

2697 - CID510022_Bristol_CFPF-1_ResiliancePlan

Application Details

Funding Opportunity:	2335-Virginia Community Flood Preparedness Fund - Capacity Building/Planning Grants - CY24 Round 5
Funding Opportunity Due Date:	Mar 28, 2025 11:59 PM
Program Area:	Virginia Community Flood Preparedness Fund
Status:	Under Review
Stage:	Final Application
Initial Submit Date:	Jan 23, 2025 5:59 PM
Initially Submitted By:	Andrew Stockner
Last Submit Date:	
Last Submitted By:	

Contact Information

Primary Contact Information

Active User*:	Yes
Type:	External User
Name*:	Mr. Andrew G Stockner Salutation First Name Middle Name Last Name
Title:	
Email*:	andrew.stockner@bristolva.org
Address*:	300 Lee Street

Abingdon Virginia 24201
City State/Province Postal Code/Zip

Phone*:	276-821-6248 Ext. Phone ###-###-####
Fax:	###-###-####
Comments:	

Organization Information

Status*:	Approved
Name*:	City of Bristol Virginia
Organization Type*:	City Government
Tax ID*:	54-6001159
Unique Entity Identifier (UEI)*:	N68CLJ7QM1P9
Organization Website:	

Address*:

300 LEE STREET

ABINGDON Virginia 24201-
City State/Province Postal Code/Zip

Phone*:

276-645-7300 Ext.
####

Fax:

####

Benefactor:

Vendor ID:

Comments:

VCFPF Applicant Information

Project Description

Name of Local Government*: City of Bristol

Your locality's CID number can be found at the following link: [Community Status Book Report](#)

NFIP/DCR Community Identification Number (CID)*: 510022

If a state or federally recognized Indian tribe,

Name of Tribe:

Authorized Individual*: Joel Surber
First Name Last Name

Mailing Address*: 300 LEE STREET
Address Line 1
Address Line 2

BRISTOL Virginia 24201
City State Zip Code

Telephone Number*: 276-645-7358

Cell Phone Number*: 276-645-7358

Email*: joel.surber@bristolva.org

Is the contact person different than the authorized individual?

Contact Person*: Yes

Contact: Andy Stockner
First Name Last Name
300 LEE STREET
Address Line 1
Address Line 2

BRISTOL Virginia 24201
City State Zip Code

Telephone Number: 276-821-6248

Cell Phone Number: 423-502-2353

Email Address: andrew.stockner@bristolva.org

Enter a description of the project for which you are applying to this funding opportunity

Project Description*:

The City of Bristol wants to develop a Flood Resilience Plan. The Flood Resilience Plan will serve as a local planning document aimed to assist the City of Bristol Leadership and its Citizens. The Resilience Plan will outline flood reduction methodologies that could potentially reduce impacts to

citizen properties and community assets.

Low-income geographic area means any locality, or community within a locality, that has a median household income that is not greater than 80 percent of the local median household income, or any area in the Commonwealth designated as a qualified opportunity zone by the U.S. Secretary of the Treasury via his delegation of authority to the Internal Revenue Service. A project of any size within a low-income geographic area will be considered.

Is the proposal in this application intended to benefit a low-income geographic area as defined above?

Benefit a low-income geographic area*: Yes

Information regarding your census block(s) can be found at census.gov

Census Block(s) Where Project will Occur*: Entire City of Bristol

Is Project Located in an NFIP Participating Community?*:

Is Project Located in a Special Flood Hazard Area?*: Yes

Flood Zone(s) (if applicable):

Flood Insurance Rate Map Number(s) (if applicable):

Eligibility - Round 4

Eligibility

Is the applicant a local government (including counties, cities, towns, municipal corporations, authorities, districts, commissions, or political subdivisions created by the General Assembly or pursuant to the Constitution or laws of the Commonwealth, or any combination of these)?

Local Government*: Yes
Yes - Eligible for consideration
No - Not eligible for consideration

If the applicant is not a town, city, or county, are letters of support from all affected local governments included in this application?

Letters of Support*: N/A
Yes - Eligible for consideration
No - Not eligible for consideration

Has this or any portion of this project been included in any application or program previously funded by the Department?

Previously Funded*: No
Yes - Not eligible for consideration
No - Eligible for consideration

Has the applicant provided evidence of an ability to provide the required matching funds?

