



DANVILLE CITY COUNCIL REGULAR MEETING AGENDA

MUNICIPAL BUILDING

May 3, 2022

7:00 P.M.

REVISED

PRESIDING: Alonzo L. Jones, Mayor

CITY COUNCIL James B. Buckner
MEMBERS: L.G. "Larry" Campbell, Jr.
Bryant Hood
Barry P. Mayo

Dr. Gary P. Miller, Vice Mayor
Sherman M. Saunders
J. Lee Vogler, Jr.,
Madison J. Whittle

STAFF: Ken F. Larking, City Manager
Earl B. Reynolds, Jr., Deputy City Manager

W. Clarke Whitfield, Jr., City Attorney
Susan M. DeMasi, City Clerk

The City Council is the City of Danville's legislative body and is composed of nine Council members. Council members are elected to serve a four year term of office and elects one of its own to serve as Mayor and presiding officer for a two year term.

Time and Place of Meeting

The public is invited and encouraged to attend and participate in the City Council meetings. The City Council meets in the City Hall, Fourth Floor, Council Chambers at 7:00 p.m. on the first and third Tuesday of each month. All meetings of the Council are open to the public.

Communications from Visitors

Communication from Visitors is an opportunity for citizens to address Council on matters not on the agenda. Citizens who desire to speak on agenda items will be heard when the agenda item is considered. Each speaker shall clearly state his or her name and address. Each individual speaker shall have five uninterrupted minutes. A representative of a group may have up to ten uninterrupted minutes to make a presentation. The representative shall identify the group and a group may have no more than one spokesperson. Time will be kept using the electronic timer on the podium.

Guidelines for Public Hearings

For Public Hearings the applicant or his or her representative shall be the first speaker(s). There shall be

a time limit of ten (10) minutes for the applicant's or his or her representative's presentation. The presiding officer shall then solicit comments from the public, asking those in favor of the proposal to speak first, and then those opposed to the proposal. Each speaker must clearly state his or her name and address. There shall be a time limit of three (3) minutes for each individual speaker. If the speaker represents a group, there shall be a time limit of five (5) minutes. A speaker representing a group shall identify the group at the beginning of his or her remarks. A group may have no more than one spokesperson. The presiding officer may limit or preclude comment which is repetitive, redundant, cumulative, or irrelevant to the subject of the public hearing. After public comments have been received, in a land use case, the applicant or the representative of the applicant, at his or her discretion, may respond with a rebuttal. There shall be a five (5) minute time limit for rebuttal.

MEETING CALLED TO ORDER

ROLL CALL

INVOCATION - L.G. "Larry" Campbell, Jr.

PLEDGE OF ALLEGIANCE TO THE FLAG

ANNOUNCEMENTS AND SPECIAL RECOGNITION

Update: Update on Caesars Virginia
By: Robert Livingston

Recognition: Chief Scott Booth, Danville Police Department
By: Ken Larking, Danville City Manager

IALR Update: Update on the Institute for Advanced Learning and Research
By: Dr. Betty Jo Foster

PCCA Update: Update on Pittsylvania County Community Action
By: Everlina Ross

SAAA Update: Update on the Southern Area Agency on Aging
By: Teresa Fontaine and Andre Bethea

Proclamation: Make Danville Shine Month
Presented to: Ken Gillie and Cheryl Schow
City of Danville Community Development

COMMUNICATIONS FROM VISITORS

Citizens who desire to speak on matters not listed on the agenda will be heard at this time. Citizens who desire to speak on agenda items will be heard when the agenda item is considered.

MEETING MINUTES

- A. Consideration of Approval of Minutes from Regular Council Meeting held on April 5, 2022, and Regular Work Session held on April 5, 2022.
Council Letter Number CL - 2769.

NEW BUSINESS

- A. Consideration of Amending Danville City Code Regarding Real Estate Tax Exemption and Deferral for Certain Elderly and Disabled Persons.
Council Letter Number CL - 2755.
1. Public Hearing
 2. An Ordinance Amending and Reordaining Section 37-62, Entitled "General Restrictions, Conditions and Qualifications" and Section 37-66, Entitled "Amount of Exemption and/or Deferral" of Article IV, Entitled "Real Estate and Mobile Home Tax Exemption and Deferral for Certain Elderly and Disabled Persons," of Chapter 37, Entitled "Taxation," of the Code of the City of Danville, 1986, As Amended.
FIRST READING
- B. Consideration of Rezoning 239 Eastwood Drive.
Council Letter Number CL - 2762.
1. Public Hearing
 2. An Ordinance Rezoning 239 Eastwood Drive (Parcel # 76494) from A-R Attached Residential to TO-C Transitional Office and Parcel #'s 76493, 76492, 76307, and 76306 from A-R Attached Residential to M- I, Manufacturing Industrial.
- C. Consideration of Approving a Special Use Permit at 126 East Thomas Street.
Council Letter Number CL - 2764.
1. Public Hearing
 2. An Ordinance Granting Special Use Permit Application PZ22- 45, filed by SOAP SUPPLIES LLC, Requesting a Special Use Permit for a Duplex Residential Dwelling According to Item 2, of Section C., of Article 3.E. of Chapter 41, of the Code of the City of the Danville, Virginia, 1986, As Amended, at 126 East Thomas Street (Parcel ID # 03962).
- D. Consideration of Approving a Special Use Permit on Dudley Street.
Council Letter Number CL - 2765.
1. Public Hearing
 2. An Ordinance Granting Special Use Permit Application PZ22- 50, filed by Yeon Hee Kim and Hae Choi Kim, Requesting a Special Use Permit for an Accessory Building or Accessory Use Without a Primary Building Being Located on the Parcel According to Item 23., of Section C., of Article 3.E. of Chapter 41., of the Code of the City of Danville, Virginia, 1986, As Amended, on Dudley Street (Parcel ID #'S 25094 and 25091).
- E. Consideration of a Zoning Code Amendment Regarding Parking Space Size Inside Buildings and on Building Roofs.
Council Letter Number CL - 2766.
1. Public Hearing

2. An Ordinance Amending and Reordaining Chapter 41 Entitled "Zoning Ordinance" of the Code of the City of Danville, Virginia, 1986, As Amended, More Specifically, to Add an Item 5., to Section D., of Article 8., Establishing that Inside Buildings and on Building Roofs, the Minimum Parking Space Width is Eight (8') Feet Six (6") Inches and the Minimum Depth is 18'.

F. Consideration of Amending the Zoning Code for Zoning Code Enforcement.
Council Letter Number CL - 2767.

1. Public Hearing
2. An Ordinance Amending and Reordaining Chapter 41, Entitled, "Zoning Ordinance" of the Code of the City of Danville, Virginia, 1986, As Amended, by Repealing in its Entirety the Existing Section C. Entitled, "Administration and Enforcement", of Article 2. Entitled, "General Regulations", with a New Section C. Entitled, "Violations and Enforcement", and Repealing in its Entirety Section X. Entitled, "Violations and Penalties", of Same Said Article 2.

G. Consideration of Amending the Zoning Code for Campground Standards.
Council Letter Number CL - 2768.

1. Public Hearing
2. An Ordinance Amending, Repealing, and Reordaining Chapter 41. Entitled, "Zoning Ordinance" of the Code of the City of Danville, Virginia, 1986, As Amended, by Adding a New Section 2.AA "Campgrounds", in Article 2. "General Regulations", Amending Article 3.A: - SR-R, Sandy River Residential Amending Article 3.B: - T-R, Threshold Residential District, Repealing and Reordaining the Definitions for "Campgrounds" and "Camping Units" in Article 15, "Definitions" to Reference the Virginia Administrative Code.

H. Consideration of Approving the Fiscal Year 2023 School Board Budget.
Council Letter Number CL - 2761.

1. Public Hearing
2. A Resolution Approving the Budget of the School Board of the City of Danville for the Fiscal Year Ending June 30, 2023.
FIRST READING

I. Consideration of Adopting a Multi-Jurisdictional Hazard Mitigation Plan.
Council Letter Number CL - 2750.

A Resolution Adopting a Multi-Jurisdictional Hazard Mitigation Plan for West Piedmont Planning District Communities.

J. Consideration of Amending the Fiscal Year 2022 Budget Appropriation Ordinance for School Bonds.
Council Letter Number CL - 2763.

An Ordinance Amending the Fiscal Year 2022 Budget Appropriation Ordinance by Anticipating the Proceeds from the Issuance of General Obligation Bonds and Appropriating Same for Anticipated Expenditures.

FIRST READING

COMMUNICATIONS FROM:

- A. City Manager
- B. Deputy City Manager
- C. City Attorney
- D. City Clerk
- E. Roll Call

ADJOURNMENT

Council Letter

City of Danville, Virginia



CL-2769

Meeting Minutes A.

City Council Regular Meeting

Meeting Date: 05/03/2022

Subject: Consideration of Approval of Meeting Minutes

From: Susan M. DeMasi, City Clerk

COUNCIL ACTION

Business Meeting: 05/03/2022

SUMMARY

Consideration of Approval of Minutes from Regular Council Meeting held on April 5, 2022, and Regular Work Session held on April 5, 2022.

Council Letter Number CL - 2769.

Attachments

Meeting Minutes

Meeting Minutes

April 5, 2022

The Regular April meeting of the Danville City Council was held on April 5, 2022, at 7:00 p.m. in the Council Chambers located on the Fourth Floor of the Municipal Building. The following Council Members were present: James B. Buckner, L.G. "Larry" Campbell Jr., Bryant Hood, Mayor Alonzo L. Jones, Barry Mayo, Dr. Gary P. Miller, Sherman M. Saunders, J. Lee Vogler, Jr., and Madison J.R. Whittle (9).

Staff Members present were: City Manager Ken F. Larking, Deputy City Manager Earl B. Reynolds, Jr., City Attorney W. Clarke Whitfield Jr., and City Clerk Susan M. DeMasi.

Mayor Jones presided.

INVOCATION AND PLEDGE OF ALLEGIANCE

The Invocation was given by Vice Mayor Gary P. Miller, followed by the Pledge of Allegiance to the Flag.

ANNOUNCEMENTS AND SPECIAL PRESENTATIONS

Proclamation: Sexual Assault Awareness Month
Presented to: Haven of the Dan River Region

Marilyn Waller, Detra Betts, and Ashley Corbin accepted the proclamation from Mayor Jones. Ms. Waller thanked the Mayor and Council for the proclamation, and stated that Haven wanted the community to understand the psychological, emotional, and physical effects sexual violence can have on a survivor. These effects were not easy to deal with alone but with the right help and support a person can become a survivor and overcome; Haven was that support for the City and Pittsylvania County. Ms. Waller asked the City, along with Pittsylvania County, to continue to help Haven raise awareness so that one day Haven can help all survivors overcome sexual violence and domestic violence. Mrs. Waller stated that Haven has a 24/7 crisis intervention service with advocates that can be reached at 434-483-5482.

Certificate of Recognition: Danville Alumnae Chapter Delta Sigma Theta Sorority, Inc.
Presented to: Sheila Williamson-Branch

Ms. Williamson-Branch thanked Council for recognizing the Danville Alumnae Chapter of Delta Sigma Theta Sorority Inc. The sorority had over 300,000 plus members in seven regions across the United States, and Chapters located in the Arabian Gulf, Bahamas, Bermuda, Canada, Jamacia, Japan, Germany, Republic of Korea, West Africa, and the Virgin Islands. The Danville Alumnae Chapter has been serving Danville, Pittsylvania County, Halifax County, and Caswell County for 75 years, since its inception on April 6, 1946. They were excited and honored to be recognized tonight for serving children, adults, and overall needs of the communities they serve. They look forward to continuing their commitment to sisterhood, scholarship, service, and social action for the years to come. Mayor Jones thanked them, on behalf of Council, for all they do.

Council Member Vogler asked Amara Ferrell to come to the podium along with anyone affiliated with her; Mayor Jones asked that Superintendent Dr. Angela Hairston approach as well. Council Member Vogler introduced Amara Ferrell, a senior at George Washington High School where she not only excels on the basketball court with a record setting 1,415 points, including 536 this year, but she also excels in the classroom where she has a 3.78 GPA. Mr. Vogler noted they want to celebrate their young people in Danville, and stated Amara was a wonderful example of what a young person can be and should be, and was excited to see where she would go next. Mr. Vogler

presented City Seal pins to Ms. Ferrell. Ms. Ferrell thanked everyone and stated that she was very nervous; Ms. Ferrell's mother stated that Amara was very grateful and very humbled. She did not think that she deserved all of this attention, and Ms. Ferrell's father thanked everyone as well, including the City of Danville. Coach Mansino Craghead, the Lady Eagles basketball Coach, stated that he has coached Ms. Ferrell for four years and she was one of the humblest young ladies he has met. People would never know that she scored over 1,400 points during her high school career because she never talks about it. Ms. Ferrell's grandmother stated she was almost speechless; she was grateful to Council, the superintendent, Coach Mansino, and the principal of GWHS. Danville had the best high school around, the most outstanding student athletes in the City, and thanked City Council.

COMMUNICATIONS FROM VISITORS

Mayor Jones recognized Nicholas Piccolo, 164 Confederate Avenue, Danville, who noted he was appearing before Council regarding what he believed was a very serious traffic issue. A young man was hit on a motorcycle within the City limits; they are getting ready to donate his organs. The person that hit him drove away and has not been found. In November, on West Main Street, a 74-year-old man was hit walking down the street and that person drove off. On July 22, 2020, he was on a small motorcycle on South Main Street and was hit by a car. That car drove off leaving him in the road with a broken leg. He found out that City does not have traffic cameras at intersections in Danville, questioned Council why didn't they and what do they have to do to get them. Mayor Jones asked Mr. Piccolo to contact the City Manager to discuss this.

Mayor Jones recognized Gerald Keller Jr., 1172 Kent Street, Danville, who noted he has been trying to get Xfinity internet service for over a year. Xfinity ran their lines halfway down their road and quit before reaching his house. Xfinity wants him to pay \$10,370 for them to extend the line on the poles, and requested some type of help because of the contract that the City has with Xfinity. Mayor Jones thanked him for coming out tonight, and requested he take the City Manager's card and contact him regarding this issue.

Mayor Jones recognized Petrina Carter, Danville, VA, and Shecore Conley, Danville VA; Ms. Carter noted she was there on behalf of Black Brand Black Chamber of Commerce in the City of Danville, to share an event with Council. In the fall Black Brand had a SWaM certification six-week course for small businesses so they could learn how to become SWaM certified. As a part of that cohort, they also promised to have procurement officers from across the state come to Danville to meet with small business owners. The event will be at the Institute for Advanced Learning and Research on April 26 from 11am to 3 pm; lunch will be served, and they ask that people register in advance. Ms. Carter stated that tickets can be purchased by calling 421-5040 or by emailing Crystal Cobbs at crystal.cobbs@blackbrand.biz.

CONSENT AGENDA

Council Member Campbell **moved** for adoption of the following Consent Agenda items:

Minutes from the Regular Council Meeting held on March 5, 2022, and Minutes from the Regular Work Session held on March 5, 2022. Draft copies of the minutes had been distributed prior to the meeting.

Budget Amendment – Amending the Fiscal Year 2022 Budget Appropriation Ordinance for a Grant from the Virginia Department of Health

April 5, 2022

An Ordinance entitled, Ordinance No. 2022-03.06, Amending the Fiscal Year 2022 Budget Appropriation Ordinance to Provide for a Grant from the Virginia Department of Health in the Amount of \$7,780 and a Local Share in the Amount of \$7,780 for EMS Equipment and Trailer for the Swift Water Team for a Total Appropriation in the Amount of \$15,560, and Appropriating Same.

Budget Amendment – Amending the Fiscal Year 2022 Budget Appropriation Ordinance for Public Safety Technology Modernization

An Ordinance entitled, Ordinance No. 2022-03.07, Amending the Fiscal Year 2022 Budget Appropriation Ordinance by Increasing Revenues from Various Taxes to Purchase Public Safety Modernization Software and Hardware an Appropriation in the Amount of \$1,500,000 and Appropriating the Same.

The Motion was **seconded** by Council Member Mayo and carried by the following vote:

VOTE: 9-0
AYE: Buckner, Campbell, Hood, Jones, Mayo,
Miller, Saunders, Vogler and Whittle (9)
NAY: None

APPOINTMENTS

Vice Mayor Miller **moved** for adoption of the following Resolutions:

Resolution No. 2022-04.01 – A Resolution Appointing Tommy Bennett to the Planning Commission.

Resolution No. 2022-04.02 – A Resolution Appointing Edgar Love to the Employee Retirement System Board.

The Motion was **seconded** by Council Member Campbell and carried the following vote:

VOTE: 9-0
AYE: Campbell, Hood, Jones, Mayo,
Miller, Saunders, Vogler, Whittle, and Buckner (9)
NAY: None

NEW BUSINESS

PUBLIC HEARING - CONSIDERATION OF AMENDING THE ZONING CODE TO DEFINE SKILL GAMES AS DEFINED BY VIRGINIA CODE

Mayor Jones opened the floor for a Public Hearing regarding Amending the Zoning Code. Notice of the Public Hearing was published in the *Danville Register & Bee* on March 22, 2022, and March 29, 2022. No one present desired to be heard and the Public Hearing was closed.

Vice Mayor Miller **moved** for adoption of an Ordinance entitled:

ORDINANCE NO. 2022-04.01

April 5, 2022

AN ORDINANCE AMENDING AND REORDAINING CHAPTER 41, ENTITLED "ZONING ORDINANCE" OF THE CODE OF THE CITY OF DANVILLE, VIRGINIA, BY AMENDING ARTICLE 3.Q:, SECTION C, BY CHANGING ITEM 1 TO ESTABLISH 'SKILL GAMES' AS DEFINED BY THE VIRGINIA CODE AS ADULT-ORIENTED USES, AND AMENDING SECTION I. BY DELETING ITEM 10, AND AMENDING ARTICLE 2. BY ADDING A NEW SECTION Z.

The Motion was **seconded** by Council Member Mayo and carried by the following vote:

VOTE: 9-0
AYE: Buckner, Campbell, Hood, Jones, Mayo,
Miller, Saunders, Vogler and Whittle (9)
NAY: None

PUBLIC HEARING - CONSIDERATION OF APPROVING A SPECIAL USE PERMIT AT 823 INDUSTRIAL AVENUE

Mayor Jones opened the floor for a Public Hearing regarding a Special Use Permit. Notice of the Public Hearing was published in the *Danville Register & Bee* on March 22, 2022, and March 29, 2022. No one present desired to be heard and the Public Hearing was closed.

Council Member Buckner **moved** for adoption of an Ordinance entitled:

ORDINANCE NO. 2022-04.02

AN ORDINANCE GRANTING SPECIAL USE PERMIT APPLICATION PZ22-30, FILED BY JERAMY NICHOLS OWNER OF OLD OAK PROPERTIES, LLC REQUESTING A SPECIAL USE PERMIT FOR CONTRACTOR'S OFFICE, SHOPS, STORAGE YARD, AND CABINET MANUFACTURING ACCORDING TO ITEM 5, OF SECTION C., OF ARTICLE 3.O, OF CHAPTER 41, ENTITLED "ZONING ORDINANCE" OF THE CODE OF THE CITY OF DANVILLE, VIRGINIA AT 823 INDUSTRIAL AVENUE (PARCEL ID#24094).

The Motion was **seconded** by Council Member Whittle and carried by the following vote:

VOTE: 9-0
AYE: Buckner, Campbell, Hood, Jones, Mayo,
Miller, Saunders, Vogler and Whittle (9)
NAY: None

PUBLIC HEARING - CONSIDERATION OF APPROVING A SPECIAL USE PERMIT FOR A PLANNED UNIT DEVELOPMENT ON STUART STREET

Mayor Jones opened the floor for a Public Hearing regarding a Special Use Permit. Notice of the Public Hearing was published in the *Danville Register & Bee* on March 22, 2022, and March 29, 2022.

Mayor Jones recognized Steven Gould with SOVA Legal, representing the Walden family who submitted the application for development in conjunction with Empire Holdings LLC. Mr. Gould presented a power point for the planned unit development located on Stewart Street, noting it was a picture of redevelopment and revitalization at a time when Danville had an urgent need for quality housing. Many key employers, Averett, SOVAH, and others, will share that the lack of

available housing options was already an impediment to their efforts to be competitive in today's market. The proposal before Council this evening represents a key step toward removing that impediment before it gets in the way of the new opportunities anticipated for Danville. Mr. Gould noted as envisioned, this project represents an investment of \$20M, that was on top of the funds the Walden family has invested to date to acquire these parcels and to clear the dilapidated structures that existed previously. The total footprint was more than 6.5 acres in the heart of the City, with more than 1/3 of the acreage set aside for open space. There will be 162 market rate units all with high end finishes such as stainless-steel appliances, granite countertops, and the like. Units will range from one to three bedrooms with most being one to two bedrooms. City code requires one parking space per unit for residential dwellings; this proposal exceeds that number by 40%. Importantly, this proposal received the unanimous support of the Planning Commission one month ago. Entry into the community will be from West Main Street. Units will be spread out across six separate buildings and will feature amenities like a pool and club house. There will be professional landscaping, fencing surrounding the property, and a storm water pond all of which were geared toward this development being a good neighbor. To prevent thru traffic, Stewart Street will be closed off behind the back building, creating a cul-de-sac of sorts. If approved, this property will have a significant impact on property tax revenue generated from these parcels. At present, they have an assessed value of under \$60,000 yielding less than \$500 annually in property taxes. With a projected value of at least \$20M, that tax revenue jumps to \$168,000 a year. Post cards were mailed to everyone slated to receive notice of the rezoning request, inviting them to Crème and Vine to meet the developer and learn more about the project. They had the opportunity to see a site plan, potential building designs, and to engage with the entire project team on technical issues. It was a well-attended event with some great discussion, and it helped to confirm, even before the application was filed, that the proposal was on point. Before the Planning Commission met, they learned that a number of neighbors indicated that they had not received the postcard inviting them to the original event. The Walden's decided to host a second community meeting and had invitations hand delivered to those who did not receive the previous notice. There was also a website, stewartstreet24541.com that allowed interested parties to submit feedback via webform. The developer has worked to address a number of concerns that have been raised. Long standing concerns about drainage on Montague and Stewart Streets should be helped significantly by this project with the landscaping and storm water pond. The site was also being designed to ensure that first responders have the access and maneuverability they need. The developer was fully committed to performing and funding a traffic study to determine what, if any, improvements need to be made at the intersection of Stewart and West Main Street where the existing entry point was located. To that end, if the study indicates that an additional access point, in addition to the original access from West Main Street was needed, they will review the options available to determine what makes the most sense for the project. Additionally, the developer has taken steps to respect the privacy of other neighbors along West Main, with a buffer between the project and the backyards of several houses. Mr. Gould noted he wanted to reiterate the developer's commitment to seeing through the ten conditions that were recommended by city staff and the Planning Commission. They ask Council for their support this evening and were happy to answer any questions they might have.

Mayor Jones recognized the following citizens who spoke in favor of the Project:

Angie Shoff – 276 Hawthorne Drive
Bob Jiranek – 268 Hawthorne Drive
George Willoughby – 219 Hawthorne Drive
Don Aungst – Averett University's Chief Financial and Operating Officer
Marc Gignac - Institute for Advance Learning and Research
John Kent – SOVAH Chief Operating Officer

April 5, 2022

Leslie Sturtevant – SOVAH Designated Institutional Officer
Andrew Hessler – 255 Howeland Circle
Rosemarie Linn – 134 Clarendon Circle

Mayor Jones recognized the following citizens who did not speak against the Project but had concerns with the Project:

Mark Howard - 233 West Main Street
Kevan Brown – 243 West Main Street
Julian Bobe - 247 West Main Street
Shelby Clark - 227 Montague Street

No one further desired to be heard and the Public Hearing was closed.

Council Member Vogler **moved** for adoption of an Ordinance entitled:

ORDINANCE NO. 2022-04.03

AN ORDINANCE GRANTING SPECIAL USE PERMIT APPLICATION PLSUP 2021-422, FILED BY KEITH WALDEN ON BEHALF OF CWC HOLDINGS, LLC AND EMPIRE RENTALS, LLC REQUESTING A SPECIAL USE PERMIT FOR A PLANNED UNIT DEVELOPMENT IN ACCORDANCE WITH ARTICLE 17. OF CHAPTER 41, ENTITLED "ZONING ORDINANCE" OF THE CODE OF THE CITY OF DANVILLE INCLUDING PARCEL ID#'S 20596, 20597, 25672, 22841, 24958, 25085, 25226, 22099, 25069, 25070, 25074, 20420, 20421, 20422, 25542, 25073, 23886, 23561, 23563, 22924, 24974, 21173, 20425, 24984, 25098, 22104, 22103, 22513, 24649, 24358, 21117, 24359, 25088, 20424, 25087, 20418, 25086, 25090, 25089.

The Motion was **seconded** by Council Member Whittle.

Council Member Buckner thanked Mr. Walden for his investment in the City, and they were excited about the fact that there was going to be new housing in an old area that has been run down for a very long time. One thing he would like to see, that was talked about by the Planning Commission, was a traffic study; the traffic study was going to be the way he based his decision on this vote tonight. Looking at the map that Mr. Gould brought up, Parcels #25090, and #25086 were in between what used to be 147 and 221 Stewart Street. That right of way or piece of land was still owned by the City and he believed it could be an entrance and an exit. If the traffic study comes back and stated that it needs to go somewhere he would strongly recommend they look at those properties. He cannot speak for the rest of Council or for the rest of the City but would be in favor of giving that to the Walden family, or paving it and making it the entrance and exit to the property. He looked forward to this project and seeing this area revitalized.

Council Member Saunders stated it was very refreshing to see so many people here in support of the project; it was very impressive. Mr. Saunders noted he had a question for the Manager or his staff, and asked them to say a little bit about the traffic study and was this whole project dependent upon that study, what were the pros and cons, and what in the study could change this project. Division Director of Planning Doug Plachcinski explained that the traffic study would look at the number of trips that would be generated at the site. It will look at the entrances to the project and see how they were functioning without the project being built and with the project being built. If there was too much traffic coming in and out of the site, then the engineers were

tasked with finding a potential solution such as a traffic light analysis. It could also suggest another full-time entrance and exit for the property off of Watson or another adjacent right of way.

Council Member Saunders stated this was an impressive presentation, they definitely want more growth in the City but what could happen in this traffic study that could change the action of Council should Council support this project because the Planning Commission says it was dependent upon a traffic study. Mr. Plachcinski explained what the traffic study would do was provide an analysis, and given the amount of right of way that would have to be vacated or abandoned for the property to work, that would take Council action. For this project to work, Council will have to see the right of way and the way intersections will change because the City will at some point be asked to give up the street where Stewart Street was now. There will be an opportunity to explain the results of that traffic study and why the roads were going to need to be configured, above and beyond the approval that the Planning Commission was recommending.

Council Member Saunders stated that there was a hospital in the area, what impact would that have on people visiting family members, emergency vehicles, etc. Mr. Plachcinski noted the traffic study could say that there will be a disruption to traffic flow based on the number of vehicles entering and leaving, and provide recommendations to mitigate those negative impacts. It will look at adjacent uses and even special uses such as funeral homes and hospitals that get really intense traffic at certain times of the week; there were ebbs and flows of traffic on West Main because of those uses.

Council Member Saunders asked Mr. Whitfield, whichever way the traffic study goes, Council will vote again on this project and City Attorney Clarke Whitfield noted, not on the project but on the street conveyance based on the cul-de-sac that was being proposed, and the fact that a building would be put in the middle of the street. Council Member Saunders asked Mr. Whitfield to say a little more about "not the project", he thought it was the project; the Planning Commission approved it pending the traffic study. What he was asking was will Council be voting again on this issue and Mr. Whitfield stated on the issue of whether or not to vote on the abandonment of the streets, yes, not necessarily on the special use permit Council was talking about tonight. If Council approves this and they move forward with the project, then they will have to come back and ask Council to abandon the streets. Should Council decide not to abandon the street or allow the cul-de-sac, then that may change the project, but it will not necessarily do away with the project.

Council Member Saunders noted in some ways it felt like he was voting on an unknown and that concerned him. He was happy that the City was growing and the people want to move up here from Greensboro and find property, but he was just a little bit confused. It was just that one issue that had him a little disturbed in the sense of what could happen with the traffic study that could change all of this. They were talking about Stewart Street and understood that but what were the other options if the traffic study does come back and said that they cannot use Stewart Street; he just had some questions there. Mayor Jones stated a few months back there were some concerns with 86 and the South Main area near the shopping center. Recently, stoplights and crosswalks were installed there. In trying to get to the point of Councilman Saunders' question, if the traffic study comes back similar to what was just done on 86, was that something that Council could do once they receive the traffic study, and Mr. Plachcinski noted it was.

Council Member Saunders asked the City Manager to get information in terms of the daytime traffic in Danville ten years ago, the daytime traffic in Danville today, and the anticipated daytime traffic in Danville based on the first ten and the second ten years. He was sure that it was going to show growth and was curious as to how that growth was trending. There were so many

indicators that show if a city was growing or not growing and he would like to know what those indicators were.

Council Member Vogler noted, the second vote that the City Attorney was referring to once the traffic study comes back, will allow Council to address concerns about the cul-de-sac, letting the traffic go through or not go through. The vote tonight was whether or not Council wants this project to move forward or not. Council gets another opportunity to come back after the traffic study and decide if the traffic study says the cul-de-sac was not a good idea, then Council can say they like the project obviously, but they don't want the cul-de-sac, so something has to be done. If Council approves this tonight, they still get a chance to address all of that, and Mr. Plachcinski stated essentially, yes. Council Member Vogler noted he hoped Council voted on this tonight; he knows sometimes, when something a little bit difficult comes up Council has a tendency to kick it down the road and table it, and hopes Council does not do that tonight. They have the opportunity to address what seems to be the major concern when this comes back to Council after the traffic study. Approving it tonight lets the developer know that by large, the City needs and wants a project like this.

Mr. Whitfield stated that if they want to put a building in the middle of the street then Council will have to abandon or not abandon that street. Another thing was that this was a special use permit not a rezoning permit; the special use permit allows Council to put conditions on this development. A condition could be that they follow through with the traffic study, tell Council the outcome of the study, how they are going to solve the problems that come up with it, and that the project will not be built except according to the recommendations of the traffic study.

Council Member Vogler noted a housing study done by the City around 2016 showed a need for housing in the City, particularly the area around the hospital. City Manager Ken Larking stated he believed Mr. Vogler was speaking about the CZB study that was done around 2014 or 2015; it did identify that as a potential area for investment in housing. Council Member Vogler stated it showed a need for housing long before Caesar's was ever thought of, long before what the Institute mentioned earlier tonight, and all the other growth happening. If it was a huge need then it was certainly a huge need now, and noted he was ready to vote on it tonight.

Mr. Saunders noted he wanted to support this project; the Planning Commission said it was dependent upon the traffic study. To the City Attorney, Mr. Saunders stated he asked if Council would "get a second bite at the apple" and heard him say no; Mr. Vogler asked the same question using different language and Mr. Saunders heard yes and was now confused. Mayor Jones asked the City Attorney does Council have the opportunity to do the same thing, pending the traffic study, as the Planning Commission and Mr. Whitfield noted they do.

Vice Mayor Miller noted that he does not have a problem with the project itself, and recognized the need for workers at the hospital to have housing; his issue was with the egress. When he met with Mr. Gould earlier, he understood there would be emergency exits. Dr. Miller noted he thinks the traffic study needs to show an emergency exit at the very least. Secondly, to drive down Stewart Street up to West Main and try to make a left turn; he tried that the other day and almost got hit by a truck that he could not see until his car was halfway out in the road. It was a blind left turn out of that road, it was only going to get worse and the intersection was going to need to be reconfigured. A traffic study was imperative to that area.

In response to Mayor Jones, Mr. Whitfield stated that the Planning Commission's approval was contingent on the completion of a traffic study. Mayor Jones reminded Council that they can put that in the motion that there has to be a traffic study. Mr. Whitfield stated that the current motion

does not include that based on the way that he read it; that could be something that Council could add to the motion. Vice Mayor Miller asked if he could make that motion and Mayor Jones noted he could. Council Member Hood stated currently, coming through West Main to Stewart Street people can make it all the way to Watson. How will this impact those residents living on the end of Watson Street and Mr. Larking explained that if it goes forward as proposed then they would only have the option to exit their neighborhood from Watson; they would not be able to go through Stewart.

Council Member Vogler stated that he wanted this to be clear. The cul-de-sac which seems to be the real issue, cannot be built until after the second vote, it cannot be built unless the City abandons the street and Mr. Larking noted that was correct.

Mr. Plachcinski stated that he want to reiterate the ten conditions that the Planning Commission recommended because they have not been read out loud tonight:

1. The permitted use is residential.
2. 35% of the building's exterior will be masonry.
3. The buildings will not have vinyl siding on exterior vertical facia.
4. The project will have sidewalk connectivity to West Main Street.
5. The developer will complete a traffic impact analysis in consultation with the City and implement the recommendations.

Mr. Whitfield stated that since it was not in the motion tonight, he would recommend that all conditions of the Planning Commission have to be met as conditions of the special use permit, everything Mr. Plachcinski has read and was going to read, become part of this motion.

Mr. Plachcinski continued:

6. The development will not exceed 25 dwelling units per acre.
7. The development must meet all ingress and egress requirements of building and fire codes.
8. The development includes amenities for residents including a clubhouse and swimming pool.
9. The development will maintain landscape buffers compliant with Article 16 of the zoning ordinance.
10. The developer executes and records a development agreement with the City that acknowledges these conditions.

Council Member Buckner stated he was going to make a motion that Council table this until the traffic study comes back and Council had time to review it. Mayor Jones noted the motion was on the floor, and asked for a second; the Motion died due to lack of a second.

Council Member Whittle questioned if what the Planning Director read was part of the package, Council had to have the study, they were going to do what was required, as Council would agree through the Planning Commission. Mayor Jones asked if Council Member Whittle would like to add that into the motion and Mr. Whittle noted he would. The Motion was seconded by Council Member Vogler.

Mr. Whitfield explained that he needed to backtrack; those ten items were already part of the Ordinance; they were already in the motion, and apologized. Mayor Jones stated they were back to the original motion. Mr. Whitfield explained the Motion was to grant a special use permit to this

April 5, 2022

project subject to the ten conditions read by Mr. Plachcinski that include that the developer will complete a traffic impact analysis in consultation with the City and implement the recommendations. The building permit cannot be issued until those conditions were met.

The **Motion** was carried by the following vote:

VOTE: 8-1
AYE: Campbell, Hood, Jones, Mayo,
Miller, Saunders, Vogler and Whittle (8)
NAY: Buckner (1)

PUBLIC HEARING – CONSIDERATION OF AMENDING DANVILLE CITY CODE TO ADD A NEW CHAPTER ENTITLED “OUTDOOR REFRESHMENT AREA”

Mayor Jones opened the floor for a Public Hearing regarding Amending the City Code. Notice of the Public Hearing was published in the *Danville Register & Bee* on March 22, 2022, and March 29, 2022. No one present desired to be heard and the Public Hearing was closed.

Council Member Vogler **moved** for adoption of an Ordinance entitled:

ORDINANCE NO. 2022-04.04

AN ORDINANCE AMENDING AND REORDAINING THE CODE OF THE CITY OF DANVILLE, VIRGINIA, 1986, AS AMENDED, TO ADD A NEW CHAPTER 23.2, ENTITLED “OUTDOOR REFRESHMENT AREA.”

The Motion was **seconded** by Council Member Miller and carried by the following vote:

VOTE: 8-1
AYE: Buckner, Campbell, Hood, Jones, Mayo,
Miller, Saunders, and Vogler Whittle (8)
NAY: Whittle (1)

City Attorney Clarke Whitfield explained the Danville Development Council who was a 501(c)4, and helps support this Council on economic development in a number of ways, has agreed to be the license holder. After tonight things will get started with ABC to get that license done. Once the license was issued then the City will be able to implement this plan.

CONSIDERATION OF UPDATES TO THE CITY’S FINANCIAL POLICIES

Council Member Buckner **moved** for adoption of a Resolution entitled:

RESOLUTION NO. 2022-04.03

A RESOLUTION APPROVING AND AMENDING THE CITY OF DANVILLE’S FINANCIAL POLICIES TO CHANGE ITEM 9.2 ENTITLED “CITY OF DANVILLE STANDARDS” OF SECTION 9, ENTITLED “DEBIT MANAGEMENT” TO ALLOW FOR THE SCHOOL BONDS FUNDED BY THE 1% LOCAL SALES TAX OPTION.

The Motion was **seconded** by Council Member Mayo.

April 5, 2022

VOTE: 9-0
AYE: Buckner, Campbell, Hood, Jones, Mayo,
Miller, Saunders, Vogler and Whittle (9)
NAY: None

CONSIDERATION OF A MORAL OBLIGATION WITH VIRGINIA COMMUNITY CAPITAL

Council Member Campbell **moved** for adoption of a Resolution entitled:

RESOLUTION NO. 2022-04.04

A RESOLUTION AUTHORIZING AND APPROVING EXECUTION OF A MORAL OBLIGATION AGREEMENT BY AND BETWEEN THE CITY OF DANVILLE, VIRGINIA AND VIRGINIA COMMUNITY CAPITAL, A VIRGINIA BANKING CORPORATION.

The Motion was **seconded** by Council Member Buckner.

VOTE: 9-0
AYE: Buckner, Campbell, Hood, Jones, Mayo,
Miller, Saunders, Vogler and Whittle (9)
NAY: None

Council Member Whittle asked for an update on this item and Director of Economic Development Corrie Bobe explained last summer the IDA purchased One Ecomnets Way which was the first building on the right-hand side entering into Airside Industrial Park. Working with the prospective tenant for the site, this loan with Virginia Community Capital will help cover the upfit expenses related to that tenant.

BUDGET AMENDMENT – CONSIDERATION OF AMENDING THE FISCAL YEAR 2022 BUDGET APPROPRIATION ORDINANCE FOR A BYRNE MEMORIAL JUSTICE ASSISTANCE GRANT

Upon **Motion** by Council Member Campbell and **second** by Council Member Mayo, an Ordinance entitled:

ORDINANCE NO. 2022-04.05

AN ORDINANCE AMENDING THE FISCAL YEAR 2022 BUDGET APPROPRIATION ORDINANCE BY INCREASING REVENUE FROM THE VIRGINIA CRIMINAL JUSTICE SERVICES BOARD FOR THE EDWARD BYRNE MEMORIAL JUSTICE ASSISTANCE GRANT (JAG) PROGRAM AWARD IN THE AMOUNT OF \$75,000 WITH A LOCAL SHARE IN THE AMOUNT OF \$25,000 TO BE USED TO STRENGTHEN THE YOUTH JUSTICE DIVERSION PROGRAM.

was presented by its **First Reading**, as required by City Charter, to lie over before final adoption.

Council Member Saunders questioned the City Manager, what was the Youth Justice Diversion Program, was it Project Imagine, the W.W. Moore Detention Home, or another youth program. Mr. Larking explained this program would provide the opportunity for youth to have a peer court system where the situation would be evaluated and an alternative to incarceration would be given.

April 5, 2022

This was something that staff has worked on as a way to keep young people from going straight to W.W. Moore if they have certain infractions. Without this program in place, they would likely end up in juvenile detention center.

Mayor Jones asked if this was similar to Project Imagine, could they be combined into one and Project Imagine run the whole thing. Mr. Larking stated that at the moment it was two separate things, not that they could not work together with some commonalities. Project Imagine was more of a program to get referrals from the community for young people who were at risk, provide them with job training, opportunities to get a job, and learn what it was like be in the work environment. This program was about young people who have been arrested for a minor infraction and have that resolved through a peer group instead of the court system. It would be a new program for the City, and the City has received good advice and feedback from other areas that have implemented this program.

Deputy City Manager Earl Reynolds noted several years ago, the General Assembly was asked to pass legislation to allow an alternative, through the juvenile court, other than the strict penal processing of young people who had misbehaved. No such legislation existed in Virginia at that time. The City supported that legislation, and it was ultimately through legislative partners that the legislation was passed, signed by the governor, and was now law. Communities can develop, in partnership with the juvenile court system, a program alternative to young people coming before a judge. That was why they call it peer review and peer court, and the City was most familiar with the one operating in Newport News. It was the City's intent, working through juvenile court, the school system, and other partners to set up a similar experience for young people here, where they go through a voluntary peer experience to hopefully learn that their particular behavior was not appropriate, and their peers help them in the process of correcting that behavior with professional supervision. Mr. Reynolds noted the program will be operated out of Robert David's office, the grant was for \$75,000, and would not require additional personnel.

COMMUNICATIONS

There were no communications from the City Manager, Deputy City Manager, or City Clerk.

City Attorney Clarke Whitfield noted that he had a visit today from a gentleman by the name of Tim Garland, who was asked by Dusty Baker to be one of the coaches in the major league all-star game this summer. He was also possibly interested in doing some youth work during the off season with Parks and Recreation.

ROLL CALL

Council Member Buckner thanked everyone tonight for their input and how they voted, he looked forward to what the Walden's were going to do for the area; it was a very exciting project. Mr. Buckner noted he looked forward to seeing what the traffic study shows as well.

Council Member Hood thanked Amara once again for being a "shooting star" and setting a great example for the youth while keeping up her GPA. He also recognized the Danville Alumnae Chapter, and Black Brand for their upcoming procurement fair on April 26 from 11am to 3 pm at the Institute.

Council Member Mayo gave a shout out to Black Brand, and to Amara for her accomplishments not only on the court but academically. To Council, the decisions they have to make entail all of them and it was good when they can hear one another. To Council Member Buckner, his decision

April 5, 2022

was just that and they respect it. To see Danville grow and see what was happening, he thinks that was what they all wanted and want it done in the right way.

Vice Mayor Miller recognized the City Manager for being the City Manager for six years, and congratulations to Tommy Bennett on being on the Planning Commission. Dr. Miller noted the superintendent left but Danville had 283 more children enrolled in school than last year. Last Tuesday was an anniversary of sorts at the hospital. They hosted a breakfast to celebrate not having a COVID patient in the hospital for the first time in over two years. He recognized the importance of getting the vaccine and the effects of long COVID.

Council Member Vogler stated he has had people reach out to him regarding Canterbury Road; a number of residents have had an issue with people speeding up and down that street. Mr. Vogler asked staff to look into speed bumps or something of that nature be done there; there were a lot of young families on the street.

Council Member Whittle noted it had been an interesting meeting tonight, and he had a good meeting with the City Manager and Council Member Mayo about the budget; it was more towards the school and how the City can help lift that system up towards a better outcome. Mr. Whittle stated he did vote no to drinking on the street because he thought that if people want to do that they can drink at home or a bar; he had several people reach out to him about it.

Mayor Jones thanked Petrina Carter for coming out and reminded everyone of the Black Brand event being held at the Institute on April 26 from 11am to 3 pm; the contact number for SWaM was 434-421-5040. Mayor Jones thanked Council Member Saunders for his leadership and his wisdom.

The meeting adjourned at: 9:29 p.m.

APPROVED:

MAYOR

ATTEST:

CITY CLERK

April 5, 2022

A Regular Work Session of the Danville City Council convened on April 5, 2022, at 9:35 p.m. in Council Chambers located on the Fourth Floor of the Municipal Building. Council Members present were: James B. Buckner, L.G. "Larry" Campbell Jr., Bryant Hood, Mayor Alonzo Jones, Barry P. Mayo, Vice Mayor Gary P. Miller, Sherman M. Saunders, J. Lee Vogler, Jr., and Madison J.R. Whittle (9).

Staff Members present were: City Manager Ken Larking, Deputy City Manager Earl B. Reynolds, Jr., City Attorney W. Clarke Whitfield Jr., and City Clerk Susan M. DeMasi.

Mayor Jones presided.

MINUTES

Upon **Motion** by Council Member Buckner and **second** by Council Member Campbell, Minutes of the Regular Work Session held on March 1, 2022 were approved as presented. Draft copies were distributed to Council Members prior to the Meeting.

WORK SESSION ITEMS

CONSIDERATION OF RELEASING EXISTING TAX LIENS ON PARCEL #21914 AND #22219

Council had no questions and agreed to put it on an upcoming business agenda.

DISCUSSION OF THE CITY MANAGER'S FISCAL YEAR 2023 PROPOSED BUDGET

City Manager Ken Larking noted he had a budget discussion with each Council Member and was going to review the five areas where staff recommended changes to the current recommended budget before they go forward with City Council's introductory budget to the public. Mr. Larking reviewed the Council's budget process and noted his appreciation to the core budget team who were in attendance to listen to any concerns Council may have, and thanked them for their diligence, hard work and long hours they put into the budget.

Mr. Larking noted the five areas he wanted to recommend included two airport projects; one was to delay the corporate hangar site preparation and instead, Transportation Director Marc Adelman recommended the City fund a Box Hangar; the cost of that would be paid for with debt. The City has a waiting list of people who want to be tenants in box hangars and they have someone willing to pay a lease sufficient enough for most of the cost of the debt. The other item for the Airport was a fuel farm expansion; the funding would come from an increase in the fuel flow fee. The revenue generated from that fee would be sufficient to cover the debt service to pay for that expansion. The reason for the expansion was there were a lot of weekends, and staff expects a lot more weekends in the future, where there was significant air traffic at the airport and sometimes they run out of fuel in the tank. They have to have tankers come in from Greensboro to meet the demand. If they expand the fuel farm, the FBO has the ability to make sure that anyone who was traveling to and from the Danville airport will have an opportunity to fill up their tank.

Mr. Larking stated the next item was to move up the design and construction of a splash pad at Ballou Park. It would be on Park Avenue side where the entrance to Ballou Park was located and West Main. It could accommodate eighty children at one time and the City would likely provide supervision as needed; staff will monitor the activity level to make sure it was safe. Mr. Vogler thanked the City Manager; Council was excited about the splashpads coming to Green Street and Third Avenue and what they will do for those neighborhoods. To have a larger one that was near

April 5, 2022

multiple neighborhoods in an historic park in the City, citizens were really excited about it and was glad the City was able to get that in the budget. Mr. Larking explained this park will be funded with debt service.

Mr. Larking noted the next project was a traffic signal at the intersection of Memorial and Bishop, where Frank's was located. When the casino was opened, likely the best way for people to come from Greensboro would be US Business 29, which turns into Memorial, up Bishop and into the casino site. Staff feels having a traffic signal there will be warranted by a traffic signal analysis; the development agreement with Caesars says that any reasonable improvements that were necessary in order to support the site will be paid for by Caesars, and that was listed as a project. Procuring the materials and actual building can take some time, and they want to start this now.

The fifth item was related to having an Associate Planner funded in this budget, it was already an authorized position, but the funding has not been there for several years; it was eliminated during a tough budget year. The City has been experiencing major growth in the community which has put a strain on the planning division. They want to go ahead and fund that position so that it can be filled, to be able provide good customer service to the community.

Council had no questions for the City Manager and indicated they did not need another budget discussion at the next work session.

ECONOMIC DEVELOPMENT UPDATE

Director of Economic Development Corrie Bobe explained Jason Wells was the president of Kyocera SGS Tech Hub, which was located in the Cyber Park, and this Thursday was a signing day at the Gene Haas Center for Integrated Machining, and he wanted to invite Council. Over the past year they have had three interns that have participated in the Third Year Capstone Program. They have been so impressed by these three individuals that they were officially signing them on as full-time employees that day. Mr. Wells felt that was a great way, with Council, to celebrate the investments this region has made with the workforce training system as well as celebrate these individuals moving into full time employment. It will take place at 2:00 p.m. and hoped that Council would be able to participate; it will also be streamed on River City TV.

COMMUNICATIONS

Vice Mayor Miller noted they would do their employee evaluations at the next Council Meeting during a Closed Meeting.

CLOSED MEETING

At 9:53 p.m., Vice Mayor Miller **moved** that this meeting of the City Council of the City of Danville, Virginia be recessed and that Council immediately reconvene in a Closed Meeting for the following purposes: discussion or consideration of the acquisition and/or disposition of real property for a public purpose where discussion in an open meeting would adversely impact the bargaining position of the City as permitted by Subsection A(3) of Section 2.2-3711 of the Code of Virginia, 1950 as amended, and more specifically to consider a discussion regarding the sale and/or potential purchase of a specific parcel of property for use by prospective industrial, commercial, and mixed use projects looking to locate in the City; and an Economic Development discussion and update concerning a prospective business or industry where no previous announcement has been made and/or the expansion of an existing business or industry where no previous announcement has been made as permitted by Subsection (A)(5) of Section 2.2-

April 5, 2022

3711 of the Code of Virginia, 1950, as amended and more specifically to consider: an update on multiple prospective commercial, mixed use, and industrial projects considering locating within the City and/or locating within the region in cooperation with the City's regional partners.

The Motion was **seconded** by Council Member Buckner and carried by the following vote:

VOTE: 9-0
AYE: Buckner, Campbell, Hood, Jones, Mayo,
Miller, Saunders, Vogler and Whittle (9)
NAY: None

Upon unanimous vote at 10:19 p.m., Council reconvened in open session and Vice Mayor Miller **moved** for adoption of the following Resolution:

CERTIFICATE OF CLOSED MEETING

WHEREAS, the Council convened in Closed Meeting on this date pursuant to an affirmative recorded vote and in accordance with the provisions of the Freedom of Information Act; and

WHEREAS, Section 2.1-344.1 of the Code of Virginia, 1950, as amended, requires a Certification by the Council that such Closed Meeting was conducted in conformity with Virginia Law;

NOW, THEREFORE, BE IT RESOLVED that the Council hereby certifies that, to the best of each Member's knowledge, (i) only public business matters lawfully exempted from open meeting requirements of Virginia Law under Section 2.2-3711 were heard, discussed or considered, and (ii) only such public business matters as were identified in the Motion by which the Closed Meeting was convened were heard, discussed or considered by the Committee.

The Motion was **seconded** by Council Member Buckner and carried by the following vote:

VOTE: 9-0
AYE: Buckner, Campbell, Hood, Jones, Mayo,
Miller, Saunders, Vogler and Whittle (9)
NAY: None

MEETING ADJOURNED AT 10:20 P.M.

APPROVED:

MAYOR

ATTEST:

CITY CLERK

Council Letter

City of Danville, Virginia



CL-2755

New Business A.

City Council Regular Meeting

Meeting Date: 05/03/2022

Subject: City Code Change - Elderly and Disabled Real Estate Tax Exemption

From: Michael Adkins, Director of Finance

COUNCIL ACTION

Business Meeting: 05/03/2022

SUMMARY

This ordinance will change Danville City Code Sections 37-62 and 37-66 with regard to the City's Elderly and Disabled Real Estate Tax Exemption Program. The maximum allowed income will be increased from \$20,000 to \$30,000, allowing increased participation in the exemption program. In addition, the option for qualified applicants to defer real estate tax will be replaced with an exemption of tax.

BACKGROUND

Danville City Code Sections 37-62 and 37-66 provide for the exemption or deferral of real estate taxes for qualifying elderly or disabled citizens. Currently, those who are at least 65 years old and have household income of \$20,000 or less qualify for this program. An exemption of 100% of real estate taxes is granted to those with income of \$10,000 or less; 50% exemption to those with income between \$10,001 and \$15,000; and 100% deferral to those with income between \$15,001 and \$20,000. The income limits for this program have not been adjusted since its inception several decades ago. In addition, the deferral program often results in an unanticipated tax burden for surviving family members that often goes unpaid. For these reasons, staff is suggesting to increase the income limit from \$20,000 to \$30,000 and replacing the deferral option with an exemption.

The suggested code change will provide qualifying applicants 100% exemption for income between \$0 and \$15,000 and 50% exemption for those with income between \$15,001 and \$30,000. Because the exact household income of citizens and the number of households that will qualify under new income limits is unknown, it is difficult to estimate the budgetary impact of changes to this program. Staff is recommending this as an initial change. Once the financial impact of this change is realized, consideration can be given to additional changes.

RECOMMENDATION

Staff recommends adoption of the attached ordinance to incorporate the suggested changes to the City's tax exemption program for the elderly and/or the permanently and totally disabled.

Attachments

Ordinance

PRESENTED: _____

ADOPTED: _____

ORDINANCE NO. 2022-____.____

AN ORDINANCE AMENDING AND REORDAINING SECTION 37-62, ENTITLED "GENERAL RESTRICTIONS, CONDITIONS AND QUALIFICATIONS" AND SECTION 37-66, ENTITLED "AMOUNT OF EXEMPTION AND/OR DEFERRAL" OF ARTICLE IV, ENTITLED "REAL ESTATE AND MOBILE HOME TAX EXEMPTION AND DEFERRAL FOR CERTAIN ELDERLY AND DISABLED PERSONS," OF CHAPTER 37, ENTITLED "TAXATION," OF THE CODE OF THE CITY OF DANVILLE, 1986, AS AMENDED.

NOW THEREFORE, BE IT ORDAINED by the Council of the City of Danville, Virginia, that Article IV, entitled "Real Estate and Mobile Home Tax Exemption and Deferral for Certain Elderly and Disabled Persons," of Chapter 37, entitled "Taxation," of the Code of the City of Danville, Virginia 1986 as amended, be, and the same is hereby, amended and reordained to read as follows:

Chapter 37. TAXATION

Article IV. Real Estate and Mobile Home Tax Exemption and Deferral for Certain Elderly and Disabled Persons

Sec. Sec. 37-62. General restrictions, conditions and qualifications.

- (a) The exemption and deferral provided by this article shall be subject to the following restrictions, conditions and qualifications:
- (1) That the title to the property for which such exemption and/or deferral is claimed must, on the thirtieth day of June immediately preceding the tax year for which the exemption and/or deferral is claimed, be owned or partially owned by the person or persons claiming the exemption and/or deferral.
 - (2) That the property for which the exemption and/or deferral is claimed must be occupied as the sole dwelling of the person or persons claiming the exemption and/or deferral.
 - (3) That the person or persons, claiming the exemption and/or deferral must, on the thirtieth day of June immediately preceding the tax year for which the exemption and/or deferral is claimed, be sixty-five (65) years of age or older, or be permanently and totally disabled.

- (4) That the total income during the calendar year immediately preceding the tax year for which the exemption and/or deferral is claimed, from all sources of the owners of the dwelling living therein and of the owners' relative living in the dwelling for which tax relief as set forth under this article is claimed does not exceed ~~twenty~~ **thirty** thousand dollars (~~\$230,000.00~~); provided that the first four thousand dollars (\$4,000.00) of income of such relative, other than a spouse, who is living in the dwelling shall not be included in such total income. An owner who is permanently and totally disabled shall deduct an additional seven thousand five hundred dollars (\$7,500.00) from their total income for a total of ~~twenty~~ **thirty**-seven thousand five hundred dollars (~~\$237,500.00~~).
- (5) That the combined financial worth, including equitable interests of all owners of the dwelling for which the exemption is claimed, and of the spouse of each such owner, does not exceed fifty thousand dollars (\$50,000.00) as of the thirty-first day of December next preceding the tax year for which the exemption and/or deferral is claimed excluding:
- The value of the dwelling and the land, not exceeding one (1) acre, upon which it is situated.
 - The value of furnishings, including furniture, household appliances and other items typically used in a home.
- (6) That a dwelling jointly owned by a husband and wife may qualify if either spouse is over sixty-five (65) years of age or is permanently and totally disabled.
- (b) The fact that persons who are otherwise qualified for the exemption and/or deferral provided for in this article are residing in hospitals, nursing homes, convalescent homes or other facilities for physical or mental care for extended periods of time shall not be construed to mean that the property for which the tax exemption and/or deferral is claimed does not continue to be the sole dwelling of such persons during such extended periods of other residence, so long as such property is not used by or leased to others for consideration.

Sec. 37-66. Amount of exemption and/or deferral.

- (a) The tax exemption and/or deferral determined by the total income of those applicants who meet the combined financial worth standard of fifty thousand dollars (\$50,000.00) or less shall be determined as shown on the following schedule:

	Combined Financial Worth
Total Income	50,000 or less
0— ~~150,000~~	100% exemption
~~150,001—3045,000~~	50% exemption or 100% deferral plus 5% interest
~~15,001—20,000~~	Only 100% deferral plus 5% interest

The maximum annual exemption and/or deferral on any one (1) property shall be seven hundred dollars (\$700.00).

- (b) Such exemption and/or deferral shall be determined and credited only to the tax liability of the person or persons claiming and otherwise qualified for the exemption and/or deferral and for only the property and tax year for which the exemption and/or deferral is claimed and any deferral shall continue to constitute a lien on the dwelling.

AND BE IT FURTHER ORDAINED, that all other provisions and Sections of said Article, Chapter and Code be, and the same are hereby, continued in full force and effect unless and until the same are hereafter amended or repealed.

APPROVED:

Mayor

ATTEST:

Clerk

Approved as to
Form and Legal Sufficiency:

City Attorney

Council Letter

City of Danville, Virginia



CL-2762

New Business B.

City Council Regular Meeting

Meeting Date: 05/03/2022

Subject: Consideration of Rezoning 239 Eastwood Drive

From: Doug Plachcinski, Planning Division Director

COUNCIL ACTION

Business Meeting: 05/03/2022

SUMMARY

Rezoning Application PZ22-64, initiated by the Planning Director, requests to rezone parcel 239 Eastwood Drive (Parcel # 76494) from A-R Attached Residential to TO-C Transitional Office and Parcel #'s 76493, 76492, 76307, and 76306 from A-R Attached Residential to M- I, Manufacturing Industrial.

BACKGROUND

The zoning changes make the existing and long-established uses legally conforming. The Planning Commission, at their April 11, 2022 meeting, voted 7-0 to recommend approval of Rezoning Application PZ22-64.

RECOMMENDATION

The Planning Commission recommends that City Council approve rezoning application PZ22-64, initiated by the Planning Director, to rezone parcel 239 Eastwood Drive (Parcel # 76494) from A-R Attached Residential to TO-C Transitional Office and Parcel #'s 76493, 76492, 76307, and 76306 from A-R Attached Residential to M- I, Manufacturing Industrial.

Attachments

Ordinance

Planning Backup

PRESENTED: _____

ADOPTED: _____

ORDINANCE NO. 2022____.____

AN ORDINANCE REZONING 239 EASTWOOD DRIVE (PARCEL # 76494) FROM A-R ATTACHED RESIDENTIAL TO TO-C TRANSITIONAL OFFICE AND PARCEL #'S 76493, 76492, 76307, AND 76306 FROM A-R ATTACHED RESIDENTIAL TO M- I MANUFACTURING INDUSTRIAL.

WHEREAS, in accordance with the Code of the City of Danville, Virginia, 1986, as amended, the Planning Director initiated the rezoning of 239 Eastwood Drive (Parcel # 76494) from A-R Attached Residential to TO-C Transitional Office and Parcel #'s 76493, 76492, 76307, and 76306 from A-R Attached Residential to M- I Manufacturing Industrial.

NOW THEREFORE, BE IT ORDAINED, by the Council of the City of Danville, Virginia, that the report of the Planning Commission recommending approval of Rezoning PZ22-64, initiated by the Planning Director, to rezone 239 Eastwood Drive (Parcel # 76494) from A-R Attached Residential to TO-C Transitional Office and Parcel #'s 76493, 76492, 76307, and 76306 from A-R Attached Residential to M- I Manufacturing Industrial, is hereby received; and

BE IT FURTHER ORDAINED, that in consideration of said report and the public hearing this day held by Council, Rezoning PZ22-64, initiated by the Planning Director, to rezone 239 Eastwood Drive (Parcel # 76494) from A-R Attached Residential to TO-C Transitional Office and Parcel #'s 76493, 76492, 76307, and 76306 from A-R Attached Residential to M- I Manufacturing Industrial, is hereby approved; and

BE IT FURTHER ORDAINED that 239 Eastwood Drive (Parcel # 76494) and Parcel #'s 76493, 76492, 76307, and 76306 on the City of Danville, Virginia Zoning District Map are hereby amended to reflect the same.

APPROVED:

Mayor

ATTEST:

City Clerk

APPROVED AS TO
FORM AND LEGAL SUFFICIENCY:

City Attorney



City of Danville
427 Patton Street, Suite 208
Danville VA, 24541
Phone: (434) 799-5260

City Planning Commission

RECOMMENDATION

DATE: APRIL 12, 2022
TO: CITY COUNCIL
FROM: CITY PLANNING COMMISSION
RE: REZONING APPLICATION PZ22-64

REQUEST

Rezoning Application PZ22-64, initiated by the Planning Director, requests to rezone parcel 239 Eastwood Drive (Parcel # 76494) from A-R Attached Residential to TO-C Transitional Office and Parcel #'s 76493, 76492, 76307, and 76306 from A-R Attached Residential to M- I Manufacturing Industrial. The zoning changes make the existing and long-established uses legally conforming.

RECOMMENDATION

The Planning Commission, at their April 11, 2022 meeting, voted 7-0 to recommend approval of Rezoning Application PZ22-64.

Mr. Harold E. Garrison, Chair

RESPONSES

Thirty-two (32) notices were sent to surrounding property owners within three hundred (300) feet of the subject property. Nine (9) responses were received. Nine (9) Unopposed (D & H Farms LLC, Eanes, and Ham Family Investments LLC with eight parcels). Zero (0) Opposed.



City Planning Commission

STAFF REPORT

DATE: April 11, 2022
TO: Planning Commission
FROM: Doug Plachcinski, AICP Planning Division Director + Zoning Administrator
RE: REZONING APPLICATION APPLICATION – 239 EASTWOOD DRIVE

Rezoning Application PZ22-64, initiated by the Planning Director, requests to rezone parcel 239 Eastwood Drive (Parcel # 76494) from A-R Attached Residential to TO-C Transitional Office and Parcel #'s 76493, 76492, 76307, and 76306 from A-R Attached Residential to M- I Manufacturing Industrial. The zoning changes make the existing and long-established uses legally conforming.

BACKGROUND

The zoning changes make the existing and long-established uses legally conforming.

STAFF ANALYSIS AND RECOMMENDATION

I initiated this zoning ordinance because the asphalt plant was zoned residential when the area was annexed into the City and that limits improvements that can occur on the site. Existing operations will remain.

RECOMMENDATION

The Planning Division recommends that the Planning Commission endorse Rezoning Application PZ22-64 for City Council approval.

CITY PLANNING COMMISSION ALTERNATIVE ACTIONS

- Recommend continuation to a future meeting.
- Recommend approval as submitted.
- Recommend approval with conditions determined by the Planning Commission.
- Recommend denial.

ATTACHMENTS

- ✓ Application
- ✓ Data Sheet
- ✓ Property Ownership/Zoning Map
- ✓ Existing Land Use Map
- ✓ Future Land Use Map

REZONING APPLICATION REQUEST DATA SHEET PZ22-64

PUBLIC HEARING DATES:	APRIL 11, 2022 PLANNING COMMISSION AT 3PM
LOCATION OF PROPERTY:	PARCEL #'S 76493, 76492, 76307, AND 76306
PRESENT ZONE:	A-R ATTACHED RESIDENTIAL
PROPOSED ZONE:	M-I MANUFACTURING INDUSTRIAL
ACTION REQUESTED:	REZONING
PRESENT USE OF PROPERTY:	OFFICE
PROPOSED USE OF PROPERTY:	OFFICE
FUTURE LAND USE DESIGNATION:	INDUSTRIAL
PROPERTY OWNER (S):	W-L CONSTRUCTION & PAVING INC
NAME OF APPLICANT (S):	PLANNING DIRECTOR
PROPERTY BORDERED BY:	MIXED VACANT INDUSTRIAL TO THE EAST AND SOUTH, MIXED VACANT COMMERCIAL AND RESIDENTIAL TO THE NORTH AND WEST
ACREAGE:	APPROXIMATELY 17.74 ACRES TOTAL
CHARACTER OF VICINITY:	INDUSTRIAL AND WAREHOUSING
INGRESS AND EGRESS:	EASTWOOD DRIVE
TRAFFIC VOLUME:	NO COUNTS AVAILABLE



2019 AERIAL VIEW OF AREA SURROUNDING SUBJECT PROPERTY



Prepared by:
Planning Division
3/31/2022

Disclaimer: Information contained on this map is to be used for reference purposes only. The City of Danville is not responsible for any inaccuracies herein contained. The City of Danville makes no representation of warranty as to this map's accuracy, and in particular, its accuracy in labeling, dimensions, contours, property boundaries, or placement or location of any map features thereon. No responsibility is assumed for damages or other liabilities due to the accuracy, availability, use or misuse of the information herein provided.

SURROUNDING PROPERTY OWNERS AND ZONING WITHIN 300 FEET OF SUBJECT PROPERTY



Prepared by:
Planning Division
3/31/2022

Disclaimer: Information contained on this map is to be used for reference purposes only. The City of Danville is not responsible for any inaccuracies herein contained. The City of Danville makes no representation of warranty as to this map's accuracy, and in particular, its accuracy in labeling, dimensions, contours, property boundaries, or placement or location of any map features thereon. No responsibility is assumed for damages or other liabilities due to the accuracy, availability, use or misuse of the information herein provided.

Council Letter

City of Danville, Virginia



CL-2764

New Business C.

City Council Regular Meeting

Meeting Date: 05/03/2022

Subject: Consideration of a Special Use Permit at 126 East Thomas Street.

From: Doug Plachcinski, Planning Division Director

COUNCIL ACTION

Business Meeting: 05/03/2022

SUMMARY

Special Use Permit Application PZ22-45, filed by SOAP SUPPLIES LLC, requests a Special Use Permit for a duplex according to Article 3.E.C.2. of the Danville Zoning Ordinance at 126 East Thomas Street (Parcel ID#03962). The applicant proposes converting the single-family dwelling into a duplex.

BACKGROUND

The building is not in the North Danville Historic District as shown in the City's parcel viewer, although it is adjacent. The sizes of the rooms in the building after renovations exceed minimum requirements under the statewide building code. The current property is valued at \$19,800. It is three (3) bedrooms and one (1) bath. The proposed floor plans show single bedrooms with an open floor plan living/dining / kitchen area. Each room in the building will have light and ingress/egress. A split entry vestibule will leave one front door with an increased energy efficiency design.

This property suffered a fire about a year ago. Prior to the fire, our systems show the property was in the housing choice voucher program. The owner is working through code enforcement violation notices, and they believe this renovation is the best way to reinvest in the property inside and out. The alternative is likely demolition because a three bedroom one bath configuration will not support the income stream necessary to finance repairs.

The Planning Commission, at their April 11, 2022, meeting, voted 7-0 to recommend approval of Special Use Permit PZ22-45.

RECOMMENDATION

The Planning Commission recommended that City Council approve a Special Use Permit, according to Article 3.E.C.2. of the Danville Zoning Ordinance at 126 East Thomas Street (Parcel ID#03962).

Attachments

Ordinance

Planning Backup

PRESENTED: _____

ADOPTED: _____

ORDINANCE NO. 2022____.____

AN ORDINANCE GRANTING SPECIAL USE PERMIT APPLICATION PZ22-45, FILED BY SOAP SUPPLIES LLC, REQUESTING A SPECIAL USE PERMIT FOR A DUPLEX RESIDENTIAL DWELLING ACCORDING TO ITEM 2, OF SECTION C., OF ARTICLE 3.E. OF CHAPTER 41, OF THE CODE OF THE CITY OF THE DANVILLE, VIRGINIA, 1986, AS AMENDED, AT 126 EAST THOMAS STREET (PARCEL ID # 03962).

NOW THEREFORE, BE IT ORDAINED, by the Council of the City of Danville, Virginia, that the report of the Planning Commission recommending approval of Special Use Permit Application PZ22-45, filed by Soap Supplies LLC requesting a Special Use Permit for a duplex residential dwelling according to Item 2, of Section C., entitled "Uses Permitted by Special Use Permit", of Article 3.E. entitled, "OT-R, OLD TOWN RESIDENTIAL DISTRICT (Urban Areas Single Family Residential District)", of Chapter 41 entitled, "ZONING CODE" of the Code of the City of Danville, Virginia, 1986, as amended, at 126 East Thomas Street (Parcel ID#03962) be, and is hereby received; and.

BE IT FURTHER ORDAINED, that in consideration of said report and the public hearing this day held by Council, Special Use Permit Application PZ22-45, filed by Soap Supplies LLC requesting a Special Use Permit for a duplex residential dwelling according to Item 2, of Section C. entitled, "Uses Permitted by Special Use Permit", of Article 3.E.. entitled, "OT-R, OLD TOWN RESIDENTIAL DISTRICT (Urban Areas Single Family Residential District)", of Chapter 41 entitled, "ZONING CODE" of the Code of the City of Danville, Virginia, 1986, as amended, at 126 East Thomas Street (Parcel ID#03962) be, and is hereby, approved.

APPROVED:

Mayor

ATTEST:

City Clerk

Approved as to
Form and Legal Sufficiency:

City Attorney



City of Danville
427 Patton Street, Suite 208
Danville VA, 24541
Phone: (434) 799-5260

City Planning Commission

RECOMMENDATION

DATE: APRIL 20, 2022
TO: CITY COUNCIL
FROM: CITY PLANNING COMMISSION
RE: SPECIAL USE PERMIT APPLICATION PZ22-45

REQUEST

Special Use Permit Application PZ22-45, filed by SOAP SUPPLIES LLC, requests a Special Use Permit for a duplex according to Article 3.E.C.2. of the Danville Zoning Ordinance at 126 East Thomas Street (Parcel ID#03962). The applicant proposes converting the single-family dwelling into a duplex.

RECOMMENDATION

The Planning Commission, at their April 11, 2022 meeting, voted 7-0 to recommend approval of Special Use Permit PZ22-45.

Mr. Harold E. Garrison, Chair



City Planning Commission

STAFF REPORT

DATE: April 11, 2022
TO: Planning Commission
FROM: Doug Plachcinski, AICP, CFM, Planning Division Director + Zoning Administrator
RE: SPECIAL USE PERMIT APPLICATION PUD – 126 EAST THOMAS STREET

Special Use Permit Application PZ22-45, filed by SOAP SUPPLIES LLC, requests a Special Use Permit for a duplex according to Article 3.E.C.2. of the Danville Zoning Ordinance at (Parcel ID#03962). The applicant proposes converting the single-family dwelling into a duplex.

BACKGROUND

The applicant proposes converting the single-family dwelling into a duplex.

STAFF ANALYSIS AND RECOMMENDATION

The City may allow a commercial recreation facility in the OT-R zoning district with a Special Use Permit.

If approved, the Special Use Permit is in harmony with OT-R District that establishes this district as one encompassing a reasonably high density for single family detached, two family, and duplex residences served by public water and sewer, public streets with curb and gutter, adequate drainage systems, street lighting, and sidewalks.

The neighboring adjacent properties are residential. If granted, this proposed Special Use Permit is in harmony with the Special Use Permit requirements in Article 6 Section B.

The Planning Division recommends approving this application as proposed and that the Planning Commission endorse Special Use Permit Application PZ22-45 for City Council approval

CITY PLANNING COMMISSION ALTERNATIVE ACTIONS

1. Recommend approval of Special Use Permit Application as submitted;
2. Recommend approval of Special Use Permit Application with conditions per Planning Commission; or
3. Recommend denial of Special Use Permit Application.

ATTACHMENTS

- ✓ Application
- ✓ Data Sheet
- ✓ Property Ownership/Zoning Map
- ✓ Existing Land Use Map
- ✓ Future Land Use Map

MEMORANDUM

DATE: **APRIL 11, 2022**

TO: **PLANNING COMMISSION**

FROM: **PLANNING STAFF**

SUBJECT: **RESPONSE FROM NEIGHBORING PROPERTY OWNERS**

REQUEST:

Special Use Permit Application PZ22-45, filed by SOAP SUPPLIES LLC, requests a Special Use Permit for a duplex according to Article 3.E.C.2. of the Danville Zoning Ordinance at (Parcel ID#03962). The applicant proposes converting the single-family dwelling into a duplex.

RESPONSES:

Forty-nine (49) notices were sent to surrounding property owners within three hundred (300) feet of the subject property. Two (2) responses were received. One (1) Unopposed (Samuels). One (1) Opposed (Duncan).

COMMENTS:

See Attachments



City of Danville
Community Development
Planning Division

**PLANNING COMMISSION
SPECIAL USE PERMIT APPLICATION**

PLANNING DIVISION PROVIDED INFORMATION

Application #: PZ22-00045 PC Meeting Date: _____
Date Received: 3/9/22 Received By: Williss
Parcel ID: 03962 Address: 126 E Thomas 24543
Existing Zoning: OT-R Future Land Use: _____

APPLICANT PROVIDED INFORMATION

Property Location (address/ID#): 126 EAST THOMAS ST DANVILLE, VA 24543
Applicant: SOAP SUPPLIES LLC PARCEL ID: 03962
Applicant's Address: 124 EAST THOMAS ST DANVILLE, VA 24543
Applicant's Phone Number: (203) 981-3283
Applicant's E-mail: PURPOSEOFALLSMITH360@GMAIL.COM
Describe Proposed Development: WITHIN STRUCTURE; A FIRE WALL WILL SPLIT UP BOTH SIDES; EXISTING KITCHEN INTO A BATHROOM; NO ADDITIONAL STRUCTURE ADDED.

Article 6 Section B. General Standards and Criteria for Special Use Permit Review. Please explain how the Special Use Permit request meets the following review standards and criteria:

1. The proposed use shall be: a. in harmony with the adopted Comprehensive Plan; b. in harmony with the intent and purpose of the zoning district in which the use is proposed to be located; and c. in harmony with the character of adjacent properties and the surrounding neighborhoods and also with existing and proposed development.

NEIGHBORHOOD CONSISTS OF SINGLE & MULTI-FAMILY DWELLINGS.

2. The proposed use shall be adequately served by essential public services such as streets, drainage facilities, fire protection and public water and sewer facilities:

Yes, CORRECT. ADDITIONAL GAS METER, ELECTRICAL BOX AND PLUMBING WILL BE OBTAINED. ALL BILLS WILL BE ACCOUNTED FOR BY DANVILLE UTILITIES.

3. The proposed use shall not result in the destruction, loss or damage of any feature determined to be of significant ecological, scenic or historic importance:

YES, CORRECT. IN NO CASE, SHALL THERE BE MORE THAN ONE

PRINCIPAL BUILDING ON LOT UNLESS OTHERWISE PROVIDED.

4. The proposed use shall be designed, sited and landscaped so that the use will not hinder or discourage the appropriate development or use of adjacent properties and surrounding neighborhoods:

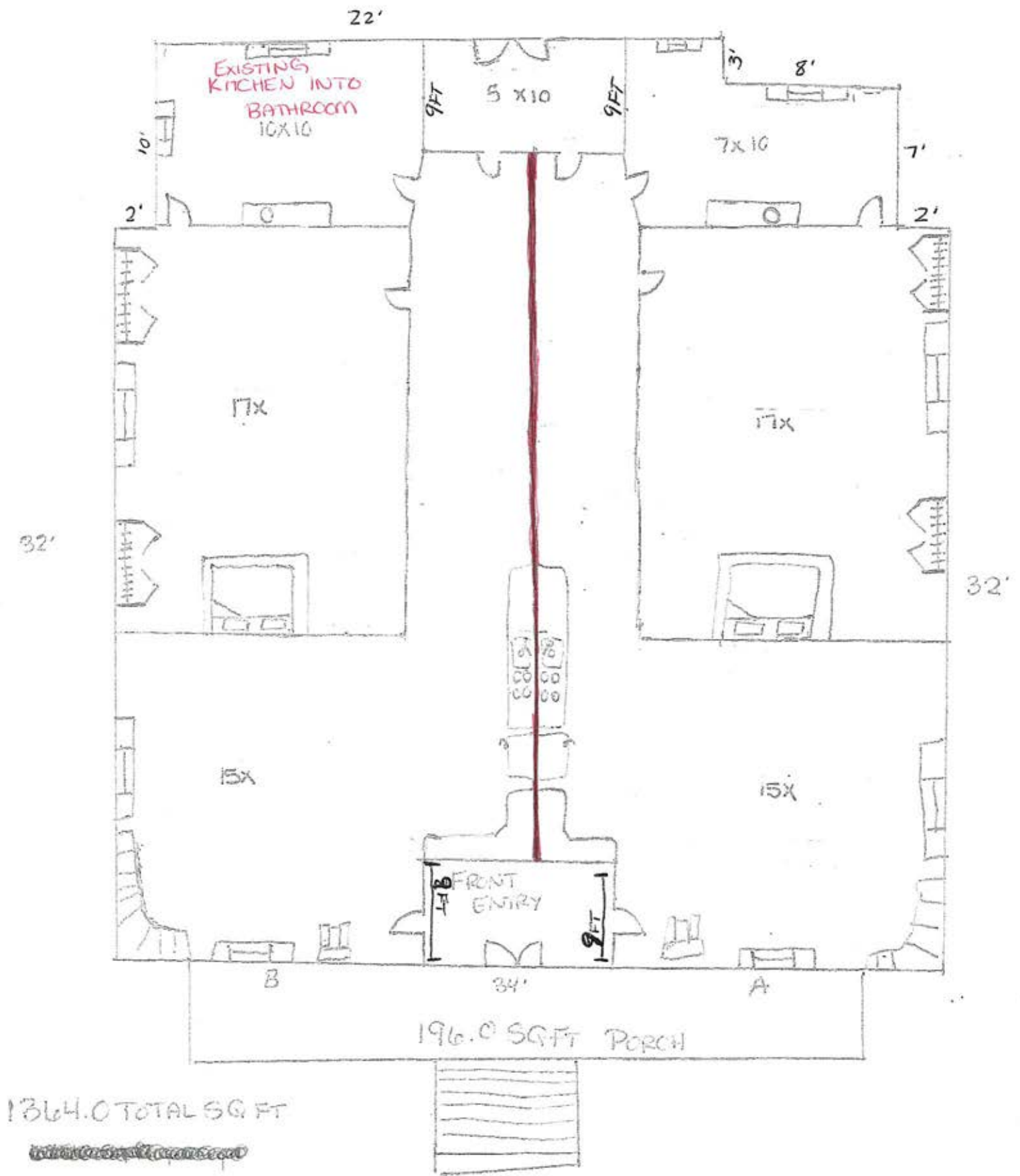
YES CORRECT. THE CONVERSION FROM SINGLE-FAMILY TO DUPLEX DWELLING
FOR LEASE NOT SALE, SHALL CONSTITUTE A CHANGE IN USE

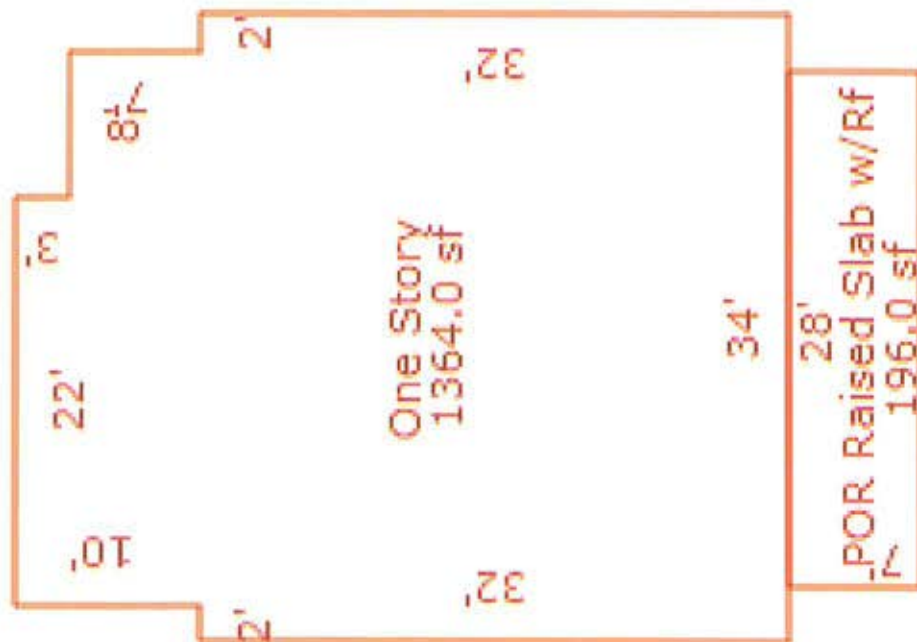

Applicant Signature

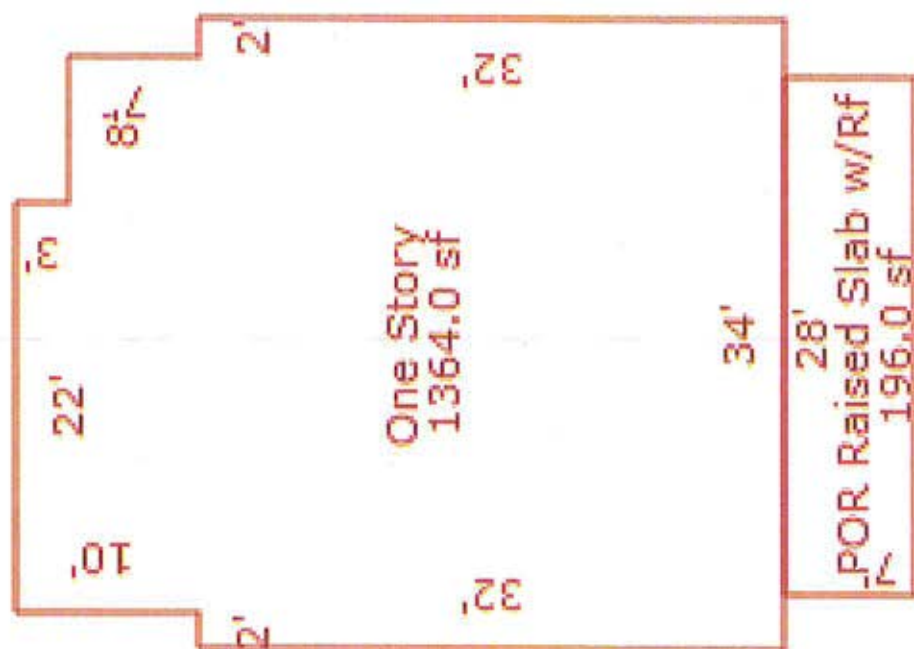

Property Owner Signature
(if not applicant)

Article 6. Section D. Application Requirements for Special Use Permit.

1. An application for a special use permit shall be made by the owner, contract purchaser with the owner's written consent, or the owner's agent, of the property on which the proposed use is to be located. The application shall be submitted to the Director of Planning/Zoning Administrator, and shall be accompanied by the filing fee as established by the City Council.
2. If the request for a special use permit has been denied by City Council, a request in substantially the same form shall not be resubmitted within one (1) year of the date of denial.
3. The application shall include the following information:
 - a. A preliminary site plan in accordance with the Site Plan Regulations.
 - b. A description of the proposed use and, where applicable, the hours of operation and the proposed number of employees/patrons.
 - c. A written statement of proposed project compatibility with the following:
 - (1.) The Comprehensive Plan.
 - (2.) The applicable zoning district.
 - (3.) The surrounding properties.
 - (4.) Current and future neighborhood conditions.
 - (5.) Pedestrian and vehicular traffic patterns, on-site and off-site.
 - (6.) Adequate public facilities.
 - d. When requested by the Director of Planning/Zoning Administrator, the Planning Commission, or the City Council, the following information shall be provided by the applicant:
 - (1.) The architectural elevations and floor plans of proposed building(s).
 - (2.) Traffic impact analysis.
 - (3.) Fiscal impact analysis.
 - (4.) Parking and site circulation analysis.
 - (5.) Photographs of property and surrounding area.
 - (6.) Environmental impact statement.







SPECIAL USE PERMIT REQUEST DATA SHEET PLSUP PZ22-50

PUBLIC HEARING DATES: APRIL 11, 2022
PLANNING COMMISSION AT 3PM

LOCATION OF PROPERTY: 126 E THOMAS STREET

PRESENT ZONE: OT-R OLD TOWN RESIDENTIAL

PROPOSED ZONE: NO CHANGE

ACTION REQUESTED: THE APPLICANT PROPOSES CONVERTING THE SINGLE-FAMILY DWELLING INTO A DUPLEX.

PRESENT USE OF PROPERTY: SINGLE-FAMILY DWELLING

PROPOSED USE OF PROPERTY: DUPLEX

FUTURE LAND USE DESIGNATION: RESIDENTIAL

PROPERTY OWNER (S): SOAP SUPPLIES LLC

NAME OF APPLICANT (S): SOAP SUPPLIES LLC

PROPERTY BORDERED BY: RESIDENTIAL

ACREAGE: APPROXIMATELY 0.16 ACRES TOTAL

CHARACTER OF VICINITY: RESIDENTIAL NEIGHBORHOOD

INGRESS AND EGRESS: E. THOMAS STREET

TRAFFIC VOLUME: NO COUNTS AVAILABLE

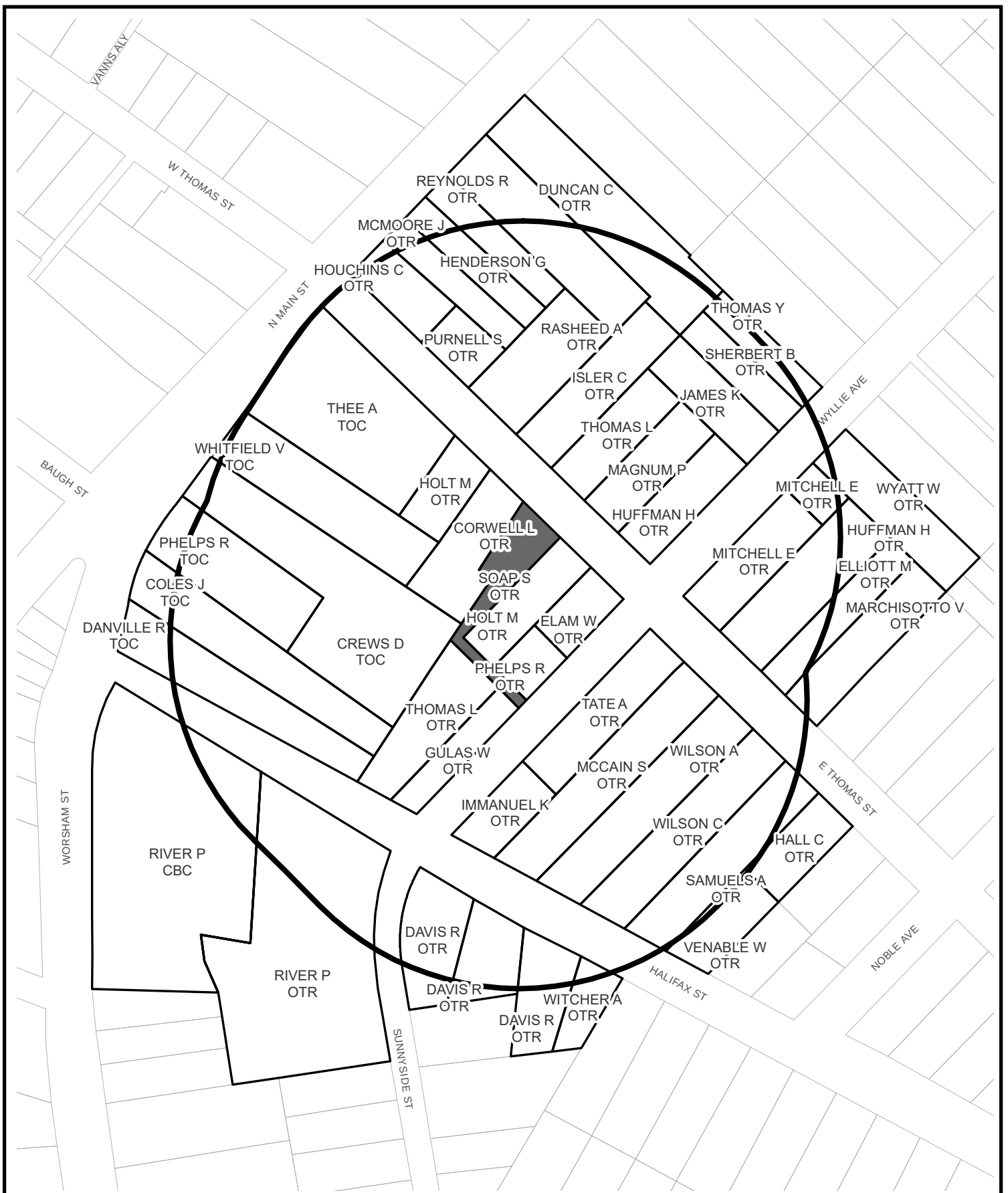


2019 AERIAL VIEW OF AREA SURROUNDING SUBJECT PROPERTY



Prepared by:
Planning Division
3/31/2022

Disclaimer: Information contained on this map is to be used for reference purposes only. The City of Danville is not responsible for any inaccuracies herein contained. The City of Danville makes no representation of warranty as to this map's accuracy, and in particular, its accuracy in labeling, dimensions, contours, property boundaries, or placement or location of any map features thereon. No responsibility is assumed for damages or other liabilities due to the accuracy, availability, use or misuse of the information herein provided.



SURROUNDING PROPERTY OWNERS AND ZONING WITHIN 300 FEET OF SUBJECT PROPERTY



Prepared by:
Planning Division
3/31/2022

Disclaimer: Information contained on this map is to be used for reference purposes only. The City of Danville is not responsible for any inaccuracies herein contained. The City of Danville makes no representation of warranty as to this map's accuracy, and in particular, its accuracy in labeling, dimensions, contours, property boundaries, or placement or location of any map features thereon. No responsibility is assumed for damages or other liabilities due to the accuracy, availability, use or misuse of the information herein provided.

Council Letter

City of Danville, Virginia



CL-2765

New Business D.

City Council Regular Meeting

Meeting Date: 05/03/2022

Subject: Consideration of a Special Use Permit on Dudley Street.

From: Doug Plachcinski, Planning Division Director

COUNCIL ACTION

Business Meeting: 05/03/2022

SUMMARY

Special Use Permit Application PZ22-50, filed by Yeon Hee Kim and Hae Choi Kim, requests a Special Use Permit for an accessory building or accessory use without a primary building being located on the parcel according to Article 3.E.C.23. of the Danville Zoning Ordinance on Dudley Street (Parcel IDs #25094 and #25091).

BACKGROUND

The applicant built an outdoor seating area to serve their adjacent restaurant. The Planning Commission, at their April 11, 2022 meeting, voted 7-0 to recommend approval of Special Use Permit PZ22-50.

RECOMMENDATION

The Planning Commission recommended that City Council approve a Special Use Permit, according to Article 3.E.C.23. of the Danville Zoning Ordinance on Dudley Street (Parcel IDs #25094 and #25091).

Attachments

Ordinance

Planning Backup

PRESENTED: _____

ADOPTED: _____

ORDINANCE NO. 2022____.____

AN ORDINANCE GRANTING SPECIAL USE PERMIT APPLICATION PZ22-50, FILED BY YEON HEE KIM AND HAE CHOI KIM, REQUESTING A SPECIAL USE PERMIT FOR AN ACCESSORY BUILDING OR ACCESSORY USE WITHOUT A PRIMARY BUILDING BEING LOCATED ON THE PARCEL ACCORDING TO ITEM 23., OF SECTION C., OF ARTICLE 3.E. OF CHAPTER 41., OF THE CODE OF THE CITY OF DANVILLE, VIRGINIA, 1986, AS AMENDED, ON DUDLEY STREET (PARCEL ID #'S 25094 AND 25091).

NOW THEREFORE, BE IT ORDAINED, by the Council of the City of Danville, Virginia, that the report of the Planning Commission recommending approval of Special Use Permit Application PZ22-50, filed by Yeon Hee Kim and Hae Choi Kim, requesting a Special Use Permit for an accessory building or accessory use without a primary building being located on the parcel according to Item 23., of Section C., entitled "Uses Permitted by Special Use Permit.", of Article 3.E., entitled "OT-R, OLD TOWN RESIDENTIAL DISTRICT (Urban Areas Single Family Residential District).", of Chapter 41., entitled "ZONING CODE" of the Code of the City of Danville, Virginia, 1986, as amended, on Dudley Street (Parcel ID #'s 25094 and 25091) be, and is hereby, received; and

BE IT FURTHER ORDAINED, that in consideration of said report and the public hearing this day held by Council, Special Use Permit Application PZ22-50, filed by Yeon Hee Kim and Hae Choi Kim, requesting a Special Use Permit for an accessory building or accessory use without a primary building being located on the parcel according to Item 23., of Section C., entitled "Uses Permitted by Special Use Permit.", of Article 3.E. entitled "OT-R, OLD TOWN RESIDENTIAL DISTRICT (Urban Areas Single Family Residential District)." of Chapter 41., entitled "ZONING CODE" of the Code of the City of Danville, Virginia, 1986, as amended, on Dudley Street (Parcel ID #'s 25094 and 25091) be, and is hereby, approved.

APPROVED:

Mayor

ATTEST:

City Clerk

Approved as to
Form and Legal Sufficiency:

City Attorney



City of Danville
427 Patton Street, Suite 208
Danville VA, 24541
Phone: (434) 799-5260

City Planning Commission

RECOMMENDATION

DATE: APRIL 20, 2022
TO: CITY COUNCIL
FROM: CITY PLANNING COMMISSION
RE: SPECIAL USE PERMIT APPLICATION PZ22-50

REQUEST

Special Use Permit Application PZ22-50, filed by Yeon Hee Kim and Hae Choi Kim, requests a Special Use Permit for an accessory building or accessory use without a primary building being located on the parcel according to Article 3.E.C.23. of the Danville Zoning Ordinance on Dudley Street (Parcel IDs #25094 and #25091).

RECOMMENDATION

The Planning Commission, at their April 11, 2022 meeting, voted 7-0 to recommend approval of Special Use Permit PZ22-50.

Mr. Harold E. Garrison, Chair

MEMORANDUM

DATE: APRIL 11, 2022

TO: PLANNING COMMISSION

FROM: PLANNING STAFF

SUBJECT: RESPONSE FROM NEIGHBORING PROPERTY OWNERS

REQUEST:

Special Use Permit Application PZ22-50, filed by Yeon Hee Kim and Hae Choi Kim, requests a Special Use Permit for an accessory building or accessory use without a primary building being located on the parcel according to Article 3.E.C.23. of the Danville Zoning Ordinance at (Parcel IDs #25094 and #25091). The applicant built an outdoor seating area to serve their adjacent restaurant.

RESPONSES:

Twenty-seven (27) notices were sent to surrounding property owners within three hundred (300) feet of the subject property. Eight (8) responses were received. Eight (8) Unopposed (Brown, Chol, L & G Rentals LLC, Mantooth, Pounds, Robinson, Somang Enterprise Inc., and V C Disbributing Co Inc). Zero (0) Opposed.

COMMENTS: None



City Planning Commission

STAFF REPORT

DATE: April 11, 2022
TO: Planning Commission
FROM: Doug Plachcinski, AICP, CFM, Planning Division Director + Zoning Administrator
RE: SPECIAL USE PERMIT APPLICATION PUD – 78 & 74 DUDLEY STREET

Special Use Permit Application PZ22-50, filed by Yeon Hee Kim and Hae Choi Kim, requests a Special Use Permit for an accessory building or accessory use without a primary building being located on the parcel according to Article 3.E.C.23. of the Danville Zoning Ordinance at (Parcel IDs #25094 and #25091). The applicant built an outdoor seating area to serve their adjacent restaurant.

BACKGROUND

The applicant built an outdoor seating area to serve their adjacent restaurant.

STAFF ANALYSIS AND RECOMMENDATION

The City may allow a an accessory building or accessory use without a primary building being located on the parcel in the OT-R zoning district with a Special Use Permit.

If approved, the Special Use Permit is in harmony the Special Use Permit requirements in Chapter 41, Article 6 Section B.

This project supports the adjacent business under the same ownership.

The Planning Division recommends approving this application as proposed and that the Planning Commission endorse Special Use Permit Application PZ22-50 for City Council approval as presented.

CITY PLANNING COMMISSION ALTERNATIVE ACTIONS

1. Recommend approval of Special Use Permit Application as submitted;
2. Recommend approval of Special Use Permit Application with conditions per Planning Commission; or
3. Recommend denial of Special Use Permit Application.

ATTACHMENTS

- ✓ Application
- ✓ Data Sheet
- ✓ Property Ownership/Zoning Map
- ✓ Existing Land Use Map
- ✓ Future Land Use Map



City of Danville
Community Development
Planning Division

**PLANNING COMMISSION
SPECIAL USE PERMIT APPLICATION**

PAID

PLANNING DIVISION PROVIDED INFORMATION

Application #: 0222-00050 PC Meeting Date: _____
Date Received: 3/10/22 Received By: _____
Parcel ID: 25094 & 25091 Address: 78 + 74 Dudley St
Existing Zoning: OT-R Future Land Use: _____

APPLICANT PROVIDED INFORMATION

Property Location (address/ID#): 78, 74 Dudley St. Danville, VA 24541
Applicant: Yeon hee Kim, Hae Chol Kim
Applicant's Address: 3816 Windstream way Jamestown, NC 27282.
Applicant's Phone Number: 336-267-3010, 336-267-7468
Applicant's E-mail: bento9191@gmail.com

Describe Proposed Development: Due to the Covid-19, the outdoor dining take-out food deck structure was build in order to provide fresh outdoor air to customers. when you're outside dining, fresh air is

Article 6 Section B. General Standards and Criteria for Special Use Permit Review. Please explain how the Special Use Permit request meets the following review standards and criteria:

1. The proposed use shall be: a. in harmony with the adopted Comprehensive Plan; b. in harmony with the intent and purpose of the zoning district in which the use is proposed to be located; and c. in harmony with the character of adjacent properties and the surrounding neighborhoods and also with existing and proposed development.

The Covid-19 outdoor dining take-out deck is an accessory structure of the main restaurant which can be access from the restaurant parking lot.

2. The proposed use shall be adequately served by essential public services such as streets, drainage facilities, fire protection and public water and sewer facilities:

The Covid-19 outdoor dining take-out deck can be adequately served by essential public services from the restaurant parking lot.

3. The proposed use shall not result in the destruction, loss or damage of any feature determined to be of significant ecological, scenic or historic importance:

Because the Covid-19 outdoor deck has no roof, the deck is considered pervious to stormwater run-off; thus, it will not result in destruction, loss or damage of any feature determined to be of significant ecological scenic or historic importance.

4. The proposed use shall be designed, sited and landscaped so that the use will not hinder or discourage the appropriate development or use of adjacent properties and surrounding neighborhoods:

The landscape buffer shall be provided around the Covid-19 outdoor deck as per the landscape ordinance.

