

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 City of Colonial Heights.

(1) Flooding (Significant Threat)

- Repetitive Loss (RL) Structures = 11; Severe Repetitive Loss (SRL) Structures = 2
Number of Claims = 33; Total Building and Contents Payment on RL and SRL Properties = \$771,743 (as of 3/22/2011)
- NFIP Flood Policies = 98; Insurance In-Force = \$22,371,300; Number of Claims = 79; Total Building and Contents Payment on Claims = \$1,061,117 (as of 2/28/2011)
- There are no critical facilities located in the floodplain.
- High Prone Flood Areas =
 - Census blocks along Appomattox River and Swift Creek may have annualized damages falling within the \$0-\$20,000 category.

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 Colonial Heights 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 a widespread impact in the City of Colonial Heights; these include:

- August 2004: Tropical Storm Gaston brought torrential rains to the area, causing a parking lot and park to be flooded.
- May 2003: Newcastle Drive and adjacent homes were flooded after a severe thunderstorm hit the area. Residents of 36 apartments and 12 homes were evacuated. Three apartment buildings had flood damage.
- September 2003: Hurricane Isabel: Newcastle Drive and homes along it were flooded. Damage estimates at \$2.5 million.

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 1 for past 60 years; 1-F1
- Annualized losses from tornado wind events = \$245,348
- Annualized losses from hurricane wind events = \$116,882
- Annualized losses from thunderstorm and other wind events (excluding tornadoes and hurricanes) = \$2,020

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

- April 2008: An F1 tornado touched down in spots beginning near the end of the football field of Colonial Heights Middle School. The tornado then continued across Interstate 95 and into the Dimmock Square shopping center. The most significant damage occurred with the final touchdown in the Dimmock Square Strip mall. A string of 4 stores around 75-80 yards in width had ceiling tiles blown out, roofs peeled off and windows blown out. Several cars were damaged as some had windows shattered from flying debris. Other vehicles were flipped and tossed about in piles. Damage was estimated at \$2 million.
- May 2002: Winds from a storm punched a hole in the side wall of a store.
- August 1993: A tornado destroyed a Wal-Mart, severely damaged other major retail stores in the area and damaged 25 stores in the Southpark Mall area. Vehicles in the parking lot were piled on top of each other. Three deaths and 200 injuries were reported at Wal-Mart. Estimated damages above \$11 million.

- October 1954: Hurricane Hazel produced record wind gusts over the eastern portion of Virginia and Maryland. Gusts to around 100 mph were common east of Richmond and Fairfax, Va. Virginia lost 13 people and statewide damage was conservatively estimated at \$15 million. Peanut crops and farm buildings throughout the region were damaged. Thousands were without phone service during this event. Livestock were destroyed. In Colonial Heights City, there were several injuries and many damages due to falling trees and power lines. Schools and businesses closed and phone service was disrupted.

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)

- 16 National Weather Service Alerts during past 5 years for winter weather (for Chesterfield County/Colonial Heights)
- Annualized all winter weather losses = \$21,462

Significant Historical Events

- January 2000: A winter storm event iced and uprooted trees, disrupted power, and closed schools for six days. Cold temperatures froze and burst pipes. Snow removal cost more than \$32,000.
- December 1998: Eighty-five percent of residents in Colonial Heights were without power after a severe ice storm hit.
- January 1996: Two storm systems struck bringing heavy and prolonged snowfall. School systems in were closed for 5 days. Roofs fell in due to the weight of snow.
- 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 were dealing with frozen and burst pipes. Ice and freezing temperatures caused nuclear plant shutdowns. Ice in the James River stopped ferry service. In Colonial Heights City this event caused numerous accidents, several pedestrian injuries and several drowning deaths.

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 = \$0
- 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 City of Colonial Heights.

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

(5) Drought (Moderate Threat)

- Annualized losses from drought = \$226
- 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.