Evidence of Match Funds*: Yes
Yes - Eligible for consideration
No - Not eligible for consideration
N/A- Match not required

Scoring Criteria for Capacity Building & Planning - Round 4

Scoring

Eligible Capacity Building and Planning Activities (Select all that apply) ? Maximum 100 points. To make multiple selections, Hold CTRL and click the desired items.

Capacity Building and Planning*: Resilience Plan Development

Is the project area socially vulnerable? (based on [ADAPT Virginia's Social Vulnerability Index Score](#))

Social Vulnerability Scoring:

Very High Social Vulnerability (More than 1.5)

High Social Vulnerability (1.0 to 1.5)

Moderate Social Vulnerability (0.0 to 1.0)

Low Social Vulnerability (-1.0 to 0.0)

Very Low Social Vulnerability (Less than -1.0)

Socially Vulnerable*: Moderate Social Vulnerability (0.0 to 1.0)

Is the proposed project part of an effort to join or remedy the community's probation or suspension from the NFIP?

NFIP*:

No

Is the proposed project in a low-income geographic area as defined below?

"Low-income geographic area" means any locality, or community within a locality, that has a median household income that is not greater than 80 percent of the local median household income, or any area in the Commonwealth designated as a qualified opportunity zone by the U.S. Secretary of the Treasury via his delegation of authority to the Internal Revenue Service. A project of any size within a low-income geographic area will be considered.

Low-Income Geographic Area*:

Yes

Does this project provide ?community scale? benefits?

Community Scale Benefits*:

50-100% of census block

Comments:

Scope of Work and Budget Narrative - Capacity Building and Planning - Round 4

Scope of Work - General Information

Upload your Scope of Work

Please refer to Part IV, Section B. of the grant manual for guidance on how to create your scope of work

Scope of Work Attachment*:

[510022_ScopeOfWork_Bristol_CFPF-1.pdf](#)

Comments:

Scope of Work for City of Bristol Resilience Flood Plan

Budget Narrative

Budget Narrative Attachment*:

[510022_Budget_Narrative_Bristol_CFPF-1.pdf](#)

Comments:

Budget Narrative to Develop a Resilience Flood Plan

Scope of Work Supporting Information - Capacity Building and Planning

Scope of Work Supporting Information

Describe identified resource needs including financial, human, technical assistance, and training needs

Resource need identification*:

The funding is requested for technical assistance to develop a plan and implement the resulting program and also purchase equipment to operate the program.

Describe the plan for developing, increasing, or strengthening knowledge, skills and abilities of existing or new staff. This may include training of existing staff, hiring personnel, contracting consultants or advisors

Development of Existing or New Staff*:

The City will initially be contracting with expert consultants to create the plan and set up the program. Following the development of the Plan, the City will train staff to implement and manage the program.

Where capacity is limited by funding, what strategies will be developed to increase resources in the local government? (This may include work with non-governmental organization, or applying for grants, loans, or other funding sources)

Resource Development Strategies*:

The City is applying for funding to kick-start this Resiliency Flood program. We are actively seeking out grants and funding opportunities from various sources.

We are currently investing in training and development for local government staff to enhance their skills and efficiency, leading to better utilization of existing resources.

We can actively advocate for increased funding from management by building a strong case for the importance of specific projects or services. This Resilience Plan would allow us the first step in advocating for future funds. Along with anticipating future funding needs and allocating resources strategically.

We can work with neighboring local governments for joint projects or services can lead to cost savings and increased overall capacity.

Describe policy management and/or development plans

Policy management and/or development*:

Upon notice of award the City will begin the procurement process. The consultant will work closely with the City to develop a Resilience Plan to act as a framework document for future efforts related to repetitive flooding, flood preparedness, and resilience. The City anticipates this process from publishing the Request for Proposal (RFP) to completion of the Resilience Plan will take one to two years.

- Notification of the Award

- RFP to acquire consultant
- Staff member continues training for CFM certification
- Public outreach meetings
- Draft document created
- Draft document presented to both the Planning Commission and City Council
- Final document completed and approved by City Council
- Addition of the document into the current City Comprehensive Plan
- Updated to ordinances to reflect plan goals
- Update to development protocols
- Utilize the goals, objectives and projects from plan for budget planning and grant acquisition

The final product will be a comprehensive Resilience Plan that assists in identifying future projects, flood preparedness, and strategies to help protect properties city-wide.

The City of Bristol will maintain and update the resiliency plan as needed.