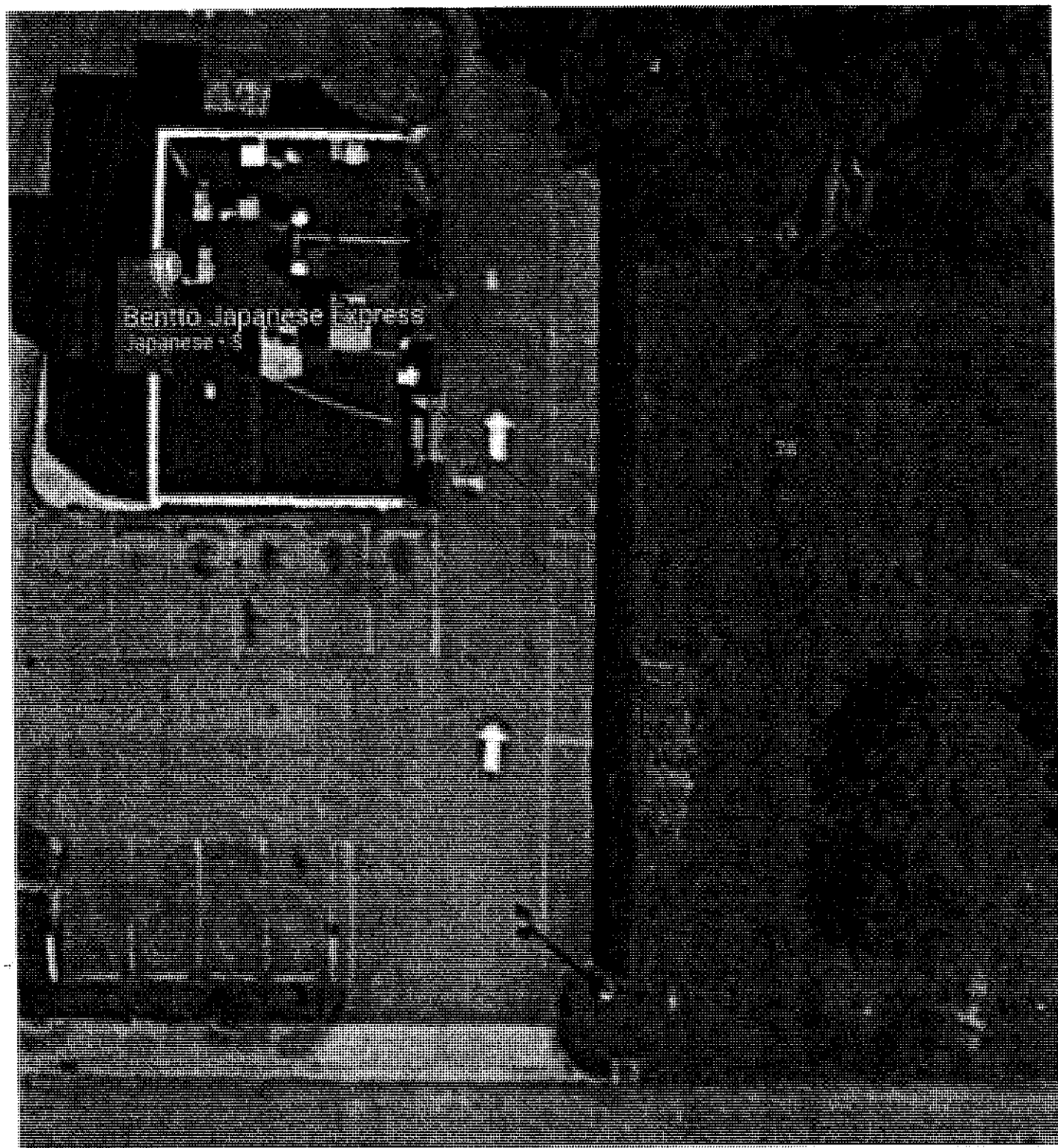
Km H Km

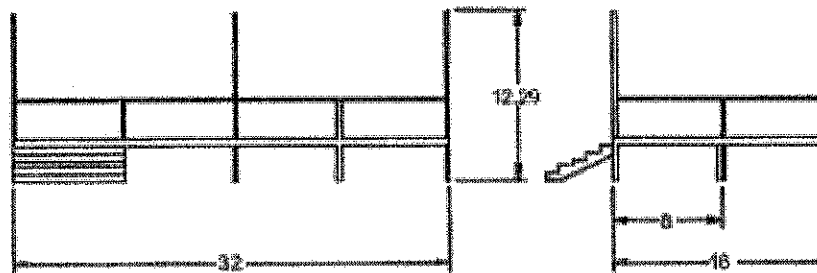
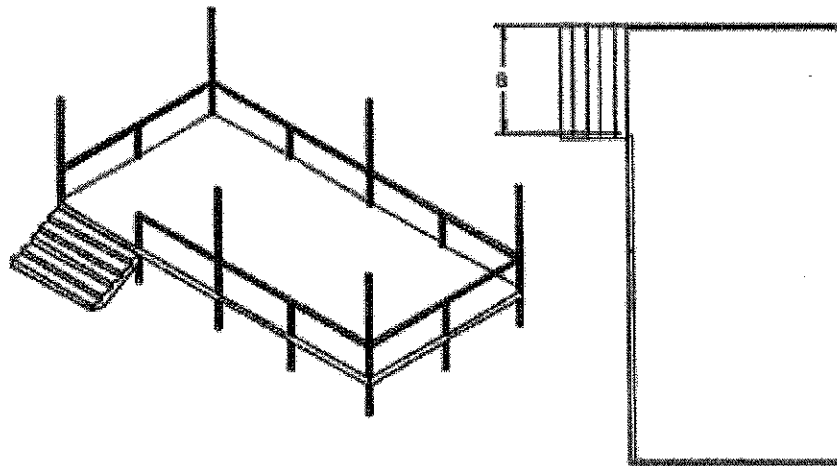
Applicant Signature

Property Owner Signature
(if not applicant)

Article 6. Section D. Application Requirements for Special Use Permit.

1. An application for a special use permit shall be made by the owner, contract purchaser with the owner's written consent, or the owner's agent, of the property on which the proposed use is to be located. The application shall be submitted to the Director of Planning/Zoning Administrator, and shall be accompanied by the filing fee as established by the City Council.
2. If the request for a special use permit has been denied by City Council, a request in substantially the same form shall not be resubmitted within one (1) year of the date of denial.
3. The application shall include the following information:
 - a. A preliminary site plan in accordance with the Site Plan Regulations.
 - b. A description of the proposed use and, where applicable, the hours of operation and the proposed number of employees/patrons.
 - c. A written statement of proposed project compatibility with the following:
 - (1.) The Comprehensive Plan.
 - (2.) The applicable zoning district.
 - (3.) The surrounding properties.
 - (4.) Current and future neighborhood conditions.
 - (5.) Pedestrian and vehicular traffic patterns, on-site and off-site.
 - (6.) Adequate public facilities.
 - d. When requested by the Director of Planning/Zoning Administrator, the Planning Commission, or the City Council, the following information shall be provided by the applicant:
 - (1.) The architectural elevations and floor plans of proposed building(s).
 - (2.) Traffic impact analysis.
 - (3.) Fiscal impact analysis.
 - (4.) Parking and site circulation analysis.
 - (5.) Photographs of property and surrounding area.
 - (6.) Environmental impact statement.





Benttos Deck

SPECIAL USE PERMIT REQUEST DATA SHEET PLSUP PZ22-50

PUBLIC HEARING DATES:	APRIL 11, 2022 PLANNING COMMISSION AT 3PM
LOCATION OF PROPERTY:	DUDLEY STREET
PRESENT ZONE:	OT-R OLD TOWN RESIDENTIAL
PROPOSED ZONE:	NO CHANGE
ACTION REQUESTED:	AN ACCESSORY BUILDING OR ACCESSORY USE WITHOUT A PRIMARY BUILDING BEING LOCATED ON THE PARCEL ACCORDING TO ARTICLE 3.E.C.23.
PRESENT USE OF PROPERTY:	VACANT
PROPOSED USE OF PROPERTY:	DECK AREA FOR OUTDOOR DINING
FUTURE LAND USE DESIGNATION:	RESIDENTIAL
PROPERTY OWNER (S):	YEON HEE KIM AND HAE CHOI KIM
NAME OF APPLICANT (S):	YEON HEE KIM AND HAE CHOI KIM
PROPERTY BORDERED BY:	RESIDENTIAL AND COMMERCIAL
ACREAGE:	APPROXIMATELY 0.70 ACRES TOTAL
CHARACTER OF VICINITY:	RESIDENTIAL NEIGHBORHOOD, SOUTH MAIN STREET COMMERCIAL
INGRESS AND EGRESS:	SOUTH MAIN STREET
TRAFFIC VOLUME:	MINOR ARTERIAL – 9800 AADT (2019)



2019 AERIAL VIEW OF AREA SURROUNDING SUBJECT PROPERTY

Prepared by:
Planning Division
3/31/2022

Disclaimer: Information contained on this map is to be used for reference purposes only. The City of Danville is not responsible for any inaccuracies herein contained. The City of Danville makes no representation of warranty as to this map's accuracy, and in particular, its accuracy in labeling, dimensions, contours, property boundaries, or placement or location of any map features thereon. No responsibility is assumed for damages or other liabilities due to the accuracy, availability, use or misuse of the information herein provided.

Council Letter

City of Danville, Virginia



CL-2766

New Business E.

City Council Regular Meeting

Meeting Date: 05/03/2022

Subject: Consideration of Zoning Ordinance Amendment Regarding Parking Inside Buildings and on Building Roofs.

From: Doug Plachcinski, Planning Division Director

COUNCIL ACTION

Business Meeting: 05/03/2022

SUMMARY

Rezoning application, PZ22-63, Initiated by the Planning Director, reduces the required parking stall width to eight (8') feet, six (6") inches and depth to 18' for parking spaces inside buildings and on building roofs in Zoning Ordinance Article 8.D.5.

BACKGROUND

Indoor parking tolerates smaller spaces and these are standard sizes. With more potential indoor and deck parking heading toward our community, this simple and standard reduction promotes efficient and sustainable development.

The Planning Commission, at their April 11, 2022, meeting, voted 7-0 to recommend approval of Zoning Ordinance Amendment PZ22-63.

RECOMMENDATION

The Planning Commission recommended that City Council approve a Zoning Ordinance Text Amendment reducing the required parking stall width to eight (8') feet, six (6") inches, and depth to 18' for parking spaces inside buildings and on building roofs in Zoning Ordinance Article 8.D.5.

Attachments

Ordinance

Planning Backup

PRESENTED: _____

ADOPTED: _____

ORDINANCE NO. 2022-_____

AN ORDINANCE AMENDING AND REORDAINING CHAPTER 41 ENTITLED "ZONING ORDINANCE" OF THE CODE OF THE CITY OF DANVILLE, VIRGINIA, 1986, AS AMENDED, MORE SPECIFICALLY, TO ADD AN ITEM 5., TO SECTION D., OF ARTICLE 8., ESTABLISHING THAT INSIDE BUILDINGS AND ON BUILDING ROOFS, THE MINIMUM PARKING SPACE WIDTH IS EIGHT (8') FEET SIX (6") INCHES AND THE MINIMUM DEPTH IS 18'.

NOW THEREFORE, BE IT ORDAINED by the Council of the City of Danville, Virginia, that the report of the City Planning Commission recommending approval of an amendment to Chapter 41 entitled "Zoning Ordinance" of the Code of the City of Danville, Virginia, 1986, as amended, specifically, to add an Item 5., to Section B. entitled, "Off-Street Parking Area Layout and Dimensions.", to Article 8. entitled, "Off-Street Parking Area Layout and Dimensions., establishing that inside buildings and on building roofs, the minimum parking space width is eight (8') feet six (6") inches and the minimum depth is eighteen (18') feet, be, and the same is hereby, received; and

BE IT FURTHER ORDAINED by the Council in consideration of said report and the public hearing this day held by Council, that a new Item 5., of Section D. entitled, "Off-Street Parking Area Layout and Dimensions", of Article 8. Entitled, "Off-Street Parking Area Layout and Dimensions", establishing that inside buildings and on building roofs, the minimum parking space width is eight (8') feet six (6") inches and the minimum depth is eighteen (18') feet, of Chapter 40. entitled "Zoning Ordinance", of the Code of the City of Danville, Virginia, 1986, as amended, be, and the same is hereby, amended and reordained to read as follows:

ARTICLE 8. PARKING AND LOADING REQUIREMENTS

Section D. Off-Street Parking Area Layout and Dimensions

Item 5. Inside buildings and on building roofs the minimum parking space width is eight (8') feet six (6") inches and the minimum depth is eighteen (18') feet.

APPROVED:

Mayor

ATTEST:

City Clerk

APPROVED AS TO
FORM AND LEGAL SUFFICIENCY:

City Attorney



City of Danville
427 Patton Street, Suite 208
Danville VA, 24541
Phone: (434) 799-5260

City Planning Commission

RECOMMENDATION

DATE: APRIL 21, 2022
TO: CITY COUNCIL
FROM: CITY PLANNING COMMISSION
RE: ZONING ORDINANCE TEXT AMENDMENT APPLICATION PZ22-63

REQUEST

Rezoning PZ22-63, Initiated by the Planning Director, reduces the required parking stall width to eight (8') feet, six (6') inches and depth to 18' for parking spaces inside buildings and on building roofs in Zoning Ordinance Article 8.D.5.

RECOMMENDATION

The Planning Commission, at their April 11, 2022 meeting, voted 7-0 to recommend approval of Zoning Ordinance Text Amendment Application PZ22-65.

Mr. Harold E. Garrison, Chair

Council Letter

City of Danville, Virginia



CL-2767

New Business F.

City Council Regular Meeting

Meeting Date: 05/03/2022

Subject: Consideration of Zoning Ordinance Amendment for Zoning Code Enforcement.

From: Doug Plachcinski, Planning Division Director

COUNCIL ACTION

Business Meeting: 05/03/2022

SUMMARY

Rezoning PZ22-65, Initiated by the Planning Director, removes existing Zoning Ordinance Section 2.C, Administration, and Enforcement with a new Section 2.C, Violations, and Enforcement including Purpose, Compliance Required, Violations, Persons Held responsible for Violating the Zoning Ordinance, Enforcement Procedure, and Remedies and Penalties subsections. Existing Zoning Ordinance Section 2.X, Violations, and Penalties are also deleted. These proposed changes clarify City Zoning Code enforcement, change violations from criminal to civil penalties, and allow the City to begin enforcement activities for short-term, recurring violations in ten (10) days.

BACKGROUND

The City's zoning code sections are unclear, out of date, and inadequate. These changes are in line with other Virginia Cities' practices. Staff worked with the City Attorney's office to develop this code update.

RECOMMENDATION

The Planning Commission, at their April 11, 2022, meeting, voted 7-0 to recommend approval of Zoning Ordinance Text Amendment Application PZ22-65.

Attachments

Ordinance

EXHIBIT A

Planning Backup

PRESENTED: _____

ADOPTED: _____

ORDINANCE NO. 2022-____.____

AN ORDINANCE AMENDING AND REORDAINING CHAPTER 41, ENTITLED, "ZONING ORDINANCE" OF THE CODE OF THE CITY OF DANVILLE, VIRGINIA, 1986, AS AMENDED, BY REPEALING IN ITS ENTIRETY THE EXISTING SECTION C. ENTITLED, "ADMINISTRATION AND ENFORCEMENT", OF ARTICLE 2. ENTITLED, "GENERAL REGULATIONS", WITH A NEW SECTION C. ENTITLED, "VIOLATIONS AND ENFORCEMENT", AND REPEALING IN ITS ENTIRETY SECTION X. ENTITLED, "VIOLATIONS AND PENALTIES", OF SAME SAID ARTICLE 2.

WHEREAS, the current Chapter 41, entitled "Zoning Ordinance" of the Code of the City of Danville, Virginia, 1986, as amended, does not establish Purpose, Compliance Required, Violations, or the persons held responsible for violating the Zoning Ordinance, enforcement procedure, and remedies and penalties, allow for civil penalties, or allow a ten (10) day enforcement for short-term recurring violations; and

WHEREAS, these proposed changes clarify the City's Zoning Code enforcement, change violations from criminal to civil penalties, and allow the City to begin enforcement activities for short-term, recurring violations within ten (10) days.

NOW THEREFORE, BE IT ORDAINED, by the Council of the City of Danville, that these amendments to Article 2. Entitled, "General Regulations" of Chapter 41 entitled, "Zoning Ordinance" of the Code of the City of Danville, Virginia, 1986, as amended, be, and hereby are, repealed and reordained as attached hereto and made a part hereof, as if fully set forth herein.

APPROVED:

Mayor

ATTEST:

City Clerk

APPROVED AS TO
FORM AND LEGAL SUFFICIENCY:

City Attorney

EXHIBIT "A"

CHAPTER 41. ZONING ORDINANCE

ARTICLE 2. GENERAL REGULATIONS

~~C. Administration and Enforcement.~~

~~The provisions of this ordinance shall be administered and enforced by the Director of Planning/Zoning Administrator, who shall be appointed by the City Manager. The Director of Planning/Zoning Administrator and such staff members or committees as may be assigned to or appointed by him shall have all necessary authority on behalf of the City to administer and enforce the provisions of this ordinance, including the ordering in writing of the remedying of any condition found in violation of this ordinance, the bringing of legal action to ensure compliance with this ordinance, including, but not limited to, injunction, abatement or other appropriate action or proceeding.~~

~~X. Violations and Penalties.~~

- ~~1. The Director of Planning/Zoning Administrator and all other City officials and employees who are vested with duty or authority to issue permits or licenses shall adhere to the provisions of this ordinance and shall issue permits or licenses only when uses and buildings comply with the provisions of this ordinance.~~
- ~~2. The City reserves the right to revoke, upon written notification and failure to remedy within a reasonable period of time, any permit wrongfully issued or otherwise found to be in conflict with the provisions of this ordinance.~~
- ~~3. Any person who is convicted of violating any of the provisions of this Ordinance shall be found guilty of a Class I misdemeanor.~~
- ~~4. In addition to pursuing the penalties and fines hereinabove provided, the Director of Planning/Zoning Administrator may bring additional legal action to insure compliance with this ordinance, including injunction, abatement or other appropriate action or proceeding.~~
- ~~5. Fines for violations of this ordinance will be applied according to the City Fine Schedule posted in the office of the Planning Director in the Department of Community Development.~~

ARTICLE 2. GENERAL REGULATIONS

C. – Violations and Enforcement

1. Purpose

This Article establishes the City's procedures for ensuring Zoning Ordinance compliance and correcting Ordinance violations. It also explains violation remedies and penalties. The Zoning Administrator (ZA) is responsible for enforcing the provisions of this Ordinance in accordance with the Code of Virginia. The City encourages voluntary violation correction.

2. Compliance Required

- a. All City property and building owners must comply with the zoning ordinance.
- b. All property and building owners must obtain all required permits and approvals before development.
- c. Permits or approvals issued by a body or the ZA authorize only the use, arrangement, location, design, density or intensity, and development subject to stated limitations or conditions.

3. Violations

- a. General Violations. Non-compliance with this Ordinance, or the terms or conditions of any permit or approval granted in accordance with this Ordinance, is a violation.
- b. Specific Violations. Developments undertaken contrary to the provisions of this Ordinance, including but not limited to any of the following, are violations:

- i. Land development without first obtaining required permits and approvals and complying with their terms and conditions.
- ii. Use property and/or buildings without first obtaining required permits and approvals and complying with their terms and conditions.
- iii. Disturb required landscaped areas or vegetation.
- iv. Increase development intensity or density without first obtaining required permits and approvals and complying with their terms and conditions.
- v. Install, create, erect, alter, or maintain any sign without first obtaining the appropriate permits or development approvals, and complying with their terms and conditions.
- vi. Create, expand, replace, or change any nonconformity except as allowed by this Ordinance.
- vii. Reduce or diminish the requirements for use, development, design, or dimensional standards below minimum regulations.
- viii. Violate, by act or omission, any condition of approval placed by a body or the Zoning Administrator on a permit or approval.
- ix. Engage in any development or other activity inconsistent with a permit or approval granted for such activity.
- x. Obtain a permit or approval with false or misleading information.

4. Persons Held Responsible for Violating the Zoning Ordinance

Any property owner whose land has a violation may be held responsible and subject to the remedies and penalties set forth in this Article.

5. Enforcement Procedure

- a. **Complaints and Investigation.** Anyone may file a complaint about a suspected violation. Complaints are filed with the ZA. The ZA will investigate the complaint. If the ZA finds a violation, then they may abate or correct the violation.
- b. **Inspections**
 - i. **Site Inspections.** The ZA must request permission from the property owner to inspect land or buildings. If the property owner does not consent to inspection, then the ZA may enter with a warrant.
 - ii. **Inspection Warrants.** The ZA may make an affidavit under oath that establishes probable cause that a zoning violation exists at a property for a warrant. Prior to attempting to obtain a warrant, the ZA shall make a reasonable effort to obtain consent to inspect from the property owner.
- c. **Violation Notice**
 - i. If the ZA determines a violation exists, then ZA shall provide a written violation notice to the property owner describing the violation; steps necessary for correction; a deadline, and the consequences if it is not resolved.
 - ii. If the owner of the land cannot be located or determined, the ZA shall post the violation notice on the property. The timeframe for appealing or correcting the violation begins five (5) calendar days after the notice is posted.
- d. **Violation Notice Appeal**
 - i. The violation notice must state that it may be appealed to the BZA within 30 calendar days or ten (10) calendar days for short-term, recurring violations.
 - ii. **Time Limit for Appeals** The notice of violation may only be appealed to the BZA during the timeframes established in subsection (1), above.

- iii. Conditional Zoning. Where the violation notice involves a property with a conditional zoning or Planned Unit Development the BZA may not modify approval conditions.
- iv. Appeal Stays Other Proceedings. Except in cases of imminent peril to life and property certified by the ZA to the BZA, whenever a violation notice appeal is filed with the BZA it limits all subsequent proceedings until the BZA rules on it.
- v. Application of Remedies and Penalties. If the property owner fails to correct the violation by the time limit specified in the violation notice, or any granted extension, the ZA will take appropriate action to remedy the violation.
- vi. Emergency Enforcement Without Notice. If delay in remedying the violation poses a danger to the public health, safety, or welfare, then the ZA may immediately abate the violation without prior written notice by invoking any of the remedies authorized in Section 7.F, Remedies and Penalties.

6. Remedies and Penalties

Any violation of this article may be corrected, restrained, or abated by any of the following proceedings and remedies in accordance with the Code of Virginia.

- a. Stop Work Orders. The City may issue a stop work order on any permit or development approval on any property where there is a violation.
- b. Penalties. The City adopted a schedule of civil penalties for each violation as follows:
 - i. A civil penalty of not more than \$200 for the initial summons and not more than \$500 for each additional summons.
 - ii. Additional summonses for the same violation resulting from the same operative set of facts may be imposed once during each ten (10) day period, with a maximum civil penalty of \$5,000.
- c. Abatement. Any violation or attempted violation of this Ordinance may be restrained, corrected, or abated by injunction or other appropriate proceeding allowed by the Code of Virginia.
- d. Other Penalties Authorized by the Code of Virginia. The City has other civil remedies as allowed by the Code of Virginia.
 - i. Cumulative Penalties To the extent allowed by law, all such remedies and penalties provided herein are cumulative

7. Permit or Clearance Revocation

- a. All Permits or Clearances Except Special Use Permits
 - i. Required Findings. The ZA may revoke a Zoning Clearance if the recipient of the certificate is found to do the following:
 - 1. Fails to develop or maintain the property in accordance with the information submitted as approved in the Zoning Certificate;
 - 2. Fails to abide by the requirements of this Ordinance; or
 - 3. Fails to meet conditions imposed with the issuance of the Zoning Certificate.
 - ii. Special Use Permit. City Council may revoke a Special Use Permit if the recipient fails to comply with permit conditions.
- b. Revocation Notification. The ZA must provide the recipient 10 days' notice in writing and include the reasons for revocation.
- c. Revocation Appeal.
 - i. General. A revocation of a clearance or permit by the ZA may be appealed to the BZA within 30 calendar days.

- ii. **Appeal Stays Other Proceedings.** Except in cases of imminent peril to life and property certified by the ZA to the BZA, whenever a violation notice appeal is filed with the BZA it limits all subsequent proceedings until the BZA rules on it.



City of Danville
427 Patton Street, Suite 208
Danville VA, 24541
Phone: (434) 799-5260

City Planning Commission

RECOMMENDATION

DATE: APRIL 20, 2022
TO: CITY COUNCIL
FROM: CITY PLANNING COMMISSION
RE: ZONING ORDINANCE TEXT AMENDMENT APPLICATION PZ22-65

REQUEST

Rezoning PZ22-65, Initiated by the Planning Director, removes existing Zoning Ordinance Section 2.C Administration and Enforcement with a new Section 2.C Violations and Enforcement including Purpose, Compliance Required, Violations, Persons Held responsible for Violating the Zoning Ordinance, Enforcement Procedure, and Remedies and Penalties subsections. Existing Zoning Ordinance Section 2.X Violations and Penalties is also deleted. These proposed changes clarify City Zoning Code enforcement, change violations from criminal to civil penalties, and allow the City to begin enforcement activities for short-term, recurring violations in ten (10) days.

RECOMMENDATION

The Planning Commission, at their April 11, 2022 meeting, voted 7-0 to recommend approval of Zoning Ordinance Text Amendment Application PZ22-65.

Mr. Harold E. Garrison, Chair

Council Letter

City of Danville, Virginia



CL-2768

New Business G.

City Council Regular Meeting

Meeting Date: 05/03/2022

Subject: Consideration of Zoning Ordinance Amendment Establishing Campground Standards.

From: Doug Plachcinski, Planning Division Director

COUNCIL ACTION

Business Meeting: 05/03/2022

SUMMARY

Rezoning PZ22-66, Initiated by the Planning Director, establishes standards for campgrounds in new Section 2.AA. Campgrounds, adds campgrounds as Uses Permitted by Special Permit in the SR-R Sandy River – Residential zoning district (Article 3.A.C.) and the T-R Threshold-Residential zoning district (Article 3.B.C.), and revises the campground definition in Article 15 to reference Virginia Code.

BACKGROUND

Although the zoning ordinance previously defined campgrounds, there was no applicable zoning district. This remedies that deficiency by updating definitions, so they are consistent with state law, and establishes special use standards.

RECOMMENDATION

The Planning Commission, at their April 11, 2022, meeting, voted 7-0 to recommend approval of Zoning Ordinance Text Amendment Application PZ22-66.

Attachments

Ordinance

EXHIBIT A

Planning Backup

PRESENTED: _____

ADOPTED: _____

ORDINANCE NO. 2022-____.____

AN ORDINANCE AMENDING, REPEALING, AND REORDAINING CHAPTER 41. ENTITLED, "ZONING ORDINANCE" OF THE CODE OF THE CITY OF DANVILLE, VIRGINIA, 1986, AS AMENDED, BY ADDING A NEW SECTION 2.AA "CAMPGROUNDS", IN ARTICLE 2. "GENERAL REGULATIONS", AMENDING ARTICLE 3.A: - SR-R, SANDY RIVER RESIDENTIAL AMENDING ARTICLE 3.B: - T-R, THRESHOLD RESIDENTIAL DISTRICT, REPEALING AND REORDAINING THE DEFINITIONS FOR "CAMPGROUNDS" AND "CAMPING UNITS" IN ARTICLE 15, "DEFINITIONS" TO REFERENCE THE VIRGINIA ADMINISTRATIVE CODE.

WHEREAS, the current Chapter 41, entitled "Zoning Ordinance" of the Code of the City of Danville, Virginia, does not establish campground development standards or allow them in any zoning district in the City. The definitions of campgrounds and camping units do not reference Virginia Administrative Code;

NOW THEREFORE, BE IT ORDAINED these amendments to Article 2. entitled, "General Regulations", Article 3.A. entitled, "SR-R, Sandy River Residential District, Article 3.B. entitled, T-R, Threshold Residential District, and Article 15. entitled "Definitions" of Chapter 41 entitled "Zoning Ordinance" of the Code of the City of Danville, Virginia, 1986, as amended, be added as attached hereto and made a part hereof, as if fully set forth herein.

APPROVED:

Mayor

ATTEST:

City Clerk

APPROVED AS TO
FORM AND LEGAL SUFFICIENCY:

City Attorney

EXHIBIT “A”

CHAPTER 41. ZONING ORDINANCE

ARTICLE 2. GENERAL REGULATIONS

SECTION 2.AA. CAMPGROUNDS

1. Campgrounds must comply with all rules and regulations governing them in the Virginia Administrative Code, Title 12. Health, Agency 5. Department of Health, Chapter 450.
2. Campgrounds are permissible by Special Use Permit in the “SR-R, Sandy River Residential (Single Family Residential District)” and “T-R, Threshold Residential District” zoning districts.
3. The minimum campground size is 30 acres.
4. If a campground rents sites to users without self-contained camping units, then it must provide toilets, lavatories, and showers according to the schedule in Virginia Administrative Code 12VAC5-450-100. Sanitary facilities.
5. All buildings and camping units within the campground must be setback 40’ from all property lines.
6. On-Site Amenities. Accessory on-site amenities including pools, clubhouses, picnic areas, fields, and playgrounds must be provided to guests at a minimum of two hundred (200) square feet per camping unit. Required landscaping, setbacks, and stormwater management features are not included in on-site amenities.
7. Access. Campground entrances and all internal roads must accommodate movements by the largest design vehicle type the campground serves. Additionally, the route from the closest City collector street to the campground site must accommodate turning movements by the largest design vehicle type the campground serves. The most current AASHTO Green Book design vehicle types must be used to analyze access.

ARTICLE 3.A.: - SR-R, SANDY RIVER RESIDENTIAL (SINGLE FAMILY RESIDENTIAL DISTRICT)

SECTION C. Uses Permitted by Special Use Permit

26. Campgrounds

ARTICLE 3.B: - T-R, THRESHOLD RESIDENTIAL DISTRICT

SECTION C. Uses Permitted by Special Use Permit

26. Campgrounds

ARTICLE 15. DEFINITIONS

~~Campground. A parcel of land upon which two (2) or more campsites for camping units are located, established or maintained for occupancy by camping units of the general public as temporary living quarters for recreation, education or vacation purposes.~~

~~Camping unit. Any tent, trailer, cabin, lean to or similar structure established or maintained and operated in a campground as temporary living quarters for recreation, education or vacation purposes.~~

NEW REFERENCED DEFINITIONS:

Campground. Campgrounds are as defined in [Virginia Administrative Code, Title 12. Health, Agency 5. Department of Health, Chapter 450 Section 10. Definitions.](#)

Camping unit. Camping units are as defined in [Virginia Administrative Code, Title 12. Health, Agency 5. Department of Health, Chapter 450 Section 10. Definitions.](#)



City of Danville
427 Patton Street, Suite 208
Danville VA, 24541
Phone: (434) 799-5260

City Planning Commission

RECOMMENDATION

DATE: APRIL 20, 2022
TO: CITY COUNCIL
FROM: CITY PLANNING COMMISSION
RE: ZONING ORDINANCE TEXT AMENDMENT APPLICATION PZ22-66

REQUEST

Rezoning PZ22-66, Initiated by the Planning Director, establishes standards for campgrounds in new Section 2.AA. Campgrounds, adds campgrounds as Uses Permitted by Special Permit in the SR-R Sandy River – Residential zoning district (Article 3.A.C.) and the T-R Threshold-Residential zoning district (Article 3.B.C.), and revises the campground definitions in Article 15 to reference Virginia Code.

RECOMMENDATION

The Planning Commission, at their April 11, 2022 meeting, voted 7-0 to recommend approval of Zoning Ordinance Text Amendment Application PZ22-66.

Mr. Harold E. Garrison, Chair



City of Danville
427 Patton Street, Suite 208
Danville VA, 24541
Phone: (434) 799-5260

City Planning Commission

MEMORANDUM

DATE: April 8, 2022
TO: Danville City Planning Commission
FROM: Doug Plachcinski, AICP, CFM Planning Division Director + Zoning Administrator
RE: CAMPGROUNDS

Rezoning PZ22-66, Initiated by the Planning Director, establishes standards for campgrounds in new Section 2.AA. Campgrounds, adds campgrounds as Uses Permitted by Special Permit in the SR-R Sandy River – Residential zoning district (Article 3.A.C.) and the T-R Threshold-Residential zoning district (Article 3.B.C.), and revises the campground definition in Article 15 to reference Virginia Code.

Although the zoning ordinance previously defined campgrounds, there was no approvable zoning district. This remedies that deficiency, updates the definitions so they are consistent with state law, and establishes special use criteria.

Council Letter

City of Danville, Virginia



CL-2761

New Business H.

City Council Regular Meeting

Meeting Date: 05/03/2022

Subject: Consideration of the Fiscal Year 2023 Danville Public School Budget

From: Henrietta Weaver, Accountant

COUNCIL ACTION

First Reading: 05/03/2022

Final Adoption: 05/17/2022

SUMMARY

The Public Hearing for the Fiscal Year 2023 School Board Budget is scheduled for May 3, 2022. The City's Budget for Support of Schools includes \$22,812,500 for Support of Operations, and \$1,705,390 for Debt Service, for a grand total of \$24,517,890. In addition, the Capital and Special Projects Plan includes \$2,000,000 for various school facilities.

RECOMMENDATION

It is recommended the City Council approve the attached Resolution approving the Fiscal Year 2023 Danville Public Schools Budget.

Attachments

Resolution

PRESENTED: _____

ADOPTED: _____

RESOLUTION NO. 2022- ____ - ____

A RESOLUTION APPROVING THE BUDGET OF THE SCHOOL BOARD OF THE CITY OF DANVILLE FOR THE FISCAL YEAR ENDING JUNE 30, 2023.

WHEREAS, the School Board of the City of Danville presented to the Council its estimate of the amount of money needed for the support of the public schools of the City during Fiscal Year 2023 which estimate reflected total proposed expenditures in the amount of \$81,829,353; and

WHEREAS, the City shall contribute \$22,812,500 for School Operations and \$1,705,390 for School Debt Service for a total appropriation of \$24,517,890; and

WHEREAS, the City Council does not intend by this resolution to guarantee to the School Board of the City of Danville any contribution for support of schools in future fiscal years above that amount required by Virginia law for support of schools; and

WHEREAS, a brief synopsis of the proposed Budget of the School Board for Fiscal Year 2023 was duly published, and, after public notice duly given, a public hearing with respect thereto has been conducted by the Council, after due public notice thereof, and upon consideration of which it is now necessary and desirable to approve the same as prescribed by law.

NOW THEREFORE, BE IT RESOLVED, by the Council of the City of Danville, Virginia that, pursuant to Section 22.1-93 of the Code of Virginia, 1950, as amended, the attached budget of the School Board of the City of Danville for the Fiscal Year ending June 30, 2023 be, and the same is hereby, approved for educational purposes subject the above recited conditions.

APPROVED:

Mayor

ATTEST:

Clerk

Approved as to
Form and Legal Sufficiency:

City Attorney

Council Letter

City of Danville, Virginia



CL-2750

New Business I.

City Council Regular Meeting

Meeting Date: 05/03/2022

Subject: Multi-Jurisdictional Hazard Mitigation Plan for West Piedmont Planning District Communities

From: David Coffey, Fire Chief

COUNCIL ACTION

Business Meeting: 05/03/2022

SUMMARY

The City is required to participate in a regional disaster mitigation plan to continue to receive certain Federal disaster assistance. The original plan, adopted in 2006, is required to be updated every five (5) years, and was last updated in 2016. The City has participated with the West Piedmont Planning District Commission (WPPDC) to update this plan and is recommending that it be adopted to maintain the City's ability to qualify for certain Federal disaster assistance.

BACKGROUND

The Disaster Mitigation Act of 2000, as amended, requires that local governments develop and adopt, as well as periodically update, natural hazard mitigation plans in order to receive certain Federal disaster assistance. The original West Piedmont Multi-Jurisdictional Hazard Mitigation Plan was adopted by Danville City Council by Resolution 2006-05.07 on May 16, 2006, and updated by Resolution 2016-12.06 on December 20, 2016. This plan is required to be updated every five (5) years by the participating localities. Earlier this year, the West Piedmont Planning District Commission (WPPDC) hired a consulting firm to update this plan. Staff representatives to the WPPDC were Ken Gillie, Director of Community Development and Tim Duffer, Deputy Chief Danville Fire Department.

The major issues facing the Danville area are storm related such as snow, ice and flooding. The plan makes recommendations on ways the City can be better prepared for these events. The plan does not include any mandates that the City implement the recommendation. The Plan must be adopted by the localities within the WPPDC for continued disaster planning funding.

RECOMMENDATION

It is recommended that City Council approve the attached Resolution adopting the West Piedmont Multi-Jurisdictional Hazard Mitigation Plan, dated February 2022.

Attachments

Resolution
Plan

PRESENTED: _____

ADOPTED: _____

RESOLUTION NO. 2022-_____._____

A RESOLUTION ADOPTING A MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN FOR WEST PIEDMONT PLANNING DISTRICT COMMUNITIES.

WHEREAS, the Disaster Mitigation Act of 2000, as amended, requires that local governments develop, adopt, and update natural hazard mitigation plans in order to receive certain federal assistance; and

WHEREAS, a Mitigation Advisory Committee (“MAC”) comprised of representatives from the counties of Franklin, Henry, Patrick, and Pittsylvania; the cities of Danville and Martinsville; and the towns of Boones Mill, Chatham, Gretna, Hurt, Ridgeway, Rocky Mount, and Stuart was convened in order to study the West Piedmont Region’s risks from and vulnerabilities to natural hazards, and to make recommendations on mitigating the effects of such hazards on the West Piedmont Region; and

WHEREAS, a request for proposals was issued to hire an experienced consulting firm to work with the MAC to update a comprehensive hazard mitigation plan for the West Piedmont Planning District; and

WHEREAS, the efforts of the MAC members and the consulting firm of Dewberry, in consultation with members of the public, private, and non-profit sectors, have resulted in an update of the West Piedmont Multi-Jurisdictional Hazard Mitigation Plan including the City of Danville.

NOW THEREFORE, BE IT RESOLVED, by the Council of the City of Danville, Virginia, that the West Piedmont Multi-Jurisdictional Hazard Mitigation Plan dated February 2022 is hereby approved and adopted for the City of Danville. A copy of the plan is attached to this resolution.

APPROVED:

Mayor

ATTEST:

City Clerk

Approved as to
Form and Legal Sufficiency:

Deputy City Attorney

West Piedmont

Multi-Jurisdictional

Hazard Mitigation Plan

2021 Update

JURISDICTIONS

Counties of Franklin, Henry, Patrick, and
Pittsylvania; cities of Danville and
Martinsville; towns of Chatham, Boones
Mill, Gretna, Hurt, Ridgeway, Rocky
Mount, and Stuart



This page intentionally left blank

Table of Contents

Section 1. Executive Summary	1
A. Background	1
B. Hazard Identification and Risk Assessment	1
C. Capability Assessment	2
D. Mitigation Strategy	2
E. Plan Monitoring and Maintenance Procedures	3
F. Conclusion	3
Section 2. Introduction	4
A. Mitigation	4
B. The Local Mitigation Planning Impetus	4
C. Plan Organization	5
Section 3. Planning Process	6
A. The Mitigation Advisory Committee	6
A.1. Local Planning Teams	12
B. Public Participation	18
B.1. Public Survey	19
B.2. Stakeholder Involvement	23
C. Incorporation of Existing Plans and Studies	24
Section 4. Community Profile	26
A. Introduction	26
B. Physiography	29
C. Hydrology	29
D. Land Use and Development Trends	30
D.1. City of Danville	30
D.2. Franklin County	31
D.3. Henry County	33
D.4. City of Martinsville	34
D.5. Patrick County	34
D.6. Pittsylvania County	35
E. Climate	36
F. Population	36
G. Housing	38
H. Business & Labor	40

I. Critical Facilities	42
J. Transportation	45
K. Infrastructure	45
L. Agriculture	47
Section 5. Hazard Identification and Risk Assessment.....	48
A. Introduction	48
A.1. 2021 Plan Update.....	49
A.2. Hazard Identification	49
A.3. Hazard History	52
A.4. Data Limitations	55
B. Natural Hazards.....	56
B.1. Flooding (High Priority)	56
B.2. Winter Storm (High Priority).....	81
B.3. Hurricane Wind (Medium-High Priority).....	92
B.4. Severe Weather (Medium-High Priority)	104
B.5. Wildfire (Medium Priority).....	114
B.6. Tornado (Medium-High Priority).....	125
B.7. Drought (Medium-Low Priority).....	133
B.8. Earthquake (Medium-Low Priority)	141
B.9. Landslide (Low Priority)	148
C. Human-Caused Hazards.....	151
C.1. Organic/Inorganic Spills (Medium-High Priority).....	152
C.2. High Voltage Transmission Lines (Medium Priority).....	156
C.3. Pipeline Failure (Medium Priority).....	159
C.4. Dam Failure (Medium-Low Priority)	165
C.5. Agriterrorism (Medium-Low Priority).....	175
C.6. Human-Caused Hazard Consequence Analysis	177
D. Hazard Identification and Risk Assessment Summary	183
D.1. Loss Estimates	183
D.2. Critical Facilities	185
D.3. Hazard Prioritization.....	186
D.4. Future Land Use and Impacts to Hazard Vulnerability.....	187
Section 6. Capability Assessment.....	189
A. Introduction	189
B. Staff and Organizational Capacity.....	189

C. Technical Capacity	193
D. Fiscal Capability	196
E. Policy and Program Capability.....	200
E.1. Current Mitigation Efforts	200
E.2. Emergency Operations Plan	203
E.3. Floodplain Management.....	203
E.4. Comprehensive Plan	204
E.5. Incorporation of Hazard Mitigation Plan into Other Planning Mechanisms	206
F. Legal Authority.....	208
F.1. Regulation	208
F.2. Political Capability	212
F.3. Summary	213
Section 7. Mitigation Strategy	214
A. Setting Mitigation Goals.....	214
B. Considering Mitigation Alternatives.....	215
B.1. Prioritizing Alternatives.....	215
C. Identifying Objectives and Actions	216
D. Developing a Mitigation Action Plan	241
D.1. Jurisdiction Actions	242
Section 8. Plan Monitoring and Maintenance Procedures	292
A. Formal Plan Adoption	292
B. Implementation.....	292
B.1. Incorporation into Other Planning Mechanisms	293
C. Evaluation	294
C.1. Continuing Public Involvement	294
D. Maintenance	295
Section 9. References.....	297
A. Data Sources.....	297
B. Referenced Publications	298

List of Appendices

Appendix A. Participation Documentation.....	A-1
Appendix B. Hazard Identification and Risk Assessment Data.....	B-1
Appendix C. Previous Mitigation Efforts.....	C-1
Appendix D. Potential Mitigation Strategies.....	D-1
Appendix E. West Piedmont Record of Changes.....	E-1
Appendix F. Sample Resolution.....	F-1
Appendix G. Hazard Ranking Calculations.....	G-1
Appendix H. Hazus Reports.....	H-1

List of Figures

Figure 3-1. Public Survey Respondent Composition.....	20
Figure 3-2. Respondent Hazard Concern	21
Figure 3-3. Respondent Impacted by Hazards	22
Figure 4-1. Location of the West Piedmont District.....	27
Figure 4-2. HMP Participating Jurisdictions.....	28
Figure 4-3. Physiographic Provinces of West Piedmont District.....	29
Figure 4-4. West Piedmont Region Watersheds.....	30
Figure 5-1. West Piedmont Region 100-Year Floodplains.....	58
Figure 5-2. 100-Year Flood Loss by Jurisdiction	69
Figure 5-3. Estimated 100-Year Flood Loss by Census Block.....	70
Figure 5-4. Community-Identified Flooding and Repetitive Damage Problem Areas.....	80
Figure 5-5. Winter Storm Federal Disaster Declarations	86
Figure 5-6. Annualized Winter Storm Events in the West Piedmont Region (1996-2020).....	87
Figure 5-7. Wind Zones in the United States.....	94
Figure 5-8. NOAA Historical Hurricane Tracks (1980 - 2020).....	95
Figure 5-9. Hazus-MH Total Exposure	98
Figure 5-10. Hazus-MH Total Residential Exposure	99
Figure 5-11. Total Annualized Hurricane Wind Loss.....	102
Figure 5-12. Total Annualized Residential Hurricane Wind Loss	103
Figure 5-13. Wind Zones in the United States	106
Figure 5-14. Formation of Hail.....	110
Figure 5-15. Annual Frequency of Hailstorms in the United States.....	111
Figure 5-16. Annualized Severe Weather Events in the West Piedmont Region	113
Figure 5-17. Virginia Wildfire Causes	118
Figure 5-18. West Piedmont Region Wildfire Vulnerability	121
Figure 5-19. West Piedmont Region Wildfire Vulnerability and Critical Facilities.....	123
Figure 5-20. Annual Tornado Hazard Frequency	128
Figure 5-21. West Piedmont Region Tornado Touchdowns, 1950 - 2020	130
Figure 5-22. Mobile Home Clusters.....	131
Figure 5-23. Historical Palmer Drought Severity Index (1885 - 1995).....	135
Figure 5-24. NLCD Agricultural Areas in West Piedmont Region.....	136
Figure 5-25. Earthquakes in the West Piedmont Vicinity.....	142

Figure 5-26. Landside Incidence and Susceptibility	150
Figure 5-27. Major Natural Gas Pipelines in West Piedmont	160
Figure 5-28. Major Natural Gas Pipelines in Virginia	161
Figure 5-29. Proposed Virginia Route for Mountain Valley Pipeline	162
Figure 5-30. Map of Major Petroleum Product Pipelines in Virginia	163
Figure 31. Known High Hazard Potential Classification Dams Regulated by Virginia in the West Piedmont Region.....	171
Figure 5-32. Dam Inundation Areas in Pittsylvania County, VA.....	173

List of Tables

Table 1-1. West Piedmont Region Planning Consideration Levels.....	1
Table 1-2. Capability Self-Assessment.....	2
Table 3-1. West Piedmont Mitigation Advisory Committee Participants	7
Table 3-2. Mitigation Advisory Committee Meetings.....	11
Table 3-3. West Piedmont Local Planning Teams Participants	12
Table 3-4. Local Planning Teams Meetings.....	18
Table 3-5. Stakeholder Participation	23
Table 4-1. Population by Jurisdiction	37
Table 4-2. Income Characteristics by Jurisdiction	38
Table 4-3. Housing Characteristics by Jurisdiction.....	39
Table 4-4. 2019 Employment by Sector by Jurisdiction	41
Table 4-5. Major Employers in Each Jurisdiction.....	42
Table 4-6. Critical Facilities.....	44
Table 4-7. Agricultural Sector	47
Table 5-1. Hazard Ranking Priority Criteria.....	51
Table 5-2. Planning Consideration Levels	52
Table 5-3. Major Disasters by Type	53
Table 5-4. NCEI Storm Events Data (1950 - December 2020).....	53
Table 5-5. West Piedmont Region HIRA Overview.....	54
Table 5-6. Flood Hazard Priority	56
Table 5-7. NCEI Flood Hazard History (1996-2020)	56
Table 5-8. Annualized Historical Flood Damages from NCEI (1996-2020).....	60
Table 5-9. Parcel Flood Vulnerability & Risk	64
Table 5-10. West Piedmont Region Parcel Value Exposure by Flood Zone	66
Table 5-11. West Piedmont Region Parcel Area Exposure by Flood Zone	66
Table 5-12. Critical Facilities within Flood Hazard Zones.....	67
Table 5-13. Census Block Area Comparison	71
Table 5-14. Hazus Direct Economic Loss Categories and Descriptions	72
Table 5-15. Building Stock Exposure for General Occupancies by Jurisdiction	73
Table 5-16. Hazus General Building Type Classes	74
Table 5-17. Building Stock Exposure for General Building Type by Jurisdiction	74
Table 5-18. Jurisdictional Hazus-Based Exposure & Losses for the 100-Year Return Period	75
Table 5-19. Jurisdictional Hazus Based Losses by General Occupancy Type for the 100-Year Return Period (values are in thousands of dollars).....	76
Table 5-20. Jurisdictional Hazus Based Losses by General Building Type for the 100-Year Return Period	76

Table 5-21. Comparison of NCEI Annualized Events, Hazus 100-Year Losses	78
Table 5-22. Winter Storm Hazard Priority.....	81
Table 5-23. National Weather Service Alerts for Significant Snow Events	84
Table 5-24. National Weather Service Alerts for Significant Ice Events	84
Table 5-25. Winter Storm Federal Disaster Declarations (1964-2021)	85
Table 5-26. Winter Storm Events (1996-2020).....	86
Table 5-27. Winter Storm Events in NCEI Storm Events Database (1996 - February 2020)	88
Table 5-28. Annualized Loss Estimates Due to Snow Based on Public Assistance Reimbursements Between 1998 - 2021.....	89
Table 5-29. West Piedmont Population Snowfall Relative Risk	90
Table 5-30. West Piedmont Region Population Ice Relative Risk	91
Table 5-31. Hurricane Wind Hazard Priority.....	92
Table 5-32. Saffir-Simpson Hurricane Damage Scale.....	93
Table 5-33. Hurricane-Related Public Assistance Statistics.....	95
Table 5-34. Building Stock Exposure by General Occupancy x\$1000 (Hazus-MH v.4.2).....	98
Table 5-35. Total Annualized Hurricane Wind Loss (from Hazus-MH v4.2).....	100
Table 5-36. Total Annualized Hurricane Wind Loss by General Occupancy (Hazus-MH v4.2).....	101
Table 5-37. Severe Weather Hazard Priority.....	104
Table 5-38. Severe Weather Events (1955 - November 2020)	104
Table 5-39. Disaster 4072 Public Assistance Statistics.....	105
Table 5-40. NWS Wind Descriptions	108
Table 5-41. Annualized Severe Weather Events in NCEI Storm Events Database (1955 - Nov 2020).....	112
Table 5-42. Wildfire Hazard Priority.....	114
Table 5-43. Wildfire Statistics by Fire Year (1995-2019)	114
Table 5-44. Wildfire Summary (1995 – 2013).....	115
Table 5-45. Wildfire Causes (1995 – 2008).....	116
Table 5-46. Number of Woodland Communities by Fire Rank.....	120
Table 5-47. Number of Woodland Homes by Fire Rank	120
Table 5-48. Parcel Acreage Exposed to Wildfire Risk Areas	122
Table 5-49. Parcel Value Exposed to Wildfire Risk Areas	122
Table 5-50. West Piedmont Region Critical Facilities Wildfire Vulnerability.....	123
Table 5-51. Wildfire Events	124
Table 5-52. Tornado Hazard Priority	125
Table 5-53. Fujita Damage Scale.....	126
Table 5-54. Fujita Scale vs. Enhanced Fujita Damage Scale.....	126
Table 5-55. West Piedmont Region Tornado Touchdowns by Fujita Intensity Scale, 1953 - 2020.....	129
Table 5-56. Tornado Events, 1950 - 2020	132
Table 5-57. Drought Hazard Priority	133
Table 5-58. Drought Severity Classification	134
Table 5-59. Land Classification by Land Cover Type	136
Table 5-60. Total Acreage Per Land Class	137
Table 5-61. Percent Acreage Per Land Class	138
Table 5-62. Drought Events, 1996 - 2020.....	139
Table 5-63. Crop Losses Due to Drought Events	139
Table 5-64. Earthquake Hazard Priority.....	141
Table 5-65. Modified Mercalli Intensity Scale for Earthquakes	144
Table 5-66. Modified Mercalli Intensity (MMI) and PGA Equivalents	144
Table 5-67. Total Annualized Earthquake Loss.....	146

Table 5-68. Landslide Hazard Priority	148
Table 5-69. Organic/Inorganic Spills Hazard Priority	152
Table 5-70. Organic/Inorganic Spills by Jurisdiction and Type of Spill (1990-2021).....	154
Table 5-71. Annualized Organic/Inorganic Spill Events by Jurisdiction and Type of Spill.....	154
Table 5-72. High Voltage Transmission Lines Hazard Priority	156
Table 5-73. Estimated Losses Due to Electricity Outage for Residential Structures	157
Table 5-74. Pipeline Failure Hazard Priority	159
Table 5-75. Dam Failure Hazard Priority.....	165
Table 5-76. Dam Hazard Potential Classification System in Virginia.....	167
Table 5-77. Known High Hazard Potential Classification Dams Regulated by Virginia DSFPM (DCR)....	170
Table 5-78. Known High Hazard Potential Classification Dams NOT Regulated by Virginia DSFPM	172
Table 5-79. Acreage Exposed to Dam Inundation Risk.....	172
Table 5-80. Parcel Value Exposed to Dam Inundation Risk	172
Table 5-81. Agriterrorism Hazard Priority.....	175
Table 5-82. Farms by Jurisdiction	176
Table 5-83. Human-Caused Hazards Consequence Analysis.....	178
Table 5-84. NCEI Events and Estimated Potential Annualized Loss by Hazard	183
Table 5-85. Potential Loss by Hazard	184
Table 5-86. Critical Facilities within Hazard Zones.....	185
Table 5-87. 2021 Hazard Prioritization	187
Table 6-1. Key Departments	190
Table 6-2. Technical Capability Matrix	194
Table 6-3. Fiscal Capability Matrix.....	197
Table 6-4. Financing Mechanisms by Jurisdiction	198
Table 6-5. Hazard Mitigation Action Funding Sources.....	199
Table 6-6. NFIP Entry and FIRM Date	203
Table 6-8. Last Plan Update Date.....	206
Table 6-7. Availability of Plans and their Support for Hazard Mitigation	207
Table 6-9. Availability of Ordinances and their Support for Hazard Mitigation	210
Table 6-10. Capability Self-Assessment.....	213
Table 7-1: STAPLE/E Review and Selection Criteria for Alternatives	215
Table 7-2: Mitigation Goals and Objectives.....	217
Table 7-3. Mitigation Goals, Objectives, and Actions.....	219

Section 1. Executive Summary

A. Background

Between 2005 and 2006, the West Piedmont Planning District Commission (WPPDC) coordinated the development of a regional multi-jurisdictional hazard plan that included the counties of Franklin, Henry, Patrick and Pittsylvania; the cities of Danville and Martinsville; and the towns of Chatham, Boones Mill, Gretna, Hurt, Ridgeway, Rocky Mount and Stuart. The plan was updated, in accordance with federal regulations, in 2011, 2016, and again in 2021. The Plan, published in 2022, is the third update to the regional Hazard Mitigation Plan.

Using a process similar to that used for the original plan, the planning district convened a Mitigation Advisory Committee comprised of representatives of the participating jurisdictions. The Mitigation Advisory Committee worked with the Dewberry team and provided input at key stages of the process. In addition, the plan was discussed at various public meetings, including a listening session to which the general public was invited to attend.

B. Hazard Identification and Risk Assessment

The hazard identification and risk assessment consists of three parts:

1. Identify what hazards that could affect the planning area.
2. Profile hazard events and determine what areas and community assets are the most vulnerable to damage from these hazards.
3. Estimate losses and prioritize the potential risks to the community.

Hazards were ranked by the Mitigation Advisory Committee to determine which hazards they feel have the largest potential to affect West Piedmont communities. Certain hazards were not addressed due to the infrequency of occurrence and/or limited impact. Table 1-1 summarizes the results of the hazard identification, which is explained fully in Section 5.

Table 1-1. West Piedmont Region Planning Consideration Levels

Hazard Type	2021 Planning Consideration Level
Natural	
Flooding	High
Winter Storms	High
Hurricane Wind	Medium-High
Severe Weather	Medium-High
Tornado	Medium-High
Wildfire	Medium
Drought	Medium-Low
Earthquake	Medium-Low

Hazard Type	2021 Planning Consideration Level
Landslide	Low
Human-Caused	
Organic/Inorganic Spills	Medium-High
High Voltage Transmission Line Failure	Medium
Pipeline Failure	Medium
Dam Failure	Medium-Low
Agriterrorism	Medium-Low

C. Capability Assessment

The capability assessment evaluates the current capacity of the communities of the West Piedmont Planning District to mitigate the adverse effects of the natural hazards identified in the hazard identification and risk assessment. By providing a summary of each jurisdiction's existing capabilities, the capability assessment serves as the foundation for designing an effective hazard mitigation strategy. Table 1-2 summarizes the Capability Self-Assessment provided by the participating jurisdictions.

Table 1-2. Capability Self-Assessment

Jurisdiction	Planning and Regulatory Capability	Administrative and Technical Capability	Fiscal Capability	Political Capability	Overall Capability
City of Danville	M	M	M	M	M
Franklin County	M	L	L	M	M
Henry County	M	M	L	M	M
City of Martinsville	L	L	L	M	L
Patrick County	L	M	L	M	L
Pittsylvania County	M	M	M	M	M

M = Medium capability

L = Low capability

D. Mitigation Strategy

The West Piedmont Mitigation Advisory Committee used the results of the hazard identification and risk assessment and the capability assessment to develop goals and actions for the region and their jurisdictions. The committee members revised and streamlined the nine goals from the 2016 plan update into the following three goals:

1. Reduce future damages, losses, and risks to the community by protecting new and existing built infrastructure (homes, businesses, utility infrastructure, critical facilities, and other property) from the effects of hazards.
2. Ensure local ability to mitigate, prepare for, respond to, and recover from hazard impacts by enhancing the capabilities and capacities of local governments through regional partnership; the efficient use of new and existing technology; and the implementation of hazard mitigation policies, regulation and planning.
3. Implement education and outreach programs and campaigns to increase public awareness of hazard risks; promote hazard mitigation's importance to health, safety, and welfare; and enhance public engagement.

In addition, the committee identified and prioritized actions for the individual jurisdictions. The priorities differ from jurisdiction to jurisdiction. Each jurisdiction's priorities were developed based on past damages, existing exposure to risk, community goals, and weaknesses identified in the capability assessment.

E. Plan Monitoring and Maintenance Procedures

The plan outlines a procedure for implementing, maintaining, evaluating, and updating the hazard mitigation strategy. The WPPDC will be responsible for monitoring and evaluating the plan annually. The Mitigation Advisory Committee will provide annual mitigation strategy update reports to aid in this effort and increase accountability.

A five-year written update must be submitted to the Commonwealth and FEMA Region III, unless disaster or other circumstances (e.g., changing regulations) lead to a different time frame. Efforts will be made to inform the public of the implementation and updating of the mitigation plan throughout the next five years.

F. Conclusion

This plan illustrates the continued commitment and dedication of the West Piedmont Region's local governments and community members to enhancing the safety of residents and businesses by taking actions before a disaster strikes. Natural hazards cannot be prevented, but the West Piedmont Region is poised to minimize the disruption and devastation that often accompanies these events.

Section 2. Introduction

A. Mitigation

Mitigation refers to sustained actions taken to reduce or eliminate the long-term risk to people and property from the adverse effects of hazards. Hazard mitigation focuses attention and resources on community policies and actions that will produce successive benefits over time. A mitigation plan states the aspirations and specific courses of action that a community intends to follow to reduce vulnerability and exposure to future hazard events. These plans are formulated through a systematic process centered on the participation of citizens, businesses, public officials, and other community stakeholders.

A local mitigation plan is the physical representation of a jurisdiction's commitment to reduce risks from natural hazards. Local officials can refer to the plan in their day-to-day activities and in decisions regarding regulations and ordinances, permit issuances, and in funding capital improvements and other community initiatives. Additionally, these local plans serve as the basis for states to prioritize future grant funding as it becomes available.

The West Piedmont Multi-Jurisdictional Hazard Mitigation Plan aims to increase public awareness about local hazards and risks, while providing information for community stakeholders about mitigation actions and resources available to reduce those risks. Teaching the public about potential hazards will help each jurisdiction protect residents and assets against the effects of the hazards, enabling informed decision-making on where to live, purchase property, or locate businesses.

The area covered by this plan includes the counties of Franklin, Henry, Patrick and Pittsylvania; the cities of Danville and Martinsville; and the towns of Chatham, Boones Mill, Gretna, Hurt, Ridgeway, Rocky Mount and Stuart. All the jurisdictions from the 2006, 2011, and 2016 processes are participating in the 2021 Plan update.

B. The Local Mitigation Planning Impetus

On October 30, 2000, President Clinton signed into law the Disaster Mitigation Act of 2000 (DMA 2000), which established a national disaster hazard mitigation grant program that would help to reduce loss of life and property, human suffering, economic disruption, and disaster assistance costs resulting from natural disasters.

DMA 2000 amended the Robert T. Stafford Disaster Relief and Emergency Assistance Act and added a new section to the law, Section 322 Mitigation Planning. Section 322 requires local governments to prepare and adopt jurisdiction-wide hazard mitigation plans for disasters declared after November 1, 2003, (subsequently revised to November 1, 2004) as a condition of receiving Hazard Mitigation Grant Program (HMGP) project grants and other forms of non-emergency disaster assistance. Local governments must review and, if necessary, update the mitigation plan every five years from the original date of the plan to continue program eligibility.

The requirements for local mitigation plans are found in 44 Code of Federal Regulations (CFR) Part 201.6. FEMA's Local mitigation Plan Review Guide issued in 2011 provides the official interpretation and explanation of the regulations. In addition, the Virginia Department of Emergency Management and FEMA use the Local Hazard Mitigation Plan Review Crosswalk to ensure that a plan meets FEMA's

regulatory requirements as well as additional requirements identified by the Commonwealth. This plan has been created with these requirements in mind and meets all the required elements.

C. Plan Organization

The remaining sections of this document follow the process enumerated in DMA 2000.

Section 3 – Planning Process defines the processes followed throughout the creation of this plan including a description of the West Piedmont Region’s stakeholder involvement.

Section 4 – Community Profile provides a physical and demographic profile of the area, looking at things such as geography, hydrography, development, people, and land uses.

Section 5 – Hazard Identification and Risk Assessment evaluates the natural hazards likely to affect the West Piedmont Region, and quantifies who, what, where, and how the region might be affected by natural hazards.

Section 6 – Capability Assessment analyzes each of the six local jurisdictions’ policies, programs, plans, resources, and capabilities to reduce exposure to hazards in the community.

Section 7 – Mitigation Strategy addresses the West Piedmont Region’s issues and concerns for hazards by establishing a framework for mitigation activities and policies. The strategy includes a mission, statement, goals, objectives, and a range of actions to achieve the goals.

Section 8 – Plan Maintenance Procedures specifies how the plan will be monitored, evaluated, and updated, including a process for continuing stakeholder involvement once the plan is completed.

Section 9 – References include a list of reports and data used to develop this plan.

Appendices are included in a separate document and contain supplemental reference materials as well as more detailed calculations, methodologies, data, and maps used in the planning process.

Section 3. Planning Process

The West Piedmont Planning District Commission (WPPDC) has seven member localities – Franklin, Henry, Patrick, and Pittsylvania counties; the Cities of Danville and Martinsville; and the Town of Rocky Mount. The WPPDC was formed by these local governments in 1968 under the authority of the Virginia Area Development Act, and serves to build regional approaches to issues, like economic development, transportation, and legislative priorities.

Beginning in 2003, the Commonwealth of Virginia encouraged the 21 planning districts in the state to take the lead on development of local hazard mitigation plans. These plans, which are required by DMA 2000, help local governments determine risks and vulnerabilities and identify projects to reduce these risks. The plan developed under the auspices of the WPPDC includes Franklin, Henry, Patrick, and Pittsylvania counties; the cities of Danville and Martinsville; and the towns of Chatham, Boones Mill, Gretna, Hurt, Ridgeway, Rocky Mount, and Stuart.

After receiving funding in 2004, the WPPDC contracted with Dewberry Engineers Inc. (Dewberry) to develop a multi-hazard mitigation plan including a hazard identification and risk assessment (HIRA) and mitigation strategies. The Mitigation Advisory Committee worked with the consultants throughout the planning process to ensure that potential stakeholders participated in the planning process and had opportunities for input in the draft and final phases of the plan. The WPPDC contracted with Dewberry to update the plan in 2011, 2016, and 2021. A record of changes to the plan is included as Appendix E.

A. The Mitigation Advisory Committee

The WPPDC convened the Mitigation Advisory Committee comprised of representatives of the participating jurisdictions, WPPDC, and VDEM. The Mitigation Advisory Committee worked with the Dewberry team and provided input at key stages of the process. Efforts to involve city and county departments and community organizations that play a role in implementing mitigation actions or policies included invitations to attend meetings and serve on the Mitigation Advisory Committee, e-mail updates, opportunities to provide relevant technical and contextual data and information, and opportunities for input and comment on all draft deliverables through public meetings and other means.

The WPPDC would like to thank and acknowledge the following persons in Table 3-1 who served on the Mitigation Advisory Committee and their representative departments and organizations throughout the planning process. Those that served on both the Mitigation Advisory Committee and a local planning team are shown in bold.

Table 3-1. West Piedmont Mitigation Advisory Committee Participants

Name	Title and/or Department	Jurisdiction	Role/Participation
Bill Ferguson	Director/Chief Franklin County Public Safety	Franklin County	• Attended kick-off meeting • Attended Franklin local planning team meeting #1 • Attended Franklin local planning team meeting #2 • Provided data for incorporation into the plan • Reviewed draft materials • Attended draft plan review meeting
Steve Sandy	Assistant County Administrator	Franklin County	• Reviewed draft materials
Eric Schmidt	GIS Coordinator	Franklin County	• Attended kick-off meeting • Attended Franklin local planning team meeting #1 • Provided data for incorporation into the plan • Attended HIRA presentation meeting • Reviewed draft materials
B.T. Fitzpatrick III	Town Manager	Town of Boones Mill	• Attended kick-off meeting • Attended Franklin local planning team meeting #1 • Attended Franklin local planning team meeting #2 • Provided data for incorporation into the plan • Reviewed draft materials • Attended draft plan review meeting
Mark Moore	Assistant Town Manager / Community Development Director	Town of Rocky Mount	• Attended kick-off meeting • Attended Franklin local planning team meeting #1 • Provided data for incorporation into the plan • Reviewed draft materials
Lee Clark	Planning, Zoning, and Building Inspections	Henry County	• Attended Henry local planning team meeting #1

Name	Title and/or Department	Jurisdiction	Role/Participation
			• Provided data for incorporation into the plan • Attended HIRA presentation meeting • Henry local planning team meeting #2 brief call • Reviewed draft materials • Attended draft plan review meeting
Matt Tatum	Director of Public Safety	Henry County	• Attended kick-off meeting • Attended Henry local planning team meeting #1 • Attended HIRA presentation meeting • Henry local planning team meeting #2 meeting with Lee Clark • Provided data for incorporation into the plan • Reviewed draft materials
Craig A O'Der, Jr.	Mayor	Town of Ridgeway	• Attended Henry local planning team meeting #1 • Provided data for incorporation into the plan • Reviewed draft materials
Steve Allen	Emergency Management Coordinator	Patrick County	• Attended HIRA presentation meeting • Attended Patrick local planning team meeting #1 • Attended Patrick local planning team meeting #2 • Provided data for incorporation into the plan • Reviewed draft materials
Emily Ragsdale	Director of Community Development	Pittsylvania County	• Attended kick-off meeting • Attended Pittsylvania local planning team meeting #1 • Provided data for incorporation into the plan • Reviewed draft materials

Name	Title and/or Department	Jurisdiction	Role/Participation
			Attended draft plan review meeting
Christopher C. Slemp	Director of Public Safety	Pittsylvania County	- Attended Pittsylvania local planning team meeting #1 - Provided data for incorporation into the plan - Reviewed draft materials - Attended draft plan review meeting
Gary Hodnett	Mayor	Town of Hurt	- Provided data for incorporation into the plan via phone calls with Michael Armbrister (WPPDC) - Reviewed draft materials
David Lilly	Town Manager	Town of Gretna	- Provided data for incorporation into the plan via phone calls with Michael Armbrister (WPPDC) - Reviewed draft materials
Richard Cocke	Town Manager	Town of Chatham	- Provided data for incorporation into the plan - Reviewed draft materials
Tim Duffer	Deputy Fire Chief	City of Danville	- Attended kick-off meeting - Attended HIRA presentation meeting - Attended Danville local planning team meeting #2 - Provided data for incorporation into the plan - Reviewed draft materials
Ken Gillie, Jr.	Planning Division Director	City of Danville	- Attended kick-off meeting - Attended HIRA presentation meeting - Attended Danville local planning team meeting #1 - Provided data for incorporation into the plan - Reviewed draft materials - Attended draft plan review meeting
Mike Jefferson	Assistant Fire Chief	City of Danville	Reviewed draft materials

Name	Title and/or Department	Jurisdiction	Role/Participation
Doug Plachcinski	Director of Planning	City of Danville	• Attended kick-off meeting • Attended Danville local planning team meeting #1 • Provided data for incorporation into the plan • Reviewed draft materials
Jeff Gauldin	Public Works Director	City of Martinsville	• Attended kick-off meeting • Attended Martinsville local planning team meeting #1 • Attended Martinsville local planning team meeting #2 • Provided data for incorporation into the plan • Reviewed draft materials
Dan Howell	Assistant Chief Fire & EMS	City of Martinsville	• Attended kick-off meeting
Mark McCaskill	Director of Community Development	City of Martinsville	• Attended kick-off meeting • Attended HIRA presentation meeting • Attended Martinsville local planning team meeting #1 • Attended Martinsville local planning team meeting #2 • Provided data for incorporation into the plan • Reviewed draft materials • Attended draft plan review meeting
John Turner	Emergency Management Coordinator	City of Martinsville	• Attended kick-off meeting • Attended Martinsville local planning team meeting #1 • Provided data for incorporation into the plan • Reviewed draft materials • Attended draft plan review meeting
Michael Armbrister	Executive Director (as of July 1, 2021); Deputy Director (until June 30, 2021)	WPPDC Staff	• Attended kick-off meeting • Attended HIRA presentation meeting

Name	Title and/or Department	Jurisdiction	Role/Participation
			• Attended all initial local planning team meetings • Reviewed draft materials • Attended draft plan review meeting • Coordinated contracting efforts
Kristina Eberly	Regional Programs Director	WPPDC Staff	• Attended kick-off meeting • Reviewed draft materials
David R. Hoback	Executive Director (until June 30, 2021)	WPPDC Staff	• Attended kick-off meeting • Attended HIRA presentation meeting • Reviewed draft materials
Cole Taggart	All-Hazards Planner	VDEM	• Attended kick-off meeting • Reviewed draft materials

Between December 2020 and August 2021, the Mitigation Advisory Committee held virtual meetings via Microsoft Teams and supervised work on the area's mitigation plan. The Mitigation Advisory Committee members coordinated and consulted with other entities and stakeholders to identify and delineate natural hazards within the thirteen local jurisdictions and to assess the risks and vulnerability of public and private buildings, facilities, utilities, communications, transportation systems, and other vulnerable infrastructure. In addition, the individual Mitigation Advisory Committee members met with the consultant to review the plan and identify jurisdictional mitigation actions. For those members that could not make the official meetings, input and approval were secured through ad-hoc discussions between county and town officials, as well as through recaps during local planning team meetings (further described in the following section).

In developing the mitigation plan, a majority of necessary communication occurred through telephone calls and emails. This information includes updates to jurisdictional profile information since 2016, risk assessment data that was not provided during formal meetings, updates to capabilities and department capacities since 2016, and updates to or additions of mitigation actions that were not discussed during formal meetings. Michael Armbrister of the WPPDC also virtually received input from all the towns to significantly expand and bolster the capability assessment in November 2021, as the towns were previously included under their respective counties. The Mitigation Advisory Committee and its consultant chose this avenue to best accommodate schedules and maintain the safety of all participants by following the Centers for Disease Control and Prevention workplace and travel guidelines during the COVID-19 pandemic. A project website was established to facilitate the planning process. Table 3-2 documents formal meeting dates and their purposes.

Table 3-2. Mitigation Advisory Committee Meetings

Date	Summary of Discussions
December 16, 2020	Planning process was described. Commitment to the project and schedule was obtained. List of hazards and rankings from previous plan was

Date	Summary of Discussions
	validated. Discussion of old plan structure and content was held; decision was made to retain structure and general level of content. Discussion of update process and role of Mitigation Advisory Committee members was held.
April 20, 2021	Results of the HIRA were presented. Goals and objectives from previous plan were reviewed and modified. Public engagement effort was reviewed and confirmed. Process for updating previous mitigation actions and developing new actions was discussed.
August 5, 2021	Draft plan was discussed. Maintenance procedures were reviewed and validated. Adoption process discussed.

A.1. Local Planning Teams

Members of the Mitigation Advisory Committee nominated additional individuals who would be valuable resources in the mitigation planning process. These individuals consisted of planners, fire chiefs, code officials, town representatives, GIS managers, and others who could provide relevant data and input. These additional participants and original Mitigation Advisory Committee members made up the local planning teams for each county and city, with the towns participating in their respective county's local planning team. Due to capability and capacity issues discussed in Section 6, the smaller towns (such as the Towns of Hurt, Gretna, and Chatham), frequently asked their respective county officials to share information and speak on their behalf when meetings could not be attended. The WPPDC and Mitigation Advisory Committee would like to thank the local planning team members described in Table 3-3, along with their representative departments and organizations, jurisdictions, and roles. Those that served on both the Mitigation Advisory Committee and a local planning team are shown in bold.

Table 3-3. West Piedmont Local Planning Teams Participants

Name	Title and/or Department	Jurisdiction	Role/Participation
Lisa Cooper	Principal Planner	Franklin County	• Attended Franklin local planning team meeting #1 • Attended Franklin local planning team meeting #2 • Provided data for incorporation into the plan
Bill Ferguson	Director/Chief Franklin County Public Safety	Franklin County	• Attended kick-off meeting • Attended Franklin local planning team meeting #1 • Attended Franklin local planning team meeting #2 • Provided data for incorporation into the plan • Reviewed draft materials

Name	Title and/or Department	Jurisdiction	Role/Participation
			• Attended draft plan review meeting
Eric Schmidt	GIS Coordinator	Franklin County	• Attended kick-off meeting • Attended Franklin local planning team meeting #1 • Provided data for incorporation into the plan • Attended HIRA presentation meeting • Reviewed draft materials
B.T. Fitzpatrick III	Town Manager	Town of Boones Mill	• Attended kick-off meeting • Attended Franklin local planning team meeting #1 • Attended Franklin local planning team meeting #2 • Provided data for incorporation into the plan • Reviewed draft materials • Attended draft plan review meeting
Mark Moore	Assistant Town Manager / Community Development Director	Town of Rocky Mount	• Attended kick-off meeting • Attended Franklin local planning team meeting #1 • Provided data for incorporation into the plan • Reviewed draft materials
Jessica Heckman	Town Planner	Rocky Mount	• Attended Franklin local planning team meeting #1 • Attended HIRA presentation meeting • Attended Franklin local planning team meeting #2 • Provided data for incorporation into the plan • Review draft materials • Attended draft plan review meeting
Lee Clark	Planning, Zoning, and Building Inspections	Henry County	• Attended Henry local planning team meeting #1

Name	Title and/or Department	Jurisdiction	Role/Participation
			• Provided data for incorporation into the plan • Attended HIRA presentation meeting • Reviewed draft materials • Attended draft plan review meeting
Matt Tatum	Director of Public Safety	Henry County	• Attended kick-off meeting • Attended Henry local planning team meeting #1 • Attended HIRA presentation meeting • Provided data for incorporation into the plan • Reviewed draft materials
Craig A O'Der, Jr.	Mayor	Town of Ridgeway	• Attended Henry local planning team meeting #1 • Provided data for incorporation into the plan • Reviewed draft materials
Steve Allen	Emergency Management Coordinator	Patrick County	• Attended HIRA presentation meeting • Attended Patrick local planning team meeting #1 • Attended Patrick local planning team meeting #2 • Provided data for incorporation into the plan • Reviewed draft materials
Geri Hazelwood	County Administrator	Patrick County	• Attended Patrick local planning team meeting #1 • Attended Patrick local planning team meeting #2 • Provided data for incorporation into the plan
Terry Tilley	Stuart Town Manager	Town of Stuart	• Attended Patrick local planning team meeting #1 • Attended Patrick local planning team meeting #2 • Provided data for incorporation into the plan

Name	Title and/or Department	Jurisdiction	Role/Participation
Emily Ragsdale	Director of Community Development	Pittsylvania County	• Attended kick-off meeting • Attended Pittsylvania local planning team meeting #1 • Provided data for incorporation into the plan • Reviewed draft materials • Attended draft plan review meeting
Christopher C. Slemp	Director of Public Safety	Pittsylvania County	• Attended Pittsylvania local planning team meeting #1 • Provided data for incorporation into the plan • Reviewed draft materials • Attended draft plan review meeting
Jason Endmen	Code Official	Pittsylvania County	• Attended Pittsylvania local planning team meeting #1 • Provided data for incorporation into the plan
Chris Adcock	Director of Public Works	Pittsylvania County	• Attended Pittsylvania local planning team meeting #1 • Attended Pittsylvania local planning team meeting #2 • Provided data for incorporation into the plan
Karen Hayes	Deputy Director of Community Development	Pittsylvania County	• Attended Pittsylvania local planning team meeting #1 • Attended Pittsylvania local planning team meeting #2 • Provided data for incorporation into the plan
Terry Whitt	GIS Manager	Pittsylvania County	• Attended Pittsylvania local planning team meeting #1 • Provided data for incorporation into the plan
Richard Cocke	Town Manager	Town of Hurt	• Reviewed draft materials
Michael Jones, M.S.	Deputy Town Manger & Director of Public Safety	Town of Hurt	• Provided information for incorporation into the plan • Provided plan feedback via email

Name	Title and/or Department	Jurisdiction	Role/Participation
			Reviewed draft materials
David Lilly	Town Manager	Town of Gretna	Reviewed draft materials
Patsy Budd	Assistant Clerk/Treasurer	Town of Gretna	- Provided information for incorporation into the plan - Reviewed draft materials
Gary Hodnett	Mayor	Town of Chatham	- Provided data for incorporation into the plan - Reviewed draft materials
Tim Duffer	Deputy Fire Chief	City of Danville	- Attended kick-off meeting - Attended HIRA presentation meeting - Attended Danville local planning team meeting #2 - Provided data for incorporation into the plan - Reviewed draft materials
Ken Gillie, Jr.	Planning Division Director	City of Danville	- Attended kick-off meeting - Attended HIRA presentation meeting - Attended Danville local planning team meeting #1 - Provided data for incorporation into the plan - Reviewed draft materials - Attended draft plan review meeting
Doug Plachcinski	Director of Planning	City of Danville	- Attended kick-off meeting - Attended Danville local planning team meeting #1 - Provided data for incorporation into the plan - Reviewed draft materials
Dave Coffey	Fire Chief	City of Danville	- Attended Danville local planning team meeting #2 - Provided data for incorporation into the plan
Jeff Gauldin	Public Works Director	City of Martinsville	- Attended kick-off meeting - Attended Martinsville local planning team meeting #1

Name	Title and/or Department	Jurisdiction	Role/Participation
			• Attended Martinsville local planning team meeting #2 • Provided data for incorporation into the plan • Reviewed draft materials
Mark McCaskill	Director of Community Development	City of Martinsville	• Attended kick-off meeting • Attended HIRA presentation meeting • Attended Martinsville local planning team meeting #1 • Attended Martinsville local planning team meeting #2 • Provided data for incorporation into the plan • Reviewed draft materials • Attended draft plan review meeting
John Turner	Emergency Management Coordinator	City of Martinsville	• Attended kick-off meeting • Attended Martinsville local planning team meeting #1 • Provided data for incorporation into the plan • Reviewed draft materials • Attended draft plan review meeting
Kris Bridges	Building Official	City of Martinsville	• Attended Martinsville local planning team meeting #1 • Attended Martinsville local planning team meeting #2 • Provided data for incorporation into the plan
Daryl Hatcher	(Hospital Representative) Safety / Security / Emergency Preparedness Officer	City of Martinsville	• Attended Martinsville local planning team meeting #1 • Provided data for incorporation into the plan
Nolan Kirk	GIS Technician	City of Martinsville	• Attended Martinsville local planning team meeting #1 • Attended Martinsville local planning team meeting #2 • Provided data for incorporation into the plan

Name	Title and/or Department	Jurisdiction	Role/Participation
Leon Towarnicki	City Manager	Martinsville	• Attended HIRA presentation meeting • Review draft plan materials • Attended draft plan review meeting

The local planning teams convened on two separate occasions to provide data for incorporation into the plan and make decisions on mitigation actions. These meetings are outlined in Table 3-4.

Table 3-4. Local Planning Teams Meetings

Dates	Summary of Discussions
February 9-26, 2021	Content from the 2016 West Piedmont Multi-Jurisdictional Hazard Mitigation Plan was reviewed. Updates were made to the community profile, capability assessment, and mitigation strategy disposition table. Data for the hazard identification and risk assessment was collected. The hazard prioritization was reviewed.
May 18 – June 3, 2021	Recap summaries were provided on previous planning steps, including the HIRA results, along with an opportunity for discussion. Potential 2021 mitigation actions were reviewed, chosen, edited, and prioritized.

The draft plan was distributed to local planning team members as well as Mitigation Advisory Committee members for comment and approval. Feedback was collected via email, phone calls, and ad-hoc meetings between county, town , and WPPDC officials.

B. Public Participation

The public was afforded several opportunities to provide input and to participate throughout the planning process. An initial open public meeting was held on May 4, 2021, to allow the general public an opportunity to meet with the planning consultants and Mitigation Advisory Committee members, ask questions, and provide comments and input on the mitigation planning process and the preliminary results of the hazard identification and risk analysis. No one attended the meeting.

Advertisements for the first public meeting included:

- A featured advertisement on the front page of the Martinsville Bulletin website;
- Postings in the Chatham Star Tribune, The Franklin News Post, and 30 other local and regional event and news websites; and
- Social media posts on the Pittsylvania County Facebook page;
- Postings on the WPPDC website and social media accounts; and
- Mentions and links to the invitation and more information in local newsletters.

A second public meeting was held on August 5, 2021 to allow the public an opportunity to provide input on the draft mitigation plan. A public meeting notice was placed in the Danville and Martinsville

city papers, as well as the Patrick and Franklin county papers to inform the public that the draft plan was available for review and a meeting to review and provide input would be held virtually. The second public meeting was also advertised via:

- Social media posts on the WPPDC website and social media accounts;
- WPPDC Opportunity Tracker newsletter advertisement;
- Posts on local subreddits on the social media site Reddit;
- Public meeting notice in the Martinsville Bulletin;
- Public meeting notice in the Enterprise newspaper;
- Public meeting notice in the Danville Register & Bee; and
- Facebook post in the “Danville Now” Facebook group.

Also advertised along with the meeting was the community survey (described in further detail in Section B.1) and a Story Map detailing the mitigation planning process was created that included a feature for the public to submit flooding and other hazard problem areas throughout the region by placing a virtual pin on a map. The community survey and Story Map were advertised during the publicization of the first public meeting, as well as during a second advertisement push on the “Danville Now” Facebook group, the Danville Subreddit, and on the WPPDC’s Facebook page.

The survey, the PDC’s website screenshot documenting the survey’s availability, the Story Map, the press releases and advertisements for the public meetings are exhibited in Appendix A.

The 2021 Hazard Mitigation Plan was also discussed at several WPPDC meetings, which are posted and open to the public. The draft plan was made available on the Planning District Commission’s website (<http://www.wppdc.org>). The 2016 plan was used to inform public presentations and public inquiries by the emergency management directors in the participating jurisdictions. The plan is mentioned during presentations at public meetings and used as a reference when preparing new plans. In addition, the Planning District Commission has distributed brochures about the plan throughout the planning area and displayed information about the plan in the Planning District Commission’s office. The plan has been available online throughout the past 5 years.

B.1. Public Survey

A West Piedmont Hazard Mitigation Plan Community Survey was developed by the Mitigation Advisory Committee. The survey was used to better understand the public’s awareness of hazards in the region, gauge their preparedness for those hazards, determine mitigation action preferences, and compile data on hazard problem areas. The survey was available from April 27, 2021 to June 21, 2021 to allow as many people as possible to participate. The 16 survey responses received were incorporated into the hazard ranking and helped inform the Mitigation Advisory Committee’s decisions regarding mitigation goals, objectives, and strategies. The survey was online and posted on the West Piedmont Planning District Commissions Hazard Mitigation Planning webpage, Hazard Mitigation Plan 2021 Update Story Map, and advertised through social media and local newspaper websites. The breakdown of respondent composition is shown in Figure 3-1.

ANSWER CHOICES	RESPONSES	
▼ I am a resident.	62.50%	10
▼ I am a business owner.	0.00%	0
▼ I work in the region.	12.50%	2
▼ I am a representative of a state, agency, municipality, jurisdiction, or organization.	25.00%	4
▼ Other (please specify) Responses	0.00%	0
TOTAL		16

Figure 3-1. Public Survey Respondent Composition

When asked how concerned respondents were about certain hazards impacting their home, business, community, and/or organization, the highest-concern hazards were:

1. Flood;
2. Severe Weather; and
3. Tornado.

The highest ranked hazards of moderate concern were:

1. Wildfire and Winter Storm (tied); and
2. Agroterrorism.

The highest ranked hazards of low concern were:

1. Dam Failure; and
2. Hurricane, Earthquake, and HVT Lines (tied).

Figure 3-2 shows the results of the hazard concern ranking.

	LOW CONCERN	MODERATE CONCERN	HIGH CONCERN	TOTAL
Flood	50.00% 4	0.00% 0	50.00% 4	8
Drought	57.14% 4	28.57% 2	14.29% 1	7
Hurricane	71.43% 5	28.57% 2	0.00% 0	7
Tornado	28.57% 2	42.86% 3	28.57% 2	7
Wildfire	14.29% 1	71.43% 5	14.29% 1	7
Winter Storm	14.29% 1	71.43% 5	14.29% 1	7
Landslide	42.86% 3	42.86% 3	14.29% 1	7
Severe Weather	14.29% 1	42.86% 3	42.86% 3	7
Earthquake	71.43% 5	28.57% 2	0.00% 0	7
Dam Failure	85.71% 6	14.29% 1	0.00% 0	7
High Voltage Transmission Lines (Power Lines)	71.43% 5	28.57% 2	0.00% 0	7
Organic / Inorganic Spills	57.14% 4	42.86% 3	0.00% 0	7
Pipeline Failure	57.14% 4	42.86% 3	0.00% 0	7
Agroterrorism (a terrorist act intended to disrupt or damage crops or livestock)	42.86% 3	57.14% 4	0.00% 0	7

Figure 3-2. Respondent Hazard Concern

Respondents were also asked about which hazards have impacted their home, business, community or organization. The eight responses received are shown in Figure 3-3.

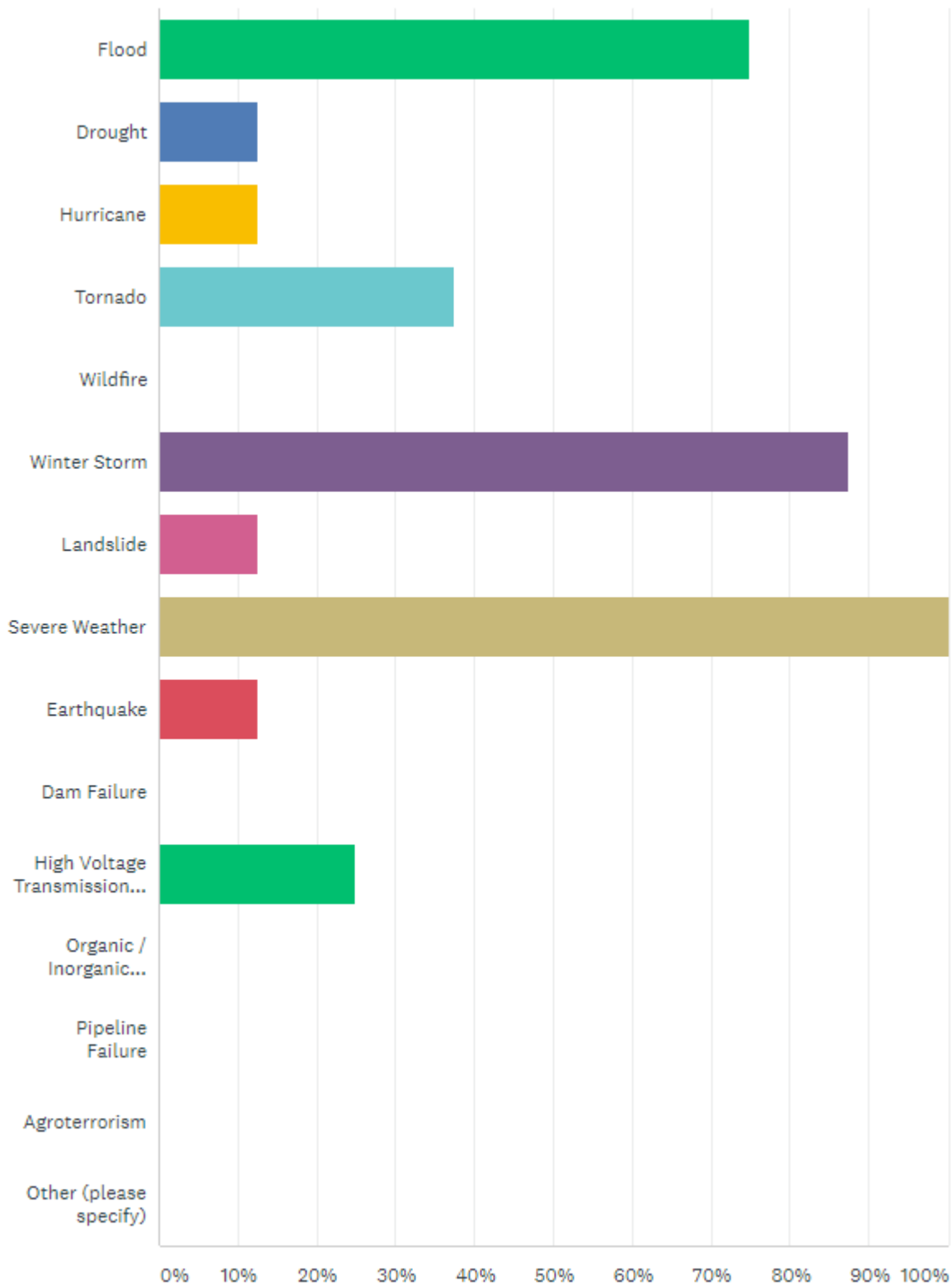


Figure 3-3. Respondent Impacted by Hazards

Other findings of note from the survey include:

- Emergency alerts, text messages, and smartphone applications most often provide respondents with alerts and information about hazards.

- It is most important for the community to provide outreach and education to residents, business, jurisdictions, and organizations to help them understand risks and be prepared.
- Five respondents reported that they were aware that the communities in the West Piedmont Planning District maintain a regional hazard mitigation plan, while three were not aware.

Full survey results are provided in Appendix A.

B.2. Stakeholder Involvement

Community and regional stakeholders who were not a part of the Mitigation Advisory Committee or local planning teams were invited to participate in the planning process. Multiple emails were sent to stakeholders inviting them to review, comment, and fill out a survey on the plan. Due to the COVID-19 pandemic, interactions and requests for participation was virtual through online surveys, emails, and e-document sharing. The following organizations generously provided responses to the online stakeholder survey and/or emails:

- Stokes County, NC;
- The Health Collaborative;
- Southside Planning District Commission (VA); and
- Roanoke Valley-Alleghany Regional Commission (VA).

All the feedback received was thoroughly reviewed and considered during the draft editing process. Based on feedback received, future public and stakeholder engagement efforts will try a more targeted approach through partnering with local, trusted, grassroots partners and considering utilizing breakout groups to focus on individual topics of concern (e.g., housing, the environment, equity). In addition, collaborative mitigation projects will be explored with neighboring jurisdictions that expressed potential interest to address hazards with regional impacts.

The community and regional stakeholders that were provided a copy of the draft plan to provide input during the planning process are outlined in Table 3-5.

Table 3-5. Stakeholder Participation

Organization	Reviewers
Danville Pittsylvania County Chamber of Commerce	President & CEO and 3 additional staff members
STEP, Inc.	Interim Executive Director
Danville Redevelopment & Housing Authority	CEO/Executive Director
Southern Virginia Regional Alliance	Executive Director
The Health Collaborative	Regional Coordinator
Institute for Advanced Learning and Research	Executive Director
Patrick County Chamber of Commerce	13 staff, officers, and board members
United Way of Henry County & Martinsville	Executive Director
Reynolds Homestead, Virginia Tech	Regional Outreach Coordinator
Dan River Basin Association	Executive Director

Organization	Reviewers
Piedmont Community Services	Community Support Director
Martinsville Henry County Chamber of Commerce	President and 2 other staff members, 6 officers, and 12 directors
Mount Rogers PDC (VA)	Director
New River Valley PDC (VA)	Director
Regio 2000 Regional Commission (VA)	Director
Roanoke Valley-Alleghany Regional Commission (VA)	Director of Community Development
Southside PDC (VA)	Senior Planner
Caswell County (NC)	Coordinator, Caswell Emergency Management Department
Rockingham County (NC)	Director, Emergency Operations Center
Stokes County (NC)	Emergency Management Director
Surry County (NC)	Director, Surry County Resource Center

Stakeholder engagement documentation and feedback can be found in Appendix A.

C. Incorporation of Existing Plans and Studies

The West Piedmont Hazard Mitigation Plan update incorporates information from several other plans, studies and reports that have been previously produced. These documents include the following:

- 2018 Commonwealth of Virginia Hazard Mitigation Plan, VDEM;
- 2013 Commonwealth of Virginia Hazard Mitigation Plan, VDEM;
- 2019 Commonwealth of Virginia Emergency Operation Plan, VDEM;
- 2011 Regional Water Supply Plan, WPPDC;
- Virginia Employment Commission Economic Information;
- Virginia Department of Conservation and Recreation (DCR) climate reports;
- Virginia Department of Forestry wildfire data and reports;
- Virginia Department of Mines, Minerals, and Energy pipelines;
- Virginia Energy Patterns and Trends (Virginia Tech);
- Local comprehensive and emergency management plans;
- State and local mitigation planning guidance;
- FEMA DMA2K Mitigation Planning Requirements;
- FEMA Benefit Cost Analysis (BCA) Toolkit Technical Flood Manuals;
- 2017 USDA Census of Agriculture;

- 2010 US Census Bureau population data;
- 2015 – 2019 US Census Bureau American Community Survey;
- 2019 US Census Bureau Population Estimates Program;
- US Census Bureau water source data; and
- US Department of Commerce data.
- National Inventory of Dams (NID) data

Information about these plans and studies is included in Sections 2, 3, 4, 5 6, and 8 and full reference information is provided in Section 9.

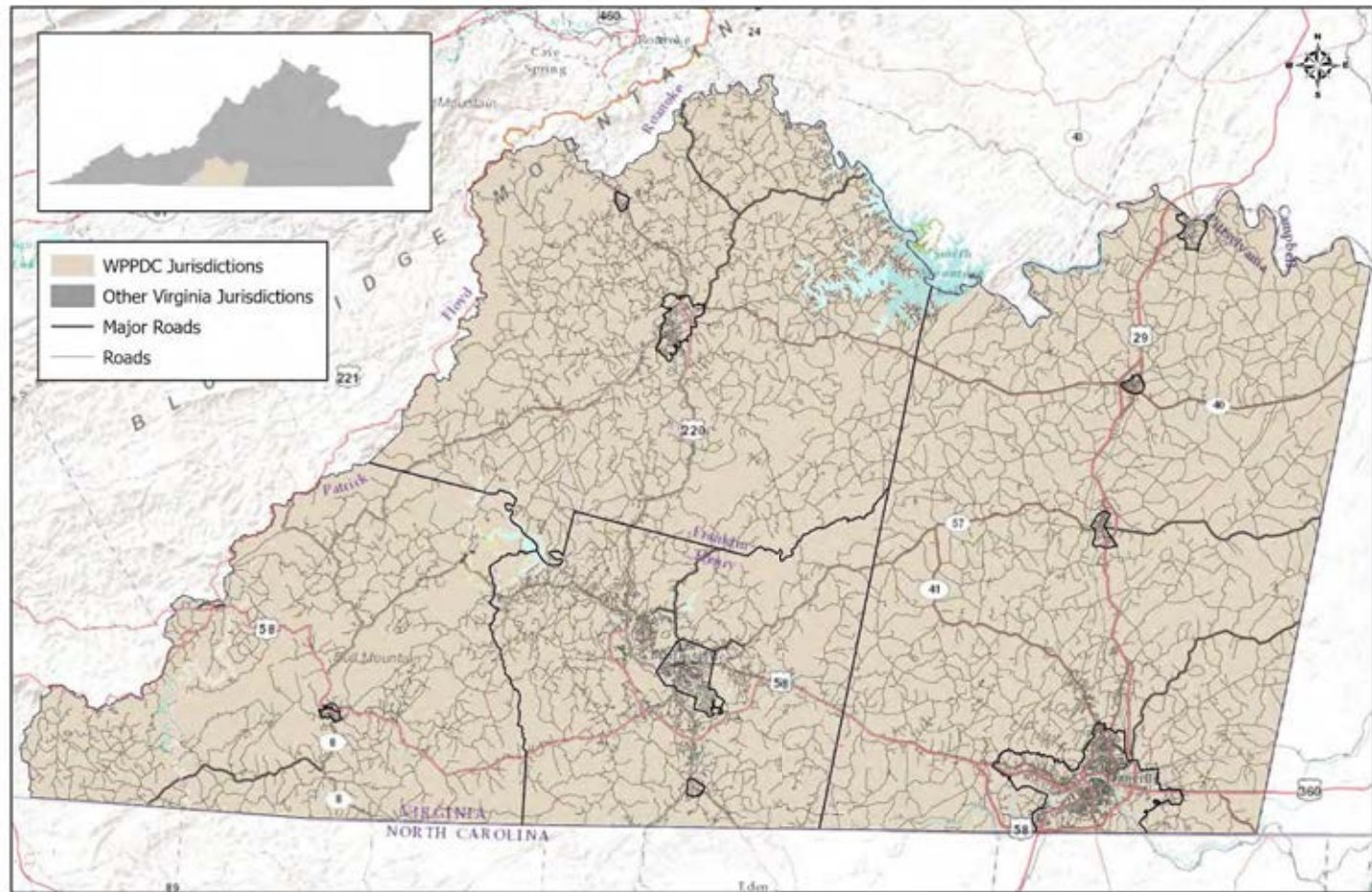
Section 4. Community Profile

A. Introduction

WPPDC is in the historic and scenic mountains and foothills of southwestern Virginia (Figure 4-1). The Blue Ridge Mountains border the western portion and the Piedmont foothills border the east. The District is comprised of four counties, two independent cities, and seven incorporated towns. The jurisdictions included in this plan include the following (also see Figure 4-2):

- Franklin County;
- Henry County;
- Patrick County;
- Pittsylvania County;
- City of Danville;
- City of Martinsville;
- Town of Boones Mill;
- Town of Chatham;
- Town of Gretna;
- Town of Hurt;
- Town of Ridgeway;
- Town of Rocky Mount; and
- Town of Stuart.

West Piedmont Planning District Commission



Source: US Census Bureau Tigerline

Prepared by Dewberry, for the West Piedmont Planning District Commission, March 2021.

0 2.5 5 10 15 20 Miles

Figure 4-1. Location of the West Piedmont District

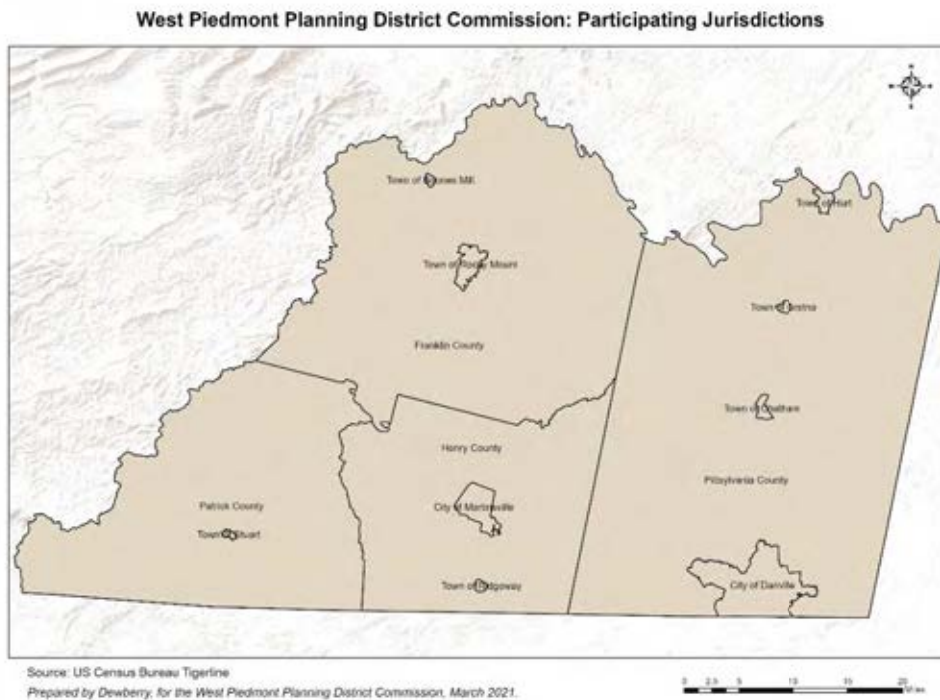


Figure 4-2. HMP Participating Jurisdictions

The planning area encompasses approximately 2,583 square miles. Roughly 240,241 persons live in WPPD, according to the 2019 U.S. Census Bureau Population Estimates Program. The WPPD is bound by the Blue Ridge Mountains to the west, Piedmont foothills to the east, and the State of North Carolina to the south. The Roanoke (Staunton) River runs along the northeastern border, flowing towards the Atlantic Ocean. Portions of the Roanoke River Basin, in which the Planning District lies, are developing into major commercial and industrial concentrations. Recreational development and associated business development within the region also have expanded due to the presence of Smith Mountain and Leesville Lakes, Philpott Lake, Fairy Stone State Park, and the Blue Ridge Parkway.