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

(6) Wildfire (Limited Threat)

- Annualized losses from wildfire = \$38
- Total acres burned in Colonial Heights City (1995-2008) = 3
- Total dollar damage in Colonial Heights City (1995-2008) = \$500
- Annualized number of events = 0.08
- 1 woodland communities in high fire rank
- 75 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 Colonial Heights 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 City of Colonial Heights, wildfires have been experienced once

- 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 = \$54,827
- 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 NCEM 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 (Limited 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): 17,411
- Land Area (2010): 7.52 sq. miles
- Density (2010): 2,315.3 persons per sq. mile
- Median household income (2009): \$49,734
- Percent below poverty level (2009): 6.4%
- Race characteristics (2010):
 - White: 82.3%
 - Black: 10.2%
 - American Indian and Alaska Native: 0.4%
 - Asian: 3.3%
 - Persons reporting two or more races: 2.2%
(of the abovementioned races, 3.9% are of Hispanic or Latin origin)

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

1.1.3 Colonial Heights City Mitigation Actions

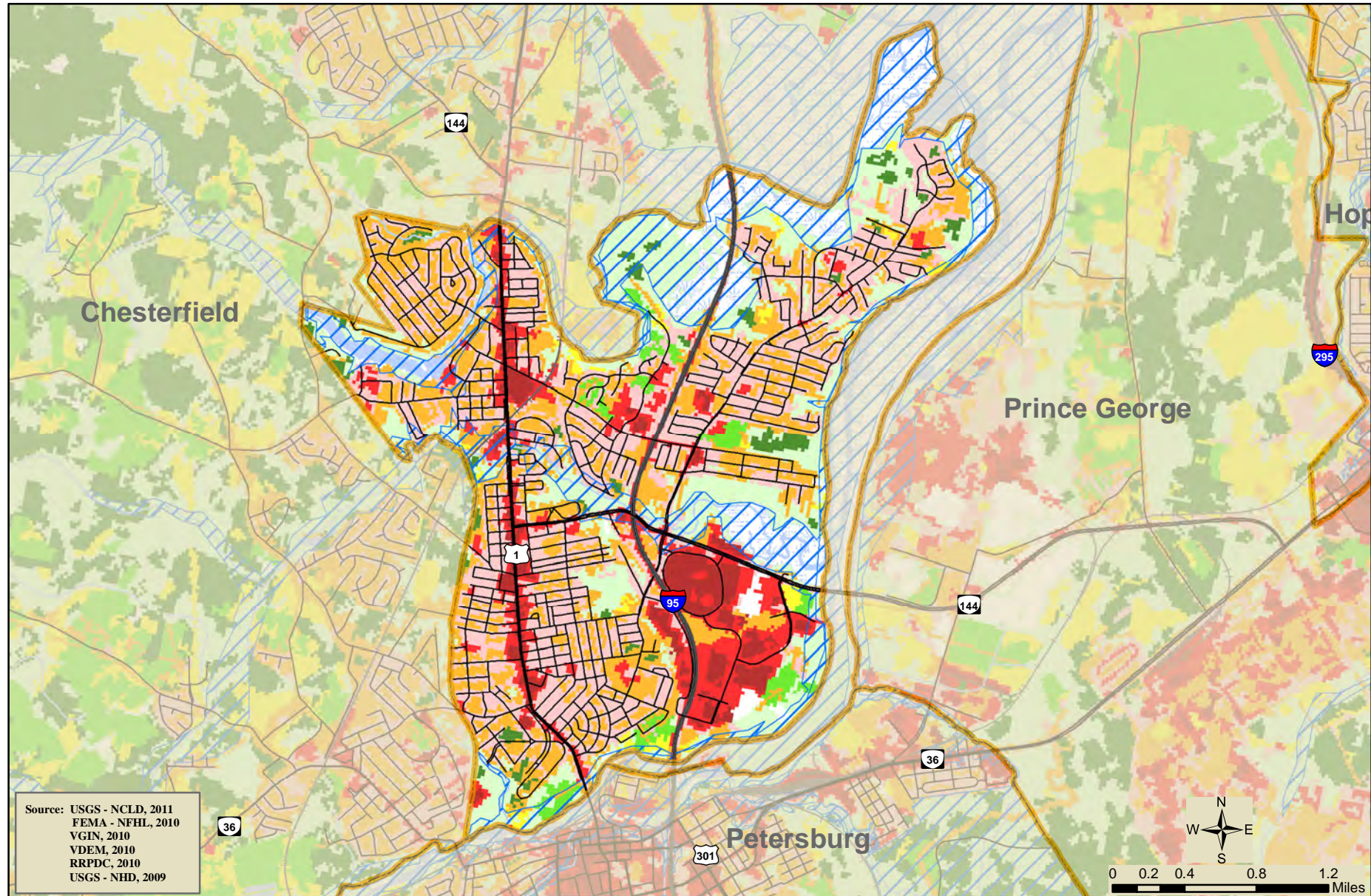
| Number in 2011 Plan | Strategy | Addresses Goals? | Hazards Addressed | Responsible Department | Resources | Timeframe | Priority |
|---------------------|--|------------------|--|------------------------|-------------|------------------------------|----------|
| Colonial Heights-1 | Continue to enforce zoning and building codes, with emphasis on floodplain management. | 1, 2, 4 | Flood, wind, earthquake, land subsidence, winter weather | Building Department | Staff time | Ongoing | High |
| Colonial Heights-2 | 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 | Emergency Management | Staff time | Ongoing | Medium |
| Colonial Heights-3 | Support mitigation of priority structures through promotion of acquisition/demolition, elevation, flood proofing and other mitigation projects where feasible using FEMA HMA programs where appropriate. | 1, 2 | Flood | Emergency Management | Staff time | Short-term | Medium |
| Colonial Heights-4 | Install flood warning sign (including flood level) at railroad bridge crossing of the Boulevard at Old Town Creek. (Language possibilities include "Caution: possible water on roadway ahead when lights flashing," "Caution: this road subject to flash flooding," "Road subject to flooding indicators show depth"). | 1, 3 | Flood | Emergency Management | Grant funds | As funding becomes available | Medium |