Describe plans for stakeholder identification, outreach, and education strategies

Stakeholder identification, outreach, and

education strategies*:

The City of Bristol Public Works will be the primary stakeholder initially, however, as projects and other items are identified through the Resilience Plan, this will assist in recognizing other stakeholders including citizens, businesses, and at-risk Bristol communities. Public outreach meetings will occur, and public notices will be distributed throughout the city to inform the citizens.

Budget

Budget Summary

Grant Matching Requirement*:

LOW INCOME - Planning and Capacity Building - Fund 90%/Match 10%

*Match requirements for Planning and Capacity Building in low-income geographic areas will not require match for applications requesting less than \$3,000. Is a match waiver being requested?

Match Waiver Request No

Note: only low-income communities are eligible for a match waiver.

*:

I certify that my project is in a low-income geographic area: Yes

Total Project Amount (Request + Match)*: \$200,000.00

**This amount should equal the sum of your request and match figures

REQUIRED Match Percentage Amount: \$20,000.00

BUDGET TOTALS

Before submitting your application be sure that you meet the match requirements for your project type.

Match Percentage: 10.00% Verify that your match percentage matches your required match percentage amount above.

Total Requested Fund Amount: \$180,000.00

Total Match Amount: \$20,000.00

TOTAL: \$200,000.00

Personnel

Description	Requested Fund Amount	Match Amount	Match Source
No Data for Table			

Fringe Benefits

Description	Requested Fund Amount	Match Amount	Match Source
No Data for Table			

No Data for Table

Travel

Description	Requested Fund Amount	Match Amount	Match Source
No Data for Table			

Equipment

Description	Requested Fund Amount	Match Amount	Match Source
No Data for Table			

Supplies

Description	Requested Fund Amount	Match Amount	Match Source
Community Awareness Information & Collection	\$20,000.00	\$0.00	
	\$20,000.00	\$0.00	

Construction

Description	Requested Fund Amount	Match Amount	Match Source
No Data for Table			

Contracts

Description	Requested Fund Amount	Match Amount	Match Source
Contractor to develop Flood Resiliency Plan	\$160,000.00	\$20,000.00	City Funds
	\$160,000.00	\$20,000.00	

Pre-Award and Startup Costs

Description	Requested Fund Amount	Match Amount	Match Source
No Data for Table			

Other Direct Costs

Description	Requested Fund Amount	Match Amount	Match Source
No Data for Table			

Supporting Documentation - General

Supporting Documentation

Named Attachment	Required	Description	File Name	Type	Size	Upload Date
Detailed map of the project area(s) (Projects/Studies)	Bristol Map		BristolMap.jpg	jpg	106 KB	01/23/2025 05:08 PM

FIRMette of the project area(s) (Projects/Studies)			
Historic flood damage data and/or images (Projects/Studies)			
Alink to or a copy of the current floodplain ordinance	Link to Bristol Flood Plain Ordinance https://library.municode.com/va/bristol/codes/code_of_ordinances? nodeId=PTIICO_CH50LAUS_ARTIIZO_DIV5FLDI	Bristol_VA_FloodPlainOrdinance.pdf	pdf 2 01/23/2025 MB 09:37 AM
Maintenance and management plan for project			
Alink to or a copy of the current hazard mitigation plan	Hazard Mitigation Plan	Regional_Hazard_Mitigation_Final_Plan.pdf	pdf 2 01/23/2025 MB 10:19 AM
Alink to or a copy of the current comprehensive plan	Link to comprehensive plan https://bristolva.org/DocumentCenter/View/2174/Bristol- Comprehensive-Plan-LQ?bidId=	Bristol Comprehensive Plan LQ.pdf	pdf 38 01/22/2025 MB 04:59 PM
Social vulnerability index score(s) for the project area	SV - Moderate Social Vulnerability	CFPF SVI Averages.pdf	pdf 4 01/23/2025 MB 05:52 PM
Authorization to request funding from the Fund from governing body or chief executive of the local government	Authorization to request funding for Resiliency Plan	510022_Auth_to_RequestFund_ResPlan.pdf	pdf 171 01/23/2025 KB 03:38 PM
Signed pledge agreement from each contributing organization			
Maintenance Plan			
<i>Benefit-cost analysis must be submitted with project applications over \$2,000,000. in lieu of using the FEMA benefit-cost analysis tool, applicants may submit a narrative to describe in detail the cost benefits and value. The narrative must explicitly indicate the risk reduction benefits of a flood mitigation project and compares those benefits to its cost-effectiveness.</i>			
Benefit Cost Analysis			
Other Relevant Attachments			

Letters of Support

Description	File Name	Type	Size	Upload Date
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No files attached.