Of the District's 1.6 million acres of land, approximately 10,772 acres are publicly held and protected by four Wildlife Management Areas and three Natural Area Preserves. The headwaters of the Banister, Blackwater, Dan, Mayo, Pigg, and Smith Rivers are in the District. Several major highways cut through the WPPD, including U.S. Highways 58, 220, 29, 311, and 360. These thoroughfares provide access to several other population centers, including Roanoke just north of the WPPD; Greensboro, NC, approximately 50 miles to the south; Virginia's capital city, Richmond, 140 miles to the southwest; and the Port of Hampton Roads, 200 miles to the west.

Based on total land mass, Henry County is the smallest county, occupying 382 square miles, while Pittsylvania County is the largest at 971 square miles. Patrick County contains 483 square miles, while Franklin County encompasses 692 square miles. The City of Danville is 43 square miles, and the City of Martinsville covers 11 square miles.

B. Physiography

The District falls within two sub-provinces of the Piedmont of Virginia (see Figure 4-3 for a map of the physiographic provinces and sub-provinces). The Foothills Sub-province (F) covers the western portion of the District, just east of the Blue Ridge Mountains, and is characterized by broad rolling hills and moderate slopes. Elevations range from 400 to 1,000 feet, with peaks rising from 1,500 to 2,500 feet. The other sub-province, covering most of the District, is the Outer Piedmont Sub-province (OP). This sub-province is characterized by broad upland with low to moderate slopes. Elevations range from 600 to 1,000 feet in the west, gradually diminishing to 250 to 300 in the east.¹

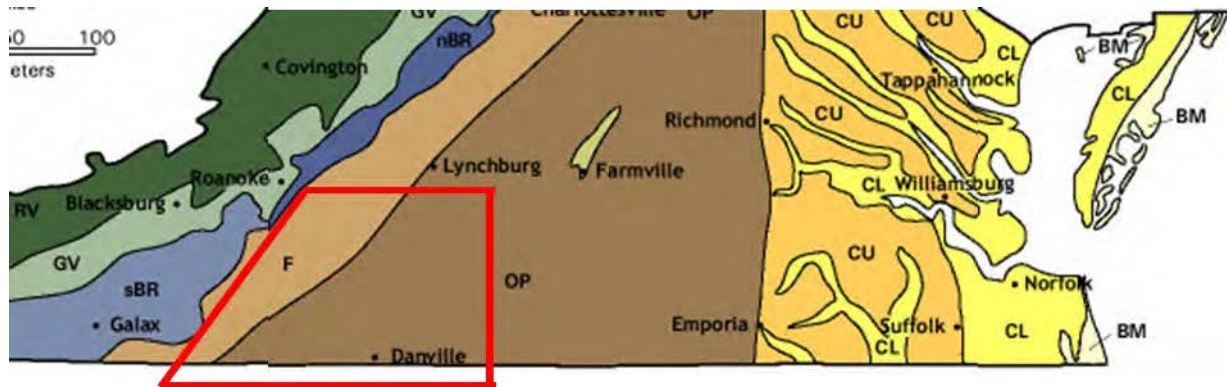


Figure 4-3. Physiographic Provinces of West Piedmont District

C. Hydrology

The WPPD lies within two major watersheds: the Roanoke, and the Yadkin, with 95% of the area in the Roanoke. The Roanoke watershed spans 6,274 square miles, the second largest in Virginia, and is fed mainly by the Roanoke River, the Dan River, the Banister River and the Kerr Reservoir. The Yadkin watershed is fed by the Ararat River and covers about 118 square miles.

The planning area is bound on the north by the Roanoke River and the south by the Dan River, the Sandy River, and the North and South Mayo Rivers. In addition, the Pigg River flows through it and numerous creeks crisscross the planning area. Figure 4-4 illustrates the location of the major watershed boundaries for the Planning District.

¹ Bailey, C. M., and Roberts, Chad. 1999. "Physiographic Map of Virginia." College of William & Mary Department of Geology. Retrieved from <https://viriniastudies.org/content/viriniastudies-five-regions>.

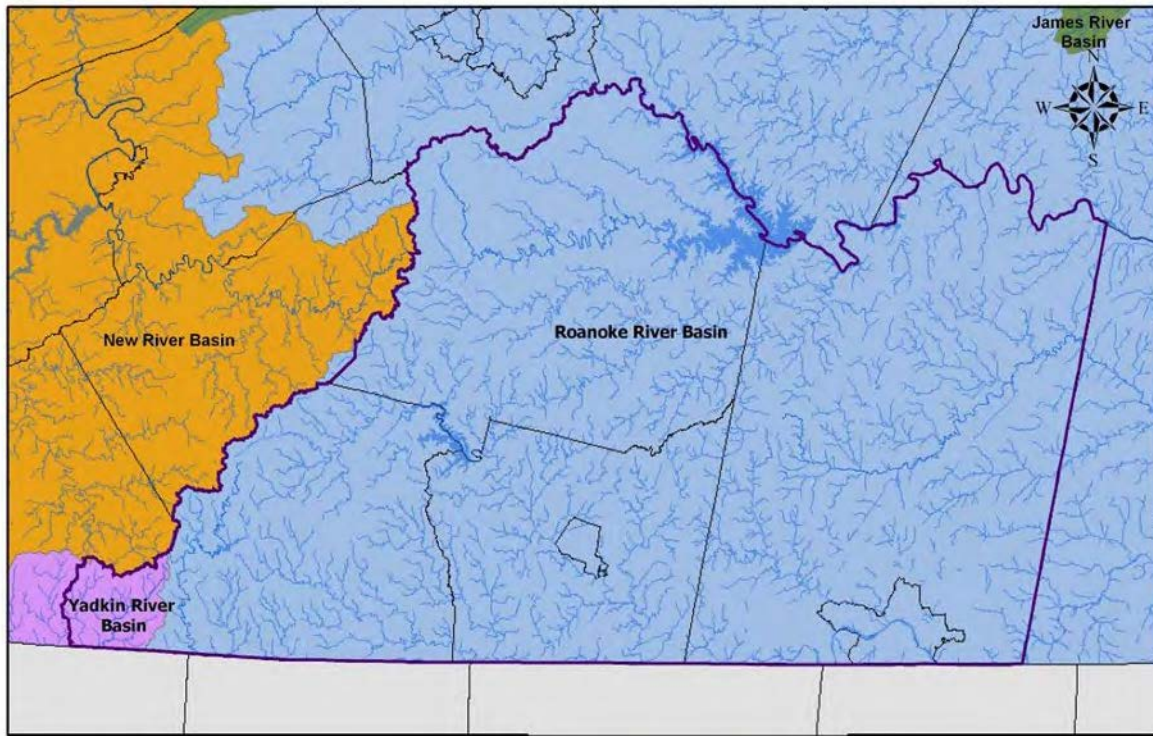


Figure 4-4. West Piedmont Region Watersheds²

D. Land Use and Development Trends

The counties in the planning area are primarily rural while the cities exhibit a more urban/suburban development pattern. There are also seven incorporated towns in the planning area that act as commercial and residential nodes. Appendix B4 includes existing and future land use maps for the region and offer insight into the types of development projected into the future. In the past several years, overall development has been minor, and it has not been in high-hazard areas. Any future construction that does occur in the floodplain will be designed and built to meet current standards.

D.1. City of Danville

The City of Danville serves as Pittsylvania County's primary economic center. The City currently lacks direct access to a federal interstate highway, which has hindered its growth. However, the proposed Interstate 785 would use the existing U.S. Route 29 and U.S. Route 58 bypass (Danville Expressway). The I-785 initiative would be a spur of Interstate 85 in Greensboro, NC, streamlining travel from North Carolina to Washington, D.C.

Danville is home to several manufacturing companies including Goodyear Tire & Rubber Co., Nestle Refrigerated Foods, and EBI. In recent years, the City has looked to expand its industrial base by developing new industrial parks. Airside Industrial Park is located just off U.S. Route 58 in the vicinity of the Danville Regional Airport. River View Industrial Park, which is adjacent to Airside Industrial Park, was expanded in conjunction with the development of the Cyberpark, located near the intersection of

² Sourced from the Virginia Department of Conservation and Recreation.

U.S. Route 58 and 29. The City, in cooperation with Pittsylvania County, completed a regional industrial park development, the Cane Creek Centre, located off U.S. Route 58 in the Ringgold area of Pittsylvania County in 2010. In 2008, Danville and Pittsylvania County announced plans to develop the new 3,500-acre Southern Virginia Megasite at Berry Hill. The industrial park is located off Berry Hill Road and U.S. Route 58 near the North Carolina border, and will serve a 50-mile radius in southern Virginia and part of North Carolina. The Megasite aims to attract advanced manufacturers and thousands of jobs to the area with significant infrastructure investments in rail, natural gas, terabyte speed broadband, electric, water, and sewer, as well as accommodating permitting and zoning in place. The Norfolk Southern Railroad, the Transco natural gas line, and electric lines from the City of Danville cross the site. As of August 2021, the site remains under development. The floodway has remained relatively unchained in recent years, but the most notable change are a new restaurant and a doctor's office in the floodway which were retrofits after they took over existing buildings that were already in the floodway.

Danville's housing supply ranges from early 20th-century Victorian, Georgian Revival, and Edwardian architecture to suburban Colonial-style homes to neighborhoods centered on golf courses. In 2011, the City initiated revitalization efforts in the River District, which is located in the heart of downtown Danville. It includes portions of two historic districts: the Tobacco Warehouse Historic District and the Downtown Danville Historic District. In recent years, more than 600 apartments have been constructed, and approximately 2,000 residents now occupy this area. In 2016, residential units and a commercial development was built in the Piedmont Drive area near the mall. An estimated 40 businesses also have located in the River District, bringing a healthy composition of mixed-uses to the City's downtown.

The City's Future Land Use Plan identifies a guiding policy and objective to maintain a viable mix of residential and non-residential uses in Danville. Specifically, this mix refers to a split of 65% residential and 35% non-residential uses. If the City becomes zoned for more commercial uses, then most new residential developments may occur outside of the locality. Eventually these new residential areas will attract new retail and commercial development to the surrounding localities. If the City becomes zones for too much residential development, then the housing market will stagnate as there are fewer job and retail options for City residents. The split between residential and non-residential acreage is a 63-32 ratio. The remaining 5% is currently recommended as mixed-use. This future land use includes residential and non-residential uses like retail and office space developed near each other in thoughtfully planned developments.

To achieve a good balance of residential and non-residential uses, the large planning areas with mixed-use land recommendations should be developed with a 40-60 split between residential and office/retail uses. The long-term sustainability of Danville depends on a balance of residents, services, and jobs that support each other.

D.2. Franklin County

According to the 2017 Census of Agriculture, 34.3% of Franklin County land was used for agriculture, a slight drop from 37.2% in 2012. Compared to 1992 and 1964, the number of acres used for farming has fallen continuously, leading to simultaneous drop in the agricultural share of land. Once the leading cash crop in the area, tobacco still ranks high in the region, despite a national downward trend in tobacco crops. In addition, grains, dairy, eggs, apples, and timber contributed to the farming sector's earnings. Franklin County ranked second out of 68 milk-producing counties in Virginia, according to the 2017 Census of Agriculture. Agriculture is concentrated in the eastern and central portions of the County. According to the 2025 Comprehensive Plan (adopted May 2007), about 60% of the County

was forested, a portion of which was also classified as agriculture. Much of this land is in the northwest, western, and southeastern parts of the County along the mountain slopes.

The Comprehensive Plan describes four general patterns of residential development: rural residential, low-density residential, medium-density residential development, and high-density residential development associated with towns (incorporated and unincorporated), villages, and rural neighborhood centers. Rural residential is characterized by one- to five-acre lots served by private or state-maintained roads. This type of development is evenly dispersed throughout the County. Low-density residential is characterized by lots that are less than two acres, on or off the water. This development is primarily concentrated around Smith Mountain Lake and outside of the Town of Rocky Mount and south of the Town of Boones Mill. Increasingly, these are single-family homes instead of mobile home parks, campgrounds, or other more modest accommodations. Medium-density residential has a slightly higher density of two to four dwelling units per acre. These developments are located near towns and villages, and typically has access to public water and sewer. High-density residential developments are usually mixed with retail and commercial services and form a transition between business uses and surrounding rural, low-, and medium-density residential areas. High-density residential typically has access to public water and sewer. Both medium-density and high-density residential areas are generally closer to jobs, public services, and retail shopping. High-density residential developments are mostly found in Rocky Mount, Boones Mill, and Ferrum.

Most of Franklin's commercial centers are near major towns or residential areas. Smaller commercial areas tend to have better access to major transportation nodes. Smaller communities, such as Callaway, Glade Hill, Snow Creek, and Fork Mountain, have clusters of stores and services. Strip commercial highway development also is evident along Route 220 North and Route 40.

Manufacturing accounts for a major segment of Franklin County's industrial base. Most of the plants are in or near Rocky Mount. In 2000, nearly one-third (32%) of the County's workers were employed in the manufacturing sector, but by 2014, that share fell to just 18.9%. However, the manufacturing industry has rebounded slightly; as of 2019, the percentage of Franklin County residents working in the manufacturing sector had risen to 22%. Specific manufacturing industries present in the County include wood products and modular and mobile homes.

Franklin County has several industrial parks to support this base and seeks to expand it by developing new industrial parks. The Franklin County-Rocky Mount Industrial Park is located north of Route 40 East inside the Rocky Mount Town Limits. The Rocky Mount Technology Park is in the northern part of Rocky Mount near U.S. Route 220. The Commerce Center is located approximately five miles south of Rocky Mount in the County just off U.S. Route 220. The Ferrum Business Park has property available for development in the Ferrum College vicinity of the County located off Route 40. In 2015, the County announced plans to develop the 400-acre Summit View Business Park just north of Rocky Mount along U.S. Route 220. As of June 2021, the project remains in development and has secured three tenants: Traditional Medicinals, ValleyStar Credit Union, and Stik-Pak Contract Packaging.

The 1-percent-annual-chance floodplain, as identified in the FEMA Flood Insurance Rate Maps, covers portions of land along the Roanoke, Pigg, and Blackwater Rivers as well as along the Chestnut, Maggodee, Gills, and Stony creeks. These areas are regulated and are part of the County's permanent open space system.

The County Comprehensive Plan's desired Future Land Use pattern identifies incorporated or unincorporated towns for commercial services and social activity to serve people within a five- to 10-mile radius. Areas designated for rural, low- and medium-density residential development include areas

surrounding towns and community centers, such as Rocky Mount, Boones Mill, Ferrum, and Smith Mountain Lake.

The Future Land Use vision also identifies Rural Neighborhood Centers as a secondary desired development type. Rural Neighborhood Centers are areas that provide rural commercial services, social activities, and community life. This development pattern is centered on schools, fire stations, churches, and post offices, and surrounded by rural residential development. Other recognized development patterns or locations include Commercial Highway Corridors and Interstate Highway Interchanges. Land use policies also are described for farmlands, forestlands, residential, commercial areas, and industrial areas.

The Summit View Business Park recently broke ground, but development in the County overall is slower than in the early 2000s. In downtown Boones Mill, most land lies within a floodplain, which makes development more costly and requires older buildings to be renovated and retrofitted to remain safe. The County seeks to use development as means for revitalization and will be examining floodplain standards moving forward to remain in compliance.

D.3. Henry County

Established in the late 1700s, Henry County is home to numerous historic resources, including the Martinsville Fish Dam. However, in the centuries since, the County expanded its industrial base, particularly in the sectors of wood furniture and pre-manufactured homes. These two sectors facilitated concurrent residential and commercial development, illustrating a settlement pattern that was typical of early industrial America, where workers lived close to jobs. Many of these employment centers are also located near the Smith River, which served as a power source for early industry.

In the 20th century, automobiles and trucks became more common, leading to more sprawling development along major traffic routes. Overall, Henry County's development patterns can be categorized as either strip development (commercial and residential) or sprawl development (e.g., large lot subdivisions). The Comprehensive Plan recognizes that the dispersed development pattern increases the cost of public service provision.

There are three established industrial parks in Henry County: the Bowles Center, located adjacent to Patrick Henry Community College off Route 174; the Patriot Centre at Beaver Creek, just outside the Martinsville City Limits off Route 174; and the Martinsville Industrial Park, east of U.S. Route 220 and south of Martinsville. In 2007, Henry County purchased two large tracts for future development as regional, revenue-sharing industrial park projects in conjunction with the City of Martinsville. A 740-acre site, known as the Commonwealth Crossing Centre, is located near the North Carolina line, convenient to both U.S. Route 220 and the Norfolk Southern Railroad. The other project is the Bryant property, a 1,206-acre site near Barrows Mill Road near both Clearview Business Park in Martinsville and the Patriot Centre. Another project called the Commonwealth Crossing Center is now operational within Henry County and is currently home to manufacturing operations. There are multiple 100-acre parcels yet to be developed on the site.

The County Comprehensive Plan's future development patterns classifies land into two categories: growth and rural areas. Growth areas are characterized generally as having (or will have) road networks, public water and sewer, and physical suitability for development (i.e., not a floodplain or steep slope). Growth areas include Collinsville/Fieldale, Bassett/Stansleytown, Iriswood, Ridgeway, Horsepasture, Laurel Park/Chatmoss, and West Bassett. In addition, the plan explicitly calls for floodplains to be used for appropriate uses, such as agriculture and recreation. The plan calls for a

variety of implementation tools, including zoning, subdivision ordinances, density bonuses, planned unit development (PUDs), and conditional zoning.

D.4. City of Martinsville

Until the 1996 opening of the Henry County Courthouse, the City of Martinsville served as the Henry County seat since its founding in 1793. In the late 1800s, the City was home to many tobacco factories that processed the crops grown in the surrounding area. Furniture manufacturing began to play a major role in the economy during the early 20th century. During the first half of the 20th century, Martinsville transitioned from an agriculture-based economy to an industrial-based economy. For example, in 1941, DuPont built the world's largest nylon manufacturing plant just outside of Martinsville. Numerous textile manufacturers were in the area, but closed in the late 1990s and following decades, due to the impact of globalization.

Martinsville's development patterns follow the typical "mill town" pattern where residential development is located adjacent to industrial development. Most industrial development lies along the south and southeast of the Central Business District and major arteries such as Route 58 East and Stultz Road. In 1998, the City developed Clearview Business Park just off Clearview Drive. As stated earlier, Henry County purchased two large tracts for future development as regional, revenue-sharing industrial park projects in conjunction with the City of Martinsville in 2007. A 740-acre site, known as the Commonwealth Crossing Centre, is located near the North Carolina line, convenient to both U.S. Route 220 and the Norfolk Southern Railroad. The other project is the Bryant property, a 1,206-acre site near Barrows Mill Road near both Clearview Business Park in Martinsville and the Patriot Centre.

Recently, Martinsville has updated its zoning ordinance and is continuing to make changes. New floodplain ordinances are also being considered. They have recently demolished fire-damaged factories, including a nine-acre site which will be redeveloped. Most current development consists of the redevelopment of existing buildings or is residential in nature. The City uses a resilient development process informed by the Alliance for National Community Resilience.

D.5. Patrick County

Patrick County is characterized as a predominantly rural community, but does have some industrial and commercial development. Some of this industrial and commercial development is related to agriculture. Much of the undeveloped land in the County is forested. Land use in Patrick County has been strongly influenced by the terrain of the Blue Ridge Mountains. Since colonial times, agriculture played an important part of Patrick County's economy. Initially, the main crops were tobacco, cabbage, and tomatoes, but farming has moved toward cattle and dairy. Apple and peach orchards are among other predominant agricultural products grown in the County. In recent years, several wineries have emerged in the area. Far more people, however, are employed in the manufacturing sector than in farming. In addition, several sawmills operate within Patrick County.

Residential development is dispersed throughout the County, in conjunction with farms. Some concentration of residences can be found in the Town of Stuart and Patrick Springs Community. In addition, concentrations of commercial development can be found in Stuart, Meadows of Dan, Woolwine, and Patrick Springs or along various highway routes. Industrial development is in the southwestern part of the County near Stuart, along Route 58 near Meadows of Dan and Vesta, and near Woolwine.

The County also purchased land for an industrial park in 1994 near Stuart. Rich Creek Corporate Park has been developed in the Patrick Springs area of the County. The largest landowners in the area, however, are federal and state governments. Their holdings include areas surrounding Philpott Reservoir, the Blue Ridge Parkway, the Rocky Knob Recreation Area, Fairy Stone State Park, and the Fairystone Farms Wildlife Management Area. In addition, the City of Danville owns a considerable amount of land associated with the Pinnacles hydroelectric project. Purchased in 1977 as a hunting preserve, Primland was developed into the upscale resort which encompasses approximately 12,000 acres near the Meadows of Dan.

Future land use is expected to follow a slow or moderate growth pattern. Expected growth is likely to occur in the eastern portions of the County, centering on the existing towns and communities including Stuart and Patrick Springs. This growth is anticipated to be residential with a limited accompanying commercial development along U.S. Route 58. However, some growth has occurred in the Meadows of Dan area to the west. Overall, agricultural and forested land coverage is expected to remain the same.

D.6. Pittsylvania County

Pittsylvania is the largest county by land area in the state. The 2017 Census of Agriculture shows that about 39.4% of the County is used for farming, a decline from 44% in 2012. Agricultural uses are in the central, southwestern, and southeastern parts of the County. Growth is anticipated in the south-central and north-central parts of the County, suggesting that agricultural lands should not face development pressures. The County ranked second out of 28 counties in Virginia for tobacco crops according to the 2017 Census of Agriculture. Commercial forests account for most of the County's land use.

Two types of residential patterns exist in the County: dispersed, low-density development along transportation corridors, and medium density residential development clustered in and around commercial centers. Low-density residential development is associated with farms. Suburban extensions of commercial and residential growth have spread from the Danville urban area into the neighboring Blairs and Mount Hermon areas of Pittsylvania County. Other developed areas of the County include the local communities of Cascade, Dry Fork, Motley, Grit, Mount Cross, and Ringgold. Commercial development is associated with highways or the existing population centers of Chatham, Gretna, Hurt, and the City of Danville. Industrial uses can be found near Chatham and Danville.

There are several industrial parks in Pittsylvania County. As previously mentioned, the County and the City of Danville developed Cane Creek Centre off U.S. Route 58 in the Ringgold vicinity of the County. Other parks include Ringgold East and Ringgold West off Route 730; the Chatham South and Chatham North Industrial Parks off U.S. Route 29 in the vicinity of the Town of Chatham; and the Gretna Industrial Park off U.S. Route 29 just outside the Town of Gretna. In the Town of Hurt, some land at Key Industrial Park remains available for industrial development. In addition, the County has developed the 80-acre Brosville Business Centre just off U.S. Route 58 approximately five miles east of the Henry County line. As mentioned earlier, in 2008, Danville and Pittsylvania County announced plans to develop a new 3,500-acre mega-park off Berry Hill Road and U.S. Route 58 near the North Carolina line which will serve a 50-mile radius in southern Virginia and part of North Carolina. This Berry Hill mega-park site is currently being built. The joint project will attract a major advanced manufacturer or other large manufacturer to the area that would provide thousands of jobs. The Norfolk Southern Railroad, the Transco natural gas line, and electric lines from the City of Danville cross the site. Water and sewer services will be provided by the City of Eden, North Carolina.

The County receives an Insurance Rating Organization rating of 9 countywide. This rating affects fire insurance premiums and is based on several factors including water supply, fire department, fire communications, and fire safety control.

The 2010 Pittsylvania County Comprehensive Plan shows ten designated growth areas in Danville and north along the Route 29 corridor towards Hurt. In the southern portion of the County, five of the growth areas fall within Brosville, Mount Hermon, Blairs, Kentuck, and Ringgold. In the central portion of the County, the Chatham and Gretna growth areas are inclusive of the two towns and additional County land areas outside the town limits and along the Route 29 corridor. In the northern portion of the County, the three designated growth areas are those around Hurt and largely residential areas in proximity to Leesville Lake and Smith Mountain Lake. The County anticipates that most development over the 20-year period of the plan will occur in these designated growth areas. The Comprehensive Plan recognizes that the Dan and Sandy Rivers and Cherrystone Creek are susceptible to flooding. Recently, the County has begun the Cherrystone Dam Project, which is currently is the largest undertaking for Chatham/Pittsylvania.

E. Climate

Virginia's present-day climate is classified as humid subtropical, but within the Commonwealth, regional temperatures, precipitation, and growing seasons vary widely.³ In the planning area, the Blue Ridge Mountains to the west produce blocking and steering effects on storms and air masses from the Great Lakes.

Based on 1981 to 2010 averages, seasonal temperatures are relatively uniform within the planning area. Average temperatures in the planning area are about 77 degrees Fahrenheit in the summer and 39 degrees in the winter. Average annual rainfall is around 45 inches.⁴

F. Population

As of the 2019 American Community Survey, the total population of the jurisdictions included in this study is 240,421. The growth rates between the four counties vary dramatically, ranging from -0.2% (Franklin County) to a low of -9.1% (City of Martinsville). All jurisdictions in the planning area experienced negative growth. In contrast, the growth rate for the Commonwealth of Virginia was 6.7%.

Table 4-1 shows the population breakdown by jurisdiction with the associated growth rate and number of persons per household.

³ VA Department of Conservation and Recreation. 2021. "Overview of the Physiography and Vegetation of Virginia." Retrieved from <https://www.dcr.virginia.gov/natural-heritage/natural-communities/document/ncoverviewphys-veg.pdf>.

⁴ National Oceanic and Atmospheric Administration. 2013. "Data Tools: 1981-2010 Normals -- Danville, VA." Retrieved from <http://www.ncdc.noaa.gov/cdo-web/datatools/normals>.

Table 4-1. Population by Jurisdiction⁵

Population Statistic	Franklin County	Henry County	Patrick County	Pittsylvania County	City of Danville	City of Martinsville
Population, 2019	56,042	50,557	17,608	60,354	40,044	12,554
Population, 2010	56,128	54,182	18,500	63,469	43,071	13,814
Population, percent change, 2010 to 2019	-0.2%	-6.7%	-4.8%	-4.9%	-7.0%	-9.1%
Persons per household, 2010 - 2014	2.35	2.32	2.31	2.36	2.2	2.26
Persons per household, 2015 - 2019	2.38	2.38	2.24	2.29	2.16	2.24

According to the 2019 American Community Survey 1-Year Estimates (the source for all following data unless otherwise stated), women comprise 50.8% of the population in Virginia. In the planning area, the share of women in the population ranges from a high of 55.6% in the City of Martinsville to a low of 50.3% in Patrick County. Female residents make up 52.2% of the planning area population.

The majority of the population in the planning area is White (72.4%); African-Americans make up 27.1% of the population; and 4% of the population is of Hispanic or Latino origin. Very few residents (2.55%) in the planning area were foreign-born, and approximately 4.97% of the population reported that they spoke a language other than English at home.

Only 5.3% (11,830) of the population is under the age of five, while 20.2% (47,691) is under the age of 18. The percentage of people over the age of 65 is 22.2% (53,654), much higher than the statewide 15.9%. Much of the region has seen a growing older population, as younger people leave the area and other older people retire in the area. Special consideration for the needs of the younger and older generations should be given when developing mitigation strategies.

About 80% of residents age 25 years and older are high school graduates, a lower share than the statewide breakdown (89.7%). Only 15.2% have obtained bachelor's degrees or higher, compared to 38.8% for the state. The higher educational attainment rates range from a high of 19.8% in Franklin County, to a low of 11.2% in Patrick County. These numbers, coupled with the population characteristics previously described, are critical when developing public outreach programs. The content and delivery of public outreach programs should be consistent with the audiences' priorities and needs.

According to the 2015-2019 ACS, the median household income is approximately \$42,757, or 57.6% of the statewide median (\$74,222). The per capita household income is \$24,808, which is about 63% of the statewide per capita income of \$39,278. About 17% of residents within the West Piedmont planning area live below the poverty line. This rate is higher than both national and statewide rates; 10.5% and 9.9%, respectively. These numbers may indicate that a significant portion of the population will not have the resources to undertake mitigation projects that require self-funding.

The income statistics between jurisdictions in the planning area illustrate a fairly wide range, which is detailed in Table 4-2. Franklin County's median household income, the highest in the planning area, is 39% higher than the City of Martinsville's, the lowest in the planning area. With regard to per capita

⁵ Source: U.S. Census Bureau, American Community Survey 2015-2019; U.S. Census Bureau, Population Estimates Program (PEP) 2019.

income, Franklin County again ranks highest in the planning area, while Henry County ranks the lowest; per capita income in Franklin County is almost 27% higher than in Henry County. The cities of Danville and Martinsville have the highest shares of people living below the poverty line, both more than double the percentage (9.9%) of Virginia as a whole.

Table 4-2. Income Characteristics by Jurisdiction

	Franklin County	Henry County	Patrick County	Pittsylvania County	City of Danville	City of Martinsville
Median household income, 2014	\$44,827	\$34,344	\$34,753	\$42,311	\$32,173	\$27,746
Median household income, 2019	\$56,254	\$37,952	\$43,073	\$47,690	\$37,203	\$34,371
Median household income, percent change 2014-2019	25.49%	10.5%	23.94%	12.71%	15.63%	23.88%
Per capita income, 2014	\$24,789	\$19,538	\$18,916	\$21,615	\$20,569	\$19,663
Per capita income, 2019	\$30,487	\$22,372	\$24,292	\$26,032	\$22,826	\$22,836
Per capita income, percent change 2014-2019	22.99%	14.51%	28.42%	20.43%	10.97%	16.14%
Percent of persons below poverty, 2014	14.5%	17.8%	20.2%	14.5%	26.1%	25.9%
Percent of persons below poverty, 2019	11.50%	14.60%	15.50%	15.10%	22.40%	23.90%
Percent of persons below poverty, percent change 2014-2019	-20.69%	-17.98%	-23.27%	4.14%	-14.18%	-7.72%

Source: U.S. Census Bureau, 2014 American Community Survey; U.S. Census Bureau, 2019 American Community Survey.
Retrieved from <http://www.census.gov>

G. Housing

According to the 2019 Census, there were 127,107 housing units in the planning district. The number of housing units has remained relatively stable since 2010, when there were 126,616 housing units in the region. More than 77% of these housing units lie within the four counties in the planning district, while just 22.9% are in the Cities of Danville and Martinsville. Roughly 21% of the housing units in the planning district are in multi-unit structures, compared to the overall statewide share of 27.4%.

Single-family homes account for most of the housing stock, though manufactured homes comprise 16.7% of all housing units within the planning area according to the 2015 - 2019 American Community Survey. Double-wide manufactured homes are common.

According to the 2015-2019 American Community Survey, over half of residents are homeowners in all jurisdictions within the planning region. Franklin County has the highest homeownership rate with

81.7%, while the City of Danville has the lowest in the planning area at 51.5%. All of the homeownership rates in the counties of the district are significantly higher than the national figure of 64.1% or the state at 66.3%, while both of the cities fall below those rates. When considering mitigation options, capabilities between owners and renters should be considered. Table 4-3 illustrates the housing characteristics of each jurisdiction.

Table 4-3. Housing Characteristics by Jurisdiction⁶

	Franklin County	Henry County	Patrick County	Pittsylvania County	City of Danville	City of Martinsville
Housing units, 2019	29,898	26,196	10,224	31,650	22,072	7,067
Housing units, 2010	29,315	26,268	10,083	31,307	22,438	7,205
Housing units, percent change 2010-2019	1.99%	-0.27%	1.4%	1.1%	-1.63%	-1.92%
Multi-unit structures, percent, 2019	7.5%	9.4%	1.7%	4.5%	20.7%	22.8%
Multi-unit structures, percent, 2010	7.8%	8.3%	4.2%	4.2%	24.0%	24.8%
Owner-occupied housing unit rate, 2010-2014	77.7%	74.1%	76.1%	78.5%	54.1%	55.0%
Owner-occupied housing unit rate, 2015-2019	81.7%	71.9%	79.0%	75.4%	51.5%	55.9%
Median value of owner-occupied housing units, 2010-2014	\$163,000	\$94,600	\$112,500	\$107,800	\$88,300	\$85,800
Median value of owner-occupied housing units, 2015-2019	\$178,100	\$93,900	\$120,000	\$123,900	\$90,500	\$87,700
Median value of owner-occupied housing units, percent change 2014-2019	9.26%	-0.74	6.67	14.94	2.49	2.21

⁶ U.S. Census Bureau. "2010 U.S. Census," "2010-2014 American Community Survey," "2015-2019 American Community Survey," and "2019 ACS 5-Year Estimates Detailed Tables." Retrieved from <http://www.census.gov>.

H. Business & Labor

Table 4-4 presents information on each jurisdiction's top employment sectors. The five most represented employment sectors are: services, manufacturing, retail trade, construction, and government. Table 4-5 highlights the major employers in each jurisdiction.

Table 4-4. 2019 Employment by Sector by Jurisdiction

Sector	Franklin County	% of Total	Henry County	% of Total	Patrick County	% of Total	Pittsylvania County	% of Total	City of Danville	% of Total	City of Martinsville	% of Total
Agriculture, forestry, fishing and hunting, and mining	722	2.9%	111	0.6%	158	2.1%	708	2.6%	54	0.3%	14	0.3%
Construction	1,943	7.8%	1,287	6.4%	581	7.8%	1,987	7.2%	900	5.5%	153	3.0%
Manufacturing	3,706	14.9%	4,043	20.2%	1,706	22.9%	4,815	17.6%	2,718	16.5%	1,029	20.0%
Wholesale trade	773	3.1%	407	2.0%	200	2.7%	696	2.5%	234	1.4%	159	3.1%
Retail trade	3,077	12.3%	2,737	13.7%	857	11.5%	3,422	12.5%	2,218	13.5%	490	9.5%
Transportation and warehousing, and utilities	1,576	6.3%	866	4.3%	305	4.1%	1,560	5.7%	490	3.0%	338	6.6%
Information	251	1.0%	192	1.0%	44	0.6%	299	1.1%	139	0.8%	112	2.2%
Finance and insurance, and real estate and rental and leasing	1,428	5.7%	617	3.1%	256	3.4%	993	3.6%	631	3.8%	220	4.3%
Professional, scientific, and management, and administrative and waste management services	2,075	8.3%	1,545	7.7%	697	9.4%	2,104	7.7%	1,413	8.6%	581	11.3%
Educational services, and health care and social assistance	5,621	22.5%	4,638	23.2%	1,622	21.8%	6,176	22.5%	4,714	28.6%	1,153	22.4%
Arts, entertainment, and recreation, and accommodation and food services	1,837	7.4%	1,136	5.7%	405	5.4%	1,700	6.2%	1,558	9.5%	438	8.5%
Other services, except public administration	1,180	4.7%	1,307	6.5%	417	5.6%	1,480	5.4%	630	3.8%	270	5.2%
Public administration	739	3.0%	1,081	5.4%	190	2.6%	1,474	5.4%	764	4.6%	187	3.6%
Total Employment	24,928	100%	19,967	100%	7,438	100%	27,414	100%	16,463	100%	5,144	100%

Table 4-5. Major Employers in Each Jurisdiction

Jurisdiction	Major Employer
Franklin County	M.W. Manufacturers
	Franklin County School Board
	County of Franklin
	Trinity Packaging Corporation
	Franklin Memorial Hospital
Henry County/City of Martinsville	Henry County School Board
	CP Films, Inc.
	Monogram Management Services
	Keeco
	GSI Solutions
Patrick County	Patrick County School Board
	Primland Ltd.
	County of Patrick
	Results Customer Solution
	Roto Die Company
Pittsylvania County	Pittsylvania County School Board
	Pittsylvania County Board
	Unique Industries
	Morgan Olson LLC
	Intertape Polymer Corporation
City of Danville	Goodyear Tire & Rubber Co
	City of Danville
	Danville City Public Schools
	Danville Regional Medical Center
	Wal Mart

I. Critical Facilities

According to the FEMA Local Mitigation Planning Handbook (2013), critical facilities are structures and institutions necessary for a community’s response to and recovery from emergencies.

For the 2021 update, the Mitigation Advisory Committee members provided a list of critical facilities from the prior plan for review. Mitigation Advisory Committee members made additions, deletions and modifications based on their understanding of the critical nature of the facilities to their community. Critical facility types have been generalized based on the classification provided by the individual communities. The “Facility” classification includes YMCA, community buildings, and National Guard. “Government” includes police departments, town halls, dams, health departments, and armories. Public

Service Authority (PSA) have been included in the “Water/Sewer” type. Communications includes all towers for radio, television, and cellular. Schools include both public and private primary and secondary institutions. Some facilities (i.e., municipal building and police station located in the same building) may have multiple uses and are counted as one government facility. In addition, neighboring Altavista EMS, Hardy Life Saving and Rescue, and the Hardy Volunteer Fire Company may provide services to portions of the region but have not been included in the critical facilities for analysis as they are not physically in the planning area.

Critical facility types for the 2021 Plan update include:

- Airport
- Dam
- Fire/Rescue
- Facility
- Government
- Law Enforcement
- Prison
- Medical
- Nursing Home
- School
- Private School
- College
- Television
- Radio Station
- Radio Tower
- Water/Sewer (including Public Service Authority)

Table 4-6 summarizes the critical facilities, by type, for each of the participating jurisdictions. Of the 468 critical facilities in the West Piedmont Planning District, 104 facilities are classified as educational facilities (e.g., schools, private schools, and colleges). Fire/Rescue represents 86 of the facilities.

Table 4-6. Critical Facilities

Jurisdiction	Airport	College	Dam	Facility	Fire/Rescue	Government	Law Enforcement	Medical	Nursing Home	Prison	School	Communications	Water/Sewer	VDOT	Total
City of Danville	1	4	6	2	13	1	0	3	7	0	23	30	1	0	91
City of Martinsville	0	5	2	1	7	6	1	2	4	0	11	2	21	0	62
Franklin County	0	1	0	2	13	0	2	1	1	0	8	26	2	0	56
Town of Boones Mill	0	0	0	0	2	3	0	0	0	0	1	5	1	0	12
Town of Rocky Mount	0	0	0	2	3	9	1	1	4	0	8	10	2	0	40
Henry County	1	0	6	1	10	0	0	0	2	0	11	3	24	0	58
Town of Ridgeway	0	0	0	1	2	0	0	0	0	0	2	1	6	0	12
Patrick County	0	0	9	1	11	0	0	0	0	0	6	2	0	0	29
Town of Stuart	0	1	1	1	3	4	1	3	2	0	2	8	6	0	32
Pittsylvania County	0	0	1	0	14	0	0	2	0	0	7	4	0	0	28
Town of Chatham	0	0	2	0	4	7	0	2	2	1	8	0	2	0	28
Town of Gretna	0	0	1	0	3	1	0	1	1	0	4	1	2	0	14
Town of Hurt	0	0	0	0	1	1	0	1	0	0	2	0	1	0	6
Total	2	11	28	11	86	32	5	16	23	1	93	92	68	0	468

Notes: Some facilities may have multiple uses, ex. Municipal Building and Police Station and are counted as one Government facility. Communications includes all towers (Radio, TV, and Cell). Water/Sewer includes all Public Service Authority facilities. School includes Public and Private institutions.

J. Transportation

The WPPDC is at a crossroads of transportation within the south-central portion of Virginia. Five federal highways (U.S. Highways 29, 58, 220, 311, and 360) and 20 state primary routes intersect the area, providing localities with access to each other and the rest of the nation. The proposed I-785 (U.S. Route 29) would be designated in the City of Danville, using the existing U.S. Route 29 and U.S. Route 58 bypass (Danville Expressway) to provide a consistent route from North Carolina to Washington, D.C. An extension of I-73 has also been in the works for decades now, but it has officially been put on hold due to lack of funding and concerns from the U.S. Army Corps of Engineers regarding damage to local streams.⁷

A study for a southern corridor bypass has been nearly completed. The bypass will be a new four-lane divided highway to divert all northbound traffic from Route 220 at the North Carolina state line. The corridor would be west of the existing Route 220, barely north of Commonwealth Crossing; and would reconnect with the Route 220 bypass towards the northeast. The bypass aims to remove truck traffic from Ridgeway and multiple subdivisions that connect to Route 220 and will skip traffic lights while mitigating local traffic. All federal environmental permits and state permits for the bypass were reviewed and approved simultaneously. The final output will be an approved project that needs funding within the next five years.

In Martinsville, there has been a recent three to five lane improvement on Liberty Street, which helps to facilitate evacuation. In 2020, the Commonwealth implemented an inter-city bus service that runs from Martinsville through Danville, ending in Washington, D.C. In Patrick County, Jeff Stuart Highway (Route 58) is in the process of core drilling to become a 4-lane highway. In Pittsylvania County, the Virginia Department of Transportation (VDOT) is in the final planning stages of the 311-connector road.

Additionally, the region is served by Norfolk Southern rail lines, numerous truck lines, and air service from the Danville Regional Airport and the Blue Ridge Airport in Henry County. Several private air strips are located throughout the region as well.

As previously described, several rivers run through the planning area, but they are not used for commercial shipping. The nearest major commercial ports are in Richmond (150 miles to the northeast) and Norfolk, Newport News, and Portsmouth (200 miles to the east).

K. Infrastructure

The West Piedmont area is served primarily by Appalachian Power Company. Additional electricity providers in the area include Dominion Virginia Power, Mecklenburg Electric Cooperative, and Southside Electric Cooperative, as well the Cities of Danville and Martinsville. Natural gas is provided by Columbia Gas of Virginia, Southwestern Virginia Gas Company, and the City of Danville. Telephone service is available from Verizon, Century Link (formerly Sprint/Centel and Embarq), Citizens Telephone Cooperative, and Peoples Mutual Telephone Company.

Public water is available in many of the towns and cities in the planning area, as well as by the Henry County Public Service Authority, the Ferrum Water & Sewer Authority, and the Pittsylvania County

⁷ <https://www.virginiamercury.com/2020/11/24/in-a-shrinking-part-of-southside-virginia-vdot-presses-forward-with-highway-expansion-plans/>

Service Authority. Created in 1964, the Henry County Public Service Authority (PSA) provides water and sewer services to more than 35,000 people -- over 66% of the County's population. With more than 800 miles of utility lines, the PSA is one of the largest water and sewer authorities in Virginia. Both service authorities have expanded services in various areas of their respective counties over the last few years.

In 1973, the Pittsylvania County Service Authority (PCSA) was established as an independent entity under the provisions of the Virginia Water and Sewer Authorities Act to provide water and sewer service for all areas of the County outside the City of Danville and the incorporated towns of Chatham, Gretna, and Hurt. To serve its customers, the PCSA has contracts to purchase bulk water from the City of Danville, Henry County Public Service Authority, the Town of Chatham, and the Town of Hurt. PCSA does not currently own or operate water or sewer treatment facilities. PCSA consists of five community water systems using groundwater and 10 community water systems that purchase water from other public water supply systems. PCSA serves approximately 22% of the County's population, located primarily around the County's three towns and the City of Danville. There are seven private water systems which use groundwater to serve approximately 500 people. Based on water demand projections, Pittsylvania County maintains a water supply surplus and is expected to maintain a surplus through 2060.

Franklin County is connected to the Bedford County Public Service Authority to purchase bulk water. The water line was extended across the Halesford Bridge and over to the Westlake area of Franklin County. Future phases continue to be developed for other service areas in the County. In 2009, Franklin County joined the Western Virginia Water Authority (WVWA), an incorporated public body independent of local government that provides water and wastewater services to its customers in the City of Roanoke, Roanoke County, and Franklin County. A 12-inch water line was constructed along 12.5 miles of U.S. Route 220 from the Suncrest Heights Subdivision in Roanoke County to the Wirtz area in Franklin County. WVWA purchased several private water systems in the County as well as distribution systems that provide water and sewer services to Westlake along Route 122 and Scruggs Road (Route 616), and portions of Routes 666 and 948. WVWA is now connected to the Town of Boones Mill Water System via an interconnect within the Town limits. Water can flow both directions as required and needed. The interconnect has been operational since September of 2019. Rocky Mount is now also connected to WVWA. New water tanks have been installed in Summit View Business Park and Burnt Chimney, and another one has been proposed in Union Hall.

Wastewater treatment is provided by many of the towns, cities, and service authorities that provide potable water. Private well and septic systems serve the remainder of the planning area. In the City of Danville, there are still many areas not served by public water and sewer. They use wells and septic tanks in the Southside and at the far west end of Danville. Around 95% of the City is served by public water and sewer.

The City of Martinsville recently replaced 7 miles of the Smith River interceptor and is in the process of reconstructing a spillway at the reservoir dam. The reconstruction will be completed by June 2021. The City of Martinsville is also considering the replacement of the Jones Creek interceptor. The entire city uses public water, sewer, and electric systems. The sewer system relies on gravity systems rather than pump stations, which allows for fewer issues in the event of a power outage or disrupted pump stations.

L. Agriculture

Agriculture is a major economic sector in the WPPDC. As illustrated in Table 4-7, the number of farms in all counties fell between 2012 and 2017. In Henry and Patrick counties, the amount of land farmed increased, but declined in Franklin and Pittsylvania counties. Total agricultural sales were \$173.274 million for Franklin, Patrick, Henry, and Pittsylvania counties, mainly from livestock, poultry, and their products. Major crops include corn, tobacco, fruit including apples and peaches, and wheat. Significant quantities of cattle, as well as milk and other dairy products, are produced in the region.

Table 4-7. Agricultural Sector⁸

Jurisdiction	Number of Farms – 2017 (change from 2012)	Land in farms - 2017 acreage (change from 2012)	Market Value of Agricultural Products Sold		
			Total value of agricultural products sold	Value of crops including nursery and greenhouse	Value of livestock, poultry, and their products
<i>Franklin County</i>	1,019 (-0.4%)	156,254 (-5.05%)	\$69,199,000	\$17,041,000	\$52,158,000
<i>Henry County</i>	212 (-26.9%)	45,527 (+5.95%)	\$ 14,124,000	\$2,270,000	\$11,853,000
<i>Patrick County</i>	483 (-14.66%)	91,252 (+15.35%)	\$17,273,000	\$7,338,000	\$9,935,000
<i>Pittsylvania County</i>	1,157 (-14.55%)	246,322 (-14.25%)	\$72,678,000	\$29,897,000	\$42,781,000

⁸ U.S. Department of Agriculture, and VA Department of Agriculture and Consumer Services. 2017 Census of Agriculture. "Virginia - County Summary Highlights: 2017." Retrieved from https://www.nass.usda.gov/Publications/AgCensus/2017/Full_Report/Volume_1_Chapter_2_County_Level/Virginia/st51_2_0001_0001.pdf.

Section 5. Hazard Identification and Risk Assessment

A. Introduction

Hazard mitigation is any sustained action taken to reduce or eliminate long term risk to life and property, community expenditures and response needs from a hazard event. In the past, federal legislation has provided funding for disaster relief, recovery, and some hazard mitigation planning. The Disaster Mitigation Act of 2000 (DMA2K) is the latest legislation to address this planning process. DMA2K was enacted on October 10, 2000, when President Clinton signed the Act (Public Law 106-390). The new legislation reinforces the importance of mitigation planning and emphasizes planning for disasters before they occur. As such, this Act establishes a pre-disaster hazard mitigation program and new requirements for the national Hazard Mitigation Grant Program (HMGP). States and local governments are required to adopt hazard mitigation plans in order to qualify for pre- and post-disaster federal hazard mitigation funding.

The West Piedmont Planning District Commission (WPPDC), on behalf of the jurisdictions which comprise the planning area, has developed this HIRA to serve as a guide to communities in the West Piedmont planning area when assessing potential vulnerabilities to natural hazards. When developing this plan, every effort was made to gather input from all aspects of the project area communities to assure that the results of this analysis will be as accurate as possible.

The planning area for this study includes two independent cities, four counties, and seven incorporated towns. All jurisdictions located within these counties are included in this portion of the study, as this analysis was completed on a regional basis. It should be noted, however, that a local jurisdiction's specific inclusion in some areas of the risk assessment is dependent on data availability. Specifically, towns are often included in county data as (1) national-level hazard data is often done at a county and/or city level, and (2) counties in this region often provide assistance with capabilities and capacity for planning and administrative functions when the town is not self-sufficient.

The purpose of the HIRA is to:

- Identify what hazards that could affect the West Piedmont Region;
- Profile hazard events and determine what areas and community assets are the most vulnerable to damage from these hazards; and
- Estimate losses and prioritize the potential risks to the community.

The first step includes, identifying hazards, both natural and human-caused, that might affect the planning area. The hazards were ranked to determine which hazards are most likely to impact the communities of the West Piedmont Region. The hazards that were determined to have significant impact were analyzed in the greatest detail to determine the magnitude of future events and the vulnerability for the community and for the critical facilities. Hazards that received a moderate impact ranking were analyzed with available data to determine the risk and vulnerability to the specified hazard. The limited impact hazards were analyzed using the best available data to determine the risk to the community.

A.1. 2021 Plan Update

The 2021 update of the Hazard Mitigation Plan re-examines and expands upon the analysis of those hazards addressed in the 2016 plan. Significant changes have been made that include:

- updating hazard ranking and weighting
- new analyses for major hazards including:
 - updated hazard ranking at beginning of each hazard section
 - refreshing the hazard profile
 - inclusion of updated NCEI storm events data
 - updating the previous occurrences
 - updating the assessment of risk by jurisdiction based on new data:
 - Hazus-MH hurricane and earthquake analysis
 - Adding Hazus-MH flood analysis and a discussion of pluvial risks
 - assessing risk based on an updated critical facility listing
- add new hazard section, Severe Weather, to capture specific risk relating to hail, lightning, thunderstorm, and other extreme, non-Hurricane or Tornado winds
- new maps based on updated data
- addition of a HIRA summary that includes overall relative risk and critical facility risk comparison by hazard.

A.2. Hazard Identification

A.2.1. Types of Hazards

While nearly all disasters are possible for any given area in the United States, the most likely hazards that could potentially affect the communities in the West Piedmont Planning District generally include:

- Droughts
- Flooding
- Hurricanes
- Tornadoes
- Wildfires
- Winter Storms
- Severe Weather
- Landslides
- Earthquakes

The Mitigation Advisory Committee also wanted to include a qualitative assessment of the human-caused hazards that could affect the planning area. A human-caused hazard includes any harmful event that results from the intentional actions of an adversary or negligent actions of a human. For the

purposes of this plan, technological hazards—accidents or the failures of systems and structures—are considered human-caused hazards.⁹ The human-caused hazards included in this plan are:

- Dam Failure;
- HVT Lines;
- Organic/Inorganic Spills;
- Pipeline Failure; and
- Agriterrorism.

Each of the identified hazards have been prioritized based on several factors including the frequency of occurrence (probability/history), amount of damage caused, potential for significant damage, and the committee’s knowledge of the potential impacts of the hazard as part of the analysis. The extent of vulnerability analysis was driven by availability of data, the Mitigation Advisory Committee’s concerns about security and community data confidentiality, and established methodology for vulnerability analysis.

A.2.2. Priority Ranking Criteria

As discussed in the planning process, the final priority rankings were updated using Mitigation Advisory Committee feedback in addition to the five criteria summarized below to determine a quantitative ranking. Each criterion identifies and categorizes the comparative probability and potential vulnerability for the identified hazards in WPPDC. The framing criteria/questions are shown in the bulleted list below and Table 5-1 provides the thresholds for each of the risk levels.

The five main parameters include:

1. Probability/History: Has the hazard occurred in the area before, and if so, how often based on the historical record? Weighting Factor: 0.25
2. Vulnerability: If the expected event does occur, how many people might be killed, injured, or contaminated, and how much property might be damaged or destroyed (e.g., the percent of people or property vulnerable to the hazard)? Weighting Factor: 0.20
3. Maximum Threat: What is the worst-case scenario of the hazard and how bad can it get? What will the loss of life and property damage be if the worst-case scenario occurs (e.g., the percent of the community impacted by the hazard)? Weighting Factor: 0.10
4. Warning Time: How much time is the community given to prepare for an event? Weighting Factor: 0.10
5. Ranking in Previous Plan: The ranking from the 2011 Hazard Mitigation Plan (Significant, Moderate, Limited) was factored in the 2016 ranking. Weighting Factor: 0.35

⁹ Federal Emergency Management Agency. 2018. “Threat and Hazard Identification and Risk Assessment (THIRA) and Stakeholder Preparedness Review (SPR) Guide.” Retrieved from <https://www.fema.gov/sites/default/files/2020-04/CPG201Final20180525.pdf>.

Table 5-1. Hazard Ranking Priority Criteria

Probability / History	Vulnerability	Maximum Threat (Geographic Area Affected)	Warning Time	2016 Ranking
Weighting Factor: 0.25	Weighting Factor: 0.20	Weighting Factor: 0.10	Weighting Factor: 0.10	Weighting Factor: 0.35
Unlikely No documented occurrence with annual probability <0.01	Negligible 1 to 10% of people or property	Isolated < 5% of community impacted	Extended More than 3 days	Low
Somewhat Unlikely Infrequent occurrence with at least one documented event and annual probability between 0.5 and 0.01	Slight 10% to 20% of people or property	Minor 5 to 15% of community impacted	Slight 3 days	Medium-Low
Somewhat Likely Moderate occurrence with at least two documented events and annual probability between 0.5 and 0.01	Limited 20 to 30% of people or property	Small 15 to 25% of community impacted	Limited 2 days	Medium
Likely Frequent occurrence with at least three documented events and annual probability between 1 and 0.5	Critical 25 to 50% of people or property	Medium 25 to 50% of community impacted	Minimal 1 day	Medium-High
Highly Likely Common events with annual probability >1	Catastrophic > 50% of people or property	Large > 50% of community impacted	No Notice < 24 hours	High

Each hazard was assessed based on the five criteria above and assigned an overall hazard priority based on a 5-point priority scale. The overall priority rankings include: Low, Medium-Low, Medium, Medium-High, and High.

A.2.3. WPPDC Priority Ranking Results

For the 2011 plan update, hazards were ranked by the steering committee to determine what hazards they feel have the largest and most frequent impact on their communities. The 2016 plan update used this as a starting point and utilized the criteria outlined in Table V-1 to standardize the rankings across hazards. The results are summarized in Table V-2. The specific criteria parameters are further discussed within each hazard profile.

As shown in Table 5-2, the hazard ranking levels were expanded from three levels to five levels in 2016 to align with the 2015 Virginia rankings and to further differentiate between vulnerability between hazards. The relative rankings of the hazards have remained in place, with further separation noted in distinguishing between medium-high, medium, medium-low, and low hazards. For the 2021 update, these five levels were maintained, with an

Table 5-2. Planning Consideration Levels

Hazard Type	2011 Planning Consideration Level	2016 Planning Consideration Level	2021 Planning Consideration Level
Natural			
Flooding (including Shoreline Erosion)	Significant	High	High
Winter Storms	Significant	High	High
Hurricane Wind	Moderate	Medium-High	Medium-High
Severe Weather	Moderate	Medium-High	Medium-High
Tornado	Limited	Medium	Medium-High
Wildfire	Moderate	Medium	Medium
Drought	Moderate	Medium-Low	Medium-Low
Earthquake	Limited	Low	Medium-Low
Landslide	Limited	Low	Low
Human-Caused			
Organic/Inorganic Spills	Moderate	Medium-High	Medium-High
High Voltage Transmission (HVT) Lines	Moderate	Medium	Medium
Pipeline Failure	Moderate	Medium	Medium
Dam Failure	Significant	Medium-Low	Medium-Low
Agriterrorism	Limited	Medium-Low	Medium-Low

A.3. Hazard History

A.3.1. Major Disasters

Appendix B1 lists 28 major disasters that have occurred in the Planning District including Presidentially declared disasters. It can be seen from Table 5-3 which hazards have impacted the planning area. Towns are included in their respective counties.

Table 5-3. Major Disasters by Type

Community	Severe Storm & Flood	Hurricane / Tropical Storm	Severe Winter Storm / Ice Storm	Wildfire	Severe Storm & Wind (incl. Tornado)	Biological / Pandemic	Total
City of Danville	5	6	2	0	1	2	16
Franklin County	6	5	3	0	2	2	18
Henry County	2	4	3	0	1	2	12
City of Martinsville	2	5	1	0	2	2	12
Patrick County	6	3	3	1	0	2	15
Pittsylvania County	7	6	4	0	1	2	20

A.3.2. NCEI Storm Events Data

NCEI Storm Data is published by the National Oceanic and Atmospheric Administration (NOAA), U.S. Department of Commerce. The storm events database contains information on storms and weather phenomena that have caused loss of life, injuries, significant property damage, and/or disruption to commerce. The NCEI data provides information about events from 1950 to September 2015. Records for the majority of weather events were reported starting in 1993, with the exception of tornado, thunderstorm and hail. There has been a total of 3,181 recorded events for the hazards profiled in this report. Total property damages from these events exceed \$271 million (inflated to 2020 Dollars). Table 5-4 summarizes the West Piedmont totals by hazard. The hazard-specific sections in this report profile the historic events and include, when applicable, narratives from this dataset.

Table 5-4. NCEI Storm Events Data (1950 - December 2020)

Hazard Type	Total Events	Deaths	Injuries	Property Damage (2020\$)	Crop Damage (2020\$)	Total Damages (2020\$)
Drought	97	6	0	\$0	\$44,812,242	\$44,812,242
Flood	486	0	7	\$23,065,983	\$2,870,728	\$25,936,712
Wildfire	5	4	0	\$4,630,481	\$0	\$4,630,481
Tornado	41	22	0	\$86,193,490	\$14,229	\$86,207,719
Hurricane	14	0	0	\$19,473,184	\$2,392,908	\$21,866,092
Severe Weather	2,192	12	2	\$19,473,184	\$2,392,908	\$21,866,092
Winter Storm	340	0	4	\$2,678,601	\$2,480,379	\$5,158,981
Total	3,181	44	13	\$271,670,245	\$84,783,053	\$356,453,297

It should be noted that these estimates are believed to be an underrepresentation of the actual losses experienced because losses from events may go unreported. In addition, some losses (such as crop damages) are difficult to quantify. As shown in the table above, several of the hazards that the Mitigation Advisory Committee identified are not included in the NCEI storm events database. The individual hazard sections use the best available national and local data. In most cases, WPPDC or County departments have provided supplemental data for past events and damages. Table 5-5 provides a breakdown of the natural hazards addressed in this plan and the data used as part of the analysis for that hazard.

Table 5-5. West Piedmont Region HIRA Overview

Hazard	Type	Analysis Level	Data Reference
Natural			
Winter Storms	Including Winter Storms, Ice Storms, and Excessive Cold	Covered by HIRA winter storm analysis	NOAA National Weather Service Records, VirginiaView PRISM, NCEI
Flooding	Riverine	Covered by HIRA flood analysis	FEMA FIRM, NCEI, Tax parcels, Hazus-MH v4.2
Wind	Hurricane Wind	Covered by HIRA hurricane wind analysis	FEMA Hazus-MH v4.2, NCEI; ASCE Design Wind Speed Maps; National Hurricane Center
	Tornado	Description and Regional Maps	NOAA National Weather Service Records, SVRGIS, NCEI
Severe Weather	Thunderstorm Wind, Hail, Lightning, Strong/High/Extreme Wind	Covered by HIRA severe weather analysis	NCEI
Wildfire		Covered by HIRA wildfire analysis	Virginia Department of Forestry, Local government fire statistics
Drought	(including excessive heat)	Covered by HIRA drought analysis	US Census Bureau 1990 Water Source Data, U.S. Drought Monitor, NCEI
Earthquake		Description and Regional Maps	Hazus-MH v4.2
Landslide/Land Subsidence/Steep Slopes		Description and Regional Maps	USGS Landslide Incidence and Susceptibility in the Conterminous United States
Human-Caused			

Hazard	Type	Analysis Level	Data Reference
Dams	Dam Failure/Terrorism	Covered by HIRA dam analysis	National Dam Inventory, VA DCR
HVT Lines		Description	FEMA
Organic/Inorganic Spills		Description	FEMA
Pipelines		Description	FEMA
Agriterrorism		Descriptions and Regional Maps	US Department of Agriculture

A.4. Data Limitations

The FEMA guidelines emphasize using “best available” data for this plan. The impact of these data limitations will be shown through the different vulnerability assessment and loss estimation methods used for hazards. The most common limiting factor was that most sources of data are only counted or mapped at the county or jurisdiction level. West Piedmont provided available base map data including water networks, street mapping and land use and zoning information. Other data was derived from existing sources as described above.

Inadequate information posed a problem for developing loss estimates for most of the identified hazards. Many of the hazards do not have defined damage estimate criteria. Analysis for the region was completed using the best available data. Critical facilities and tax parcels within FEMA flood zones were identified for the flood analysis. The Hazus-MH model was used to estimate damage from floods, hurricane/tropical storm wind, and earthquake in the West Piedmont Region. Data from the National Weather Service, the National Centers for Environmental Information (NCEI), the Virginia Department of Forestry (VDOF), and other sources where available were used to develop estimates for the remaining hazards.

B. Natural Hazards

The following sections address the impacts of natural hazards on the West Piedmont Planning District. Each section will give a brief overview of the hazard event, historical dates and descriptions of past events, impacts of the events and a community-specific vulnerability analysis.

B.1. Flooding (High Priority)

The priority hazard ranking process determined flooding to remain as a high priority hazard in the West Piedmont Planning District. Table 5-6 outlines the hazard rankings for each of the hazard priority criteria related to flooding.

Table 5-6. Flood Hazard Priority

Probability/ History	Vulnerability	Maximum Threat (Geographic Area Affected)	Warning Time	2016 Priority Level	2021 Priority Level
Highly Likely Common events with annual probability >1	Critical 25 to 50% of people or property	Small 5% to 25% of community impacted	No Notice < 24 hours	High	High

B.1.1. Hazard History

Appendix B1 includes descriptions of major flood events in the West Piedmont Region. Events have been categorized by the date of occurrence and when available, by individual community descriptions. When no community-specific description is available, the general description represents the entire planning area.

According to the NCEI database, there have been 28 reported riverine flood events and 28 reported flash flood events since 2016. These NCEI flood events, in particular flash floods, have caused over \$54 Million in total reported damage (both property and crop damage) since the first record in 1996. Table 5-7 lists all recorded events in the NCEI database, the percent that have occurred since 2016, and the total recorded damage. It is important to note how NCEI records its events. These events are “recorded” events. There may be several records for a given hazard event, either because the records are split between different event types, or because the damage is split between different counties or other jurisdictions, so property and crop damages can be split between the communities. For that reason, they are referred to as “recorded events” in the following tables.

Table 5-7. NCEI Flood Hazard History (1996-2020)

Jurisdiction	Total Recorded Events	Recorded Events Since 2016	Percent of Total Recorded Events	Total Recorded Damage
City of Danville	66	25	38%	\$15,061,560
Franklin County	123	38	28%	\$995,910
Town of Boones Mill	8	2	25%	\$3,522,000
Town of Rocky Mount	15	7	47%	\$246,900

Jurisdiction	Total Recorded Events	Recorded Events Since 2016	Percent of Total Recorded Events	Total Recorded Damage
Henry County	80	30	38%	\$70,000
Town of Ridgeway	4	2	50%	\$14,929,080
City of Martinsville	31	18	58%	\$0*
Patrick County	78	24	29%	\$6,333,120
Town of Stuart	19	7	37%	\$255,000
Pittsylvania County	108	19	15%	\$13,192,900
Town of Chatham	13	8	62%	\$30,000
Town of Gretna	5	2	20%	\$15,000
Town of Hurt	5	3	60%	\$10,000
WPPDC	486	370	76%	\$54,661,470

**No individual recorded damages in NCEI database, although the city has claimed flood damages in the past*

In addition to Appendix B1, additional anecdotal flood history by jurisdiction is presented in Section B.1.4.1.

B.1.2. Hazard Profile

Flooding is the most frequent and costly natural hazard in the United States. A majority of presidential disaster declarations result from weather events where flooding was a major component. Flooding, as defined by the National Flood Insurance Program for insurance purposes is: "a general and temporary condition of partial or complete inundation of two or more acres of normally dry land area or of two or more properties from: overflow of inland or tidal waters, unusual and rapid accumulation or runoff of surface waters from any source, or a mudflow."

A flood occurs when an area that is normally dry becomes inundated with water. Flooding can occur at any time of the year, with peak hazards in the late winter and early spring. Snowmelt and ice jam breakaway contribute to winter flooding, while seasonal rain patterns contribute to spring flooding. Torrential rains from hurricanes and tropical systems are more likely in late summer. Development of flood-prone areas tends to increase the frequency and degree of flooding.

There are two general types of flooding that impact the West Piedmont Planning District. The first is riverine flooding (fluvial flooding). Riverine flooding occurs when a channel, such as a stream or river, receives more water than it can hold, and the excess water overflows the channel banks flooding the surrounding area. Heavy rain and large amounts of snow melt can cause riverine flooding. The second is pluvial flooding. Pluvial flooding occurs when extreme rainfall creates a flood independent of an overflowing water body. Pluvial flooding can happen in any location, urban or rural; even in areas with no water bodies in the vicinity, which makes their damage less predictable than either riverine or coastal flooding. There has been a significant increase in pluvial flooding throughout the region in recent years.

Floods typically are characterized by frequency, for example the "1%-annual chance flood," commonly referred to as the "100-year" flood. While more frequent floods do occur, as well as larger events that have lower probabilities of occurrence, for most regulatory and hazard identification purposes, the 1-

percent-annual-chance flood is used. Detailed flood data were available as Digital Flood Insurance Rate Maps (DFIRMs) for jurisdictions within the FEMA defined floodplain. Figure 5-1 illustrates the extent of FEMA-mapped flood zones in West Piedmont.

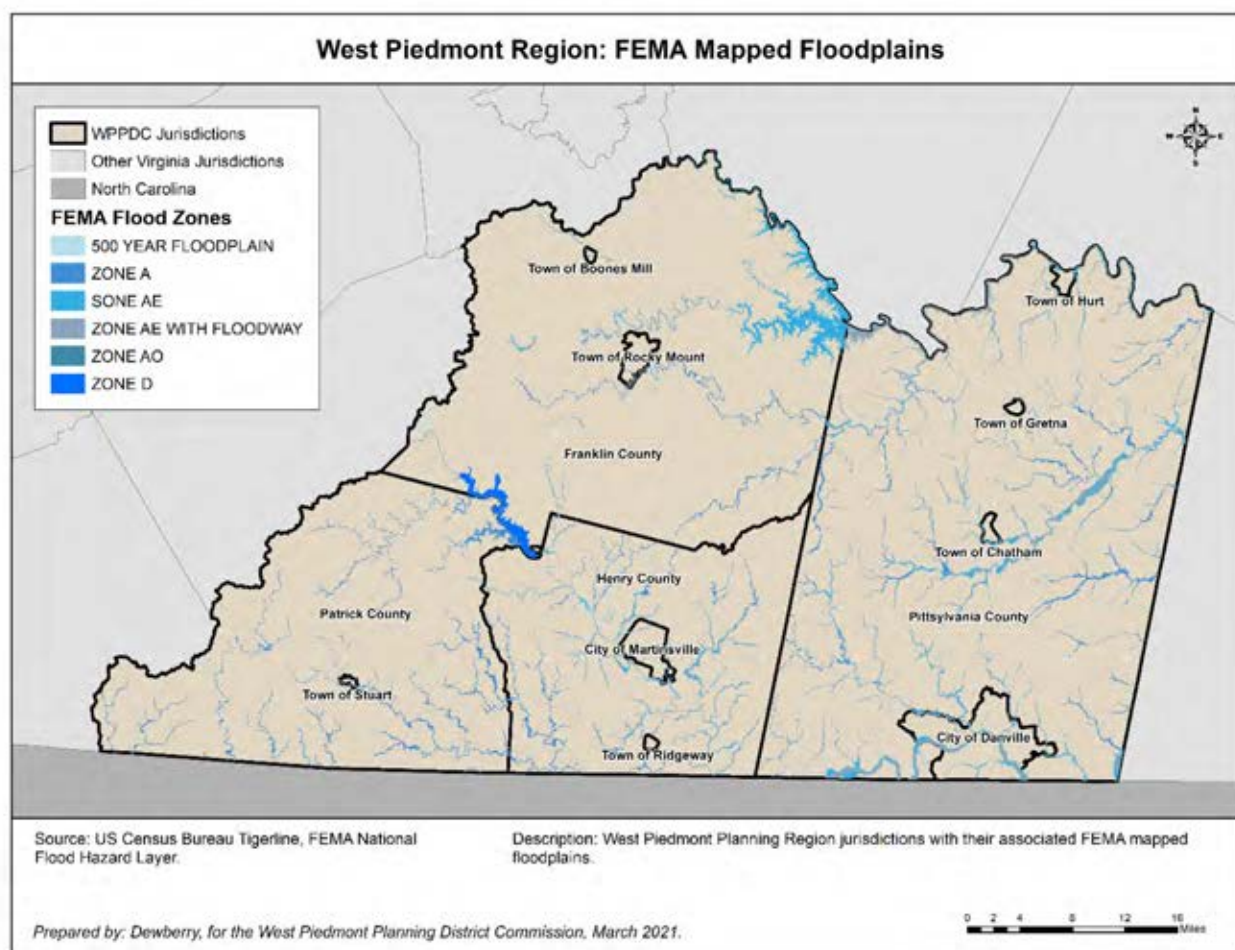


Figure 5-1. West Piedmont Region 100-Year Floodplains

B.1.2.1. Primary Impacts

Flood damage to property and populations can be devastating, both emotionally and financially. Flood damage to businesses could result in loss of income, wages, and tax revenues. Buildings, including homes and critical facilities, are susceptible to damage and sometimes collapse as a result of a severe flood.

The primary effects of both riverine and pluvial floods are those due to direct contact with the flood waters. As water velocities tend to be high with floods, discharge increases as velocity does. With higher water velocities, streams are able to transport and carry larger items as suspended loads, such as trees, rocks, or even cars and houses. Flooding can also concentrate garbage, debris, and toxic pollutants. Erosion is also a big issue with flooding. This mass erosion can undermine bridges, levees, and even building, leading to their collapse.

Even besides the greater threats, there is also the possibility that with a large flooding event, homes can be inundated with water, causing furniture to be ruined, damage to floors and walls, and anything

else to be damaged or lost, including important papers. Flooding of a vehicle usually results in damage that cannot be repaired cost effectively.

Crop loss is also an issue, especially in the early stages of planting, where soil and seeds can be washed away. Livestock, pets, and other animals can be carried away with the flood waters, and often drown, as can humans.

B.1.2.2. Secondary Impacts

Secondary effects result from primary effects. For example, the concentration of garbage, debris, and toxic pollutants can cause health hazards. Drinking water can become contaminated, especially if treatment plants are flooded. This can result in disease and other health problems, especially in underdeveloped areas.

Utilities can also be impacted. Gas and electrical services may be interrupted, either because the lines got damaged by the flood itself, damaged because they got hit with suspended items like rocks or trees, or the gas and electrical facilities themselves were flooded. Various transportation systems may also be disrupted due to debris in the way, road damage, or bridge collapse. This can include either roadways or railways. Flooded roadways can cause congestion on alternative routes and lengthen travel times for emergency vehicles and school buses. Having transportation systems down can result in food shortages and problems with clean-up, including removing debris from roads. Public works and public safety expenditures during floods to keep conditions safe and to clean up after an event often exceed the cost of primary impacts.

B.1.2.3. Climate Change Impacts

Climate change models predict shifts in precipitation patterns for the Mid-Atlantic region. As warming progresses precipitation events are expected to increase in intensity with seasonal variations. Changes in precipitation patterns in Virginia are likely to intensify both floods and droughts. This means fewer spring and summer rainstorms, but when they do occur, they are likely to bring more short duration high-intensity rain events than typically experienced. In addition, precipitation is expected to increase during the winter months. However, due to warming air temperatures, this is expected to fall more frequently as rain or freezing rain versus snow. All of this will likely result in increases in both fluvial and pluvial flooding.

These changing precipitation patterns could increase the number of riverine or stream flooding events in the West Piedmont Region if precipitation events bring higher rainfall totals. More intense rainfall is likely to increase peak flooding, particularly in urban environments in the future. In addition, flash floods may become an increasing concern with excessive rainfall in a short amount of time. Changes in winter precipitation could mean an increase in ice jams or an increase in winter storm flooding events.

B.1.3. Probability of Future Events and Annualized Reported Damages

Riverine flood events will continue to occur frequently in the West Piedmont Region due to the geography of the area. The probability of future flood events is based on the magnitude and according to best available data. Based on the annualized events from the NCEI database (Table 5-8) the West Piedmont can expect on average three riverine flooding event annually that have the potential to cause approximately \$380,000 in property and crop damages.

Table 5-8. Annualized Historical Flood Damages from NCEI (1996-2020)

Jurisdiction	Number of Events	Property Damage	Crop Damage	Total Damage
City of Danville	3	\$577,565	\$50,000	\$627,565
Franklin County	1	\$41,496	\$0	\$41,496
Town of Boones Mill	5	\$155,788	\$4,167	\$159,954
Town of Rocky Mount	0	\$10,288	\$0	\$10,288
Henry County	1	\$2,917	\$0	\$2,917
Town of Ridgeway	3	\$622,045	\$0	\$622,045
City of Martinsville	0	\$0	\$0	\$0*
Patrick County	3	\$274,505	\$0	\$274,505
Town of Stuart	1	\$10,625	\$0	\$10,625
Pittsylvania County	5	\$466,288	\$85,708	\$551,996
Town of Chatham	1	\$1,250	\$0	\$1,250
Town of Gretna	0	\$625	\$0	\$625
Town of Hurt	0	\$417	\$0	\$417
WPPDC Average	3	\$356,281	\$23,313	\$379,594

* No individual recorded damages in NCEI database, although the city has claimed flood damages in the past

It should also be noted that short duration high intensity rainfall events are increasing in the United States. While annual rainfall has not increased dramatically in the last decade, the intensity and magnitude of storms has. As a result, a flood event that is currently of annual probability 2 percent (50-year flood) may become an event of 10 percent annual probability (10-year flood). Local trouble spots associated with storm water runoff can flood more frequently depending on the intensity and the duration of rain or other precipitation events.

B.1.4. Vulnerability Analysis

Specific areas that are susceptible to flooding were identified during the West Piedmont Mitigation Advisory Committee kick-off meeting and during the planning process. These areas were considered when completing the hazard identification and risk assessment.

Many factors contribute to the relative vulnerabilities of areas within the floodplain. Some of these factors include development or the presence of people and property in the floodplain, flood depth, velocity, elevation, construction type and flood duration.

B.1.4.1. Hazard Areas by Jurisdiction

Flooding in the West Piedmont Region tends to be riverine in nature along the tributaries of the Roanoke River. Localized flooding also occurs in the narrow valleys throughout the region and because of local drainage areas, particularly in the more urban areas.

Several of the comprehensive plans for the West Piedmont Region provided some description of vulnerable areas. In the City of Danville, the Piedmont Drive/Mt. Cross Road Planning Area is impacted by three major waterways: the Dan River, Sandy River and Sandy Creek. According to the Comprehensive Plan, this area has been flooded numerous times. The area along Riverside Drive and Mt. Cross Road in Danville Plaza has been a concern. A portion of the planning area in the 1-percent-annual-chance floodplain has been identified as a potential park location. The Dan River also significantly impacts the Downtown and the Airport/Industrial Airport Planning Areas, bisecting the latter Planning Area.

Street flooding is also an issue in the City of Danville. For instance, Route 58 Business at Fall Creek is often closed after heavy rainfall. The floodwaters result from runoff from the adjacent neighborhood that comes up through the manholes. If the rainfall amount is large enough, the adjacent river also may flood its banks adding to the floodwaters on the road. Underground culverts run under buildings in downtown Danville are inadequate; these culverts are antiquated and are at risk of collapse. Twice in 2019 there was localized flooding in the Apple Branch Area. These events involved water rescue and damage to a car dealership's inventory. Flooding near the East End by the airport and Cane Creek led to rescuing people from Route 58 from flood waters.

The City of Danville's Utilities Department has had flooding issue with its water, gas, and electric substation. The parking lot has flooded numerous times (e.g., at least three times per decade). The Utilities Department was not been able to identify a location to move its facilities to so they will rehabilitate the existing building.

In Martinsville, the Westside and Southside neighborhoods have concerns about stormwater management. After large rains, it is not uncommon for unmarked barrels to float down the river and collect in Smith Lake Road area. These unmarked barrels may pose a health hazard if their contents are toxic. In May of 2018, there were a series of flash floods that resulted in \$400,000 in damages. Martinsville submitted these damages to Virginia for state Public Assistance.

According to Pittsylvania County officials, flooding is the County's primary natural hazard concern. Rapid rising creeks cause low-lying roads to be flooded. For instance, Highway 29 at Fall Creek has repeatedly flooded in the past during large rainfall events. The cause of the flooding is unclear.

Franklin County received Public Assistance for damages sustained from both Hurricane Florence and Hurricane Michael, together over \$100,000 worth of damages. The Town of Rocky Mount also received Public Assistance funding. The Town of Boones Mill received Public Assistance funding for damages from Hurricane Michael to address an issue with their sewer line, approximately \$94,000.

In Henry County, federal assistance was received for damages relating to Hurricane Florence, which was used to correct damages related to both Hurricane Florence and Hurricane Michael. Federal assistance was around \$300,000. In Ridgeway culverts, debris, and high intensity rainfall events are of major concern. Patrick County had some localized flooding in 2020 due to dredging the flood channel.

According to committee members, the National Weather Service has been adjusting its methodology for flood stage prediction based on the gauges on the Dan and Smith Rivers as the original methodology did not consider water releases from reservoirs.

B.1.4.2. Estimating Potential Losses

Several methodologies were utilized to quantify vulnerability due to flooding. The following sections highlight risk and potential losses to structures (tax parcels), risk to critical facilities, and jurisdictional risk. FEMA FIRMs and property data for West Piedmont were provided by the counties. Appendix B

provides a detailed summary of the analysis completed. This should be referenced for specific information on structures and critical facilities at risk and potential mitigation projects.

The parcels at risk for the planning area were based on their intersection with the FEMA flood hazard areas. This analysis is different from the 2016 analysis, as parcel data was used for all jurisdictions. No footprints were used for analysis for the consistency of methodology and the ability to easily compare values between jurisdictions. These parcels were first identified as intersecting the FEMA flood hazard areas, then an area weighted calculation was performed on the parcel areas that lay within the floodplains, giving potential exposure values for the parcels. This was done for both the 1-percent-annual-chance flood and the 0.2-percent-annual-flood. The exposure values presented are potentially overestimates, as building footprints were not used to narrow down the location of the potentially damaged structure. However, depending on how many structures are actually in the floodplain, it could also be an underestimation.

The Critical Facilities at Risk for the 2006 plan was based on data compiled from WPPDC and supplemented with Hazus-MH, ESRI, and US census data. The 2011 plan update used data furnished by WPPDC. Data used in the 2006 and 2011 plan was thought to be out of date but served as a basis for an updated list. For the 2016 plan update, the PDC was able to create a critical facility GIS layer, with jurisdictional input, that best represents the critical facilities in the planning area. For the 2021 Plan, West Piedmont provided an updated critical facility GIS layer for the entire planning area. The same critical facility risk analysis was performed for the update as in the 2016 plan.

Jurisdictional Risk is based on the Flood Module in Hazus-MH v4.2. This loss estimation software allows users to anticipate the consequences of future floods and to develop plans and strategies for reducing risk. The software uses GIS technologies for displaying and manipulating inventory and displaying losses and consequences on applicable spreadsheets and maps. The methodology permits estimates to be made at several levels of complexity, based on the level of inventory entered for the analysis (i.e., default data versus locally enhanced data). For West Piedmont, a Hazus Level 1 Analysis was performed using a USGS-based, user-provided DEM to generate a 1 percent annual chance floodplain within the Hazus environment.

B.1.4.3. FEMA National Flood Insurance Program Participation

The National Flood Insurance Program (NFIP) is federal program that enables property owners in participating communities to purchase insurance for flood losses. For a community to participate in the NFIP they must adopt FEMA's flood risk maps and the Flood Insurance Study as well as floodplain management regulations that reduce future flood damages.

Flood insurance is designed to provide an alternative to disaster assistance to reduce the escalating costs of repairing damage to buildings and their contents caused by floods. Flood damage is reduced by nearly \$1 billion a year through communities implementing sound floodplain management requirements, and property owners purchasing flood insurance. Additionally, buildings constructed in compliance with NFIP building standards suffer approximately 80% less damage annually than those not built in compliance.

In addition to providing flood insurance and reducing flood damages through floodplain management regulations, the NFIP identifies and maps the nation's floodplains. Mapping of flood hazards creates broad-based awareness of these hazards and provides the data needed for floodplain management programs and to actuarially rate new construction for flood insurance.

Floodplain management regulations are the cornerstone of NFIP participation. Communities that participate in the NFIP are expected to adopt and enforce floodplain management regulations. These

regulations apply to all types of floodplain development and ensure that development activities will not cause an increase in future flood damages. Buildings are required to be elevated at or above the Base Flood Elevation.

Communities that participate in the NFIP are required to adopt and enforce the minimum federal NFIP floodplain management regulations. These regulations apply to all types of floodplain development and ensure that development activities will not cause an increase in future flood damages. Buildings are required to be reasonably safe from flooding which usually requires the finished floor elevation to be elevated at or above the corresponding Base Flood Elevation (BFE). The BFE is determined based on modeling and mapping identified within a community's Flood Insurance Study (FIS). The FIS and its corresponding Flood Insurance Rate Maps (FIRMs) provide information on areas of flood risk per the NFIP standards. These maps identify areas that have a 1-percent-annual-chance of flooding as well as those areas with a 0.2-percent-annual-chance of flooding. Some communities have additional flood frequencies that are modeled as part of their flood studies are within their local watershed mapping programs. When new structures are built, they are required to adhere to regulations and flood risk information provided by the NFIP. If the finished grade elevation for a structure is below the corresponding BFE, and there is a federally insured loan on the structure, then there is a mandatory requirement to purchase a flood insurance policy. The requirement for high risk structures to carry a flood insurance policy is one method used by the NFIP to offset the escalating costs of flood disasters.

All jurisdictions in West Piedmont participate in the NFIP, except for the Town of Gretna in Pittsylvania County. The participation and the current effective map dates as well as the insurance and claim statistics of the different counties and towns are included in Appendix B3.

B.1.4.4. FEMA-Designated Repetitive Loss Properties

FEMA has two definitions each for repetitive loss and severe repetitive loss properties: one each for Flood Mitigation Assistance (FMA) and one each for the NFIP. They are as follows:

- FMA:
 - o A **repetitive loss property** has “incurred flood-related damage on two occasions in which the cost of the repair, on the average, equaled or exceeded 25% of the market value of the structure at the time of each such flood event.”¹⁰
 - o A **severe repetitive loss property** has had “at least two separate NFIP claim payments made with the cumulative amount of such claims exceeding the market value of the insured structure.”¹¹
- NFIP:
 - o A **repetitive loss structure** is “an NFIP-insured structure that has had at least 2 paid flood losses of more than \$1,000 each in any 10-year period since 1978.”¹²
 - o A **severe repetitive loss building** “is covered under a Standard Flood Insurance Policy made available under this title [and] has incurred flood damage for which:
 - “4 or more separate claim payments have been made under a Standard Flood Insurance Policy issued pursuant to this title, with the amount of each such claim

¹⁰ <https://www.fema.gov/fact-sheet/notice-funding-opportunity-fiscal-year-2021-flood-mitigation-assistance-grants>

¹¹ <https://www.fema.gov/fact-sheet/notice-funding-opportunity-fiscal-year-2021-flood-mitigation-assistance-grants>

¹² <https://www.floodsmart.gov/definitions#R>

exceeding \$5,000, and with the cumulative amount of such claims payments exceeding \$20,000; or

- “At least 2 separate claims payments have been made under a Standard Flood Insurance Policy, with the cumulative amount of such claim payments exceed the fair market value of the insured building on the day before each loss.”¹³

For the purposes of this Plan, the NFIP definitions and data are used throughout.

Nationwide, repetitive loss properties constitute 2% of all NFIP insured properties, but are responsible for 40% of all NFIP claims. Mitigation for RL properties is a high priority for FEMA, and the areas in which these properties are located typically represent the most flood prone areas of a community.

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. Severe repetitive loss buildings are also important to the NFIP, since structures that flood frequently put a strain on NFIP funds. A primary 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.

There are 49 repetitive loss properties and five severe repetitive loss properties in the West Piedmont Region, with average claims of \$25,436 and \$49,431, respectively (Appendix B2). A majority of the repetitive loss structures for the West Piedmont Region are single family homes. Henry County and the City of Danville each have 17 repetitive loss properties, the highest numbers in the West Piedmont Region. The severe repetitive loss properties are located in the City of Danville (4) and Henry County (1).

B.1.4.5. Exposure Analysis: Parcels at Risk

The impact of flooding on parcels was estimated based on best available data for floodplains and parcel data for each community. Each jurisdiction provided parcels with value information used for the flood loss analysis. The flood vulnerability was determined for each locality based on the intersection of floodplain mapping and the provided tax parcel data. The analysis was able to determine the percent of each tax parcel located within the FEMA flood zones. Potential exposure was pulled by using an area weighted calculation for the parcels that intersect the FEMA flood zones.

For the entire West Piedmont Region, there are around 220,000 parcels in total, with almost 22,000 exposed to the 1-percent-annual-chance flood hazard, and over 23,000 exposed to the 0.2-percent-annual-chance flood hazard. Almost \$813 Million are exposed to the 1-percent-annual-chance flood hazard. For the 0.2-percent-annual-chance flood hazard it's just over \$6 Billion.

Table 5-9 summarizes the number of vulnerable parcels and potential exposure for each jurisdiction. Table 5-10 and Table 5-11 summarize the parcel value and area exposure for the 1-percent-annual-chance-event and the 0.2-percent-annual-chance event. This information is was collected at the County and Independent City level. Data for towns are included in their respective counties.

Table 5-9. Parcel Flood Vulnerability & Risk

Jurisdiction	Flood Zone	Number of Parcels	Total Exposure
City of Danville	0.20%	181	\$67,306,700
	A	9	\$16,400

¹³ <https://www.floodsmart.gov/definitions#S>

Jurisdiction	Flood Zone	Number of Parcels	Total Exposure
	AE (with floodway)	132	\$13,497,500
	AE	242	\$102,830,900
	TOTAL	564	\$183,651,500
Franklin County	0.20%	45	\$11,737,700
	A	60	\$7,427,500
	AE (with floodway)	76	\$8,256,800
	AE	228	\$70,087,600
	D	15	\$52,400
	TOTAL	424	\$97,562,000
Henry County	0.20%	542	\$92,579,800
	A	261	\$14,805,000
	AE (with floodway)	483	\$57,659,686
	AE	817	\$99,407,500
	TOTAL	2,103	\$264,451,986
City of Martinsville	0.20%	79	\$6,719,100
	A	13	\$524,300
	AE (with floodway)	15	\$411,200
	AE	97	\$8,025,200
	TOTAL	204	\$15,679,800
Patrick County	0.20%	21	\$1,080,700
	A	420	\$59,472,300
	AE (with floodway)	42	\$10,529,700
	AE	42	\$6,554,600
	AO	5	\$1,420,100
	TOTAL	530	\$79,057,400
Pittsylvania County	0.20%	211	\$34,545,900
	A	252	\$20,030,600
	AE (with floodway)	291	\$40,731,600
	AE	400	\$52,876,300
	TOTAL	1,154	\$148,184,400
West Piedmont Totals	All Zones	4,979	\$788,587,086

Table 5-10. West Piedmont Region Parcel Value Exposure by Flood Zone

County	Total Value	1-percent-annual-chance Exposed Value	1-percent-annual-chance Exposed Percent	0.2-percent-annual-chance Exposed Value	0.2-percent-annual-chance Exposed Percent
City of Danville	\$2,820,000,000	\$108,000,000	3.8%	\$141,000,000	5.0%
Franklin County	\$8,130,000,000	\$412,000,000	5.1%	\$427,000,000	5.3%
Henry County	\$5,180,000,000	\$115,000,000	2.2%	\$136,000,000	2.6%
City of Martinsville	\$1,250,000,000	\$12,100,000	1.0%	\$20,500,000	1.6%
Patrick County	\$2,160,000,000	\$50,800,000	2.4%	\$51,400,000	2.4%
Pittsylvania County	\$6,590,000,000	\$115,000,000	1.7%	\$126,000,000	1.9%
WPPDC	\$26,130,000,000	\$812,900,000	3.1%	\$901,900,000	3.5%

Table 5-11. West Piedmont Region Parcel Area Exposure by Flood Zone

County	Total Acreage	1-percent-annual-chance Exposed Acreage	1-percent-annual-chance Exposed Percent	0.2-percent-annual-chance Exposed Acreage	0.2-percent-annual-chance Exposed Percent
City of Danville	24,155	2,202	9.1%	2,551	10.6%
Franklin County	441,519	10,319	2.3%	10,652	2.4%
Henry County	236,269	11,688	4.9%	12,902	5.5%
City of Martinsville	6,375	273	4.3%	371	5.8%
Patrick County	310,587	11,900	3.8%	11,991	3.9%
Pittsylvania County	627,265	36,401	5.8%	39,316	6.3%
WPPDC	1,646,170	72,784	4.4%	77,783	4.7%

B.1.4.6. Critical Facilities at Risk

Using a GIS, the critical facility points were intersected with the FEMA flood zones to determine potential risk. Table 5-12 (also see map in Appendix B5) lists the 40 critical facilities that are located within or near the FEMA designated floodplains, 5 five more since the 2016 Plan. Table 5-12 shows that there is great diversity in the types of facilities ranging from schools and fire/rescue to nursing facilities. There are 20 facilities located within the AE flood zone, of which 13 are located within the floodway. These 13 structures are dams or water treatment structures, which by their nature are typically located in the floodway.

Table 5-12. Critical Facilities within Flood Hazard Zones

County/ City	Facility Type	Name	FEMA Flood Zone
Danville	Dam	Danville Dam	AE with FW
Danville	Dam	Danville Dam	AE with FW
Danville	Facility	Danville YMCA	0.2% Ann Chance
Danville	Water/Sewer	Goodyear Water Treatment	AE
Franklin	Fire/Rescue	Callaway Fire Dept & Rescue Squad	AE
Franklin	School	Callaway Elementary School	AE
Henry	Dam	Horse Pasture Creek Dam #1C	A
Henry	Dam	Horse Pasture Creek Dam #2	A
Henry	Dam	Hunt Country Farms Dam	AE
Henry	Dam	Leatherwood Creek Dam #2A	AE with FW
Henry	Dam	Leatherwood Creek Dam #3	A
Henry	Dam	Leatherwood Creek Dam #4	AE with FW
Henry	Dam	Leatherwood Creek Dam #5	A
Henry	Dam	Leatherwood Creek Dam #6	AE with FW
Henry	Dam	Marrowbone Creek Dam #1	A
Henry	Dam	Philpott	AE with FW
Henry	Dam	Smith River Dam	AE with FW
Henry	Facility	Collinsville YMCA	0.2% Ann Chance
Henry	Fire/Rescue	Bassett Rescue Squad, Inc	0.2% Ann Chance
Henry	Fire/Rescue	Henry County Public Safety	AE
Henry	School	Stanleytown Elementary School	AE
Henry	Water/Sewer	Carver Booster Pump Station #1	0.2% Ann Chance
Henry	Water/Sewer	Carver Estates Lagoon	AE
Henry	Water/Sewer	Edgewood Lift Station	A
Henry	Water/Sewer	Greenbriar Sewage Lagoon	0.2% Ann Chance
Henry	Water/Sewer	Leatherwood Lift Station	AE with FW

County/ City	Facility Type	Name	FEMA Flood Zone
Henry	Water/Sewer	Philpott Raw Booster Pump	AE with FW
Henry	Water/Sewer	Piedmont Estates Lagoon	A
Henry	Water/Sewer	Rangeley Sewage Station	0.2% Ann Chance
Martinsville	Water/Sewer	Treatment	0.2% Ann Chance
Patrick	Dam	Cockram Mill	A
Patrick	Dam	Fairystone	A
Patrick	Dam	Talbott Dam/Pinnacles	A
Patrick	Dam	Townes Dam/Pinnacles	A
Pittsylvania	Dam	Cherrystone Creek Dam # 1	AE with FW
Pittsylvania	Dam	Cherrystone Creek Dam # 2A	A
Pittsylvania	Dam	Danville Dam	AE with FW
Pittsylvania	Dam	Leesville Dam	AE with FW
Stuart	Water/Sewer	Wastewater treatment plant	0.2% Ann Chance
Stuart	Water/Sewer	Water Plant/Dobyns	AE with FW

A: also known as the 1-percent-annual-chance floodplain, these are areas with a 1% annual chance of flooding and a 26% chance of flooding over the life of a 30-year mortgage. Because detailed analyses are not performed for such areas; no depths or base flood elevations are shown within these zones.

AE: similar to the A Zone, these are areas with a 1% annual chance of flooding, but base flood elevations are provided.

0.2% annual chance: also known as the 500-year floodplain, this is the area where there is a 0.2% annual chance of a flood. It is also known as the X Zone.

B.1.4.7. Hazus-Based Jurisdictional Risk

Potential flood loss estimates for jurisdictions were derived using the FEMA Hazus-MH Flood Module for riverine hazards. The previous flood-related calculations can be found in Appendix B7, for reference. Flood hazard is defined by a relationship between depth of flooding and the annual chance of inundation to that depth. This assessment has been completed using a Level 1 analysis with a USGS-based user-provided DEM. The flood model was used to run the scenario for the 1 percent annual chance frequency event, also known as the 100-Year Flood Event. While annualized loss is the preferred manner with which to express potential risk for hazard mitigation planning, as it is useful for creating a common denominator by which different types of hazards can be compared, an annual loss was not able to be generated with only the 100-Year depth grid created. Future work to improve this assessment would involve creating a full suite of return periods, either independently or through a Flood Risk Project. Figure 5-2 and Figure 5-3 show the estimated total 100-year economic flood loss by county and census block.

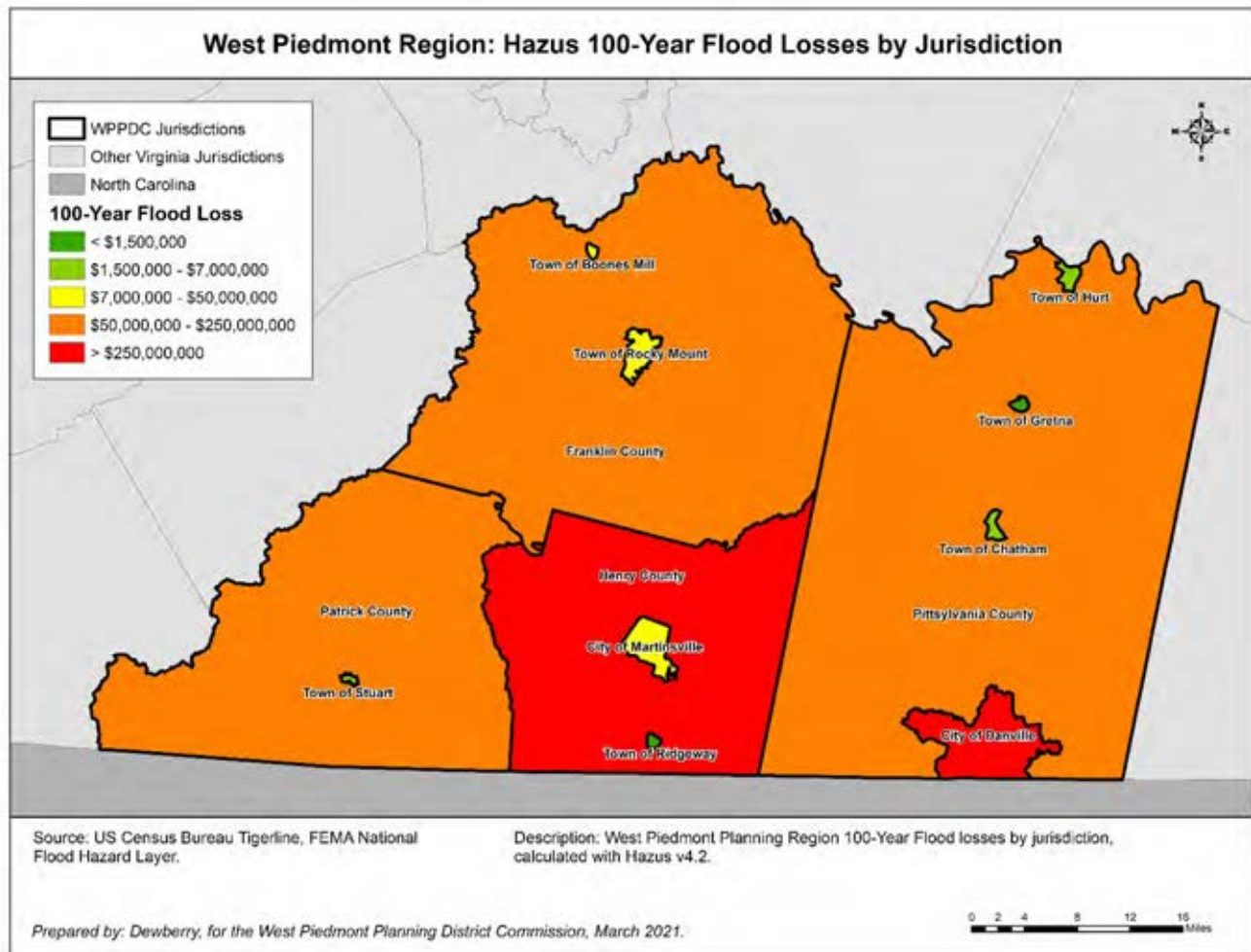


Figure 5-2. 100-Year Flood Loss by Jurisdiction

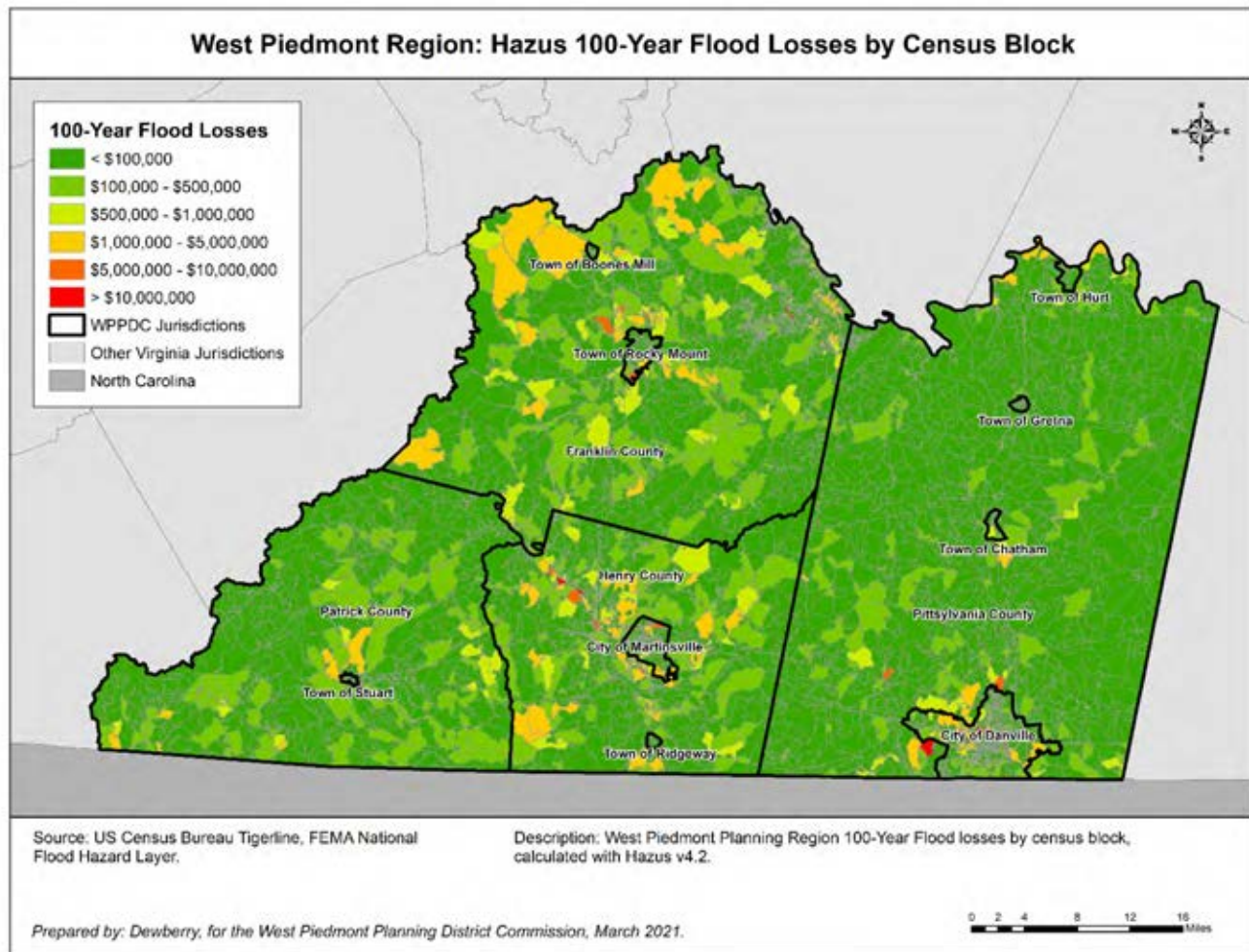


Figure 5-3. Estimated 100-Year Flood Loss by Census Block

B.1.4.7.1. Building Stock

Hazus building stock is the inventory of buildings (i.e., square-footage) of each respective type or sub-type of buildings in the following categories; residential, commercial, industrial, agricultural, religious, government, and education. Hazus assumes that all square-footage (i.e., buildings) are evenly distributed throughout a given census block and therefore damage is estimated as a percent and is weighted by the area of inundation at a given depth for a given census block. The methodology is known as an area-weighted methodology. FEMA has initiated recent improvements to the area-weighted methodology by further refining the distribution of building square-footage to land areas characterized by development and removing land areas typical of non-developed land classes (e.g., forests, wetlands, etc....). This refinement is called dasymetric mapping and the current Plan modeling utilizes the FEMA dasymetric building stock. The following shows a small example area in which the developed areas are pink:



Use of the dasymetric data will typically reduce the total area subject to area-weighted loss estimations - particularly for those census blocks that have flood risk, yet actual development does not exist within the floodplains. An area analysis of the dasymetric versus full stock census blocks is exemplified in the chart below:

Table 5-13. Census Block Area Comparison

Digital FIRM Acreage Type	Census Block Type	
	Dasymetric	Full Stock
Acres of 0.2% Annual Chance Floodplains (500-year)	25,680 Ac (2% of Total Acres)	93,512 Ac (6% of Total Acres)
Acres of 1% Annual Chance Floodplains (100-year)	23,632 Ac (1% of Total Acres)	88,299 Ac (5% of Total Acres)
Total Acres of Census Blocks WPPDC Region: 1,673,537 Ac		

A comparison of FEMA digital FIRM data intersecting the two types of Hazus census blocks reveals that an estimated two-percent (2%) of the dasymetric data is within the extents of the 0.2% Annual Chance Floodplains versus six-percent (6%) when using full census blocks. And, considering the 1% Annual Chance Floodplains, there is approximately one-percent (1%) intersecting the dasymetric data versus five-percent (5%) when using full census blocks. Consequently, this refinement can be considered a benefit to the risk analyses in that the expectation of over-estimations are mitigated by limiting potential losses ONLY to developed areas.