Richmond-Crater Multi-Regional Hazard Mitigation Plan

| Number in 2011 Plan | Strategy | Addresses Goals? | Hazards Addressed | Responsible Department | Resources | Timeframe | Priority |
|----------------------------|---|-------------------------|--------------------------|-------------------------------|---|------------------------------|-----------------|
| Colonial Heights-5 | Distribute brochures and use other means to educate the public regarding preparedness and mitigation. Conduct annual preparedness days for hazards to include flood, wind, and earthquake. | 3 | All hazards | Emergency Management | Staff time, free FEMA and other agency publications | Ongoing | Medium |
| Colonial Heights-6 | 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 |
| Colonial Heights-7 | Install quick connects for generators at critical facilities. Work with UASI to retrofit any facilities not funded with UASI grants. | 2, 4 | All hazards | Emergency Management | Grant funds | As funding becomes available | Medium |
| Colonial Heights-8 | Continue to enhance and build CERT program. | 3 | All hazards | Emergency Management | Staff time | Short-term | Low |
| Colonial Heights-9 | Work with VDEM to facilitate discussions with state and federal agencies to address environmental planning issues that impact ability of city to mitigate Old Town Creek (i.e., Newcastle Ave). | 1 | Flood | Emergency Management | Staff time | Long-term | Low |
| Colonial Heights-10 | Complete purchase of NOAA weather radios for public facilities. | 1 | All hazards | Emergency Management | Grant funds | Short-term | Medium |

| Number in 2011 Plan | Strategy | Addresses Goals? | Hazards Addressed | Responsible Department | Resources | Timeframe | Priority |
|---------------------|--|------------------|-------------------|------------------------|------------|------------|----------|
| Colonial Heights-11 | Work with VDEM to identify local resources that can be used to support state sheltering efforts in response to HR incoming evacuees. Encourage coordination with western counties. | 4 | All hazards | Emergency Management | Staff time | Short-term | Low |

