RRPDC, 2010
 USGS - NHD, 2009

- | | | | | |
|---|---|--|---|--|
| ● Less than \$10,000 | — Stream | Jurisdictional Boundary | Interstate | Railroad |
| ● \$10,000 to <\$20,000 | Waterbody | | US Highway | |
| ● \$20,000 to <\$40,000 | Swamp/Marsh | | Primary Highway | |
| ● Greater than \$40,000 | | | Local Road | |



Figure . City of Hopewell: Critical Facilities and Wildfire Risk Areas

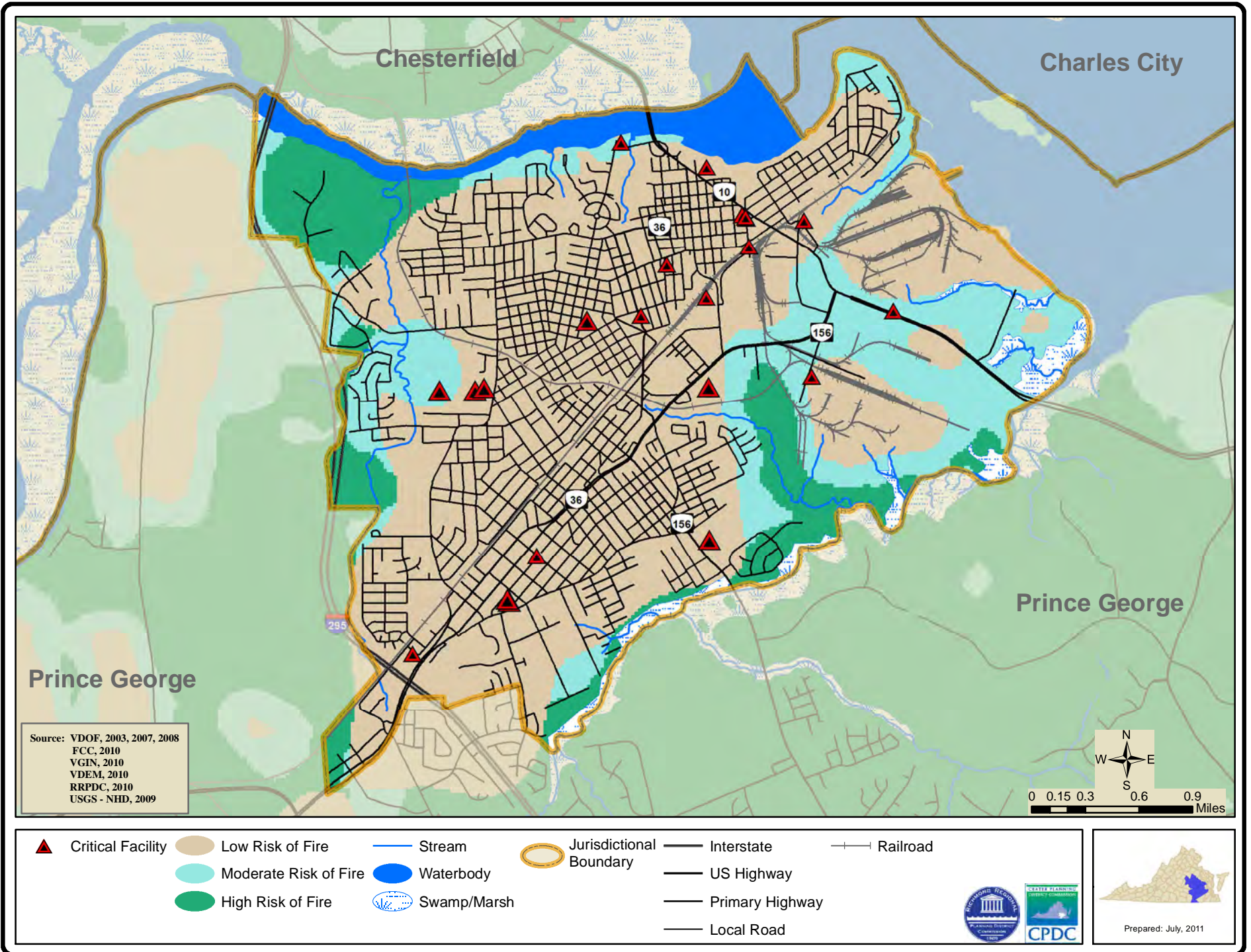