As noted earlier, loss estimations are first based on inundation area for specified sub-types of building square-footage. The second type of data includes information on the local economy that is used in estimating losses. Table 5-14 displays the economic loss categories used to calculate annualized losses by Hazus. Data for this analysis has been provided at the census block level.

Table 5-14. Hazus Direct Economic Loss Categories and Descriptions

Category Name	Description of Data Input into Model	Hazus Output
Building	Cost per sq. ft to repair damage by structural type and occupancy for each level of damage	Cost of building repair or replacement of damaged and destroyed buildings
Contents	Replacement value by occupancy	Cost of damage to building contents
Inventory	Annual gross sales in \$ per sq. ft	Loss of building inventory as contents related to business activities
Relocation	Multiple factors; primarily a function of Rental Costs (\$/ft ² /month) for non-entertainment buildings where damage ≥10%	Relocation expenses (for businesses and institutions); disruption costs to building owners for temporary space.
Income	Income in \$ per sq. ft per month by occupancy	Capital-related incomes losses as a measure of the loss of productivity, services, or sales
Rental	Rental costs per month per sq. ft by occupancy	Loss of rental income to building owners
Wage	Wages in \$ per sq. ft per month by occupancy	Employee wage loss as described in income loss

West Piedmont currently has approximately 125,170 structures with an estimated exposure value of approximately \$44.7 billion. Average estimated replacement value of buildings in the study area range from approximately \$258,000 to \$767,000, with the mean approximation value of \$402,000. Ninety-three percent (93%) of the planning district's general occupancy is categorized as residential, followed by commercial (4%). Table 5-15 below provides inventory information for each of the four counties and two independent cities that were included in the analysis. Henry County occupies the largest percentage (21%) of the building stock exposure for the region, followed by the City of Martinsville, the City of Danville, and Pittsylvania County, in order.

Table 5-15. Building Stock Exposure for General Occupancies by Jurisdiction¹⁴

Jurisdiction	Residential	Commercial	Industrial	Agricultural	Religious / NGO	Education	Government	Total
City of Danville	\$5,435,500	\$2,480,936	\$442,902	\$26,833	\$232,354	\$51,099	\$102,658	\$8,772,282
Franklin County	\$7,785,077	\$803,526	\$355,811	\$80,897	\$111,515	\$27,739	\$69,231	\$9,233,796
Town of Boones Mill	\$40,921	\$6,626	\$3,382	\$776	\$338	\$686	\$0	\$52,729
Town of Rocky Mount	\$639,412	\$414,877	\$565,028	\$4,597	\$45,996	\$17,055	\$26,462	\$1,713,427
Henry County	\$5,753,587	\$1,585,016	\$1,457,816	\$71,205	\$196,655	\$73,165	\$170,946	\$9,308,390
Town of Ridgeway	\$79,456	\$7,892	\$1,416	\$0	\$2,911	\$2,647	\$1,108	\$95,430
City of Martinsville	\$1,845,776	\$1,160,242	\$348,641	\$7,700	\$81,801	\$24,246	\$37,348	\$3,505,754
Patrick County	\$2,060,154	\$318,976	\$174,040	\$34,459	\$57,607	\$32,521	\$16,752	\$2,694,509
Town of Stuart	\$100,615	\$64,978	\$15,716	\$2,842	\$7,705	\$5,133	\$5,546	\$202,535
Pittsylvania County	\$6,777,637	\$728,064	\$444,289	\$107,077	\$186,013	\$82,167	\$71,268	\$8,396,515
Town of Chatham	\$148,308	\$56,194	\$33,654	\$1,905	\$6,645	\$16,504	\$29,078	\$292,288
Town of Gretna	\$136,864	\$23,181	\$2,038	\$851	\$5,259	\$2,172	\$7,142	\$177,507
Town of Hurt	\$182,876	\$17,583	\$6,089	\$2,116	\$2,046	\$0	\$6,832	\$217,542
WPPDC Totals	\$30,986,183	\$7,668,091	\$3,850,822	\$341,258	\$936,845	\$335,134	\$544,371	\$44,662,704

Building stock exposure is also classified by building type. General Building Types (GBTs) have been developed as a means to classify the different buildings types. This provides an ability to differentiate between buildings with substantially different damage and loss characteristics. Model building types represent the characteristics of core construction of buildings in a class. The damage and loss prediction models are developed for model building types and the estimated performance is based upon the "average characteristics" of the total population of buildings within each class. Five general classifications have been established, including wood, masonry, concrete, steel and manufactured homes (MH). A brief description of the building types is available in Table 5-16. The Hazus inventory serves as the default when a user does not have better data available.

¹⁴ Values are in Thousands of Dollars

Table 5-16. Hazus General Building Type Classes

General Building Type	Description
Wood	Wood frame construction
Masonry	Reinforced or unreinforced masonry construction
Steel	Steel frame construction
Concrete	Cast-in-place or pre-cast reinforced concrete construction
MH	Factory-built residential construction

Wood construction represents the majority (61%) of building types in the planning district. Masonry construction accounts for a quarter of the building type exposure. Table 5-17 below provides building stock exposure for the five main building types.

Table 5-17. Building Stock Exposure for General Building Type by Jurisdiction¹⁵

Jurisdiction	Wood	Masonry	Steel	Manufactured Housing	Concrete	Total
City of Danville	\$4,266,189	\$2,312,499	\$1,662,382	\$72,805	\$458,595	\$8,772,470
Franklin County	\$5,686,787	\$2,279,128	\$696,386	\$360,615	\$211,240	\$9,234,156
Town of Boones Mill	\$31,319	\$12,836	\$5,203	\$1,617	\$1,754	\$52,729
Town of Rocky Mount	\$536,270	\$423,025	\$575,796	\$8,470	\$169,890	\$1,713,451
Henry County	\$4,489,820	\$2,341,327	\$1,703,302	\$360,321	\$414,001	\$9,308,771
Town of Ridgeway	\$57,357	\$23,278	\$7,318	\$5,640	\$1,840	\$95,433
City of Martinsville	\$1,529,886	\$911,500	\$816,422	\$676	\$247,262	\$3,505,746
Patrick County	\$1,494,572	\$648,600	\$299,688	\$166,699	\$85,362	\$2,694,921
Town of Stuart	\$87,265	\$56,656	\$44,524	\$610	\$13,471	\$202,526
Pittsylvania County	\$4,966,839	\$2,033,580	\$731,644	\$486,615	\$178,598	\$8,397,276
Town of Chatham	\$121,640	\$78,753	\$66,857	\$1,426	\$23,618	\$292,294
Town of Gretna	\$102,723	\$46,656	\$16,725	\$5,710	\$5,701	\$177,515
Town of Hurt	\$137,762	\$54,064	\$15,228	\$6,852	\$3,637	\$217,543
WPPDC Totals	\$23,508,429	\$11,221,902	\$6,641,475	\$1,478,056	\$1,814,969	\$44,664,831

¹⁵ Values are in Thousands of Dollars.

B.1.4.7.2. Hazus Level 1 Methodology

As mentioned earlier, a Level 1 Hazus analysis for the 100-Year Flood Event was run for West Piedmont jurisdictions. These 100-Year Losses for West Piedmont are \$468,200,000. Property or “capital stock” losses are \$987,335,000 and make up about 68% of the damages which includes the values for building, content, and inventory. Business interruption accounts for \$468,200,000 (32%) of the 100-Year Losses and includes relocation, income, rental and wage costs.

The flood model incorporates National Flood Insurance Program (NFIP) entry dates to distinguish Pre-FIRM and Post-FIRM census blocks. The results provided in this report show the combined total losses for both pre- and post-FIRM values combined. Table 5-18 illustrates the expected 100-Year losses broken down by jurisdiction.

Table 5-18. Jurisdictional Hazus-Based Exposure & Losses for the 100-Year Return Period¹⁶

Jurisdiction	Total Exposure	Total Loss	Building Loss	Content Loss	Business Interruption
City of Danville	\$8,772,470	\$436,849	\$83,321	\$152,902	\$192,812
Franklin County	\$9,234,156	\$231,447	\$83,900	\$63,194	\$82,502
Town of Boones Mill	\$52,729	\$7,139	\$1,606	\$2,430	\$3,052
Town of Rocky Mount	\$1,713,451	\$18,951	\$5,607	\$8,086	\$4,157
Henry County	\$9,308,771	\$551,697	\$157,897	\$268,399	\$108,422
Town of Ridgeway	\$95,433	\$0	\$0	\$0	\$0
City of Martinsville	\$3,505,746	\$19,905	\$6,117	\$5,388	\$8,332
Patrick County	\$2,694,921	\$86,432	\$29,967	\$26,362	\$29,288
Town of Stuart	\$202,526	\$5,002	\$2,117	\$1,987	\$680
Pittsylvania County	\$8,397,276	\$91,196	\$31,413	\$23,104	\$36,381
Town of Chatham	\$292,294	\$1,598	\$481	\$698	\$384
Town of Gretna	\$177,515	\$331	\$56	\$76	\$199
Town of Hurt	\$217,543	\$4,988	\$1,031	\$1,890	\$1,991
WPPDC Totals	\$44,664,831	\$1,455,535	\$403,513	\$554,516	\$468,200

Henry County has the highest 100-Year loss, \$551,697,000, accounting for 37.9% of the total losses for West Piedmont. City of Danville has the second highest loss, \$436,849,000, accounting for 30.0% of the 100-Year losses for the region. The majority of the expected damages can be attributed to building and content value. Commercial damage represents the majority of the damages, followed closely by

¹⁶ Values are in thousands of dollars.

the residential damages. Steel buildings account for \$513,272,000, or 35.3% of the 100-Year damages of which the majority is in Henry County.

Table 5-19. Jurisdictional Hazus Based Losses by General Occupancy Type for the 100-Year Return Period (values are in thousands of dollars).

Jurisdiction	Residential	Commercial	Industrial	Agricultural	Religious / NGO	Education	Government	Total
City of Danville	\$57,223	\$343,611	\$16,587	\$128	\$10,547	\$1,522	\$11,948	\$441,566
Franklin County	\$128,443	\$33,428	\$11,776	\$2,782	\$6,730	\$2,992	\$48,408	\$234,559
Town of Boones Mill	\$1,975	\$2,664	\$145	\$350	\$232	\$0	\$1,881	\$7,247
Town of Rocky Mount	\$6,591	\$2,742	\$7,919	\$28	\$775	\$1,105	\$148	\$19,308
Henry County	\$116,501	\$108,108	\$292,498	\$1,406	\$13,705	\$17,984	\$7,839	\$558,041
Town of Ridgeway	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
City of Martinsville	\$8,450	\$10,433	\$554	\$0	\$476	\$248	\$1	\$20,162
Patrick County	\$38,241	\$30,985	\$7,538	\$1,480	\$4,276	\$420	\$4,878	\$87,818
Town of Stuart	\$3,248	\$226	\$1,765	\$0	\$0	\$0	\$0	\$5,239
Pittsylvania County	\$47,384	\$14,010	\$3,519	\$1,041	\$2,861	\$773	\$22,946	\$92,534
Town of Chatham	\$728	\$474	\$247	\$0	\$0	\$0	\$214	\$1,663
Town of Gretna	\$30	\$302	\$0	\$0	\$0	\$29	\$0	\$361
Town of Hurt	\$252	\$4,425	\$28	\$0	\$460	\$0	\$0	\$5,165
WPPDC Totals	\$409,066	\$551,408	\$342,576	\$7,215	\$40,062	\$25,073	\$98,263	\$1,473,663

Table 5-20. Jurisdictional Hazus Based Losses by General Building Type for the 100-Year Return Period¹⁷

Jurisdiction	Wood	Masonry	Steel	Manufactured Housing	Concrete	Total
City of Danville	\$96,053	\$113,393	\$196,188	\$1,115	\$30,100	\$436,849
Franklin County	\$104,318	\$60,482	\$47,263	\$7,484	\$11,900	\$231,447

¹⁷ Values are in thousands of dollars.

Jurisdiction	Wood	Masonry	Steel	Manufactured Housing	Concrete	Total
Town of Boones Mill	\$2,176	\$1,708	\$2,696	\$159	\$400	\$7,139
Town of Rocky Mount	\$5,446	\$4,857	\$6,880	\$68	\$1,700	\$18,951
Henry County	\$135,515	\$151,610	\$212,612	\$8,060	\$43,900	\$551,697
Town of Ridgeway	\$0	\$0	\$0	\$0	\$0	\$0
City of Martinsville	\$7,854	\$5,118	\$5,333	\$0	\$1,600	\$19,905
Patrick County	\$36,372	\$23,725	\$18,905	\$4,130	\$3,300	\$86,432
Town of Stuart	\$2,443	\$1,261	\$1,170	\$28	\$100	\$5,002
Pittsylvania County	\$38,548	\$23,618	\$19,462	\$4,868	\$4,700	\$91,196
Town of Chatham	\$529	\$417	\$550	\$2	\$100	\$1,598
Town of Gretna	\$104	\$116	\$108	\$3	\$0	\$331
Town of Hurt	\$1,065	\$1,582	\$2,105	\$36	\$200	\$4,988
WPPDC Totals	\$430,423	\$387,887	\$513,272	\$25,953	\$98,000	\$1,455,535

Impacts and areas of vulnerability include:

- Out of the total number of essential facilities (fire stations, police stations, schools, and hospitals) located within a county, each individual county may expect a small number of these facilities to receive moderate damage, and in most cases just a couple of facilities are projected to obtain substantial damage. No loss of use was projected in any county.
- Building occupancy most affected by a 100-year flood event would be residential followed by commercial. In addition, the building material type in all counties that would obtain the most damage was calculated to be wood. Since damage to residential structures was modeled to be most prevalent in all county scenarios, it is apparent that safety concerns and homeowner education on proper clean up after flood waters recede would be very important during the post-disaster management phase.
- All counties may expect some level of emergency shelter needs post-disaster.

Hazus does not calculate public health related impacts from natural hazards. Thus, when reviewing this data, the reader should keep in mind the potential development of these non-quantified impacts. Complete Hazus scenario generated reports for flooding can be found in Appendix B13.

As evidence in property loss figures (Table 5-21) obtained from NCEI and Hazus, floods have the potential to be destructive and, although analyses vary, the overall trends are consistent. Total damages, on an annualized basis, range from about \$417,000 in the Town of Hurt to more than \$627,000 in the City of Danville, using NCEI data. Total annualized damages are compared to a total loss of all buildings within the 1-percent-annual-chance floodplain, as interpolated by Hazus. While

Hazus reports much higher loss values than NCEI, it also shows that the differences in the magnitude of the loss values may be a result of inconsistent storm event reporting in the NCEI Storm Events Database.

Table 5-21. Comparison of NCEI Annualized Events, Hazus 100-Year Losses

County	NCEI Annualized Events	NCEI Total Annualized Damages	Hazus Total 100-year Losses
City of Danville	3	\$627,565	\$436,849,000
Franklin County	1	\$41,496	\$231,447,000
Town of Boones Mill	5	\$159,954	\$7,139,000
Town of Rocky Mount	0	\$10,288	\$18,951,000
Henry County	1	\$2,917	\$551,697,000
Town of Ridgeway	3	\$622,045	\$0
City of Martinsville	0	\$0	\$19,905,000
Patrick County	3	\$274,505	\$86,432,000
Town of Stuart	1	\$10,625	\$5,002,000
Pittsylvania County	5	\$551,996	\$91,196,000
Town of Chatham	1	\$1,250	\$1,598,000
Town of Gretna	0	\$625	\$331,000
Town of Hurt	0	\$417	\$4,988,000
WPPDC Average	3	\$379,594	\$111,964,000

Appendix B9 contains the 100-Year flood damage maps for each of the jurisdictions in the region. Each region is unique in their exposure to flooding. The following is a summation of the major trends illustrated on the jurisdictional specific maps:

- Although the City of Danville has the potential for significant annualized flood loss based on this analysis, city officials indicate that a number of structures in the floodplain have been/are elevated. For this reason, potential loss figures may be an overestimate.
- The Counties of Pittsylvania, Franklin, and Henry have the highest annualized structure and content damages for the Planning District. One of the reasons for the high loss values is attributed to the structure value that is potentially vulnerable to flooding.
- The City of Danville, with a 100-Year loss estimate of \$436,849,000, receives most of its damage from the Dan River and Pumpkin Creek.
- Franklin County, with a majority of census blocks along mainstream branches, receives the highest potential 100-Year losses along the Blackwater and Pigg Rivers. Smith Mountain Lake contributes to a large percentage of the annualized damages for the northeastern portion of the County.
- Maggodee Creek runs through the center of Boones Mill and is the primary cause of the Town's flood losses.

- Pigg River forms the southeast border for the Town of Rocky Mount. At least one census block in the southeast portion of the Town receives greater than \$2.5 Million 100-Year damages per census block.
- Henry County has numerous streams within its borders, accounting for it having the highest potential flood losses in the West Piedmont Region (\$551,697,000). The Philpott Reservoir is located to the northwest tip of the County.
- The Town of Ridgeway has very limited sources for flood loss; with small sections of Surry Martin Branch and Tributary of Marrowbone Creek touching the town bounds. Census blocks just south of the Town limits potentially receive greater than \$1.0 Million of damage from the 100-Year flood event.
- The City of Martinsville is fortunate to have modest damages from flooding. Some of the streams within the City are Jones Creek, Smith River, and Mulberry Creek.
- A majority of the census blocks for Patrick County have some degree of flood loss. The Philpott Reservoir is located in the northeast corner of the County. Some of the major stream branches in the County are Smith River, Rock Castle Creek, North and South Mayo Rivers, Dan River, and Poorhouse Creek.
- The Town of Stuart receives a majority of the flood losses around the perimeter of the Town from Poorhouse Creek and South Mayo River.
- In Pittsylvania County, while most census blocks have 100-Year losses estimated at under \$1.0 Million, areas bordering the City of Danville contain blocks with damages ranging from \$1.0 Million to \$10.0 Million, with three blocks bordering the Town with greater than \$20.0 Million in 100-Year event losses. Pittsylvania County, as compared to the other counties in the district, has longer floodplain lengths and relatively higher property values, thereby impacting the loss prediction.
- The Town of Chatham receives most of its flood damages from Cherrystone Creek located in the western portion of the Town.
- The Town of Hurt is bordered by the Roanoke River to the north and east and Sycamore Creek to the west. The census blocks with flood losses are located on the north and southeast sides of the Town.

B.1.4.8. Pluvial Flooding

Pluvial flooding was identified by the jurisdictions in the region as being of increasing concern. As a preliminary step to undergoing a full pluvial flood hazard analysis and study, input was gathered from communities to develop a better understanding of the context surrounding the issue. Public input was sought to identify pluvial flood hazard areas, or “problem areas,” based on local knowledge. This was done through the following four mediums:

- The West Piedmont Multi-Jurisdictional Hazard Mitigation Plan Update 2021 Community Survey;
- The West Piedmont Multi-Jurisdictional Hazard Mitigation Plan Update 2021 Community Map in the Story Map;
- Social media responses (i.e. the Danville Subreddit on Reddit.com); and
- Repetitive damage areas compiled by the Franklin County Public Safety department.

Figure 5-4 depicts the problem areas identified by the public input activity. Due to the limited feedback received, locations were not provided for all participating jurisdictions. Only Franklin County, the town of Rocky Mount, Henry County, Pittsylvania County, and Danville have data available, although data is extremely limited for even some of these jurisdictions.



Hazard Identification and Risk Assessment

B.2. Winter Storm (High Priority)

The priority hazard ranking process determined severe winter storms to remain as a high priority hazard in WPPDC. Table 5-22 outlines the hazard rankings for each of the hazard priority criteria related to severe winter storm.

Table 5-22. Winter Storm Hazard Priority

Probability/ History	Vulnerability	Maximum Threat (Geographic Area Affected)	Warning Time	2016 Priority Level	2021 Priority Level
Highly Likely Common events with annual probability >1	Critical 25 to 50% of people or property	Large >50% of community impacted	Limited 2 days	High	High

B.2.1. Hazard History

Since the 2016 WPPDC plan update, two winter storm events have occurred in the Planning District. In December 2018, a significant snowstorm hit the southern United States. The resultant snowfall was record-breaking in the West Piedmont Region of Virginia with areas of accumulation over one foot, and in some cases around 2 feet. The National Weather Service reported that this was the second largest December snowfall on record for any event reported for the Danville Climate Station, and the fifth largest snowfall in the area since 1916. This storm also broke the record for the earliest seasonal snowfall amount. The Danville station also reported that this storm brought record snowfall with the most snow measured in an event in over 70 years in the region. Franklin County had snowfall totals of up to 18.5 inches, Pittsylvania County recorded up to 17.4 inches in some areas, Patrick County had a total of 17 inches, Henry County had a total of 16.8 inches, and the City of Martinsville at 15 inches.

Another Winter Storm in January 2019 impacted a large area of the southeast U.S. However, reports of this storm in the West Piedmont Region were less severe. The National Weather Service reported 2 inches or less of snowfall in the region and freezing rain throughout. NCEI data shows no weather-related injuries or deaths as a result of this storm.

Appendix B1 includes descriptions of major winter storm events in the West Piedmont Region prior to the last plan update. Events have been broken down by the date of occurrence and when available, by individual community descriptions. When no community-specific description is available, the general description represents the entire planning area. It is apparent from historical records that winter storms impact the entire West Piedmont Region with some regularity. Past events indicate that the frequency of significant ice and snow is slightly higher over the western and northern portions of the region, particularly the higher elevations.

B.2.2. Hazard Profile

A winter storm can be defined as a combination of heavy snow and dangerous wind chills. Winter storms are life-threatening and can vary in size and strength. Examples of winter storms include heavy snowstorms, blizzards, freezing rain, sleet, ice storms, and blowing and drifting snow conditions. Extremely cold temperatures accompanied by strong winds can result in wind chills that cause bodily

injury, such as frostbite and death. A variety of weather conditions can occur during winter storms and are described in further detail in the following subsections.

The National Weather Service (NWS) has defined winter season watches, warnings and advisories based on specific criteria:

- Ice Storm Warning is issued when a period of freezing rain is expected to produce ice accumulations of 1/4" or greater or cause significant disruptions to travel or utilities.
- Heavy Sleet Warning is issued when a period of sleet is expected to produce ice accumulations of 1" or greater or cause significant disruptions to travel or utilities.
- Heavy Snow Warning is issued when snow is expected to accumulate 4 inches or more in 12 hours, or 6 inches or more in 24 hours.
- A winter storm warning is issued for a winter weather event in which there is more than one hazard present, and one of the warning criteria listed above is expected to be met.
- A blizzard warning is issued for sustained wind or frequent gusts greater than or equal to 35 mph accompanied by falling and/or blowing snow, frequently reducing visibility to less than 1/4 mile for three hours or more. Watches are issued when conditions may be met 12 to 48 hours in the future.

B.2.2.1. Climate Change Impacts

Average annual temperatures in Virginia have risen by 1.5oF since the start of the 20th century, with temperatures exceeding historically warm periods that occurred in the state in 1930s and 1950s. The impact of winter warming trends due to climate change is predicted to be increased precipitation which could result in a higher number of ice storms.

According to 2017 Virginia State Climate Summary models, extreme cold waves in Virginia are projected to decrease in intensity, and the number of extreme precipitation events are projected to increase. These trends suggest a higher potential for ice storms due to increased levels of precipitation and more extreme climate events in the area. Such changes will have a significant impact on how the state and its communities manage future winter storm events and will affect the impact these storms may have on utilities, roads, and residents.

B.2.2.2. Primary Impacts

The impacts of winter storms are minimal in terms of property damage and long-term effects. The most notable impact from winter storms is the damage to power distribution networks and utilities. Severe winter storms have the potential to inhibit normal functions of the community. Governmental costs for this type of event are a result of the needed personnel and equipment for clearing streets. Private sector losses are attributed to lost work when employees are unable to travel. Homes and businesses suffer damage when electric service is interrupted for long periods of time (see Table 5-73. Estimated Losses Due to Electricity Outage for Residential Structures). Six utility companies provide service to the region, which can make power restoration complicated.

Health threats can become severe when frozen precipitation makes roadways and walkways very slippery. Prolonged power outages and lack of necessary fuel supplies can also pose a threat to the health of citizens. In addition, buildings may be damaged if snow loads exceed the design capacity of their roofs, or when trees fall due to excessive ice accumulation on branches. The water content of snow can vary significantly from one storm to another and can significantly impact the degree to which

damage might occur. The water content of snowfall is generally higher in snow events that occur at freezing temperatures, or even above freezing temperatures. Higher water content translates into a heavier, 'wet' snowfall that more readily adheres to power lines and trees, increasing the risk for their failure. Roof collapse is also more of a concern with wetter, heavier snowfall. In particular, there's a higher susceptibility of snow-related building failures among buildings that are poorly maintained and designed. On the other hand, clearing roadways and sidewalks is considerably easier for a drier, more powdery snow. A dry, fluffy snow is less likely to accumulate on power lines and trees. This type of snow generally occurs in temperatures below freezing with water content decreasing with temperature. The primary impact of excessive cold is increased potential for frostbite, and potentially death as a result of over-exposure to extreme cold.

B.2.2.3. Secondary Impacts

Some of the secondary impacts presented by extreme or excessive cold are threats to the health of livestock, pets, and frozen water pipes in homes and businesses. Most deaths that occur as a result of winter storms are indirectly related to the impact of the storm, for example, car accidents from icy roads and hypothermia from prolonged exposure to cold. Other secondary impacts include damage to trees and tree limbs which can result in damage or downing of utility cables, loss of power and heat, and flooding due to snow melt.

B.2.2.4. Probability and Frequency

The historical frequency of severe winter weather events is a standard measure for determining the probability of future occurrences within an area. Historical data from the National Weather Service (NWS), FEMA's Federal Disaster Declaration data, and NCEI Storm Events database were assessed to provide a reasonable assessment of the relative frequency and probability of winter weather occurrences in the Planning District.

B.2.2.4.1. Snowfall Potential

To determine the geographic distribution and frequency with which major snow or ice events impact the region, issued National Weather Service warnings and advisories were examined (see Table 5-23; also see Previous Occurrences in Appendix B1). The number and types of warnings and advisories issued were analyzed for each County (with towns and cities included in their respective counties because the issuance is at the County level), and a weighting system was applied that factored the 'severity' of an event implied by a warning or advisory type. Note: National Weather Service warnings/advisories for winter weather are issued at a county level. The warnings/advisories apply to all towns and cities located within a particular county. In the case of snowfall for example, issuance of a Blizzard Warning implies a more significant event than that of a Snow Advisory. A higher weight is thereby applied to the Blizzard Warning. To determine the relative Significant Snowfall Potential for the planning area, the total number of each warning or advisory type and its weighting were summed. Weighting was applied as follows: Blizzard Warning = 1.5; Heavy Snow Warning = 1.25; Snow Advisory = 0.5; Winter Storm Warning (for significant snow) = 1. Using this method, it was determined that Franklin and Patrick counties have a Medium-High to High significant snowfall potential relative to the entire West Piedmont Region, while Henry and Pittsylvania counties have a Medium potential.

Table 5-23. National Weather Service Alerts for Significant Snow Events

Jurisdiction	Heavy Snow Warning	Snow Advisory	Winter Storm Warning (snow)	Total Warnings/ Advisories due to Significant Snowfall	Weighted Snowfall Ranking*	Ranking Descriptor
Franklin County	2	3	42	47	46	High
Henry County	1	4	27	32	30.25	Medium
Patrick County	2	3	39	45	43	Medium-High
Pittsylvania County	1	6	28	35	32.25	Medium

*sum of alerts with weights applies

Source: National Weather Service Alerts (January 2000 – April 2021) <http://mesonet.agron.iastate.edu>

B.2.2.4.2. Ice Potential

Another challenge with winter weather in Virginia and the West Piedmont Region is the amount of ice that often comes as part of winter weather. Ice accumulating on trees and power lines can have a devastating impact on the region, including disruption of utilities and communications. Depending on the extent and severity of these icing events, outages can last for days and, in extreme cases, for weeks. The NWS criteria for alerts for icing events:

- Ice Storm Warning: Issued when damaging accumulations of ¼ inch or greater are expected.
- Winter Storm Warning (for ice): Issued when precipitation might be a significant wintry mix of snow and ice.
- Freezing Rain Advisory: Issued when freezing rain accumulations are expected to be less than ¼ inch.

To determine the Significant Icing Potential, the total number of each warning or advisory type issued and its weighting were summed (Table 5-24) at the County level. Weighting was applied as follows: Ice Storm Warning = 1.5; Freeze/ Hard Freeze Warning (for significant icing) = 1; and Freezing Rain Advisory = 0.5. Using this method, it was determined that Patrick County has a High Significant Icing potential, Franklin County has a Medium-High potential, and Henry and Pittsylvania counties have a Medium-Low potential.

Table 5-24. National Weather Service Alerts for Significant Ice Events

Jurisdiction	Ice Storm Warning	Freezing Rain Advisory	Freeze/ Hard Freeze Warning (significant ice)	Total Warnings/ Advisories due to Significant Glaze Icing	Weighted Significant Icing Ranking (sum of alerts with weights applied) *	Ranking Descriptor
Franklin County	4	15	33	52	46.5	Medium-High
Henry County	1	9	31	41	37	Medium

Jurisdiction	Ice Storm Warning	Freezing Rain Advisory	Freeze/ Hard Freeze Warning (significant ice)	Total Warnings/ Advisories due to Significant Glaze Icing	Weighted Significant Icing Ranking (sum of alerts with weights applied) *	Ranking Descriptor
Patrick County	8	9	33	50	49.5	High
Pittsylvania County	1	9	29	39	35	Medium

*sum of alerts with weights applies

Source: National Weather Service Alerts (January 2000 – April 2021) <http://mesonet.agron.iastate.edu>

B.2.2.4.3. Disaster Declarations

Since 1964, a total of 7 winter weather related Federal Disaster Declarations have occurred in the West Piedmont District (Table 5-25). These declarations are made at the County or Independent City level. The most recent declaration was in Patrick County in 2016 as a result of a severe snowstorm that took place that year. However, several of the federally recognized winter storms in the region occurred between 1993 and 1996. According to the 2018 Virginia State Hazard Mitigation Plan, during the 1995-1996 winter season, the southwest portion of Virginia and other areas of the state experienced historic levels of snowfall, resulting in more localities qualifying for major disaster declarations than any other hazard.

Winter weather events are the second most common declaration type (after hurricanes) in the region. When compared to the Commonwealth of Virginia, flood, high wind, and winter weather represent the majority of Federal Disaster Declarations. Figure 5-5—from the 2018 VA plan update—shows the geographic distribution, by county, of Winter Storm Federal Disaster Declarations in the Commonwealth between 1964-2018.

Table 5-25. Winter Storm Federal Disaster Declarations (1964-2021)

Jurisdiction	Severe Snowstorm	Severe Winter Storm	Severe Ice Storm	Total Winter Weather Declarations
City of Danville	1	3	0	4
Franklin County	1	2	1	4
Henry County	1	3	1	5
City of Martinsville	1	1	0	2
Patrick County	2	2	1	5
Pittsylvania County	1	3	2	6
WPPDC Total	2	3	2	7

Source: OpenFEMA Dataset: Disaster Declaration Summaries (April 2021)

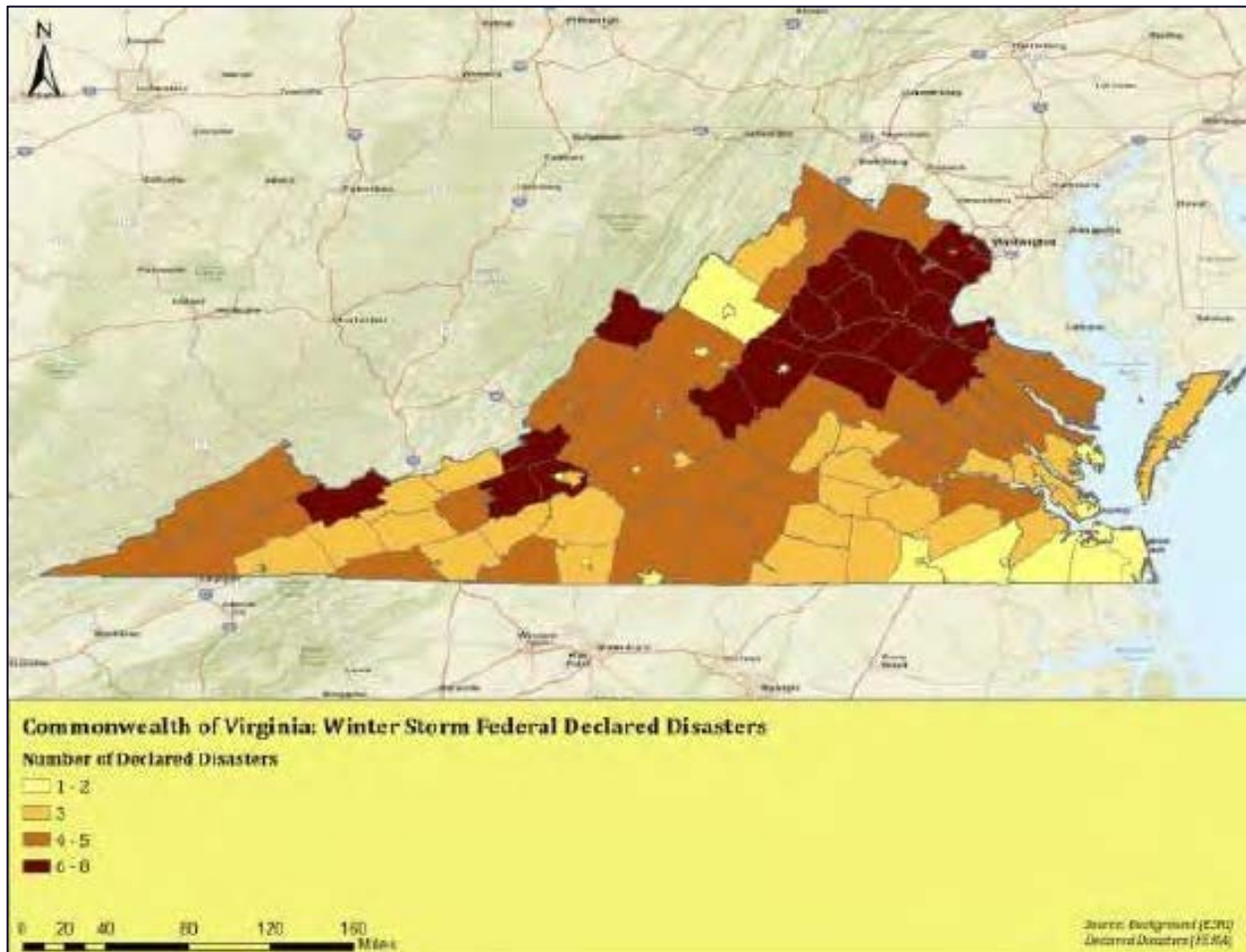


Figure 5-5. Winter Storm Federal Disaster Declarations¹⁸

B.2.2.4.4. Annualized Winter Storm Events

The NCEI Storm Events Database has record of winter storms in the District between 1996 and 2020. In the NCEI, winter storms are recorded at the County or Independent City level, as such a storm is assumed to cover the entire area. The average annualized number of winter storm events within the 24-year period in the region is approximately 9.7 winter storms per year (Table 5-26), with the highest number of historic winter storm events in Patrick County. Since the 2016 plan update, the most notable number of reported storms occurred in 2018 where significant damage occurred in Southwest portions of the state. A visualization of the average annualized events is shown in Figure 5-6.

Although the NCEI Database has a shorter timeframe of historic Winter Storm data, the analysis provides a consistent overview of Winter Storm probability in the Planning District, with about 2-3 major winter storm events occurring each year within each jurisdiction.

Table 5-26. Winter Storm Events (1996-2020)

Jurisdiction	Total Number of Events	Average Annualized
Franklin County	55	2.3
Henry County	55	2.3

¹⁸ Sourced from the 2018 VA State Plan.

Jurisdiction	Total Number of Events	Average Annualized
City of Martinsville	55	2.3
Patrick County	71	3.0
Pittsylvania County	52	2.2
City of Danville	52	2.2

Source: NCEI Storm Events Database

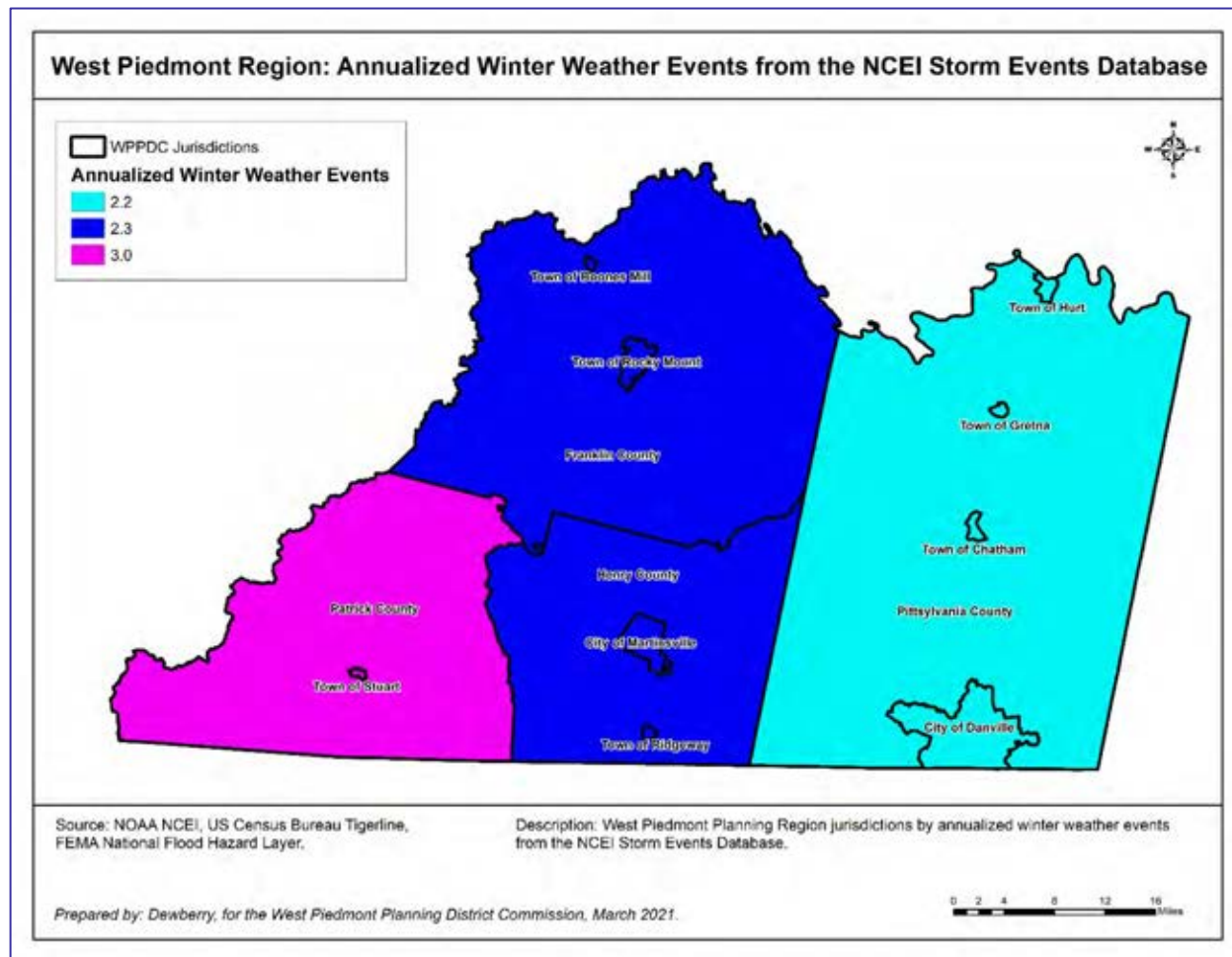


Figure 5-6. Annualized Winter Storm Events in the West Piedmont Region (1996-2020)

B.2.3. Vulnerability Analysis

Winter storm vulnerability can be thought of in terms of individual, property, and societal elements. For example, the exposure of individuals to extreme cold, falling on ice-covered walkways, and automobile accidents is heightened during winter weather events. At least three fatalities have been officially documented as having resulted from winter storms in the planning region. According to NCEI records, two fatalities took place during severe winter storms in Henry County in early 2014 and 2016. NCEI also reported one fatality due to severe winter conditions in Franklin County on February 2, 1996, and \$400,000 in property damages across portions of Henry and Pittsylvania counties (and extending into Charlotte and Halifax counties). Another significant snowstorm in the West Piedmont area brought over \$200,000 of reported property damage to the City of Danville in 2018 and was ranked as one of the largest December snowstorms on record in the area with historic levels of snowfall and accumulation.

Property damage due to winter storms includes damage done by and to trees, water pipe breakage, structural failure due to snow loads, and injury to livestock and other animals. A single winter event can cause hundreds of thousands of dollars in property damages as was witnessed by a major nor'easter snow and ice storm that affected a large portion of the southern east coast of the United States in February 2014. The storm was reported to have caused over \$650,000 in damages across portions of Franklin County, Pittsylvania County and the City of Danville.

The disruption of utilities and transportation systems, as well as lost business and decreased productivity are vulnerabilities of society. In terms of critical facility vulnerability, those facilities located in Franklin and Patrick counties are slightly more inclined to experience significant ice and snow as compared to facilities located in Henry and Pittsylvania counties.

The vulnerability to damages varies in large part due to specific factors; for example, proactive measures such as regular tree maintenance and utility system winterization can minimize property vulnerability. Localities accustomed to winter weather events are typically more prepared to deal with them and therefore less vulnerable than localities that rarely experience winter weather.

The impacts of winter storms are primarily quantified in terms of the financial cost associated with preparing for, response during and recovering from them. The primary source of data providing some measurement of winter storm impacts is the NCEI Storm Events database (Table 5-27), however, this data only includes the damages that have been formally reported and therefore only show part of the picture when quantifying the real costs associated with these storms. Further discussion of other costs associated with winter storms is included below. Averaged over the length of available NCEI data records from 1996 to 2020, on an annual basis, property and crop damages in the West Piedmont planning region due to winter storms average approximately \$214,958, with damages estimates ranging from \$22,205 for Patrick County to \$56,441 for Pittsylvania County.

Table 5-27. Winter Storm Events in NCEI Storm Events Database (1996 - February 2020)

Jurisdiction	Annualized Property Damage	Annualized Crop Damage	Total Annualized Damages
Franklin County	\$7,042	\$23,973	\$31,015
Henry County	\$10,413	\$14,015	\$24,428
Patrick County	\$2,968	\$19,237	\$22,205
Pittsylvania County	\$40,387	\$16,055	\$56,441
Total	\$54,239	\$103,349	\$214,958

NOTE: NCEI Storm Events database provides winter storm data only at a county level. It can be assumed that cities and towns located within a particular county share some portion of the annualized winter storm losses.

The substantial differences in dollar amounts across the jurisdictions may be a result of a number of factors including more limited loss estimation data availability for specific winter storm events potentially and/or potentially fewer insured properties (insurance claims are one source of NCEI property loss data) in Franklin and Patrick counties, despite winter weather events being slightly more frequent (relative to the other West Piedmont counties) in both counties. The database includes winter event data back to 1996 but is not necessarily complete or consistent from event to event and it does not capture costs of snow and ice removal. The cost of keeping roadways clear of ice and snow can be astronomical. For instance, the Virginia Department of Transportation winter 2019-2020 budget for snow removal in the Salem District (includes Franklin County, Henry County, Patrick County, and the

City of Martinsville) was \$16 million.¹⁹ A single major winter storm event in December 2009 that dumped 15 inches of snow on the area cost the Town of Rocky Mount \$15,765 to remove snow from roadways and sidewalks.²⁰

Although NCEI has no record of winter storm damage costs in the region prior to 1996, it is important to note that the West Piedmont Region was directly impacted by several major snow and ice storms in the 1990s which resulted in several FEMA Presidential Disaster Declarations throughout the state and in many localities. Most notably, in 1993 the West Piedmont Region had a total of 6 Severe Winter Storm Federal Disaster Declarations. These declarations were attributed to the “Storm of the Century” which occurred in March of 1993 and severely impacted almost the entire East Coast costing billions of dollars in damage and snow removal.

B.2.4. Public Assistance Reimbursements

Table 5-28 shows the annualized loss estimates in the region based on Public Assistance (PA) reimbursements due to Presidential Disaster Declarations as a result of winter weather between 1998-2021. Since these declarations are made at the County or Independent City level, PA reimbursements are calculated at the County or Independent City level. There were two major winter storms that resulted in federal assistance reimbursements. Both storm events resulted in significant costs due to emergency protective measures, snow removal, sanding/ salting/ chemical spreading, debris removal, and repairs to public utilities. For both storms, all six West Piedmont jurisdictions were eligible for PA reimbursement for the repair or replacement of disaster-damaged facilities due to the impact of the storms, as well as assistance emergency work.

Table 5-28. Annualized Loss Estimates Due to Snow Based on Public Assistance Reimbursements Between 1998 - 2021

Jurisdiction	FEMA Disaster Number(s)	Total Damage	Annualized Loss
Franklin County	--	--	--
Henry County	DR-1458-VA	\$464,850	\$20,211
Patrick County	--	--	--
Pittsylvania County	--	--	--
City of Danville	DR-1318-VA DR-1458-VA	\$1,200,616	\$52,200
City of Martinsville	--	--	--
West Piedmont Region	DR-1318-VA DR-1458-VA	\$1,665,466	\$72,411

Source: FEMA Public Assistance Records; VDEM Public Assistance Funded Project Details Dataset (2021)

The first disaster occurred January 2000 (DR-1318-VA) as a result of a severe winter storm. FEMA’s data reports show that for the West Piedmont Region, only the City of Danville received monetary grants for this storm despite all six jurisdictions in the region qualifying for PA reimbursements. However, since

¹⁹ Collins, Paul. 2011. “VDOT has spent ‘over \$1.5M’ on snow removal.” *Martinsville Bulletin*. Retrieved from https://martinsvillebulletin.com/news/local/vdot-has-spent-over-1-5m-on-snow-removal/article_77f20531-07aa-53f7-aa15-dccd040b868a.html.

²⁰ Turner, Joel. 2010. “Cold temperatures hamper snow removal.” *The Franklin News Post*. Retrieved from https://thefranklinnewspost.com/news/local/cold-temperatures-hamper-snow-removal/article_e889886b-8136-5315-b010-631b9ba4974d.html.

many disaster declarations have multiple events and cover large geographic areas, there is the possibility that a municipality has received funding for a disaster that did not occur in that particular municipality.

The second FEMA Declaration with record of Public Assistance in the district was a result of a severe winter storm and snowfall that occurred in February 2003 (DR-1458-VA). The storm resulted in nearly \$14 million of total Public Assistance Grants across the state of Virginia. Like the previous event, all West Piedmont jurisdictions were listed as eligible for PA, but records show PA dollars were granted to only Henry County and the City of Danville.

In a 23-year period (1998-2021), the region experienced a total of over \$1.6 million in damage due to severe winter weather, with a total annualized loss of \$72,411. Although FEMA's Public Assistance data does not show the full picture of extensive costs associated with winter storm damage, it serves as a supplementary analysis of the potentially enormous costs associated with severe winter storm events in the area.

B.2.5. Population at Risk

The planning areas were assigned a relative risk of high, medium-high, medium, medium-low and low based on the levels of relative significant snowfall potential and relative significant icing potential as predicted from previous snow or ice event occurrences. Table 5-29 and Table 5-30 show the populations, based on the most recent available (2010) U.S. Census Bureau data, by jurisdictions that are in each risk level for snow and ice. Various population estimates between 2010 and 2020 show very little change in the region.

Table 5-29. West Piedmont Population Snowfall Relative Risk

Jurisdiction	Medium	High
City of Danville	43,055	0
Franklin County	0	56,159
<i>Town of Boones Mill</i>	0	239
<i>Town of Rocky Mount</i>	0	4,799
Henry County	54,151	0
<i>Town of Ridgeway</i>	742	0
City of Martinsville	13,821	0
Patrick County	0	18,490
<i>Town of Stuart</i>	0	1,408
Pittsylvania County	63,506	0
<i>Town of Chatham</i>	1,269	0
<i>Town of Gretna</i>	1,267	0
<i>Town of Hurt</i>	1,304	0
Total	174,533*	74,649*

*Towns are included in county totals

Table 5-30. West Piedmont Region Population Ice Relative Risk

Jurisdiction	Medium	Medium-High	High
City of Danville	43,055	0	0
Franklin County	0	56,159	0
<i>Town of Boones Mill</i>	<i>0</i>	<i>239</i>	<i>0</i>
<i>Town of Rocky Mount</i>	<i>0</i>	<i>4,799</i>	<i>0</i>
Henry County	54,151	0	0
<i>Town of Ridgeway</i>	<i>742</i>	<i>0</i>	<i>0</i>
City of Martinsville	13,821	0	0
Patrick County	0	0	18,490
<i>Town of Stuart</i>	<i>0</i>	<i>0</i>	<i>1,408</i>
Pittsylvania County	63,506	0	0
<i>Town of Chatham</i>	<i>1,269</i>	<i>0</i>	<i>0</i>
<i>Town of Gretna</i>	<i>1,267</i>	<i>0</i>	<i>0</i>
<i>Town of Hurt</i>	<i>1,304</i>	<i>0</i>	<i>0</i>
Total	174,533*	56,159*	18,490*

*Towns are included in county totals.

Winter weather events impact the West Piedmont Region on a regular basis, and winter storms are considered a significant hazard for the area. Analysis has shown significant icing and snow events are slightly more frequent in Franklin and Patrick counties, while historical damages for winter weather events have been most frequent in Franklin and Henry counties.

B.3. Hurricane Wind (Medium-High Priority)

The priority hazard ranking process update kept hurricane wind as a medium-high priority hazard. Table 5-31 outlines the hazard rankings for each of the hazard priority criteria related to wind.

Table 5-31. Hurricane Wind Hazard Priority

Probability/ History	Vulnerability	Maximum Threat (Geographic Area Affected)	Warning Time	2016 Priority Level	2021 Priority Level
Highly Likely Common events with annual probability >1	Critical 25 to 50% of people or property	Small 5 to 25% of community impacted	Minimal 1 day	Medium-High	Medium-High

The analysis in this section focuses on hurricane and tropical storm winds as the most widespread wind hazards to occur in the planning area, though more localized damage from high winds also can be caused by straight line wind events, thunderstorms, and tornadoes. Thunderstorm winds and straight-line wind events have been moved to their own severe weather section (see section B.4.), along with hail and lightning.

B.3.1. Hazard History

There has been a total of 13 hurricanes that have significantly impacted West Piedmont since 1972. Of those, three have occurred since the last plan update in 2016 (Hurricane Florence, Hurricane Michael, and Tropical Storm Zeta). Appendix B1 includes descriptions of these major hurricane events in the West Piedmont Region. Events have been categorized by the date of occurrence and by individual community descriptions when available. When no community specific description is available, the general description represents the entire planning area.

B.3.2. Hazard Profile

A tropical cyclone is the generic term for a non-frontal synoptic scale low-pressure system over tropical or sub-tropical waters with organized convection and definite cyclonic surface wind circulation. Depending on strength, these weather systems are classified as hurricanes or tropical storms. Hurricanes are categorized by the Safer-Simpson Hurricane Damage Scale, which uses wind speed, central pressure, and damage potential to create storm classifications. This scale is the standard describing an event's disaster potential. The Scale uses a 1 to 5 categorization based on the hurricane's intensity at the indicated time. The scale provides examples of the type of damage and impacts in the United States associated with winds of the indicated intensity. In general, damage rises by about a factor of four for every category increase.

Detailed descriptions of each category and the potential damage are provided in Table 5-32.

Table 5-32. Saffir-Simpson Hurricane Damage Scale

Hurricane Category	Sustained Winds (mph)	Damage Potential	Description
1	74 - 95	Minimal	Minimal damage to unanchored mobile homes along with shrubbery and trees. There may be pier damage and coastal road flooding, with storm surge 4-5 feet about average.
2	96 - 110	Moderate	Moderate damage potential to mobile homes and piers, as well as significant damage to shrubbery and trees with some damages to roofs, doors and windows. Impacts include flooding 2-4 hours before arrival of the hurricane in coastal and low-lying areas. Storm surge can be 6-8 feet above average.
3	111 - 130	Extensive	Extensive damage potential. There will be structural damage to small residences and utility buildings. Extensive damage is to mobile homes and trees and shrubbery. Impacts include flooding 3-5 hours before the arrival of the hurricane cutting off the low-lying escape routes. Coastal flooding has the potential to destroy the small structures, with significant damage to larger structures as a result of the floating debris. Land that is lower than 5 feet below mean sea level can be flooded 8 or more miles inland. Storm surge can be 6-12 feet above average.
4	131 - 155	Extreme	Extreme damage potential. Curtain wall failure as well as roof structure failure. Major damage to lower floors near the shoreline. Storm surge generally reaches 13-18 feet above average.
5	> 155	Catastrophic	Severe damage potential. Complete roof failure on residence and industrial structures, with complete destruction of mobile homes. All shrubs, trees and utility lines blown down. Storm surge is generally greater than 18 feet above average.

Figure 5-7 shows how the frequency and strength of extreme windstorms vary across the United States. The map was produced by the Federal Emergency Management Agency (FEMA) and is based on 40 years of tornado history and over 100 years of hurricane history. Zone IV, the darkest area on the map, has experienced both the greatest number of tornadoes and the strongest tornadoes. As shown by the map key, wind speeds in Zone IV can be as high as 250 MPH. The West Piedmont Region is considered to be in Zone III (winds up to 200mph).

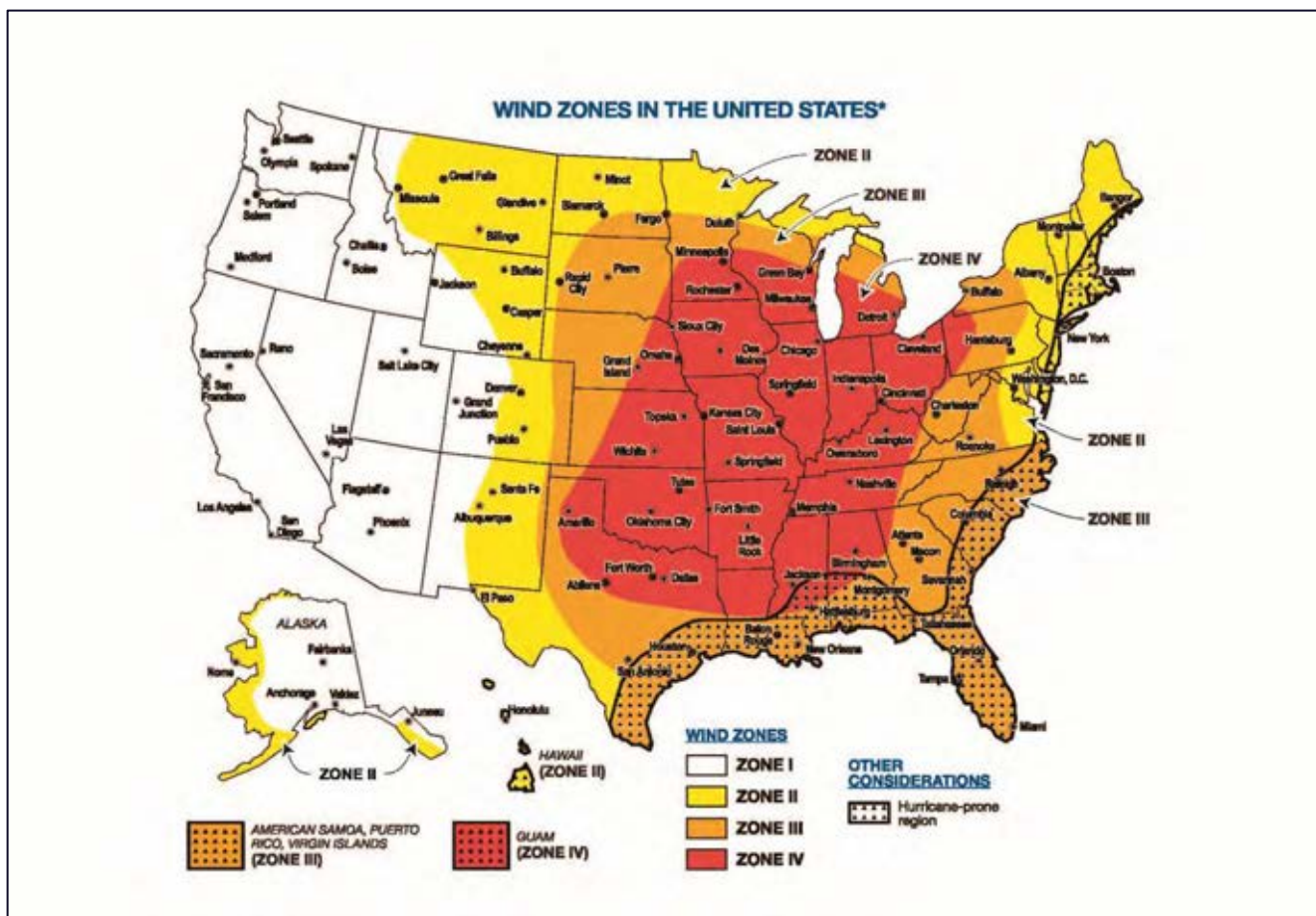


Figure 5-7. Wind Zones in the United States²¹

NOAA's Coastal Services Center maintains historical hurricane, tropical storm and tropical depression track data dating back to the mid 1880's. Figure 5-8 shows all tropical system tracks through and near the West Piedmont Region between 1980 and 2020. Most of the tropical systems to pass directly over the region have been at either tropical storm (green) or tropical depression (blue) strength; however, at least one unnamed hurricane (yellow) tracked through portions of Henry and Pittsylvania counties in August 1893. The hurricane track map gives an idea of the historical occurrences throughout Virginia. The highest frequency of storms that are at hurricane strength is found closest to the coast, as storms usually weaken as they make landfall and track further inland.

²¹ Source: FEMA.

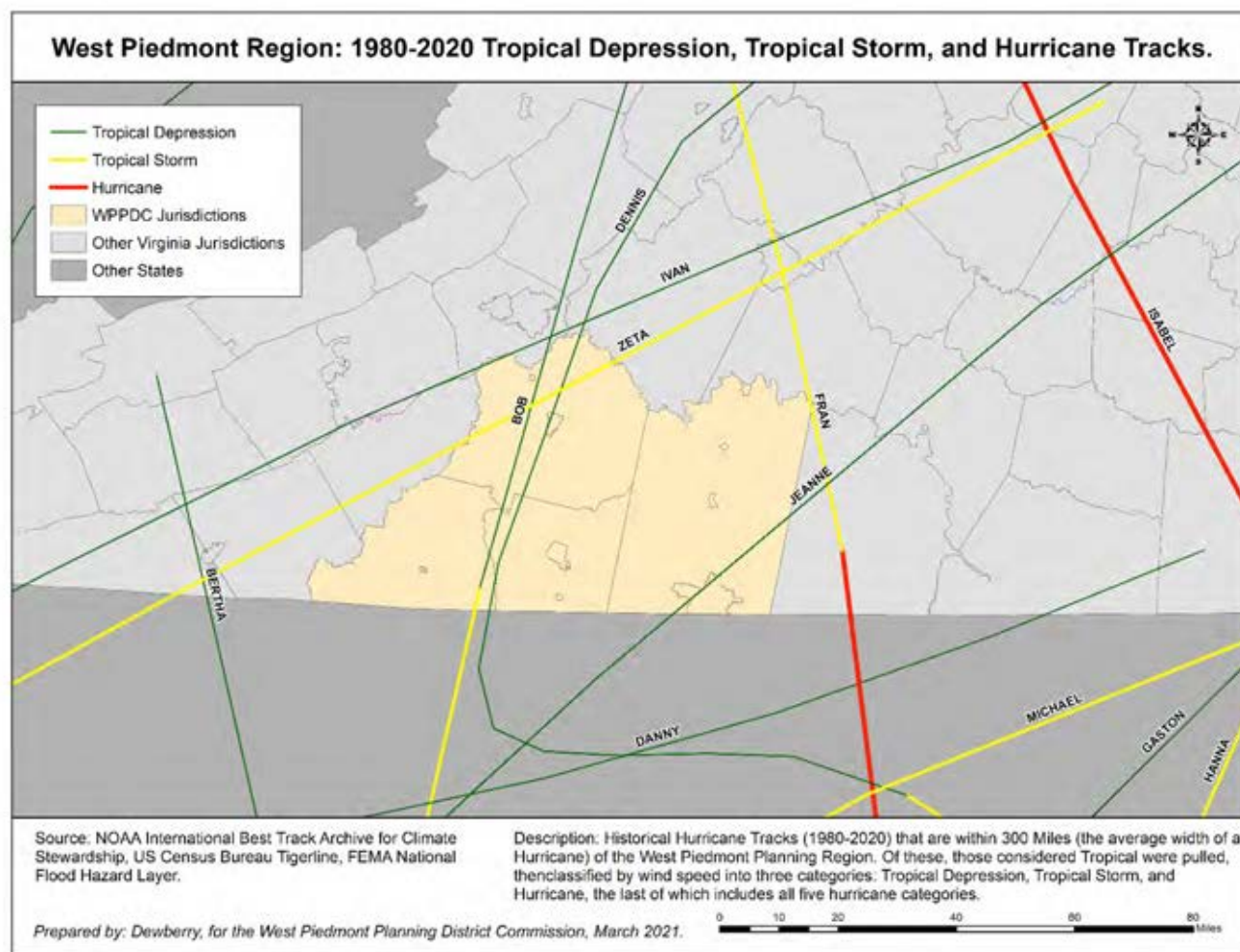


Figure 5-8. NOAA Historical Hurricane Tracks (1980 - 2020)

There were three disaster declarations that resulted in the need for public assistance: Hurricane Isabel, Hurricane Florence, and Tropical Storm Michael. For these three events, Public Assistance was received by the City of Danville, Franklin County, Henry County, the City of Martinsville, and Pittsylvania County. There was a total of 113 projects for these 3 events. Table 5-33 lists some of the statistics in each community for a given storm. These projects all told had eight different project types: debris removal, protective measures, roads and bridges, water control facilities, public buildings, public utilities, recreational or other, and state management. A total of about \$12 Million was paid to the West Piedmont to cover these disasters.

Table 5-33. Hurricane-Related Public Assistance Statistics

DR #	Jurisdiction	Number of Projects	Total Project Amount	Total Federal Amount
1491 – Hurricane Isabel	City of Danville	7	\$496,524.98	\$385,240.86
	Pittsylvania County	3	\$6,359.66	\$4,985.35
4401 – Hurricane Florence	City of Danville	5	\$185,557.67	\$141,377.28
	Franklin County	7	\$48,426.23	\$36,896.19

DR #	Jurisdiction	Number of Projects	Total Project Amount	Total Federal Amount
	Henry County	6	\$342,833.82	\$261,206.72
4411 – Tropical Storm Michael	City of Danville	57	\$10,282,531.18	\$7,833,903.81
	Franklin County	11	\$255,622.48	\$194,402.71
	City of Martinsville	7	\$444,254.06	\$338,479.30
	Pittsylvania County	10	\$3,684,190.77	\$2,807,002.51
Totals		113	\$15,746,300.85	\$12,003,494.73

B.3.2.1. Primary Impacts

Tropical cyclones involve both atmospheric and hydrologic characteristics, such as severe winds, storm, surge flooding, high waves, coastal erosion, extreme rainfall, thunderstorms, lightning, and, in some cases, tornadoes. These elements can lead to devastating inland and coastal flooding, as well as the loss of power and structural damage to homes and businesses. Storm surge flooding can push inland, and riverine flooding associated with heavy inland rains can be extensive. High winds are associated with hurricanes, with two significant effects: building damage and power outages due to airborne debris and downed trees. Further repercussions from tropical systems include substantial and widespread property damage, and loss of utility services, including electricity, water, telephone, cell service, sewage, and internet.

Extreme wind events pose a danger because they can result in localized or widespread power outages, property damage, and falling trees. Mobile homes can be particularly vulnerable to the high winds, especially if improperly installed. Injury or death to people can result from falling objects or flying debris. Extreme wind events can also blow over tractor trailers on the highway and make driving difficult in a high-profile vehicle or lightweight vehicle. They can turn trash cans, lawn and patio furniture, and other property into projectiles resulting in further property damage.

Most deaths in extreme wind events are caused by trees falling onto cars or homes. Dead trees or trees weakened by drought, disease, rotting, or pest infestations are the most susceptible to falling.

B.3.2.2. Secondary Impacts

Secondary effects from a hurricane event could include high winds, flooding, high waves, and tornadoes. Hurricane force winds can easily destroy poorly constructed buildings and mobile homes. Once inland, the hurricane's band of thunderstorms produces torrential rains and may produce tornadoes. A foot or more of rain may fall in less than a day causing flash floods and mudslides. The rain eventually drains into the large rivers which may still be flooding for days after the storm has passed. The storm's driving winds can topple trees, utility poles, and damage buildings. Utilities, including power, water and wastewater treatment and communications can be impaired for days and roads can be impassable due to standing water, fallen trees and debris, and damages to roads and bridges. Local businesses can be closed for extended periods of time due to building and content damage, loss of utilities, and transportation challenges.

B.3.2.3. Climate Change Impact

Tropical cyclones rely on warm surface waters to develop and thrive. With increasing global temperatures, an increase to the frequency and severity of tropical cyclones would appear likely. However, climactic changes beyond surface water temperatures make predicting the likely impacts of climate change on tropical cyclones difficult. Researchers have recently analyzed data that has indicated that the intensity of tropical cyclones (hurricanes and typhoons) has increased over the last thirty-five years.²²

B.3.3. Vulnerability Analysis

Hazus-MH was used to complete the wind analysis for vulnerability and loss estimates for the 2006, 2011, 2016, and 2021 Plan updates. The Hazus software was developed by FEMA and the National Institute of Building Sciences. Level 1, with default parameters, was used for the analysis done in this plan. For analysis purposes, the U.S. Census tracts are the smallest extent in which the model runs. The results of this analysis are captured in the vulnerability analysis and loss estimation.

Hazus-MH uses historical hurricane tracks and computer modeling to identify the probable tracks of a range of hurricane events and then assigns potential wind gusts that result. Appendix B10 includes the individual wind speed maps (10-year, 20-year, 50-year, 100-year, 200-year, 500-year, and 1,000-year events) for the jurisdictions in the region. Widespread extreme thunderstorm wind events, such as those associated with well-developed squall lines, may have wind gusts of a similar magnitude to those of the 50- or 100-year hurricane wind event. In a 50-year event, 3-second wind gusts can be over 60 mph over Pittsylvania County, including the City of Danville, with gusts of 54 to 60 mph over the remainder of the West Piedmont Region. In a 100-year event, gusts can range from 64 to 70 mph. A 1000-year event is the rough equivalent of a strong Category 1 or low-end Category 2 hurricane (or weak to mid-strength EF-1 tornado) with 3-second wind gusts of up to around 95 mph. Results from the model were used to develop the annualized damage estimates. The impacts of these various events are combined to create a total annualized loss or the expected value of loss in any given year.

B.3.3.1. Building Types

Figure 5-9 and Table 5-34 illustrates the building stock exposure to hurricane and extreme wind. As seen in Table 5 4, 76% of the building stock for the West Piedmont Region is considered residential, with approximately 20% of the building stock classified as commercial and industrial. Northeast Franklin County and the Town of Rocky Mount have the highest census tract concentration of exposure, shown in dark red. Figure 5-10 shows the distribution of residential building stock, by census tract, within the District. The northeast of Franklin County has the highest residential concentration for the area, shown in dark blue.

The Hazus-MH hurricane model only conducts analysis at the U.S. Census tract level, which is larger than most of the towns in the region. Town exposure has been estimated using an area weighted calculation, based on the percentage of the town falling into a particular county and then assigning the appropriate value.

²² Intergovernmental Panel on Climate Change. 2007. "Climate Change 2007: Synthesis Report – Summary for Policymakers." Retrieved from http://www.ipcc.ch/pdf/assessment-report/ar4/syr/ar4_syr_spm.pdf.

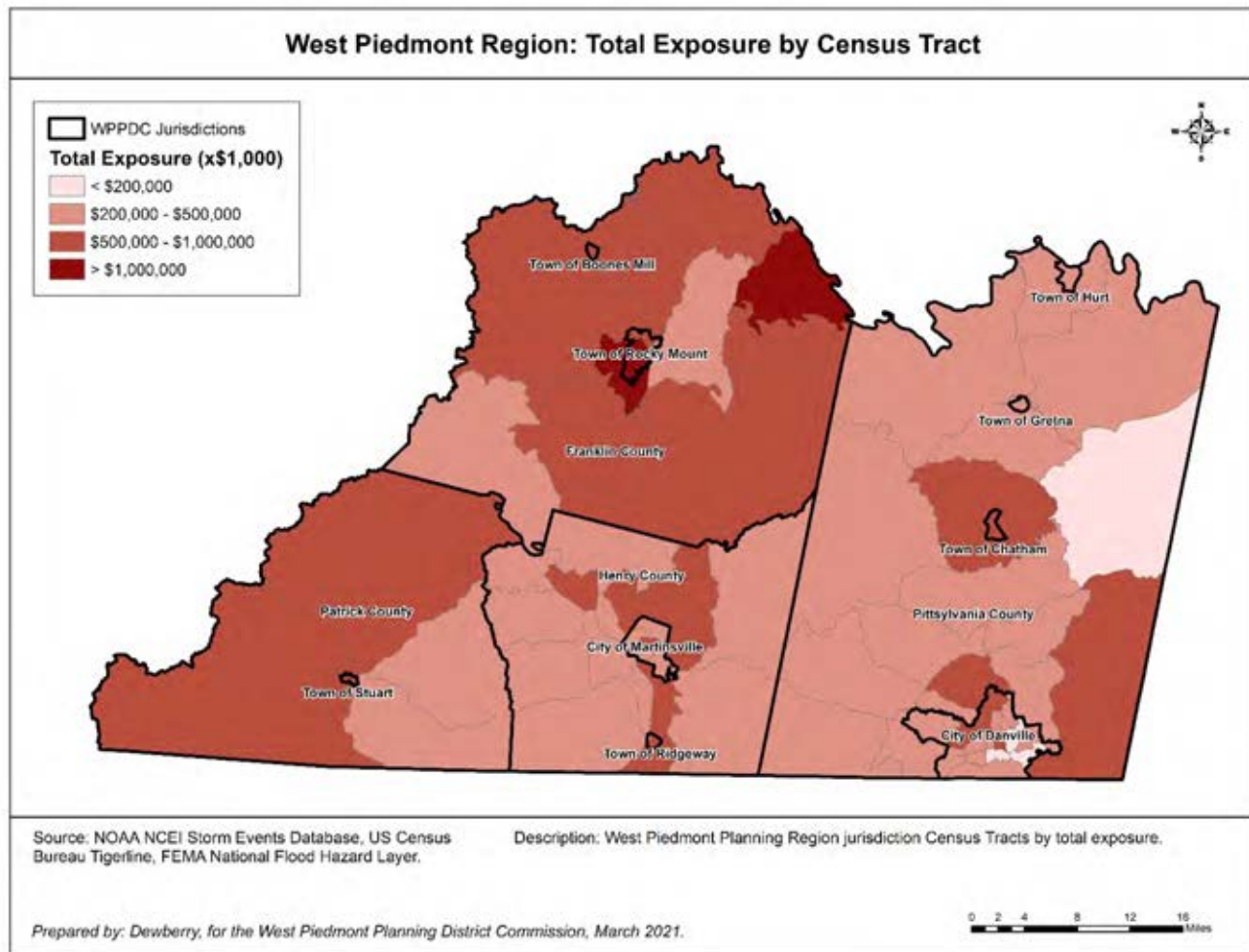


Figure 5-9. Hazus-MH Total Exposure

Table 5-34. Building Stock Exposure by General Occupancy x\$1000 (Hazus-MH v.4.2)

Jurisdiction	Residential	Commercial	Industrial	Agricultural	Religious	Education	Government	Total
City of Danville	\$3,910,725	\$1,304,528	\$190,533	\$11,796	\$162,193	\$28,446	\$58,864	\$5,667,085
Franklin County	\$5,966,748	\$583,323	\$339,723	\$36,915	\$98,282	\$20,292	\$49,997	\$7,095,280
Town of Boones Mill	\$5,999	\$1,406	\$337	\$66	\$125	\$12	\$90	\$8,035
Town of Rocky Mount	\$187,790	\$57,345	\$69,238	\$529	\$10,538	\$2,834	\$3,424	\$331,698
Henry County	\$4,256,226	\$845,580	\$642,790	\$30,901	\$137,454	\$35,666	\$97,881	\$6,046,498
Town of Ridgeway	\$17,169	\$7,864	\$5,613	\$56	\$286	\$204	\$401	\$31,593
City of Martinsville	\$1,341,692	\$566,428	\$154,168	\$3,346	\$56,457	\$13,675	\$22,416	\$2,158,182

Jurisdiction	Residential	Commercial	Industrial	Agricultural	Religious	Education	Government	Total
Patrick County	\$1,586,585	\$202,195	\$83,391	\$16,203	\$45,015	\$18,215	\$13,361	\$1,964,965
Town of Stuart	\$2,148	\$398	\$117	\$15	\$60	\$22	\$23	\$2,783
Pittsylvania County	\$5,136,076	\$441,735	\$221,833	\$48,751	\$138,139	\$47,608	\$68,101	\$6,102,244
Town of Chatham	\$13,041	\$2,381	\$1,361	\$133	\$562	\$356	\$808	\$18,642
Town of Gretna	\$8,440	\$664	\$611	\$82	\$147	\$36	\$119	\$10,099
Town of Hurt	\$26,921	\$2,078	\$697	\$256	\$742	\$0	\$380	\$31,073
Total	\$22,459,560	\$4,015,923	\$1,710,413	\$149,048	\$650,001	\$167,366	\$315,866	\$29,468,177

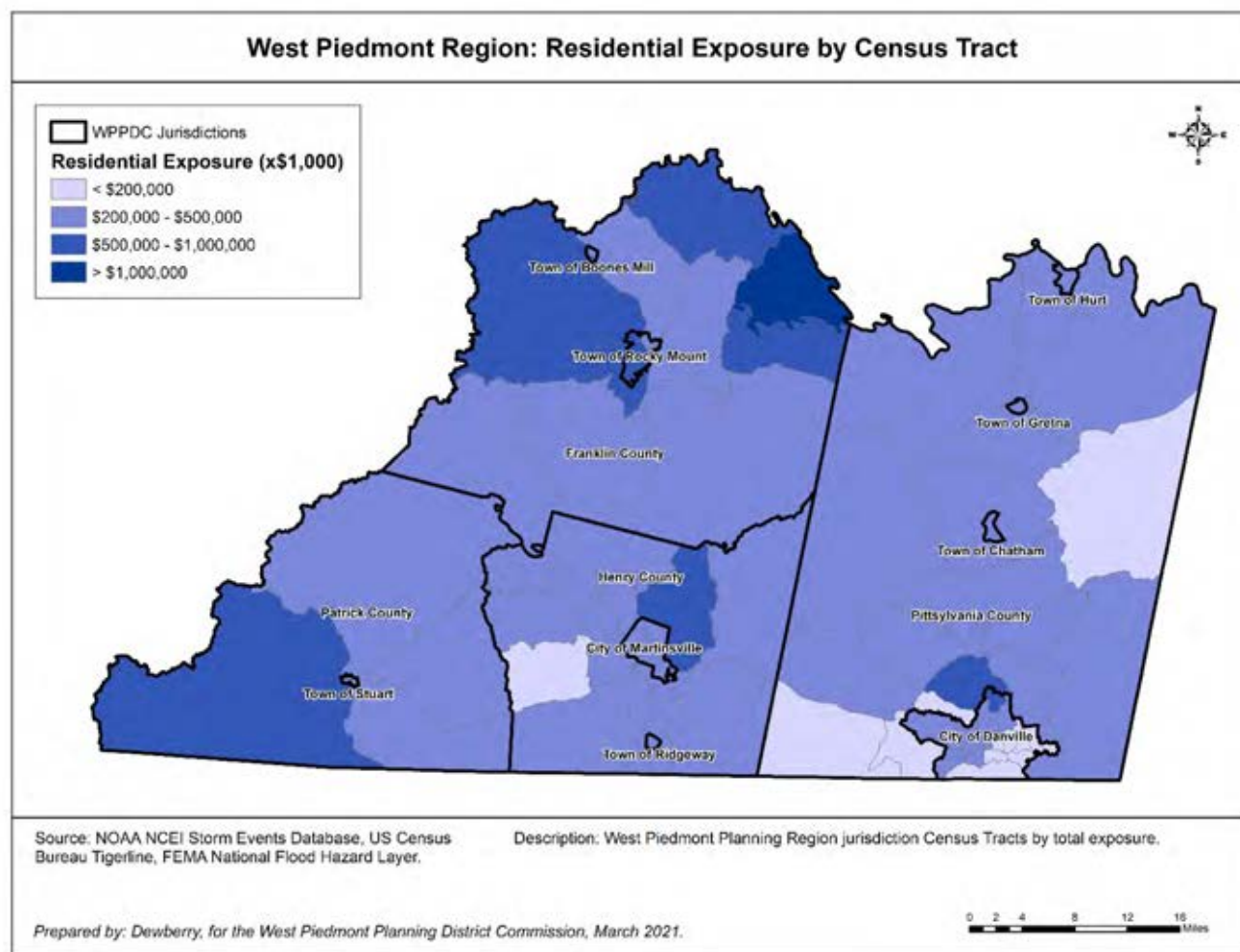


Figure 5-10. Hazus-MH Total Residential Exposure

B.3.3.2. Critical Facilities

Vulnerability of critical facilities to hurricane winds is fairly uniform throughout the region as a result of winds for the various return periods showing only slight variation in distribution (see Appendix B10). In general, critical facilities in Henry and Pittsylvania counties will have slightly higher vulnerability compared to the rest of the region due to slightly higher winds estimated in those areas.

B.3.3.3. Probability of Occurrence

Hurricanes are a low probability event that can greatly impact large areas. Based on the event history for West Piedmont, in which there have been 13 events since 1972, it is estimated that the area will experience one hurricane or tropical storm every three to four years. Virginia's hurricane season is June 1 through November 30, but usually the most intensive hurricanes occur during August and September.

B.3.3.4. Loss Estimation

Hazus-MH estimates that the total annualized loss (see Table 5-35) in the West Piedmont Region due to hurricane and extreme wind is roughly \$970,498, which is a 9% the Hazus-MH v2.2 analysis annualized loss completed in 2016. Much of this loss is due to damage to buildings (79% of estimated losses) and contents (14% of estimated losses) rather than due to loss of income or wages. Annualized losses are estimated to be highest for Pittsylvania County. This can be explained by the County's higher building exposure values and the orientation of higher winds from tropical storms and hurricanes favoring the eastern portions of the West Piedmont Region. Table 5-36 shows a breakdown of annualized hurricane wind loss by occupancy type.

In comparison to the total exposure across the planning area, approximately three percent of the region's exposure is at risk to wind related damages (estimated annualized loss divided by total exposure). The Town of Gretna has the highest loss to exposure ratio) at six percent, followed by the Town of Chatham at five percent.

Figure 5-11 illustrates the total annualized loss due to hurricane (and extreme) winds and Figure 5-12 shows total annualized residential loss. Damages were estimated using census tracts where hurricane losses occur. Overall, annualized losses due to hurricane winds are highest for Pittsylvania County and the City of Danville, followed by Franklin County.

Table 5-35. Total Annualized Hurricane Wind Loss (from Hazus-MH v4.2)

Jurisdiction	Buildings	Contents	Inventory	Relocation	Income	Rental	Wages	Total Loss	Total Exposure
City of Danville	\$164,589	\$24,219	\$368	\$11,155	\$793	\$4,667	\$1,374	\$207,166	\$5,667,085
Franklin County	\$155,949	\$27,789	\$421	\$7,467	\$269	\$2,426	\$494	\$194,815	\$7,095,280
Town of Boones Mill	\$140	\$16	\$0	\$8	\$0	\$2	\$1	\$166	\$8,035
Town of Rocky Mount	\$5,651	\$1,080	\$108	\$351	\$41	\$143	\$72	\$7,446	\$331,698
Henry County	\$145,635	\$24,893	\$454	\$9,213	\$582	\$3,006	\$1,094	\$184,875	\$6,046,498

Jurisdiction	Buildings	Contents	Inventory	Relocation	Income	Rental	Wages	Total Loss	Total Exposure
Town of Ridgeway	\$683	\$111	\$5	\$44	\$7	\$15	\$7	\$871	\$31,593
City of Martinsville	\$43,943	\$6,656	\$252	\$2,792	\$300	\$1,166	\$484	\$55,594	\$2,158,182
Patrick County	\$41,654	\$4,374	\$76	\$2,391	\$110	\$748	\$271	\$49,624	\$1,964,965
Town of Stuart	\$53	\$6	\$0	\$3	\$0	\$1	\$0	\$63	\$2,783
Pittsylvania County	\$205,571	\$45,841	\$246	\$11,095	\$380	\$3,240	\$1,125	\$267,498	\$6,102,244
Town of Chatham	\$617	\$254	\$1	\$29	\$2	\$9	\$6	\$918	\$18,642
Town of Gretna	\$393	\$153	\$1	\$17	\$0	\$5	\$1	\$570	\$10,099
Town of Hurt	\$761	\$69	\$0	\$44	\$2	\$13	\$2	\$892	\$31,073
Total	\$765,640	\$135,458	\$1,932	\$44,610	\$2,485	\$15,442	\$4,931	\$970,498	\$29,468,177

Table 5-36. Total Annualized Hurricane Wind Loss by General Occupancy (Hazus-MH v4.2)

Jurisdiction	Residential	Commercial	Industrial	Agricultural	Religious	Government	Education	Total Loss	Total Exposure
City of Danville	\$180,073	\$20,042	\$3,308	\$267	\$2,224	\$532	\$719	\$207,166	\$5,667,085
Franklin County	\$183,077		\$5,402	\$474	\$776	\$257	\$329	\$194,815	\$7,095,280
Town of Boones Mill	\$5,357	\$532	\$1,392	\$8	\$97	\$33	\$26	\$7,446	\$8,035
Town of Rocky Mount	\$151	\$9	\$4	\$1	\$1	\$0	\$0	\$166	\$331,698
Henry County	\$162,402	\$10,107	\$8,776	\$499	\$1,489	\$658	\$944	\$184,875	\$6,046,498
Town of Ridgeway	\$673	\$99	\$87	\$1	\$3	\$4	\$4	\$871	\$31,593
City of Martinsville	\$44,877	\$6,453	\$3,214	\$63	\$623	\$167	\$198	\$55,594	\$2,158,182
Patrick County	\$46,037	\$1,642	\$1,033	\$214	\$379	\$236	\$82	\$49,624	\$1,964,965
Town of Stuart	\$58	\$3	\$2	\$0	\$0	\$0	\$0	\$63	\$2,783
Pittsylvania County	\$254,925	\$4,932	\$3,596	\$888	\$1,536	\$1,017	\$603	\$267,498	\$6,102,244
Town of Chatham	\$854	\$25	\$18	\$2	\$6	\$6	\$7	\$918	\$18,642
Town of Gretna	\$548	\$7	\$10	\$2	\$2	\$0	\$1	\$570	\$10,099
Town of Hurt	\$855	\$18	\$6	\$4	\$6	\$0	\$3	\$892	\$31,073

Jurisdiction	Residential	Commercial	Industrial	Agricultural	Religious	Government	Education	Total Loss	Total Exposure
Total	\$879,887	\$48,369	\$26,850	\$2,423	\$7,141	\$2,912	\$2,917	\$970,498	\$29,468,177

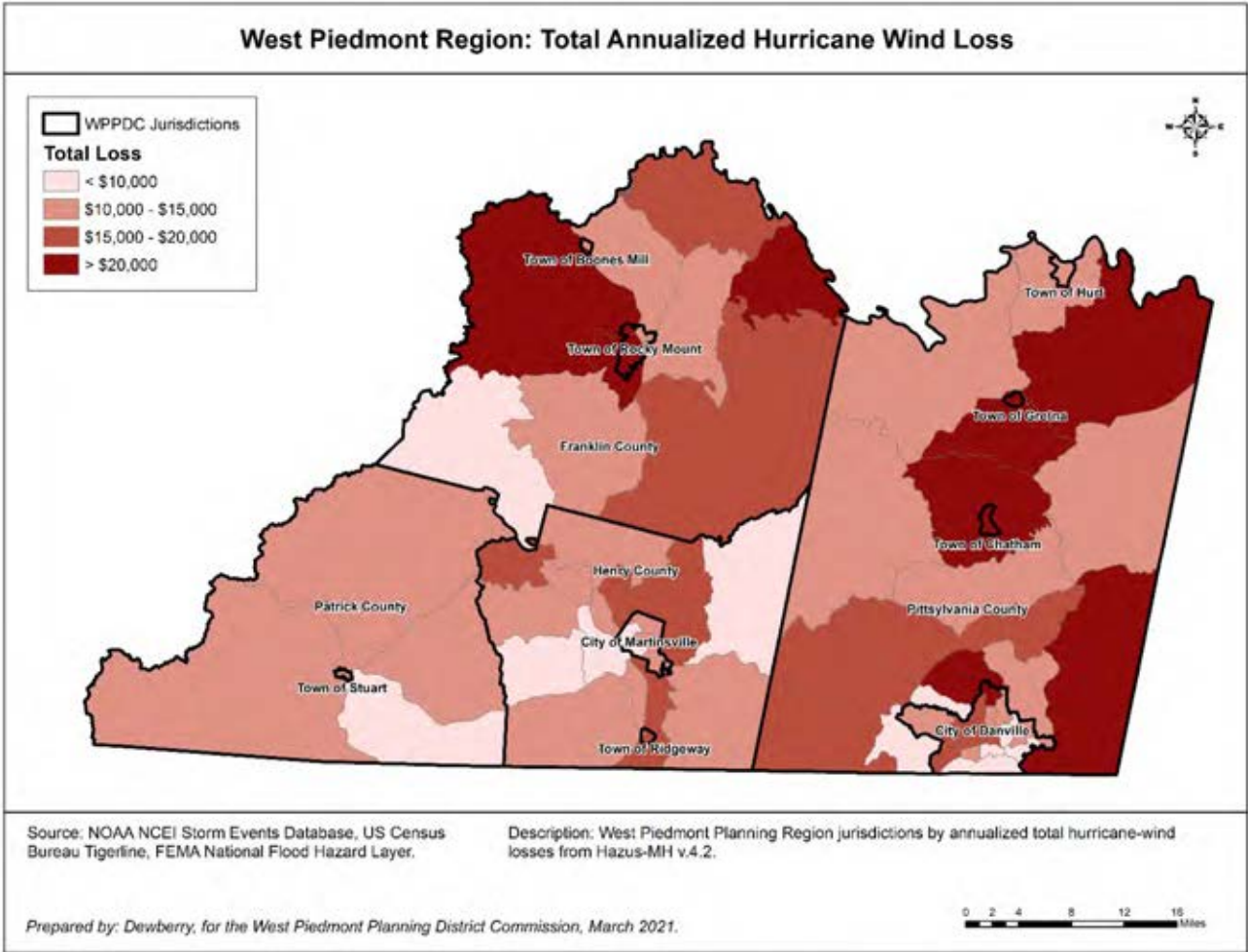


Figure 5-11. Total Annualized Hurricane Wind Loss

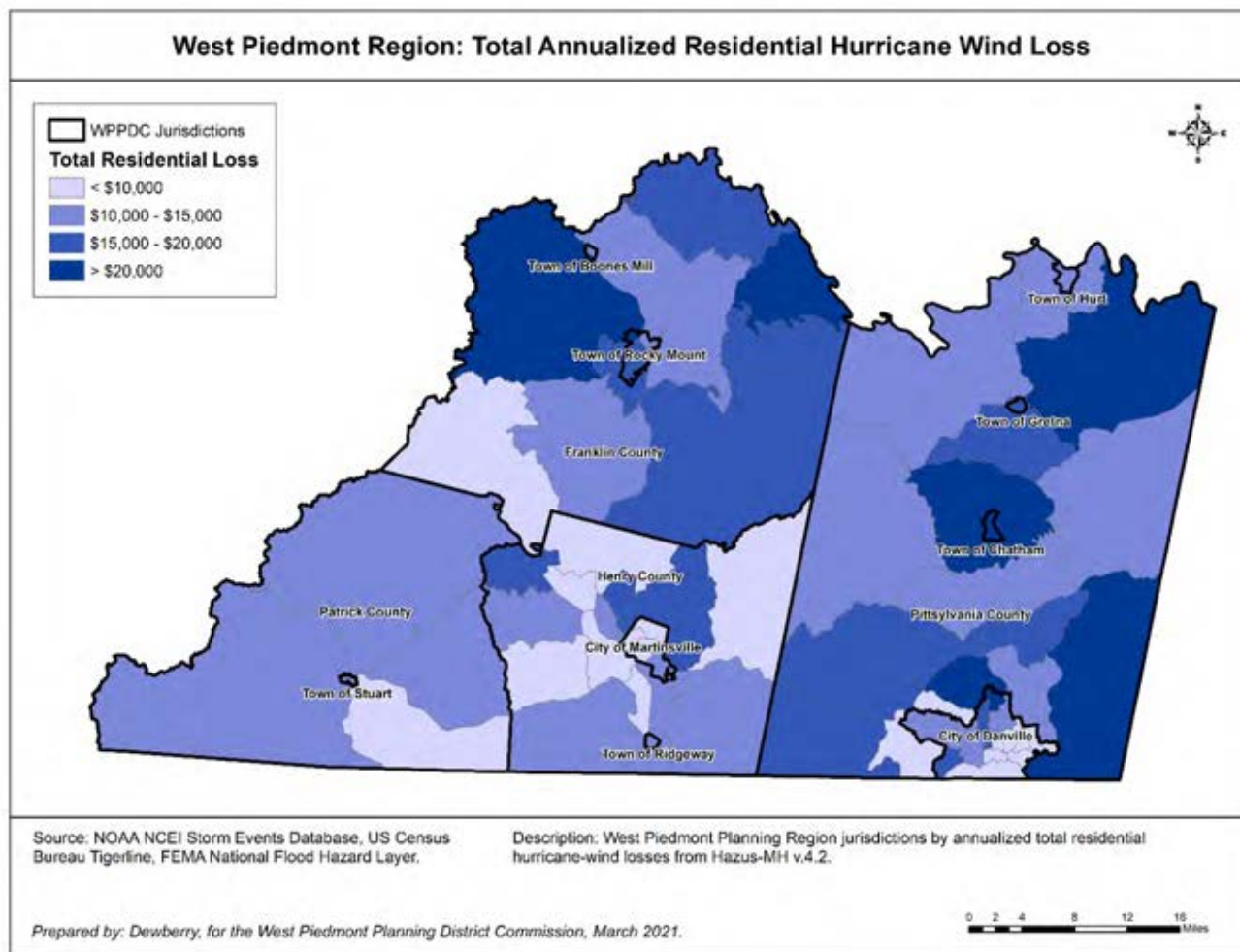


Figure 5-12. Total Annualized Residential Hurricane Wind Loss

B.4. Severe Weather (Medium-High Priority)

The priority hazard ranking process ranked severe weather (which includes thunderstorms, lightning, and hail) as a medium-high priority hazard. Table 5-37 outlines the hazard rankings for each of the hazard priority criteria related to severe weather.

Table 5-37. Severe Weather Hazard Priority

Probability/ History	Vulnerability	Maximum Threat (Geographic Area Affected)	Warning Time	2021 Priority Level
Highly Likely Common events with annual probability >1	Critical 25 to 50% of people or property	Small 5 to 25% of community impacted	Minimal 1 day	Medium-High

The analysis for severe weather was done using the NCEI database. The event types classified into severe weather are thunderstorm wind, high wind, strong wind, hail, and lightning. Since it is difficult to determine the probability of future occurrences in a specific area with any degree of accuracy, all areas within WPPDC are assumed to be equally at risk to the damaging effects of a thunderstorm that causes high wind, lightning, or hail. Therefore, all assets across the region should be considered vulnerable to these hazards and precautions should be taken to protect them.

Although thunderstorms are capable of producing multiple hazards including flooding from rainfall, hail, cloud-to-ground lightning, and damaging wind, the most frequent hazards associated with severe thunderstorms in the West Piedmont Region is flooding (see section B.1.). One issue cited by the Mitigation Advisory Committee was lightning strikes to emergency communication towers. For instance, Patrick County has experienced four damaging strikes since 2010; the county has since installed back-up generators and taken other measures to protect the operation of the towers and communication system.

B.4.1. Hazard History

There have been 2,192 recorded severe weather events since 1955 in the West Piedmont Region. About 60 percent of those are thunderstorm wind events, about 30 percent are hail events, and the remaining 10 percent are either lightning, high wind, or strong wind events. Table 5-38 shows the number breakdown by NCEI event type.

Table 5-38. Severe Weather Events (1955 - November 2020)

Jurisdiction	Hail	High Wind	Lightning	Strong Wind	Thunderstorm Wind	Total
City of Danville	18	17	2	6	72	115
City of Martinsville	19	14	3	9	43	88
Franklin County	147	39	10	8	296	500
Town of Boones Mill	12	0	2	0	16	30

Jurisdiction	Hail	High Wind	Lightning	Strong Wind	Thunderstorm Wind	Total
Town of Rocky Mount	28	0	5	0	30	63
Henry County	104	14	15	9	226	368
Town of Ridgeway	15	0	0	0	36	51
Patrick County	90	39	2	6	118	255
Town of Stuart	30	0	1	0	41	72
Pittsylvania County	138	17	7	6	330	498
Town of Chatham	21	0	3	0	46	70
Town of Gretna	13	0	2	0	37	52
Town of Hurt	10	0	1	0	19	30
WPPDC Totals	645	140	53	44	1,310	2,192

Source: NCEI Storm Events Database

From looking at the NCEI records, it is apparent that severe weather impacts the entire West Piedmont Region with some regularity. NCEI records indicate that the frequency of events is more concentrated in the east of the region, tapering off further west and south. A list of significant severe weather events can be found in Appendix B1.

There was one disaster declaration that resulted in the need for public assistance. Starting on June 29, 2012 and ending on July 1, 2012, severe storms and straight-line winds hit Virginia. On July 27, 2012, this event was declared a disaster and given a number: Disaster 4072. Public Assistance was designated for Danville, Franklin, Martinsville, and Pittsylvania, each of which submitted for compensation. Table 5-39 lists some of the statistics for each community. There was a total of 30 projects for these 4 jurisdictions. These projects all had six different project types: debris removal, protective measures, roads and bridges, public buildings, public utilities, and recreational or other.

Table 5-39. Disaster 4072 Public Assistance Statistics

Jurisdiction	Number of Projects	Total Project Amount	Total Federal Amount
City of Danville	7	\$388,972.17	\$291,266.94
Franklin County	9	\$52,109.08	\$38,843.84
City of Martinsville	5	\$70,179.04	\$52,634.30
Pittsylvania County	9	\$33,006.30	\$17,843.00
Total	30	\$544,266.59	\$400,588.08

Figure 5-13 shows how the frequency and strength of extreme windstorms vary across the United States. The map was produced by the Federal Emergency Management Agency (FEMA) and is based on 40 years of tornado history and over 100 years of hurricane history. Zone IV, the darkest area on the map, has experienced both the greatest number of tornadoes and the strongest tornadoes. As shown by the map key, wind speeds in Zone IV can be as high as 250 MPH. The West Piedmont Region is considered to be in Zone III (winds up to 200mph).



Figure 5-13. Wind Zones in the United States²³

B.4.2. Hazard Profile

For the purposes of the Hazard Mitigation Plan update, severe weather includes thunderstorms, severe wind, lightning, and hail events. The National Weather Service (NWS) defines a thunderstorm as a localized storm produced by a cumulonimbus cloud and accompanied by lightning and thunder. Thunderstorms are typically the result of warm, moist air that is pushed upwards into the atmosphere where it cools and forms into cumulonimbus clouds. As the air continues to cool, it starts to form water droplets or ice. As these droplets or ice start to fall, they may collide and combine many times into larger forms before reaching the Earth's surface. These severe storms are associated with the presence of strong winds, thunder, and lightning. It is also possible to experience a thunderstorm with no precipitation which can cause wildfires to occur.