Figure . Colonial Heights: Land Coverage and FEMA Mapped Floodplains



Source: USGS - NCLD, 2011
 FEMA - NFHL, 2010
 VGIN, 2010
 VDEM, 2010
 RRPDC, 2010
 USGS - NHD, 2009

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



Prepared: June, 2011

Figure . Colonial Heights: Critical Facilities and FEMA Mapped Floodplains

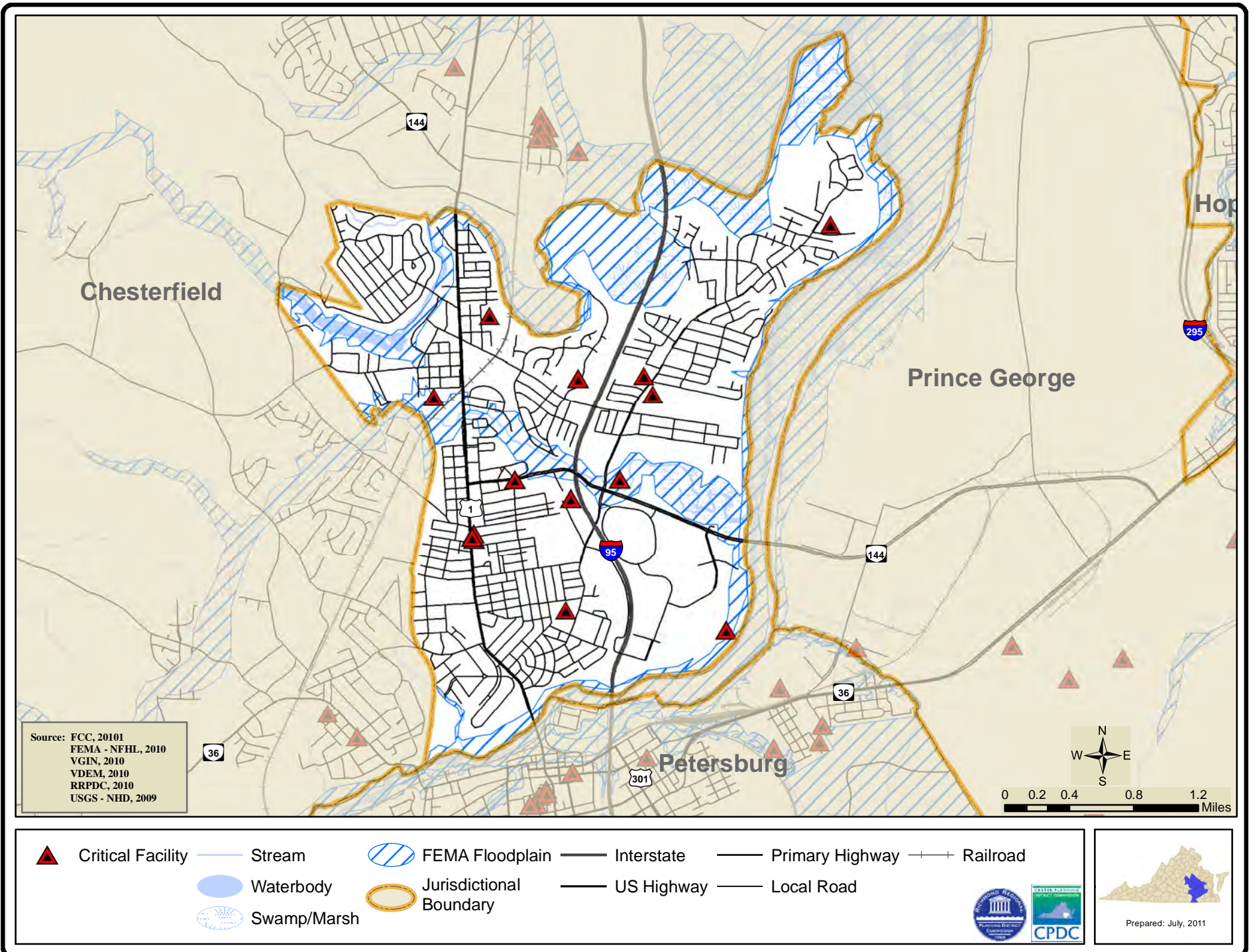


Figure . Colonial Heights: Annualized Flood Loss Damage and FEMA Mapped Floodplains