City of Bristol Resilience Scope of Work Outline for Plan

The following is based on the general process and format used in the City of Roanoke Resilience Plan. Note that the City of Roanoke plan does not include modeling, the identification/prioritization of new CIP projects, or the development of concept plans.

Project Leadership and Coordination

- Kick-Off. The City and its consultant will hold an in-person kick-off meeting with key internal leadership to review project goals, objectives, and timelines.
- Steering Committee Meetings. The consultant will facilitate nine Steering Committee meetings throughout the process to ensure that project timelines and deliverables are on track and to review draft materials.
- Gap Analysis Facilitated Meeting. The consultant will facilitate a special meeting of the Steering Committee focused on identifying gaps based on the data review, review of other resilience plans, identification of potential metrics, and development of prioritization factors. These gaps will serve as the basis for developing recommendations.
- City Council Meetings. The consultant will work with City staff to engage City Council at two meetings. The first meeting will be held as part of the gap identification process. The second meeting will be held as part of the review of the draft plan.

Data Review, Analysis, and Mapping

- Research Potential Metrics. The consultant will research and summarize potential metrics for assessing the City's current program and policies. Examples include Community Rating System criteria and the Center for Watershed Protection's Code and Ordinance Worksheet for Improving Local Development Regulations.
- Review Other Resilience Plans. The consultant will review other local resilience plans developed in Virginia for potential ideas or approaches that are relevant to the City.
- Develop Prioritization Factors. The consultant will research prioritization factors that can be applied to future stormwater and flood resilience projects and present a potential approach for consideration and feedback by the Steering Committee.

- Mapping. The consultant will develop maps using existing data that can help to identify and visualize hazards and vulnerabilities. These include special hazard and repetitive loss, flood problem areas (from current CIP and input from City staff, stakeholders, and public meetings/surveys), planned flood-related projects in the City's CIP, critical facilities (identified based on desktop survey with City staff), and vulnerable populations (U.S. Census data).
- Existing Document Review. The consultant will review existing City documents, policies, and plans against the metrics chosen by the Steering Committee. The consultant will also review the documents inconsistencies and/or conflicting policies. The review will result in a gap analysis and memorandum for consideration by the Steering Committee.

Community Engagement

Community engagement will consist of three tracts – (1) a public survey designed to be widely distributed and collect information on areas of concern and attitudes on potential solutions, (2) public meetings to provide the public at-large with an opportunity to learn about the City's resiliency effort and to provide specific feedback on potential strategies, and (3) small stakeholder group meetings designed to gather more in-depth feedback from affected individuals or groups of individuals.

- Survey Questions. The consultant will research potential survey questions that would be useful for the City's resilience efforts and develop a draft distribution plan. Distribution is envisioned to use existing social media and electronic communications means as well as PSAs to local news outlets or community newsletters. The City will work with the consultant to refine the questions and distribution plan. The consultant will develop graphics for social media. The City will be responsible for implementation of the distribution plan. The consultant will compile and analyze the survey results and develop visualizations.
- Public Meetings. Two public meetings will be held that are generally aligned with the timeframe for presenting to City Council. The meetings will include a formal presentation as well as story boards so that participants can ask questions of the consultant and City staff at their own pace.
- Stakeholder Small Group Meetings. The City will identify individuals or groups of individuals particularly affected by flooding issues and/or with specific expertise in resilience for more in-depth conversations about problem areas and potential solutions. The consultant will facilitate up to three small group meetings.

Draft and Final Plan

The consultant will develop a draft plan for review by the Steering Committee. The Steering Committee will provide feedback for consideration and incorporation into the final plan. The second City Council meeting will be held between the draft and final plan.

Plan section will include the following:

- Introduction and Background
- City Demographics
- Community Engagement Process and Results
- Goals and Principles of Flood Resilience
- Overview of Data Review, Analysis, and Mapping
- Gap Analysis
- Recommendations

CID 510022 City of Bristol-Resiliency Flood Plan

City of Bristol requesting funds of \$200,000 (90% CFPF) to develop a Resiliency Flood Plan. The city will be responsible for providing \$20,000 (10% match) and these funds will be drawn from the City of Bristol General Fund. This will provide the necessary funds to hire a consultant to develop a plan.