²³ Source: FEMA.

Thunderstorms can form in any geographic region and are sometimes the cause of other natural phenomena such as downburst winds, heavy rain, flash floods, large hailstones, tornadoes, and waterspouts. While many thunderstorms produce relatively little damage, stronger "supercell" thunderstorms can produce heavy winds, hail, significant damaging lightning strikes, and even tornadoes. Such storms have historically caused significant damage, injury, and even death through the destruction of trees; damage to buildings, vehicles, and power lines; and direct lightning strikes.

The strength of thunderstorms is typically measured in terms of its effects, namely the speed of the wind, the presence of significant lightning, and the size of hail. In general, thunderstorm winds are less than tropical cyclone speeds, but strong winds associated with downbursts can be extremely hazardous and reach speeds up to 168 mph.

A severe thunderstorm includes damaging winds greater than 58 mph (50 knots) or greater and hail one inch or larger in diameter. Severe winds have been further broken down into three categories by the NWS Storm Events database:

- **High Wind:** Sustained non-convective winds of 35 knots (40 mph) or greater lasting for one hour or longer or winds (sustained or gusts) of 50 knots (58 mph) for any duration (or otherwise locally/regionally defined), on a widespread or localized basis. In some mountainous areas, the above numerical values are 43 knots (50 mph) and 65 knots (75 mph), respectively.
- **Strong Wind:** Non-convective winds gusting less than 50 knots (58 mph), or sustained winds less than 35 knots (40 mph) resulting in a fatality, injury, or damage.
- **Thunderstorm Wind:** Winds, arising from convection (occurring within 30 minutes of lightning being observed or detected), with speeds of at least 50 knots (58 mph), or winds of any speed (non-severe thunderstorm winds below 50 knots) producing a fatality, injury, or damage. Events with maximum sustained winds or wind gusts less than 50 knots (58 mph) should be entered as a Storm Data event only if they result in fatalities, injuries, or serious property damage.

High wind events can occur for a variety of reasons: low- and high-pressure systems, isolated thunderstorms, tropical cyclones, and Nor'easters. Using the NWS severe wind categories listed above, sustained non-convective winds of 40 mph or greater lasting for one hour or longer or winds (sustained or gusts) of 58 mph for any duration, on a widespread or localized basis are considered a minimum severity event. A major severe event would be wind events of greater than 58 mph or a wind event resulting in death, injury or significant damage.

B.4.2.1. Straight-Line Winds

High winds, other than tornadoes, are experienced in all parts of the United States. Areas that experience the highest wind speeds are coastal regions from Texas to Maine, and the Alaskan coast; however, exposed mountain areas experience winds at least as high as those along the coast.²⁴ Wind begins with differences in air pressures. It is rough horizontal movement of air caused by uneven heating of the earth's surface. Wind occurs at all scales, from local breezes lasting a few minutes to global winds resulting from solar heating of the earth. Effects from high winds can include downed

²⁴ Federal Emergency Management Agency. 1997. "Atmospheric Hazard." Retrieved from http://www.fema.gov/media-library-data/20130726-1545-20490-1407/mhira_n1.txt.

trees and power lines, and damages to roofs, windows, etc.²⁵ Table 5-40 provides the descriptions of winds used by the NWS.

Table 5-40. NWS Wind Descriptions

Descriptive Term	Sustained Wind Speed (miles per hour)
Strong, dangerous, or damaging	≥40
Very Windy	30-40
Windy	20-30
Breezy, brisk, or blustery	15-25
None	5-15 or 10-20
Light or light and variable wind	0-5

Two basic types of damaging wind events other than tropical systems affect Virginia: synoptic-scale winds and thunderstorm winds. Synoptic-scale winds are high winds that occur typically with cold frontal passages or Nor'easters. When thunderstorm winds exceed 58 mph, the thunderstorm is considered severe and a warning is issued.

"Downbursts" cause the high winds in a thunderstorm. A downburst is a severe localized wind blasting down from a thunderstorm. Downburst activity is sometimes mistaken for tornado activity. Both storms have very damaging winds (downburst wind speeds can exceed 165 mph) and are very loud. These "straight line" winds are distinguishable from tornadic activity by the pattern of destruction and debris such that the best way to determine the damage source is to fly over the area. They are more common than tornadoes in Virginia. Downburst winds result from the sudden descent of cool or cold air toward the ground. As the air hits the ground, it spreads outward, creating high winds. Unlike tornadoes, downburst winds move in a straight line, without rotation. Depending on the size and location of downburst events, the destruction to property may be significant. Downbursts fall into two categories:

1. **Microbursts** affect an area less than 2.5 miles in diameter, last 5 to 15 minutes, and can cause damaging winds up to 168 mph.
2. **Macrobursts** affect an area at least 2.5 miles in diameter, last 5 to 30 minutes, and can cause damaging winds up to 134 mph.

Another widespread thunderstorm wind event is known as a derecho. Derechos are associated with lines (squall lines) of fast-moving thunderstorms that might vary in length and have the potential to travel hundreds of miles. Winds in these types of events can rival those of "weaker" tornadoes with gusts of 80 to 100 mph covering a wide area.

In the United States, an average of 300 people are injured and 80 people are killed by lightning each year. Typical thunderstorms are 15 miles in diameter and last an average of 30 minutes. An estimated 100,000 thunderstorms occur each year in the United States, with approximately 10% of them classified as severe. During the warm season, thunderstorms are responsible for most of the rainfall.²⁶

²⁵ Rosenstiel School of Marine & Atmospheric Science. 2005. "Katabatic Winds." University of Miami. Retrieved from <http://www.rsmas.miami.edu/personal/milicak/katabatic/node3.html>.

²⁶ NOAA National Severe Storms Laboratory. "Severe Weather 101." Retrieved from <https://www.nssl.noaa.gov/education/svrwx101/thunderstorms/>.

B.4.2.2. Lightning

Lightning is defined by the NWS as a visible electrical discharge (i.e. lightning bolt) produced by a thunderstorm. The discharge may occur within or between clouds, between the cloud and air, between a cloud and the ground or between the ground and a cloud. According to NOAA, the creation of lightning during a storm is a complicated process that is not fully understood. In the initial stages of development, air acts as an insulator between the positive and negative charges. However, when the potential between the positive and negative charges becomes too great, a discharge of electricity (lightning) occurs. A bolt of lightning can reach temperatures approaching 50,000 degrees Fahrenheit. Lightning rapidly heats the sky as it flashes, but the surrounding air cools following the bolt. This rapid heating and cooling of the surrounding air causes thunder.

In-cloud lightning occurs between the positive charges near the top of the cloud and the negative charges near the bottom. Cloud-to-cloud lightning occurs between the positive charges near the top of the cloud and the negative charges near the bottom of a second cloud. Cloud-to-ground lightning is the most dangerous. In summertime, most cloud-to-ground lightning occurs between the negative charges near the bottom of the cloud and positive charges on the ground.

While there is no established index for lightning, a lightning strike is of minimum severity when it has limited impacts on the natural and built environment (ex. tree limbs and buildings) and major severity when it causes extensive damage (ex. loss of life, fire, structural damage). The potential damages resulting from lightning strikes are primarily injury, loss of life, power outages, business interruption, fire and minor structural damage. A false sense of security often leads people to believe that they are safe from a lightning strike because it may not appear to be near their location. However, lightning can strike 10 miles away from a rain column, which puts people who are still in clear weather at risk.

B.4.2.3. Hail

Hail is precipitation in the form of ice pellets larger than five mm that forms in thunderstorms between currents of rising air (updrafts) and currents of descending air (downdrafts) as shown in Figure 5-14. Most hailstones are smaller in diameter than a dime, but stones weighing more than 1.5 pounds have been recorded. NOAA has estimates of the velocity of falling hail ranging from 9 meters per second (m/s) (20 mph) for a 1-centimeter (cm)-diameter hailstone to 48 m/s (107 mph) for an 8 cm, 0.7-kilogram stone. These events typically occur in late spring and early summer. One criterion for severe thunderstorms, as defined by the NWS, is hail that is one inch in diameter (quarter-size) or larger.

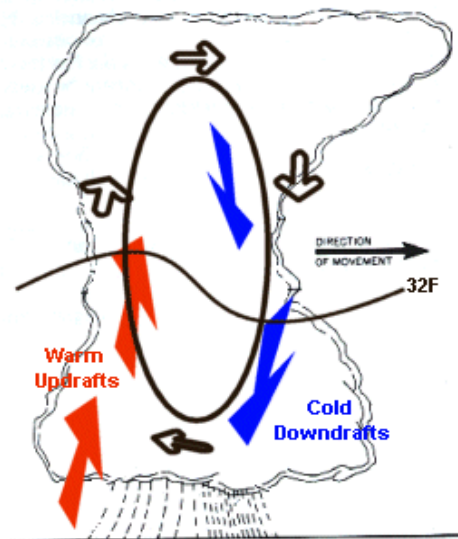


Figure 5-14. Formation of Hail²⁷

Using the NWS definition for a severe thunderstorm, dime-sized hail is considered a minimum hazard and quarter-sized hail is considered a major hazard. Quarter-sized hail can cause significant damage to agricultural crops and livestock, as well as property such as automobiles, aircraft, and roofs. Although rare, large hailstones may even cause injury or death. The amount of cover obtained during a hailstorm can greatly reduce the risk to human health during these events.

Hail causes nearly \$2 billion in crop and property damages, on average, each year in the United States. Hail occurs most frequently in the southern and central plain states; however, since hail occurs with thunderstorms, the possibility of hail damage exists throughout the entire United States.²⁸ Figure 5-15 indicates that Virginia experiences an average of five to six severe hail days per year.

²⁷ Source: NOAA.

²⁸ Federal Alliance for Safe Homes. "Hail Safety." Retrieved from http://www.flash.org/peril_hail.php.

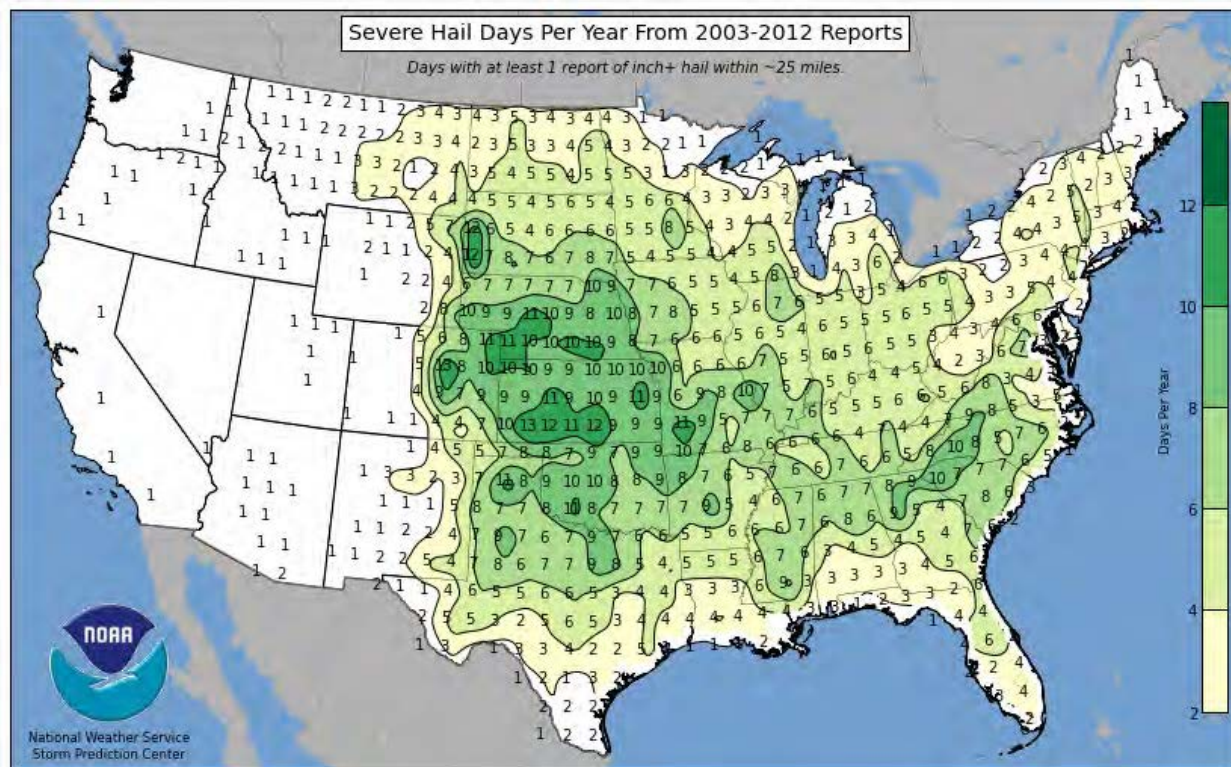


Figure 5-15. Annual Frequency of Hailstorms in the United States²⁹

B.4.2.4. Primary and Secondary Impacts

High wind events pose a danger because they can result in localized or widespread power outages, property damage, and falling trees. Mobile homes are particularly vulnerable to high winds, especially if improperly anchored. Extreme wind events can also blow over tractor trailers on the highway and make driving difficult in a high-profile vehicle or lightweight vehicle. They can turn trash cans, lawn and patio furniture, and other property into projectiles resulting in further property damage.

Injury or death can result from falling objects, vehicle accidents, and flying debris. Most deaths associated with extreme wind events occur in cars, especially lightweight vehicles and high-profile tractor trailers. Most deaths in extreme wind events are caused by trees falling onto cars or homes. Dead trees or trees weakened by drought, disease, rotting, or pest infestations are the most susceptible to falling.

Older critical facilities are vulnerable to wind damage due to the age of construction and possible poor condition. It is important to identify specific critical facilities and assets that are most vulnerable to the hazard. Evaluation criteria include the age of the building (and what building codes may have been in effect at the time of construction), type of construction, and condition of the structure (i.e., how well the structure has been maintained).

B.4.2.5. Climate Change Impacts

The impact of climate change to severe weather event frequency and severity requires further research. This is largely due to a relatively short historic record of events. Long-term trends are difficult

²⁹ Source: NOAA.

to ascertain. In a changing climate, summer thunderstorms are growing larger, and appearing more intensely, and frequently. With an increased threat of thunderstorm activity in the region, there is a greater risk of tornadoes impacting the West Piedmont Region. This has become apparent in recent years with the first ever EF3 tornado that touched down in southern Franklin County, near Oak Level in April 2019. The tornado was on the ground for over 8 miles, with wind speeds up to 160 mph. The tornado travelled northeastward and caused significant damage to buildings and structures in its path.

Increases in the frequency and severity of summer storms generally increases the risk of all of the hazards included in this section in addition to increase drainage flooding and tornado threat.

B.4.3. Vulnerability Assessment

High wind events pose a danger because they can result in localized or widespread power outages, property damage, and falling trees. Mobile homes are particularly vulnerable to high winds, especially if improperly anchored. Injury or death can result from falling objects, vehicle accidents, and flying debris. Most deaths associated with extreme wind events occur in cars, especially lightweight vehicles and high-profile tractor trailers.

Older critical facilities are vulnerable to wind damage due to the age of construction and possible poor condition. It is important to identify specific critical facilities and assets that are most vulnerable to the hazard. Evaluation criteria include the age of the building (and what building codes may have been in effect at the time of construction), type of construction, and condition of the structure (i.e., how well the structure has been maintained).

Table 5-41 shows the annualized damages for severe weather events in the West Piedmont Region. The NCEI Storm Events data was annualized by dividing the number of severe weather events by the length of record. The annualized values should only be used as an estimate of what can be expected each year.

Table 5-41. Annualized Severe Weather Events in NCEI Storm Events Database (1955 - Nov 2020)

Jurisdiction	Annualized Events	Annualized Property Damage	Annualized Crops Damage	Annualized Total Damage	Total Deaths	Total Injuries
City of Danville	1.8	\$32,126	\$615	\$32,742	0	1
City of Martinsville	1.4	\$44,597	\$308	\$44,905	0	4
Franklin County	7.7	\$56,089	\$462	\$56,551	1	0
Town of Boones Mill	0.5	\$2,266	\$0	\$2,266	0	0
Town of Rocky Mount	1.0	\$13,649	\$0	\$13,649	0	1
Henry County	5.7	\$82,928	\$9,538	\$92,466	1	3
Town of Ridgeway	0.8	\$2,932	\$0	\$2,932	0	0
Patrick County	3.9	\$17,137	\$15	\$17,152	0	1
Town of Stuart	1.1	\$4,694	\$0	\$4,694	0	0
Pittsylvania County	7.7	\$62,662	\$14,185	\$76,846	0	0
Town of Chatham	1.1	\$3,288	\$77	\$3,365	0	1
Town of Gretna	0.8	\$4,374	\$0	\$4,374	0	1

Jurisdiction	Annualized Events	Annualized Property Damage	Annualized Crops Damage	Annualized Total Damage	Total Deaths	Total Injuries
Town of Hurt	0.5	\$8,897	\$0	\$8,897	0	0
WPPDC Total	33.0	\$335,639	\$25,200	\$360,839	2	12

B.4.3.1. Probability of Future Events

Using historical records, an individual county can expect to experience between one to eight severe weather events annually. The region can expect to see up to 33 events annually. Annual total damages from these events for each county was found to be between \$17,152 and \$92,466, though it is possible that actual annual damages in some counties could be higher due to unreported damages. There were two reported deaths in this 65-year time period, and 12 injuries. The deaths were due to lightning and thunderstorm wind. The injuries a mix of high wind, lightning, and thunderstorm wind. Figure 5-16 shows the annualized events by jurisdiction for the West Piedmont Region.

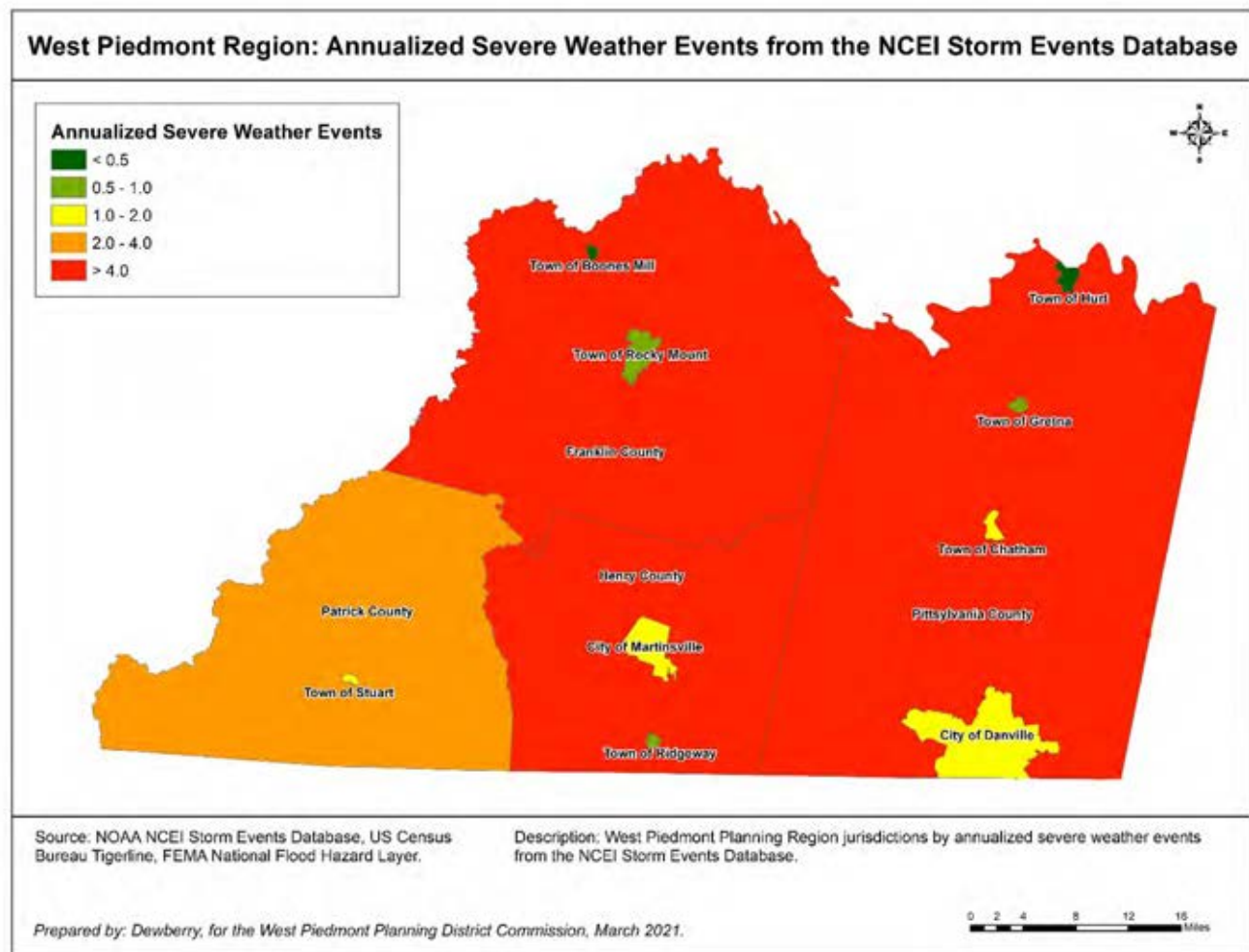


Figure 5-16. Annualized Severe Weather Events in the West Piedmont Region

B.5. Wildfire (Medium Priority)

The priority hazard ranking process resulted in wildfire remaining as a medium priority hazard. Table 5-42 outlines the hazard rankings for each of the hazard priority criteria related to wildfire.

Table 5-42. Wildfire Hazard Priority

Probability/ History	Vulnerability	Maximum Threat (Geographic Area Affected)	Warning Time	2016 Priority Level	2021 Priority Level
Highly Likely Common events with annual probability >1	Negligible 1 to 10% of people or property	Small 5 to 25% of community impacted	No Notice < 24 hours	Moderate	Medium

B.5.1. Hazard History

The Virginia Department of Forestry (VDOF) website provided fire incidence data for fire years 1995-2019. The data provided by VDOF was summarized into the following tables.

Table 5-43 provides information on the number of wildfires per county. In total, there were nearly 1,400 wildfires in the West Piedmont Region showing up in the VDOF data between 1995 and 2019. During that period, more wildfires took place in Pittsylvania County than other counties in the West Piedmont Region. Pittsylvania County has also the largest land area of any county in Virginia, which may account for its ranking in number of wildfires.

Table 5-43. Wildfire Statistics by Fire Year (1995-2019)

Year	Jurisdictions				Year Total
	Franklin County	Henry County	Patrick County	Pittsylvania County	
1995	35	23	13	34	105
1996	15	22	7	14	58
1997	24	15	0	21	60
1998	25	20	9	21	75
1999	36	20	11	38	105
2000	15	6	8	12	41
2001	50	41	24	55	170
2002	48	21	16	37	122
2003	6	8	4	9	27
2004	10	12	11	18	51
2005	6	7	9	14	36
2006	12	10	3	35	60
2007	7	12	8	27	54
2008	13	13	11	24	61

Year	Jurisdictions				Year Total
	Franklin County	Henry County	Patrick County	Pittsylvania County	
2009	12	8	6	8	34
2010	5	7	6	17	35
2011	8	16	6	20	50
2012	11	11	7	16	45
2013	5	3	4	12	24
2014	4	9	7	7	27
2015	8	9	5	21	43
2016	7	7	9	12	35
2017	11	5	6	16	38
2018	11	6	3	12	32
2019	2	3	2	4	11
Jurisdiction Total:	386	314	195	504	1,399

Source: VDOF

Table 5-44 is a summary of the number of acres and total damages of wildfires in the planning area. Ten years' worth of data (2009 through 2013) have been included, to the degree possible. Specific statistics on communities impacted and the monetary damage has not been included in this data, as was in the past. Updates to this dataset were not identified.

Table 5-44. Wildfire Summary (1995 – 2013)

Fire Year	1995		1996		1997		1998	
Jurisdiction	Total Acres	Total Damage	Total Acres	Total Damage	Total Acres	Total Damage	Total Acres	Total Damage
Franklin County	138.6	\$209,425	30.1	\$14,175	76.7	\$5,000	49.5	\$15,071
Henry County	53	\$26,150	32.1	\$9,450	55	\$28,000	63.7	\$18,300
Patrick County	150	\$30,780	14.3	\$375	0	\$0	14.1	\$100
Pittsylvania County	81	\$13,465	48.8	\$2,215	63.9	\$13,260	46.9	\$52,025
Total	422.6	\$279,820	125.3	\$26,215	195.6	\$46,260	174.2	\$85,496
Fire Year	1999		2000		2001		2002	
Jurisdiction	Total Acres	Total Damage	Total Acres	Total Damage	Total Acres	Total Damage	Total Acres	Total Damage
Franklin County	125	\$3,500	68.3	\$2,000	229	\$22,250	75	\$1,200
Henry County	74.1	\$28,650	91.3	\$4,500	173.8	\$41,550	70.4	\$2,000
Patrick County	129.5	\$104,800	26.6	\$0	88.6	\$41,700	11	\$500
Pittsylvania County	555.4	\$164,300	49.8	\$8,603	348.4	\$196,005	119.4	\$37,820
Total	884	\$301,250	236	\$15,103	839.8	\$301,505	275.8	\$41,520
Fire Year	2003		2004		2005		2006	

Jurisdiction	Total Acres	Total Damage	Total Acres	Total Damage	Total Acres	Total Damage	Total Acres	Total Damage
Franklin County	19.8	\$1,775	19.6	\$3,310	30.2	\$1,950	11.1	\$1,200
Henry County	15	\$100	14	\$0	48.1	\$0	25	\$0
Patrick County	2.6	\$0	8.5	\$0	26	\$0	3,697.5	\$3,696,000*
Pittsylvania County	21.2	\$2,650	32.8	\$1,170	33.6	\$850	511.8	\$13,250
Total	58.6	\$4,525	74.9	\$4,480	137.9	\$2,800	4,245.4	\$3,710,450
Fire Year	2007		2008		2009 - 2013		Total Acres	Total Damage
Jurisdiction	Total Acres	Total Damage	Total Acres	Total Damage	Total Acres	Total Damage		
Franklin County	249	\$150	38	\$0	30.4	*Not Provided	1,190.3	\$281,006**
Henry County	22.1	\$0	75.5	\$0	35.2		848.3	\$158,700**
Patrick County	186	\$1,000	24.5	\$0	6.7		4,385.9	\$3,875,255**
Pittsylvania County	138	\$53,550	167.4	\$16,050	36.7		2,255.1	\$575,213**
Total	595.1	\$54,700	305.4	\$16,050	510**		9,080.6	\$4,890,174**

*This fire was ignited by lightning and burned on Bull Mountain from 4/14/06 to 4/26/06. Firefighters came from neighboring areas to help extinguish it.

**Fire statistics for 2009 – 2013 do not include jurisdiction or total estimated damages. Number of fires have been included in the totals.

Source: VDOF

The last particularly large and damaging wildfire took place between April 14 and April 26, 2006, in Patrick County. The fire was sparked by lightning on Bull Mountain. At least 40 homes had to be evacuated and at least 2 minor injuries occurred as a result of the blaze. Total acreage burned in Patrick County in 2006 approached 3,700 acres, the majority of which took place during that single Bull Mountain event. Dollar damages for the event were estimated at over \$3 million.

The VDOF records do not show wildfire occurrences for any of the cities in the West Piedmont Region during the period 1995 to 2013. It should be noted that all wildfires (including brushfires) may not get reported to VDOF and would not appear in these statistics. Table 5-45 illustrates the cause of fire, broken down by county. An update to this data could not be found. There is little reason to believe that the distribution of cause of ignition has changed significantly. The data shows that approximately 35% of wildfires during the period were caused by debris, followed by 14% caused by incendiary devices and 22% caused under miscellaneous conditions.

Table 5-45. Wildfire Causes (1995 – 2008)

Jurisdiction	Lightning	Camp Fire	Smoking	Debris	Incendiary	Equipment Use	R&R	Children	Misc.	Total
Franklin County	14	2	5	100	49	34	0	21	77	302
Henry County	3	1	22	89	45	13	3	20	34	230

Jurisdiction	Lightning	Camp Fire	Smoking	Debris	Incendiary	Equipment Use	R&R	Children	Misc.	Total
Patrick County	14	3	5	45	14	12	0	5	36	134
Pittsylvania County	18	4	28	124	36	26	19	24	80	359
Total	49	10	60	358	144	85	22	70	227	1,025

Source: VDOF

Pittsylvania County officials noted in 2006 that Smith Mountain and Jasper Mountain have been the sites of past wildfires. A more recent wildfire event occurred on April 5, 2011, when as many as 100 acres burned in the Horse pasture area in what was described as the largest brushfire in the area in 37 years. No structures were burned, and no injuries were reported during the event.³⁰

B.5.2. Hazard Profile

A wildfire can be defined as any non-structural fire that occurs in the wildland. Many of these are highly destructive and can be very uncontrollable. They occur in forested, semi-forested, or less developed area. Wildfires can be caused by lightning, human carelessness, and arson. Wildfires can be naturally occurring—such as those ignited when lightning or wind-falling trees collide with power lines—or caused by humans, which is the primary cause of all types of fires. Wildfires result in the uncontrolled destruction of forests, brush, field crops, grasslands, real estate, and personal property, and have secondary impacts on other hazards such as flooding, by removing vegetation and destroying watersheds.³¹

The extent (e.g., magnitude or severity) of wildland fires depends on weather and human activity. The magnitude of wildland fire events is often characterized by their speed of propagation, total number of acres burned, and potential destructive impacts to people and property. The severity and impact of a wildland fire is greatly dependent on how it behaves, in combination with fire detection, control, and suppression capabilities.

Human activities are the leading cause of wildfire incidents in Virginia (as seen in Figure 5-17). Debris burning and the intentional setting of fires were responsible for the greatest number of reported wildfire incidents and acres burned during years 1995-2016. As suburban residential development continues to expand, it is reasonable to expect an increase in human/wildland interactions, resulting in more wildfires.

³⁰ Martinsville Bulletin Staff. 2011. "Wildfires burn in county." *Martinsville Bulletin*. Retrieved https://martinsvillebulletin.com/news/local/wildfires-burn-in-county/article_9f0327b3-1f41-5880-8016-756cacc4952d.html.

³¹ State of New Jersey, Office of Emergency Management. 2014. "State of New Jersey 2014 Hazard Mitigation Plan: Section 5.12 Wildfire." Retrieved from <http://ready.nj.gov/mitigation/2014-mitigation-plan.shtml>.

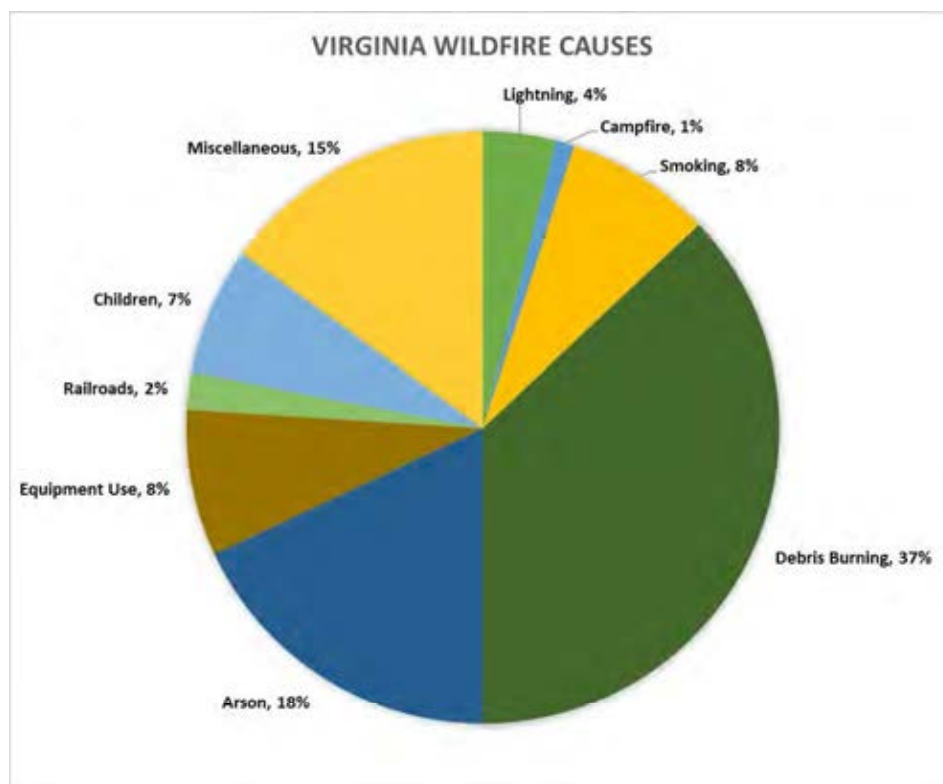


Figure 5-17. Virginia Wildfire Causes³²

Wildfire is a unique hazard in that it can be significantly altered based on efforts to control its course during the event. According to VDOF, there are three principle factors that can lead to the formation of wildfire hazards: topography, fuel, and weather. Wildfires in Virginia mostly occur in the spring (March and April) and fall (October and November). The environmental conditions that exist during these seasons exacerbate the hazard. When low relative humidity and high winds are coupled with a dry forest floor (e.g., brush, grasses, leaf litter), wildfires may easily ignite. Years of drought can lead to environmental conditions that promote wildfires. Over long dry periods, even larger fuels such as medium to large diameter dead and dying woody debris can become dry and fuel large wildfires. Not only does this increase the risk of a wildfire igniting, but it also increases the spread, intensity, and overall danger of an event once it has occurred. Accidental or intentional setting of fires by humans is the largest contributor to wildfires. Residential areas or “woodland communities” that expand into wildland areas also increase the risk of wildfire.

B.5.2.1. Primary and Secondary Impacts

Wildfires can have disastrous consequences causing damage to residences, commercial buildings, and to timber, grasslands and natural resources. Economic consequences include the cost of suppression, reduced property values, lost sales and business revenues, reduced tourism, and increased water treatment costs. Resources threatened include communities, homes, gas transmission lines, electrical facilities and lines, timber, watershed and recreation areas, and wildlife. Wildfires may create additional environmental concerns well after they are extinguished such as increased erosion and water quality concerns in storm water runoff.

³² VDOF State of the Forest, 2016.

Timber loss and environmental damage frequently result from wildfires. Wildfire poses a significant threat to nearby buildings and populations. Forest damage from thunderstorms may block interior access roads and fire breaks, pull down overhead power lines, or damage pavement and underground utilities, thereby creating heavy fire load and making suppression and response more difficult.

Secondary effects from wildfires can pose a significant threat to the communities surrounding the hazard. Wildfires, particular large-scale fires, can dramatically alter the terrain and ground conditions, making land already devastated by fire susceptible to secondary hazards such as landslides, mudslides, and flooding. Normally, vegetation absorbs rainfall, reducing runoff. However, wildfires leave the ground charred, barren, and unable to absorb water; thus, creating conditions perfect for flash flooding and mudflows. Flood risk in these impacted areas remain significantly higher until vegetation is restored, which can take up to five years after a wildfire.³³ In addition, the leftover scorched and barren land may take years to recover; the resulting erosion can be problematic.

B.5.2.2. Climate Change Impacts

Fire is determined by climate variability, local topography, and human intervention. Hot, dry spells create the highest fire risk. Increased temperatures may intensify wildfire danger by warming and drying out vegetation. A warmer climate would result in a longer fire season. When climate alters fuel loads and fuel moisture, this changes the forest susceptibility to wildfires. Climate changes also may increase winds that spread fires. Faster fires are harder to contain, and thus are more likely to expand into residential neighborhoods.

National climate assessments indicate increased temperatures as a result of climate change, therefore increasing potential drought conditions. It is predicted that there could an increase in average temperatures in the state (nine degrees by 2100) (NASA). Higher temperatures in the state could lead to increased drought conditions, which results in more and more damaging wildfires.

B.5.3. Vulnerability Analysis

VDOF defines "woodland home communities" as "clusters of homes located along forested areas at the wildland-urban interface that could possibly be damaged during a nearby wildfire incident."³⁴ Table 5-46 and Table 5-47 illustrate the number of woodland communities and the number of homes in these woodland communities, as designated by VDOF and collected on the County level. In the West Piedmont Region, 74% of the woodland homes are considered to have high potential for a wildfire, while 78% of woodland communities in the planning area are considered at high risk for wildfire. Local officials on the Mitigation Advisory Committee point out that there has been a trend of increasing development at the wildland-urban interface over the past several years. As a result of this trend, there are potentially an increasing number of structures vulnerable to wildfire and an increased potential for wildfire losses.

³³ Federal Emergency Management Agency. 2017. "Flood Risks Increase After Fires." Retrieved from https://www.fema.gov/sites/default/files/documents/fema_flood-after-fire_factsheet_nov20.pdf.

³⁴ VA Department of Forestry. "Protect Your Community." Retrieved from <https://dof.virginia.gov/wildland-prescribed-fire/wildfire-preparation/protect-your-community/>.

Table 5-46. Number of Woodland Communities by Fire Rank

Jurisdiction	Low Potential	Medium Potential	High Potential	Grand Total	% High Risk
Franklin County	0	1	37	38	97%
Henry County	2	1	27	30	90%
Patrick County	0	6	19	25	76%
Pittsylvania County	6	14	26	46	57%
Total	8	22	109	139	78%

Table 5-47. Number of Woodland Homes by Fire Rank

Jurisdiction	Low Potential	Medium Potential	High Potential	Grand Total	% High Risk
Franklin County	0	10	643	653	98%
Henry County	36	12	1,363	1,411	97%
Patrick County	0	92	255	347	73%
Pittsylvania County	445	435	698	1,578	44%
Total	481	549	2,959	3,989	74%

People can improve the chances that they and their homes will survive a wildfire by clearing leaves and pine needles from roofs and gutters, using driveways and walkways to create fuel breaks, and keeping tall trees distant from the house. Working with neighbors will maximize the benefits and reduce everyone's risk.

Firewise USA, a program of the National Fire Protection Association, suggests many actions that communities and individuals can take to reduce wildfire risks, including specific methods for preventing combustion within the "home ignition zone," the area within 200 feet that is most vulnerable to fire. The Only Firewise community in West Piedmont is Windygap Mountain Village, Hardy, in Franklin County.

B.5.3.1. Hazard Areas

In 2002 and 2003, VDOF examined which factors influence the occurrence and advancement of wildfires and how these factors could be represented in a GIS model to show the potential for an area to burn. VDOF determined that historical fire incidents, land cover (fuels surrogate), topographic characteristics, population density, and distance to roads were critical variables in their wildfire risk analysis. The resulting high, medium, and low risk categories reflect the results of this burn potential

analysis. This data, albeit 18 years old, provides an applicable relative wildfire risk for the planning area. Updates to this data are unavailable. Figure 5-18 shows the wildfire hazard map developed by VDOF.

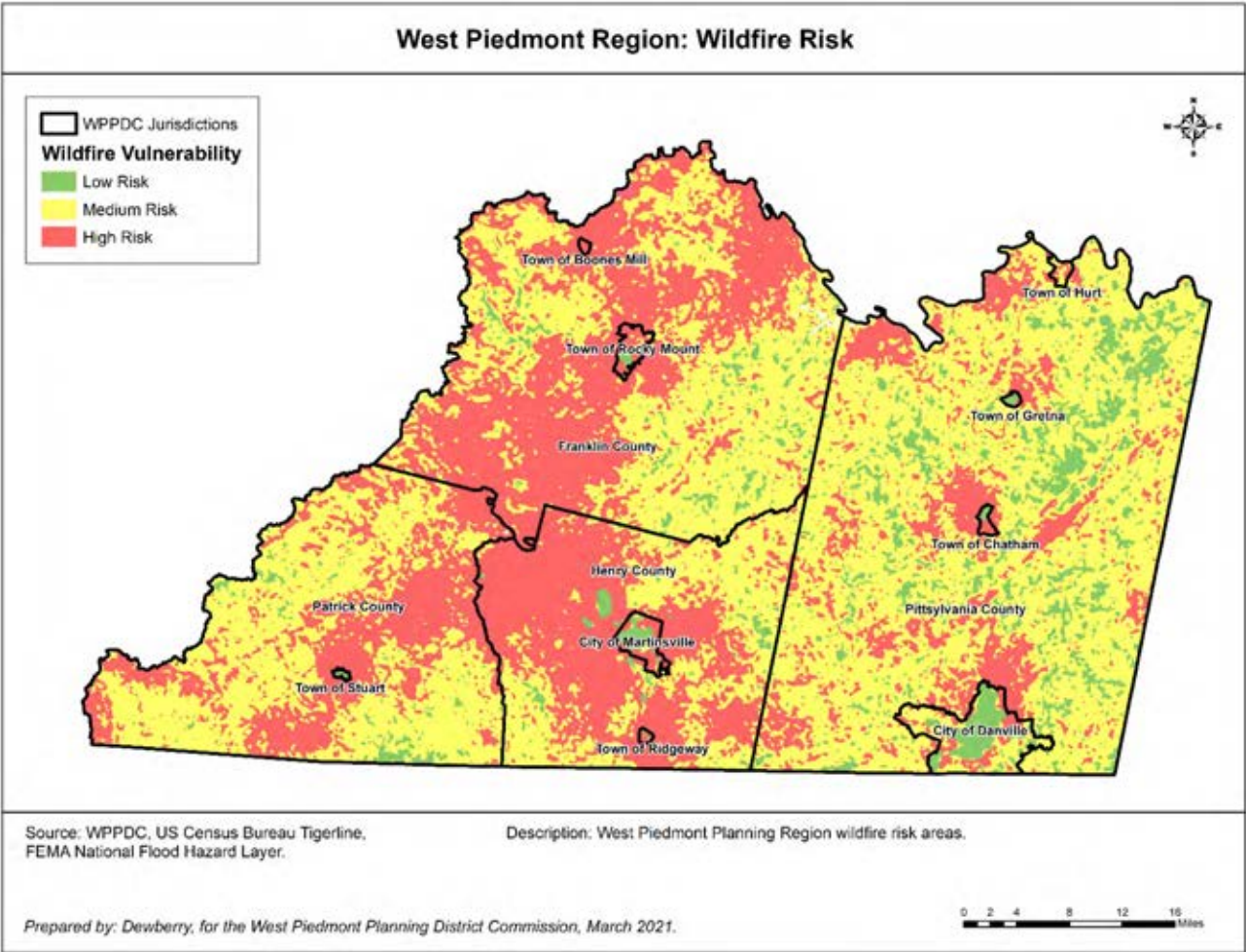


Figure 5-18. West Piedmont Region Wildfire Vulnerability

B.5.3.2. Exposure Analysis: Parcels at Risk

The potential exposure to wildfires for West Piedmont parcels to VDOF’s wildfire risk areas was estimated using jurisdiction-provided parcels. These parcel datasets contained value information that was utilized for this parcel analysis. Potential exposure was estimated using an area weighted calculation of each parcel’s acreage that resides in each of the three wildfire risk areas. Table 5-48 shows the number of acres exposed to each risk category while Table 5-49 shows the parcel value exposed to each risk category. This information was collected at the County and Independent City level. Data for towns are included in their respective counties.

Table 5-48. Parcel Acreage Exposed to Wildfire Risk Areas

Jurisdiction	Total Acreage in Jurisdiction	Low Risk Exposed Acreage	Medium Risk Exposed Acreage	High Risk Exposed Acreage
City of Danville	24,200	8,660	9,830	5,600
Franklin County	442,000	14,200	211,000	216,000
Henry County	236,000	6,240	92,000	138,000
City of Martinsville	6,380	2,230	542	4,490
Patrick County	311,000	7,700	184,000	116,000
Pittsylvania County	627,000	75,800	438,000	112,000
WPPDC	1,650,000	115,000	935,000	591,000

Table 5-49. Parcel Value Exposed to Wildfire Risk Areas

Jurisdiction	Total Acreage in Jurisdiction	Low Risk Exposed Acreage	Medium Risk Exposed Acreage	High Risk Exposed Acreage
City of Danville	\$2,820,000,000	\$1,440,000,000	\$576,000,000	\$249,000,000
Franklin County	\$8,130,000,000	\$151,000,000	\$2,870,000,000	\$3,380,000,000
Henry County	\$5,180,000,000	\$220,000,000	\$1,270,000,000	\$2,590,000,000
City of Martinsville	\$1,250,000,000	\$225,000,000	\$129,000,000	\$618,000,000
Patrick County	\$2,160,000,000	\$44,300,000	\$1,090,000,000	\$622,000,000
Pittsylvania County	\$6,590,000,000	\$517,000,000	\$3,560,000,000	\$865,000,000
WPPDC	\$26,100,000,000	\$1,740,000,000	\$9,720,000,000	\$7,550,000,000

B.5.3.3. Critical Facilities at Risk

Table 5-50 shows the percentages of critical facilities in fire risk zones, with 39% of critical facilities in the region located in a high-risk area. This information is presented at the County and Independent City level. Approximately 62% of Henry County's critical facilities are located in a high-risk area, the most of any county or city in the West Piedmont Region, followed by Franklin County with 50%. Figure 5-19 shows the locations of critical facilities in relation to fire risk zones.

Table 5-50. West Piedmont Region Critical Facilities Wildfire Vulnerability

Jurisdiction	Low Potential	Medium Potential	High Potential	Grand Total	% High Risk
City of Danville	46	19	8	73	11%
Franklin County	15	43	58	116	50%
Henry County	13	33	69	115	60%
City of Martinsville	15	1	11	27	41%
Patrick County	6	35	25	66	38%
Pittsylvania County	29	50	23	102	23%
Total	124	181	194	499	39%

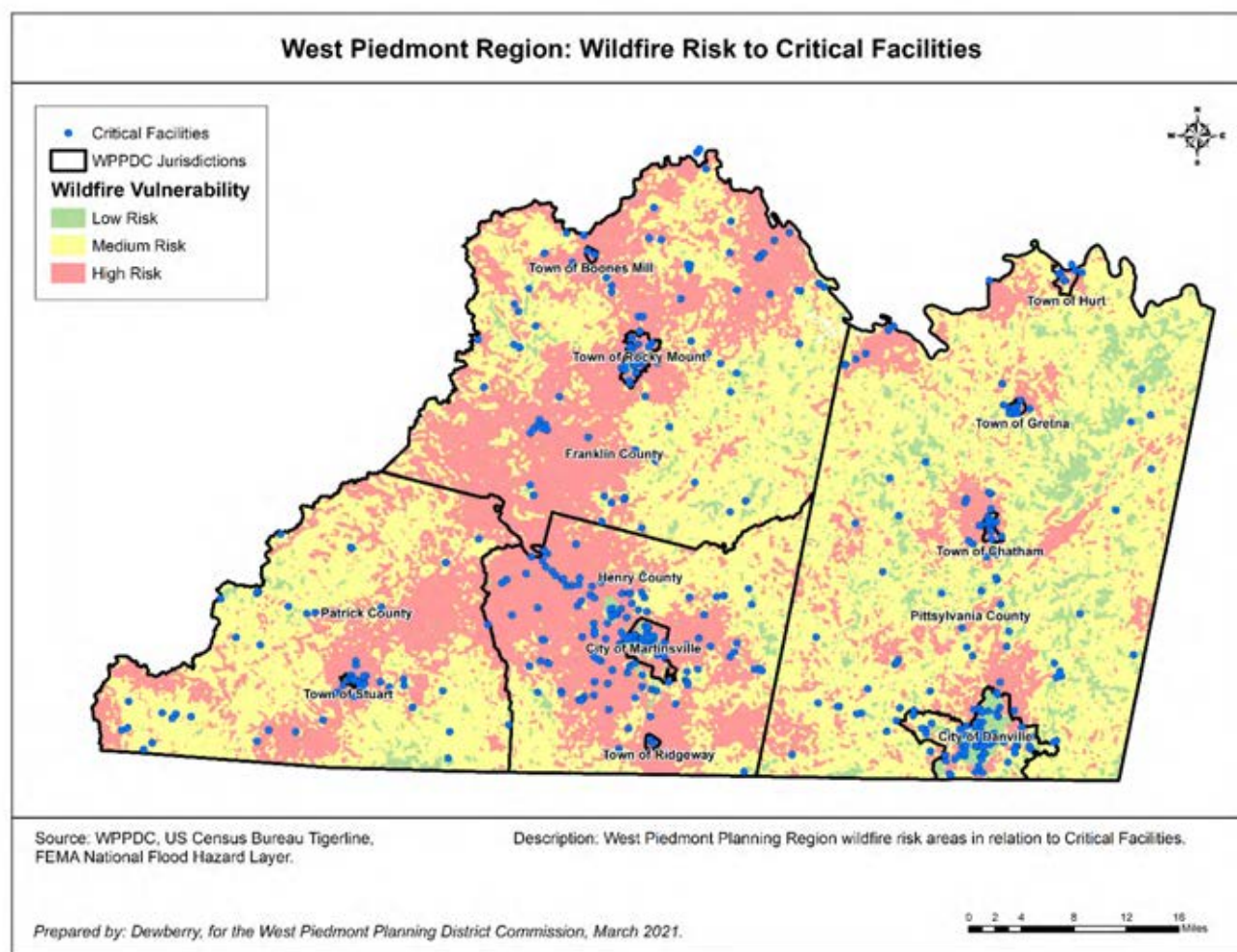


Figure 5-19. West Piedmont Region Wildfire Vulnerability and Critical Facilities

B.5.3.4. Probability of Future Events

The probability of wildfires is difficult to predict and is dependent on many factors, including the type of vegetative cover in a particular area, and weather conditions, including humidity, wind, and temperature. Therefore, predicting the probability of future occurrences of wildfire is nearly impossible. However, assuming that the past is a reasonable predictor of the future, projections can be made. Based on VDOF data from 1995 to 2013, the instances of wildfire can be annualized. This number is calculated by adding the number of wildfires and dividing that number by the number of years in the period of record. There has been an average of 80 wildfires annually in West Piedmont based on the VDOF historical wildfire data recorded between 1995 and 2013. This data was collected at the County level. A similar number of fires would be expected to occur in the future, contingent on rainfall amount/drought levels, quantity of new development, and accuracy of reporting. Table 5-51 shows that the historical data indicates that on an annual basis, instances of wildfire range from approximately 26 in Pittsylvania County to approximately 10 in Patrick County or roughly 80 events for the entire West Piedmont Region in a given year.

Table 5-51. Wildfire Events³⁵

Jurisdiction	Annualized Property Damage	Annualized Number of Events
Franklin County	\$28,266	22.4
Henry County	\$15,147	17
Patrick County	\$305,330	10
Pittsylvania County	\$51,609	26.2
Total	\$400,352	79.9

³⁵ Sourced from the VDOF Database.

B.6. Tornado (Medium-High Priority)

The new priority hazard ranking process elevated tornado from a low to a medium-low priority hazard. Table 5-52 outlines the hazard rankings for each of the hazard priority criteria related to tornado.

Table 5-52. Tornado Hazard Priority

Probability/ History	Vulnerability	Maximum Threat (Geographic Area Affected)	Warning Time	2016 Priority Level	2021 Priority Level
Likely Frequent occurrence with at least 2 documented events with annual probability between 1 and 0.5	Critical 25 to 50% of people or property	Medium 25 to 50% of community impacted	No Notice < 24 hours	Medium	Medium-High

B.6.1. Hazard History

Since the 2016 update to the West Piedmont plan, the region has experienced two tornado events. In April 2018, an EF1 magnitude tornado hit Pittsylvania County and the City of Danville, causing an estimated \$3.6 million of reported property damage. The following year, in April 2019, the first ever recorded EF3 tornado for the region was reported to have caused \$650,000 of property damages in Franklin County.

Appendix B1 includes descriptions of all known major tornado events that have touched down in the West Piedmont Region. Events have been broken down by the date of occurrence and when available, by individual community descriptions. When no community-specific description is available, the general description represents the entire planning area.

B.6.2. Hazard Profile

Tornadoes are one of the most destructive and unpredictable weather events. For Virginia and the West Piedmont Region, tornadoes are a low probability, but high impact hazard. Damaging winds typically are associated with tornadoes or landfalling hurricanes. Isolated “downburst” or “straight-line” winds associated with thunderstorms also can cause extensive property damage. Tornadoes can have financial and economic impacts on communities by causing crop damage, structural damage, environmental losses and lost revenue for businesses.

Tornadoes are classified as a violently rotating column of wind that extends between a thunderstorm cloud and the Earth’s surface. Lightening and hail are likely to accompany tornado activity. Winds are typically less than 100 mph, with severe tornado wind speeds exceeding 250 mph. Tornadoes with winds higher than 75 mph begin to cause significant damage to structures. The rotating column of air often resembles a funnel-shaped cloud, and the widths of tornadoes are usually several yards across, with infrequent events being over a mile wide. Tornado activity normally spans from April through September, but tornadoes can occur at any time throughout the year. In Virginia, peak tornado activity is in July. Hot and humid conditions stimulate tornadoes growth.

Strong tornadoes may be produced by thunderstorms and can be associated with the passage of tropical storms and hurricanes. On average, about seven tornadoes are reported in Virginia each year. The actual number may be higher as incidents may occur over sparsely populated areas or may not

cause any property damage so are not reported or recorded. Over a 65-year period (1951-2020), 848 tornado events were recorded in the state of Virginia, causing almost half a billion dollars in property and crop damage.

A tornado's destructive power is measured using the Fujita Damage Scale (See Table 5-53). The Fujita-Pearson Scale for Tornadoes was developed in 1971 to rate tornado intensity based on associated damages. Tornadoes and their resultant damage can be classified into six categories using the scale. The scale assigns numerical values for wind speeds inside the tornado according to the type of damage and degree of the tornado. Most tornadoes are F0 and F1, resulting in little widespread damage. The intense power of a tornado can often destroy homes, down power lines, and cause significant tree damage.

An Enhanced Fujita Scale (EF Scale) was developed and implemented operationally in 2007. The EF Scale was developed to better align tornado wind speeds with associated damages. Table 5-54 provides a side-by-side comparison of the F Scale and the EF Scale.

Table 5-53. Fujita Damage Scale

Scale	Wind Estimate (mph)	Typical Damage
F0	< 73	Light Damage. Some damage to chimneys; branches off trees; shallow-rooted trees pushed over; sign boards damaged.
F1	73-112	Moderate Damage. Peels surface off roofs; mobile homes pushed off foundations or overturned; moving autos blown off roads.
F2	113-157	Considerable Damage. Roofs torn off frame houses; mobile homes demolished; boxcars overturned; large trees snapped or uprooted; light-object missiles generated; cars lifted off ground.
F3	158-206	Severe Damage. Roofs and some walls torn off well-constructed houses; trains overturned; most trees in forest uprooted; heavy cars lifted off the ground and thrown.
F4	207-260	Devastating Damage. Well-constructed houses leveled; structures with weak foundations blown away some distance; cars thrown and large missiles generated.
F5	261-318 mph	Strong frame houses lifted off foundations and carried considerable distances to disintegrate; automobile sized missiles fly through the air in excess of 100 meters; trees debarked; steel re-enforced concrete structures badly damaged.

Table 5-54. Fujita Scale vs. Enhanced Fujita Damage Scale

Fujita Scale			Enhanced Fujita Scale	
F Number	Fastest 1/4-mile (mph)	3 Second Gust (mph)	EF Number	3 Second Gust (mph)
0	40-72	45-78	0	65-85
1	73-112	79-117	1	86-110
2	113-157	118-161	2	111-135

Fujita Scale			Enhanced Fujita Scale	
3	158-207	162-209	3	136-165
4	208-260	210-261	4	166-200
5	261-318	262-317	5	Over 200

The majority of Virginia's tornadoes are F0 and F1 on the Fujita Scale. Hazus-MH analysis run for hurricane wind shows that wind speeds with a 1,000-year hurricane event are roughly the same as a weak to mid-range EF1 tornado. These events typically result in minimal extensive damage. Damage that is likely to occur would be damage to trees, shrubbery, signs, antennas, with some damage to roofs and unanchored trailers. Low-intensity tornadoes can also cause localized disruptions to transportation routes due to downed trees and debris. Utilities can be out of service for days for a large geography outside the path of the tornado.

Figure 5-20 presents the results of a tornado frequency analysis performed as part of the 2018 Commonwealth of Virginia Hazard Mitigation Plan. The analysis suggests that relative to the entire Commonwealth of Virginia, most of the West Piedmont Region is considered to be 'Medium-High' in terms of tornado frequency. Even so, annualized tornado frequency is quite low and calculated as being between 0.0000101 and 0.0001 for most points in the region. The frequency of 0.0000101 is equivalent to saying there would be a 1 in 1 million chance that a given point would experience a tornado in a given year, assuming that past trends prove true. The exception is the City of Martinsville and portions of Henry County that were categorized as high risk with a slightly higher annual probability and a small portion of western Patrick County that was categorized as medium risk with a slightly lower annual probability.

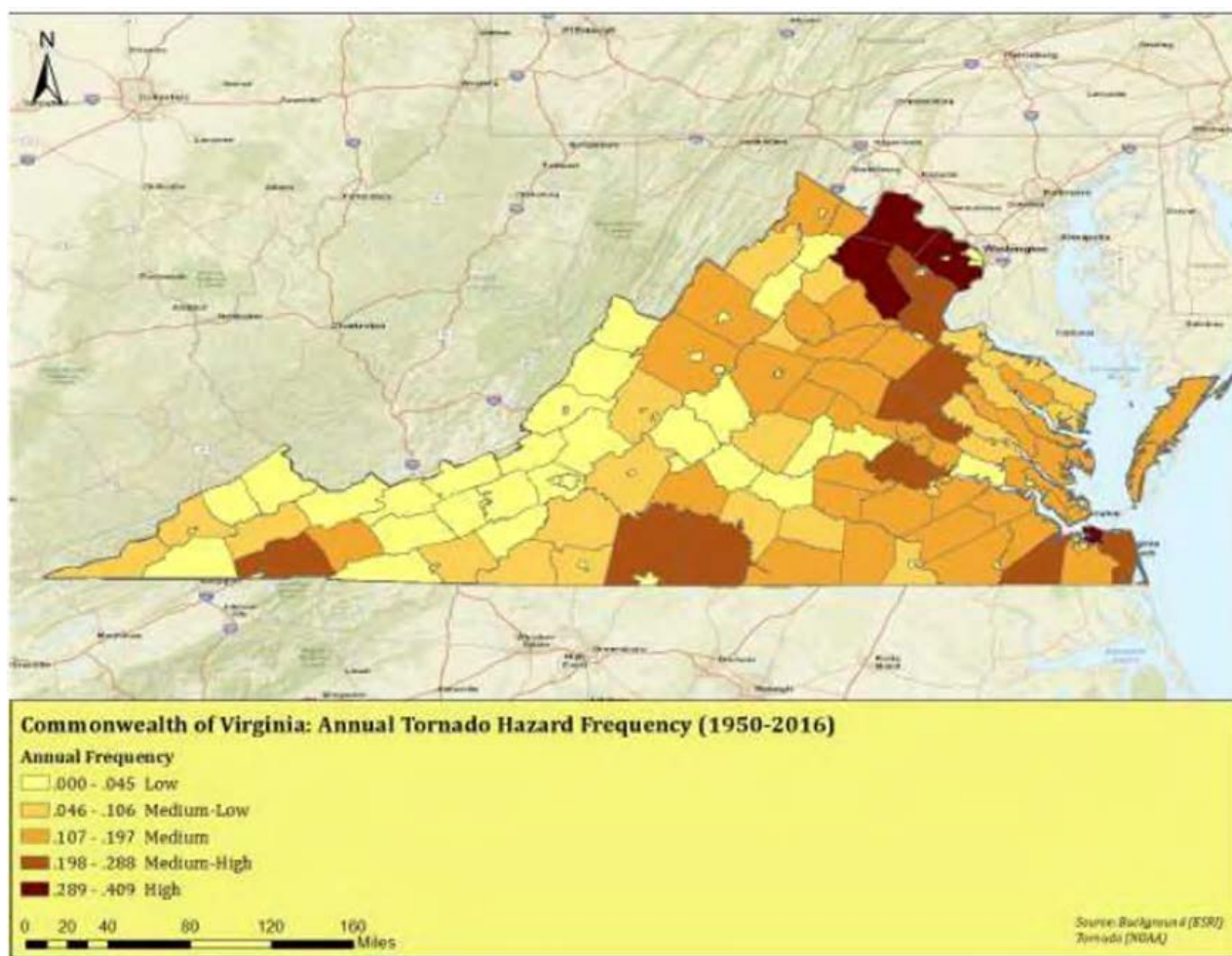


Figure 5-20. Annual Tornado Hazard Frequency³⁶

B.6.2.1. Climate Change Impacts

The impact of climate change to tornado frequency and severity requires further research. This is largely due to a lack of historic tornado records which currently only date back to the 1950s, so long-term trends are difficult to ascertain. However, it is likely that a warming climate will contribute to more frequent instability in the atmosphere, resulting in more severe storm activity.

Damages as a result of tornado activity have undergone the largest increase since 1980 in the United States. Since the 1970s, the U.S. has seen a decrease in the number of days a year of which tornadoes occur, however, there has been an increase in the number of tornadoes that form on such days in the form of tornado outbreaks (i.e. a larger number of tornadoes in a given day.) The length of tornado season has also grown in recent years and tornado events have become more volatile.

In a changing climate, summer thunderstorms are growing larger, and appearing more intensely, and frequently. With an increased threat of thunderstorm activity in the region, there is a greater risk of tornadoes impacting the West Piedmont Region. This has become apparent in recent years with the first ever EF3 tornado that touched down in southern Franklin County, near Oak Level in April 2019.

³⁶ 2018 VA State Plan.

The tornado was on the ground for over 8 miles, with wind speeds up to 160 mph. The tornado travelled northeastward and caused significant damage to buildings and structures in its path.

B.6.3. Vulnerability Analysis

Table 5-55 and Figure 5-21 show tornado occurrences in the West Piedmont Region. Table V-28 shows the number of annualized events based on NCEI data. No tornado touchdowns nor tornado tracks were recorded in any of the seven incorporated towns in the Region. Although the total number of tornadoes is higher for Pittsylvania County as compared to the other jurisdictions, it is important to consider that the square mileage of Pittsylvania County is substantially greater than that of the other jurisdictions. The population within the County is higher than that of the other jurisdictions as well. A larger population typically indicates a greater likelihood that tornado events will be observed and reported. Both factors likely play a role in the higher number of recorded tornadoes in Pittsylvania County.

Table 5-55. West Piedmont Region Tornado Touchdowns by Fujita Intensity Scale, 1953 - 2020

Jurisdiction	Unknown	F0	F1	F2	>=F3	Total
City of Danville	1	0	2	0	0	3
City of Martinsville	0	0	0	1	0	1
Franklin County	1	1	1	1	1	5
Henry County	0	1	3	2	0	6
Patrick County	0	0	4	0	0	4
Pittsylvania County	1	5	14	2	0	22
Total	3	7	24	6	1	41

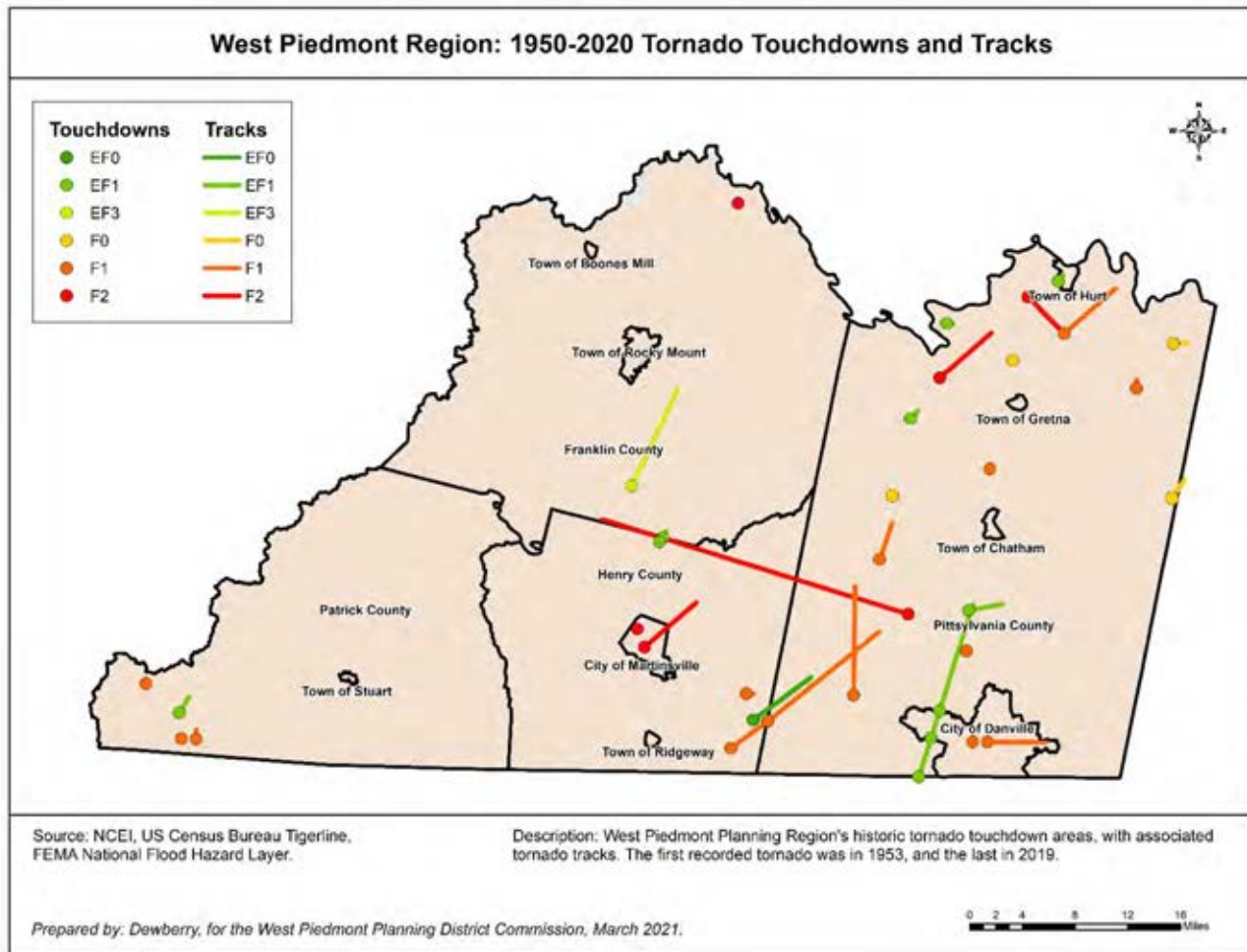


Figure 5-21. West Piedmont Region Tornado Touchdowns, 1950 - 2020

Depending on its intensity, a tornado can cause severe damage or destruction to any structure in its path. Clusters of mobile homes may be more vulnerable to tornadoes; tie-down and brackets may reduce the vulnerability. In order to identify potentially vulnerable areas within the study area, mobile home clusters have been identified and are illustrated in Figure 5-22.

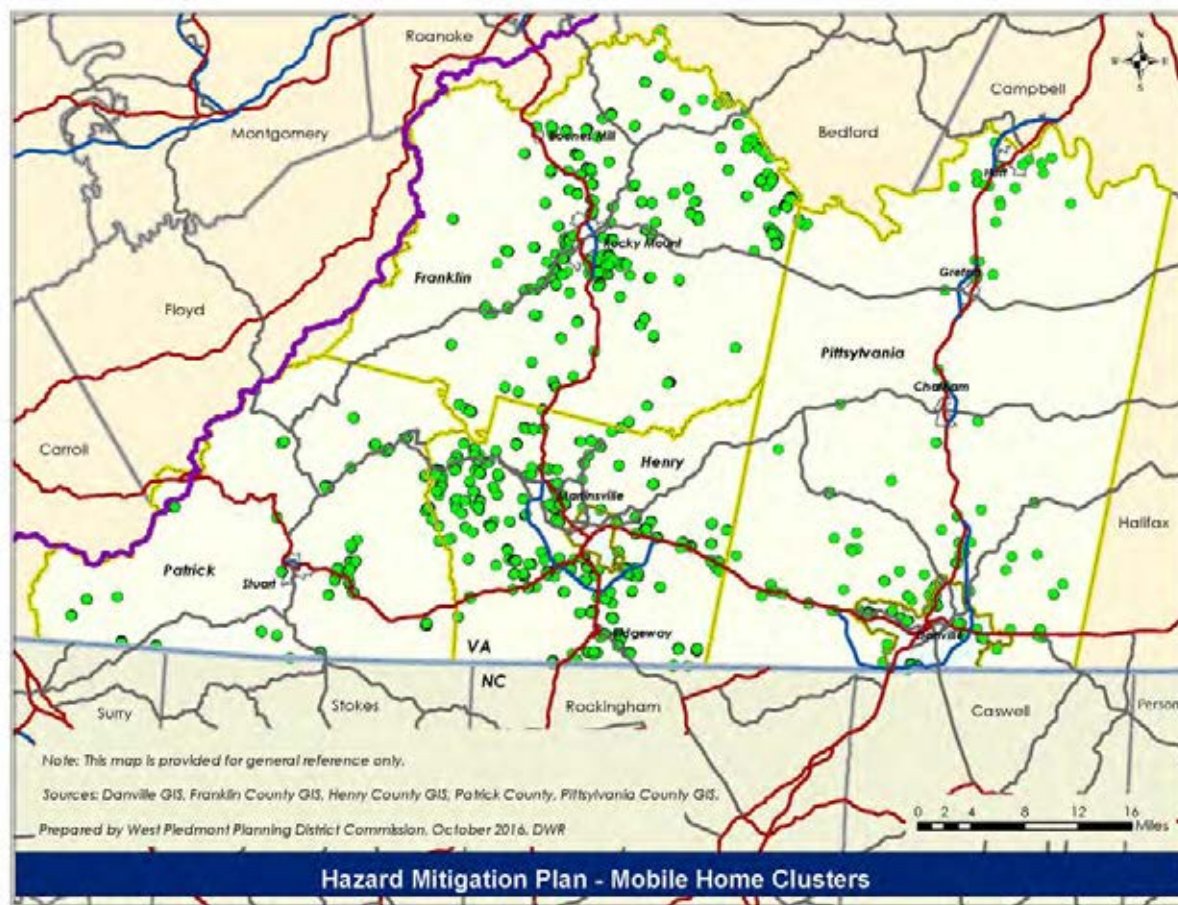


Figure 5-22. Mobile Home Clusters

Note: No notable changes have been recorded for mobile home cluster data since this map was produced in 2016.

B.6.3.1. Probability of Occurrences and Annualized Losses

Potential annual loss due to tornadoes is difficult to calculate with any degree of accuracy. However, using the NCEI database of historical tornado occurrences, an estimate can be made (Table 5-56). Based on historical data from the NCEI Storm Events Database (1950-2020), Henry County and the City of Martinsville have experienced the highest annualized losses due to tornadoes in the 70-year period of record. These figures are largely influenced by two particularly costly tornado events that occurred in 1994 and 2004. In 1994, an F2 tornado hit the City of Martinsville resulting in 10 reported injuries, and \$50 million in property damage (\$87 million in 2020 dollars). In Henry County in 2004, another F2 tornado in caused over \$53 million (\$73 million in 2020 dollars) in property damages. No tornado touchdowns nor tornado tracks were recorded in any of the seven incorporated towns in the Region.

The annualized loss and events calculations illustrate that tornadoes are generally a low probability, high-impact hazard. The number of annualized events is calculated by dividing the number of occurrences by the number of years in the period of record. Similarly, annualized losses are calculated by dividing the total losses for a given geography by the period of record and adjusting to 2020 dollars.

Table 5-56. Tornado Events, 1950 - 2020

Jurisdiction	Number of events annually	Annualized Loss
Franklin County	0.07	\$9,686
Henry County	0.09	\$1,091,981
City of Martinsville	0.01	\$1,247,349
Patrick County	0.06	\$9,753
Pittsylvania County	0.31	\$67,207
City of Danville	0.04	\$55,075
WPPDC Region Overall	0.59	\$2,481,050

Source: NCEI Storm Events Database

B.7. Drought (Medium-Low Priority)

The priority hazard ranking process decreased drought from a medium to a medium-low priority hazard. Table 5-57 outlines the hazard rankings for each of the hazard priority criteria related to tornado.

Table 5-57. Drought Hazard Priority

Probability/ History	Vulnerability	Maximum Threat (Geographic Area Affected)	Warning Time	2016 Priority Level	2021 Priority Level
Likely Frequent occurrence with at least 2 documented events with annual probability between 1 and 0.5	Limited 10 to 25% of people or property	Medium 25 to 50% of community impacted	Extended Three days or more	Medium-Low	Medium-Low

B.7.1. Hazard History

According to the US Drought Monitor, the state of Virginia experienced abnormally dry, moderate, and severe drought conditions in October 2019. The NCEI Storm Events database reported severe drought activity in both Franklin and Patrick Counties in October 2019. No crop damage was reported in NCEI; however, it is probable that crop damage did occur but was not formally reported.

Prior to 2019, one of the most notable drought events recorded in the West Piedmont Region occurred in 2012-2013 as a result of La Nina conditions. This led to extreme drought conditions in over 80% of US, including a large portion of Virginia, which experienced abnormally dry and moderate to severe drought conditions. NCEI shows one report of drought conditions in the form of a 'dust devil' in Henry County occurring in September of 2013. This event was reported by NCEI to have caused approximately \$1,000 of property damages in Henry County.

Appendix B1 includes descriptions of major droughts that have occurred in the West Piedmont Region. Events have been categorized by occurrence dates and, when available, by individual community descriptions. When no community-specific description is available, the general description represents the entire planning area.

B.7.2. Hazard Profile

A drought can be characterized in several different ways depending on the impact. The most common drought form is agricultural. Agricultural droughts are characterized by unusually dry conditions during the growing season. Meteorological drought is an extended period of time (6 or more months) with precipitation less than 75 percent of the normal precipitation. Severity of droughts often depends on the community reliance on a specific water source. The probability of a drought is difficult to predict given the number of variables involved. As shown in the table below, drought conditions are experienced at least once a decade.

Many problems can arise at the onset of a drought, some of which include diminished water supplies and quality, undernourished livestock and wildlife, crop damage, and possible wildfires. Secondary impacts from droughts pose problems to farmers who incur reductions in income, while food prices and lumber prices can drastically increase.

The impact of excessive heat is most prevalent in urban areas, where urban heat island effects prevent inner-city building from releasing heat built up during the daylight hours. Secondary impacts of excessive heat are severe strain on the electrical power system and potential brownouts or blackouts.

Table 5-58 provides a summary of drought categories and impacts. As the drought severity increases, it should be noted that voluntary initial water restrictions are changed to mandatory restrictions. For excessive heat, the National Weather Service utilizes heat index thresholds as criteria for the issuance of heat advisories and excessive heat warnings.

Table 5-58. Drought Severity Classification

Category	Description	Possible Impacts
D0	Abnormally Dry	Going into drought: short-term dryness slowing planting, growth of crops or pastures; fire risk above average. Coming out of drought: some lingering water deficits; pastures or crops not fully recovered.
D1	Moderate Drought	Some damage to crops, pastures; fire risk high; streams, reservoirs, or wells low; some water shortages developing or imminent; voluntary water use restrictions requested
D2	Severe Drought	Crop or pasture losses likely; fire risk very high; water shortages common; water restrictions imposed
D3	Extreme Drought	Major crop/pasture losses; extreme fire danger; widespread water shortages or restrictions

The Palmer Drought Severity Index (PDSI; see Figure 5-23) was developed over 30 years ago and provides some measure of long-term drought based on a formula that takes into account water supply (precipitation), soil moisture, runoff, and water demand (computed from estimates for evaporation and transpiration). The National Drought Mitigation Center published mapped results of an examination of the 100-year record of the PDSI from 1885 to 1995 to determine a percentage of time various regions of the country spent in severe and extreme drought. During this period, the West Piedmont Region was shown to have been in severe or extreme drought 5% to 9.99% of the time.

The November and December 2015 PDSI indicated a “mid-range” from -1.99 to +1.99 for the planning area with the western border of WPPDC in the “moderately moist” from +2.00 to +2.99 range. This aligns with the 100-year historical PDSI shown in Figure V-18.

September-October 2019 drought monitor reports showed abnormally dry to moderate drought conditions in the region. July 2020 reports also showed an abnormally dry period in the region. There have been very little reports of drought activity between January-May 2021. Current drought conditions according to the US Drought Monitor in the Commonwealth show no drought activity as of May 2021, with 0.04% of the state shown as abnormally dry in February 2021.

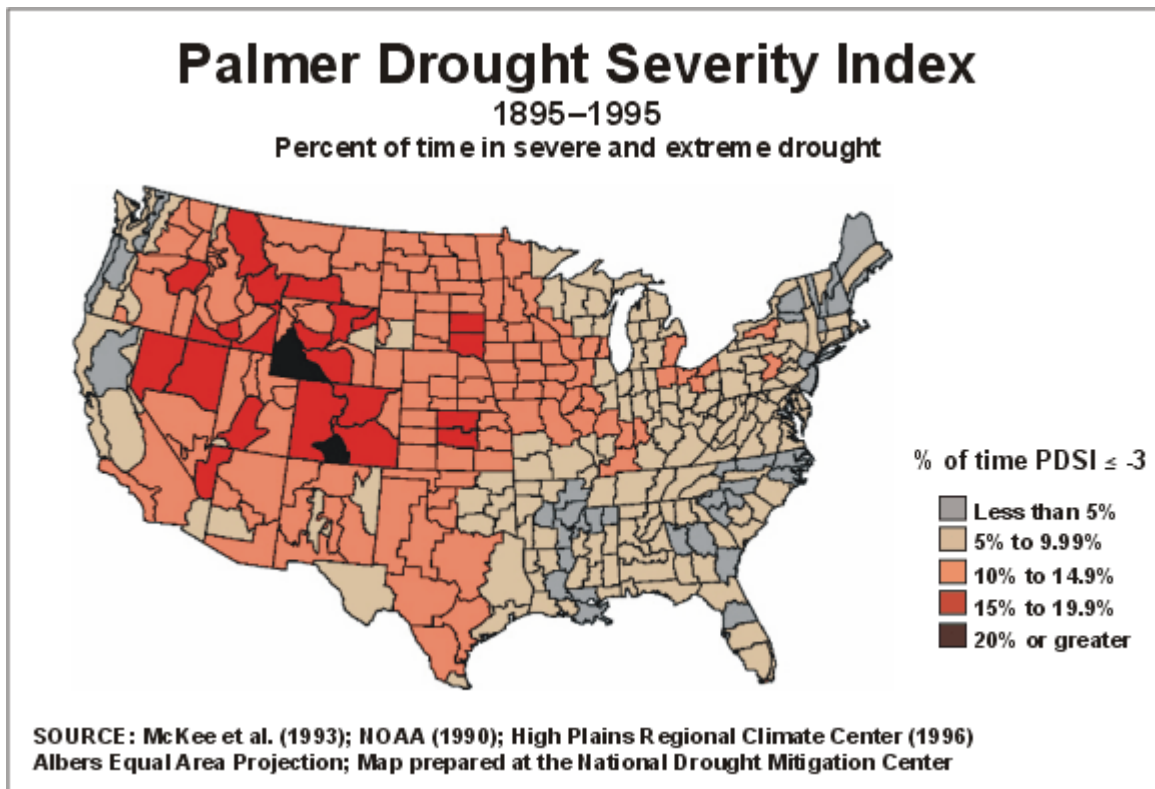


Figure 5-23. Historical Palmer Drought Severity Index (1885 - 1995)

According to the Governor's Climate Commission, Virginia is predicted to see more widespread impacts from dry conditions. However, there's currently a lack of conclusive data that severe drought conditions will significantly increase in the state.

National climate assessments indicate increased temperatures as a result of climate change, therefore increasing potential drought conditions. It is predicted that there could be an increase in average temperatures in the state (nine degrees by 2100) (NASA). Higher temperatures in the state could lead to increased drought conditions, resulting in reduced yields of crops.

The Evaporative Demand Drought Index (EDDI) is a drought monitoring tool that is updated weekly by the NOAA Physical Sciences Laboratory and is used to provide early warning of drought stress using current drought indicators. EDDI predicts agricultural and hydrologic drought risk and is a strong tool for drought preparedness. According to the tool, most of the West Piedmont Region is predicted to experience moderate drought conditions at the start of Summer 2021.

B.7.3. Vulnerability Analysis

Future occurrences of drought are largely unpredictable which makes it challenging to assess the probability of drought activity in a given area. It is common for drought conditions to impact Virginia each year, but it is difficult to accurately determine the precise location, severity and timing of these drought conditions. In order to best identify drought risk in the region, NCEI drought events and crop loss data were analyzed, as well as NLCD acres per land class data to provide an overview of drought vulnerability based on varying land types in each jurisdiction.

There are extensive agricultural operations in the West Piedmont Planning District which play an essential role in the region's economy. For example, Pittsylvania County has the largest total acreage of cropland among all counties in the state of Virginia (VA HMP 2018). Pittsylvania County is also the

second largest producer of tobacco in Virginia, and one of the largest producers of tobacco in the United States. Franklin County is ranked second in the Commonwealth for dairy production (2017 USDA Census of Agriculture). With the West Piedmont Region relying heavily on agriculture for economic stability, it is important to consider the potential impacts of crop loss due to drought events in the area.

Figure 5-24 shows the total amount of agricultural land area in the Planning District according to the National Land Cover Database. These areas consist of NLCD classifications of both Cultivated Crops and Hay/Pasture lands. According to this data, the WPPDC has a total of 365,459 acres of agricultural land cover. Pittsylvania County has the largest total acreage of agricultural land (167,080 acres), followed by Franklin County (110,724 acres). These two counties account for over 75% of the total agricultural land in the region. According to the 2017 Census of Agriculture (U.S. Summary and State Data), Pittsylvania County had almost \$73 million in crop, livestock, poultry and product sales, Franklin County had over \$69 million in agricultural sales.

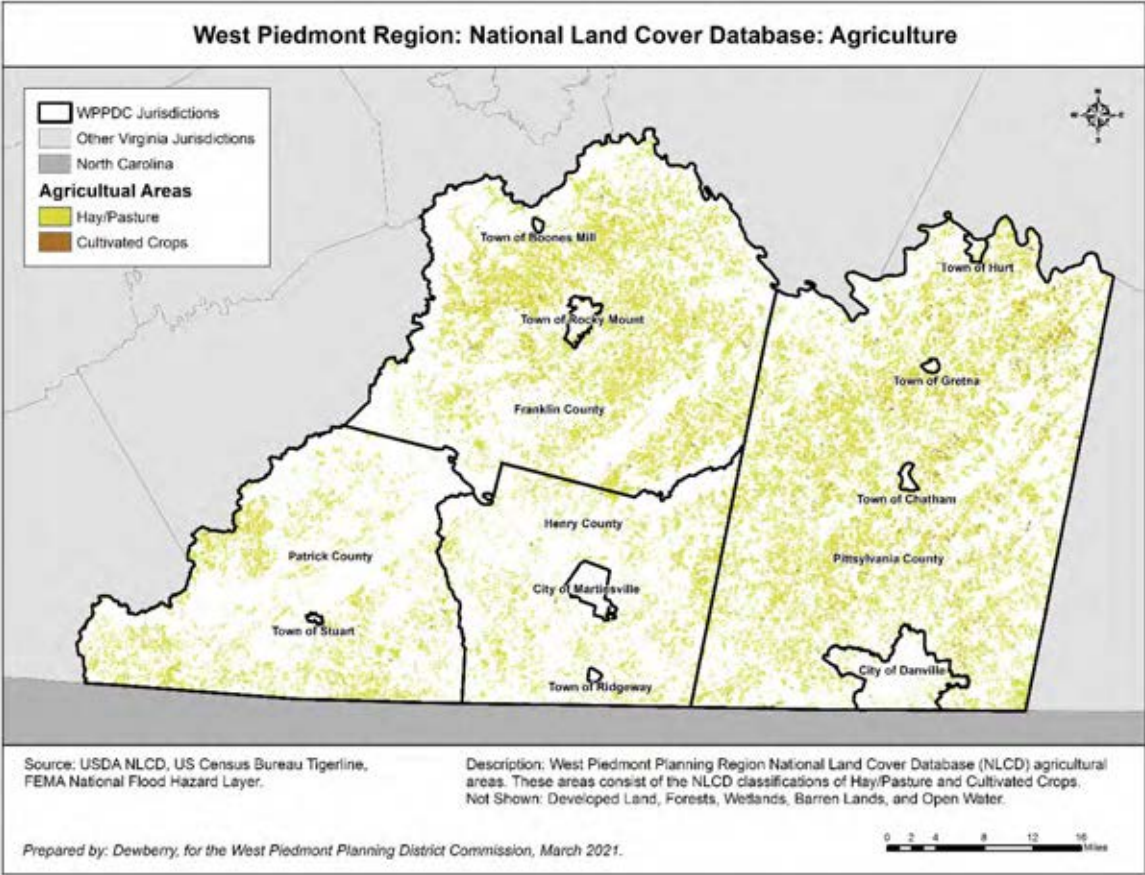


Figure 5-24. NLCD Agricultural Areas in West Piedmont Region

Land classifications were determined based on the various land cover types listed in the NLCD data as described in Table 5-59. Table 5-60 shows the total acres per land class for each jurisdiction in the region. Table 5-61 shows the percent of acreage per land class in the region.

Table 5-59. Land Classification by Land Cover Type

Land Class	Land Cover Types (NLCD)
Agriculture	• Cultivated Crops

Land Class	Land Cover Types (NLCD)
	• Hay/ Pasture
Barren Land	• Barren Land
Developed	• Developed, High Intensity • Developed, Medium Intensity • Developed, Low Intensity • Developed, Open Space
Vegetation	• Deciduous Forest • Evergreen Forest • Herbaceous • Mixed Forest • Shrub/Scrub
Water	• Open Water
Wetland	• Emergent Herbaceous Wetlands • Woody Wetlands

Due to the significant amount of cropland and agricultural operations in the Planning District, drought is a hazard of concern. While all land types can be impacted by severe drought events, the largest and most direct impacts will be to agricultural land. According to the 2018 VA State Plan, freshwater wetlands in Virginia are also at risk with prolonged periods of drought. Further analysis of estimated crop loss due to drought events was completed using records from the NCEI Storm Events Database.

Table 5-60. Total Acreage Per Land Class³⁷

Jurisdiction	Agriculture	Vegetation	Wetland	Developed	Barren Land	Water	Total Acres
City of Danville	1,777	10,689	50	15,024	24	407	27,971
Franklin County	110,724	308,349	403	18,633	336	12,093	450,538
Town of Boones Mill	28	293	0	158	0	0	479
Town of Rocky Mount	641	1,614	0	2,130	4	0	4,388
Henry County	31,105	189,042	583	23,189	97	1,404	245,419
Town of Stuart	29	171	0	277	0	0	477
City of Martinsville	97	2,487	20	4,409	0	32	7,045
Patrick County	44,377	249,780	144	14,076	264	1,749	310,390
Town of Ridgeway	15	381	0	201	0	0	596
Pittsylvania County	167,080	408,896	3,069	37,415	834	5,073	622,366
Town of Chatham	113	792	7	394	0	0	1,307

³⁷ NLCD 2021.

Jurisdiction	Agriculture	Vegetation	Wetland	Developed	Barren Land	Water	Total Acres
Town of Gretna	129	148	1	436	0	7	721
Town of Hurt	346	733	2	557	0	31	1,670
Total Acres	356,459	1,173,375	4,280	116,899	1,559	20,795	1,673,366

Table 5-61. Percent Acreage Per Land Class³⁸

Jurisdiction	Agriculture	Vegetation	Wetland	Developed	Barren Land	Water
City of Danville	0.50%	0.91%	1.17%	12.85%	1.51%	1.96%
Franklin County	31.06%	26.28%	9.42%	15.94%	21.57%	58.15%
<i>Town of Boones Mill</i>	0.01%	0.02%	0.00%	0.14%	0.00%	0.00%
<i>Town of Rocky Mount</i>	0.18%	0.14%	0.00%	1.82%	0.24%	0.00%
Henry County	8.73%	16.11%	13.62%	19.84%	6.25%	6.75%
<i>Town of Stuart</i>	0.01%	0.01%	0.00%	0.24%	0.00%	0.00%
City of Martinsville	0.03%	0.21%	0.48%	3.77%	0.00%	0.15%
Patrick County	12.45%	21.29%	3.37%	12.04%	16.96%	8.41%
<i>Town of Ridgeway</i>	0.00%	0.03%	0.00%	0.17%	0.00%	0.00%
Pittsylvania County	46.87%	34.85%	71.71%	32.01%	53.47%	24.39%
<i>Town of Chatham</i>	0.03%	0.07%	0.16%	0.34%	0.00%	0.00%
<i>Town of Gretna</i>	0.04%	0.01%	0.02%	0.37%	0.00%	0.03%
<i>Town of Hurt</i>	0.10%	0.06%	0.05%	0.48%	0.00%	0.15%

B.7.3.1. Probability of Future Occurrences

An examination of the NCEI Storm Events database indicates that much of the West Piedmont Region has experienced varying degrees of drought or extended periods of very dry weather between every year to year and a half as shown in Table 5-62. The past is a reasonable predictor of the future. Future occurrences of drought in the near-term are likely to follow a similar, or increased, frequency pattern. Collection of drought records in the NCEI database extend back to 1996, with the first reported event in 1998. There are 13 drought events noted in the database for Franklin County between 1996 and 2020, with 17 noted for each of Henry, Patrick and Pittsylvania Counties for the same period of record. To determine the annualized number of events between 1996-2020, the total number of reported drought events in each county were counted, and then divided by the total period of record (24 years). Based on that calculation, there is an annualized probability of four drought events in any given year in the Planning District.

³⁸ NLCD 2021.

Table 5-62. Drought Events, 1996 - 2020³⁹

Jurisdiction	Number of drought events annually
Franklin County	0.542
Henry County	0.708
Patrick County	0.708
Pittsylvania County	0.708
WPPDC Region Overall	2.667

NOTE: NCEI Storm Events database provides drought data only at a county level. It can be assumed that cities and towns located within a particular county share the same number of annual drought events and some portion of the annual crop losses.

B.7.3.2. Anticipated Losses

The same database also indicates that on an annual basis, crop losses are roughly \$2.9 million in the region. It is important to note, however, that losses for a specific drought event may be reported in the database as one loss estimate that applies to several counties, so the jurisdictional losses shown in Table 5-63 may not be fully representative of crop damage within the individual counties. However, the data does indicate that there is an overall high risk of crop damage as a result of drought in the West Piedmont Region.

Table 5-63. Crop Losses Due to Drought Events⁴⁰

Jurisdiction	Total Crop Damage Over 24-year Period (1996-2020)	Total Annualized Crop Damage
Franklin County	\$13,159,108	\$548,296
Henry County	\$12,992,396	\$541,350
Patrick County	\$12,992,396	\$541,350
Pittsylvania County	\$9,786,927	\$407,789
Total	\$71,710,150	\$2,987,923

NOTE: NCEI Storm Events database provides drought data only at a county level. It can be assumed that cities and towns located within a particular county share the same number of annual drought events and some portion of the annual crop losses.

According to the 2018 Virginia State Plan, long-term hydrologic drought can have an impact on public water supply, however, due to a lack of data, the potential costs of impacts to local water supply systems were not analyzed in this plan. For the previous WPPDC plan updates, detailed information about water source per census block group contained in the 1990 Census data was analyzed. (NOTE: the 2000 and 2010 Census data and more recent American Community Survey Data do not contain this information and an update to this analysis was not possible). See Appendix B11 for a historical summary of drought vulnerability based on water source and population drought risk.

Jurisdictions that have invested in water supply and distribution infrastructure are typically less vulnerable to hydrologic droughts. In general, the region has observed a trend toward increased

³⁹ NCEI Storm Events Database.

⁴⁰ NCEI Storm Events Database.

reliance on public water systems for water supply as opposed to well or private systems. Most public utility systems in the region have expanded since that time as well. For instance, the Henry County Public Service Authority (PSA) has expanded throughout a large portion of the County. With more than 800 miles of utility lines, Henry County is one of the largest water and sewer authorities in Virginia. Also, Franklin County has agreements in place with the Bedford County Public Service Authority and joined the Western Virginia Water Authority in 2009, serving populations in the northern county such as Wirtz and the Smith Mountain Lake area.

WPPDC has a Regional Water Supply Plan that examines water supply and includes data on current demand as well as projections of future demand and supply. The plan indicates that the West Piedmont Planning District region is likely to see a water supply surplus of approximately 15.2 MGD by the year 2060. This prediction is based on projected demands and the existing public community water system capacities for each locality. Even so, Henry County and the Town of Gretna are projected to experience a water supply deficit by 2060. In order to address these projected deficits, Henry County was issued a permit in 2015 to expand its Philpott Water Treatment facility, and improvements to the water intake valve will aim to increase production by 50%. In addition, the Town of Gretna has completed a new intake on Whitethorn Creek as a supplemental supply. The Regional Water Supply Plan is currently dated 2011. A full update of the 2011 Water Supply Plan is getting underway and should be completed by the end of 2021.

B.8. Earthquake (Medium-Low Priority)

The priority hazard ranking process resulted in earthquake remaining as a medium-low priority hazard. Table 5-64 outlines the hazard rankings for each of the hazard priority criteria related to earthquakes.

Table 5-64. Earthquake Hazard Priority

Probability/ History	Vulnerability	Maximum Threat (Geographic Area Affected)	Warning Time	2016 Priority Level	2021 Priority Level
Somewhat Unlikely Infrequent occurrence with at least one documented event and annual probability between 0.5 and 0.01	Limited 10 to 25% of people or property	Small 5 to 25% of community impacted	No Notice < 24 hours	Low	Medium-Low

B.8.1. Hazard History

Although no earthquakes of significance have been centered in the West Piedmont Region in recent times, (the only earthquake in the area with an epicenter in the region occurred in 1828), several earthquakes have occurred near the region that may have had some limited impact on the area (Figure 5-25). Because of the nature of earthquakes, it is not just earthquakes centered in West Piedmont that would affect the region.

Earthquakes in West Virginia, North Carolina, and other parts of Virginia also affect the region. The New Madrid fault is considered a major seismic zone for the Southern and Midwestern US. The New Madrid fault had a series of devastating earthquakes from 1811 through 1812, and intensities of V and VI on the Modified Mercalli Intensity Scale could be felt throughout Virginia. A recent notable event includes a magnitude 5.8 earthquake centered in Louisa County on August 23, 2011. This event caused the communications network to become overloaded because of unusually high usage. There have been no earthquakes greater than magnitude 4.0 in the last 10 years.

The 1828 earthquake reportedly caused no damage, but the effect was so great that it was felt in several eastern states, and in DC. President John Quincy Adams wrote about it in his person diary after he felt the shock from the White House:

March 9, 1828. There was this evening the shock of an earthquake, the first which I ever distinctly noticed at the moment when it happened. I was writing in this book, when the table began to shake under my hand and the floor under my feet. The window shutters rattled as if shaken by the wind, and there was a momentary sensation as of the heaving of a ship on the waves. It continued about two minutes, then ceased. It was about eleven at night. I immediately left writing, and went to my bedchamber, where my wife was in bed, much alarmed.

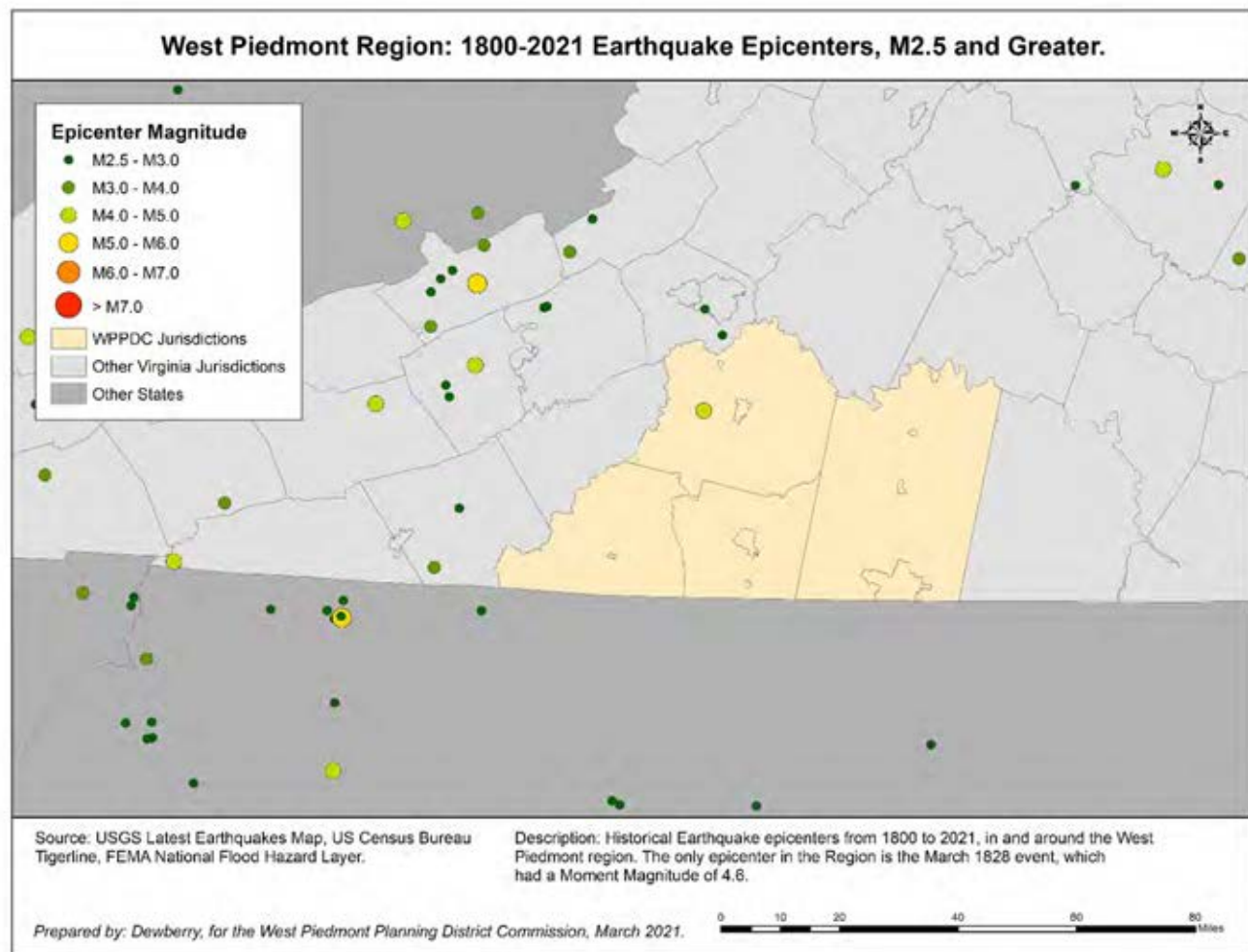


Figure 5-25. Earthquakes in the West Piedmont Vicinity

In the over 200-year record of earthquakes within a distance to affect West Piedmont, there have been approximately 388 events. These events have epicenters from Virginia, West Virginia, North Carolina, and the eastern portions of Tennessee and Kentucky. Of these events, 239 have magnitudes under 3.0, meaning they were not big enough events to be felt. Of the remaining 149 events, 106 are between 3.0 and 3.9, 36 are between 4.0 and 4.9, and only 7 are 5.0 and greater.

B.8.2. Hazard Profile

The earth's surface is covered by solid rock approximately 50 miles thick, referred to as the lithosphere. The lithosphere is made up of the Earth's crust, which ranges in size from about 22 miles thick for continents to about five miles thick for the oceans, and the upper mantle which is composed of solidified magma. This lithosphere "floats" above a thick layer of molten rock known as the lower mantle. The lithosphere is divided into large and small sections that geologists call plates. Earthquakes occur when those geologic plates slide against each other, resulting from the sudden release of energy that creates seismic waves. Most movements between plates are extremely small, generating tiny earthquakes that cannot be sensed by people. Other less frequent movements between plates can be quite large, generating powerful earthquakes that can shake the ground surface and cause widespread damage. Earthquakes can be violent enough to destroy whole cities.