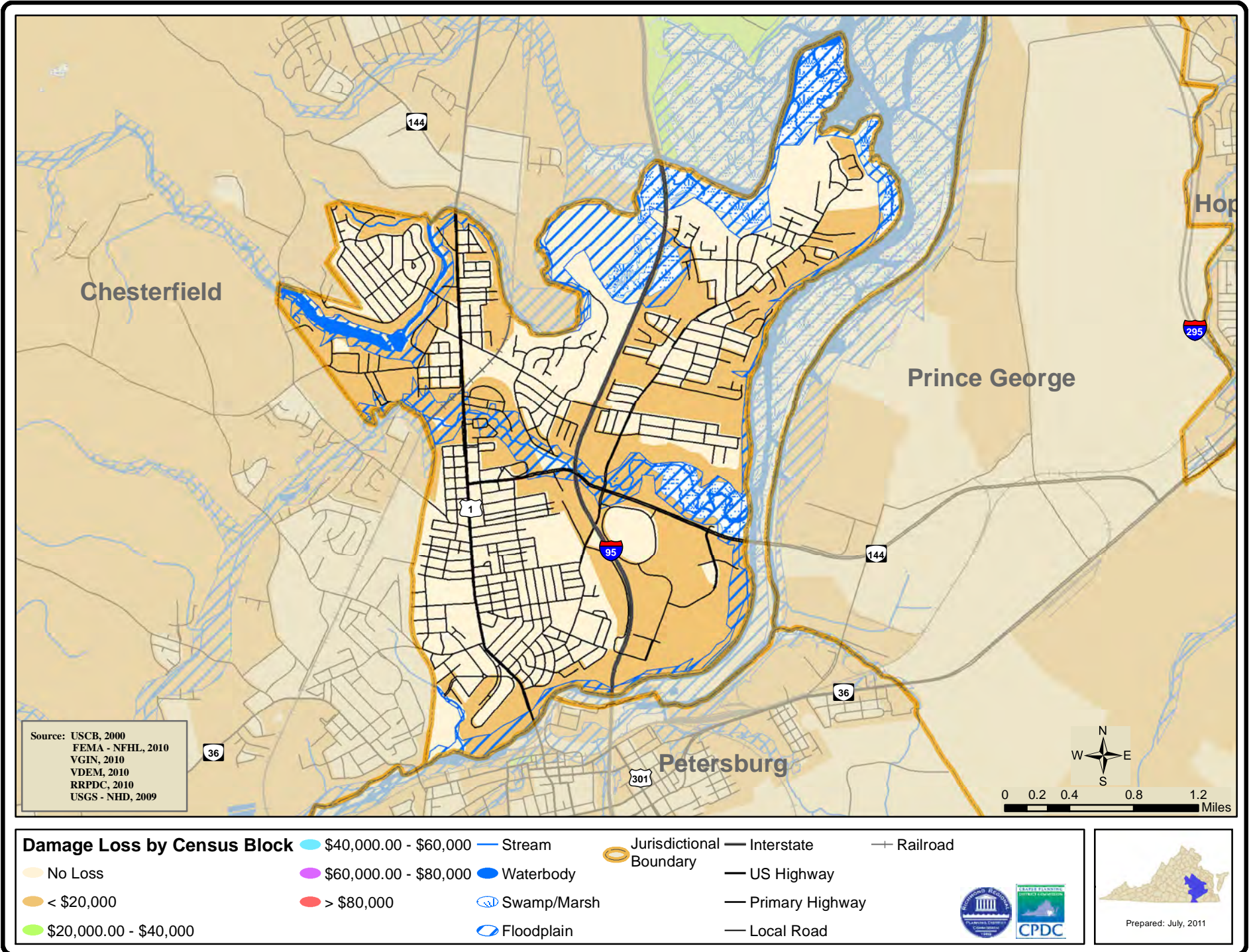


Figure . Colonial