Draft and Final Plan

The consultant will develop a draft plan for review by the Steering Committee. The Steering Committee will provide feedback for consideration and incorporation into the final plan. The second City Council meeting will be held between the draft and final plan.

Plan section will include the following:

- Introduction and Background
 - City Demographics
 - Community Engagement Process and Results
 - Goals and Principles of Flood Resilience
 - Overview of Data Review, Analysis, and Mapping
 - Gap Analysis
 - Recommendations

Preliminary Budget

The following is a planning-level budget based on the above detailed scope of work and standard WSP USA rates.

Task	Level	Engineer/Graphics P7	PM/Senior Planner P6	Planner P3	Planner P3	Associate Planner P2	Expenses	Total Cost
Rates		\$ 285.00	\$ 245.00	\$ 155.00	\$ 155.00	\$ 133.00		
Project Leadership and Coordination		36	112	78	0	0	\$ 2,000	\$ 51,790
Kick-Off (In Person)		18	18	18	0	0	\$ 500	
Steering Committee Meetings (9 Monthly - Virtual))		18	54	36	0	0	\$ -	
Gap Analysis - Facilitated Meeting (In Person)		0	16	16	0	0	\$ 500	
City Council Presentations (2 - In Person))		0	24	8	0	0	\$ 1,000	
Data Review, Analysis, and Mapping		28	94	76	0	0	\$ -	\$ 42,790
Research Potential Metrics		0	16	0	0	0		
Review Other Resilience Plans		0	16	8	0	0		
Develop Prioritization Factors		16	8	8	0	0		
Mapping - Special Hazard and Repetitive Loss		0	0	8	0	0		
Mapping - Identified Flood Problem Areas		4	4	8	0	0		
Mapping - Planned Flood-Related CIP		0	4	8	0	0		
Mapping - Critical Facilities		0	4	8	0	0		
Mapping - Vulnerable Populations		0	2	4	0	0		
Existing Document Review		0	16	8	0	0		
Gap Analysis and Memo		8	24	16	0	0		
Community Engagement		18	76	68	0	0	\$ 1,000	\$ 35,290
Develop Survey Questions		2	16	4	0	0		
Distribution Plan and Social Media Graphics		16	8	4	0	0		
Response Collection and Analysis Memo		0	8	16	0	0		
Public Meetings (2 - In Person)		0	32	32	0	0	\$ 1,000	
Stakeholder Small Meetings (3 - Virtual)		0	12	12	0	0		
Draft and Final Plan		50	84	120	0	0	\$ -	\$ 53,430
Introduction and Background		0	24	8	0	0		
Demographics		0	4	16	0	0		
Community Engagement		0	8	4	0	0		
Principles of Flood Resilience		2	8	4	0	0		
Efforts To-Date		8	8	24	0	0		
Recommendations		24	16	40	0	0		
City Review and Deliver Final Plan		16	16	24	0	0		
Total		132	366	342	0	0	\$ 3,000	\$ 183,300



City of Bristol, Virginia
300 Lee Street, Bristol, Virginia 24201 (276) 645-7333
FAX: (276) 821-6278
Website: www.bristolva.org



Office of the
City Manager

January 23, 2025

Virginia Department of Conservation and Recreation (DCR)
ATTN: Virginia Community Flood Preparedness Fund Grant (CFPF)
600 East Main Street, 24th Floor
Richmond, VA 23219

RE: CY24 Round 5- Virginia CFPF- Resiliency Plan

Dear DCR CFPF Review Committee:

This is an authorization to request funding from the Virginia Community Flood Preparedness Fund (CFPF) during the Round 5 Review Process. The City of Bristol's application is prepared through DCR's Grants Management Portal in order to develop a Bristol Resiliency Flood Plan.