The term “earthquake” is used to describe any seismic event — whether natural or caused by humans — that generates seismic waves. Earthquakes are caused mostly by rupture of geological faults, but also by other events such as volcanic activity, landslides, mine blasts, and nuclear tests. An earthquake's point of initial rupture is called its focus or hypocenter. The epicenter is the point at ground level directly above the hypocenter.

Most earthquakes occur at weak points in the earth's crust along surfaces where two or more geologic plates meet, called faults. Large faults within the Earth's crust result from the action of plate tectonic forces, with the largest forming the boundaries between the plates. The location of faults can provide an indication of where future earthquakes are likely to occur.

Earthquakes in the United States occur most frequently along the West Coast, where both convergent and transform plate boundaries are present. Earthquakes also occur along the East Coast of the United States, but the mechanisms causing these earthquakes are not well understood, as these earthquakes occur within the plate rather than at plate boundaries (USGS, 2003). Virginia is located near the center of the North American plate, far from a plate boundary. As a result, Virginia experiences a much lower rate of seismicity than areas near a plate boundary, such as California. Earthquake activity that occurs within a tectonic plate is known as ‘intraplate seismicity.’ While these quakes occur with less frequency than plate boundary quakes, the impacts from them can still be extensive and severe.

The potential effects of an earthquake are dependent on the magnitude of the event, the intensity (distance from the epicenter), and the type of geologic material in the area:

- **Magnitude** is a measure of the strength of an earthquake or energy released by it. Magnitude is measured by a device known as a seismograph. The scale used to measure earthquake magnitude was originally defined by Charles Richter in the 1930s, and is commonly referred to as the Richter scale, which assigns a magnitude number to quantify the strength of an earthquake. Since January 2002, the Moment Magnitude Scale (MMS) has been used by seismologists in the USGS to calculate and report magnitudes for all modern large earthquakes. The MMS was developed in the 1970s and measures the size of earthquakes in terms of its energy released. People generally report feeling earthquakes larger than about magnitude 3.0.
- **Intensity** is a measure of the effects of an earthquake at a particular place on people, structures, or the land itself. Earthquake intensity is most commonly measured in the United States using the Modified Mercalli (MMI) scale. The intensity at a point depends not only upon the strength of the earthquake, but also upon the distance from the earthquake to the point and the local geology at that point.
- **Peak Ground Acceleration (PGA)** is another common measure of earthquake shaking along the earth's surface. PGA expresses acceleration along the earth's surface as a percentage of g, the acceleration due to gravity (32.2 ft. /s²). PGA varies significantly depending on the ground type and the geology of an area.

Table 5-65 summarizes the intensities typically observed at locations near the epicenter of earthquakes of different magnitudes and defines the intensity scale based on the effects on people, human structures, and the natural environment. Table 5-66 compares the PGA with earthquake intensities and the perceived damage and shaking expected.

Table 5-65. Modified Mercalli Intensity Scale for Earthquakes

Scale	Intensity	Effects	Richter Magnitude Scale
I	Instrumental	Detected only on seismographs	1.0 to 3.0
II	Feeble	Some people feel it	3.0 to 3.9
III	Slight	Felt by people resting; like a truck rumbling by	
IV	Moderate	Felt by people walking	4.0 to 4.9
V	Slightly Strong	Sleepers awake; church bells ring	
VI	Strong	Trees sway; suspended objects swing; objects fall off shelves	5.0 to 5.9
VII	Very Strong	Mild alarm; walls crack; plaster falls	
VIII	Destructive	Moving cars uncontrollable; masonry fractures; poorly constructed buildings damaged	6.0 to 6.9
IX	Ruinous	Some houses collapse; ground cracks; pipes break open	
X	Disastrous	Ground cracks profusely; many buildings destroyed; liquefaction and landslides widespread	7.0 and Higher
XI	Very Disastrous	Most buildings and bridges collapse; roads, railways, pipes and cables destroyed; general triggering of other hazards	
XII	Catastrophic	Total destruction; trees fall; ground rises and falls in waves	

Table 5-66. Modified Mercalli Intensity (MMI) and PGA Equivalents

MMI	Acceleration (%g) (PGA)	Perceived Shaking	Potential Damage
I	<0.17	No Felt	None
II	0.17 - 1.4	Weak	None
III	0.17 - 1.4	Weak	None
IV	1.4 - 3.9	Light	None
V	3.9 - 9.2	Moderate	Very Light
VI	9.2 - 18	Strong	Light
VII	18 - 34	Very Strong	Moderate
VIII	34 - 65	Severe	Moderate to Heavy
IX	65 - 124	Violent	Heavy
X	> 124	Extreme	Very Heavy
XI	> 124	Extreme	Very Heavy
XII	> 124	Extreme	Very Heavy

Source: Virginia State Hazard Mitigation Plan

B.8.2.1. Primary and Secondary Impacts

Earthquakes can cause damage directly to buildings, infrastructure, and the landscape. Infrastructure systems that can be particularly affected are communication, water, and electricity. In addition, there is significant threat of injury and loss of life as a result of collapsing structures and falling debris. Damage from an earthquake can range from cracks in plaster or sidewalks to complete building and infrastructure collapse. Major earthquake events can lead to disruption of utilities (e.g., gas, electric, and communications) and injuries or even fatalities. Secondary hazards that may result from earthquakes include liquefaction, fires, landslides, flash flooding (including dam failures), hazardous materials releases, and regional changes in land elevation.

Strong earthquakes in particular, often trigger secondary effects which have a high loss potential as well and are usually the prime factor for determining whether an earthquake is categorized as a catastrophe. Secondary effects can include landslides (in hilly or mountainous areas), amplification, seismic sea waves (tsunamis), surface rupture, subsidence, fires (from ruptured gas lines and downed utility lines), and liquefaction of soil.

B.8.2.2. Probability of Future Events

Earthquakes are low probability, high-consequence events. Although earthquakes may occur only once in the lifetime of an asset, they can have devastating impacts. A moderate earthquake can cause serious damage to unreinforced buildings, building contents, and non-structural systems, and can cause serious disruption in building operations. Moderate and even very large earthquakes are inevitable, although very infrequent, in areas of normally low seismic activity. Consequently, in these areas, buildings are seldom designed to deal with an earthquake threat; therefore, they are extremely vulnerable.

Earthquakes are not considered significant hazards in West Piedmont, and the probability of these events occurring within the region, or affecting the region, is unlikely. The closest offshore fault lies east of Charleston, South Carolina and has the potential to impact West Piedmont in the event of a moderate to severe earthquake event.

B.8.2.3. Severity

Although other natural hazards account for greater annual loss in the United States, earthquakes pose the largest risk in terms of sudden loss of life and property. Risk factors that impact the severity and extent of damage include:

- Amount of seismic energy released: The greater the vibrational energy, the greater the chance for destruction.
- Duration of ground movement: This is one of the most important parameters of ground motion for causing damage.
- Depth of the focus, or hypocenter: The shallower the focus (the point of an earthquake's origin within the earth), usually the greater the potential for destructive seismic waves reaching the earth's surface. Even stronger magnitude events with a much greater focus depth typically produce only moderate movement at ground level.
- Distance from epicenter: The potential for damage tends to be greatest near the epicenter (the point on the ground directly above the focus) and decreases away from it.

- **Geologic setting:** A wide range of foundation materials exhibits a similarly wide range of responses to seismic vibrations. For example, in soft unconsolidated material, earthquake vibrations last longer and develop greater amplitudes, which produce more ground movement, than in areas underlain by hard bedrock. Likewise, areas having active faults are at greater risk.
- **Population and building density:** In general, risk increases as population and building density increase.
- **Types of buildings:** Wooden frame structures tend to respond to earthquakes better than do more rigid brick or masonry buildings. Taller buildings are more vulnerable than one- or two-story buildings when located on soft, unconsolidated sediments, but taller buildings tend to be the more stable when on a hard bedrock foundation.
- **Time of day:** Experience shows there are fewer casualties if an earthquake occurs in late evening or early morning because most people are at home and awake and thus in a good position to respond properly.

All these factors affect each other and add up to the severity of the earthquake.

B.8.2.4. Climate Change Impacts

Evidence that climate change has an impact on the occurrence or magnitude of earthquakes is currently inconclusive. Some recent research indicates that geologic events such as earthquakes are sensitive to changes on the earth's surface, such as shifts in water or atmospheric pressure. Other scientists have expressed doubts that earthquakes are significantly impacted by climate change.⁴¹

B.8.3. Vulnerability Assessment

Earthquakes are generally considered to be low-probability, high-impact events. Loss estimates created using FEMA's Hazus-MH v4.2 show annualized losses for the region at \$385,835 (Table 5-67). Residential building stock accounts for around 60% of the annualized loss, followed by commercial with 26% of the total loss. A comparison between the total exposure for the planning area against the estimated losses indicates that, on an annual basis, approximately 1.3 percent of the total exposure is vulnerable to earthquakes.

Based on available historical data, this estimate is suspect and appears to be much higher than actual annual losses due to earthquakes. Though there have been historical occurrences of earthquakes that may have affected the region, the probability and impact is low enough for the overall risk to be considered "medium-low" for planning consideration.

Table 5-67. Total Annualized Earthquake Loss

Jurisdiction	Buildings	Contents	Inventory	Relocation	Income	Rental	Wages	Total Loss	Total Exposure
City of Danville	\$31,575	\$6,105	\$217	\$7,177	\$2,144	\$3,347	\$3,375	\$53,940	\$5,667,085
Franklin County	\$57,924	\$12,470	\$633	\$11,080	\$1,763	\$4,009	\$2,459	\$90,339	\$7,435,013

⁴¹ Pearce, Fred. 2012. "Could a Changing Climate Set Off Volcanoes and Quakes?" *Yale Environment* 360. Retrieved from https://e360.yale.edu/features/could_a_changing_climate_set_off_volcanoes_and_quakes.

Jurisdiction	Buildings	Contents	Inventory	Relocation	Income	Rental	Wages	Total Loss	Total Exposure
Town of Boones Mill	\$61	\$13	\$1	\$12	\$2	\$4	\$3	\$95	\$7,816
Town of Rocky Mount	\$558	\$120	\$6	\$107	\$17	\$39	\$24	\$871	\$71,646
Henry County	\$54,037	\$12,235	\$582	\$11,940	\$2,560	\$4,388	\$3,401	\$89,143	\$6,078,091
Town of Ridgeway	\$131	\$30	\$1	\$29	\$6	\$11	\$8	\$216	\$14,736
City of Martinsville	\$28,811	\$7,650	\$401	\$6,518	\$2,875	\$3,079	\$4,557	\$53,892	\$2,158,182
Patrick County	\$18,547	\$3,906	\$134	\$4,116	\$832	\$1,429	\$1,102	\$30,066	\$1,967,748
Town of Stuart	\$28	\$6	\$0	\$6	\$1	\$2	\$2	\$46	\$3,020
Pittsylvania County	\$43,768	\$7,675	\$200	\$10,035	\$1,597	\$3,026	\$2,155	\$68,455	\$6,162,058
Town of Chatham	\$91	\$16	\$0	\$21	\$3	\$6	\$4	\$143	\$12,859
Town of Gretna	\$50	\$9	\$0	\$12	\$2	\$3	\$2	\$79	\$7,092
Town of Hurt	\$117	\$20	\$1	\$27	\$4	\$8	\$6	\$183	\$16,435
Total	\$234,663	\$50,041	\$2,168	\$50,864	\$11,773	\$19,277	\$17,047	\$385,835	\$29,468,177

Source: Hazus-MH v4.2

B.9. Landslide (Low Priority)

The priority hazard ranking process resulted in landslide remaining as a low priority hazard. Table 5-68 outlines the hazard rankings for each of the hazard priority criteria related to landslide.

Table 5-68. Landslide Hazard Priority

Probability/ History	Vulnerability	Maximum Threat (Geographic Area Affected)	Warning Time	2016 Priority Level	2021 Priority Level
Unlikely No documented occurrence with annual probability <0.01	Limited 10 to 25% of people or property	Small 5 to 25% of community impacted	No Notice < 24 hours	Low	Low

B.9.1. Hazard History

Although landslides are likely to have occurred in the past in the West Piedmont Region, the NCEI storm events database and the Virginia Department of Mines, Minerals and Energy, Division of Geology and Mineral Resources online resources do not include mention of previous occurrences. These hazard events often go unreported unless they damage infrastructure or buildings, or cause injuries or fatalities. A mudslide occurred in the Town of Stuart (Patrick County) due to heavy rain in September 2015; this event damaged an apartment building resulting in its evacuation. Also, in the Meadows of Dan area (Patrick County), the shoulder along a three-mile segment of U.S. 58 became unstable due to heavy rains during the October 2015 flood event. VDOT had to take corrective action to stabilize the area near Lovers Leap. On May 18, 2018, there was a report of a mudslide in Franklin County as a result of heavy rains near the Mountain Valley Pipeline construction site. During this mudslide event, about 6-8 inches of mud blocked a nearby road. In May of 2020, Franklin County experienced severe mudslide and landslide activity due to a historic dam flooding event at Philpott Lake. The landslide damaged nearby switch house and transformers causing a temporary power outage at the dam.

B.9.2. Hazard Profile

The term “landslide” describes many types of downhill earth movements ranging from rapidly moving catastrophic rock avalanches and debris flows in mountainous regions, to more slowly moving earth slides. A landslide event may include mudflows, mudslides, debris flows, rock falls, rockslides, debris avalanches, debris slides, and earth flows. Landslides often occur in areas where the soil is over-saturated from heavy rain or rapid snow melt. Landslides can also occur after earthquakes, changes in groundwater levels, or changes in slope due to man-made construction activities.

Some landslides move slowly and cause gradual damage, whereas others move so rapidly that they can destroy property and take lives suddenly and unexpectedly. Debris flows (such as mudslides, mudflows, or debris avalanches) are a common type of fast-moving landslide that generally occurs during intense rainfall on saturated soil. They usually start on steep hillsides as soil slumps or slides, causing the surface to liquefy and accelerate to speeds as great as 35 miles per hour or more.

Landslides have the potential to cause serious damage to buildings and infrastructure and may result in injuries or even fatalities. The expansion of urban development can increase the damages caused by a landslide. Damages sustained by roads and highways during a landslide can result in long-term loss of use of certain transportation routes and contribute to increased traffic and emergency response times

in the affected region. The soil movement that occurs during a landslide can destabilize structural supports for pipelines, potentially resulting in pipeline ruptures and decreased or complete loss of service in a region.

B.9.3. Climate Change Impacts

Climate change is expected to have an impact on slope stability and landslide activity. Slope stability is influenced by several different weather events and can contribute to the occurrence of landslides. These events include temperature changes, earthquakes, snow melt, and increase in high intensity rainfall events. A changing climate will inevitably result in an increase of severe weather events. However, it is uncertain the exact impact that climate change will have on landslide activity in Virginia as a longer timeline of historical data, and additional research is still needed.

B.9.4. Vulnerability Analysis

A landslide is considered a low-probability, high-impact event. Steep areas with poor surface and/or subsurface drainage are particularly susceptible to landslides. The USGS landslide incidence and susceptibility map does identify a strip extending from Patrick and Henry counties through far southeastern Franklin County and northwestern Pittsylvania County as having a high susceptibility and moderate incidence of landslide (Figure 5-26). The 2018 VA State Plan flagged Franklin County, Henry County, and the City of Martinsville as counties that are in high and medium-high risk landslide zones. Critical facilities and other structures in these vicinities may have an elevated risk of landslide due to being located on, or immediately below steep slopes. areas. The historic incidences and impacts of landslides in the region were generally considered by the planning team to be minor. Due to the lack of historical data on occurrences and associated damage data, it was not possible to include scientifically defensible estimates of probability or future anticipated losses.

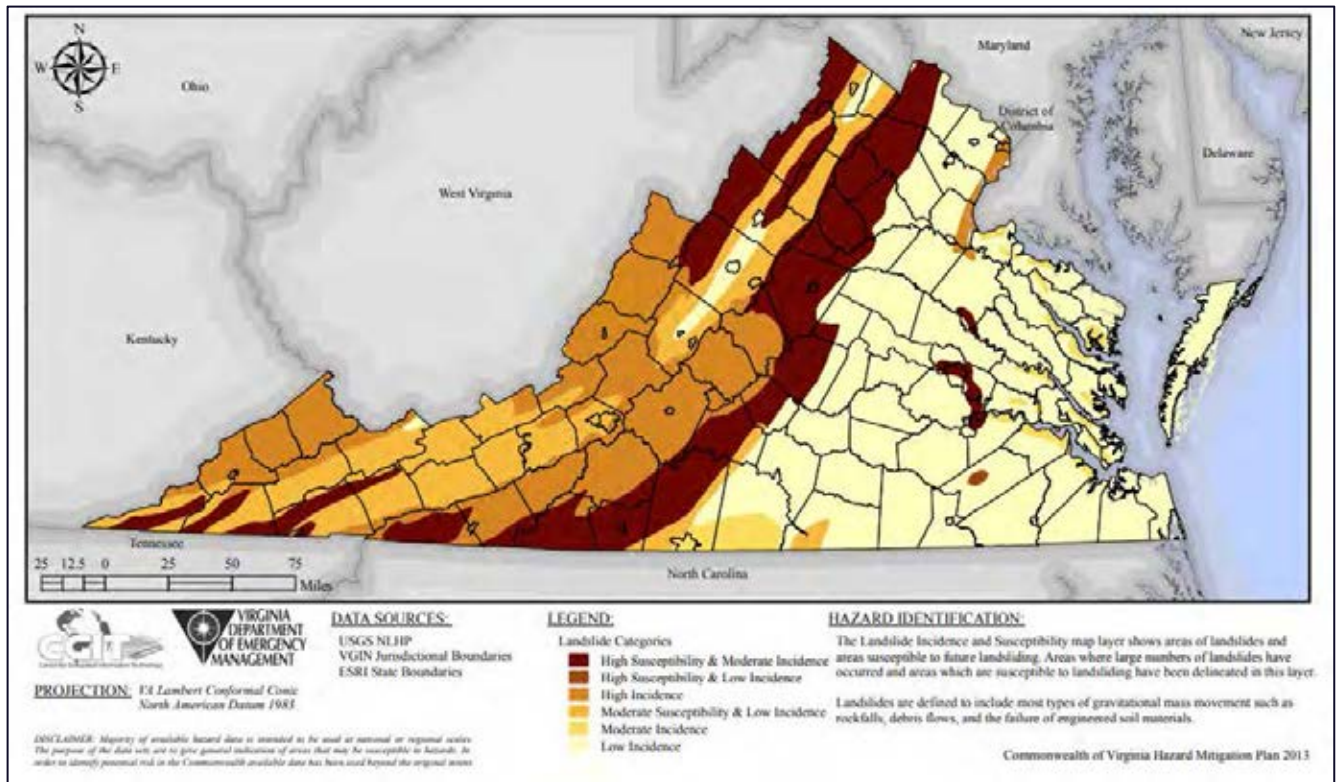


Figure 5-26. Landslide Incidence and Susceptibility⁴²

⁴² 2013/2018 Commonwealth of Virginia Hazard Mitigation Plan.

C. Human-Caused Hazards

The following sections address the impacts of human-caused hazards on the West Piedmont Planning District. Human-caused hazards were included at the request of the communities in the West Piedmont Planning District; these hazards are not required by VDEM or FEMA for the approval of the West Piedmont Regional Hazard Mitigation Plan.

FEMA 427, *Primer for Design of Commercial Buildings to Mitigate Terrorist Attacks*,⁴³ provides information on developing a realistic prioritization of human-caused hazards. Section 7 (Mitigation Strategy) provides projects to address human-caused hazard vulnerability. Future analysis steps to consider include:

- Determine the relative importance of various critical and non-critical facilities and the asset of these systems;
- Determine the vulnerability of each facility to a specified hazard; and
- Determine what human threats are known to exist in the communities.

Each of the following sections provides a brief overview of the hazard, potential impacts and a general community vulnerability analysis, when applicable. As of 2021, limited data are available for the region to fully address human-caused hazards. Some of the data presented in this section was originally included in the 2006 plan and has not been updated, but new maps have been created. A consequence analysis table was added in 2021, to provide a more comprehensive overview of issues that can arise from each human-caused hazard included in this plan.

Due to the concerns about security and community data confidentiality, the locations of high voltage transmission lines (HVT) or potential inorganic/organic spills are not included in this HIRA. In 2006 and 2011, vulnerability analyses were completed for agriterrorism. In 2016, the Mitigation Advisory Committee made the decision to remove the vulnerability assessment for agriterrorism. This decision remains for the 2021 Plan update, so it has not been included. An exposure analysis for dam failure has been added as of 2021, but only for Pittsylvania county and the towns of Hurt, Gretna, and Chatham due to limited data availability.

⁴³ Federal Emergency Management Agency. 2020. "FEMA 427, Primer for Design of Commercial Buildings to Mitigate Terrorist Attacks." Retrieved from <https://www.fema.gov/sites/default/files/2020-08/fema427.pdf>.

C.1. Organic/Inorganic Spills (Medium-High Priority)

The priority hazard ranking process maintained organic/inorganic spills as a medium-high priority hazard. Table 5-69 outlines the hazard rankings for each of the hazard priority criteria related to organic/inorganic spills.

Table 5-69. Organic/Inorganic Spills Hazard Priority

Probability/ History	Vulnerability	Maximum Threat (Geographic Area Affected)	Warning Time	2016 Priority Level	2021 Priority Level
Highly Likely Common events with annual probability >1	Limited 10 to 25% of people or property	Small 5 to 25% of community impacted	No Notice < 24 hours	Moderate	Medium-High

C.1.1. Hazard Profile

Hazardous materials can include explosive, flammable, combustible, corrosive, oxidizing, toxic, infectious, and radioactive materials that are involved in an accidental or intentional release causing danger to the general public. However, a spill can still be deemed hazardous if benign materials such as beverages or non-toxic materials cause a hazard to those in the immediate area. Hazardous material events also can be caused by natural hazards such as earthquakes and floods.

A hazard material spill or release may come from either fixed facilities or mobile containers. The duration of the event can last for hours or even days. Chemicals may be corrosive or otherwise damaging over time. Explosion and/or fire may be subsequent. In addition, contamination may be carried out of the incident area by persons, vehicles, water, and wind. For example, in May of 2021, an acrylic building block used for coatings and adhesives that was being stored in drums inside of a building in the Tightsqueeze Industrial Park overheated and led to a polymerization reaction. This ultimately led to an explosion that caused a fire. Pittsylvania County had to warn residents within a mile radius not to breathe in the hazardous smoke and to shelter indoors, and students from Chatham High School had to be moved.

The magnitude of a hazardous material event is directly related to the amount of materials released and the speed and efficiency of which emergency and cleanup crews respond. Another important factor is what form the spill is in. Solid state spills are typically the easiest to clean up and control, followed by liquid and gaseous state spills. Liquid state spills require rapid response if they are to be contained, and if they infiltrate a watershed, steps must be taken to monitor the influence downstream. Gaseous state spills are almost impossible to contain and, depending on the volume, usually require evacuations down wind.

According to the United States Department of Transportation, highway incidents were responsible for 93% of the total United States hazardous material spills over the last 10 years.⁴⁴ The US Department of

⁴⁴ Pipeline and Hazardous Materials Safety Administration. 2020. "Incident Statistics." Retrieved from <https://www.phmsa.dot.gov/hazmat-program-management-data-and-statistics/data-operations/incident-statistics>.

Transportation estimates that transportation incidents involving hazardous materials result in over \$1 billion in societal cost every year.⁴⁵

The shipment of Bakken crude oil throughout the nation remains relatively high since its production has remained fairly stable at about 1.07 million barrels per day as of August 2017. Bakken crude oil originates from the Bakken formation in North Dakota, Montana, Saskatchewan, and Manitoba. The Pipeline and Hazardous Materials Safety Administration issued a report in 2014 stating that Bakken crude oil may be more flammable than traditional heavy crude oil.⁴⁶ This increased risk, in part, led to the US Department of Transportation releasing a notice in May 2014 that required railroad carriers to inform State Emergency Response Commissions and local officials on an ongoing basis of any train transporting at least one million gallons of Bakken crude oil to allow for necessary emergency response preparations.⁴⁷

Bakken crude may potentially be shipped through the planning area. On April 30, 2014, a CSX train carrying Bakken crude oil derailed in nearby Lynchburg, Virginia. Three rail cars ended up submerged in the James River. The derailment caused a large fire and release of oil into the river. The alternative route through the state runs through the northern part of Pittsylvania County, close to Altavista (Campbell County).

Another spill threat comes from ash impoundment ponds. In February 2014, more than thirty thousand tons of coal-ash slurry and 27 million gallons of contaminated water leaked into the Dan River from a Duke Energy facility in Eden, North Carolina. Coal ash, a murky gray sludge that is the residue from burning powdered coal to generate electricity, contains high levels of toxic elements, including lead, mercury, selenium and arsenic.^{48, 49} The spill occurred upstream of the City of Danville, which resulted in monitoring of the water supply for an extended period of time and a heightened awareness that an alternate water supply was needed.

The United States Environmental Protection Agency tracks toxic chemical and other waste management activities for certain industries and federal facilities. Specific toxic release data is available for the West Piedmont communities at <http://www.epa.gov/triexplorer/>. This information can provide an idea of what types of chemicals are present in the community.

C.1.2. Vulnerability Analysis

Organic/inorganic spills are not an especially damaging hazard in the West Piedmont Region, but their widespread use makes them fairly common. Table 5-70 shows the type of incident by jurisdiction reported to the National Response Center (NRC),⁵⁰ that have impacted the region from 1990 through

⁴⁵ Federal Highway Administration. 2012. "Traffic Incident Management in Hazardous Materials Spills in Incident Clearance." Retrieved from <https://ops.fhwa.dot.gov/publications/fhwahop08058/20.htm>.

⁴⁶ Pipeline and Hazardous Materials Administration. 2014. "Current Challenges for Passenger and Freight Rail." Retrieved from https://www.phmsa.dot.gov/sites/phmsa.dot.gov/files/docs/Testimony_Senate_Commerce_and_Transportation_3_6_14_Rail_Safety_Hearing.pdf.

⁴⁷ <https://www.phmsa.dot.gov/news/phmsa-notice-regarding-emergency-response-notifications-shipments-petroleum-crude-oil-rail>.

⁴⁸ Williams, T. and Wines, M. 2014. "Huge Leak of Coal Ash Slows at North Carolina Power Plant." *The New York Times*. Retrieved from <http://www.nytimes.com/2014/02/07/us/huge-leak-of-coal-ash-slows-at-north-carolina-power-plant.html>.

⁴⁹ Stahl, L. 2016. "The Spill at Dan River." *60 Minutes*. Retrieved from <http://www.cbsnews.com/news/duke-energy-on-coal-ash-waste-at-dan-river>.

⁵⁰ National Response Center. Retrieved from <https://nrc.uscg.mil/>.

June 4, 2021 for a total of 487 incidents. This data is collected at the County and Independent City level. A majority of the spills have involved automotive gasoline, hydraulic and diesel oil. According to the best available data at the time of this analysis, no major intentional organic/inorganic spill have occurred in the region.

Table 5-70. Organic/Inorganic Spills by Jurisdiction and Type of Spill (1990-2021)⁵¹

Jurisdiction	Aircraft	Continuous	Fixed	Mobile	Pipeline	Railroad	Railroad non-release	Storage tank	Unknown sheen	Vessel	Grand Total
City of Danville	1	2	53	6	9	26	4	3	6	0	110
Franklin County	2	2	33	13	1	16	1	3	9	7	87
Henry County	0	0	38	13	0	25	2	1	6	1	86
City of Martinsville	0	2	28	11	55	5	0	4	6	0	111
Patrick County	0	0	5	3	0	0	0	2	0	0	10
Pittsylvania County	0	2	41	11	1	19	2	3	4	0	83
Grand Total	3	8	198	57	66	91	9	16	31	8	487

Based on the spill data from the NRC, the annualized event statistics were calculated, as shown in Table 5-71.

Table 5-71. Annualized Organic/Inorganic Spill Events by Jurisdiction and Type of Spill⁵²

Jurisdiction	Aircraft	Continuous	Fixed	Mobile	Pipeline	Railroad	Railroad non-release	Storage tank	Unknown sheen	Vessel	Grand Total
City of Danville	.03	.07	1.71	0.19	0.29	0.84	0.13	0.10	0.19	0	3.55
Franklin County	.07	.07	1.06	0.42	.03	0.52	.03	0.10	0.29	0.23	2.81
Henry County	0	0	1.23	0.42	0	0.81	.07	.03	0.19	.03	2.77
City of Martinsville	0	.07	0.90	0.35	1.77	0.16	0	0.13	0.19	0	3.58
Patrick County	0	0	0.16	0.10	0	0	0	.07	0	0	0.32
Pittsylvania County	0	.07	1.32	0.42	.03	0.61	0.06	0.10	0.13	0	2.68
Grand Total	0.10	0.26	6.39	1.84	2.13	2.94	0.29	0.52	1.00	0.26	15.71

FEMA has established general methods for human-caused hazards but does not have an established methodology for addressing community vulnerability due to organic/inorganic spills. As with any analysis, general methods to determine vulnerability would be to identify where the hazard could occur

⁵¹ National Response Center.

⁵² National Response Center.

and what the impacts on specific assets would be. For organic/inorganic spills, general methods to determine vulnerability would be to determine what facilities use or produce hazardous materials and which high traffic roads and railroads are used to transport organic and inorganic materials in and out of the communities. After the potential contaminants have been identified, the extent, impact, and effects of the contaminant can be determined.

Individuals can obtain information on facilities that may affect their home, workplace or other specific locations from the U.S. Environmental Protection Agency by visiting

<http://www3.epa.gov/enviro/myenviro/>.

C.2. High Voltage Transmission Lines (Medium Priority)

The priority hazard ranking process resulted in HVT lines remaining as a medium priority hazard. Table 5-72 outlines the hazard rankings for each of the hazard priority criteria related to HVT lines.

Table 5-72. High Voltage Transmission Lines Hazard Priority

Probability/ History	Vulnerability	Maximum Threat (Geographic Area Affected)	Warning Time	2016 Priority Level	2021 Priority Level
Likely Frequent occurrence with at least 2 documented events and annual probability between 1 and 0.5	Limited 10 to 25% of people or property	Medium 25 to 50% of community impacted	No Notice < 24 hours	Moderate	Medium

C.2.1. Hazard Profile

High voltage transmission (HVT) lines are the backbone of the world's electrical system. They are usually constructed in straight lines, to minimize the cost of building very large steel towers. The towers are very resilient and it is very rare for these structures to become damaged, except during cases of extreme natural phenomena such as lightning strikes, hurricanes, tornadoes, and earthquakes.

High voltage transmission lines are used to distribute power from the generation plant to the different localities using the power source. Power grid failure is largely weather-related, with some occasions of human-related failures. Examples of human-related failures range from human error in controlling and maintaining the system to direct acts of sabotage on the system.

A much larger problem is the vulnerability of the national grid system formed by the high voltage transmission lines. Power from different sources is linked together in a grid system to allow for the rerouting of unused power from far away sources if a local power supplier fails. This setup is very efficient economically. However, history has shown this grid system to be vulnerable to failure in rare circumstances.

HVT lines can be impacted by local or widespread disruption in the power grid service. Disruption can take the form of intentional destruction of the utility poles to automobile accidents taking down service poles. The immediate area surrounding the pole or downed lines should be considered dangerous as long as the lines remain alive. Although, most HVT lines are located in dedicated right of ways, which have no inhabited structures within them, which helps reduce the chance of electrocution. Additionally, the sparks from the downed power lines have the potential to start fires. Even though human-caused HVT line-related hazard events are a concern, the vast majority (78%) of power outages are weather-related, and this statistic seems to be increasing over time.⁵³ The remaining 22% of outages are caused by animals contacting wires, auto accidents, pre-arranged outages by the utility company for maintenance, and human error.

Without a power supply, many daily living functions would be impacted. These secondary impacts can be compounded with prolonged failure. Impacts include, but are not limited to, loss of heating and

⁵³ Mills, E. 2012. "Electric Grid Disruptions and Extreme Weather." Lawrence Berkeley National Laboratory. Retrieved from <https://www.yumpu.com/en/document/view/18218842/electric-grid-disruptions-and-extreme-weather-evan-mills->.

cooling, refrigeration, lack of running water, malfunction or cessation of critical facilities and computer infrastructures. Power grid failure has a potential to negatively impact large numbers of people. The extent of this type of event is not predictable.

In November of 1965, an automatic current flow regulating device in Ontario, Canada failed, allowing a circuit breaker to remain open. This failure allowed the current flow into the northeastern United States to increase rapidly. The northern parts of the Northeast grid responded by shutting down and cutting off local generators to protect them. However, since there was now a power vacuum in the Northeast grid, the southern plants automatically tried to fill the void, but doing so caused them to overload. The result was a blackout in the Northeast that covered 80,000 square miles.

The system still remains open to these types of vulnerabilities, as was witnessed by the blackout that occurred on August 14, 2003. This blackout spread from Detroit to New York City to New England, leaving 50 million people without power.

C.2.2. Vulnerability Analysis

A high-level vulnerability analysis was completed for HVT lines in the planning area using loss of function data from FEMA and structure counts from Hazus-MH. It is possible to understand the scale of potential damages from a utility outage. The FEMA Benefit Cost Analysis (BCA) software is designed to calculate losses avoided based on hazard events; as such, it indicates default values for loss of function due to outages including electricity outages. The default value for loss of function for electricity outage is \$126/person/day.

Using structure counts from Hazus-MH, it is possible to estimate the direct impacts of these outages on the region. It is not possible to estimate losses to commercial, industrial, and non-residential facilities because the secondary impacts are unknown; therefore, the calculations include residential structures only.

Three representative events can be examined. A small-scale outage might affect approximately 1% of customers and last one day. A mid-scale outage might affect approximately 10% of customers and last two days. A large-scale outage would affect 100% of customers and might last up to a week (7 days). For an electricity outage, the expected losses for each of the three events would be as shown in Table 5-73. This information was collected at the County and Independent City level. Data for towns are included in their respective counties.

Table 5-73. Estimated Losses Due to Electricity Outage for Residential Structures

Jurisdiction	Residential Facilities	Small Outage	Mid-Size Outage	Large Outage
City of Danville	18,126	\$22,838.76	\$456,775.20	\$15,987,132.00
Franklin County	27,474	\$34,617.24	\$692,344.80	\$24,232,068.00
Henry County	24,462	\$30,822.12	\$616,442.40	\$21,575,484.00
City of Martinsville	5,882	\$7,411.32	\$148,226.40	\$5,187,924.00
Patrick County	9,779	\$12,321.54	\$246,430.80	\$8,625,078.00
Pittsylvania County	30,386	\$38,286.36	\$765,727.20	\$26,800,452.00

The BCA software does not address secondary impacts of an electricity outage. Secondary impacts would be the main concern associated with the failure of high voltage transmission lines. Part of the

vulnerability analysis would be to identify where the lines are present, what areas are served by the lines, and the extent and impact (e.g., loss of work time, loss of food, and effect on human health) of the expected outage.

C.3. Pipeline Failure (Medium Priority)

The priority hazard ranking process resulted in pipeline failure remaining a medium priority hazard. Table 5-74 outlines the hazard rankings for each of the hazard priority criteria related to pipelines.

Table 5-74. Pipeline Failure Hazard Priority

Probability/ History	Vulnerability	Maximum Threat (Geographic Area Affected)	Warning Time	2016 Priority Level	2021 Priority Level
Likely Frequent occurrence with at least 2 documented events with annual probability between 1 and 0.5	Limited 10 to 25% of people or property	Medium 25 to 50% of community impacted	No Notice < 24 hours	Moderate	Medium

C.3.1. Hazard Profile

Pipelines are used primarily to transport natural gas and petroleum, though pipelines may carry other hazardous materials. The material in pipelines can be emitted very quickly and in large quantities if the pipeline is ruptured. In these situations, the materials may continue to accumulate until the flow is turned off by a valve or at a nearby pumping station. A human-caused pipeline failure can come from improvised explosive devices or arson/incendiary attack. Explosive devices can originate from an individual person, a vehicle, or a projectile. The explosion is typically instantaneous, with secondary fall-out from spilled hazardous material in the immediate areas (see organic/inorganic spills for potential impacts) and loss of service to those dependent on the pipeline infrastructure.

Natural gas production in Virginia occurs in the southwestern portion of the state and accounts for a small percentage of gas consumption in the state. Virginia consumes natural gas at a rate six times greater than they produce it.⁵⁴ Virginia's production of natural gas has steadily decreased since it peaked in 2011, it remains substantially greater than it was 30 years ago.⁵⁵ Petroleum production also takes place in southwestern Virginia, in Lee and Wise counties, where 969,000 barrels have been produced since 1942.⁵⁶ Virginia is not crossed by any major crude oil pipelines; however, refined petroleum does travel to the state via the Colonial Pipeline and the Plantation Pipeline. Figure 5-27 shows the major natural gas pipelines in the West Piedmont Region.

Appendix B12 includes the pipeline mapping for each of the participating jurisdictions.

⁵⁴ U.S. Energy Information Administration. 2021. "Natural Gas Consumption by End Use." Retrieved from https://www.eia.gov/dnav/ng/ng_cons_sum_dc_u_sva_a.htm.

⁵⁵ Ibid.

⁵⁶ VA Department of Mines, Mineral and Energy. "Oil." Retrieved from <https://www.dmme.virginia.gov/dgmr/oil.shtml>.

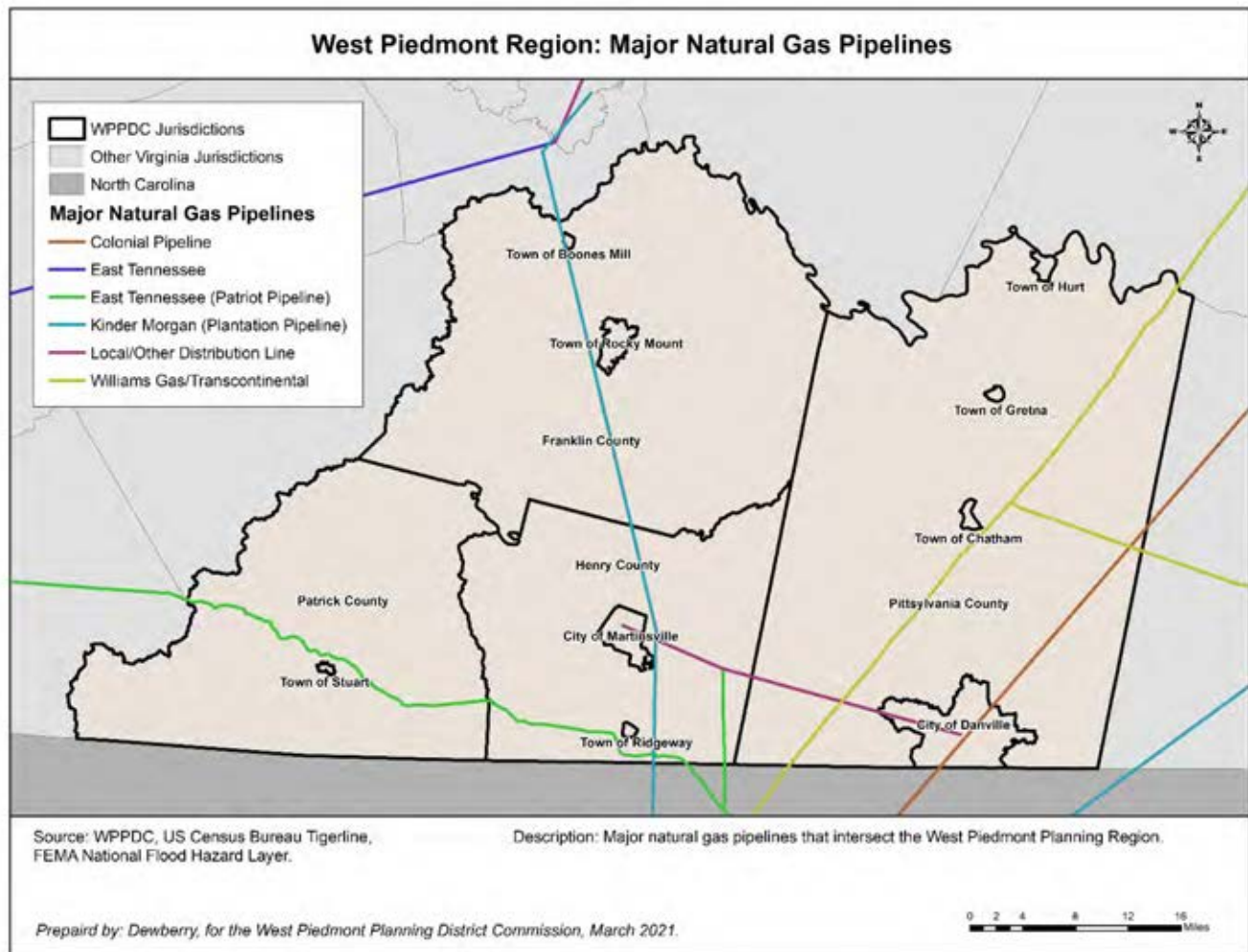


Figure 5-27. Major Natural Gas Pipelines in West Piedmont

The majority of Virginia's natural gas is supplied from a network of interstate pipelines that connect the nation's major gas producing areas, including Louisiana, Texas, and the Gulf of Mexico, to northeastern population centers such as New York, Boston, and Washington DC. Because Virginia is located along these pipeline routes, large quantities of gas move through the state. Ships and barges, railroads, pipelines, and trucks are all essential components of the petroleum-product transportation network. Williams Transco completed the Virginia Southside Expansion in 2015. This 24-inch pipeline allowed Transco Station 165 in Pittsylvania County to provide service 100 miles eastward to a gas-fired powerplant.⁵⁷ Figure 5-28 shows the general location of current natural gas pipelines in Virginia.

⁵⁷ Virginia Places. "Natural Gas Pipelines in Virginia: Expanding the Transmission Network After Fracking." Retrieved from <http://www.virginiaplaces.org/transportation/gaspipelineexpansion.html>.

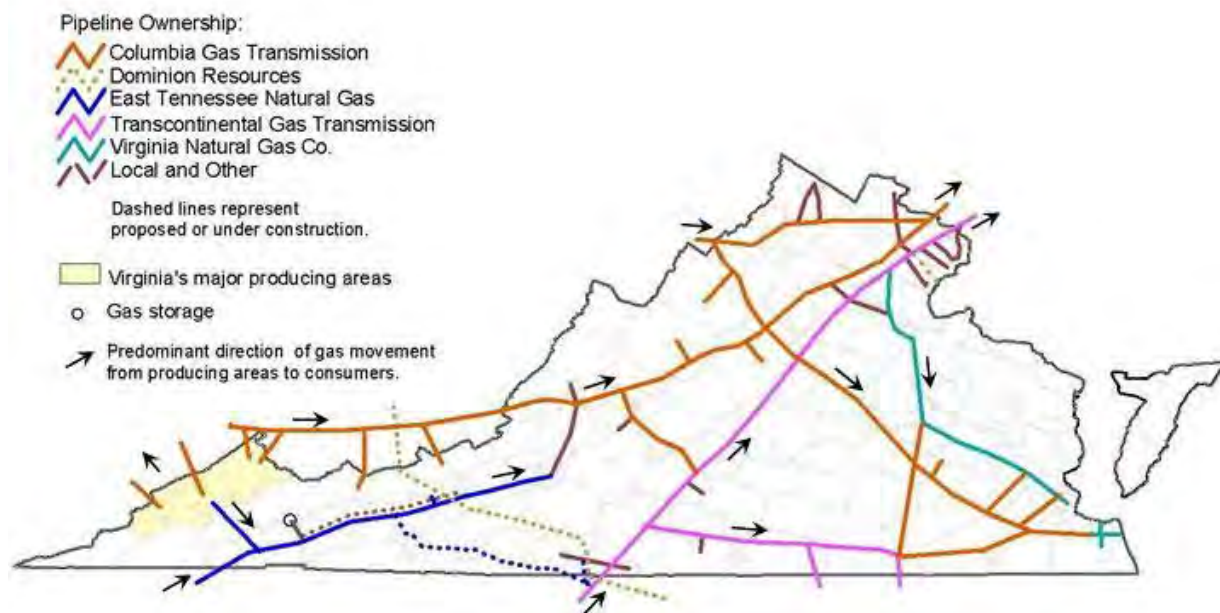


Figure 5-28. Major Natural Gas Pipelines in Virginia⁵⁸

Expansions to the network are currently underway in the West Piedmont Region. The Mountain Valley Pipeline will run 303 miles from West Virginia to the south of Virginia, passing through Franklin and Pittsylvania counties, and connect to the already existing Transco Station 165.⁵⁹ Figure 5-29 details the full route through Virginia. It has a current expected in-service date of summer 2022, although it has already suffered significant delays and budget overruns and has a lengthy legal battle ahead.⁶⁰ Appendix B12 contains the maps detailing proposed paths through Pittsylvania and Franklin counties. Additionally, Williams Transco is currently seeking permits to build the Lambert compressor station in the town of Chatham, VA. This would be an offshoot of the Mountain Valley Pipeline, known as the Southgate extension, which would stretch 75 miles south from Pittsylvania County into North Carolina.⁶¹

⁵⁸ Virginia Department of Mines, Minerals, and Energy. 2010. "2010 Virginia Energy Master Plan: Figure 4-4, Major Natural Gas Pipelines in Virginia." Retrieved from <https://dls.virginia.gov/groups/energy/VEP.pdf#page=91>.

⁵⁹ Mountain Valley Pipeline Project. "Virginia Full Report." Retrieved from <https://www.mountainvalleypipeline.info/virginia-full-report/>.

⁶⁰ Reuters. 2021. "Mountain Valley natgas pipeline start delayed to summer 2022." Retrieved from <https://www.reuters.com/business/energy/wv-va-mountain-valley-natgas-pipe-start-delayed-summer-2022-2021-05-04/>.

⁶¹ Vogel song, Sarah. 2021. "As it takes up another contentious permit, air board wrestles with public engagement." *Virginia Mercury*. Retrieved from <https://www.virginiamercury.com/2021/04/29/as-it-takes-up-another-contentious-permit-air-board-wrestles-with-public-engagement/>.



Figure 5-29. Proposed Virginia Route for Mountain Valley Pipeline⁶²

A petroleum-product pipeline network serves Virginia and the rest of the nation. Pipelines are the primary means for transporting refined petroleum products over long distances. Petroleum products are shipped through these pipelines to product terminals located throughout the state. Trucks are a common means of transporting products from these terminals to individual distribution points, such as gasoline service stations and fuel oil distributors. Figure V-26 shows the general location of petroleum pipelines in Virginia.

⁶² Mountain Valley Pipeline Project. "Virginia Full Report." Retrieved from <https://www.mountainvalleypipeline.info/virginia-full-report/>.

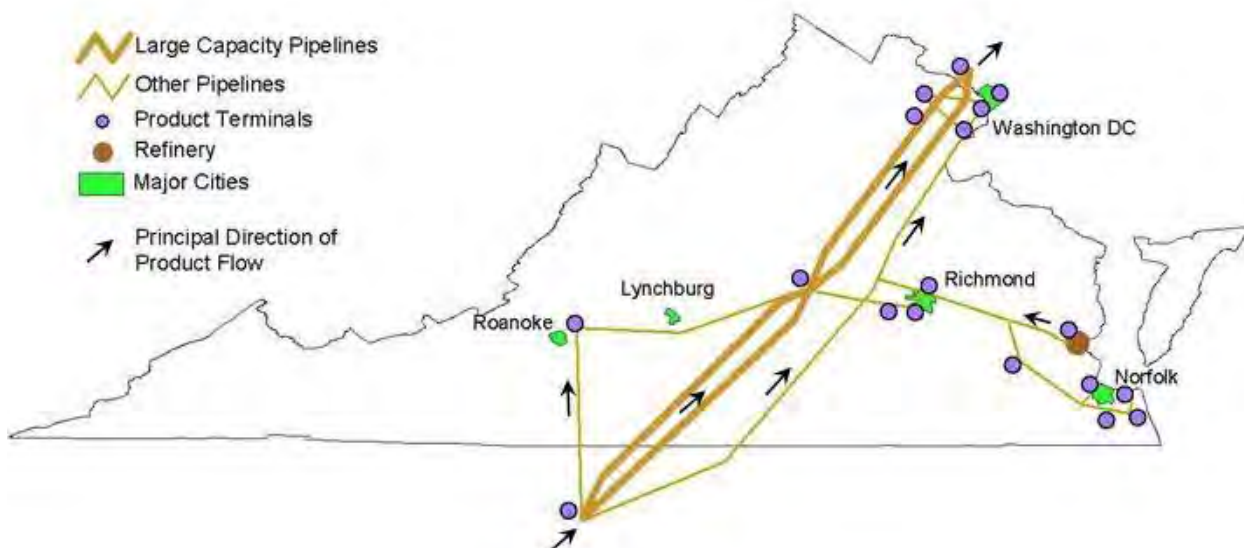


Figure 5-30. Map of Major Petroleum Product Pipelines in Virginia⁶³

The two main causes of pipeline rupture are puncture and corrosion. Pipelines that run through populated areas use pipes with a greater wall thickness to provide an even higher level of protection. To block corrosion, the pipe is coated with special materials. The welds that join pieces of pipe into a single long line are wrapped with a special protective material before the pipeline is placed in the ground. Since ordinary water and hydrocarbons can cause rapid corrosion, those materials are removed from the natural gas at processing plants where appropriate. Pipelines also are made more resistant to corrosion by cathodic protection. A small electrical current is run around buried pipe in the system to reduce the corrosive effects of the soil. This kind of protection is required by the U.S. Department of Transportation.

If a pipeline ruptures, fires may ignite and should not be put out until official personnel shut off pipeline flow from the nearest pump station. Ruptures can cause large spills or toxic plumes that may have adverse effects on the surrounding environment. The magnitude is quantified by the geographic extent, type of material, and concentration of the plume or spill.

Although there have not been significant pipeline incidents in the West Piedmont Region, a number of incidents have occurred throughout the nation in recent years. From 2001 to 2020, more than 2,900 significant gas line accidents have occurred, over 40 percent of which caused death or significant injury.^{64,65} Two such incidents include:

⁶³ Virginia Department of Mines, Minerals, and Energy. 2010. "2010 Virginia Energy Master Plan: Figure 4-5, Major Petroleum Pipelines and Terminals in Virginia." Retrieved from <https://dls.virginia.gov/groups/energy/VEP.pdf#page=94>.

⁶⁴ Burke, G. and Dearen, J. 2010. "Aging gas pipes at risk of explosion nationwide." *The Associated Press*. Retrieved from <https://www.nbcnews.com/id/wnba39159597>.

⁶⁵ Pipeline and Hazardous Materials Safety Administration. "Pipeline Incident 20 Year Trends." Retrieved from <https://www.phmsa.dot.gov/data-and-statistics/pipeline/pipeline-incident-20-year-trends>.

- Multiple explosions and over 80 fires were caused on September 13, 2018, after a natural gas pipeline was over pressurized in the Merrimack Valley region of Massachusetts. Over 30,000 homes had to be evacuated and one fatality resulted.⁶⁶
- One person was killed and five others were hospitalized after an Enbridge natural gas pipeline ruptured, leading to an explosion. Railroad tracks and at least five homes were destroyed.⁶⁷

Additionally, there are technological threats to pipelines that should be noted as a risk. On May 7, 2021, the Colonial Pipeline that runs through Danville and Pittsylvania County, VA was preemptively shutdown after it fell victim to a ransomware cyberattack the day prior.⁶⁸ The 5,500-mile pipeline suffered disruptions due to the shutdown, which last until May 13, 2021. The hackers did not cause any damage, but the company who owns the pipeline was concerned they might have information that would allow them to attack susceptible parts of the pipeline. A compromise like this poses the risk of a potential pipeline-related hazard event, such as a hazardous materials release, if the operational technology is compromised, which could potentially affect the West Piedmont Region. Secondary effects from this type of threat include widespread fuel distribution disruptions and rising fuel prices.⁶⁹

C.3.2. Vulnerability Analysis

Information on the exact location of pipelines is restricted to local, state and federal officials and pipeline operators. Information on how to access this information, as well as a public map viewer, can be found on the US Department of Transportation's National Pipeline Mapping System website at <https://www.npms.phmsa.dot.gov/>.

FEMA has established general methods for human-caused hazards but does not have an established methodology for addressing the vulnerability of pipelines. As with any analysis, general methods to determine vulnerability would be to identify where the hazard would occur and what the impacts on specific assets would be. General methods to determine vulnerability to pipelines would be to determine where the major pipelines run through the communities and what they are carrying. With identifying where the pipelines are present, the areas served, and the extent and impact of the expected rupture should be identified.

⁶⁶ Sellers, F.S., Weintraub, K. Wootson, C. R., and Sullivan, K. 2018. "Thousands of residents still out of their homes after gas explosions trigger deadly chaos in Massachusetts." *The Washington Post*. Retrieved from https://www.washingtonpost.com/national/thousands-of-residents-still-out-of-their-homes-after-gas-explosions-trigger-deadly-chaos-in-massachusetts/2018/09/14/802ff690-b830-11e8-94eb-3bd52dfe917b_story.html.

⁶⁷ The Associated Press. 2019. "Kentucky pipeline blast leaves 1 dead, 5 injured." Retrieved from <https://apnews.com/article/evacuations-fires-us-news-ap-top-news-explosions-1ee215d58e7e49838249589d91022da6>.

⁶⁸ Chatham Star Tribune. 2021. "Pipeline running through Pittsylvania County under cyberattack, gas prices to skyrocket." Retrieved from https://www.chathamstartribune.com/state_and_national/article_74c7d83a-b1a3-11eb-91af-7b180aeada82.html.

⁶⁹ Sanger, D.E., Krauss, C., and Perlroth, N. 2021. "Cyberattack Forces a Shutdown of a Top U.S. Pipeline." *The New York Times*. Retrieved from <https://www.nytimes.com/2021/05/08/us/politics/cyberattack-colonial-pipeline.html>.

C.4. Dam Failure (Medium-Low Priority)

The priority hazard ranking process resulted in dam failure remaining a medium-low priority hazard. Table 5-75 outlines the hazard rankings for each of the hazard priority criteria related to dam failure.

Table 5-75. Dam Failure Hazard Priority

Probability/ History	Vulnerability	Maximum Threat (Geographic Area Affected)	Warning Time	2016 Priority Level	2021 Priority Level
Unlikely No documented occurrence with annual probability <0.01	Limited 10 to 25% of people or property	Small 5 to 25% of community impacted	No Notice < 24 hours	Medium- Low	Medium- Low

C.4.1. Hazard Profile

Even in the era before severe terrorism concerns, dams in the United States faced the potential of failure. Dams can fail in numerous ways. Overtopping, one of the most common causes of dam failure, occurs when the dam's spillway is inadequate for dealing with excess water. During flood events, too much water to be properly handled by the spillway may rush to the dam site, and flow over the top of the dam.

Improper building construction, including using easily eroded construction materials, also frequently leads to the slow structural failure of dams. This failure can be compounded by underlying geological factors such as porous bedrock that loses structural integrity when saturated. Landslides pose two threats to dams, both upstream from the dam and at the dam site itself. At the dam site, a landslide could completely wipe out the dam from its foundation. A landslide upstream has the potential to send a wave of water surging towards the dam, quite possibly causing an overtopping event. Earthquakes also are a major threat to dams, though it is very rare that a dam will be completely destroyed by an earthquake. In the event of total failure, the most common cause is the liquefaction of fill along the dam wall

Following the terrorist attacks of September 11, 2001, concerns for dam safety from terrorist attack came to the forefront. Dams are considered by the Department of Homeland Security (DHS) to be one of the five key national assets and are considered critical infrastructure. Their significance places them at high risk for terrorist attack. The federal government has developed the National Strategy for the Physical Protection of Critical Infrastructures and Key Assets, which determines how vulnerable dams are and how they can be protected. A major factor in protecting the dams of the United States is that the federal government only has access and control over 5% of the dams whose failure could result in loss of life or significant property damage. FEMA and the DHS have been continuing efforts to increase security at dam sites and set up emergency management plans to deal with the aftermath of a potential terrorist attack on a critical dam.

No matter what the cause of dam failure, the aftermath of such an event can range from moderate to severe. It is likely that the failure of major dams will cause widespread loss of life downstream to humans and animals, as well as extreme environmental stress along the flood path. Water supplies upstream could be left completely dry, while water supplies downstream are overrun or contaminated with debris from the ensuing flood.

Dams are constructed to serve a number of purposes including recreation, irrigation, flood control, navigation, and to provide drinking water and electricity. The most common purpose for the

construction of a dam in the United States is the creation of a reliable and efficient power source.⁷⁰ Dams produce electricity by using flowing or falling water from the reservoir behind the dam to spin the blades of turbines. The spinning turbines activate generators that produce the electricity. Hydroelectric power is the nation's second largest renewable energy source, accounting for about 37% of total utility-scale renewable electricity generation.⁷¹ The International Energy Agency estimates, however, that while hydroelectric power accounted for 11.5% of the energy produced in the United States at one point, it has declined to 7.3% of utility-scale power generation as of 2020.⁷²

Although the primary purpose of most dams constructed in the United States is to provide hydroelectric power, a majority of dams in the Mid-Atlantic region are designed to alleviate flooding or to provide recreation. During heavy rains or snowmelt, dams used for flood control allow excessive water upstream of the dam to collect slowly in the reservoir. The water can then be gradually released from the dam into the river downstream, preventing flooding. Sometimes the water can be stored in the reservoir until a drier period occurs. In this way, flood control dams are used to maintain a relatively steady flow rate in a river or stream.

Dams also can be used as a community water supply. Most dams in Virginia provide a recreational venue for thousands of people, even if their construction purpose was not recreational. The reservoirs created by dams are, in many cases, used for fishing and often local agencies stock the water several times a year. Reservoirs of ample size also provide boating opportunities for many people. Common boating activities include water skiing, jet skiing, tubing, and leisure outings. Recreational reservoirs also provide commercial opportunities near the water, including sporting and boating outfitters, local marinas, and lodging. Also, property near reservoirs often sells at higher rates than those in surrounding areas, providing additional revenue for local taxing entities.

Dam Failure

Flooding following a dam failure may occur due to any one or a combination of the following causes:

- Prolonged periods of rainfall and flooding;
- Inadequate spillway capacity;
- Internal erosion caused by embankment or foundation leakage or piping;
- Improper maintenance, including failure to remove trees and/or woody vegetation, repair internal seepage problems, replace lost material from the cross section of the dam and abutments, failure to clean and remove debris or obstructions, or maintain gates, valves, or other operational components;
- Improper design, including the use of improper construction materials and incorrect construction practices or methods;
- Improper operation, including failure to remove or open gates or valves during high flow periods;

⁷⁰ U.S. Department of Energy. 2012. "An Assessment of Energy Potential at Non-Powered Dams in the United States." Retrieved https://www.energy.gov/sites/prod/files/2013/12/f5/npd_report_0.pdf.

⁷¹ U.S. Energy Information Administration. "What is U.S. electricity generation by energy source?" Retrieved from <https://www.eia.gov/tools/faqs/faq.php?id=427&t=3>.

⁷² U.S. Energy Information Administration. "Hydropower explained." Retrieved from <https://www.eia.gov/energyexplained/hydropower/>.

- Failure of upstream dams on the same waterway (dams in series condition);
- High winds, which can cause significant wave action and result in substantial erosion; or
- Intentional terrorism or criminal acts.

Dam Impoundments in the Commonwealth of Virginia

Dams and associated lakes, ponds, and impoundments are part of the Commonwealth's overall water resource landscape. As such, a dam failure or breach can have an extensive impact on the magnitude of downstream flooding which could result in wide scale damages or loss of life. The Virginia Department of Conservation and Recreation's Division of Dam Safety and Floodplain Management (Virginia DSFPM) administers the Virginia Dam Safety Program, under the authority of the Virginia Soil and Water Conservation Board (Virginia SWCB). The Virginia DSFPM, by authority of the Virginia SWCB, is the key regulatory entity for dams in Virginia not otherwise regulated by the Virginia State Corporation Commission, Virginia Department of Mining, Minerals, and Energy (DMME), United States Government, or as defined in Section 4VAC50-20-30 of the Virginia Impounding Structure Regulations. Any references to VA DSFPM shall be made with the understanding that the VA DSFPM administers the Virginia Dam Safety Program under direct authority of the Virginia SWCB.

The Virginia SWCB regulates impounding structures in the Commonwealth to ensure that they are properly and safely constructed, maintained and operated.' Per section 4VAC50-20-50 of the Virginia Impounding Regulations, "an impounding structure shall be regulated if the impounding structure is 25 feet or greater in height and creates a maximum impounding capacity of 15 acre-feet or greater, or the impounding structure is six feet or greater in height and creates a maximum impounding capacity of 50 acre-feet or greater and is not otherwise exempt from regulation by the Code of Virginia." The regulations, known as the Virginia Impounding Structure Regulations, are promulgated to achieve these ends and are recorded in the Virginia Administrative Code Ongoing dam inspections and Virginia's participation in the National Dam Safety Program administered by FEMA and the US Army Corps of Engineers serve as a preventative measure against dam failures. Disaster recovery programs include assistance to dam owners and local officials in assessing the condition of dams following a flood disaster and assuring the repairs and reconstruction of damaged structures are in compliance with the National Flood Insurance Program (NFIP) regulations.

Per the current Virginia Impounding Structure Regulations, an "impounding structure" or "dam" can be defined as the following: "a man-made structure, whether a dam across a watercourse or structure outside a watercourse, used or to be used to retain or store waters or other materials." Dams are classified with a hazard potential depending on the downstream impacts during a dam failure event. Hazard potential is not related to the structural integrity of a dam or environmental impacts but strictly to the potential for adverse downstream effects if the dam were to fail. Regulatory requirements, such as the frequency of dam inspection, the standards for spillway design, and actions within established emergency plans, are dependent upon the dam's assigned hazard potential classification. Table 1 provides additional information on these hazard potential classifications and the possible effects on downstream areas if failure were to occur.

Table 5-76. Dam Hazard Potential Classification System in Virginia

Hazard Potential	Description	Inspection
High	Failure will cause probable loss of life or serious economic damage (to residences, businesses, buildings, facilities, other	Annual owner inspection, Professional Engineer inspection every 2 years.

Hazard Potential	Description	Inspection
	occupied structures, public utilities, major roadways, railroads etc.)	
Significant	Failure may cause loss of human life or appreciable economic damage (to residences, businesses, buildings, facilities, other occupied structures, public utilities, secondary roadways, etc.)	Annual owner inspection, Professional Engineer inspection every 3 years.
Low	Failure would result in no expected loss of human life, and cause no more than minimal economic damage	Annual owner inspection, Professional Engineer inspection every 6 years.

The owner(s) of each regulated high, significant, or low hazard potential dam is required to apply to Virginia DSFPM for a Regular Operation and Maintenance Certificate every 6 years. The application must include an assessment of the dam by a licensed Virginia Professional Engineer, an Emergency Plan (EAP – Emergency Action plan or EPP - Emergency Preparedness Plan), the appropriate forms, and the appropriate fee(s), submitted separately. An executed copy of the Emergency Plan must be filed with the appropriate local emergency management official and the Virginia Department of Emergency Management. Please note the Emergency Plan may also be routinely updated by the dam owner during the term of the six-year certificate if any relevant information has changed.

Virginia DSFPM issues Regular Operation and Maintenance Certificates to the dam owner for a period of six years. If a dam has a deficiency but does not pose imminent danger, Virginia DSFPM may issue a Conditional Operation and Maintenance Certificate, during which time the dam owner is to correct the deficiency. After a dam has been granted a Regular Operation and Maintenance Certificate by Virginia DSFPM, annual inspections are required either by a Professional Engineer or the dam owner, and the Annual Inspection Report is submitted to the appropriate Virginia DSFPM Regional Dam Safety Engineer.

In September 2017, Virginia DSFPM began utilizing the online enterprise application “Dam Safety Inventory System” (DSIS) for all of its dam related information and daily tasks. The Dam Safety Inventory System is an inventory system designed to house all of VA DSFPM dam related data and regulatory documents for every known dam in the Commonwealth. The system allows users to apply for and submit regulatory documents and certifications. Backed by a customer service style workflow, DSIS users can quickly submit applications and receive live updates via email of each application’s current status. The workflow methods utilized allow Virginia DSFPM to collect all required regulatory information and supporting documents while ensuring all applications proceed through all required approval steps. With all information collected during the application process, Virginia DSFPM has all information and documents housed in a central location which can be accessed by anyone willing to request a DSIS account.

This centralized storage method allows Virginia DSFPM to easily review and share data needed for emergency situations, including but not limited to: Emergency Plan Documents, Query System for Emergency Plan Details, Dam Drainage Areas, Dam Points, Dam Inundation Studies, and Dam Inundation Zones.

Aside from spatial data and emergency plans, users can access data and documents related to inundation studies, inspections, permits, certificates, and PMP studies. With all data available for a dam, the application provides all information that would be needed to make decisions for emergency preparations and reactions.

C.4.2. Risk Assessment

Virginia uses its hazard classification system to determine the level of risk a regulated impounding structure may pose to life and property. According to Virginia law and regulations adopted by the Virginia Soil and Water Conservation Board, hazard classification is based on the potential for loss of life and damage to downstream structures, including but not limited to residences, businesses, occupied structures or roadways. Under this regulatory structure, dams are given a classification in the following manner: High Hazard – “probable loss of life or serious economic damage;” Significant Hazard – “may cause loss of life or appreciable economic damage;” Low Hazard – “no expected loss of life and cause no more than minimal economic damage.” As a result, when determining the “risk” of any particular dam, Virginia relies on the determined hazard classification.

Virginia Impounding Structure Regulations require predictive modeling related to dam failure risk under specified conditions. In addition, as part of determining the hazard classification, engineering analyses that result in inundation zone maps include detailed information about potential downstream impacts. These analyses offer predictions of the downstream consequences if a dam were to fail during a storm event or on a “sunny day.” These analyses also include maps which aid emergency personnel in warnings and evacuations of downstream homes, schools, or businesses.

The Code of Virginia and the Impounding Structure Regulations can also, on a case by case basis, determine which structures, by virtue of their condition have some greater risk than others. For example, a “Conditional Operation and Maintenance Certificate” defines those elements of the impounding structure that are not in compliance with the regulations and may identify situations where risk factors are increased. Deficiencies can be expressed in inspection reports that follow incidents or other activities on or around the structure. Further, the Department can unilaterally take action under authority granted in §10.1-608 and §10.1-609 for unsafe dams presenting imminent or non-imminent failure. Although in all cases, the hazard classification of the dam is the foundation for any analysis by the Department.

To aid in the implementation of mitigation actions and activities for state regulated dams, especially high hazard dams that pose an unacceptable risk to the public, the Commonwealth of Virginia has available the Virginia Dam Safety, Flood Prevention and Protection Assistance Fund to local governments and private entities for specified dam safety and floodplain management issues. The fund was established to provide matching grants to local governments, including local Soil and Water Conservation Districts, and to private entities owning regulated dams to improve dam safety. This includes matching grants to local governments for orphan-type dams that are within their jurisdiction. State-owned and Federally-owned dams, or dams not regulated pursuant to the Virginia Dam Safety Act are ineligible. The fund also provides matching grants to any local government for the purposes of assisting the local government with improvements to flood prevention or protection. Grants are awarded through a competitive application process, as spelled out in a yearly issued Grant Manual and awards are approved by the Virginia Soil and Water Conservation Board. Scoring criteria for dam safety projects, as outlined in Appendix C of the Grant Manual provides for higher point value assignments for high hazard potential classification dams with unacceptable risks to the public. This includes but is not limited to those high hazard potential classified dams with confirmed spillway deficiencies, large dams with no hazard classification determinations, dams with high numbers of residential units within the dam’s probable dam break/inundation zone, and proposed grant projects which focus on critical dam safety program elements such as hazard potential classification analysis, dam break/inundation zone analysis or mapping and digitization, probable maximum precipitation (PMP) impact analysis and certification, and emergency plan (EAP-emergency action plan or EPP-emergency preparedness plan) development.

The Virginia DSFPM also consistently seeks opportunities for assistance from established federal and industry association dam safety grant opportunities that implement mitigation actions and measures for high hazard potential classification dams. Such examples include the Notice of Funding Opportunity (NOFO), Department of Homeland Security (DHS), Rehabilitation of High Hazard Potential Dams (HHPD) and initiatives by the Association of State Dam Safety Officials (ASDSO).

Probability

Predicting the probability of flooding due to dam failure requires a detailed, site-specific engineering analysis for each dam in question. Failure may result from hydrologic and hydraulic design limitations, from geotechnical or operational factors, or from force majeure weather events. The data and time necessary to perform a probabilistic failure analysis for each dam in Virginia is beyond the scope of this plan and regulatory capabilities of Virginia DSFPM. Table 5-77 lists the known high hazard potential dams in the West Piedmont Region that are regulated by Virginia DSFPM.

Table 5-77. Known High Hazard Potential Classification Dams Regulated by Virginia DSFPM (DCR)

Hazard Classification	Approved Emergency Action Plan	Condition Assessment	NID ID	Dam Name	Locality
High	Yes	Fair	VA067001	Upper Blackwater River Dam #6	Franklin County
High	Yes	Fair	VA067002	Upper Blackwater River Dam #4	Franklin County
High	Yes	Fair	VA089002	Leatherwood Creek Dam #5	Henry County
High	Yes	Fair	VA089003	Beaver Creek Dam	Henry County
High	Yes	Fair	VA089004	Leatherwood Creek Dam #3	Henry County
High	Yes	Fair	VA089005	Leatherwood Creek Dam #2A	Henry County
High	Yes	Fair	VA089006	Leatherwood Creek Dam #4	Henry County
High	Yes	Fair	VA089007	Leatherwood Creek Dam #6	Henry County
High	Yes	Satisfactory	VA089008	Marrowbone Creek Dam #1	Henry County
High	Yes	Fair	VA089009	Horse Pasture Creek Dam #2	Henry County
High	Yes	Fair	VA089012	Horse Pasture Creek Dam #1C	Henry County
High	Yes	Fair	VA089013	Smith River Dam	Henry County
High	Yes	Satisfactory	VA089018	Patriot Centre SW Pond #2	Henry County

Hazard Classification	Approved Emergency Action Plan	Condition Assessment	NID ID	Dam Name	Locality
High	Yes	Fair	VA089039	Hunt Country Farms Dam	Henry County
High	Yes	Satisfactory	VA143002	Cherrystone Creek Dam # 1	Pittsylvania County
High	Yes	Satisfactory	VA143003	Cherrystone Creek Dam # 2A	Pittsylvania County
High	Yes	Fair	VA143004	Burton Dam	Pittsylvania County
High	Yes	Satisfactory	VA143050	Pittsylvania Power Station Raw Water Storage Basin Dam	Pittsylvania County

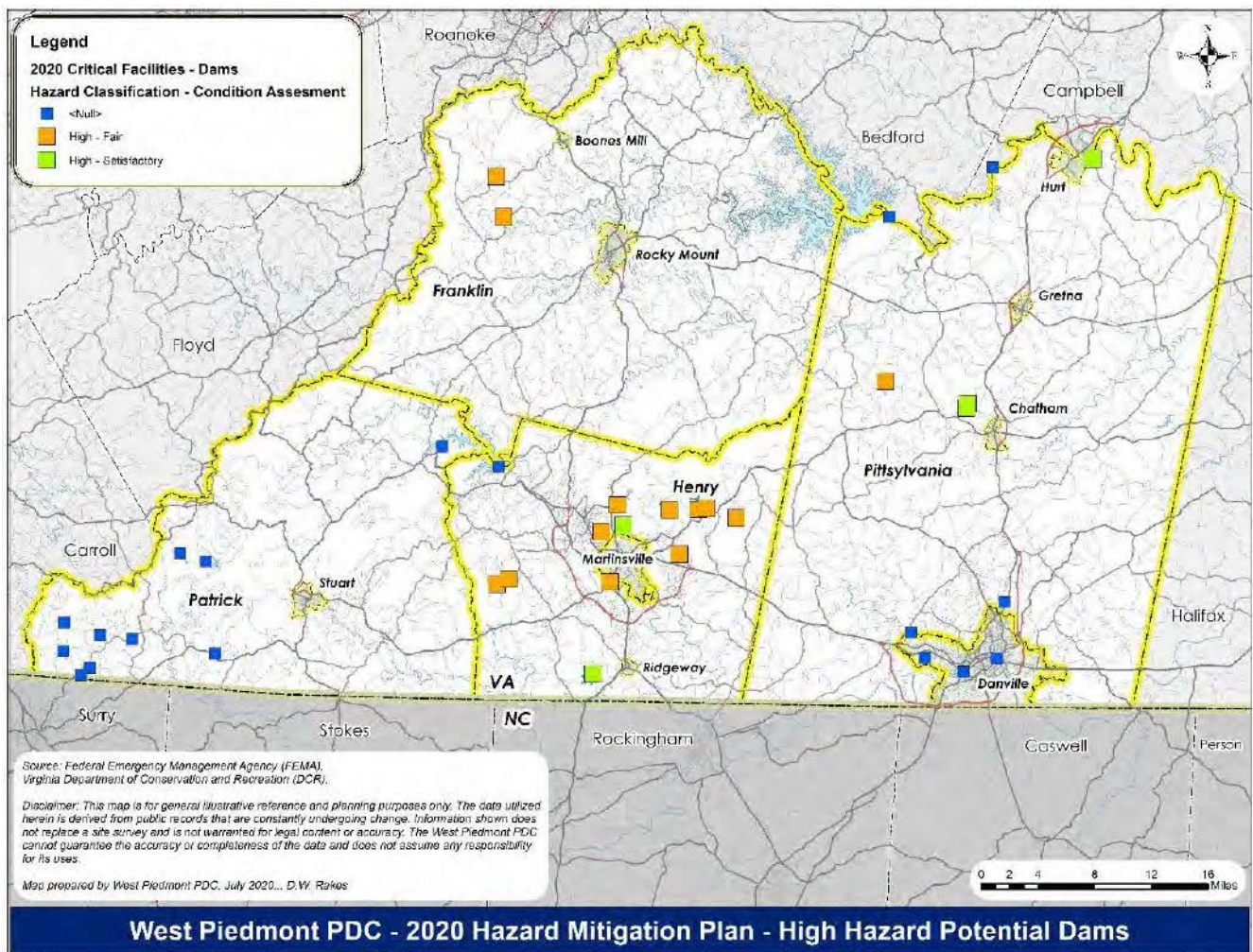


Figure 31. Known High Hazard Potential Classification Dams Regulated by Virginia in the West Piedmont Region

Please be aware that there are other known high hazard dams within the West Piedmont Planning District which are NOT regulated by or under the jurisdiction of Virginia DSFPM as dictated by the Code of Virginia (§10.1-604). These high hazard dams are regulated by agencies such as the US Army Corps

of Engineers (ACOE), Federal Energy Regulatory Commission (FERC), Department of Defense (DOD), and Virginia Department of Mines, Minerals, and Energy (DMME). As Virginia DSFPM is not the regulatory authority for the dams mentioned in this paragraph, it is recommended that the appropriate jurisdictional Agency be contacted for any dam related questions or concerns.

Table 5-78. Known High Hazard Potential Classification Dams NOT Regulated by Virginia DSFPM

VDEM Region	VA ID Number	Dam Name	Regulatory Agency	Owners	Hazard Class	Locality
6	143001	Leesville Dam	FERC	Appalachian Power Company	High	Pittsylvania County
6	141001	Talbott Dam	FERC	FERC- SE Region (Atlanta) - Wayne King	High	Patrick County
6	141002	Townes Dam	FERC		High	Patrick County

C.4.3. Vulnerability Analysis

Due to limitations in available data for dam failure inundation areas, an exposure analysis was only completed for the jurisdictions with available dam inundation data. The potential exposure to dam inundation was estimated using jurisdiction-provided parcels that cover Pittsylvania County and its towns of Chatham, Gretna, and Hurt. These parcel datasets contained value information that was utilized for this parcel analysis. Table 5-79 shows the number of acres exposed while Table 5-80 shows the parcel value exposed. In the tables, “total exposure” is the total acreage or value of the parcels that intersect the inundation areas. “Inundation exposure” was estimated using an area weighted calculation of each parcel’s acreage that resides in the dam inundation risk areas.

Table 5-79. Acreage Exposed to Dam Inundation Risk

Jurisdiction	Total Acreage in Jurisdiction	Total Area Exposure (Acres)	Inundation Area Exposure (Acres)	Percent in Inundation Area
Pittsylvania County	624,084	82,592	25,088	30.38%
Town of Chatham	1,127	374	192	51.36%
Town of Gretna	587	0	0	0.00%
Town of Hurt	1,467	540	335	62.13%
Grand Total	627,265	83,505	25,615	30.68%

Table 5-80. Parcel Value Exposed to Dam Inundation Risk

Jurisdiction	Total Parcel Value in Jurisdiction	Total Value Exposure	Inundation Value Exposure	Percent of Total Parcel Value in Inundation Area
Pittsylvania County	\$5,844,377,145	\$223,504,600	\$67,891,477	30.38%
Town of Chatham	\$378,264,400	\$13,883,300	\$7,130,792	51.36%
Town of Gretna	\$149,148,200	\$0	\$0	0.00%

Jurisdiction	Total Parcel Value in Jurisdiction	Total Value Exposure	Inundation Value Exposure	Percent of Total Parcel Value in Inundation Area
Town of Hurt	\$215,287,400	\$20,372,400	\$12,656,932	62.13%
Grand Total	\$6,587,077,145	\$257,760,300	\$79,068,159	30.68%

A map of the dam inundation risk areas is illustrated in Figure 5-32.

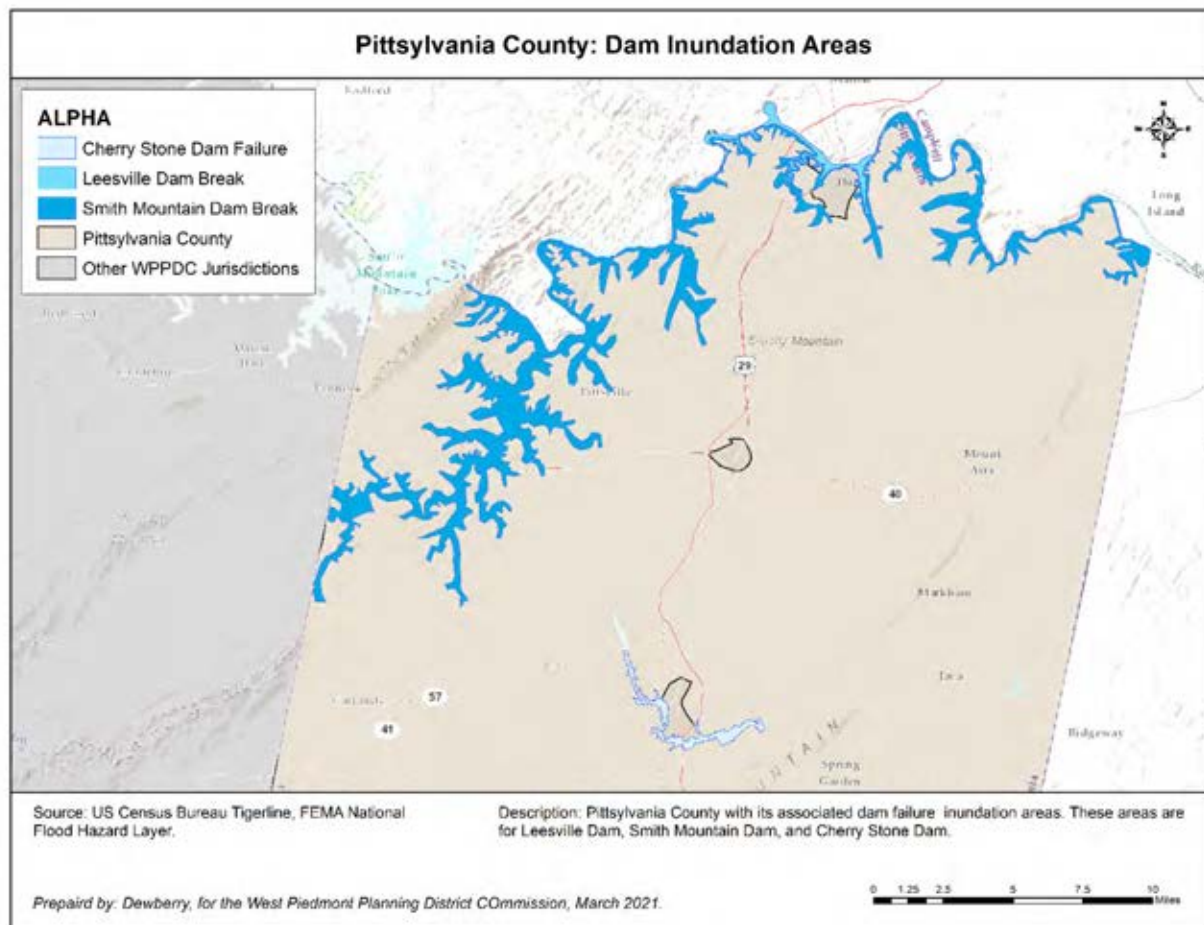


Figure 5-32. Dam Inundation Areas in Pittsylvania County, VA

A dam inundation exposure analysis will be completed for the remaining jurisdictions in the next iteration of this plan, and a mitigation action has been included to collect the necessary data to do so.

Incremental, Non-Breach, and Residual Risk

At this time, insufficient information is available to conduct a substantive analysis of incremental, non-breach, and residual risk relative to WPPDC high hazard potential dams. However, it is acknowledged that incremental risk is “the risk (likelihood and consequences) to the pool area and downstream floodplain occupants that can be attributed to the presence of the dam should the dam breach prior or subsequent to overtopping, or undergo component malfunction or misoperation, where the consequences considered are over and above those that would occur without dam breach;” non-breach risk is “the risk in the reservoir pool area and affected downstream floodplain due to ‘normal’ dam operation of the dam (e.g., large spillway flows within the design capacity that exceed channel

capacity) or ‘overtopping of the dam without breaching’ scenarios;” and residual risk is “the risk that remains after decisions related to a specific dam safety issue are made and prudent actions have been taken to address the risk. It is the remote risk associated with a condition that was judged to not be a credible dam safety issue” (FEMA, 2020 Rehabilitation of High Hazard Potential Dams Grant Program Guidance).

C.4.4. Future Conditions

As precipitation amounts fluctuate and extreme weather events become more common, the flood control and impoundment infrastructure in West Piedmont Planning District becomes more of a concern. Like most of the country, the infrastructure in West Piedmont Planning District is overwhelmingly privately owned and maintained, and it is aging – in many cases, to the end of its design life. The occurrence of more frequent high intensity rainfall events may create conditions that exceed the original design criteria of these aging facilities.

C.4.5. Data Sources and Referenced Publications

Virginia Department of Conservation and Recreation. Virginia Impounding Structures regulations (Dam Safety) from <https://www.dcr.virginia.gov/dam-safety-and-floodplains/document/ds-va-code4vac50-20-10.pdf>

Virginia Department of Conservation and Recreation. Dam Safety and Floodplains Website http://www.dcr.virginia.gov/dam_safety_and_floodplains/dam-safety-index

Commonwealth of Virginia Hazard Mitigation Plan. Virginia Department of Emergency Management. 2018. <http://www.vaemergency.com/library/plans/coveop/mitplan.cfm>

C.5. Agriterrorism (Medium-Low Priority)

The priority hazard ranking process resulted in agriterrorism remaining a medium-low priority hazard. Table 5-81 outlines the hazard rankings for each of the hazard priority criteria related to agriterrorism.

Table 5-81. Agriterrorism Hazard Priority

Probability/ History	Vulnerability	Maximum Threat (Geographic Area Affected)	Warning Time	2016 Priority Level	2021 Priority Level
Unlikely No documented occurrence with annual probability <0.01	Limited 10 to 25% of people or property	Large >50% of community impacted	No Notice < 24 hours	Limited	Medium-Low

C.5.1. Hazard Profile

Agriterrorism is the use of plant or animal pathogens to cause disruption and disease to the agricultural industry. This anthropogenic hazard can be applied through direct and generally covert contamination of food supplies, or introduction of pests and/or disease agents to crop and livestock. Durations of agriterrorism can last anywhere from days to months. Agricultural terrorism is a concern because there is a low physical risk to the perpetrator, and there is limited backlash because many attacks have great similarity to natural outbreaks. There are at least 22 agents that can be used for agriterrorism of which many are not vaccinated against. Once an agent has been introduced into the environment, it can remain there for an extended period of time.

The extent of effects varies by type of incident. Food contamination events may be limited to discrete distribution sites, whereas pests and diseases may be spread widely. Generally, there are no effects on the built environment. Inadequate security can facilitate adulteration of food and introduction of pests and disease agents to crops and livestock. Biochemical or biological agents are organisms or toxins that can be targeted to infect people, livestock, and crops. It is difficult to detect a biochemical event and the effects are usually not immediately realized. Biological agents, depending on the organism type and mode of dispersal, can have minimal to fatal implications. Depending on the biological agent, impacts may spread to and among different populations.

The use of livestock antibiotic and steroid programs in the US has created a high vulnerability to diseases. Agriterrorism on animals poses a significant threat because an agent could be introduced easily via these programs and could spread rapidly among the livestock population. The main cattle diseases would be foot and mouth disease and mad cow disease. Transmission can occur as a result of airborne aerosols, direct and indirect contact, and injection of infected food. Avian diseases include Newcastle disease and avian influenza. Both avian diseases are present world-wide. Transmission can occur through direct contact and airborne aerosols.

In addition, commercial plant hybrids have increased the crop susceptibility to many pathogens. Destruction to crops would be more difficult to obtain because of the time it would take to spread to other crops and the dependence agriculture has on the weather. The primary concern related to crops is that they do not have resistance to foreign strains and the resistance of certain strains to fungicides. Fungus and bacteria can have detrimental effects on crops. Crops that are primarily impacted by these include cereals (e.g., wheat, barley, rye), corn, rice, and potatoes. Airborne spores and waterborne cells are the two primary modes for transmission.

The Office International des Epizooties (OIE) or World Organization for Animal Health is the international body that is responsible for setting animal health standards. The OIE has designated two lists for disease to animals. From the two lists it has been determined that cattle, denoted on List A, would be in the category for serious and rapid spread of transmissible diseases and have a serious socio-economic or public health consequences. Most of the diseases on List A are concerned with cattle, swine, and birds.

Livestock and crops can be impacted by a variety of diseases. The focus for this analysis was on livestock and crop diseases. The focal point diseases were determined based on the uses of agricultural land and on the potential types of threats to the region. Based on the 2017 USDA Census of Agriculture, the West Piedmont Region had 2,871 farms with a total of 539,355 acres in farmland, as shown in Table 5-82. This information was collected at the County level. Data for the cities and towns are included in their respective counties. The 2017 Census of Agriculture figures were released on June 26, 2019 and represent the most current data available.

Table 5-82. Farms by Jurisdiction

Jurisdiction	Number of Farms	Land in Farms (Acres)	Crop Farms	Avian Farms	Cattle Farms	Swine Farms	Sheep and Lamb Farms
Franklin County	1,019	156,254	784	124	644	39	30
Henry County	212	45,527	179	26	117	5	5
Patrick County	483	91,252	386	69	294	8	19
Pittsylvania County	1,157	246,322	899	127	660	19	24
Totals	2,871	539,355	2,248	346	1,715	71	78

Source: 2017 Census of Agriculture, United States Department of Agriculture/National Agricultural Statistics Service

C.6. Human-Caused Hazard Consequence Analysis

The following consequence analysis in Table 5-83 analyzes the impact of the human-caused hazards identified in the HIRA on:

1. The public;
2. Responders;
3. Continuity of operations including continued delivery of services;
4. Property, facilities, and infrastructure;
5. The environment;
6. The economic condition of the jurisdiction and
7. Public confidence in the jurisdiction's governance.

Table 5-83. Human-Caused Hazards Consequence Analysis

Hazard	Impact on Public	Impact on Responder	Continuity of Operations (COOP)	Delivery of Services	Property, Facilities, and Infrastructure	Impact on Environment	Impact on Economy	Public Confidence in the Region's Local Governments
Organic / Inorganic Spills	A spill event at a fixed site can affect people who live nearby. The severity of impact will depend on the type of waste, a person's exposure with the chemical, and if an explosion or fire occurs due to the event. Notifying the public immediately of a spill event is essential to maintaining public safety. Public Health Impacts: Spill events can lead to short- or long-term health impacts, depending on how an individual encounters the material and in what quantity. Exposure can via contact with contaminated water, air or soil,	First responders will be deployed to contain a spill event and may come in close contact with hazardous materials. First responders could face health risks if proper protocols are not followed, or if personal protective equipment is not used properly when responding to a spill event.	Continuity of operations in the immediate area of a spill event would likely be interrupted or impaired.	Roads, bridges and other transportation services may be closed to protect public safety by restricting people from getting too close to the spill site. These closures could have local and regional economic effects if they disrupt activities like the exchange or production of goods and services.	Spill events have the potential to damage property, facilities and infrastructure. Structures or areas may be temporarily or permanently unsafe to inhabit if contaminated after a spill. Depending on the materials release, infrastructure endure damage or may need to be closed temporarily.	Environmental impacts will depend on the specific chemical released, site location, and the amount and extent of contamination. Hazardous materials may affect surrounding habitats, wildlife, and vegetation, and risk contaminating groundwater and soil.	Cleaning up a spill event can be costly, especially when groundwater and soil contamination occurs. This contamination can have regional effects, potentially affecting localities and regions in the long-term. Some areas may be uninhabitable, particularly if water and food supplies are adversely affected. Contaminated areas also may be increasingly less attractive for future economic investment.	Immediate, effective and direct action to evacuate and protect the public and contain/clean up the spill as quickly as possible is critical to fostering public confidence in the Planning District's governance. Ineffective response that does not notify the public or does not immediately contain the spill's materials in time will harm public confidence.

Hazard	Impact on Public	Impact on Responder	Continuity of Operations (COOP)	Delivery of Services	Property, Facilities, and Infrastructure	Impact on Environment	Impact on Economy	Public Confidence in the Region's Local Governments
	or direct contact with the materials.							
HVT Lines	Downed HVT lines can affect people in the immediate area of downed poles or lines, if the lines remain energized ("live"). Live lines can electrocute people and potentially start fires. Public Health Impacts: Power loss due to downed HVT lines will affect daily life for the public. Without a power supply, people will be unable to use heating or cooling systems, refrigeration, or running water. For individuals that rely electrical medical equipment, prolonged loss of power supply can risk additional health impacts.	First responders deployed to a downed HVT line may come in close contact with live wires and nearby objects that may be energized, such as vehicles. First responders could face health risks if proper protocols are not followed, or if personal protective equipment is not used properly when responding to a downed HVT line.	Continuity of operations in the immediate area of downed HVT lines may potentially be impaired or interrupted, if energized wires make it unsafe for people to occupy structures or perform necessary functions.	Downed HVT lines may require the closure of roads, bridges and other transportation services, depending on the affected areas. Loss of power could also disrupt internet service and the operations of critical facilities. These impacts could have local and regional economic effects if they disrupt activities like the exchange or production of goods and services.	Downed HVT lines can potentially lead to property, facility and infrastructure damage. Energized wires can start fires that, if not controlled in time, may spread, affecting private and public properties.	HVT lines that remained energized when fallen can destroy or damage habitats, as well as harm or kill wildlife and vegetation. Energized wires can also start fires that destroy or damage surrounding ecosystems.	Loss of power can lead to economic impacts if businesses cannot operate. Transportation closures can also prevent workers and customers from reaching commercial centers, resulting in short-term economic impacts. If a downed HVT line leads to a fire that results in property damage, economic impacts may be more severe, potentially destroying raw goods and materials and making some structures temporarily or permanently unsafe to inhabit.	Immediate action to prevent the public from encountering energized wires and to contain any resulting fires as quickly as possible is critical to fostering public confidence in the Planning District's governance. Ineffective or no response will harm public confidence.

Hazard	Impact on Public	Impact on Responder	Continuity of Operations (COOP)	Delivery of Services	Property, Facilities, and Infrastructure	Impact on Environment	Impact on Economy	Public Confidence in the Region's Local Governments
Pipeline Failure	A pipeline failure can affect people near the site of rupture. The severity of impact will depend on a person's individual exposure and how much materials were released before being contained. Public Health Impacts: Pipeline failures can result in fires and toxic plumes, leading to poor air quality. Groundwater and soil can also become contaminated if it comes in contact with the released materials.	First responders will be deployed to contain a pipeline failure and may come in close contact with hazardous materials. First responders could face health risks if proper protocols are not followed, or if personal protective equipment is not used properly.	Continuity of operations in the immediate area of a pipeline failure would likely be interrupted or impaired.	Roads, bridges and other transportation services may be closed to protect public safety by restricting people from getting too close to the rupture site. These closures could have local and regional economic effects if they disrupt activities like the exchange or production of goods and services.	Pipeline failures have the potential to damage property, facilities and infrastructure. Structures or areas may be temporarily or permanently unsafe to inhabit if contaminated after a rupture. Infrastructure suffer damage or may need to be closed temporarily.	Environmental impacts will depend on site location, and the amount and extent of contamination. Hazardous materials may affect surrounding habitats, wildlife, and vegetation, and risk contaminating groundwater and soil.	Cleaning up a pipeline rupture can be costly, especially when groundwater and soil contamination occurs. This contamination can have regional effects, potentially affecting localities and regions in the long-term. Some areas may be uninhabitable, particularly if water and food supplies are adversely affected. Contaminated areas also may be increasingly less attractive for future economic investment.	Immediate, effective and direct action to evacuate and protect the public and contain/clean up the pipeline materials as quickly as possible is critical to fostering public confidence in the Planning District's governance. Ineffective response that does not notify the public or does not immediately contain the rupture's materials in time will harm public confidence.
Dam Failure	Dam failure can result in a fast-moving and strong flood, risking widespread displacement, injuries and fatalities downstream of the facility. Dam	First responders may be deployed during a dam failure to help evacuate residents. First responders may get caught in fast-moving and strong floodwaters,	Continuity of operations in the immediate area of a dam failure would likely be interrupted or impaired.	Roads, bridges and other transportation services downstream of a dam may be flooded or closed in the event of a dam failure. These closures could have local and	Dam failures can destroy and severely damage property, facilities and infrastructure. Fast-moving and strong floodwaters can damage built structures, rendering them	Dam failure can damage or destroy downstream habitats, as well as harm wildlife and plants. The ensuing flood may lead to extreme environmental stress that affects	Flooding induced by a dam failure can result in destruction of private and public property, damage to public infrastructure, and serious human health impacts, including loss of	Immediate, effective and direct action to evacuate and protect the public as quickly as possible is critical to fostering public confidence in the Planning District's governance.

Hazard	Impact on Public	Impact on Responder	Continuity of Operations (COOP)	Delivery of Services	Property, Facilities, and Infrastructure	Impact on Environment	Impact on Economy	Public Confidence in the Region's Local Governments
	failures can happen suddenly and without warning, making immediate notification of the public essential to maintaining public safety. Public Health Impacts: After a dam failure, upstream water supplies could run dry. Downstream of a dam, water supplies may be overflowing and contaminated with debris from floodwaters. If consumed, contaminated water supplies could lead to other human health impacts.	risking their individual health and safety.		regional effects by disrupting the delivery of goods and services.	temporarily or permanently unsafe to inhabit. Floods induced by dam failures can also damage infrastructure systems and networks.	downstream ecosystems in both the short- and long-term. Disruption of water supplies may affect upstream ecosystems, if water supplies run dry.	life. Cleaning up after a dam failure will be costly, as debris and damage may be widespread downstream. The scale of property damage may be a financial burden on households and localities that depend on property tax revenues. Destruction of businesses and manufacturing facilities can also destroy raw goods and products, leading to potential local and regional economic impacts.	Ineffective response that does not notify and/or evacuate the public in time will harm public confidence.
Agri-terrorism	Biochemical and biological agents can be targeted to affect people, resulting in impacts that range from minimal effects to fatalities. Depending on the	Impacts to first responders may be limited, depending on the agents used. First responders could face health risks if proper protocols are not followed, or if personal	Continuity of operations are unlikely to be impaired or interrupted.	Agriterrorism can disrupt the exchange and production of goods and services, resulting in local and regional economic impacts. If the source cannot be	Agriterrorism can affect property, particularly agricultural lands and operations. Once an agent is introduced into an environment, it can remain there for an extended	Environmental impacts will depend on the biochemical and biological agents used, what the identified target is, and the extent of contamination. Some agents can	Cleaning up contaminated soil can be a costly and lengthy process. This contamination can have regional effects, potentially affecting localities and regions in the	Immediate, effective and direct action to prevent the public from consuming or coming into contact with affect products is critical to fostering public confidence in the

Hazard	Impact on Public	Impact on Responder	Continuity of Operations (COOP)	Delivery of Services	Property, Facilities, and Infrastructure	Impact on Environment	Impact on Economy	Public Confidence in the Region's Local Governments
	agent used, agriterrorism will affect individuals who consume or handle infected products. Public Health Impacts: Impacts to public health will depend on the biochemical and biological agents used. The effects of some agents may be delayed, making preventing health impacts challenging because products may already be distributed or consumed by the time it is realized.	protective equipment is not used properly.		identified, other services may be interrupted while it is being addressed.	time, ruining soil health and future crop harvests for agricultural property owners. Impacts to infrastructure and other facilities are limited.	ruin soil health, which can affect wild plants, as well as the wildlife that feeds on them. Depending on the agent used and the distribution method, some water supplies could also risk contamination.	long-term. Some agricultural lands may no longer be suitable or safe for harvesting or keeping livestock. Consumers may avoid buying affected products in the longer-term, due to fears over another event, leading to long-term economic affects.	Planning District's governance. No response, trying to hide the potential contamination, or waiting to inform consumers will seriously harm the public's confidence in the Planning District's ability to govern.

D. Hazard Identification and Risk Assessment Summary

A variety of hazards, both natural and human-caused, have the potential to impact the West Piedmont Region. Data analysis presented in the preceding sections and input from the Mitigation Advisory Committee indicate that flooding and winter storms have the most significant and frequent impacts on the planning area and its citizens. In addition to the potential for injury or loss of life and damage to property and crops, these hazards have the potential to cause the disruption of utilities and transportation systems, which contribute to lost business and decreased productivity.

The following sub-sections comparatively summarize the information presented in the hazard specific sections. Additionally, this information provides an at-a-glance look at the hazards and vulnerabilities within the District. This information should be used during the formation of new mitigation actions. Sub-sections include:

- Annualized NCEI Storm Events
- Potential Annualized Damages
- Critical Facilities
- Hazard Prioritization
- Future Land Use and Impacts to Hazard Vulnerability

It is important to point out that data limitations prevent a full accounting of past or potential future losses. This is particularly true in the case of winter storms, where economic costs involved with lost business as well as snow and ice removal costs are not readily available. The very limited data available suggests that these costs are significant and that the amounts showing in the table are a considerable underrepresentation.

In addition to natural hazards, the West Piedmont Planning District profiled the following human-caused hazards: dam failure, failure of high voltage transmission lines, organic and inorganic spills, pipeline failures, and agriterrorism. Each of these hazards is described, and past occurrences, if applicable, are identified. In most cases, a methodology has not been identified for conducting loss estimation for human-caused hazards; therefore, although information is provided related to the presence of risk in the Planning District, full loss estimation was not conducted.

D.1. Loss Estimates

As described in the hazard-specific sections, the District has experienced at least 3,181 hazard events since 1950, as recorded by NCEI. Table 5-84 summarizes the frequency of occurrence and estimated annualized damages.