Heights: Annualized Loss Due to Wind Damage

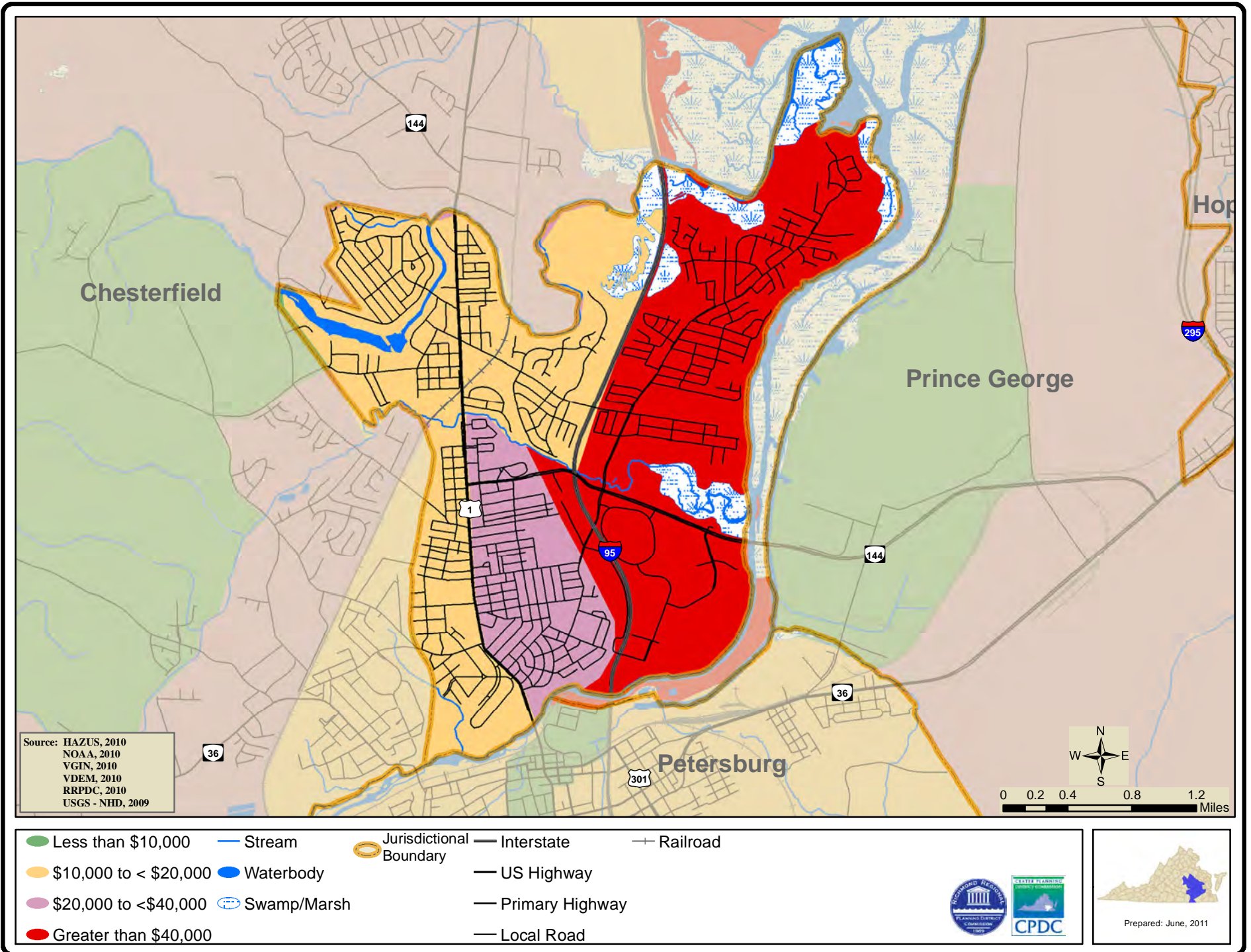