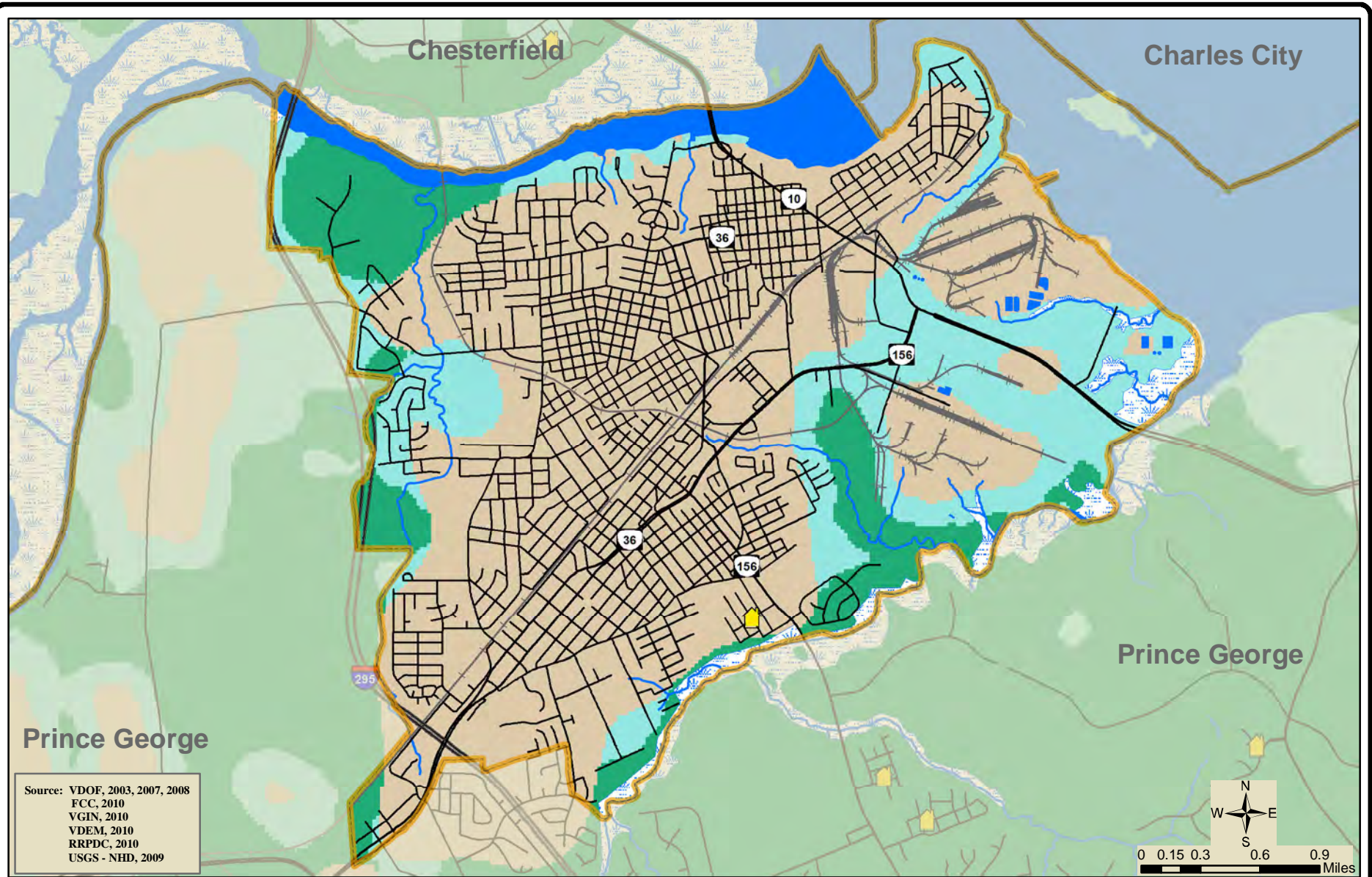


Figure . City of Hopewell: Critical Facilities and Wildfire Risk Areas



Source: VDOF, 2003, 2007, 2008
 FCC, 2010
 VGIN, 2010
 VDEM, 2010
 RRPDC, 2010
 USGS - NHD, 2009

Woodland Home Communities	Low Risk of Fire	Stream	Jurisdictional Boundary	Interstate	Railroad
Incidents of Wildfires Years 2007 - 2008	Moderate Risk of Fire	Waterbody	US Highway	Primary Highway	
	High Risk of Fire	Swamp/Marsh	Local Road		



Prepared: June, 2011