Table 5-84. NCEI Events and Estimated Potential Annualized Loss by Hazard

Hazard Type	Period of Record	Number of Events	Frequency (probability per year)	Annualized Property Damage	Annualized Crop Damage	Total Annualized Damages
Drought	1996 - 2020	97	4.04	\$46	\$2,987,923	\$2,987,969
Flooding	1996 - 2020	486	20.3	\$2,552,364	\$224,748	\$2,777,112
Wildfire	1996 - 2020	5	0.21	\$212,652	\$0	\$212,652

Hazard Type	Period of Record	Number of Events	Frequency (probability per year)	Annualized Property Damage	Annualized Crop Damage	Total Annualized Damages
Tornado	1950 - 2020	41	0.6	\$2,478,671	\$2,379	\$2,481,050
Hurricane	1996 - 2020	14	0.17	\$28,090	\$96,698	\$124,789
Severe Weather*	1955 - 2020	2,192	33.7	\$437,677	\$41,712	\$479,389
Winter Storm	1996 - 2020	340	12.3	\$111,608	\$103,349	\$214,958
Total		3,181	3,181	\$11,319,594	\$3,532,627	\$14,852,221

*Severe Weather includes the events for hail, lightning, thunderstorm wind, and other strong, non-hurricane winds. Data sources for lightning events likely only include events that caused significant damages and may undercount number of actual lightning events.

Table 5-85 provides a summary of potential losses by hazard using the additional hazard data sources available. The losses in the table are based on available historical data and available modeling, which is often not comprehensive, and in many cases, only at a county level. Even so, it provides a rough estimate of the potential impact resulting from a specific hazard for comparison purposes. Flood losses in the table are for a 100-year flood scenario. Losses for all other hazards are annualized based on available data.

Table 5-85. Potential Loss by Hazard

Jurisdiction	Flood (Hazus v4.2 – 100-Year)	Winter Storm* (NCEI)	Hurricane Wind (Hazus v4.2)	Tornado (NCEI)	Wildfire* (VDOF)	Drought* (NCEI)	Earthquake (Hazus v4.2)
City of Danville	\$436,849,000	N/A	\$207,166	\$55,075	\$0	N/A	\$53,940
Franklin County	\$231,447,000	\$31,015	\$194,815	\$9,686	\$28,266	\$548,296	\$90,339
<i>Town of Boones Mill</i>	\$7,139,000		\$7,446		\$0		\$95
<i>Town of Rocky Mount</i>	\$18,951,000		\$166		\$0		\$871
Henry County	\$551,697,000	\$24,428	\$184,875	\$1,091,981	\$15,147	\$541,350	\$89,143
<i>Town of Ridgeway</i>	\$0		\$871		\$0		\$216
City of Martinsville	\$19,905,000	N/A	\$55,594	\$1,247,349	\$0	N/A	\$53,892
Patrick County	\$86,432,000	\$22,205	\$49,624	\$9,753	\$305,330	\$541,350	\$30,066
<i>Town of Stuart</i>	\$5,002,000		\$63		\$0		\$46
Pittsylvania County	\$91,196,000	\$56,441	\$267,498	\$67,207	\$51,609	\$407,789	\$68,455
<i>Town of Chatham</i>	\$1,598,000		\$918		\$0		\$143

Jurisdiction	Flood (Hazus v4.2 – 100-Year)	Winter Storm* (NCEI)	Hurricane Wind (Hazus v4.2)	Tornado (NCEI)	Wildfire* (VDOF)	Drought* (NCEI)	Earthquake (Hazus v4.2)
<i>Town of Gretna</i>	\$331,000		\$570		\$0		\$79
<i>Town of Hurt</i>	\$4,988,000		\$892		\$0		\$183
Total	\$111,964,000	\$214,958^Δ	\$970,498	\$2,481,050[□]	\$400,352	\$2,987,923^Ω	\$385,835

*Data for some hazards only available at the city and/or county level

^ΔWinter storm annualized damages only include figures for reported property damages. Costs related to snow/ice removal and lost production, both of which can total into several thousand dollars for a single event and millions of dollars over a winter season are not included due to data availability.

[□]Costly tornado events in 1994 and 2004 significantly skewed annualized loss calculations.

^ΩNCEI reports losses for individual drought events by grouping several counties and providing only one loss figure for the grouping. Loss was normalized for the entire region rather than arbitrarily across individual jurisdictions.

D.2. Critical Facilities

Critical facilities were intersected with the available spatial hazard data. Table 5-86 shows the facilities that are located within mapped flood zones and wildfire risk zones. Henry County has the highest number of critical facilities within flood zone AE (11 facilities) and within the high wildfire risk zone (14 facilities). The complete list of critical facilities is available in Appendix B8.

Table 5-86. Critical Facilities within Hazard Zones

County/City	Facility Type	Name	FEMA Flood Zone	VDOF Wildfire Risk
Henry	Fire/Rescue	Bassett Rescue Squad, Inc	X - 0.2% Ann Chance	3 - High
Franklin	School	Callaway Elementary School	AE	1 - Low
Franklin	Fire/Rescue	Callaway Fire Dept & Rescue Squad	AE	1 - Low
Henry	WS	Carver Booster Pump Station #1	X - 0.2% Ann Chance	3 - High
Henry	WS	Carver Estates Lagoon	AE	3 - High
Pittsylvania	Dam	Cherrystone Creek Dam # 1	AE with FW	3 - High
Pittsylvania	Dam	Cherrystone Creek Dam # 2A	A	3 - High
Patrick	Dam	Cockram Mill	A	3 - High
Henry	Facility	Collinsville YMCA	X - 0.2% Ann Chance	1 - Low
Pittsylvania	Dam	Danville Dam	AE with FW	2 - Moderate
Danville	Dam	Danville Dam	AE with FW	2 - Moderate
Danville	Dam	Danville Dam	AE with FW	1 - Low
Danville	Facility	Danville YMCA	X - 0.2% Ann Chance	1 - Low

County/City	Facility Type	Name	FEMA Flood Zone	VDOF Wildfire Risk
Henry	WS	Edgewood Lift Station	A	3 - High
Patrick	Dam	Fairystone	A	2 - Moderate
Danville	WS	Goodyear Water Treatment	AE	1 - Low
Henry	WS	Greenbriar Sewage Lagoon	X - 0.2% Ann Chance	3 - High
Henry	Fire/Rescue	Henry County Public Safety	AE	3 - High
Henry	Dam	Horse Pasture Creek Dam #1C	A	3 - High
Henry	Dam	Horse Pasture Creek Dam #2	A	2 - Moderate
Henry	Dam	Hunt Country Farms Dam	AE	3 - High
Henry	Dam	Leatherwood Creek Dam #2A	AE with FW	2 - Moderate
Henry	Dam	Leatherwood Creek Dam #3	A	2 - Moderate
Henry	Dam	Leatherwood Creek Dam #4	AE with FW	2 - Moderate
Henry	Dam	Leatherwood Creek Dam #5	A	2 - Moderate
Henry	Dam	Leatherwood Creek Dam #6	AE with FW	3 - High
Henry	WS	Leatherwood Lift Station	AE with FW	2 - Moderate
Pittsylvania	Dam	Leesville Dam	AE with FW	3 - High
Henry	Dam	Marrowbone Creek Dam #1	A	2 - Moderate
Henry	Dam	Philpott	AE with FW	3 - High
Henry	WS	Philpott Raw Booster Pump	AE with FW	3 - High
Henry	WS	Piedmont Estates Lagoon	A	3 - High
Henry	WS	Rangeley Sewage Station	X - 0.2% Ann Chance	3 - High
Henry	Dam	Smith River Dam	AE with FW	1 - Low
Henry	School	Stanleytown Elementary School	AE	3 - High
Patrick	Dam	Talbott Dam/Pinnacles	A	2 - Moderate
Patrick	Dam	Townes Dam/Pinnacles	A	2 - Moderate
Martinsville	WS	Treatment	X - 0.2% Ann Chance	2 - Moderate
Stuart	WS	Wastewater treatment plant	X - 0.2% Ann Chance	3 - High
Stuart	WS	Water Plant/Dobyns	AE with FW	3 - High

D.3. Hazard Prioritization

As discussed at the beginning of this section, each hazard was re-evaluated for the 2021 Plan update based on the hazard priority criteria. This plan further categorizes the hazards as high, medium-high, medium, medium-low, and low. As shown in Table 5-87, flood and winter storm are the highest ranked

hazards in the District, followed by hurricane wind with a ranking of medium-high priority. The scores for each criterion were reviewed across hazards in an effort to standardize the priority levels.

Table 5-87. 2021 Hazard Prioritization

Hazards Type	Probability / History	Vulnerability	Maximum Threat (Geographic Area Affected)	Warning Time	2016 Priority Level	2021 Priority Level
Flooding	Highly Likely	Critical	Small	Limited	High	High
Winter Storm	Highly Likely	Critical	Large	Limited	High	High
Hurricane Wind	Highly Likely	Limited	Small	Minimal	Medium-High	Medium-High
Sever Weather	Highly Likely	Limited	Small	Minimal	Medium-High	Medium-High
Organic/ Inorganic Spills	Highly Likely	Limited	Small	No Notice	Medium-High	Medium-High
Tornado	Likely	Negligible	Small	No Notice	Medium	Medium-High
Wildfire	Highly Likely	Negligible	Small	No Notice	Medium	Medium
HVT Lines	Likely	Limited	Medium	No Notice	Medium	Medium
Pipeline Failure	Likely	Limited	Medium	No Notice	Medium	Medium
Drought	Likely	Limited	Medium	Extended	Medium-Low	Medium-Low
Earthquake	Unlikely	Limited	Small	No Notice	Low	Medium-Low
Dam Failure	Unlikely	Limited	Small	No Notice	Medium-Low	Medium-Low
Agriterrorism	Unlikely	Limited	Large	No Notice	Medium-Low	Medium-Low
Landslide	Unlikely	Limited	Small	No Notice	Low	Low

D.4. Future Land Use and Impacts to Hazard Vulnerability

Current and future land use and development trends are described in detail in Section 4 (Community Profile) and shown in Appendix B4. Predicting how future development might change vulnerability to hazards is a challenging undertaking; minimal changes have occurred in the planning area since the 2016 plan update. In terms of hazards and potential changes to risk and vulnerability of future development, some items worth highlighting and considering include:

- The City of Danville estimates that 9,000 to 15,000 homes could be built and 2 million square feet of retail could be developed in the City in the future. Development plans indicate that development will not occur in tracts of sensitive slope, floodplains, or wetlands. With this being the case, barring changes in the distribution, frequency, or intensity of precipitation into the

future, the number of structures vulnerable to flooding or landslides should not increase. An increasing amount of impervious surfaces might have some impact on stormwater runoff.

- Henry County regulates areas within the 1-percent-annual-chance floodplain and maintains permanent open space. Future plans call for floodplains to be used for agriculture and recreation. It would appear that if regulations consistent with the NFIP continue, the number of structures vulnerable to flood loss should not increase.
- Double-wide manufactured homes are relatively popular in Henry and Patrick counties, but there has been a decrease in interest in single-wide units. Care should be taken to ensure new units have proper foundations, anchoring, and siting and consideration given for tornado shelter.
- Growth expectations for Patrick County are expected to have little impact on the amount of agricultural or forested lands. With this being the case, an increase or decrease in the size of areas vulnerable to drought and wildfires are not likely to change significantly.

Future plan updates might consider these items and others in terms of how future land use and development might impact the region's hazard vulnerability and risk.

Section 6. Capability Assessment

A. Introduction

This section assesses the current capacity of the communities of the West Piedmont Planning District to mitigate the effects of the natural hazards identified in Section 5. This assessment includes a comprehensive examination of the following local government capabilities:

- Staff and Organizational Capability
- Technical Capability
- Fiscal Capability
- Policy and Program Capability
- Legal Authority
- Political Capability

The purpose of conducting the capabilities assessment is to identify potential hazard mitigation opportunities available to the West Piedmont Planning District's local governments, specifically the counties of Franklin, Henry, Patrick, and Pittsylvania and the cities of Danville and Martinsville. It should be noted, however, that towns are often included in county capacity data as counties in this region often provide a high degree, or complete, assistance with planning and emergency management functions when the town is not self-sufficient.

Careful analysis should detect any existing gaps, shortfalls, or weaknesses within existing governmental activities that could exacerbate a community's vulnerability. The assessment also will highlight the positive measures already in place or being done at the local level, which should continue to be supported and enhanced, if possible, through future mitigation efforts.

The capabilities assessment serves as the foundation for designing an effective hazard mitigation strategy. It not only helps establish the goals and objectives for the Planning District to pursue under this Plan, but also assures that those goals and objectives are realistically achievable under given local conditions.

B. Staff and Organizational Capacity

As described previously, the planning area is comprised of four counties and two cities. The counties operate under a Board of Supervisors - County Administrator/Manager system. In this form of government, the elected board of supervisors hires a county administrator who oversees daily operations of the county. Patrick has the smallest board with five members on its Board of Supervisors. Franklin and Pittsylvania counties have seven-member boards. Henry County has six board members.

The City of Danville and the City of Martinsville operate under the City Council – City Manager system. The City Councils are elected and have nine and five members, respectively.

In the City of Danville, the City Council appoints a City Manager who acts as the chief administrative officer and oversees daily business operations of the City. All power and authority to set policy rests with an elected governing body, which includes a mayor or chairperson and the members of the

council, commission, or board. The governing body in turn hires a non-partisan manager who has very broad authority to run the organization.

Martinsville's chief executive officer is its city manager. The city manager oversees daily operations of the city, with direct supervision over department heads who manage city activities in their areas of expertise. The city manager also serves as the finance director, working with the finance department, to develop and adhere to an annual budget. The city manager also works closely with a variety of agencies, including schools and economic development, to ensure quality of life for the residents of Martinsville.

Pittsylvania County has a public relations manager as well as a public works department and has added a community development department (floodplain manager, GIS, planning, building inspection). In Franklin County, technical capabilities are improving, but capacity remains an issue; for instance, there are no design engineers on staff. Henry County is working to have one of its inspectors become a certified floodplain manager by 2022.

Overall, the towns tend to have minimal staffing and work in close partnership with their county officials to cover necessary capabilities. The often have a town manager or administrator, with the smaller municipalities functioning with only a mayor. The Town of Hurt relies upon mutual aid agreements with Pittsylvania County, Campbell County and the Town of Altavista in many areas of public safety, policing and core services.

Under the County Administrator or City Manager, each jurisdiction has numerous departments and boards that are responsible for the various functions of local government. Table 6-1 bolds the departments/personnel in each jurisdiction that could facilitate the implementation of this Hazard Mitigation Plan.

Table 6-1. Key Departments

Jurisdiction	Departments/Personnel
City of Danville	- Community Development Emergency Services - Fire - Public Works - Utilities
Franklin County	- Building Permits and Inspections - Planning Public Safety
Town of Boones Mill	- Police Town Administration
Town of Rocky Mount	Town Manager - Community Development (includes Planning & Zoning) - Public Works - Water Treatment - Police

Jurisdiction	Departments/Personnel
	• Volunteer Fire
Henry County	• Planning, Zoning, and Building Inspection • Engineering and Mapping • Public Safety • Public Service Authority
Town of Ridgeway	• Mayor
City of Martinsville	• Community Development (includes Planning, Zoning, and Inspections) • Fire and EMS • Police • Utilities • Public Works
Patrick County	• Building Inspection • Emergency Services (Emergency Management, Fire and Rescue) • Erosion and Sediment Control & Stormwater Management • Economic Development (Sites and Buildings, Utilities)
Town of Stuart	• Town Manager • Zoning • Utilities
Pittsylvania County	• Building Inspections • Emergency Management • Fire and Rescue • Community Development • Zoning
Hurt	• Mayor • Public Works Coordinator • Planning and Zoning Commission
Gretna	• Police • Town Manager • Planning Commission • Public Works
Chatham	• Town Manager • Fire and Police • Utilities

In Table 6-1, the departments/personnel that have been assigned specifically delegated responsibilities to carry out mitigation activities or hazard control tasks for a specific jurisdiction are bolded. Representatives of these departments have been involved in the development of this mitigation plan in order to identify gaps, weaknesses, or opportunities for enhancement with existing mitigation programs. While exact responsibilities differ from jurisdiction to jurisdiction, the general duties of the departments highlighted in Table 6-1 are described below.

The Building Inspections office or department enforces the Virginia Uniform Statewide Building Code (VUSBC). This code includes implications for floodplain management.

The Martinsville Fire Department and Henry County Public Schools collaborate to conduct annual school building inspections. Every school in Henry County has a tornado plan, and this holistic process ensures that plans are maintained regularly. Additionally, Franklin County leverages its existing codes to ensure that hazard mitigation best practices are incorporated into new community facilities and other structures to reduce the potential damages.

The Department of Emergency Management is responsible for the mitigation, preparedness, response and recovery operations that deal with both natural and man-made disaster events. Fire/EMS departments provide medical aid and fire suppression at the scene of accidents and emergencies. These departments are often responsible for responding to hazardous materials incidents. The Department of Public Safety encompasses emergency management and fire safety.

Depending on the jurisdiction, these departments may also work with facilities that house higher-risk populations, like independent living and nursing institutions. Franklin and Patrick counties, as well as Boones Mill, Rocky Mount, and Martinsville, have determined that these facilities already have natural hazard or emergency response plans. The City of Danville's Emergency Management team annually reviews these plans to fulfill its Centers for Medicare & Medicaid Services (CMS) certification requirements.

The Planning Department addresses land use planning. This department, depending on the jurisdiction, may enforce the National Flood Insurance Program requirements and other applicable local codes. Zoning also may be managed by the Planning Department or it may be a separate office.

In some jurisdictions, the Public Utilities department oversees community water facilities or natural gas provision. In others, the Public Works Department oversees the maintenance of infrastructure including roadways, sewer and stormwater facilities, and the community's water treatment facilities. This department also may review new development plans, ensure compliance with environmental regulations, and work with VDOT on road issues. For example, Franklin County is already working with VDOT, private utilities, and, when applicable, private homeowners, to trim or remove trees that could potentially down power lines and block roads.

Depending on the jurisdiction, the Department of Public Works may enforce the National Flood Insurance Program requirements. Public Service Authorities such as those in Henry and Pittsylvania counties maintain the utility infrastructure of their respective jurisdictions.

Town managers/administrators are tasked with handling the general administrative duties in the town. Since town managers have a variety of duties and do not have extensive town staff to assist them, most of the towns are assisted by their respective county for emergency management, code enforcement, and other duties. Town managers have been involved in the planning process and incorporated town goals, objectives, and actions, and they will help coordinate completing mitigation actions with the county.

For the most part, it was determined that the departments are adequately staffed, trained, and funded to accomplish their missions.

C. Technical Capacity

Mitigation cuts across many disciplines. For a successful mitigation program, it is necessary to have a broad range of people involved with diverse backgrounds. These people include planners, engineers, building inspectors, emergency managers, floodplain managers, people familiar with Geographic Information Systems (GIS), and grant writers.

GIS systems can best be described as a set of tools and resources (hardware, software, and people) used to collect, manage, analyze, and display spatially referenced data. Many local governments use GIS systems as part of their existing planning and management operations. GIS is invaluable in identifying areas vulnerable to hazards. Access to the internet can facilitate plan development, public outreach, and project implementation.

Table 6-2 summarizes the technical capabilities of the jurisdictions. When provided, the specific department that has the technical capability is identified.

Table 6-2. Technical Capability Matrix

Jurisdiction	Land Use Planners	Building Official or Building Inspector	Emergency manager	Floodplain manager	Staff knowledgeable about hazards	GIS staff	Grant writers	Internet access?
City of Danville	Community Development, Planning	Public Works, Engineering	Emergency Operations	Community Development	Emergency Operations	Information Technology	Community Development, City Administration	✓
Franklin County	Planning & Zoning	Building Inspections	Public Safety	Planning & Zoning	Public Safety, Planning	Development Services, GIS Department	County Administration, Public Safety	✓
Town of Boones Mill	Reliant on County	Reliant on County	Reliant on County	Reliant on County	Town Leadership/ Reliant on County	Reliant on County	Reliant on County	✓
Town of Rocky Mount	Community Development	Reliant on County	Reliant on County	Community Development	Community Development	Community Development	Community Development	✓
Henry County	Planning, Zoning, and Building Inspection	Planning, Zoning, and Building Inspection	Public Safety	Engineering	Public Safety / Planning, Zoning, and Building Inspection	GIS Dept.	Planning, Zoning, and Building Inspection	✓
Town of Ridgeway	Reliant on County	Reliant on County	Reliant on County	Reliant on County	Town Leadership/ Reliant on County	Reliant on County	Reliant on County	✓
City of Martinsville	Community Development	Public Works/ Inspections	Fire & EMS	Public Works	Public Works/ Community Development/ Fire & EMS	Public Works	Public Works/ Community Development	✓
Patrick County	Planning	Building Inspections	Emergency Management	Building Inspection	Emergency Management	Taxes, Mapping Dept.	County Administration	✓
Town of Stuart	Zoning/ Town Manager	Zoning/ County Bldg Official	Town manager	County Official	Town Manager	Reliant on County	None Dedicated	✓

Jurisdiction	Land Use Planners	Building Official or Building Inspector	Emergency manager	Floodplain manager	Staff knowledgeable about hazards	GIS staff	Grant writers	Internet access?
Pittsylvania County	Community Development	Community Development	Emergency Management	Community Development	Planning, Code Compliance, Emergency Management, Community Development	Community Development	Grants Administration	✓
Town of Hurt	Planning and Zoning Commission	Reliant on County	Reliant on County	Reliant on County	Town Leadership/ Reliant on County	Reliant on County	Reliant on County	✓
Town of Gretna	Planning Commission	Reliant on County	Reliant on County	Reliant on County	Town Leadership/ Reliant on County	Reliant on County	Reliant on County	✓
Town of Chatham	Reliant on County	Reliant on County	Reliant on County	Reliant on County	Town Leadership/ Reliant on County	Reliant on County	Reliant on County	✓

As seen in the table, the larger jurisdictions have one or more departments that have technical capability in each category. The smaller towns rely on their respective counties for technical capability assistance. The staff at all jurisdictions have internet access. All jurisdictions, except the Town of Ridgeway, have government websites that could be utilized to promote hazard mitigation.

Each county and city government also provides access to online GIS mapping. Some jurisdictions, including Patrick county, Franklin county, and the City of Martinsville, provide annual training opportunities for staff to enhance their ability to use GIS for emergency management needs. The City of Danville continuously collects GIS data regarding community flood risk exposure.

Henry and Pittsylvania counties use and maintain monitors from the Integrated Flood Observation and Warning System (IFLOWS) and several stream gauges to track potential flood conditions. Warnings can be issued using the Citizens' Emergency Notification System, the Emergency Alert System, or other citizen notification system. Alternatively, officials may choose to drive through potentially impacted neighborhoods and use loudspeakers or go door-to-door to warn people. Technical capabilities vary between the WPPDC jurisdictions. In the City of Danville, departments write their own grants, and Crisis Track is now used to track expenses. Inspectors also now have field laptops and tablets, which help with FEMA reimbursements. Similarly, the City of Martinsville uses iPads and VDEM's Damage Assessment Software to collect damage assessment data. In Franklin County, technical capabilities are improving, but capacity remains an issue. For example, there are no design engineers on staff.

In 2020, the novel coronavirus (COVID-19) required many WPPDC jurisdictions to quickly shift their technical capabilities to allow remote working for essential workers. The City of Danville implemented a remote work strategy for all essential employees using mobile hotspots, laptops, and video conferences and allowing remote inspections. Franklin and Patrick Counties, as well as the Towns of Boones Mill and Rocky Mount, and the City of Martinsville, all also developed similar strategies in response to COVID-19.

D. Fiscal Capability

For Fiscal Year 2021, the budgets of the participating jurisdictions range from \$32,658,074 (City of Martinsville) to \$186,116,529 (Pittsylvania County). Table 6-3 shows the total budget amounts for each jurisdiction in addition to the amount budgeted for public safety.

The counties and cities receive most of their revenue through state and local sales taxes, local services, and through restricted intergovernmental contributions (federal and state pass-through dollars). It is unlikely that any of the counties or cities could easily afford to provide the local match for the existing hazard mitigation grant programs. Considering the current budget deficits at both the state and local government level in Virginia, combined with the apparent increased reliance on local accountability by the federal government, this is a significant and growing concern.

Under the Disaster Mitigation Act of 2000, FEMA made special accommodations for "small and impoverished communities," who will be eligible for a 90% federal share, 10% non-Federal cost share for projects funded through the Pre-Disaster Mitigation (PDM) grant program (now replaced by the Building Resilient Infrastructure and Communities (BRIC) program after the implementation of Section 1234 of the Disaster Recovery Reform Act of 2018). The definition is restricted to "a community of 3,000 or fewer individuals identified by the Applicant that is economically disadvantaged, with residents having an average per capita annual income not exceeding 80 percent of the national per capita

income, based on best available data.”⁷³ According to the current BRIC Notice of Funding Opportunity, none of the jurisdictions in the planning area will qualify as a small and impoverished community.

Table 6-3. Fiscal Capability Matrix

Jurisdiction	Overall FY 21 Budget	Public Works FY 21 Budget	Public Safety FY 21 Budget	Community Development and Planning FY 21 Budget
City of Danville	\$115,651,300	\$4,401,510	\$30,666,050	\$1,925,950
Franklin County	\$160,297,527	\$260,338	\$5,600,615	\$1,281,512
Town of Boones Mill	\$723,781	\$104,202	\$77,112	N/A
Town of Rocky Mount	\$6,510,915	\$1,335,452	\$2,495,666	\$570,748
Henry County	\$138,785,371	\$3,895,417	\$15,469,127	\$2,348,955
Town of Ridgeway	Not Available	Not Available	Not Available	N/A
City of Martinsville	\$32,658,074	\$5,906,245	\$12,578,267	\$195,775
Patrick County	\$54,372,772	\$1,718,814	\$7,474,349	\$1,462,136
Town of Stuart	\$1,770,400	\$980,350	Not Available	\$100,500
Pittsylvania County	\$186,116,529	\$8,214,608	\$17,559,929	\$546,690
Town of Hurt	Not Available	Not Available	Not Available	N/A
Town of Gretna	\$1,567,712	\$886,819	\$298,858	N/A
Town of Chatham	\$3,146,041	\$1,945,105	\$352,934	N/A

As seen in Table 6-4, the jurisdictions in the planning area are accustomed to using a variety of financial tools. The ability to use these tools for hazard mitigation, however, differs from jurisdiction to jurisdiction. Virtually every jurisdiction uses a capital improvement program to plan for major expenditures and capital investments. Also, all jurisdictions have or are using Community Development Block Grant funds. The use of fees for public utilities varies from jurisdiction to jurisdiction, though none currently have a stormwater management fee. Only the City of Martinsville has used a special purpose tax or tax district.

⁷³ https://www.fema.gov/sites/default/files/2020-08/fema_fy20-bric-notice-of-funding-opportunity_federal-register_August-2020.pdf

Table 6-4. Financing Mechanisms by Jurisdiction

Jurisdiction	Capital improvement programming	CDBG	General obligation, revenue and/or special tax bonds	Special purpose taxes or taxing district	Gas/electric fees	Water/ sewer fees	Stormwater utility fees	Intergovernmental agreements
City of Danville	✓	✓	✓		✓	✓		✓
Franklin County	✓	✓				✓		
Town of Boones Mill	✓	✓				✓		✓
Town of Rocky Mount	✓	✓	✓			✓		✓
Henry County	✓	✓	✓		✓			✓
Town of Ridgeway		✓						
City of Martinsville	✓	✓	✓	✓	✓	✓		
Patrick County	✓	✓				✓		
Town of Stuart	✓	✓	✓	✓		✓		
Pittsylvania County	✓	✓	✓			✓		
Town of Hurt		✓						
Town of Gretna		✓				✓		
Town of Chatham		✓				✓		

Since the 2016 Plan Update, the Commonwealth has strengthened its commitment to mitigating climate-influenced risks and funding resilience projects. In 2020, the Virginia Legislature authorized the Commonwealth's participation in the Regional Greenhouse Gas Initiative (RGGI), a market-based

initiative for states to cap and reduce their carbon dioxide emissions from the power sector.⁷⁴ By joining RGGI, Virginia will generate millions of dollars by auctioning off its carbon dioxide allowances.

In authorizing the Commonwealth to join RGGI, the Virginia Legislature also directed funds from the auction sales to support coastal resilience projects through the Community Flood Preparedness Fund (CFPF) and low-income energy efficiency programs.⁷⁵ The Commonwealth released the CFPF funding guidelines in June 2021, and the first round of applications are due in late 2021. The CFPF may present new opportunities for WPPDC jurisdictions to secure funding mitigation actions, especially if flood⁷⁶ mitigation actions are in line with local, state, and federal floodplain management standards and applicable local resilience plans.

Potential sources of grants, funding, and technical assistance for mitigation projects and actions are outlined in Table 6-5.

Table 6-5. Hazard Mitigation Action Funding Sources

Program Name	Agency	Description
Hazard Mitigation Grant Program (HMGP)	FEMA	Funding for hazard mitigation projects following a presidentially declared disaster
Hazard Mitigation Grant Program Post Fire (HMGP Post Fire)	FEMA	Helps communities implement hazard mitigation measures after wildfire disasters
Building Resilient Infrastructure and Communities (BRIC)	FEMA	Funding for hazard mitigation projects on a nationally competitive basis
Flood Mitigation Assistance (FMA)	FEMA	Grants for flood hazard mitigation planning and projects such as property acquisition, relocation of residents, and flood retrofitting
Disaster Loan Program	SBA	Funding to individuals, businesses and non-profits including relocation loans
Disaster Recovery	EDA	Assists local governments affected by disasters
Community Development Block Grant - Disaster Recovery Assistance (CDBG-DR)	HUD	Flexible grants to help cities, counties and States recover from presidentially declared disasters, especially in low-income areas
Community Development Block Grant Program	HUD	Generally, CDBG funds can be used as local match for other federal assistance grants for disaster mitigation, provided the activity meets all applicable CDBG requirements
Flood Risk Management Program	U.S. Army Corps of Engineers	50/50 match funding for flood proofing and flood preparedness projects

⁷⁴ Regional Greenhouse Gas Initiative. "The Regional Greenhouse Gas Initiative: An Initiative of Eastern States of the US." Retrieved from <https://www.rggi.org/>.

⁷⁵ Virginia General Assembly. 2020. "HB 981: Clean Energy and Community Flood Preparedness Act." *Virginia Legislative Information System*. Retrieved from <https://lis.virginia.gov/cgi-bin/legp604.exe?ses=201&typ=bil&val=hb981>.

⁷⁶ Virginia department of Conservation & Recreation. "2021 Grant Manual for the Virginia Community Flood Preparedness Fund." Retrieved from <https://www.dcr.virginia.gov/dam-safety-and-floodplains/dsfpm-cfpf>.

Program Name	Agency	Description
Natural Resources Conservation Service Emergency Watershed Protection and Watershed and Flood Prevention Operations Programs	U.S. Department of Agriculture	Technical and financial assistance to reduce or prevent flood damage, reduce soil erosion and improve water quality
Mitigation Assessment Team Program	FEMA	Technical assistance to state and local governments provided through reports and technical manuals based on assessments of building performance in response to disasters
Assistance to Firefighters Grant Program	FEMA	Grants are provided to fire departments to enhance their ability to protect the public and fire service personnel from fire and related hazards
Virginia Community Flood Preparedness Fund (CFPF)	Virginia Department of Conservation and Recreation	Provides support for regions and localities across Virginia to reduce the impacts of flooding, including flooding driven by climate change; can be used as the local cost share of federal grants

E. Policy and Program Capability

E.1. Current Mitigation Efforts

Public Alerting and Notification – In 2014, Franklin County expanded public alerting capabilities by partnering with Emergency Communications Network Systems (ECN) to provide citizen alerting services to the county using the CodeRed Emergency Alerting System. The county already possessed the ability to alert the public via conventional telephones, email notifications and text messaging. But the switch to CodeRed adds the ability to send Integrated Public Alert Warning System (IPAWS) messages as well as alerts to mobile apps, social media sites, while still providing text, email, and conventional phone messages to a single address or to the entire county. By 2022, Franklin County will complete upgrades to its system that will allow additional notification capabilities.

The City of Martinsville and Pittsylvania County both have Reverse 911 notification systems. In Martinsville, IPAWS is wanted in the future, but there is currently no budget for it. Henry County has multiple levels of CodeRed. The CodeRed is linked to IPAWS and DHS criteria to further enhance warnings. Pittsylvania County has also tied into the CodeRed system. All jurisdictions now have access to some form of county-wide alert system.

Many WPPDC jurisdictions leverage social media and online platforms to expand their abilities to notify the public and to conduct continuous outreach. For instance, Patrick County maintains an active social media presence to regularly distribute natural hazards information and resources to support public education, participation and outreach on preparedness and mitigation. Franklin County's Division of Public Safety increased their use of social media (Facebook, Instagram, Twitter, YouTube) to reach a larger audience. Boones Mill uses Facebook weekly, including for storm warnings. Rocky Mount uses Facebook for warnings as well. The City of Danville also conducts an annual community risk prevention program to disseminate critical information and resources related to hazards.

Public Water Available to County Residents – Franklin County has partnered with the Western Virginia Water Authority to extend their system into Franklin County. In 2012, the Western Virginia Water Authority began installing water lines into the Boones Mill, Westlake, Burnt Chimney, and Wirtz areas of the county. These lines provide reliable drinking water to thousands of homes while also providing hydrants for fire protection in these areas. As of November 1, 2021, The Town of Boones Mill sold its water and sewer system to the Western Virginia Water Authority as well. The location of these lines in close proximity to existing water lines in the Rocky Mount water system provides an option to interconnect systems to share water in the event of a public water emergency or outage.

Text to 911 Availability – Franklin County's Public-Safety Answering Point (PSAP) began receiving text messages to the 911 center in December 2015 from most major carriers. Pittsylvania County, Patrick County, and the Cities of Danville and Martinsville also have text to 911 capabilities.

Pictometry Addition to County Planning and Response – Pictometry images were made available to all county agencies and departments in 2011 for planning and response purposes. Pictometry allows both oblique and orthogonal high-resolution images of property in Franklin County, Rocky Mount, and Boones Mill. The images are frequently used by county planners for strategic planning as well as 911 dispatchers to direct responders to an emergency scene using an image in addition to traditional mapping.

Flood Mitigation/Public Safety – The Town of Rocky Mount has worked with federal and state agencies to remove the low head dam that was formerly located adjacent to the Veteran's Memorial on the Blackwater River in Rocky Mount. Several injuries and deaths had occurred at low head dams locally by kayakers and river enthusiasts attempting to go over the dams on the Blackwater River. Warning signs and buoys were improved at the water treatment plant dam while the Veteran's Park dam was removed. Since removal, the area has experienced numerous rains that would typically have created flooding concerns near the dam but river levels have only risen to moderate levels during these events.

In the City of Danville, portions of a pedestrian walking bridge were recently damaged in a flood, but the bridge was reinstalled. There was also pipe damage from this flooding event. A box culvert was installed to mitigate. There was localized flooding in the Apple Branch Area twice in 2019. The events involved a water rescue and damage to a car dealership's inventory. Flooding near the East End by the airport and Cane Creek led to rescuing people from Route 58 from flood waters. Due to these events, there were improvements made to Apple Branch Stream which include gabions alongside to stabilize it. Grant funding through the state was used to acquire buildings in the floodway. There was a flood study for a dike which was causing issues and was in the floodway. An H&H study for Riverfront Park was completed that covered the dike. Tropical Storm Michael caused significant damage. A bridge flooded and cars drove into the flood waters on Goodyear Road. Hurricane Florence also caused damage, which the City of Danville coordinated with FEMA to address. Additionally, there was a coal ash spill by a coal-fired power plant after a pond pipe failed. Coal ash was dumped into the river and required a clean-up.

In Franklin County, FIRMs are being updated and are in the discovery phase. There have been no updates to the regulations or ordinances, but they will likely be updated with the new maps. In Martinsville, FIRM updates are in the discovery phase and new mapping will be incorporated going forward. In Pittsylvania County, FIRMs are in the update and discovery process. Ordinances will be updated to include new maps once the FIRMs have been completed. Danville worked with the NWS to get flood elevation changes in 2019. In the City of Danville, FIRM updates are in the discovery process, and mapping will be extended further north.

Communications - Franklin County has partnered with Roanoke County and the City of Roanoke to complete a regional two-way radio system which is used for police, fire, EMS, and emergency management daily operations. The system is also directly compatible with neighboring jurisdictions in Pittsylvania, Bedford, Amherst and the City of Lynchburg. The Roanoke Valley Radio Authority is all on an 800 MHz system. Boones Mill needs better radio coverage in due to topography. There are several places in town with no radio coverage. The police department uses cell phones because radios do not work.

Alliance for National & Community Resilience™ – The City of Martinsville participates in the Alliance for National & Community Resilience™ (ANCR™) program. The voluntary program identifies standardized metrics and Community Resilience Benchmarks® (CRB™) that allow localities to evaluate the resilience of 19 essential community functions related to social, organization, and infrastructural capacity. Martinsville was selected as the initial pilot city for ANCR’s CRB for buildings and housing, and it was the first community to receive the resilience designations of “Essential” for its building-related activities and “Enhanced” for its housing-related initiatives.

Developed by subject matter experts, the benchmarks identify actions, plans, and policies for each essential function, as well as the specific evidence a community will have to provide to prove the benchmark was met. Communities can achieve higher tiers (Essential, Enhanced, and Exceptional) within benchmarks to signify increased commitment, investment, or engagement that will lead to enhanced community resilience. Martinsville is aiming to achieve an “Exceptional” tier for every benchmark.

The CRB™ system allows localities to evaluate their resilience while also identifying future actions they can pursue to improve. This process is designed to be directed by a community leader, and benchmarks are assessed by personnel that are responsible for the day-to-day operations of the essential function.

The program is currently in a pilot phase, which Martinsville participates in, that will inform future versions and new metrics. In April 2021, the City adopted a resolution outlining its commitments to the ANCR program, including committing to continuing to fund and execute current projects related to the benchmark goals.⁷⁷

Other Efforts – Franklin County has undertaken a regional flood monitoring program, will have a next-generation 911 standards met by 2022, and is working to update the 2005 Franklin County Public Safety Strategic Plan. Henry County developed an award-winning alarm system for its 911 tower sites that has resulted in significant cost savings. Patrick County installed an alarm system including cameras at its three 911 tower sites; Pittsylvania County has also installed alarms and is considering cameras for its nine 911 towers. Pittsylvania County also has added cameras to several buildings, has cameras at the majority of convenience stations, has adopted Crisis Track software that enables county workers to communicate preliminary damage assessment data remotely back to the EOC in real-time, and is completing a next-generation 911 project. The City of Martinsville and Henry County have formalized a shared back-up dispatch center at the DuPont Center.

The City of Danville has a new fire station, recently installed generators in some critical facilities, and is constructing a new police station with an estimated completion date of 2022.

⁷⁷ City of Martinsville. 2021. “Resolution Recognizing Community Resilience and Hazard Mitigation.” Retrieved from <https://www.resilientalliance.org/wp-content/uploads/Community-Resilience-Hazard-Mitigation-042721.pdf>.

In Pittsylvania County, most fire stations have generators or are in the process of getting them. Several critical infrastructure buildings will need generators in the future, including the new 911 call center in Chatham, but currently, none of the sewer or water plants have a generator. The County also plans to build a new jail in the future. All fire suppression in Pittsylvania County is handled with dry hydrants.

Status updates on mitigation actions included in previous versions of this plan can be found in Appendix C.

E.2. Emergency Operations Plan

A Comprehensive Emergency Management Plan (EOP) typically predetermines actions to be taken by government agencies and private organizations in response to an emergency or disaster event. For the most part, the plan describes the jurisdiction’s capabilities to respond to emergencies and establishes the responsibilities and procedures for responding effectively to the actual occurrence of a disaster. In addition, some of the plans describe the hazardous materials risk present in the jurisdiction (e.g., Henry, Pittsylvania). A Regional Hazard Materials Team located in the City of Danville covers most of the Planning District area with the exception of Franklin County which falls into the Roanoke region.

Hazard mitigation generally is addressed through an annex to the plan. The annex lays out roles and responsibilities related to hazard mitigation for various agencies and departments. For those counties with EOPs, there are no foreseeable conflicts between that plan and this Hazard Mitigation Plan.

Henry County’s EOP was completely overhauled in 2007 to reflect changes and recommendations in the National Framework and the National Incident Management Systems. An annex has been added to address sheltering of pets during disasters. The new EOP was last revised in February 2016. In Martinsville, the EOP was updated in September of 2018 and is available online. Pittsylvania County’s EOP was updated in May of 2020.

Franklin County’s EOP was rewritten based on the emergency response framework in 2010 and was readopted by the Board of Supervisors in February 2014. The EOP was updated again in 2018. The plan was drafted by members of the Local Emergency Planning Committee that is comprised of Fire, EMS, Law Enforcement, and Public Works representatives as well as public stakeholders representing commercial interests. Franklin County also is responsible for the emergency management functions of the Town of Rocky Mount.

E.3. Floodplain Management

Communities that regulate development in floodplains can participate in the National Flood Insurance Program (NFIP). In return, the NFIP makes federally-backed flood insurance policies available for eligible properties in the community. Table 6-6 shows when each of the jurisdictions began participating in the NFIP. The table also provides the date of the Flood Insurance Rate Map in effect in each community. These maps were developed by FEMA or its predecessor and show the boundaries of the 100-year and 500-year floods. Parts of the planning area have experienced dramatic growth over the past decade that is not reflected in the FIRM. This difference may mean that the actual floodplain varies from that depicted on the map.

Table 6-6. NFIP Entry and FIRM Date

Jurisdiction	Entry into NFIP	Date of Current FIRM	Stand alone or part of zoning ordinance?
City of Danville	03/16/81	09/29/10	Zoning

Jurisdiction	Entry into NFIP	Date of Current FIRM	Stand alone or part of zoning ordinance?
Franklin County	05/19/81	01/06/10	Stand alone
Henry County	11/05/80	09/26/08	Stand alone
City of Martinsville	04/01/81	09/26/08	Stand alone
Patrick County	05/15/84	08/19/08	Stand alone
Pittsylvania County	11/04/81	09/29/10	Stand alone
Town of Boones Mill	09/01/78	12/16/08	Stand alone
Town of Chatham	02/01/79	09/29/10	Stand alone
Town of Gretna	--	09/29/10	Stand alone
Town of Hurt	04/02/79	09/29/10	Stand alone
Town of Ridgeway	11/06/81	09/26/08	Unknown
Town of Rocky Mount	05/01/80	12/16/08	Zoning
Town of Stuart	09/01/78	08/19/08	Stand alone

Virginia State statutes provide cities and counties the land use authority. Issues such as floodwater control are empowered through §15.2-2223 and §15.2-2280. All jurisdictions in the planning area have adopted a local floodplain ordinance as a requirement of participation in the National Flood Insurance Program. Table 6-6 shows if the community has adopted a standalone ordinance or if it has incorporated floodplain regulations into its zoning ordinance.

The Town of Rocky Mount is the only jurisdiction in the planning area to require that electric water heaters, furnaces and other installations be elevated above the 100-year base flood elevation.

The Town of Gretna did not have a mapped SFHA until September 29, 2010. At that point, the town had a year to officially join the NFIP before it would become a sanctioned community.

The Community Rating System (CRS) was implemented in 1990 as a program for recognizing and encouraging community floodplain management activities that exceed the minimum NFIP standards. Residents of communities that participate in CRS receive a reduction in the flood insurance premium. There are ten CRS classes: class 1 requires the most credit points and gives the largest premium reduction; class 10 receives no premium reduction. None of the jurisdictions in this Hazard Mitigation Plan are members of the CRS.

One of the CRS requirements is a community floodplain management plan. The West Piedmont Multi-Jurisdictional Hazard Mitigation Plan is intended to fulfill the CRS planning requirement should the planning jurisdictions decide to enter the CRS.

E.4. Comprehensive Plan

A community's comprehensive plan provides the future vision for the community regarding growth and development. To the extent that hazard mitigation principles are addressed in the West Piedmont's communities' comprehensive plans, it generally is in the context of floodplain protection or stormwater management. Table 6-8 provides additional information on existing plans and relationship to hazard mitigation. Henry and Patrick counties also address the need for emergency communications networks.

E.4.1. City of Danville

The City of Danville's Comprehensive Plan (2015) emphasizes the use of "smart growth" performance standards based on land holding capacities. Based on this principle, the plan classifies land into the "Planning Area" which is developable and "Primary Environmentally Sensitive Areas," which are non-developable and comprises contiguous areas of sensitive soils, steep slopes, wetlands and floodplains.

While the plan does not address hazard mitigation specifically, it does note the need to update the zoning ordinance to specifically address floodplains among other sensitive areas. The plan also suggests that a comprehensive stormwater management plan be developed for the City including improved drainage solutions for older neighborhoods that experience flooding. The plan notes that these projects could be supported by CIP. A Comprehensive Plan update will begin in the third quarter of 2021 and will focus on resiliency.

E.4.2. Franklin County

Floodplain management is prominently featured in Franklin County's Comprehensive Plan (2007). One objective in the plan is to "protect environmentally sensitive areas from development," while the supporting strategies suggest that new construction in flood hazard areas that results in any increase in flood levels of the 100-year storm be prohibited. The Plan also includes strategies related to stormwater management and public outreach regarding environmental regulations.

Another policy in the plan states that the County will use a GIS system that includes floodplain information to improve future land use decision-making. As part of this process, a GIS database of building footprints was created in the county in 2015. This database differentiates between residential, commercial, and industrial, and is 85-90% accurate. The database will be updated with flood data shortly. Current GIS data also includes dry hydrants, public water coverage areas, parcels, and footprints.

E.4.3. Henry County

Henry County's Comprehensive Plan (1995) recognizes the need to be proactive in land use planning in order to reduce flooding and flood-related problems. Several strategies also address acquisition of land for open space and recreation. Implementation of these strategies could provide an opportunity to acquire flood-prone lands. Henry County's plan also calls for a modern emergency services communication network to be maintained.

E.4.4. City of Martinsville

Stormwater management is the focus of the City of Martinsville's Comprehensive Plan (2021) with respect to hazard mitigation. The plan calls for a comprehensive stormwater management plan to be developed. Of particular concern are the neighborhoods of Westside and Southside. Floodplain management is not addressed in the plan, although the plan is currently being updated to include more mitigation and resilience measures.

E.4.5. Patrick County

Like Henry County, Patrick County's Comprehensive Plan (2021) addresses the need to maintain a modern emergency services communication network. The plan also includes numerous strategies related to floodplain protection, such as encouraging the use of the floodway fringe areas for recreational uses, open space, and other non-structural uses.

The Plan also suggests that an environmental and good land practices program be developed in association with realtors, developers, builders, and bankers to enhance awareness among the professional community associated with land use and land development.

E.4.6. Pittsylvania County

The Pittsylvania County Comprehensive Plan also addresses floodplain conservation. The plan suggests that floodplains be used as permanent conservation areas and that construction of permanent structures be discouraged. In general, environmental constraints to development should be recognized according to the plan. The Comprehensive Plan also suggests that the County adopt a fire prevention code.

E.5. Incorporation of Hazard Mitigation Plan into Other Planning Mechanisms

Electronic copies of the West Piedmont Multi-Jurisdictional Hazard Mitigation Plan adopted in 2016 were made available to all participating jurisdictions at the end of the adoption process. The Mitigation Advisory Committee members were encouraged to share the plan within their jurisdictions. In general, the Hazard Mitigation Plan has been used to inform the update of local emergency operations plans and local comprehensive plans, where appropriate and to the extent that these plans have been updated in the past five years. Table 6-7 illustrates which plans have been updated since the 2016 plan.

Table 6-7. Last Plan Update Date

Jurisdiction	Comp. LU Plan	Emergency Operations Plan
City of Danville	2015	2019
Franklin County	2007	2018
Town of Boones Mill	2015	2018 (Franklin County)
Town of Rocky Mount	2015	2018 (Franklin County)
Henry County	1995	2019
Town of Ridgeway	1995 (Henry County)	2019 (Henry County)
City of Martinsville	2021	2018
Patrick County	2021	2019
Town of Stuart	Not Available (under revision)	2019 (Patrick County)
Pittsylvania County	2020	2019
Town of Hurt	2021	2019 (Pittsylvania County)
Town of Gretna	2014	2019 (Pittsylvania County)
Town of Chatham	2016	2019 (Pittsylvania County)

Other plans that have incorporated the West Piedmont Multi-Jurisdictional Hazard Mitigation Plan include:

- Franklin County Public Safety Strategic Plan (update in progress)

- West Piedmont Economic Development District's Comprehensive Economic Development Strategy (CEDS)

Other than emergency operations and comprehensive plans, West Piedmont communities have a variety of planning documents that can support aspects of hazard mitigation. Currently, limited administrative and planning capability and capacity, especially in the towns, limits the extent to which hazard mitigation can be incorporated into existing plans. The Region will continue to strive to further incorporate the risk assessment, mitigation actions, and hazard mitigation principles into the plans outlined in Table 6-8, when appropriate.

Table 6-8. Availability of Plans and their Support for Hazard Mitigation

Jurisdiction	Continuity of Operations Plan	CIP	Comprehensive Land Use Plan	Economic Development Plan	Emergency Operations Plan	Floodplain Management Plan	HazMat Plan	Historic Pres. Plan	Local Hazard Mitigation Plan	Open Space Plan	Post-Disaster Redevelopment	Rad. Response Plan	Stormwater Management Plan
City of Danville		H	H	H	H	H	UR	M	H	✓			H
Franklin County		H	H	M	H	H	UR	UD	H	M	H	H	H
Town of Boones Mill	UD	UD	H	UD	RC	M	UD	M	H	UD	UD	UD	UD
Town of Rocky Mount		H	H	✓	H		H		H				RC
Henry County	M	M	M		M (UR)	H	UR	M/L (UD)	H				M
Town of Ridgeway	RC		RC		RC				H				
City of Martinsville	M	✓	M		M	M	UR		H	M	M		M (UD)
Patrick County			H	H	M	H	UR	M	H	M		M	H
Town of Stuart		UD	UR		UR	UR		UD	H				
Pittsylvania County	M	M	M (UR)		H	H	UR		H				
Town of Hurt	RC		✓		RC				H				
Town of Gretna	RC		✓		RC				H				
Town of Chatham	RC		✓		RC				H				

✓ = Plan exists, no assessment of relationship to hazard mitigation

H = Strongly supports = specifically includes hazard mitigation

M = Helps facilitate = elements could be used to support hazard mitigation

L = Hinders = no mention of hazard mitigation and does not contain elements that would support hazard mitigation or includes elements that would hinder hazard mitigation

UD = Under development

UR = Under revision

RC = Reliant on county for inclusion in their plan

F. Legal Authority

Local governments in Virginia have a wide range of tools available to them for implementing mitigation programs, policies and actions. A hazard mitigation program can utilize any or all of the four broad types of government powers granted by the State of Virginia, which are (a) regulation, (b) acquisition, (c) taxation, and (d) spending. The scope of this local authority is subject to constraints. All power is vested in the state and can only be exercised by local governments to the extent it is delegated. Thus, this portion of the capability assessment will summarize Virginia's enabling legislation which grants the four types of government powers listed above within the context of available hazard mitigation tools and techniques.

F.1. Regulation

F.1.1. General Police Power

Virginia's local governments have been granted broad regulatory powers in their jurisdictions. Virginia State Statutes bestow the general police power on local governments, allowing them to enact and enforce ordinances which define, prohibit, regulate, or abate acts, omissions, or conditions detrimental to the health, safety, and welfare of the people, and to define and abate nuisances (including public health nuisances). Since hazard mitigation can be included under the police power (as protection of public health, safety and welfare), towns, cities, and counties may include requirements for hazard mitigation in local ordinances. Local governments also may use their ordinance-making power to abate "nuisances," which could include, by local definition, any activity or condition making people or property more vulnerable to any hazard.

All jurisdictions in the planning area have enacted and enforce regulatory ordinances designed to promote the public health, safety, and general welfare of their citizenry.

F.1.2. Land Use

Regulatory powers granted by the state to local governments are the most basic way a local government can control the use of land within its jurisdiction. Through various land use regulatory powers, a local government can control the amount, timing, density, quality, and location of new development. All these characteristics of growth can determine the level of vulnerability of the community in the event of a natural hazard. Land use regulatory powers include the power to engage in planning, enact and enforce zoning ordinances, floodplain ordinances, and subdivision controls. Each local community possesses the power to prevent or limit unsuitable development in hazard-prone areas.

According to state statutes, local governments in Virginia may create or designate a planning agency. The planning agency may perform several duties, including:

- Make studies of the area;
- Determine objectives;

- Prepare and adopt plans for achieving those objectives;
- Develop and recommend policies, ordinances, and administrative means to implement plans; and
- Perform other related duties.

The importance of the planning powers of local governments is illustrated by the requirement that zoning regulations be made in accordance with a comprehensive plan. While the ordinance itself may provide evidence that zoning is being conducted in accordance with a plan, the existence of a separate planning document ensures that the government is developing regulations and ordinances that are consistent with the overall goals of the community. All counties within the planning area except Patrick County have planning departments, but all jurisdictions have, or are included in, a comprehensive plan.

F.1.3. Zoning

Zoning is the traditional and most common tool available to local governments to control the use of land. Broad enabling authority is granted for municipalities and counties in Virginia to engage in zoning. Land uses controlled by zoning include the type of use (e.g., residential, commercial, and industrial) as well as minimum specifications that control height and bulk such as lot size, building height and setbacks, and density of population. Local governments are authorized to divide their territorial jurisdiction into districts, and to regulate and restrict the erection, construction, reconstruction, alteration, repair or use of buildings, structures, or land within those districts. Districts may include general use districts, overlay districts, and special use or conditional use districts. Zoning ordinances consist of maps and written text.

The cities of Danville and Martinsville along with Pittsylvania County implement their floodplain regulations via the zoning ordinance. An overlay district is used to impose additional requirements on properties within the designated floodplain area. In addition, Franklin, Henry, and Pittsylvania counties use a Conservation District to further protect sensitive lands. Patrick County limits zoning to the Goose Point area near Philpott Lake. The regulations are designed to protect the environment and prevent overcrowding.

F.1.4. Subdivision Regulations

Subdivision regulations control the division of land into parcels for the purpose of building development or sale. Flood-related subdivision controls typically require that sub-dividers install adequate drainage facilities and design water and sewer systems to minimize flood damage and contamination. They also may prohibit the subdivision of land subject to flooding unless flood hazards are overcome through filling or other measures, and they prohibit filling of floodway areas.

All cities and counties in the planning area have adopted a subdivision ordinance. Most of the ordinances contain flood-specific provisions. For instance, Franklin, Henry, and Pittsylvania counties and the City of Martinsville require that flood-prone land be deemed unsuitable for development and is not allowed to be platted as part of a subdivision. The City of Danville requires that subdivisions with only one means of ingress ensure that floodwaters will not block that ingress. The City of Martinsville and Henry and Pittsylvania counties require that fire hydrants be installed to provide adequate fire protection. Finally, Patrick County may require that drainage easements be given to address storm and floodwater runoff issues.

F.1.5. Floodplain Regulation

All communities in the planning area have adopted floodplain regulations. Generally, the regulations adopted by the planning communities meet but do not exceed the minimum standards of the National Flood Insurance Program. The City of Danville, however, requires freeboard for residential and commercial structures. In addition, the Town of Rocky Mount requires that water heaters and other major appliances be elevated. Franklin and Pittsylvania counties and the City of Danville require in their floodplain ordinance that manufactured homes be elevated and anchored if in the floodplain district.

F.1.6. Building Codes and Building Inspection

Many structural mitigation measures involve constructing and retrofitting homes, businesses and other structures according to standards designed to make the buildings more resilient to the impacts of natural hazards. Many of these standards are imposed through building codes. All jurisdictions in the planning area have adopted the Uniform Virginia Building Code.

Local governments in Virginia also are empowered to carry out building inspections. It empowers cities and counties to create an inspection department, and enumerates their duties and responsibilities, which include enforcing state and local laws relating to the construction of buildings, installation of plumbing, electrical, and heating systems; building maintenance; and other matters. All jurisdictions have established a Building Inspections Office to carry out their building inspections.

F.1.7. Fire Codes

Virginia has a statewide fire code that is enforced by state fire marshals. The code establishes statewide standards to safeguard life and property from the hazards of fire or explosion arising from the improper maintenance of life safety and fire prevention and protection materials, devices, systems and structures. Localities may choose to adopt stricter standards and/or employ their own fire marshals. There are reciprocal agreements for fire, rescue, and law enforcement.

F.1.8. Other Ordinances

The City of Danville has enacted a hazardous tree ordinance. The ordinance states:

“Any tree which, by virtue of its condition and location, endangers the life, health, or safety of any person or structure on adjacent or adjoining real property is hereby declared to be a public nuisance and prohibited.”

The Director of Public Works is responsible for notifying private property owners if a tree on their property has been identified as a hazardous tree. The director is empowered to remove the tree if it poses an immediate threat.

Table 6-9 summarizes the various ordinances that are in effect in the jurisdictions in the planning area. Some of the town ordinances could not be confirmed, so they were left blank.

Table 6-9. Availability of Ordinances and their Support for Hazard Mitigation

Jurisdiction	Building Code	Fire Code	Floodplain Management Ordinance	Post-Disaster Reconstruction/ Redevelopment Ordinance	Subdivision Ordinance	Unified Development Ordinance	Zoning Ordinance
City of Danville	H	H	H		H		H

Jurisdiction	Building Code	Fire Code	Floodplain Management Ordinance	Post-Disaster Reconstruction/ Redevelopment Ordinance	Subdivision Ordinance	Unified Development Ordinance	Zoning Ordinance
Franklin County	H	M	H	M (UD)	H	UD	H
Town of Boones Mill			H				
Town of Rocky Mount		M	H		✓		✓
Henry County	M	M	H		M		M
Town of Ridgeway							
City of Martinsville	H	H	H		M	M	M
Patrick County	H	✓	H		H		H
Town of Stuart	UD	UD	UD		M	M	✓
Pittsylvania County	H	H	H		M		M
Town of Hurt					✓		✓
Town of Gretna							
Town of Chatham							✓

✓ = Ordinance exists, no assessment of relationship to hazard mitigation

H = specifically includes hazard mitigation

M = elements could be used to support hazard mitigation

L = no mention of hazard mitigation and does not contain elements that would support hazard mitigation or includes elements that would hinder hazard mitigation

UD = Under development

F.1.9. Acquisition

The power of acquisition can be a useful tool for pursuing local mitigation goals. Local governments may find the most effective method for completely “hazard proofing” a particular piece of property or area is to acquire the property (either in fee simple or a lesser interest, such as an easement), thus removing the property from the private market and eliminating or reducing the possibility of inappropriate development occurring. Virginia legislation empowers cities, towns, and counties to acquire property for public purpose by gift, grant, devise, bequest, exchange, purchase, lease or eminent domain.

Acquisition has been implemented by Henry County to acquire a few private properties within flood-prone areas of the County. The majority of the communities in the planning area have not used acquisition though it has been used successfully in other parts of Virginia.

F.1.10. Taxation

The power to levy taxes and special assessments is an important tool delegated to local governments by Virginia law. The power of taxation extends beyond merely the collection of revenue and can have a profound impact on the pattern of development in the community. Communities have the ability through special legislation to set preferential tax rates for areas that are more suitable for development in order to discourage development in otherwise hazardous areas. Local units of government also can levy special assessments on property owners for all or part of the costs of acquiring, constructing, reconstructing, extending, or otherwise building or improving flood protection works within a designated area. This can serve to increase the cost of building in such areas, thereby discouraging development.

Because the usual methods of apportionment seem mechanical and arbitrary, and because the tax burden on a given piece of property is often quite large, the major constraint in using special assessments is political. Special assessments seem to offer little in terms of control over land use in developing areas. They can, however, be used to finance the provision of necessary services within municipal or county boundaries. In addition, they are useful in distributing the costs of the infrastructure required by new development to new property owners.

Localities in Virginia collect a 1% sales tax. In addition, all counties and cities in the planning area levy property taxes. As noted in Table 6-4, the City of Martinsville also uses special purpose taxes.

F.1.11. Spending

The fourth major power that has been delegated from the Virginia General Assembly to local governments is the power to make expenditures in the public interest. Hazard mitigation principles should be made a routine part of all spending decisions made by the local government, including the adoption of annual budgets and the Capital Improvement Plan (CIP).

A CIP is a schedule for the provision of municipal or county services over a specified period. Capital programming can be used as a growth management technique with a view to hazard mitigation. By tentatively committing itself to a timetable for the provision of capital to extend services, a community can control growth to some extent, especially in areas where the provision of on-site sewage disposal and water supply are unusually expensive.

In addition to formulating a timetable for the provision of services, a local community can regulate the extension of and access to services. A CIP that is coordinated with extension and access policies can provide a significant degree of control over the location and timing of growth. These tools also can influence the cost of growth. If the CIP is effective in directing growth away from environmentally sensitive or high hazard areas, for example, it can reduce environmental costs. All jurisdictions in the planning area have some form of a CIP.

F.2. Political Capability

The West Piedmont Region's history of natural disasters such as the tornadoes of September 2004 and hurricanes and tropical storms in more recent years make it likely that the current and future political climates will be favorable towards supporting and advancing future hazard mitigation strategies. Political willpower to implement hazard mitigation programs should be strong.

In general, several obstacles can make hazard mitigation difficult to implement at the local level. Desirable areas for development, such as lake or riverfront properties, are often also hazardous places

to build. Local government must balance the economic benefits and demand for building in such places with the public and private costs that future disasters could inflict. In addition, in areas that are already developed, implementing mitigation actions can be costly. Part of this Hazard Mitigation Plan's mission will be to weigh the costs and benefits of such retrofitting projects to ensure that only those which are cost-effective will be chosen.

Hazard mitigation also may not be judged as high of a community priority as other projects such as a school building or utility improvement. This makes it particularly important to demonstrate how hazard mitigation should be integrated into all community decision-making as opposed to a stand-alone issue.

F.3. Summary

Much of the information in this capability assessment was provided by the jurisdictions in the planning area via a capability assessment survey. The last portion of the survey asked the jurisdictions to provide a self-assessment of their capabilities. This section has provided a more detailed analysis of their capabilities. Table 6-10 summarizes the self-reported capability assessment. As the table shows, all jurisdictions rate themselves as having medium to low capability in the various categories, apart from the Town of Boones Mill, who ranked as a high administrative and technical capability. Some of the towns did not provide self-assessment rankings, and they were assigned a "low" by other representatives of the Mitigation Advisory Committee.

Table 6-10. Capability Self-Assessment

Jurisdiction	Planning and Regulatory Capability	Administrative and Technical Capability	Fiscal Capability	Political Capability	Overall Capability
City of Danville	M	M	M	M	M
Franklin County	M	L	L	M	M
Town of Boones Mill	M	H	L	L	L
Town of Rocky Mount	L	L	L	L	L
Henry County	M	M	L	M	M
Town of Ridgeway	L	L	L	L	L
City of Martinsville	L	L	L	M	L
Patrick County	L	M	L	M	L
Town of Stuart	M	L	M	L	L
Pittsylvania County	M	M	M	M	M
Town of Hurt	L	L	L	L	L
Town of Gretna	L	L	L	L	L
Town of Chatham	L	L	L	L	L

M = Medium capability

L = Low capability

Section 7. Mitigation Strategy

This section of the Hazard Mitigation Plan describes the most challenging part of any planning effort – the development of a mitigation strategy. It is a process of:

1. Setting mitigation goals,
2. Considering mitigation alternatives,
3. Identifying objectives and actions, and
4. Developing a mitigation action plan.

A. Setting Mitigation Goals

The hazard mitigation planning process conducted by the Mitigation Advisory Committee is a typical problem-solving methodology:

- **Describe the problem** (Hazard Identification),
- **Estimate the impacts** the problem could cause (Risk Assessment),
- **Assess what safeguards exist** that might already or could potentially lessen those impacts (capability assessment), and
- Using this information, **determine what can be done to reduce risk and vulnerability or increase capabilities**, and select those actions that are appropriate for the community (mitigation strategy).

When a community decides that certain risks are unacceptable and that certain mitigation objectives must be achieved, the development of a mitigation strategy takes place. Initially, long-term and general statements known as goals are developed. These are followed by objectives that are measurable. Finally, actions, or detailed and specific methods to meet the objectives, are created.

Actions were developed as a logical extension of the plan's objectives. Most of these actions are dynamic and can change. The "high" ranking actions have been organized into a Mitigation Action Plan for the PDC's member jurisdictions.

The Mitigation Advisory Committee revised and streamlined the nine goals from the 2016 plan update in order to better capture the long-term strategic approach to mitigation that the PDC is taking. The previous goals were numerous and specific to the period in time that the plan was updated. The Mitigation Advisory Committee would like to place more emphasis on annual updates and continually adapting the plan to current conditions, so this necessitated the goals being more flexible and forward-looking. This change will help link each plan update to the next and ensure long-term goals are being achieved through near- and medium-term actions. The Mitigation Advisory Committee created the following three goals:

1. Reduce future damages, losses, and risks to the community by protecting natural and built infrastructure (homes, businesses, utility infrastructure, critical facilities, and other property) from the effects of hazards.
2. Ensure local ability to mitigate, prepare for, respond to, and recover from hazard impacts by enhancing the capabilities and capacities of local governments through regional partnership;

the efficient use of new and existing technology; and the implementation of hazard mitigation policies, regulation and planning.

3. Implement education and outreach programs and campaigns to increase public awareness of hazard risks; promote hazard mitigation's importance to health, safety, and welfare; and enhance public engagement.

B. Considering Mitigation Alternatives

During the April 20, 2021 meeting, the Mitigation Advisory Committee reviewed and commented on the draft HIRA results. Discussions held during the meeting resulted in the validation of the updated and consolidated 2021 goals. A range of action alternatives were then identified and provided to the Mitigation Advisory Committee for consideration and ranking in the weeks following. These alternatives are presented in Table 7-3.

B.1. Prioritizing Alternatives

The Mitigation Advisory Committee used the STAPLE/E (Social, Technical, Administrative, Political, Legal, Economic, and Environmental) criteria to select and prioritize the most appropriate mitigation alternatives for the Planning District communities. This methodology requires that social, technical, administrative, political, legal, economic, and environmental considerations be taken into account when reviewing potential actions for the area's jurisdictions to undertake. This process was used to help ensure that the most equitable and feasible actions would be undertaken based on a jurisdiction's capabilities. This methodology was retained for the 2021 update.

Table 7-1 provides information regarding the review and selection criteria for alternatives. Ranking was completed in order of relative priority based on the STAPLE/E criteria.

Table 7-1: STAPLE/E Review and Selection Criteria for Alternatives

STAPLE/E Review and Selection Criteria for Alternatives	
Social	
• Is the proposed action socially acceptable to the community(s)? • Are there equity issues involved that would mean that one segment of a community is treated unfairly? • Will the action cause social disruption?	
Technical	
• Will the proposed action work? • Will it create more problems than it solves? • Does it solve a problem or only a symptom? • Is it the most useful action in light of other community(s) goals?	
Administrative	
• Can the community(s) implement the action? • Is there someone to coordinate and lead the effort?	

STAPLE/E Review and Selection Criteria for Alternatives	
	- Is there sufficient funding, staff, and technical support available? - Are there ongoing administrative requirements that need to be met?
Political	
	- Is the action politically acceptable? - Is there public support both to implement and to maintain the project?
Legal	
	- Is the community(s) authorized to implement the proposed action? Is there a clear legal basis or precedent for this activity? - Are there legal side effects? Could the activity be construed as a taking? - Is the proposed action allowed by a comprehensive plan, or must a comprehensive plan be amended to allow the proposed action? - Will the community(s) be liable for action or lack of action? - Will the activity be challenged?
Economic	
	- What are the costs and benefits of this action? - Do the benefits exceed the costs? - Are initial, maintenance, and administrative costs taken into account? - Has funding been secured for the proposed action? If not, what are the potential funding sources (public, non-profit, and private)? - How will this action affect the fiscal capability of the community(s)? - What burden will this action place on the tax base or local economy? - What are the budget and revenue effects of this activity? - Does the action contribute to other community goals, such as capital improvements or economic development? - What benefits will the action provide?
Environmental	
	- How will the action affect the environment? - Will the action need environmental regulatory approvals? - Will it meet local and state regulatory requirements? - Are endangered or threatened species likely to be affected?

C. Identifying Objectives and Actions

Community officials should consider the goals that follow before making community policies, public investment programs, economic development programs, or community development decisions for their communities. Objectives have been developed for each goal. The objectives state a more specific

outcome that the jurisdictions of the West Piedmont Region expects to accomplish over the next five years. Each objective has been matched with at least one of the following activity categories (shown in Table 7-3):

- Structure and Infrastructure Projects
- Local Plans and Regulations
- Capability and Capacity Building
- Preparedness and Response
- Education and Awareness Programs; and/or
- Natural Systems Protection.

The objectives listed in Table 7-2 provide an overall sense of what exactly is desired and have been affirmed and refined to coordinate with the newly consolidated goals. Specifically, the objectives chosen were created with the HIRA results, public concerns, capabilities, and capacities of the jurisdictions in mind, as illustrated in the STAPLE/E criteria. This ensures that objectives are both beneficial and realistic.

Table 7-2: Mitigation Goals and Objectives

Mitigation Goals and Objectives
Goal 1. Reduce future damages, losses, and risks to the community by protecting natural and built infrastructure (homes, businesses, utility infrastructure, critical facilities, and other property) from the effects of hazards. Objective 1.1. Implement physical hazard mitigation projects at the regional and local level to protect homes and businesses. Objective 1.2. Integrate relevant structural hazard mitigation techniques and monitoring of community facilities/ infrastructure to minimize future loss and damages. Objective 1.3. Reduce the number of roadways that face repetitive flooding issues. Objective 1.4. Consistently plan, incentivize, and prepare for future physical mitigation projects. Objective 1.5. Mitigate hazard risk to natural infrastructure.
Goal 2. Ensure local ability to mitigate, prepare for, respond to, and recover from hazard impacts by enhancing the capabilities and capacities of local governments through regional partnership; the efficient use of new and existing technology; and the implementation of hazard mitigation policies, regulation and planning. Objective 2.1. Integrate hazard mitigation principles into new and existing government planning, policy, regulation and actions to increase the resilience of public infrastructure and services and protect future development. Objective 2.2. Utilize mapping, drones, trainings, and other technological tools to improve the capability and capacity of local governments before, during, and after a hazard occurrence. Objective 2.3. Expand and enhance available hazard datasets.
Goal 3. Implement education and outreach programs and campaigns to increase public awareness of hazard risks; promote hazard mitigation's importance to health, safety, and welfare; and enhance public engagement.

Mitigation Goals and Objectives

Objective 3.1. Develop programs that help the public carry out actionable activities they can implement in the near- and long-term to mitigate and prepare for hazards.

Objective 3.2. Implement education and awareness campaigns through partnerships with local media and businesses that educate the public on what risks hazards pose to them and how they (and their community) can increase resiliency better respond to those hazards.

Objective 3.3. Increase the amount of the West Piedmont public that is actively engaged in the ongoing hazard mitigation planning process.

In formulating a mitigation strategy, a wide range of actions were considered in order to help achieve the goals and to lessen the vulnerability of the West Piedmont Planning District Region to the effects of hazards.

Actions were ranked by each community. Ranking was completed in order of relative priority based on the STAPLE/E criteria, as well as the strategy's potential to reduce vulnerability to hazards. Actions were given a ranking of high, medium, or low, with the following meanings:

- High – implement in the short-term (within 5 years)
- Medium – implement in the long-term (within 5-10 years)
- Low – implement only as funding becomes available

When deciding on which actions should receive priority in implementation, the communities considered:

- Time – Can the strategy be implemented quickly?
- Ease to implement – How easy is the strategy to implement? Will it require many financial or staff resources?
- Effectiveness – Will the strategy be highly effective in reducing risk?
- Lifespan – How long will the effects of the strategy be in place?
- Hazards – Does the strategy address a high priority hazard, or does it address multiple hazards?
- Post-disaster implementation – Is this strategy easier to implement in a post-disaster environment?

In addition, the anticipated level of cost effectiveness of each measure was a primary consideration when developing mitigation actions. Because mitigation is an investment to reduce future damages, it is important to select measures for which the reduced damages over the life of the measure are likely to be greater than the project cost. For structural measures, the level of cost effectiveness is primarily based on the likelihood of damages occurring in the future, the severity of the damages when they occur, and the level of effectiveness of the selected measure. These factors were of primary concern when selecting measures. For those measures that do not result in a quantifiable reduction of damages, such as public education and outreach, the relationship of the probable future benefits and the cost of each measure was considered when developing the mitigation actions.

The following matrix in Table 7-3 shows the mitigation actions that each jurisdiction selected as appropriate for their community and their priority in 2021. Appendix C provides status updates for actions identified in the 2016 plan.

Table 7-3. Mitigation Goals, Objectives, and Actions

Goal	Objective Activity Category	Objective	Action	Hazard(s) Addressed	Municipality & Priority (Low, Medium, High)
Goal 1. Reduce future damages, losses, and risks to the community by protecting natural and built infrastructure (homes, businesses, utility infrastructure, critical facilities, and other property) from the effects of hazards.	Structure and Infrastructure Projects	Objective 1.1. Implement physical hazard mitigation projects at the regional and local level to protect homes and businesses.	Upgrade water systems to bring additional water sources on-line, link community systems to provide redundancy, and provide additional areas with non-well water.	Drought	Pittsylvania County Hurt Chatham
			Implement a program to identify older sewer system components (e.g., manhole covers that are located in the 1-percent-annual-chance floodplain or other areas identified as highly probable for flooding) and complete sealing and venting to reduce flood risk.	Flooding	Gretna
			Increase drainage or absorption capacities of the biggest stormwater flooding problem areas with the most appropriate mitigation technique (e.g., detention and retention basins, relief drains, spillways, drain widening/dredging or rerouting, logjam and debris removal, extra culverts, bridge modification, dike setbacks, flood gates and pumps, channel redirection).	Flooding	Danville Martinsville Pittsylvania County Hurt Gretna Chatham Patrick County Stuart Franklin County Boones Mill Rocky Mount

Goal	Objective Activity Category	Objective	Action	Hazard(s) Addressed	Municipality & Priority (Low, Medium, High)
			Replace the culverts that run beneath buildings in the downtown Danville area by 2024.	Flooding	Danville
			Work with VDOT to replace vulnerable or undersized culvert stream crossings in operations with bridges or larger culverts to reduce flood hazards by 2024.	Flooding	Henry County
			Address the flooding from high-intensity rainfall events in downtown Boones Mill by performing a flood analysis followed by completing at least one flood mitigation project.	Flooding	Boones Mill
			Reach out to the public for input, then complete a flood mitigation action for Rocky Mount based on their area of highest concern.	Flooding	Rocky Mount
			Implement at least one mitigation action at a road or site known to have a high risk of landslides (e.g., piles and retaining walls, diverting debris pathways, rerouting surface underwater drainage).	Landslide	Franklin County
			Address landslide risk at Fayette Street with a suitable mitigation action (e.g. piles and retaining walls, diverted debris pathways, rerouting surface underwater drainage).	Landslide	Pittsylvania County

Goal	Objective Activity Category	Objective	Action	Hazard(s) Addressed	Municipality & Priority (Low, Medium, High)
			Install cost-effective wildfire risk reduction tools for use in rural settings, such as dry hydrants, drafting, equipment and tankers.	Wildfire	Patrick County Stuart
			Work with VDOT, private utilities, and/or private homeowners to trim or remove trees that could down power lines and block roads.	Winter Storm, Hurricane Wind, Tornado, Severe Weather, Wildfire	Danville Rocky Mount
			Support mitigation of priority disaster-prone structures through promotion of acquisition/demolition, elevation and flood proofing projects where feasible using FEMA HMA programs where appropriate.	Flooding	Danville Martinsville Pittsylvania County Hurt Gretna Chatham Henry County Ridgeway Patrick County Stuart Franklin County Boones Mill Rocky Mount

Goal	Objective Activity Category	Objective	Action	Hazard(s) Addressed	Municipality & Priority (Low, Medium, High)
	Structure and Infrastructure Projects	Objective 1.2. Integrate relevant structural hazard mitigation techniques and monitoring of community facilities/ infrastructure to minimize future loss and damages.	Refurbish Cherrystone Dams #1 and #2A. Both dams' conditions are rated as "satisfactory" and they are classified as high hazard potential dams.	Dam Failure	Pittsylvania County Chatham
			Work with DCR to coordinate on inspection, maintenance, and potential mitigation projects to help ensure continued structural integrity of high hazard potential dams and levees.	Dam Failure	Stuart Franklin County
			Develop a plan for the Norfolk Southern Railroad bridge to routinely monitor underlying creek for debris and sediment removal to reduce risk for overflows.	Flooding	Ridgeway
			Harden Pittsylvania County 911 Center or construct a new community safe room as part of a new 911 Center.	Earthquake, Tornado, Hurricane Wind	Pittsylvania County
			Provide critical public facilities with (1) necessary electrical hook-up, wiring, and switches to allow readily accessible connections and (2) backup generators.	Flooding, Winter Storm, Hurricane Wind, Severe Weather, Tornado, Earthquake	Martinsville Pittsylvania County Patrick County Stuart Franklin County Boones Mill Rocky Mount

Goal	Objective Activity Category	Objective	Action	Hazard(s) Addressed	Municipality & Priority (Low, Medium, High)
	Structure and Infrastructure Projects	Objective 1.3. Reduce the number of roadways that face repetitive flooding issues.	Ensure proper maintenance of backup generators and install necessary components for Martinsville Middle School shelter and Beaver Creek Reservoir Pump Station.	Flooding, Winter Storm, Hurricane Wind, Severe Weather, Tornado, Earthquake	Martinsville
			Complete a flood mitigation project for Riverside Drive based on the study of the lower reach of Apple Branch Creek near Audubon Drive and Riverside Drive.	Flooding	Danville
			Implement a flood/erosion mitigation project to address the issues at the intersections of Indian Trail, Cherokee Court, and Sam Lions Trail.	Flooding	Martinsville
			Develop an overflow monitoring plan for Mulberry Creek, prioritizing the intersection of Spruce Street and Dick and Wille Trailhead. Assess the potential for road closures due to flooding. Conduct a flood mitigation project that will prevent road closures in the future.	Flooding	Pittsylvania County
			Coordinate with VDOT to complete at least one flood mitigation action per year on a roadway that, if obstructed, would prevent vulnerable populations from evacuating and/or reaching safety. Prioritize actions addressing known problem areas and based on previous study findings.	Flooding	Danville Pittsylvania County Hurt Gretna Chatham Patrick County Franklin County

Goal	Objective Activity Category	Objective	Action	Hazard(s) Addressed	Municipality & Priority (Low, Medium, High)
					Boones Mill Rocky Mount
	Structure and Infrastructure Projects Capability & capacity building Local plans & regulations	Objective 1.4. Consistently plan, incentivize, and prepare for future physical mitigation projects.	Notify jurisdictions about mitigation funding opportunities under the BRIC, FMA and HMGP programs as applicable. Provide technical assistance and letters of support when appropriate.	All Hazards	WPPDC
			Conduct a regional study by 2025 to inspect and assess stormwater and sewer system capacity for major rain events and identify potential mitigation actions.	Flooding	WPPDC
			Participate in a regional study by 2023 to inspect and assess stormwater drainage and sewer system capacity for major rain events and identify potential mitigation actions. Coordinate with VDOT to assess needs in unincorporated areas.	Flooding	Danville Martinsville Pittsylvania County Hurt Gretna Chatham Patrick County Stuart Franklin County Boones Mill Rocky Mount

Goal	Objective Activity Category	Objective	Action	Hazard(s) Addressed	Municipality & Priority (Low, Medium, High)
			Perform a mitigation review of all primary and secondary schools by 2023 to evaluate their resistance to natural hazards. Prioritize the schools that are used as community shelters.	All Hazards	Henry County
			Conduct at least one site inspection of a school every year to identify tornado safe rooms and other areas that could be used for temporary shelter. Coordinate with existing routine inspections.	Tornado	Danville Martinsville Patrick County Stuart Franklin County Boones Mill Rocky Mount
			Develop a stormwater committee that meets regularly to discuss issues that the public has concerns with and recommend projects to address them.	Flooding	Danville Martinsville Pittsylvania County Hurt Gretna Chatham Patrick County Stuart Franklin County Boones Mill Rocky Mount

Goal	Objective Activity Category	Objective	Action	Hazard(s) Addressed	Municipality & Priority (Low, Medium, High)
			Use new flood maps to evaluate candidates for residential elevations and acquisitions. Reach out to a group of homeowners for inclusion in grant sub-applications.	Flooding	Chatham
			Coordinate with VDOT to establish flood level markers along bridges and other structures to indicate the rise of water levels along creeks and rivers in potential flood-prone areas. Incorporate the procedures for tracking high water marks following a flood into emergency response plans.	Flooding	Hurt Franklin County Boones Mill
			By 2024, study low-head dams for removal and, if determined necessary, begin the process of removal.	Dam Failure	Franklin County
			Identify roads with the highest risk to landslides by 2024 by conducting a study or updating existing data. Collect relevant data to monitor risk over time. Begin site-specific mitigation actions (i.e. piles and retaining walls, diverted debris pathways, rerouting surface underwater drainage).	Landslide	Danville Martinsville Pittsylvania County Hurt Gretna Chatham
			Investigate all public utility lines to evaluate their resistance to flood, hurricane wind, and winter storm hazards by 2023.	Winter Storm, Hurricane Wind, Flooding, Tornado, Severe Weather	Boones Mill

Goal	Objective Activity Category	Objective	Action	Hazard(s) Addressed	Municipality & Priority (Low, Medium, High)
	Natural systems protection	Objective 1.5. Mitigate hazard risk to natural infrastructure.	Identify and protect at least one critical aquifer recharge zone in a high-risk area per year.	Drought	Gretna
			Implement at least one nature-based resiliency project, such as bioswales, ecosystem restoration or land conservation / protected area management. Prioritize projects that minimize hazard risk, like conserving open space in perpetuity and reducing stormwater runoff. Leverage existing programs to facilitate nature-based resilience, like supporting landowners' certification of nutrient credits to secure conservation easements.	Flooding, Landslide	Danville Martinsville Pittsylvania County Franklin County Boones Mill Rocky Mount
			Implement a channel maintenance program consisting of routine inspections and subsequent debris and sediment removal to ensure free flow of water in local streams and watercourses by 2023. Include detections and prevention of discharges into stormwater and sewer systems from home footing drains, downspouts, or sewer pumps.	Flooding	Danville Pittsylvania County Henry County
Goal 2. Ensure local ability to mitigate, prepare for, respond to, and recover from hazard impacts by enhancing the capabilities and capacities of local governments through regional partnership; the efficient use of new and existing technology; and the	Local plans & regulations Capability & capacity building	Objective 2.1. Integrate hazard mitigation principles into new and existing government planning, policy, regulation and actions to increase the	Support remaining jurisdictions to become NWS "StormReady" certified communities by ensuring staff requirements are met, assisting with the designation process, and helping to research and incorporate necessary bylaws, guidelines, and procedures. Help all jurisdictions maintain StormReady certification by verifying requirements every five years.	Winter Storm, Hurricane Wind, Tornado, Severe Weather, Flooding	WPPDC
			Qualify for and participate in the StormReady program sponsored by the National Weather Service.	Winter Storm, Hurricane Wind,	Pittsylvania County Hurt

Goal	Objective Activity Category	Objective	Action	Hazard(s) Addressed	Municipality & Priority (Low, Medium, High)
implementation of hazard mitigation policies, regulation and planning.		resilience of public infrastructure and services and protect future development.		Tornado, Severe Weather	
			Develop a strategy by 2023 to encourage more municipalities to participate in the FireWise Communities program to reduce wildfire risk.	Wildfire	Patrick County Stuart Franklin County Boones Mill Rocky Mount
			Review jurisdictions' compliance with the NFIP with an annual review of the floodplain ordinances and any newly permitted activities in the 1-percent-annual-chance floodplain. The WPPDC will maintain a record of approved changes to the local Floodplain.	Flooding	WPPDC Danville Pittsylvania County
			Obtain official recognition of the Mitigation Advisory Committee from the jurisdictions in the Planning District to institutionalize and develop an on-going mitigation program. Include official recognition of Mitigation Advisory Committee in HMP adoption resolution. Use the Mitigation Advisory Committee to review mitigation projects and coordinate multi-jurisdictional and regional grant applications.	All Hazards	WPPDC Danville Martinsville Pittsylvania County Hurt Gretna Chatham Henry County Ridgeway Patrick County Stuart

Goal	Objective Activity Category	Objective	Action	Hazard(s) Addressed	Municipality & Priority (Low, Medium, High)
					Franklin County Boones Mill Rocky Mount
			Incorporate hazard mitigation principles, hazard data, vulnerability assessments and resilience concepts into Capital Improvement Plans, the Comprehensive Plan, a Redevelopment Plan, and an Open Space Plan to prevent/control construction within the floodplain and support other mitigation concepts.	Flooding	Patrick County Stuart
			Integrate the location-specific hazards risks identified in this plan into the next update of the Comprehensive Plan.	Flooding, Wildfire, Dam Failure,	Gretna Ridgeway
			Incorporate mitigation principles into local emergency management and recovery plans.	All Hazards	Henry County
			Include resilience concepts and strategies in long-term hospital improvement plan.	All Hazards	Pittsylvania County
			Develop Continuity of Operations plan and ensure there is specific coverage for long-term remote work need, especially for essential employees, by 2024.	All Hazards	Danville Stuart Boones Mill Rocky Mount
			Coordinate with Western Virginia Water Authority and Bedford Water Authority to create a regional drought plan that identifies actions to mitigate threats to local crops and agriculture. This may include locating potential sources of water, water collection/harvesting, reducing water use, converting to efficient irrigation methods, soil water conservation	Drought	Franklin County Boones Mill Rocky Mount

Goal	Objective Activity Category	Objective	Action	Hazard(s) Addressed	Municipality & Priority (Low, Medium, High)
			practices, no-till, reduced-tillage systems, and crop insurance. Update the plan on a set schedule.		
			Complete purchase agreement with new solar farm.	All Hazards	Martinsville
			Provide annual training opportunities to local zoning and building code enforcement staff. Educate staff on damage assessment, mitigation techniques, and other related topics.	All Hazards	Danville Pittsylvania County Hurt Gretna Chatham Henry County Patrick County Stuart Franklin County
			Fund at least one staff member per year to attend a training opportunity provided by the Virginia Floodplain Management Association to become a Certified Floodplain Manager.	Flooding	Danville Martinsville Patrick County Franklin County Boones Mill
			Implement an inspection, maintenance, and enforcement program to help ensure continued structural integrity of non-private dams and levees.	Dam Failure	Danville

Goal	Objective Activity Category	Objective	Action	Hazard(s) Addressed	Municipality & Priority (Low, Medium, High)
			Assess needs for full study or immediate actions to address aging stormwater systems on private property to reduce risk of property damage.	Flooding	Pittsylvania County
			Develop contingency plans for potential hazardous material incident at train tracks at Diamond Avenue.	Inorganic/Organic Spill	Franklin County
			Improve response strategy for pipeline emergencies.	Pipeline Failure	Franklin County
			(1) the City commits to public education of its citizens, businesses, and partners on available technologies, strategies, and resources for enhancing resilience in the built environment; (2) that Martinsville will strive to achieve an Exceptional designation under the ANCR Community Resilience Benchmarks by 2030; (3) that Martinsville will continue to fund and execute its current projects not limited to critical facilities, programs, and priorities that promote resilience within the community to maintain and improve its baseline towards the 2030 goal; and (4) that Martinsville will review, propose, and consider the adoption of policies and partnerships to further enhance community resilience in the next decade.	All Hazards	Martinsville
	Capability & capacity building	Objective 2.2. Utilize mapping, drones, trainings, and other technological tools to improve the capability	Establish protocol for collecting damage assessment data in GIS format and visually (including building off of Crisis Tracker) expanding drone usage and building up data capabilities. Data can be used in future Benefit-Cost Analyses and to track Public and Individual Assistance expenditures.	All Hazards	Danville Pittsylvania County Hurt Gretna Chatham Patrick County

Goal	Objective Activity Category	Objective	Action	Hazard(s) Addressed	Municipality & Priority (Low, Medium, High)
		and capacity of local governments before, during, and after a hazard occurrence.			Stuart Franklin County Boones Mill Rocky Mount
			Expand broadband capabilities to improve emergency communications to rural areas and increase internet access.	All Hazards	Patrick County Stuart Franklin County Boones Mill Rocky Mount
			Assess existing radio coverage and identify any gaps. Determine if additional equipment is needed in certain jurisdictions and make a plan with a timeframe for acquiring. For example, some areas in Boones Mill lack radio coverage and police must use cell phones.	All Hazards	Patrick County Stuart Franklin County Boones Mill Rocky Mount
			Encourage the purchase of and training on the use of NOAA radios. Provide NOAA weather radios to public facilities.	Flooding, Winter Storm, Hurricane Wind, Severe Weather, Tornado, Wildfire, Drought, Earthquake, Landslide	Henry County

Goal	Objective Activity Category	Objective	Action	Hazard(s) Addressed	Municipality & Priority (Low, Medium, High)
			Develop or enhance the Reverse 911 or other public notification system.	All Hazards	Gretna
			Increase flood warning capabilities, including through Reverse 911 messaging and particularly as they relate to dam failure. Improve signage and warning systems near dams.	Flooding, Dam Failure	Martinsville Franklin County
			Implement a public warning system for hazard occurrences.	All Hazards	Ridgeway
			Implement the CodeRed system and refine evacuation messages for targeted evacuation warnings.	All Hazards	Pittsylvania County
			Pre-identify dam inundation areas in EMS system and form evacuation messaging for Blackwater watershed.	Dam Failure	Franklin County Boones Mill
			Provide annual training opportunities for staff to enhance their ability to use GIS for emergency management needs.	All Hazards	Danville Pittsylvania County Hurt Gretna Chatham Henry County Ridgeway Stuart Rocky Mount
			Coordinate with the state to update and digitize community Flood Insurance Rate Maps (FIRMs).	Flooding	Danville Martinsville

Goal	Objective Activity Category	Objective	Action	Hazard(s) Addressed	Municipality & Priority (Low, Medium, High)
					Pittsylvania County Hurt Gretna Chatham Henry County Ridgeway Patrick County Stuart Franklin County Boones Mill Rocky Mount
	Capability & capacity building	Objective 2.3. Expand and enhance available hazard datasets.	Develop an enhanced dam inundation GIS layer and/or mapping product for all high hazard potential dams. Coordinate with WPPDC so data is standardized across jurisdictions. Enhance existing data and fill gaps for jurisdictions that lack any information.	Dam Failure	Danville Martinsville Pittsylvania County Hurt Gretna Chatham Henry County Ridgeway Patrick County Stuart

Goal	Objective Activity Category	Objective	Action	Hazard(s) Addressed	Municipality & Priority (Low, Medium, High)
					Franklin County Boones Mill Rocky Mount
			Develop a dam inundation GIS layer and/or mapping product for entire planning district. Coordinate with jurisdictions to ensure data consistency and accuracy across data.	Dam Failure	WPPDC
			Develop and maintain a database to track community exposure to flood risk, then use it to create and maintain a GIS layer for stormwater flooding problem areas. Coordinate with other jurisdictions in the West Piedmont Region to identify regional problem areas.	Flooding	Danville Pittsylvania County Hurt Gretna Chatham Ridgeway Patrick County Stuart Franklin County
			Identify “typical problem areas”—neighborhoods whose roads are regularly flooded and closed—and create a data set that is publicly accessible.	Flooding	Pittsylvania County
			Coordinate with other counties in West Piedmont Planning District Commission to make parcel and hazard GIS data available online and mobile-device friendly via the hazard mitigation website.	All Hazards	Martinsville Franklin County Rocky Mount

Goal	Objective Activity Category	Objective	Action	Hazard(s) Addressed	Municipality & Priority (Low, Medium, High)
			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 that property has been mitigated and by what means. Provide corrections if needed by filing form FEMA AW-501. List should be requested from VDEM and/or DCR.	Flooding	Martinsville
Goal 3. Implement education and outreach programs and campaigns to increase public awareness of hazard risks; promote hazard mitigation's importance to health, safety, and welfare; and enhance public engagement.	Public education & awareness Structure and Infrastructure Projects	Objective 3.1. Develop programs that help the public carry out actionable activities they can implement in the near- and long-term to mitigate and prepare for hazards.	Identify, create a database of, and regularly reach out to vulnerable populations, such as the elderly or lower-income households, to identify how they may need help with hazard mitigation and preparedness.	All Hazards	Danville Martinsville Patrick County Stuart Franklin County Boones Mill Rocky Mount
			Identify lowest cost, highest value mitigation techniques for West Piedmont's hazards and work with local home improvement stores to provide workshops to residents on those mitigation techniques by 2024.	All Hazards	Danville Martinsville Hurt Chatham Henry County Ridgeway Patrick County Stuart Franklin County

Goal	Objective Activity Category	Objective	Action	Hazard(s) Addressed	Municipality & Priority (Low, Medium, High)
					Boones Mill Rocky Mount
			Encourage public and private water conservation plans, including consideration of rainwater catchment systems by posting relevant information on jurisdiction websites and social media pages, or reaching out in another format.	Drought	Gretna
			Identify mitigation measures for known RL, SRL and other vulnerable structures, including relocation, acquisition, floodproofing and mitigation reconstruction projects. Conduct targeted outreach to the owners to discuss the findings; present options for technical assistance and funding from municipal, state, and federal sources; and raise awareness of NFIP compliance. Support mitigation of priority RL and disaster-prone properties by annually posting on social media and other online sources to advertise successful acquisition/demolition, elevation, and flood-proofing projects to promote public awareness.	Flooding	Danville Martinsville Pittsylvania County Patrick County Franklin County
			Institute a program to incentivize landlords and developers to invest in risk-reduction measures that will protect commercial or residential tenants, such as waiving permit fees for mitigation actions.	All Hazards	Danville Martinsville Franklin County Boones Mill Rocky Mount

Goal	Objective Activity Category	Objective	Action	Hazard(s) Addressed	Municipality & Priority (Low, Medium, High)
	Public education & awareness Preparedness & response	Objective 3.2. Implement education and awareness campaigns through partnerships with local media and businesses that educate the public on what risks hazards pose to them and how they (and their community) can increase resiliency better respond to those hazards.	Work with local media outlets to increase awareness of natural hazards by implementing seasonal hazard awareness weeks or days (e.g., hurricane preparedness week, winter weather awareness day).	All Hazards	Danville Martinsville Pittsylvania County Hurt Chatham Henry County Ridgeway Stuart Franklin County Boones Mill Rocky Mount
			Conduct public education at least annually on the principles of “sheltering in place,” specifically focusing on the “Get Through 72” campaign.	Flooding, Winter Storm, Hurricane, Severe Weather, Tornado, Earthquake	Henry County
			Develop and implement a public education campaign by 2023 about risks of living near a pipeline.	Pipeline Failure	Franklin County
			Work with the Chamber of Commerce to educate and prepare local business owners for natural disasters through an annual campaign online or a single-day seminar/event. Identify and recommend cost-effective	All Hazards	Pittsylvania County

Goal	Objective Activity Category	Objective	Action	Hazard(s) Addressed	Municipality & Priority (Low, Medium, High)
			mitigation actions to reduce the risk of business disruption or losses during hazard events.		
			Inform residents about all-perils insurance policies for homeowners and renters by posting on social media and working with local media outlets.	All Hazards	Pittsylvania County
	Public education & awareness	Objective 3.3. Increase the amount of the West Piedmont public that is actively engaged in the ongoing hazard mitigation planning process.	Maintain and update a Regional Hazard Mitigation webpage at least semi-annually with new project status and planning information.	All Hazards	WPPDC
			Develop a schedule to regularly distribute information and resources on relevant hazards to increase public participation, education and outreach. Use hazard mitigation website, social media platforms, mailers, in-person events, community organizations and public schools to educate public on mitigation.	All Hazards	Danville Martinsville Stuart Franklin County Boones Mill Rocky Mount
			Develop a list of public engagement strategies for the next hazard mitigation plan update public outreach effort. This should include creating a list of already established community groups that can help spread information about the plan.	All Hazards	WPPDC

Goal	Objective Activity Category	Objective	Action	Hazard(s) Addressed	Municipality & Priority (Low, Medium, High)
			Future public and stakeholder engagement efforts for the hazard mitigation planning process will utilize a more targeted approach through partnering with local, trusted, grassroots partners and utilize breakout groups to focus on individual topics of concern (e.g., housing, the environment, equity).	All Hazards	WPPDC

In addition to the actions identified above, the West Piedmont PDC will continue to reach out to neighboring jurisdictions to review and provide input into the implementation and future updates of the plan. These jurisdictions include:

Virginia:

- Mount Rogers PDC
- New River Valley PDC
- Region 2000 Regional Commission
- Roanoke Valley-Alleghany Regional Commission
- Southside PDC

North Carolina:

- Caswell County
- Rockingham County
- Stokes County
- Surry County

D. Developing a Mitigation Action Plan

Mitigation action plans were developed for the high-priority actions for each jurisdiction. The following action plans were designed to achieve the goals and objectives identified in this multi-jurisdictional hazard mitigation plan. Each proposed action includes the:

1. Appropriate activity category (or categories) for the mitigation action including:
 - a. Structure and Infrastructure Projects;
 - b. Local plans and regulations;
 - c. Capability and capacity building;
 - d. Preparedness and response;
 - e. Public education and awareness; and
 - f. Natural systems protection.
2. Hazard(s) it is designed to mitigate;
3. Objective(s) it is intended to help achieve;
4. Cost/Benefit Statement;
5. Background information;
6. Estimated cost;
 - a. Low (Staff time to \$100,000)
 - b. Moderate (\$100,001 to \$1 million)
 - c. High (More than \$1 million)
7. Potential funding sources, if applicable;
8. Agency/person assigned responsibility for carrying out the action; and
9. Target completion date (i.e., short-term = within 2 years; mid-term = within 5 years; long-term = longer than 5 years).

D.1. Jurisdiction Actions

Each jurisdiction selected and prioritized mitigation strategies for their jurisdiction. The mitigation actions ranked as “high” for each jurisdiction are described in more detail below.

D.1.1. West Piedmont Planning District Commission

Notify jurisdictions about mitigation funding opportunities (such as under the BRIC, FMA and HMGP programs). Provide technical assistance and letters of support when appropriate.	
Category	Capability & capacity building
Hazard	All Hazards
Objective(s) addressed	1.4
Cost Benefit	The additional funding to complete mitigation projects that would otherwise go unfunded is a direct benefit.
Background	The Capability Assessment outlines the need and importance of securing grant funding for the projects listed in this plan. The participating jurisdictions have a funding hurdle that prevents projects from getting started, and the PDCs role in helping to identify, plan for, and secure grant funding opportunities is critical to the success of this plan. FEMA’s HMA programs are listed, but this work can and should extend to any grant opportunities, including in-state funding such as the Community Flood Preparedness Fund, which can potentially cover the local cost share of federal grants.
Estimated Cost	Low
Funding sources	Operating budgets
Responsible party	PDC
Completion date	Ongoing

Conduct a regional study by 2025 to inspect and assess stormwater and sewer system capacity for major rain events and identify potential mitigation actions.	
Category	Local plans & regulations
Hazard	Flooding
Objective(s) addressed	1.4
Cost Benefit	This study would be an initial project scoping step to further plan direct mitigation projects that would address ongoing flooding issues that are routinely costing jurisdictions directly through repairs, as well as indirectly through economic losses from work stoppage and delays.
Background	Stormwater flooding was identified as a growing issue in the West Piedmont Region during the 2021 plan update. The public was asked to help identify problem areas, but this information only highlighted the need for a comprehensive study that thoroughly identified all the stormwater flooding problem areas.