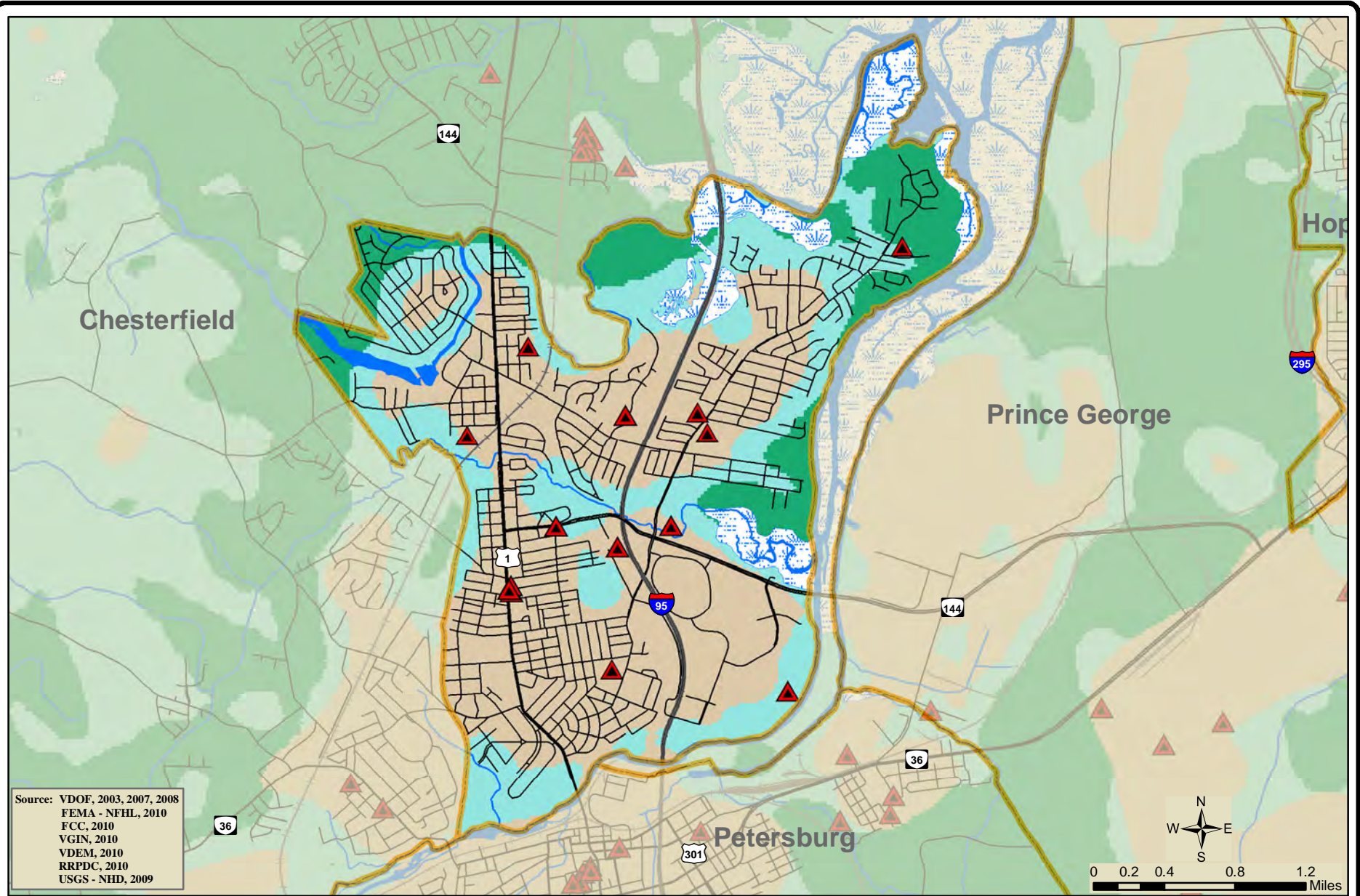