Conduct a regional study by 2025 to inspect and assess stormwater and sewer system capacity for major rain events and identify potential mitigation actions.	
	Once an assessment is completed, mitigation actions to address these issues should be a top priority. It is expected that these projects will be a major focus of the next iteration of this plan.
Estimated Cost	Moderate
Funding sources	HMA / VA CFPM
Responsible party	PDC
Completion date	Mid-term

Maintain and update a Regional Hazard Mitigation webpage at least semi-annually with new project status and planning information.	
Category	Public education & awareness
Hazard	All Hazards
Objective(s) addressed	3.3
Cost Benefit	This action only requires staff time, and the direct benefits of increased public awareness and participation will significantly help with the next plan update.
Background	The WPPDC website was recently redesigned in 2021, and this provides a fresh start to increase the amount of information and resources that are available to the public. Project status information as well as plenty of opportunities for public input and participation in the planning process should be included.
Estimated Cost	Low
Funding sources	Operating budget
Responsible party	PDC
Completion date	Ongoing

D.1.2. City of Danville

Replace the culverts that run beneath buildings in the downtown Danville area by 2024.	
Category	Structure and Infrastructure Projects
Hazard	Flooding
Objective(s) addressed	1.1
Cost Benefit	The value of the historic buildings that are over and around the culverts likely exceed the cost of the culvert replacement project, considering the fair market value and economic benefits of the downtown area.
Background	Founded in the late 1700s, Danville has numerous historic buildings and areas. The downtown area was primarily built in the mid-1800s. Culverts run underneath the City's

Replace the culverts that run beneath buildings in the downtown Danville area by 2024.	
	historic buildings. These culverts are antiquated and in danger of collapse. Collapse of these culverts could lead to both the collapse of the buildings above them and increased flood risk. The evaluation for culvert replacements is conducted on an ongoing basis.
Estimated cost	Moderate
Funding sources	CDBG-DR, VA-CFPF, HMA
Responsible party	Public Works, Engineering
Completion date	Short-term

Work with VDOT, private utilities, and/or private homeowners to trim or remove trees that could down power lines and block roads.	
Category	Preparedness & response
Hazard	Winter Storm, Hurricane Wind, Tornado, Severe Weather, Wildfire
Objective(s) addressed	1.1
Cost Benefit	Decreased risk of power line damage, power disruption, and transportation disruption from falling trees or branches would be a direct benefit. This could be accomplished at a relatively low cost with staff time.
Background	Severe wind and heavy ice or snow loads can bring down tree limbs or entire trees. Trees are particularly vulnerable if they have been recently impacted by drought or previous storm events. An aggressive tree trimming and removal program should be undertaken to ensure that power line right of ways are clear of potential hazards. A system to identify trees with structural weaknesses should be developed. In addition, a means to communicate between responsible parties should be established so that potential problem spots can be addressed as they are identified by town and other staff. Because tree trimming may affect the existing tree canopy and resulting community appearance, it may require a public education campaign to explain the need for a tree trimming program.
Estimated cost	Low
Funding sources	Public/Private partnerships, Operational budget
Responsible party	City Manager, Dominion Power, Comcast, Verizon, VDOT
Completion date	Short-term

Complete a flood mitigation project for Riverside Drive based on the study of the lower reach of Apple Branch Creek near Audubon Drive and Riverside Drive.	
Category	Structure and Infrastructure Projects
Hazard	Flooding
Objective(s) addressed	1.3
Cost Benefit	Public and private property damage has already led to the costs of repairs and disrupted travel. A cost-effective mitigation project will be chosen once the study is complete based on previous damage data.
Background	Riverside Drive is a known problem area for flooding. Previous floods have caused public and private property damage and disrupted travel. A study is currently underway that will assess the roadway's flood risks by reviewing the lower reach of Apple Branch Creek near Audubon Drive and Riverside Drive. The findings from this study will be used to inform potential strategies and actions that reduce the future risk to flooding.
Estimated cost	Moderate
Funding sources	BRIC, FMA, HMPG, VA CFPF
Responsible party	Emergency Services, Planning, Public Works
Completion date	Short-term

Coordinate with VDOT to complete at least one flood mitigation action per year on a roadway that, if obstructed, would prevent vulnerable populations from evacuating and/or reaching safety. Prioritize actions addressing known problem areas and based on previous study findings.	
Category	Structure and Infrastructure Projects
Hazard	Flooding
Objective(s) addressed	1.3
Cost Benefit	A flood mitigation action in a known problem area will provide direct benefits of reduction in travel disruptions and reduction of emergency services costs.
Background	Equity and providing adequate mitigation projects targeted at vulnerable populations is a priority for the region. Egress and ingress have been issues during significant flooding events, slowing emergency services response times and the public from evacuating. VDOT manages roadways in Danville, so coordination would need to be done with them to ensure priority projects are completed on a regular basis.
Estimated cost	Low
Funding sources	VDOT handles funding
Responsible party	Planning, Public Works (coordinating with VDOT)
Completion date	Ongoing

Conduct at least one site inspection of a school every year to identify tornado safe rooms and other areas that could be used for temporary shelter. Coordinate with existing routine inspections.	
Category	Preparedness & response
Hazard	Tornado
Objective(s) addressed	1.4
Cost Benefit	Utilizing already existing structures for safe rooms provide a cost savings as compared to building new structures from the ground up. Costs related to staff time will be minimal as existing inspection routines will be utilized.
Background	Regular inspections of schools can ensure that identified temporary shelters are safe and ready to be used when a hazard event occurs. The City's Fire Department conducts walk-through inspections of the schools annually. Conducting these inspections at the same time as other routine procedures can streamline implementation of this strategy and cost less than if conducted separately.
Estimated cost	Low
Funding sources	Operational budget
Responsible party	Fire
Completion date	Ongoing

Implement at least one nature-based resiliency project, such as bioswales, ecosystem restoration or land conservation / protected area management. Prioritize projects that minimize hazard risk, like conserving open space in perpetuity and reducing stormwater runoff. Leverage existing programs to facilitate nature-based resilience, like supporting landowners' certification of nutrient credits to secure conservation easements.	
Category	Natural Resource Protection
Hazard	Flooding, Landslide
Objective(s) addressed	1.5
Cost Benefit	Nature-based projects utilize already existing natural infrastructure to reduce hazard risks and associated costs, as well as improve and preserve natural lands. This is often a multi-tiered benefit for local building owners and can be advertised as such to build support.
Background	Nature-based projects leverage natural features and processes to protect communities and the built environment by reducing flood risks, stabilizing sloping lands, and protecting water quality and natural ecosystems. These projects can include co-benefits, like community beautification, and cost less in the longer-term compared to traditional structural projects. The City is currently installing bioswales, including one at the Danville Community Market. Danville can also take advantage of existing programs to implement more nature-

Implement at least one nature-based resiliency project, such as bioswales, ecosystem restoration or land conservation / protected area management. Prioritize projects that minimize hazard risk, like conserving open space in perpetuity and reducing stormwater runoff. Leverage existing programs to facilitate nature-based resilience, like supporting landowners' certification of nutrient credits to secure conservation easements.	
	based resiliency projects, such as the Land Preservation Tax Credit.
Estimated cost	Moderate
Funding sources	BRIC, EPA Grants, VA CFPF
Responsible party	Planning, Public Works
Completion date	Mid-term

Review jurisdictions' compliance with the NFIP with an annual review of the floodplain ordinances and any newly permitted activities in the 1-percent-annual-chance floodplain. The WPPDC will maintain a record of approved changes to the local Floodplain.	
Category	Capability & capacity building
Hazard	Flooding
Objective(s) addressed	2.1
Cost benefit	This is a low-cost action that can become an ongoing capability to help identify high-priority floodplain ordinance updates and will benefit the next update of this plan.
Background	Danville's floodplain ordinance was last updated in 2010. Annually reviewing the ordinance and newly permitted activities in the 1-percent-annual-chance floodplain will ensure the City continues to comply with NFIP requirements and that permitting is being done correctly. When new FIRMs are issued in the region (currently underway) the ordinance must be updated to incorporate the new mapping. At that time, other improvements will be considered.
Estimated cost	Low
Funding sources	Operational budget
Responsible party	Floodplain Manager
Completion date	Ongoing

Obtain official recognition of the Mitigation Advisory Committee from the jurisdictions in the Planning District to institutionalize and develop an on-going mitigation program. Include official recognition of Mitigation Advisory Committee in HMP adoption resolution. Use the Mitigation Advisory Committee to review mitigation projects and coordinate multi-jurisdictional and regional grant applications.	
Category	Capability & capacity building
Hazard	All hazards
Objective(s) addressed	2.1

Obtain official recognition of the Mitigation Advisory Committee from the jurisdictions in the Planning District to institutionalize and develop an on-going mitigation program. Include official recognition of Mitigation Advisory Committee in HMP adoption resolution. Use the Mitigation Advisory Committee to review mitigation projects and coordinate multi-jurisdictional and regional grant applications.

Cost benefit	This is a low-cost action that will improve the completion rate of all other actions in this plan, as well as actions in future plan updates.
Background	The West Piedmont Planning District Commission formed a multi-jurisdictional committee to oversee hazard mitigation planning efforts for the West Piedmont Region. Each of the participating jurisdictions was represented on the committee. One way to increase the effectiveness of such committees and ensure long-term plan implementation is to bestow official status to them. In addition, a formalized committee will allow communities to share the workload when implementing regional activities. Giving the public a group to discuss mitigation opportunities with will also address the outreach difficulties. The region intends to utilize the Regional Emergency Mangers Group as the core of a working group coordinated by the West Piedmont Planning District Commission (see Section 8 for further details).
Estimated cost	Low
Funding sources	Operational budget
Responsible party	Emergency Management Departments
Completion date	Short-term

Identify mitigation measures for known RL, SRL and other vulnerable structures, including relocation, acquisition, floodproofing and mitigation reconstruction projects. Conduct targeted outreach to the owners to discuss the findings; present options for technical assistance and funding from municipal, state, and federal sources; and raise awareness of NFIP compliance. Support mitigation of priority RL and disaster-prone properties by annually posting on social media and other online sources to advertise successful acquisition/demolition, elevation, and flood-proofing projects to promote public awareness.

Category	Public education & awareness; Structure and Infrastructure Projects
Hazard	Flooding
Objective(s) addressed	3.1
Cost benefit	The cost savings associated with future damage avoidance due to completion of more RL and SRL mitigation projects will likely outweigh any costs from upfront coordination and research work.
Background	Repetitive Loss (RL) structures are insurable buildings that have had two claims of at least \$1,000 in the past ten years. Severe Repetitive Loss (SRL) structures are insurable buildings that have had four claims of at least \$5,000, or at least two claims exceeding the structure's

Identify mitigation measures for known RL, SRL and other vulnerable structures, including relocation, acquisition, floodproofing and mitigation reconstruction projects. Conduct targeted outreach to the owners to discuss the findings; present options for technical assistance and funding from municipal, state, and federal sources; and raise awareness of NFIP compliance. Support mitigation of priority RL and disaster-prone properties by annually posting on social media and other online sources to advertise successful acquisition/demolition, elevation, and flood-proofing projects to promote public awareness.	
	value. These structures, as well as other flood vulnerable buildings, will continue to be at risk of damage, potentially costing Danville more money in the long run, if the structures are not properly mitigated. Danville has 22 RL and 3 SRL properties. Mitigation of these properties may include structural upgrades, like floodproofing, but it can also include in activities like acquisition and relocation, which entirely remove the risk to flooding. But many building owners are not aware of these options, may not understand how to pursue these strategies, or may not even know they are at risk. Danville can work with building owners to inform them about the risks they face while also presenting them with strategies that result in the most savings for both the City and owners.
Estimated Cost	Moderate
Funding sources	FMA
Responsible party	Community Development (Floodplain Manager), Emergency Management
Completion date	Mid-term (After FIRM update)

D.1.3. Franklin County

Increase drainage or absorption capacities of the biggest stormwater flooding problem areas with the most appropriate mitigation technique (e.g., detention and retention basins, relief drains, spillways, drain widening/dredging or rerouting, logjam and debris removal, extra culverts, bridge modification, dike setbacks, flood gates and pumps, channel redirection).	
Category	Structure and Infrastructure Projects
Hazard	Flooding
Objective(s) addressed	1.1
Cost benefit	Focusing on the biggest stormwater flooding areas will ensure projects are focused on areas with the most cost-saving potential.
Background	Stormwater flooding has been identified as an issue throughout the West Piedmont region. As a part of this plan, the WPPDC has signed on to lead a regional stormwater flooding study that will help identify specific areas of concern with the help of the participating jurisdictions. Franklin County can use the results of the

Increase drainage or absorption capacities of the biggest stormwater flooding problem areas with the most appropriate mitigation technique (e.g., detention and retention basins, relief drains, spillways, drain widening/dredging or rerouting, logjam and debris removal, extra culverts, bridge modification, dike setbacks, flood gates and pumps, channel redirection).	
	study and public feedback to prioritize problem areas and implement mitigation actions. The variety of projects to choose from will allow for each project to fit the specific needs of the problem area and allow for maximum funding eligibility.
Estimated cost	Moderate
Funding sources	FEMA HMA, VA CFCF
Responsible party	Public Works
Completion date	Mid-term

Provide critical public facilities with (1) necessary electrical hook-up, wiring, and switches to allow readily accessible connections and (2) backup generators.	
Category	Structure and Infrastructure Projects; preparedness & response
Hazard	Flooding, Winter Storm, Hurricane Wind, Severe Weather, Tornado, Earthquake
Objective(s) addressed	1.2
Cost benefit	This work is already underway, and it has been determined the benefits outweigh the costs.
Background	Weather conditions throughout the year can cause unexpected power outages that affect critical public facilities. These outages can happen during thunderstorms, hurricanes, winter storms, and many other events. Generators are needed to provide reliable, immediate and full-strength power when primary power systems fail. Standby power is required for health care facilities, operations centers, food storage, essential building operations, correctional and security systems, water pumping stations, and 911 call centers. Generator hook-ups allow the County to have a supply of mobile generators that can be assigned based on needs (as opposed to buying a generator for each facility). Installing hook-ups ensures that generators can be used quickly wherever they are sent. This strategy is on-going, and the County is seeking funding for schools, fire, EMS, and other critical facilities.
Estimated Cost	Low
Funding sources	HMPG, County funds, FEMA EMPG
Responsible party	Emergency Management
Completion date	Short-term

Obtain official recognition of the Mitigation Advisory Committee from the jurisdictions in the Planning District to institutionalize and develop an on-going mitigation program. Include official recognition of Mitigation Advisory Committee in HMP adoption resolution. Use the Mitigation Advisory Committee to review mitigation projects and coordinate multi-jurisdictional and regional grant applications.	
Category	Capability & capacity building
Hazard	All Hazards
Objective(s) addressed	2.1
Cost benefit	This is a low-cost action that will improve the completion rate of all other actions in this plan, as well as actions in future plan updates.
Background	The West Piedmont Planning District Commission formed a multi-jurisdictional committee to oversee hazard mitigation planning efforts for the West Piedmont Region. Each of the participating jurisdictions was represented on the committee. One way to increase the effectiveness of such committees and ensure long-term plan implementation is to bestow official status to them. In addition, a formalized committee will allow communities to share the workload when implementing regional activities. Giving the public a group to discuss mitigation opportunities with will also address the outreach difficulties. The region intends to utilize the Regional Emergency Mangers Group as the core of a working group coordinated by the West Piedmont Planning District Commission (see Section 8 for further details).
Estimated cost	Low
Funding sources	Operational budget
Responsible party	Emergency Management
Completion date	Short-term

Develop contingency plans for potential hazardous material incident at train tracks at Diamond Avenue.	
Category	Preparedness & response
Hazard	Inorganic/Organic Spill
Objective(s) addressed	2.1
Background	Norfolk Southern train tracks bisect Diamond Avenue at an at-grade crossing in Rocky Mount. Freight trains carrying hazardous materials routinely travel along this route. If an accident involving hazardous materials occurred at this intersection, the release of materials would be sudden and with little warning. A contingency plan would help the County and Town of Rocky Mount coordinate resources and staff in the event of an accident at this crossing.

Develop contingency plans for potential hazardous material incident at train tracks at Diamond Avenue.	
Estimated cost	Low
Funding sources	Operational budget
Responsible party	Public Safety
Completion date	Mid-term

Improve response strategy for pipeline emergencies.	
Category	Preparedness & response
Hazard	Pipeline Failure
Objective(s) addressed	2.1
Cost benefit	This is a low-cost planning action that will have the potential to help avoid the high costs of a hazard that can rapidly evolve.
Background	Franklin County has numerous pipelines running through its jurisdiction. A pipeline emergency or failure can occur suddenly and with little warning to the nearby community. The County needs to assess its current response plans and to identify the most effective strategies in the event of pipeline failure in order to protect human life and property.
Estimated cost	Low
Funding sources	Operational budget
Responsible party	Public Safety
Completion date	Mid-term

Expand broadband capabilities to improve emergency communications to rural areas and increase Internet access.	
Category	Capability & capacity building; preparedness & response; public education & awareness
Hazard	All Hazards
Objective(s) addressed	2.2
Cost benefit	The municipality has identified that this issue effects multiple areas of work and alleviating the problem will have multiple widespread benefits, including increased hazard response times.
Background	Broadband access and reliability will expand the technologies available for 911 inquiries and emergency notifications and allow essential workers to continue performing work functions remotely, if needed.
Estimated cost	Low
Funding sources	County funds; USDA Broadband ReConnect Program
Responsible party	County Administration

Expand broadband capabilities to improve emergency communications to rural areas and increase Internet access.	
Completion date	Short-term

Increase flood warning capabilities, including through Reverse 911 messaging and particularly as they relate to dam failure. Improve signage and warning systems near dams.	
Category	Capability & capacity building; preparedness & response; public education & awareness
Hazard	Flooding, Dam Failure
Objective(s) addressed	2.2
Cost benefit	Benefits such as increased evacuation speeds are expected once completed and if a dam failure events were to occur which has the potential to save dozens to hundreds of lives.
Background	Dam and levee failures can occur suddenly, leaving little time for emergency notifications to nearby communities. The floodwaters from dam or levee breaches can result in widescale property damage, as well as deaths and injuries.
Estimated Cost	Low
Funding sources	County funds; BRIC, HMGP
Responsible party	Emergency Management
Completion date	Short-term

Pre-identify dam inundation areas in EMS system and form evacuation messaging for Blackwater watershed.	
Category	preparedness & response; public education & awareness
Hazard	Dam Failure, Flooding
Objective(s) addressed	2.2
Cost benefit	Identifying dam inundation areas will allow for increased planning capabilities and targeted mitigation projects in the future. The costs of creating this datum is expected to be low.
Background	The existing EMS system allows for pre-identification of alert groups. Using GIS, addresses within the inundation zone could be identified along with corresponding phone numbers. This information could be used to create an alert group. Template messages could be developed. The alert group and template message would speed notice to that area in case of dam failure.
Estimated cost	Low
Funding sources	Operational budget
Responsible party	Emergency Management

Pre-identify dam inundation areas in EMS system and form evacuation messaging for Blackwater watershed.	
Completion date	Short-term

D.1.4. Henry County

Work with VDOT to replace vulnerable or undersized culvert stream crossings in operations with bridges or larger culverts to reduce flood hazards by 2024.	
Category	Structure and Infrastructure Projects
Hazard	Flooding
Objective(s) addressed	1.1
Cost benefit	Completing replacement work ahead of any structural failure may prevent more damage sooner and prevent the costs of handling an infrastructure failure incident.
Background	Roadways that cross streams or other water bodies can be especially at risk to flooding. Several roads within Operations use culvert crossings to span small streams. If culverts become overwhelmed with floodwaters or are clogged with debris, then the road above can flood. This process is ongoing due to the changing needs for culverts, depending on precipitation patterns.
Estimated cost	Moderate
Funding sources	HMPG, BRIC, VDOT, VA CFPF
Responsible party	Engineering; VDOT
Completion date	Short-term

Perform a mitigation review of all primary and secondary schools by 2023 to evaluate their resistance to natural hazards. Prioritize the schools that are used as community shelters.	
Category	Structure and Infrastructure Projects; preparedness & response
Hazard	All Hazards
Objective(s) addressed	1.4
Cost benefit	Costs can be kept low by utilizing routine inspections that are already done in schools.
Background	The structural integrity of schools should be periodically assessed to minimize potential damage from hazards. Sites that are used as shelters should be prioritized to ensure that these buildings are safe to occupy as needed during emergencies. These reviews can be coordinated with routine inspections or other procedures to leverage existing resources and staff capacity.
Estimated cost	Low
Funding sources	Operational budget

Perform a mitigation review of all primary and secondary schools by 2023 to evaluate their resistance to natural hazards. Prioritize the schools that are used as community shelters.	
Responsible party	Emergency Management
Completion date	Short-term

Implement a channel maintenance program consisting of routine inspections and subsequent debris and sediment removal to ensure free flow of water in local streams and watercourses by 2023. Include detections and prevention of discharges into stormwater and sewer systems from home footing drains, downspouts, or sewer pumps.	
Category	Natural systems protection
Hazard	Flooding
Objective(s) addressed	1.5
Cost benefit	This is a low-cost preventative action that can prevent regular nuisance flooding issues that accumulate damage costs over time.
Background	Debris and sediment accumulation in streams and water bodies can lead to flooding of surrounding areas. In recent years, stormwater flooding has increased throughout the region, and the County identified this type of flooding as a growing problem. Establishing a routine to inspect and regularly remove debris or sediment deposits can keep water flowing, reducing the risk of streams and other water bodies overflowing during storms and severe rainfall events.
Estimated cost	Low
Funding sources	Operating budget
Responsible party	Public Works
Completion date	Short-term

Obtain official recognition of the Mitigation Advisory Committee from the jurisdictions in the Planning District to institutionalize and develop an on-going mitigation program. Include official recognition of Mitigation Advisory Committee in HMP adoption resolution. Use the Mitigation Advisory Committee to review mitigation projects and coordinate multi-jurisdictional and regional grant applications.	
Category	Capability & capacity building
Hazard	All Hazards
Objective(s) addressed	2.1
Cost benefit	This is a low-cost action that will improve the completion rate of all other actions in this plan, as well as actions in future plan updates.
Background	The West Piedmont Planning District Commission formed a multi-jurisdictional committee to oversee hazard mitigation planning efforts for the West Piedmont Region. Each of the participating jurisdictions was represented on the committee.

Obtain official recognition of the Mitigation Advisory Committee from the jurisdictions in the Planning District to institutionalize and develop an on-going mitigation program. Include official recognition of Mitigation Advisory Committee in HMP adoption resolution. Use the Mitigation Advisory Committee to review mitigation projects and coordinate multi-jurisdictional and regional grant applications.

	One way to increase the effectiveness of such committees and ensure long-term plan implementation is to bestow official status to them. In addition, a formalized committee will allow communities to share the workload when implementing regional activities. Giving the public a group to discuss mitigation opportunities with will also address the outreach difficulties. The region intends to utilize the Regional Emergency Mangers Group as the core of a working group coordinated by the West Piedmont Planning District Commission (see Section 8 for further details).
Estimated cost	Low
Funding sources	Operational budget
Responsible party	Emergency Management
Completion date	Short-term

Incorporate mitigation principles into local emergency management and recovery plans.

Category	Local plans & regulations; preparedness & response
Hazard	All Hazards
Objective(s) addressed	2.1
Cost benefit	This planning actions can lead to downstream effects that can save thousands (or more) over the next several years and beyond.
Background	Mitigation cannot be successfully implemented by emergency managers alone. Planning, public works, economic development, and public safety departments and their staff all play a role in protecting their communities. For mitigation to be truly successful, it must become part of everyday local planning and decision-making. Mitigation principles should be incorporated into local emergency management and recovery plans. As goals, objectives, and strategies are identified for these types of plans, efforts should be made to explicitly and implicitly reference hazard mitigation and related concepts. This mitigation plan can be adopted as an annex to the existing Emergency Operations Plan to ensure that mitigation is considered in the post-disaster environment.
Estimated cost	Low
Funding sources	Operational budget
Responsible party	Emergency Management

Incorporate mitigation principles into local emergency management and recovery plans.	
Completion date	Short-term

D.1.5. City of Martinsville

Provide critical public facilities with (1) necessary electrical hook-up, wiring, and switches to allow readily accessible connections and (2) backup generators.	
Category	Structure and Infrastructure Projects; preparedness & response
Hazard	Flooding, Winter Storm, Hurricane Wind, Severe Weather, Wildfire, Tornado, Earthquake
Objective(s) addressed	1.2
Cost benefit	This work is already underway, and it has been determined the benefits outweigh the costs.
Background	Weather conditions throughout the year can cause unexpected power outages that affect critical public facilities. These outages can happen during thunderstorms, hurricanes, winter storms, and many other events. Generators are needed to provide reliable, immediate and full-strength power when primary power systems fail. Standby power is required for health care facilities, operations centers, food storage, essential building operations, correctional and security systems, water pumping stations, and 911 call centers. Generator hook-ups allow the City to have a supply of mobile generators that can be assigned based on needs (as opposed to buying a generator for each facility). Installing hook-ups ensures that generators can be used quickly wherever they are sent. Most of Martinsville's critical public facilities have these components, but several do not. This work is ongoing.
Estimated Cost	Moderate
Funding sources	HMGP
Responsible party	Public Works
Completion date	Long-term

Ensure proper maintenance of backup generators and install necessary components for Martinsville Middle School shelter and Beaver Creek Reservoir Pump Station.	
Category	Structure and Infrastructure Projects; preparedness & response
Hazard	Flooding, Winter Storm, Hurricane Wind, Severe Weather, Wildfire, Tornado, Earthquake
Objective(s) addressed	1.2

Ensure proper maintenance of backup generators and install necessary components for Martinsville Middle School shelter and Beaver Creek Reservoir Pump Station.	
Cost benefit	Similar generator work is already underway, and it has been determined the benefits outweigh the costs.
Background	Natural hazards may lead to a loss of electricity or power that disrupts the City's water supply. Backup generators can ensure that systems continue running, even during power loss. Currently, the Martinsville Middle School has at least one generator. Conducting regular maintenance on these systems can avoid interruption to the City's water supply by ensuring critical components are functioning before the next hazard event occurs.
Estimated cost	Low
Funding sources	FEMA HMA
Responsible party	Public Works
Completion date	Short-term

Implement a flood/erosion mitigation project to address the issues at the intersections of Indian Trail, Cherokee Court, and Sam Lions Trail.	
Category	Structure and Infrastructure Projects
Hazard	Flooding
Objective(s) addressed	1.3
Cost benefit	The most cost-effective flood mitigation measure can be chosen for this location, which has ongoing flood issues. An immediate direct benefit of usable main residential roads is expected.
Background	The intersections of Indian Trail, Cherokee Court, and Sam Lions Trail are located near Lake Lanier, and they have smaller drainage creeks surrounding them. It is a residential neighborhood nestled amongst trees, open grass space, and recreational green space. It is hilly and there are slopes leading down to the water and up to homes, so runoff from residential parcels would continue into the roadways. There is also a lack of stormwater management infrastructure to help mitigate flooding.
Estimated cost	Moderate
Funding sources	FEMA HMA; VA CFCF
Responsible party	Public Works
Completion date	Mid-term

Conduct at least one site inspection of a school every year to identify tornado safe rooms and other areas that could be used for temporary shelter. Coordinate with existing routine inspections.	
Category	Preparedness & response

Conduct at least one site inspection of a school every year to identify tornado safe rooms and other areas that could be used for temporary shelter. Coordinate with existing routine inspections.	
Hazard	Tornado
Objective(s) addressed	1.4
Cost benefit	Since routine school inspections are already conducted, time/money costs will be very minimal.
Background	Regular inspections of schools can ensure that identified temporary shelters are safe and ready to be used when a hazard event occurs. The Martinsville Fire Department conducts walk-through inspections of the schools annually and collaborates with Operations Public Schools to identify areas that could be used as temporary shelters. Conducting these inspections at the same time as other routine procedures can streamline implementation of this strategy and cost less than if conducted separately.
Estimated cost	Low
Funding sources	Operational budget
Responsible party	Fire & EMS
Completion date	Ongoing

Obtain official recognition of the Mitigation Advisory Committee from the jurisdictions in the Planning District to institutionalize and develop an on-going mitigation program. Include official recognition of Mitigation Advisory Committee in HMP adoption resolution. Use the Mitigation Advisory Committee to review mitigation projects and coordinate multi-jurisdictional and regional grant applications.	
Category	Capability & capacity building
Hazard	All Hazards
Objective(s) addressed	2.1
Cost benefit	This is a low-cost action that will improve the completion rate of all other actions in this plan, as well as actions in future plan updates.
Background	The West Piedmont Planning District Commission formed a multi-jurisdictional committee to oversee hazard mitigation planning efforts for the West Piedmont Region. Each of the participating jurisdictions was represented on the committee. One way to increase the effectiveness of such committees and ensure long-term plan implementation is to bestow official status to them. In addition, a formalized committee will allow communities to share the workload when implementing regional activities. Giving the public a group to discuss mitigation opportunities with will also address the outreach difficulties. The region intends to utilize the Regional Emergency Mangers Group as the core of a working group

Obtain official recognition of the Mitigation Advisory Committee from the jurisdictions in the Planning District to institutionalize and develop an on-going mitigation program. Include official recognition of Mitigation Advisory Committee in HMP adoption resolution. Use the Mitigation Advisory Committee to review mitigation projects and coordinate multi-jurisdictional and regional grant applications.

	coordinated by the West Piedmont Planning District Commission (see Section 8 for further details).
Estimated cost	Low
Funding sources	Operational budget
Responsible party	Emergency Management
Completion date	Short-term

Increase flood warning capabilities, including through Reverse 911 messaging and particularly as they relate to dam failure. Improve signage and warning systems near dams.

Category	Capability & capacity building; public education & awareness
Hazard	Dam Failure
Objective(s) addressed	2.2
Cost benefit	Benefits such as increased evacuation speeds are expected once completed and if a dam failure events were to occur which has the potential to save dozens to hundreds of lives.
Background	Dam and levee failures can occur suddenly, leaving little time for emergency notifications to nearby communities. The floodwaters from dam or levee breaches can result in widescale property damage, as well as deaths and injuries.
Estimated cost	Low
Funding sources	Local funds
Responsible party	Emergency Management
Completion date	Short-term

(1) the City commits to public education of its citizens, businesses, and partners on available technologies, strategies, and resources for enhancing resilience in the built environment; (2) that Martinsville will strive to achieve an Exceptional designation under the ANCR Community Resilience Benchmarks by 2030; (3) that Martinsville will continue to fund and execute its current projects not limited to critical facilities, programs, and priorities that promote resilience within the community to maintain and improve its baseline towards the 2030 goal; and (4) that Martinsville will review, propose, and consider the adoption of policies and partnerships to further enhance community resilience in the next decade.

Category	Capability & capacity building; public education & awareness; local plans & regulations
Hazard	All Hazards
Objective(s) addressed	2.1
Cost benefit	Martinsville has committed to developing a budget guideline to ensure resilience considerations. By thoroughly integrating resilience actions and projects into

(1) the City commits to public education of its citizens, businesses, and partners on available technologies, strategies, and resources for enhancing resilience in the built environment; (2) that Martinsville will strive to achieve an Exceptional designation under the ANCR Community Resilience Benchmarks by 2030; (3) that Martinsville will continue to fund and execute its current projects not limited to critical facilities, programs, and priorities that promote resilience within the community to maintain and improve its baseline towards the 2030 goal; and (4) that Martinsville will review, propose, and consider the adoption of policies and partnerships to further enhance community resilience in the next decade.	
	its regular municipal functions, the risk and cost benefits from resilience efforts are expected to be realized city-wide. The policies, processes, and strategies being considered will balance economic considerations with resilience goal achievement to ensure a sustainable cost-benefit ratio.
Background	Martinsville was selected as the initial pilot city for ANCR's Community Rating Benchmarking for buildings and housing, and it was the first community to receive the resilience designations of "Essential" for its building-related activities and "Enhanced" for its housing-related initiatives. The city's ANCR resolution was adopted by the Council of the City of Martinsville on April 27, 2021. At the same time, the Mayor proclaimed May as Building Safety Month as an initial ANCR action.
Estimated cost	Low - Moderate
Funding sources	Local funds; HMGP, BRIC
Responsible party	Community Development
Completion date	Long-term (2030 planning horizon)

D.1.6. Patrick County

Install cost-effective wildfire risk reduction tools for use in rural settings, such as dry hydrants, drafting, equipment and tankers.	
Category	Structure and Infrastructure Projects
Hazard	Wildfire
Objective(s) addressed	1.1
Cost benefit	This is a continuation of a similar activity that has been determined to be cost effective.
Background	Patrick County previously received grant funding to purchase dry hydrants. The County will apply for additional grants to secure funding for more dry hydrants and other wildfire risk reduction tools.
Estimated Cost	Medium
Funding sources	BRIC, HMPG, County funds, USFS, VDOF
Responsible party	Emergency Management
Completion date	Short-term

Provide critical public facilities with (1) necessary electrical hook-up, wiring, and switches to allow readily accessible connections and (2) backup generators.	
Category	Structure and Infrastructure Projects; preparedness & response
Hazard	Flooding, Winter Storm, Hurricane Wind, Severe Weather, Wildfire, Tornado, Earthquake
Objective(s) addressed	1.2
Cost benefit	This work is already underway, and it has been determined the benefits outweigh the costs.
Background	Weather conditions throughout the year can cause unexpected power outages that affect critical public facilities. These outages can happen during thunderstorms, hurricanes, winter storms, and many other events. Generators are needed to provide reliable, immediate and full-strength power when primary power systems fail. Standby power is required for health care facilities, operations centers, food storage, essential building operations, correctional and security systems, water pumping stations, and 911 call centers. Generator hook-ups allow the County to have a supply of mobile generators that can be assigned based on needs (as opposed to buying a generator for each facility). Installing hook-ups ensures that generators can be used quickly wherever they are sent. In Patrick County, Stuart Fire Department is looking to get a new generator. Smith River Rescue, another fire house, is considering a portable generator and transfer switch. Another fire house in the County also operates as a shelter and may need a new generator. The Reynold Homestead is in-line for shelter upgrades as well.
Estimated cost	Moderate
Funding sources	FEMA HMPG
Responsible party	Emergency Management
Completion date	Long-Term

Obtain official recognition of the Mitigation Advisory Committee from the jurisdictions in the Planning District to institutionalize and develop an on-going mitigation program. Include official recognition of Mitigation Advisory Committee in HMP adoption resolution. Use the Mitigation Advisory Committee to review mitigation projects and coordinate multi-jurisdictional and regional grant applications.	
Category	Capability & capacity building
Hazard	All Hazards
Objective(s) addressed	2.1

Obtain official recognition of the Mitigation Advisory Committee from the jurisdictions in the Planning District to institutionalize and develop an on-going mitigation program. Include official recognition of Mitigation Advisory Committee in HMP adoption resolution. Use the Mitigation Advisory Committee to review mitigation projects and coordinate multi-jurisdictional and regional grant applications.

Cost benefit	This is a low-cost action that will improve the completion rate of all other actions in this plan, as well as actions in future plan updates.
Background	The West Piedmont Planning District Commission formed a multi-jurisdictional committee to oversee hazard mitigation planning efforts for the West Piedmont Region. Each of the participating jurisdictions was represented on the committee. One way to increase the effectiveness of such committees and ensure long-term plan implementation is to bestow official status to them. In addition, a formalized committee will allow communities to share the workload when implementing regional activities. Giving the public a group to discuss mitigation opportunities with will also address the outreach difficulties. The region intends to utilize the Regional Emergency Mangers Group as the core of a working group coordinated by the West Piedmont Planning District Commission (see Section 8 for further details).
Estimated cost	Low
Funding sources	Operational budget
Responsible party	Board of Supervisors
Completion date	Short-term

Expand broadband capabilities to improve emergency communications to rural areas and increase Internet access.

Category	Capability & capacity building
Hazard	All Hazards
Objective(s) addressed	2.2
Cost benefit	The municipality has identified that this issue effects multiple areas of work and alleviating the problem will have multiple widespread benefits, including increased hazard response times.
Background	Broadband access and reliability will expand the technologies available for 911 inquiries and emergency notifications and allow essential workers to continue performing work functions remotely, if needed. In 2020, the COVID-19 pandemic required many County employees to work remotely. During this transition, some employees faced Internet connectivity issues. The County

Expand broadband capabilities to improve emergency communications to rural areas and increase Internet access.	
	is currently working on expanding broadband capabilities, and this action remains ongoing.
Estimated cost	Moderate
Funding sources	County funds; USDA Broadband ReConnect Program
Responsible party	Emergency Management
Completion date	Short-term

Develop and maintain a database to track community exposure to flood risk, then use it to create and maintain a GIS layer for stormwater flooding problem areas. Coordinate with other jurisdictions in the West Piedmont Region to identify regional problem areas.	
Category	Capability & capacity building
Hazard	Flooding
Objective(s) addressed	2.3
Cost benefit	Maintaining a database of priority flooding problem areas will allow the most cost-effective projects to be completed as regular and extensive flooding will be targeted.
Background	Managing flood risk information is critical to protecting communities and prioritizing future mitigation actions. Determining the location and severity of risk for local flooding problems can help emergency response officials create more useful maps, and ultimately, make better decisions during flood events. Coordinating with the Planning District Commission and other jurisdictions can also leverage more resources and capacity to address regional problems. For stormwater (pluvial) flooding, this localized data is even more essential because NFIP models and FIRMs do not include this risk, which is increasing with climate change. Collecting local data can help Patrick County to identify structures that may be outside the Special Flood Hazard Areas, but still face flood risks.
Estimated cost	Low
Funding sources	Operational budget
Responsible party	Emergency Management, GIS
Completion date	Short-term

Identify mitigation measures for known RL, SRL and other vulnerable structures, including relocation, acquisition, floodproofing and mitigation reconstruction projects. Conduct targeted outreach to the owners to discuss the findings; present options for technical assistance and funding from municipal, state, and federal sources; and raise awareness of NFIP compliance. Support mitigation of priority RL and disaster-prone properties by annually posting on social media and other online sources to advertise successful acquisition/demolition, elevation, and flood-proofing projects to promote public awareness.	
Category	Public education & awareness; Structure and Infrastructure Projects
Hazard	Flooding
Objective(s) addressed	3.1
Cost benefit	The cost savings associated with future damage avoidance due to completion of more RL and SRL mitigation projects will likely outweigh any costs from upfront coordination and research work.
Background	Repetitive Loss (RL) structures are insurable buildings that have had two claims of at least \$1,000 in the past ten years. Severe Repetitive Loss (SRL) structures are insurable buildings that have had four claims of at least \$5,000, or at least two claims exceeding the structure's value. These structures, as well as other flood vulnerable buildings, will continue to be at risk of damage, potentially costing Patrick County more money in the long run, if the structures are not properly mitigated. Patrick County has 4 RL properties (all residential). Mitigation projects for these properties may include structural upgrades, like floodproofing, but it can also include activities like acquisition and relocation, which entirely remove the risk to flooding. But many building owners are not aware of these options, may not understand how to pursue these strategies, or may not even know they are at risk. Patrick County can work with building owners to inform them about the risks they face while also presenting them with strategies that result in the most savings for both the County and owners.
Estimated Cost	Moderate
Funding sources	FMA
Responsible party	Community Development (Floodplain Manager), Emergency Management
Completion date	Mid-term (After FIRM update)

D.1.7. Pittsylvania County

Upgrade water systems to bring additional water sources on-line, link community systems to provide redundancy, and provide additional areas with non-well water.	
Category	Structure and Infrastructure Projects
Hazard	Drought
Objective(s) addressed	1.1
Cost benefit	The research phase for this project will be covered by the water and sewer master plan which will reduce expected costs and promote the community growth as outlined in the Livable Frederick plan.
Background	The County is working on a water and sewer master plan that could identify and prioritize areas for the expansion of water services. Expanding the existing water supply system can help ensure the County continues to meet the water needs of its residents and businesses, especially as the regions grows and needs to serve new areas.
Estimated cost	High
Funding sources	Water Infrastructure Improvements for the Nation (WIIN) Grant, Training and Technical Assistance for Small Systems Grant, Drinking Water State Revolving Fund (DWSRF), Water Infrastructure Finance and Innovation Act (WIFIA) Program, HUD's CDBG
Responsible party	Public Works
Completion date	Long-term

Refurbish Cherrystone Dams #1 and #2A. Both dams' conditions are rated as "satisfactory" and they are classified as high hazard potential dams.	
Category	Structural Project
Hazard	Dam Failure
Objective(s) addressed	1.2
Cost benefit	The fallout from a dam failure hazard has the potential to be severe. Preventing a dam failure has immense cost savings.
Background	The Cherrystone Dam Project is currently the largest development in the County. Both Cherrystone Dams fall within the 1-percent-annual-chance floodplain, and Cherrystone Creek is already known to have flooding issues. Refurbishment of these dams could reduce the potential inundation risk to nearby communities and properties. This will be done in collaboration with the Town of Chatham.
Estimated cost	High

Refurbish Cherrystone Dams #1 and #2A. Both dams' conditions are rated as "satisfactory" and they are classified as high hazard potential dams.	
Funding sources	BRIC, VA CFPF
Responsible party	Public Works
Completion date	Mid-term

Provide critical public facilities with (1) necessary electrical hook-up, wiring, and switches to allow readily accessible connections and (2) backup generators.	
Category	Structure and Infrastructure Projects; preparedness & response
Hazard	Flooding, Winter Storm, Hurricane Wind, Severe Weather, Tornado, Earthquake
Objective(s) addressed	1.2
Cost benefit	This work is already underway, and it has been determined the benefits outweigh the costs.
Background	Weather conditions throughout the year can cause unexpected power outages that affect critical public facilities. These outages can happen during thunderstorms, hurricanes, winter storms, and many other events. Generators are needed to provide reliable, immediate and full-strength power when primary power systems fail. Standby power is required for health care facilities, operations centers, food storage, essential building operations, correctional and security systems, water pumping stations, and 911 call centers. Generator hook-ups allow the County to have a supply of mobile generators that can be assigned based on needs (as opposed to buying a generator for each facility). Installing hook-ups ensures that generators can be used quickly wherever they are sent. Most of Pittsylvania's fire stations have generators or are in the process of installing them. Some of these generators were funded by a mitigation grant received during summer 2020. A few critical infrastructure buildings will need generators in the future, including the new 911 center in Chatham. None of the water or sewer plants in Pittsylvania have generators, and these sites would require connection points to install such mechanics. Pump stations also might need generators, but the County lacks funding to initiate that process.
Estimated cost	Low
Funding sources	Operational budget, HMGP
Responsible party	Emergency Management
Completion date	Mid-term

Implement at least one nature-based resiliency project, such as bioswales, ecosystem restoration or land conservation / protected area management. Prioritize projects that minimize hazard risk, like conserving open space in perpetuity and reducing stormwater runoff. Leverage existing programs to facilitate nature-based resilience, like supporting landowners' certification of nutrient credits to secure conservation easements.	
Category	Natural Resource Protection
Hazard	Flooding, Landslide
Objective(s) addressed	1.5
Cost benefit	Nature-based projects utilize already existing natural infrastructure to reduce hazard risks and associated costs, as well as improve and preserve natural lands. This is often a multi-tiered benefit for local building owners and can be advertised as such to build support.
Background	Nature-based projects leverage natural features and processes to protect communities and the built environment by reducing flood risks, stabilizing sloping lands, and protecting water quality and natural ecosystems. These projects can include co-benefits, like community beautification, and cost less in the longer-term compared to traditional Structure and Infrastructure Projects. The County can take advantage of existing programs to implement more nature-based resiliency projects, such as the Land Preservation Tax Credit.
Estimated cost	Moderate
Funding sources	BRIC, VA CFPF, HMGP
Responsible party	Planning
Completion date	Mid-term

Qualify for and participate in the StormReady program sponsored by the National Weather Service.	
Category	Capability & capacity building
Hazard	Winter Storm, Hurricane Wind, Tornado, Severe Weather
Objective(s) addressed	2.1
Cost benefit	This is a low-cost action that would boost the emergency management in the county and cover several smaller qualifying actions that can help with mitigating risk.
Background	StormReady is a nationwide community preparedness program that uses a grassroots approach to help communities develop plans to handle all types of severe weather. The program has several requirements based on the size of the participating community. The requirements for a community the size of Pittsylvania County include the following: Established 24-hour Warning Point (WP)

Qualify for and participate in the StormReady program sponsored by the National Weather Service.	
	• Establish Emergency Operations Center (EOC) • Four (4) ways for EOC/WP to receive NWS warning, etc. • Four (4) ways to monitor hydrometeorological data • Four (4) ways for EOC/WP to disseminate warnings • Placing NOAA Weather Radio receivers in public facilities • Four (4) annual weather safety talks • Train spotters and dispatchers biennially • Host/co-host annual NWS spotter training • Formal hazardous weather operations plan • Biennial visits by emergency manager to NWS • Annual visits by NWS official to community
Estimated cost	Low
Funding sources	Operational budget
Responsible party	Emergency Management
Completion date	Short-term

Review jurisdictions' compliance with the NFIP with an annual review of the floodplain ordinances and any newly permitted activities in the 1-percent-annual-chance floodplain. The WPPDC will maintain a record of approved changes to the local Floodplain.	
Category	Capability & capacity building
Hazard	Flooding
Objective(s) addressed	2.1
Cost benefit	This is a low-cost action that can become an ongoing capability to help identify high-priority floodplain ordinance updates and will benefit the next update of this plan.
Background	Pittsylvania's floodplain ordinance was last updated in 2010. Annually reviewing the ordinance and newly permitted activities in the 1-percent-annual-chance floodplain will ensure the County continues to comply with NFIP requirements and that permitting is being done correctly. When the new FIRMs (underway) are delivered the ordinance will be updated to incorporate them. At that time, it will be reviewed for other improvements and refinements.
Estimated cost	Low
Funding sources	Operational budget
Responsible party	Community Development (Floodplain Manager)
Completion date	Short-term

Obtain official recognition of the Mitigation Advisory Committee from the jurisdictions in the Planning District to institutionalize and develop an on-going mitigation program. Include official recognition of Mitigation Advisory Committee in HMP adoption resolution. Use the Mitigation Advisory Committee to review mitigation projects and coordinate multi-jurisdictional and regional grant applications.	
Category	Capability & capacity building
Hazard	All Hazards
Objective(s) addressed	2.1
Cost benefit	This is a low-cost action that will improve the completion rate of all other actions in this plan, as well as actions in future plan updates.
Background	The West Piedmont Planning District Commission formed a multi-jurisdictional committee to oversee hazard mitigation planning efforts for the West Piedmont Region. Each of the participating jurisdictions was represented on the committee. One way to increase the effectiveness of such committees and ensure long-term plan implementation is to bestow official status to them. In addition, a formalized committee will allow communities to share the workload when implementing regional activities. Giving the public a group to discuss mitigation opportunities with will also address the outreach difficulties. The region intends to utilize the Regional Emergency Mangers Group as the core of a working group coordinated by the West Piedmont Planning District Commission (see Section 8 for further details).
Estimated cost	Low
Funding sources	Operational budget
Responsible party	Board of Supervisors
Completion date	Short-term

Implement the CodeRED system and refine evacuation messages for targeted evacuation warnings.	
Category	Preparedness & response
Hazard	All Hazards
Objective(s) addressed	2.2
Cost benefit	The expedited notification and evacuation would be a direct benefit. Targeted evacuation messaging would help others not at risk continue business as usual and prevent unnecessary loss of time and work.
Background	The CodeRED emergency notification system is a reliable and trusted notification solution that enables users to send Integrated Public Alert Warning System (IPAWS) messages. The system gives authorized users the ability to send emergency information via phone calls, text messages,

Implement the CodeRED system and refine evacuation messages for targeted evacuation warnings.	
	emails, social media messages, RSS, website widgets and through the public safety alerting application, CodeRED Mobile Alert. Once enrolled, residents will have access to emergency information sent out by local public safety officials.
Estimated cost	Low
Funding sources	Operational budget
Responsible party	Emergency Management
Completion date	Short-term

Identify “typical problem areas”—neighborhoods whose roads are regularly flooded and closed—and create a data set that is publicly accessible.	
Category	Capability & capacity building
Hazard	Flooding
Objective(s) addressed	1.1
Cost benefit	Maintaining a database of priority flooding problem areas will allow the most cost-effective projects to be completed as regular and extensive flooding will be targeted.
Background	Areas of regular flooding are already known to County officials and should be documented to develop a plan to mitigate the impacts of these regular closures to include response (e.g., detour notifications) and mitigation strategies (e.g., changes to road geometry and drainage to reduce flooding). The initial data collection that was started in this plan for stormwater flooding can serve as a jumping off point, and public input should be sought to locate more areas.
Estimated cost	Low
Funding sources	Operational budget
Responsible party	Emergency Management
Completion date	Short-term

D.1.8. Town of Boones Mill

Address the flooding from high-intensity rainfall events in downtown Boones Mill by performing a flood analysis followed by completing at least one flood mitigation project.	
Category	Structure and Infrastructure Projects
Hazard	Flooding
Objective(s) addressed	1.1
Cost benefit	The flood analysis will help with choosing the most cost-efficient flood mitigation project.

Address the flooding from high-intensity rainfall events in downtown Boones Mill by performing a flood analysis followed by completing at least one flood mitigation project.	
Background	Majority of downtown Boones Mill falls within the floodplain. The Town is interested in revitalization, and increased development could potentially lead to more impervious surfaces in the downtown area. Applying for funds to address stormwater flooding could serve to mitigate this risk and may be an opportunity for the Town to implement a nature-based solution, like a rain garden.
Estimated cost	Moderate - High
Funding sources	BRIC, HMGP, VA CFPF, Operational budget
Responsible party	Public Works
Completion date	Mid-term

Provide critical public facilities with (1) necessary electrical hook-up, wiring, and switches to allow readily accessible connections and (2) backup generators.	
Category	Structure and Infrastructure Projects; preparedness & response
Hazard	Flooding, Winter Storm, Hurricane Wind, Severe Weather, Tornado, Earthquake
Objective(s) addressed	1.2
Cost benefit	This work is already underway, and it has been determined the benefits outweigh the costs.
Background	Weather conditions throughout the year can cause unexpected power outages that affect critical public facilities. These outages can happen during thunderstorms, hurricanes, winter storms, and many other events. Generators are needed to provide reliable, immediate and full-strength power when primary power systems fail. Standby power is required for health care facilities, operations centers, food storage, essential building operations, correctional and security systems, water pumping stations, and 911 call centers. Generator hook-ups allow the County to have a supply of mobile generators that can be assigned based on needs (as opposed to buying a generator for each facility). Installing hook-ups ensures that generators can be used quickly wherever they are sent. This strategy is on-going, and the County is seeking funding for schools, fire, EMS, and other critical facilities.
Estimated cost	Low
Funding sources	HMPG, Operational budget
Responsible party	Emergency Management
Completion date	Long-term

Coordinate with VDOT to establish flood level markers along bridges and other structures to indicate the rise of water levels along creeks and rivers in potential flood-prone areas. Incorporate the procedures for tracking high water marks following a flood into emergency response plans.	
Category	Preparedness & response; public education & awareness
Hazard	Flooding
Objective(s) addressed	1.4
Cost benefit	The prevention of deaths, injuries, and damages due to flood waters being deeper than expected is a direct benefit.
Background	Many deaths that occur during flood events happen when people attempt to drive through floodwaters. Flood-prone roads should be clearly marked with a gauge showing flood depths. The gauge should be visible to drivers to alert them to the flood conditions and depth of water on the road. Majority of downtown Boones Mill is in the floodplain. The Town is looking to revitalize as well, and as the area grows, new residents may be unaware of flood risks. Flood level markers to indicate the high-water marks could help inform existing and new residents about this potential risk.
Estimated cost	Low
Funding sources	VDOT, Operational budget
Responsible party	Emergency Management, VDOT
Completion date	Short-term

Investigate all public utility lines to evaluate their resistance to flood, hurricane wind, and winter storm hazards by 2023.	
Category	Preparedness & response; Structure and Infrastructure Projects
Hazard	Winter Storm, Hurricane Wind, Flooding, Tornado, Severe Weather
Objective(s) addressed	1.4
Cost benefit	This preventative measure can help avoid the direct cost of repairs and the secondary impacts such as loss/delay of work.
Background	Utility lines provide essential and critical services to residents and businesses. Many of these lines were installed years ago, meaning they may be vulnerable to various hazards. The Town can conduct a survey to determine what segments of lines and systems are most vulnerable to adverse impacts and use this survey to prioritize replacements or hardening of the lines. This is an ongoing action.
Estimated cost	Low

Investigate all public utility lines to evaluate their resistance to flood, hurricane wind, and winter storm hazards by 2023.	
Funding sources	Operational budget
Responsible party	Public Utilities
Completion date	Short-term

Obtain official recognition of the Mitigation Advisory Committee from the jurisdictions in the Planning District to institutionalize and develop an on-going mitigation program. Include official recognition of Mitigation Advisory Committee in HMP adoption resolution. Use the Mitigation Advisory Committee to review mitigation projects and coordinate multi-jurisdictional and regional grant applications.	
Category	Capability & capacity building
Hazard	All Hazards
Objective(s) addressed	2.1
Cost benefit	This is a low-cost action that will improve the completion rate of all other actions in this plan, as well as actions in future plan updates.
Background	The West Piedmont Planning District Commission formed a multi-jurisdictional committee to oversee hazard mitigation planning efforts for the West Piedmont Region. Each of the participating jurisdictions was represented on the committee. One way to increase the effectiveness of such committees and ensure long-term plan implementation is to bestow official status to them. In addition, a formalized committee will allow communities to share the workload when implementing regional activities. Giving the public a group to discuss mitigation opportunities with will also address the outreach difficulties. The region intends to utilize the Regional Emergency Mangers Group as the core of a working group coordinated by the West Piedmont Planning District Commission (see Section 8 for further details).
Estimated cost	Low
Funding sources	Operational budget
Responsible party	Board of Supervisors
Completion date	Short-term

Assess existing radio coverage and identify any gaps. Determine if additional equipment is needed in certain jurisdictions and make a plan with a timeframe for acquiring. For example, some areas in Boones Mill lack radio coverage and police must use cell phones.	
Category	Preparedness & response; capability & capacity building
Hazard	All Hazards
Objective(s) addressed	2.2

Assess existing radio coverage and identify any gaps. Determine if additional equipment is needed in certain jurisdictions and make a plan with a timeframe for acquiring. For example, some areas in Boones Mill lack radio coverage and police must use cell phones.	
Cost benefit	The municipality has identified that this issue effects multiple areas of work and alleviating the problem will have multiple widespread benefits, including increased hazard response times.
Background	Radio coverage varies widely throughout Boones Mill due to the Town's topography. Franklin County already has assembled a project team to identifying deficiencies in radio coverage, but several areas within Boones Mill remain with zero coverage at all. For example, the Police Department uses cell phones because radios do not work. Franklin County and the Town will work with the Roanoke Valley Radio Authority to increase radio coverage in Boones Mill.
Estimated cost	Low
Funding sources	Operational budget
Responsible party	Emergency Management
Completion date	Short-term

D.1.9. Town of Chatham

Upgrade water systems to bring additional water sources on-line, link community systems to provide redundancy, and provide additional areas with non-well water.	
Category	Structure and Infrastructure Projects
Hazard	Drought
Objective(s) addressed	1.1
Cost benefit	The research phase for this project will be covered by the water and sewer master plan which will reduce expected costs and promote the community growth as outlined in the Livable Frederick plan.
Background	Expanding the existing water supply system can help ensure the town continues to meet the water needs of its residents and businesses, especially as the regions grows and needs to serve new areas. Working with Pittsylvania County to accomplish this is necessary. The County is working on a water and sewer master plan that could identify and prioritize areas for the expansion of water services. The County is expected to coordinate and work with Chatham to ensure they are covered by this project.
Estimated cost	High
Funding sources	Water Infrastructure Improvements for the Nation (WIIN) Grant, Training and Technical Assistance for Small Systems

Upgrade water systems to bring additional water sources on-line, link community systems to provide redundancy, and provide additional areas with non-well water.	
	Grant, Drinking Water State Revolving Fund (DWSRF), Water Infrastructure Finance and Innovation Act (WIFIA) Program, HUD's CDBG
Responsible party	Public Works
Completion date	Mid-term

Refurbish Cherrystone Dams #1 and #2A. Both dams' conditions are rated as "satisfactory" and they are classified as high hazard potential dams.	
Category	Structural Project
Hazard	Dam Failure
Objective(s) addressed	1.1
Cost benefit	The fallout from a dam failure hazard has the potential to be severe. Preventing a dam failure has immense cost savings.
Background	The Cherrystone Dam Project is the largest development in Pittsylvania County currently. Both Cherrystone Dams fall within the 1-percent-annual-chance floodplain, and Cherrystone Creek is already known to have flooding issues. Refurbishment of these high-hazard dams will reduce the potential inundation risk to nearby communities and properties. This will be done in collaboration with the County.
Estimated Cost	High
Funding sources	BRIC, VA CFPF
Responsible party	Public Works
Completion date	Short-term

Obtain official recognition of the Mitigation Advisory Committee from the jurisdictions in the Planning District to institutionalize and develop an on-going mitigation program. Include official recognition of Mitigation Advisory Committee in HMP adoption resolution. Use the Mitigation Advisory Committee to review mitigation projects and coordinate multi-jurisdictional and regional grant applications.	
Category	Capability & capacity building
Hazard	All Hazards
Objective(s) addressed	2.1
Cost benefit	This is a low-cost action that will improve the completion rate of all other actions in this plan, as well as actions in future plan updates.
Background	The West Piedmont Planning District Commission formed a multi-jurisdictional committee to oversee hazard mitigation planning efforts for the West Piedmont Region. Each of the

Obtain official recognition of the Mitigation Advisory Committee from the jurisdictions in the Planning District to institutionalize and develop an on-going mitigation program. Include official recognition of Mitigation Advisory Committee in HMP adoption resolution. Use the Mitigation Advisory Committee to review mitigation projects and coordinate multi-jurisdictional and regional grant applications.	
	participating jurisdictions was represented on the committee. One way to increase the effectiveness of such committees and ensure long-term plan implementation is to bestow official status to them. In addition, a formalized committee will allow communities to share the workload when implementing regional activities. Giving the public a group to discuss mitigation opportunities with will also address the outreach difficulties. The region intends to utilize the Regional Emergency Mangers Group as the core of a working group coordinated by the West Piedmont Planning District Commission (see Section 8 for further details).
Estimated cost	Low
Funding sources	Operational budget
Responsible party	Town Manager
Completion date	Short-term

Provide annual training opportunities to local zoning and building code enforcement staff. Educate staff on damage assessment, mitigation techniques, and other related topics.	
Category	Capability & capacity building
Hazard	All Hazards
Objective(s) addressed	2.1
Cost benefit	A direct benefit would be a more educated and informed staff that can improve future mitigation projects.
Background	Zoning and building codes are only as effective as they are correctly implemented and enforced. These tools can protect communities by limiting development in hazard-prone areas and ensuring that new developments are built safely. Coordinating regular training for staff can support the integration of risk mitigation principles into zoning and building code enforcement, and the development of organizational knowledge related to hazards.
Estimated cost	Low
Funding sources	Operational budget
Responsible party	County Code Enforcement (Town Manager to coordinate with County)
Completion date	Short-term

D.1.10. Town of Gretna

Identify and protect at least one critical aquifer recharge zone in a high-risk area per year.	
Category	Natural systems protection
Hazard	Drought
Objective(s) addressed	1.5
Cost benefit	The combination of the aquifer recharge zone being critical and the area being high-risk would likely mean the benefits of the project would outweigh the costs.
Background	Groundwater is a primary source of water for the town. Unchecked development within aquifer recharge zones could threaten the recharge of the groundwater aquifer, restricting the supply of clean water to the town. The town should identify the recharge zones and ensure the safety of these zones from future development. Another threat to recharge areas can be the unintentional or intentional release of hazardous materials that can contaminate the aquifer; identification of the recharge areas can help speed response if a release occurs.
Estimated cost	Moderate
Funding sources	CDBG; U.S. EPA State and Tribal Assistance Grant; EDA
Responsible party	Town Manager
Completion date	Short-term

Obtain official recognition of the Mitigation Advisory Committee from the jurisdictions in the Planning District to institutionalize and develop an on-going mitigation program. Include official recognition of Mitigation Advisory Committee in HMP adoption resolution. Use the Mitigation Advisory Committee to review mitigation projects and coordinate multi-jurisdictional and regional grant applications.	
Category	Capability & capacity building
Hazard	All Hazards
Objective(s) addressed	2.1
Cost benefit	This is a low-cost action that will improve the completion rate of all other actions in this plan, as well as actions in future plan updates.
Background	The West Piedmont Planning District Commission formed a multi-jurisdictional committee to oversee hazard mitigation planning efforts for the West Piedmont Region. Each of the participating jurisdictions was represented on the committee. One way to increase the effectiveness of such committees and ensure long-term plan implementation is to bestow official status to them. In addition, a formalized committee will allow communities to share the workload when implementing regional activities. Giving the public a group to discuss mitigation opportunities with will also address the outreach difficulties.

Obtain official recognition of the Mitigation Advisory Committee from the jurisdictions in the Planning District to institutionalize and develop an on-going mitigation program. Include official recognition of Mitigation Advisory Committee in HMP adoption resolution. Use the Mitigation Advisory Committee to review mitigation projects and coordinate multi-jurisdictional and regional grant applications.	
	The region intends to utilize the Regional Emergency Mangers Group as the core of a working group coordinated by the West Piedmont Planning District Commission (see Section 8 for further details).
Estimated cost	Low
Funding sources	Operational budget
Responsible party	Town Manager
Completion date	Short-term

Integrate the location-specific hazards risks identified in this plan into the next update of the Comprehensive Plan.	
Category	Local plans & regulations
Hazard	Flooding, Wildfire, Dam Failure
Objective(s) addressed	2.1
Cost benefit	Planning future development with hazard areas in mind will reduce future damages and costs.
Background	Spatial information on hazards should be used in future town development plans to minimize development in hazard-prone areas. This mapping is to be more granular than the mapping used in this regional plan and developed specifically for Gretna.
Estimated cost	Low
Funding sources	Operational budget
Responsible party	Emergency Management
Completion date	Mid-term

Provide annual training opportunities to local zoning and building code enforcement staff. Educate staff on damage assessment, mitigation techniques, and other related topics.	
Category	Capability & capacity building
Hazard	All Hazards
Objective(s) addressed	2.1
Cost benefit	A direct benefit would be a more educated and informed staff that can improve future mitigation projects.
Background	Zoning and building codes are only as effective as they are correctly implemented and enforced. These tools can protect communities by limiting development in hazard-prone areas and ensuring that new developments are built safely.

Provide annual training opportunities to local zoning and building code enforcement staff. Educate staff on damage assessment, mitigation techniques, and other related topics.	
	Coordinating regular training for staff can support the integration of risk mitigation principles into zoning and building code enforcement, and the development of organizational knowledge related to hazards.
Estimated cost	Low
Funding sources	Operational budget
Responsible party	Code Enforcement
Completion date	Short-term

Develop or enhance the Reverse 911 or other public notification system.	
Category	Preparedness & response; public education & awareness
Hazard	All Hazards
Objective(s) addressed	2.2
Cost benefit	A direct benefit would be a more hazard-informed public that can take precautionary measures quicker.
Background	Town has indirect access through the county to county-wide public notification system but should either work with county to gain direct access or work to establish own ability to notify town residents directly using Reverse 911 or other automated notification system.
Estimated cost	Low
Funding sources	Operational budget
Responsible party	Town Manager, Emergency Management
Completion date	Mid-term

D.1.11. Town of Hurt

Coordinate with VDOT to establish flood level markers along bridges and other structures to indicate the rise of water levels along creeks and rivers in potential flood-prone areas. Incorporate the procedures for tracking high water marks following a flood into emergency response plans.	
Category	Preparedness & response; public education & awareness
Hazard	Flooding
Objective(s) addressed	1.4
Cost benefit	The prevention of deaths, injuries, and damages due to flood waters being deeper than expected is a direct benefit.
Background	Many deaths that occur during flood events happen when people attempt to drive through floodwaters. Flood-prone roads should be clearly marked with a gauge showing flood depths. The gauge should be visible to drivers to

Coordinate with VDOT to establish flood level markers along bridges and other structures to indicate the rise of water levels along creeks and rivers in potential flood-prone areas. Incorporate the procedures for tracking high water marks following a flood into emergency response plans.	
	alert them to the flood conditions and depth of water on the road. The Town of Hurt would greatly benefit from clearly visible water level warning signage. The Staunton River, Sycamore Creek and certain areas on Ricky Van Shelton Drive flood rapidly and could cause autos to be submerged quickly – especially at night as our street lighting is poor.
Estimated cost	Low
Funding sources	Operational budget, VDOT
Responsible party	Town Manager
Completion date	Short-term

Qualify for and participate in the StormReady program sponsored by the National Weather Service.	
Category	Capability & capacity building; public education & awareness
Hazard	Winter Storm, Hurricane Wind, Tornado, Severe Weather
Objective(s) addressed	2.1
Cost benefit	This is a low-cost action that would boost the emergency management in the town and cover several smaller qualifying actions that can help with mitigating risk.
Background	StormReady is a nationwide community preparedness program that uses a grassroots approach to help communities develop plans to handle all types of severe weather. The town would be interested in being included as part of Pittsylvania County participation. The program has several requirements based on the size of the participating community. The requirements for a community the size of Pittsylvania County include the following: • Established 24-hour Warning Point (WP) • Establish Emergency Operations Center (EOC) • Four (4) ways for EOC/WP to receive NWS warning, etc. • Four (4) ways to monitor hydrometeorological data • Four (4) ways for EOC/WP to disseminate warnings • Placing NOAA Weather Radio receivers in public facilities • Four (4) annual weather safety talks • Train spotters and dispatchers biennially

Qualify for and participate in the StormReady program sponsored by the National Weather Service.	
	• Host/co-host annual NWS spotter training • Formal hazardous weather operations plan • Biennial visits by emergency manager to NWS • Annual visits by NWS official to community The Town of Hurt would benefit from an enhanced capability to inform its residents, businesses, schools and industries of emergency incidents of all types in a timely manner. Not all of its residents have internet accessibility, but most do have some form of telephone service. The ability to inform the people and places within town of emergencies is a critical need. Having Hurt become a Storm Ready Town would be of immense benefit to the residents and businesses and would fill a critical need that its internal public safety plan already recognizes.
Estimated cost	Low
Funding sources	Operational budget
Responsible party	Emergency Management, Town Manager
Completion date	Short-term

Obtain official recognition of the Mitigation Advisory Committee from the jurisdictions in the Planning District to institutionalize and develop an on-going mitigation program. Include official recognition of Mitigation Advisory Committee in HMP adoption resolution. Use the Mitigation Advisory Committee to review mitigation projects and coordinate multi-jurisdictional and regional grant applications.	
Category	Capability & capacity building
Hazard	All Hazards
Objective(s) addressed	2.1
Cost benefit	This is a low-cost action that will improve the completion rate of all other actions in this plan, as well as actions in future plan updates.
Background	The West Piedmont Planning District Commission formed a multi-jurisdictional committee to oversee hazard mitigation planning efforts for the West Piedmont Region. Each of the participating jurisdictions was represented on the committee. One way to increase the effectiveness of such committees and ensure long-term plan implementation is to bestow official status to them. In addition, a formalized committee will allow communities to share the workload when implementing regional activities. Giving the public a group to discuss mitigation opportunities with will also address the outreach difficulties. The region intends to utilize the Regional Emergency Mangers Group as the core of a working group

Obtain official recognition of the Mitigation Advisory Committee from the jurisdictions in the Planning District to institutionalize and develop an on-going mitigation program. Include official recognition of Mitigation Advisory Committee in HMP adoption resolution. Use the Mitigation Advisory Committee to review mitigation projects and coordinate multi-jurisdictional and regional grant applications.	
	coordinated by the West Piedmont Planning District Commission (see Section 8 for further details). Professional assistance and participation with the Mitigation Advisory Committee would be highly sought after by the Town of Hurt due to its limited personnel. The Town of Hurt, as it continue to grow residentially, industrially and with other economic development plans in the planning stages, would greatly benefit from the cooperation, advice and planning activities from this profession group. It would assist us in year-round emergency planning, enhance our economic development, provide residents and businesses with the confidence that their Town is actively taking steps to improve our overall safety.
Estimated cost	Low
Funding sources	Operational budget
Responsible party	Town Manager
Completion date	Short-term

Provide annual training opportunities to local zoning and building code enforcement staff. Educate staff on damage assessment, mitigation techniques, and other related topics.	
Category	Capability & capacity building
Hazard	All Hazards
Objective(s) addressed	2.1
Cost benefit	A direct benefit would be a more educated and informed staff that can improve future mitigation projects.
Background	Zoning and building codes are only as effective as they are correctly implemented and enforced. These tools can protect communities by limiting development in hazard-prone areas and ensuring that new developments are built safely. Coordinating regular training for staff can support the integration of risk mitigation principles into zoning and building code enforcement, and the development of organizational knowledge related to hazards.
Estimated cost	Low
Funding sources	Operational budget
Responsible party	County Code Enforcement (Town Manager to coordinate with County)
Completion date	Short-term

D.1.12. Town of Ridgeway

Develop a plan for the Norfolk Southern Railroad bridge to routinely monitor underlying creek for debris and sediment removal to reduce risk for overflows.	
Category	Structure and Infrastructure Projects; local plans & regulations
Hazard	Flooding
Objective(s) addressed	1.2
Cost benefit	Routine monitoring and maintenance can help avoid the high costs of flooding and subsequent damages.
Background	The town has reported issues of sediment buildup and related flooding issues in the creek under the bridge that the Norfolk South Railroad crosses. The NS Railroad has jurisdiction over the tracks and bridge, but the town is able to monitor for debris buildup and coordinate removal to help mitigate flooding issues.
Estimated cost	Low
Funding sources	Operational budget
Responsible party	Town Manager
Completion date	Short-term to develop plan, then ongoing monitoring and removal

Obtain official recognition of the Mitigation Advisory Committee from the jurisdictions in the Planning District to institutionalize and develop an on-going mitigation program. Include official recognition of Mitigation Advisory Committee in HMP adoption resolution. Use the Mitigation Advisory Committee to review mitigation projects and coordinate multi-jurisdictional and regional grant applications.	
Category	Capability & capacity building
Hazard	All Hazards
Objective(s) addressed	2.1
Cost benefit	This is a low-cost action that will improve the completion rate of all other actions in this plan, as well as actions in future plan updates.
Background	The West Piedmont Planning District Commission formed a multi-jurisdictional committee to oversee hazard mitigation planning efforts for the West Piedmont Region. Each of the participating jurisdictions was represented on the committee. One way to increase the effectiveness of such committees and ensure long-term plan implementation is to bestow official status to them. In addition, a formalized committee will allow communities to share the workload when implementing regional activities. Giving the public a group to discuss mitigation opportunities with will also address the outreach difficulties. The region intends to utilize the Regional Emergency Mangers Group as the core of a working group

Obtain official recognition of the Mitigation Advisory Committee from the jurisdictions in the Planning District to institutionalize and develop an on-going mitigation program. Include official recognition of Mitigation Advisory Committee in HMP adoption resolution. Use the Mitigation Advisory Committee to review mitigation projects and coordinate multi-jurisdictional and regional grant applications.

	coordinated by the West Piedmont Planning District Commission (see Section 8 for further details).
Estimated cost	Low
Funding sources	Operational budget
Responsible party	Town Manager
Completion date	Short-term

Integrate the location-specific hazards risks identified in this plan into the next update of the Comprehensive Plan.

Category	Local plans & regulations
Hazard	Flooding, Wildfire, Dam Failure
Objective(s) addressed	2.1
Cost benefit	Planning future development with hazard areas in mind will reduce future damages and costs.
Background	Spatial information on hazards should be used in future town development plans to minimize development in hazard-prone areas. Mapping more granular than developed for the region, specific to Ridgeway is desired.
Estimated cost	Low
Funding sources	Operational budget
Responsible party	Town Manager
Completion date	Mid-term

Implement a public warning system for hazard occurrences.

Category	Preparedness & response; public educations & awareness
Hazard	All Hazards
Objective(s) addressed	2.2
Cost benefit	A direct benefit would be a more informed public that can take precautionary measures quicker.
Background	Town has indirect access through the county to county-wide public notification system but should either work with county to gain direct access or work to establish own ability to notify town residents directly using Reverse 911 or other automated notification system. Identify a funding source for town-wide notification system (e.g., sirens) and apply.
Estimated cost	High
Funding sources	Staff time; Local funds

Implement a public warning system for hazard occurrences.	
Responsible party	Town Manager
Completion date	Short-term

Develop and maintain a database to track community exposure to flood risk, then use it to create and maintain a GIS layer for stormwater flooding problem areas. Coordinate with other jurisdictions in the West Piedmont Region to identify regional problem areas.	
Category	Capability & capacity building
Hazard	Flooding
Objective(s) addressed	2.3
Cost benefit	Maintaining a database of priority flooding problem areas will allow the most cost-effective projects to be completed as regular and extensive flooding will be targeted.
Background	Managing flood risk information is critical to protecting communities and prioritizing future mitigation actions. Determining the location and severity of risk for local flooding problems can help emergency response officials create more useful maps, and ultimately, make better decisions during flood events. Coordinating with the Planning District Commission and other jurisdictions can also leverage more resources and capacity to address regional problems. For stormwater (pluvial) flooding, this localized data is even more essential because NFIP models and FIRMs do not include this risk, which is increasing with climate change. Collecting local data can help the Town of Ridgeway identify structures that may be outside the Special Flood Hazard Areas, but still face flood risks.
Estimated cost	Low
Funding sources	Operational budget
Responsible party	Emergency Management, Town Manager
Completion date	Mid-term

D.1.13. Town of Rocky Mount

Reach out to the public for input, then complete a flood mitigation action for Rocky Mount based on their area of highest concern.	
Category	Building/Infrastructure Mitigation
Hazard	Flooding
Objective(s) addressed	1.1
Cost benefit	The highest concern area is expected to be one that suffers repeated flooding that regularly causes damages or delays.

Reach out to the public for input, then complete a flood mitigation action for Rocky Mount based on their area of highest concern.	
Background	Stormwater flooding has been identified as an issue throughout the West Piedmont region. As a part of this plan, the WPPDC has signed on to lead a regional stormwater flooding study that will help identify specific areas of concern with the help of the participating jurisdictions. Rocky Mount can use the results of the study and public feedback to prioritize a problem area and implement the mitigation action.
Estimated cost	Low - Moderate
Funding sources	FEMA HMA, VA CFCF, Operational budget (outreach)
Responsible party	Town Manager
Completion date	Long-term

Provide critical public facilities with (1) necessary electrical hook-up, wiring, and switches to allow readily accessible connections and (2) backup generators.	
Category	Structure and Infrastructure Projects; preparedness & response
Hazard	Flooding, Winter Storm, Hurricane Wind, Severe Weather, Tornado, Earthquake
Objective(s) addressed	1.2
Cost benefit	This work is already underway, and it has been determined the benefits outweigh the costs.
Background	Weather conditions throughout the year can cause unexpected power outages that affect critical public facilities. These outages can happen during thunderstorms, hurricanes, winter storms, and many other events. Generators are needed to provide reliable, immediate and full-strength power when primary power systems fail. Standby power is required for health care facilities, operations centers, food storage, essential building operations, correctional and security systems, water pumping stations, and 911 call centers. Generator hook-ups allow the County to have a supply of mobile generators that can be assigned based on needs (as opposed to buying a generator for each facility). Installing hook-ups ensures that generators can be used quickly wherever they are sent. This strategy is on-going, and the County is seeking funding for schools, fire, EMS, and other critical facilities.
Estimated cost	Low
Funding sources	FEMA HMPG
Responsible party	Emergency Management, Town Manager

Provide critical public facilities with (1) necessary electrical hook-up, wiring, and switches to allow readily accessible connections and (2) backup generators.	
Completion date	Long-term

Obtain official recognition of the Mitigation Advisory Committee from the jurisdictions in the Planning District to institutionalize and develop an on-going mitigation program. Include official recognition of Mitigation Advisory Committee in HMP adoption resolution. Use the Mitigation Advisory Committee to review mitigation projects and coordinate multi-jurisdictional and regional grant applications.	
Category	Capability & capacity building
Hazard	All Hazards
Objective(s) addressed	2.1
Cost benefit	This is a low-cost action that will improve the completion rate of all other actions in this plan, as well as actions in future plan updates.
Background	The West Piedmont Planning District Commission formed a multi-jurisdictional committee to oversee hazard mitigation planning efforts for the West Piedmont Region. Each of the participating jurisdictions was represented on the committee. One way to increase the effectiveness of such committees and ensure long-term plan implementation is to bestow official status to them. In addition, a formalized committee will allow communities to share the workload when implementing regional activities. Giving the public a group to discuss mitigation opportunities with will also address the outreach difficulties. The region intends to utilize the Regional Emergency Mangers Group as the core of a working group coordinated by the West Piedmont Planning District Commission (see Section 8 for further details).
Estimated cost	Low
Funding sources	Operational budget
Responsible party	Town Manager
Completion date	Short-term

D.1.14. Town of Stuart

Provide critical public facilities with (1) necessary electrical hook-up, wiring, and switches to allow readily accessible connections and (2) backup generators.	
Category	Structure and Infrastructure Projects; preparedness & response
Hazard	Flooding, Winter Storm, Hurricane Wind, Severe Weather, Tornado, Earthquake
Objective(s) addressed	1.2

Provide critical public facilities with (1) necessary electrical hook-up, wiring, and switches to allow readily accessible connections and (2) backup generators.	
Cost benefit	This work is already underway, and it has been determined the benefits outweigh the costs.
Background	Weather conditions throughout the year can cause unexpected power outages that affect critical public facilities. These outages can happen during thunderstorms, hurricanes, winter storms, and many other events. Generators are needed to provide reliable, immediate and full-strength power when primary power systems fail. Standby power is required for health care facilities, operations centers, food storage, essential building operations, correctional and security systems, water pumping stations, and 911 call centers. Generator hook-ups allow the Town to have a supply of mobile generators that can be assigned based on needs (as opposed to buying a generator for each facility). Installing hook-ups ensures that generators can be used quickly wherever they are sent. Stuart's Fire Department is looking to get a new generator, and Smith River Rescue, which serves part of Stuart, is considering a portable generator and transfer switch. Another fire house in the County also operates as a shelter and may need a new generator.
Estimated cost	Low - Moderate
Funding sources	HMPG
Responsible party	Town Manager, Emergency Management
Completion date	Long-term

Obtain official recognition of the Mitigation Advisory Committee from the jurisdictions in the Planning District to institutionalize and develop an on-going mitigation program. Include official recognition of Mitigation Advisory Committee in HMP adoption resolution. Use the Mitigation Advisory Committee to review mitigation projects and coordinate multi-jurisdictional and regional grant applications.	
Category	Capability & capacity building
Hazard	All Hazards
Objective(s) addressed	2.1
Cost benefit	This is a low-cost action that will improve the completion rate of all other actions in this plan, as well as actions in future plan updates.
Background	The West Piedmont Planning District Commission formed a multi-jurisdictional committee to oversee hazard mitigation planning efforts for the West Piedmont Region. Each of the participating jurisdictions was represented on the committee.

Obtain official recognition of the Mitigation Advisory Committee from the jurisdictions in the Planning District to institutionalize and develop an on-going mitigation program. Include official recognition of Mitigation Advisory Committee in HMP adoption resolution. Use the Mitigation Advisory Committee to review mitigation projects and coordinate multi-jurisdictional and regional grant applications.

	One way to increase the effectiveness of such committees and ensure long-term plan implementation is to bestow official status to them. In addition, a formalized committee will allow communities to share the workload when implementing regional activities. Giving the public a group to discuss mitigation opportunities with will also address the outreach difficulties. The region intends to utilize the Regional Emergency Mangers Group as the core of a working group coordinated by the West Piedmont Planning District Commission (see Section 8 for further details).
Estimated cost	Low
Funding sources	Operational budget
Responsible party	Town Manager
Completion date	Short-term

Provide annual training opportunities to local zoning and building code enforcement staff. Educate staff on damage assessment, mitigation techniques, and other related topics.

Category	Capability & capacity building
Hazard	All Hazards
Objective(s) addressed	2.1
Cost benefit	A direct benefit would be a more educated and informed staff that can improve future mitigation projects.
Background	Zoning and building codes are only as effective as they are correctly implemented and enforced. These tools can protect communities by limiting development in hazard-prone areas and ensuring that new developments are built safely. Coordinating regular training for staff can support the integration of risk mitigation principles into zoning and building code enforcement, and the development of organizational knowledge related to hazards.
Estimated cost	Low
Funding sources	Operational budget
Responsible party	Town Manager to coordinate with County Code Enforcement
Completion date	Mid-term

Expand broadband capabilities to improve emergency communications to rural areas and increase Internet access.	
Category	Capability & capacity building; preparedness & response
Hazard	All Hazards
Objective(s) addressed	2.2
Cost benefit	The municipality has identified that this issue effects multiple areas of work and alleviating the problem will have multiple widespread benefits, including increased hazard response times.
Background	Broadband access and reliability will expand the technologies available for 911 inquiries and emergency notifications and allow essential workers to continue performing work functions remotely, if needed. In 2020, the COVID-19 pandemic required many employees to work remotely. During this transition, some employees faced Internet connectivity issues. The Patrick County is currently working on expanding broadband capabilities, so there is an opportunity for Stuart to work alongside them. This action remains ongoing.
Estimated cost	Moderate
Funding sources	County funds; USDA Broadband ReConnect Program
Responsible party	Town Manager to coordinate with County
Completion date	Short-term

Section 8. Plan Monitoring and Maintenance Procedures

The long-term success of the West Piedmont Planning District's mitigation plan depends in large part on routine monitoring, evaluating, and updating of the plan so that it will remain a valid tool for the communities to use.

A. Formal Plan Adoption

Thirteen local governments in south-central Virginia participated in this planning process and formally adopted this plan by resolution of their governing boards. The adoption process itself took several months, as significant coordination by the Mitigation Advisory Committee was necessary in order to 1) place the plan review and adoption on the appropriate meeting agendas in each jurisdiction, 2) produce and provide copies in official meeting packets, 3) facilitate the actual adoption, 4) collect the adoption resolutions, and 5) incorporate the adopted resolutions into the final Hazard Mitigation Plan.

B. Implementation

Upon adoption, the plan faces the biggest test: implementation. While this plan puts forth many worthwhile and high-priority recommendations, the decision of which action to undertake first will be the primary issue that the West Piedmont Planning District communities face.

Funding is always an important and critical issue. Therefore, pursuing low or no-cost high-priority recommendations may be one approach that a community chooses to take. An example of a low-cost, high-priority recommendation would be to identify tornado safe rooms in schools during annual inspections.

Another implementation approach is to prioritize those actions that can be completed in a relatively short amount of time. Being able to publicize a successful project can build momentum to implement the other parts of the plan. An example of an effective but easily implemented strategy is to participate in the National Weather Service's StormReady program.

In tandem with these efforts, it will be important to constantly monitor funding opportunities that can be utilized to implement some of the higher cost recommended actions. This will include creating and maintaining a repository of ideas on how any required local match or participation requirement can be met. Then, when funding does become available, the West Piedmont Planning District communities will be poised to take advantage of an opportunity. Funding opportunities that can be monitored include special pre- and post-disaster funds, special district budgeted funds, state or federal ear-marked funds, and grant programs, including those that can serve or support multi-objective applications.

Since the 2016 plan update, the FEMA BRIC program was created, and funding increased significantly over the former PDM grant program. This should provide additional opportunities for plan implementation. Further, the Commonwealth of Virginia's recent Community Flood Protection Program (CFPP) provides another source of funding to implement many of the identified strategies and projects. Importantly, the CFPP can be used to match federal grants in many cases.

With adoption of this plan, the West Piedmont Planning District communities commit to:

- Pursuing the implementation of the high-priority, low/no-cost recommended actions;
- Keeping the concept of mitigation in the forefront of community decision-making by identifying and stressing the recommendations of the Hazard Mitigation Plan when other community goals, plans, and activities are discussed and decided upon; and
- Maintaining a constant monitoring of multi-objective, cost-share opportunities to assist the participating communities in implementing the recommended actions in this plan for which no current funding or support exists.

In addition, the communities of the West Piedmont Region remain committed to the National Flood Insurance Program. They will continue to enforce floodplain regulations and undertake other actions to remain in compliance with the program.

Status updates on mitigation actions included in previous versions of this plan can be found in Appendix C.

B.1. Incorporation into Other Planning Mechanisms

It is important to the long-term implementation of the plan that the underlying principles of this Hazard Mitigation Plan are incorporated into other community plans and mechanisms, such as:

- Comprehensive Planning;
- Stormwater Management Plans and Regulations;
- Capital Improvement Program Budgeting;
- Plans of Conservation and Development;
- Floodplain Zoning;
- Emergency Operations Plans; and
- Disaster Recovery Plans.

The capability assessment (Section 6) provides insight into the current comprehensive plans for each community. The emergency management coordinator for each jurisdiction will provide a copy of this plan to the planning director and work with them to ensure that the appropriate information from this plan is incorporated into the next update of their comprehensive plan. Information from the hazard identification and risk assessment as well as mitigation goals and strategies may be directly included as a comprehensive plan element or will be included in other elements, as appropriate. Projects that require large investments, such as acquisition or road hardening, are candidates for inclusion in capital improvement plans.

Mitigation is most successful when it is incorporated within the day-to-day functions and priorities of government and development. This integration is accomplished by a constant effort to network and to identify and highlight the multi-objective, “win-win” benefits to each program, the communities, and their constituents. This effort is achieved through monitoring agendas, attending meetings, and sending memos.

C. Evaluation

The Mitigation Advisory Committee, within 60 days of adoption of the plan, will develop evaluation criteria to judge the progress of implementation of the plan.

The WPPDC will make an annual request to the Mitigation Advisory Committee representatives for an annual update report to be provided by January 31 on the progress of the implementation of their Mitigation Action Plans, the status of other mitigation efforts, and relevant hazard events.

This annual update will include the following:

- Summary of any hazard events that occurred during the previous 12 months and the impact these events had on the planning area
- Review of mitigation success stories
- Review of continuing public involvement
- Brief discussion about why targeted strategies were not completed and corrective action plans if needed, based on the evaluation criteria set by the Mitigation Advisory Committee.
- Re-evaluation of the action plan to determine if the timeline for identified projects needs to be amended (such as changing a long-term project to a short-term one because of new funding)
- Recommendations for new projects
- Changes in or potential for new funding options (grant opportunities)
- Impact of any other planning programs or initiatives that involve hazard mitigation

WPPDC will assume the responsibility of initiating the annual progress reporting process. A template to guide the planning partners in preparing a progress has been created and will be used for this cycle. The WPPDC will provide feedback to the Mitigation Advisory Committee jurisdiction representatives on items included in the report. WPPDC will also invite FEMA and VDEM to participate in the annual review process in addition to any required grant reporting.

The WPPDC will then prepare a brief annual report on the progress of the plan. This report should be used as follows:

- Posted on the WPPDC Mitigation Planning webpage; and
- Presented to the jurisdictions' governing bodies to inform them of the progress of actions implemented during the reporting period.

Uses of the progress report will be at the discretion of each jurisdiction. Annual progress reporting is not a requirement specified under 44 CFR. However, it may enhance the planning district's opportunities for funding. While failure to implement this component of the plan maintenance strategy will not jeopardize a planning partner's compliance under the DMA, it may jeopardize its opportunity to partner and leverage funding opportunities with the other partners.

C.1. Continuing Public Involvement

The public will continue to be apprised of the plan's progress through the West Piedmont Planning District Commission's (WPPDC) website, the WPPDC office, and by providing copies of annual progress

reports to the media, as appropriate. Each community will provide links to the plan on their individual jurisdictional websites to increase avenues of public access to the plan. The participating jurisdictions will continue to use the plan as a resource in developing new plans and community preparedness information and they will discuss the plan at public presentations and seek input continuously during the next planning cycle. The WPPDC has agreed to maintain the hazard mitigation plan website. This site will not only house the final updated plan and appendices, it will become the one-stop shop for information regarding the plan, the planning district, and plan implementation.

Upon initiation of future update processes, a new public involvement strategy will be initiated based on guidance from the committee. This strategy will be based on the needs and capabilities of the planning district at the time of the update. At a minimum, this strategy will include the use of local media outlets and social media within the planning area, as was done for this update. One public involvement goal will be to reach out to already established community groups and institutions (e.g., schools, volunteer groups, churches, community centers) and request their input, feedback, and involvement in the plan and spreading the word to other community members.

D. Maintenance

Plan maintenance requires an ongoing effort to monitor and evaluate the implementation of the plan, and to update the plan as progress, roadblocks, or changing circumstances are recognized.

The Executive Director of the West Piedmont Planning District Commission (WPPDC) will be responsible for monitoring this plan. The county administrator, city manager, or town manager will be responsible for maintaining or appointing one or more representatives (e.g., emergency coordinator, planning director) to the Mitigation Advisory Committee convened by the WPPDC. It is expected that the Mitigation Advisory Committee will function as an adjunct to the Regional Emergency Managers Group that already meets on a regular basis.

The WPPDC Executive Director and the Mitigation Advisory Committee will determine annually if an update of the plan is needed and, if necessary, the mechanism for doing so. At a minimum, the WPPDC will seek a state grant on an adequate timeline to receive funds for the required five-year update of the plan. Factors to consider when determining if an update is necessary include:

- Decreased vulnerability as a result of implementing recommended actions;
- Increased vulnerability as a result of failed or ineffective mitigation actions;
- Increased vulnerability as a result of new development (and/or annexation);
- Increased vulnerability and/or exposure as a result of changing climate conditions;
- New state/federal laws, policies, or programs; and/or
- Changes in resource availability.

A major event, such as a Presidentially declared disaster, may trigger a need to review the plan. If such an event occurs in the West Piedmont Region, the Mitigation Advisory Committee will coordinate to determine how best to review and update the plan. The plan update will be completed through written changes and submissions, as the West Piedmont Planning District jurisdictions and the Mitigation Advisory Committee deem appropriate and necessary. Major changes to the plan will be submitted to the state and FEMA Region III. In addition, public notice will be given and public participation will be

invited through online and physical newspapers, social media, and the Planning District Commission's website.

Section 9. References

A. Data Sources

- American Society of Civil Engineers. (n.d.). Design wind speed maps. <https://asce7hazardtool.online/>
- Federal Emergency Management Agency. (2006). Benefit cost analysis toolkit technical flood manuals.
- Federal Emergency Management Agency. (n.d.). HAZUS-MH. <https://www.fema.gov/flood-maps/products-tools/hazus>
- National Drought Mitigation Center at the University of Nebraska-Lincoln, the United States Department of Agriculture, and the National Oceanic and Atmospheric Administration. (n.d.). United States drought monitor. <https://droughtmonitor.unl.edu/>
- National Oceanic and Atmospheric Administration: Climate services and monitoring division. <https://www.ncdc.noaa.gov/climate-monitoring/>
- National Oceanic and Atmospheric Administration: National climatic data center. <https://www.ncdc.noaa.gov/>
- National Oceanic and Atmospheric Administration: National environmental satellite, data, and information service. <https://www.nesdis.noaa.gov/>
- National Oceanic and Atmospheric Administration: Satellite and information service. <https://www.nesdis.noaa.gov/>
- National Oceanic and Atmospheric Administration. (n.d.). National hurricane center. <https://www.nhc.noaa.gov/>
- National Oceanic and Atmospheric Administration. (n.d.). National weather service records. <https://w2.weather.gov/climate/>
- National Oceanic and Atmospheric Administration. (n.d.). SVRGIS. <https://www.spc.noaa.gov/gis/svrgis/>
- United States Army Corps of Engineers. (n.d.). National inventory of dams. <https://nid.sec.usace.army.mil/ords/f?p=105:1>
- United States Census Bureau. (1990). Water source data.
- United States Census Bureau. (2014). American community survey, 2010-2014.
- United States Census Bureau. (2019). American community survey, 2015-2019.
- United States Department of Agriculture and National Agricultural Statistics Service. (2012). Census of agriculture.
- United States Department of Agriculture and National Agricultural Statistics Service. (2017). Census of agriculture.
- United States Department of Commerce. (n.d.). <https://www.commerce.gov/>

- United States Department of Transportation. (2009). Traffic incident management in hazardous materials spills in incident clearance. <http://ops.fhwa.dot.gov/publications/fhwahop08058/20.htm>
- United States Department of Transportation Pipeline and Hazardous Materials Safety Administration. (n.d.). Incident statistics. <https://www.phmsa.dot.gov/hazmat-program-management-data-and-statistics/data-operations/incident-statistics>
- United States Environmental Protection Agency. (n.d.). TRI explorer. https://enviro.epa.gov/triexplorer/tri_release.chemical
- Virginia Department of Conservation and Recreation. (n.d.). The natural communities of Virginia classification of ecological groups and community types. <https://www.dcr.virginia.gov/natural-heritage/natural-communities/>
- Virginia Department of Forestry. <https://www.virginia.gov/agencies/departments-of-forestry/>
- Virginia Tech. (n.d.). Virginia energy patterns and trends electronic database. <https://vept.energy.vt.edu/>

B. Referenced Publications

- Dearen, J. and Burke, G. (2016, September 24). Aging gas pipes at risk of explosion nationwide. Midland Reporter-Telegram. <https://www.mrt.com/neighborhood/moco/news/article/Aging-gas-pipe-at-risk-of-explosion-nationwide-9272997.php>.
- City of Martinsville comprehensive plan. (2009). https://www.martinsville-va.gov/content/martinsville-va/uploads/PDF/departments/a-g/community_development/comprehensive_plan/city_of_martinsville_comp_plan.pdf.
- CNN Wire Staff. (2010, September 10). California pipeline blast raises safety questions. Cable News Network. <http://www.cnn.com/2010/US/09/10/california.utility/index.html>
- Commonwealth of Virginia emergency operations plan. (2019, September). Virginia Department of Emergency Management. <https://www.vaemergency.gov/wp-content/uploads/2021/06/443246358-Commonwealth-of-Virginia-Emergency-Operations-Plan.pdf>
- Commonwealth of Virginia hazard mitigation plan. (2019, May 17). Virginia Department of Emergency Management and Witt O'Brien's. <https://www.cakex.org/documents/commonwealth-virginia-hazard-mitigation-plan>
- Evaluation of Dan River dams within the City of Danville. (2010, October).
- Fagan, K. F., Berton, J., Lagos, M., and Cabanatuan, M. (2010, September 9). San Bruno fire levels neighborhood - gas explosion. San Francisco Chronicle. <https://www.sfgate.com/bayarea/article/San-Bruno-fire-levels-neighborhood-gas-explosion-3175334.php>
- Franklin County comprehensive plan. (2007). <https://www.franklincountyva.gov/309/Comprehensive-Plan>
- Godt, J.W. and United States Geological Survey. (2001). Landslide incidence and susceptibility in the conterminous United States.

- Henry County emergency operations plan. (2015).
http://www.henrycountyva.gov/content/uploads/2015bos/2015_emergency_operations_plan_draft.pdf
- Henry County comprehensive plan. (1995).
https://www.henrycountyva.gov/content/uploads/PDF/comprehensive_plan_2011.pdf
- Major natural gas pipelines. (n.d.). Virginia Department of Mines, Minerals, and Energy.
http://www.energy.vt.edu/vept/naturalgas/NG_pipelines.asp
- Map of major petroleum product pipelines. (2011, March 7). Virginia Department of Mines, Minerals, and Energy. http://www.energy.vt.edu/vept/petroleum/oil_pipeline.asp
- NBC Universal News Group. (2011, February 11). 5 dead after massive Pa. gas blast. NBCNews.com.
<https://www.nbcnews.com/id/wnba41503700>.
- Pittsylvania County comprehensive plan. (2010).
<https://www.pittsylvaniacountyva.gov/Archive/ViewFile/Item/48>
- Roberts, C. and Bailey, C.M. (2000). Physiographic map of Virginia counties. College of William & Mary.
https://training.fws.gov/courses/CSP/CSP3200/resources/documents/Physiographic_Map_of_Virginia.pdf
- Tara Energy. (n.d.). Power outages 101: What causes them and what to do about it.
<https://taraenergy.com/blog/power-outages-101-what-causes-them/>
- Turner, J. (2010, February 3). Cold temperatures hamper snow removal. The Franklin News Post.
- Virginia Department of Forestry. (n.d.). Protect your community. <https://dof.virginia.gov/wildland-prescribed-fire/wildfire-preparation/protect-your-community/>
- Virginia Career Works. (n.d.). Virginia workforce connection, labor market statistics: Covered employment and wages program. <http://www.vawc.virginia.gov/>
- West Piedmont Planning District Commission. (2011). Regional water supply plan.

Council Letter

City of Danville, Virginia



CL-2763

New Business J.

City Council Regular Meeting

Meeting Date: 05/03/2022

Subject: Fiscal Year 2022 Budget Appropriation Ordinance for School Bonds

From: Henrietta Weaver, Accountant

COUNCIL ACTION

First Reading: 05/03/2022

Final Adoption: 05/17/2022

SUMMARY

The City Council has authorized the issuance of General Obligation Bonds to fund various capital projects for Danville Public Schools.

BACKGROUND

The Virginia General Assembly approved HB 1634, which was signed into law by the Governor on March 19, 2019, and which took effect on July 1, 2019, as Chapter 648 of the 2019 Acts of the General Assembly of the Commonwealth of Virginia. HB 1634 is codified at Virginia Code §58.1-605.1. It provides the City of Danville with the statutory authority to levy a general retail sales tax at a rate not to exceed one percent (1%) to provide revenue solely for capital projects for the construction or renovation of schools in the City of Danville if approved by a majority of the voters in a referendum, held in accordance with Virginia Code §24.2-684 and initiated by a resolution of the Council of the City of Danville. This resolution was passed by City Council on June 1, 2021, and the citizens of Danville voted to approve this in November 2021.

RECOMMENDATION

It is recommended that the City Council adopt the attached ordinance Amending the Fiscal Year 2022 Budget Appropriation Ordinance for bonds issued for Danville Public Schools capital projects.

Attachments

Ordinance

PRESENTED: _____

ADOPTED: _____

ORDINANCE NO. 2022-_____ - _____

AN ORDINANCE AMENDING THE FISCAL YEAR 2022 BUDGET APPROPRIATION ORDINANCE BY ANTICIPATING THE PROCEEDS FROM THE ISSUANCE OF GENERAL OBLIGATION BONDS AND APPROPRIATING SAME FOR ANTICIPATED EXPENDITURES.

WHEREAS, the City Council has authorized the issuance of general obligation bonds for the purpose of funding Danville Public Schools capital needs in an amount not to exceed \$141 million, with the recently passed 1% local sales tax option as the funding source for the related debt service; and

WHEREAS, the Council of the City of Danville, Virginia approved on December 21, 2021, a Resolution of official intent to reimburse expenditures with proceeds of a borrowing.

NOW THEREFORE, BE IT ORDAINED, by the Council of the City of Danville, Virginia that the Fiscal Year 2022 Budget Appropriation Ordinance be, and it is hereby, amended by anticipating the funds from the sale of bonds and appropriating same, as follows:

ANTICIPATED REVENUES

<u>Description</u>	<u>Account No.</u>	<u>Amount</u>
Special Revenue Fund:		
Proceeds from Sale of Bonds	61754000-43122	\$127,000,000
Premium on Bonds	61754000-44090	\$ 11,697,200
Total		<u>\$138,697,200</u>

ANTICIPATED EXPENDITURES

<u>Description</u>	<u>Account No.</u>	<u>Amount</u>
Special Revenue Fund:		
Contribution to Other Entities	61754999-55005	\$137,437,430
Bond Issue Expense	61754999-58335	\$ 1,259,770
Total		<u>\$138,697,200</u>

AND BE IT FURTHER ORDAINED, that this appropriation shall be a flexible budget allowing for the posting of the proceeds to the appropriate accounts to accommodate the actual bond issuance costs; and

BE IT FINALLY ORDAINED, that all other accounts and provisions of the Fiscal Year 2022 Budget Appropriation Ordinance, as amended, not hereby amended, shall continue in full force and effect unless and until hereafter further amended or repealed.

APPROVED:

Mayor

ATTEST:

City Clerk

Approved as to
Form and Legal Sufficiency:

City Attorney