Figure . Colonial Heights: Critical Facilities and Wildfire Risk



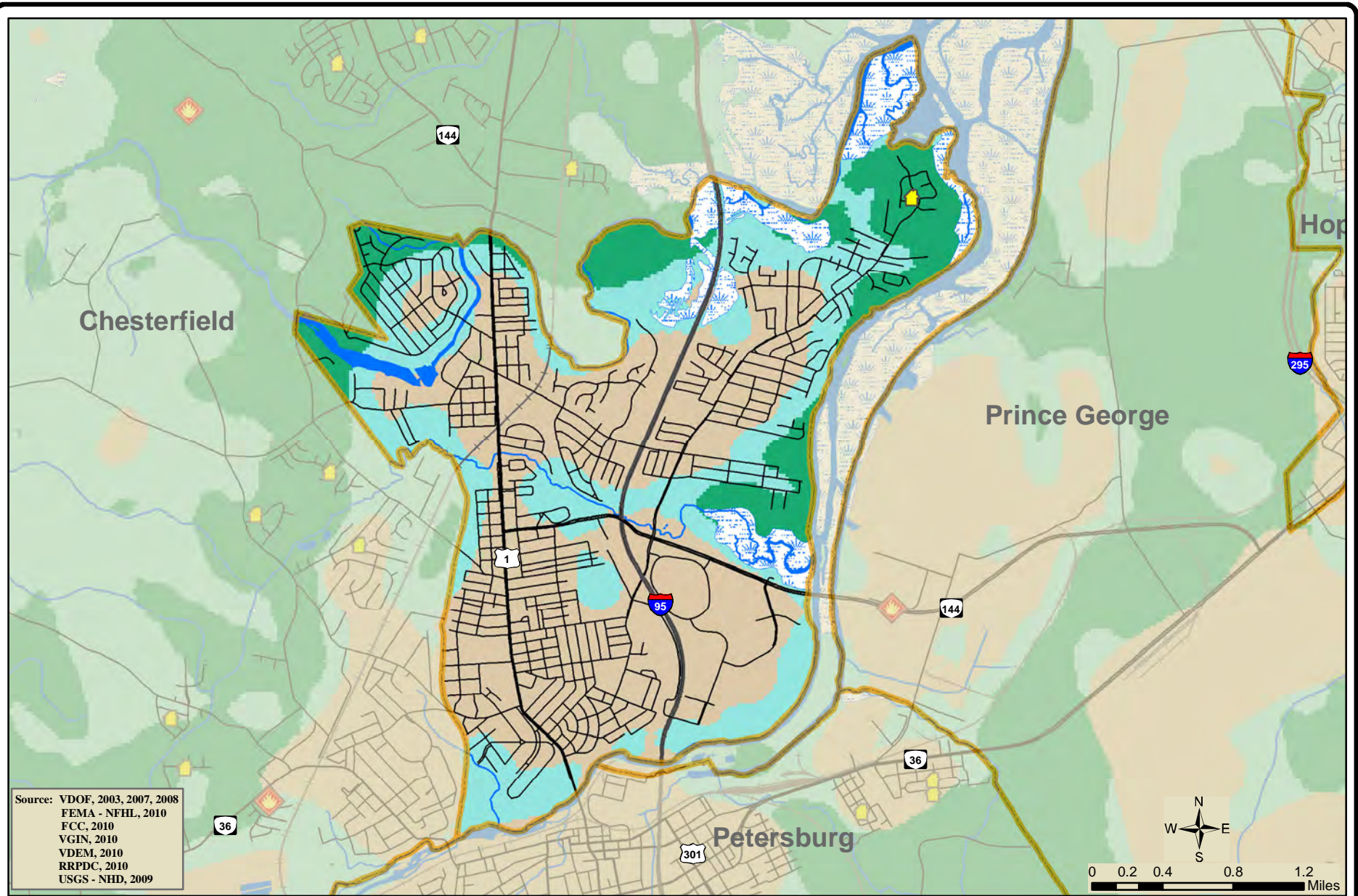
Source: VDOF, 2003, 2007, 2008
 FEMA - NFHL, 2010
 FCC, 2010
 VGIN, 2010
 VDEM, 2010
 RRPDC, 2010
 USGS - NHD, 2009

| | | | | | |
|-----------------------|------------------|-------------|-------------------------|------------|-----------------|
| Critical Facility | Low Risk of Fire | Stream | Jurisdictional Boundary | Interstate | Primary Highway |
| Moderate Risk of Fire | Waterbody | Swamp/Marsh | US Highway | Local Road | Railroad |
| High Risk of Fire | | | | | |

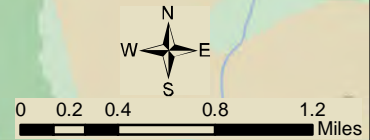


Prepared: July, 2011

Figure . Colonial Heights: Critical Facilities and Wildfire Risk



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



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

Prepared: June, 2011