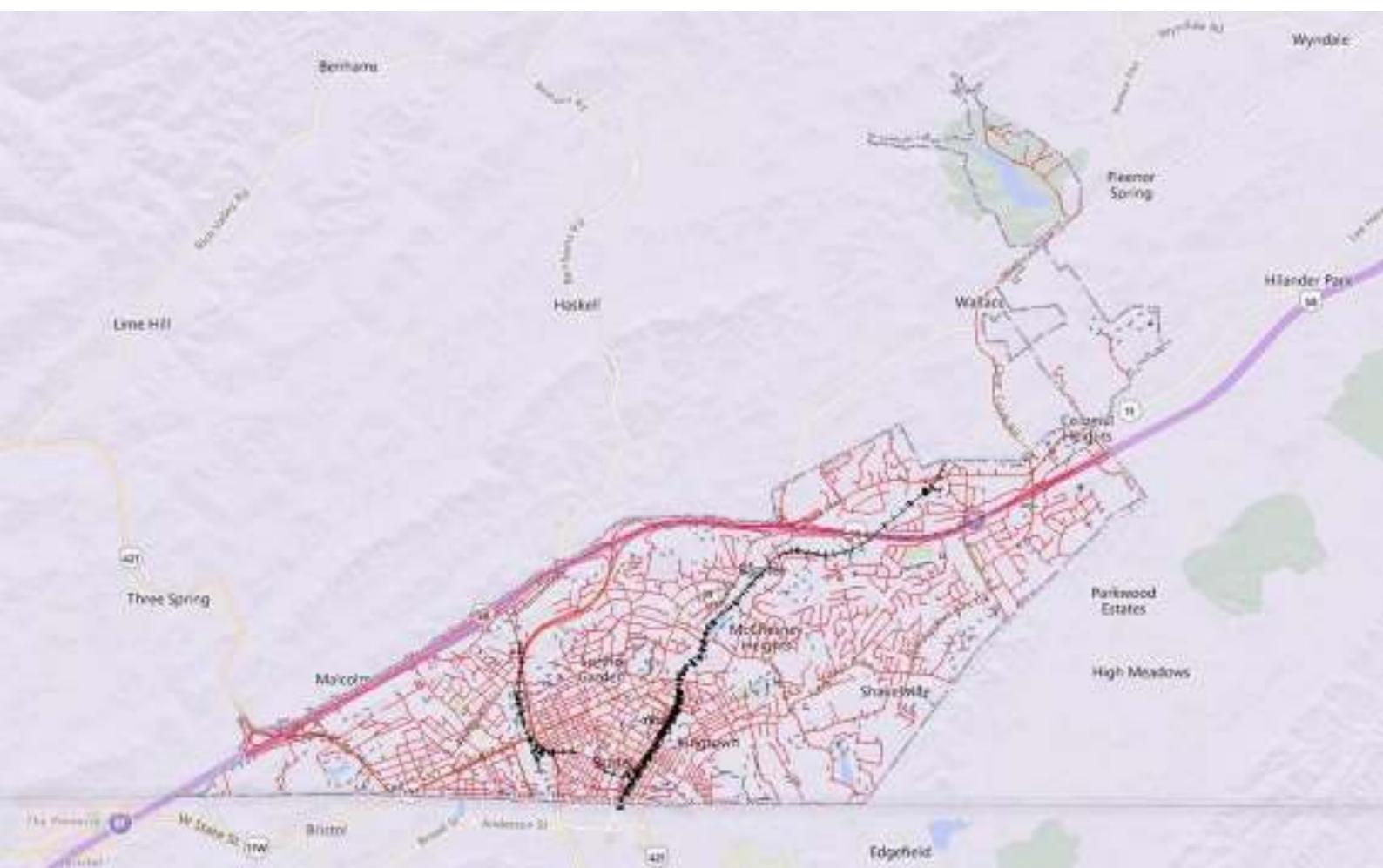
The City of Bristol is requesting funds of \$200,000 for the development of the Resilience Flood Plan. Bristol is classified as a low-income geographic area, which the grant is 90% Fund and 10% Match. The City of Bristol is requesting funds of \$180,000 (90% CFPF share) and the City of Bristol will appropriate \$20,000 (10% Bristol share) in matching from the City's General Fund.

Thank you for your consideration and support of the grant proposal. If you have any questions concerning the proposal, please contact Andy Stockner at andrew.stockner@bristolva.org or call 276-821-6248.

Sincerely,

A handwritten signature in blue ink that reads "Randall C. Eads".

Randall C. Eads
City Manager/City Attorney





Mount Rogers PLANNING DISTRICT'S

Pre-Disaster Hazard Mitigation Plan



Prepared by the Mount Rogers Planning District Commission for the Counties of Bland, Carroll, Grayson, Smyth, Washington, and Wythe, the Cities of Bristol and Galax, and the Towns of Abingdon, Chilhowie, Damascus, Fries, Glade Spring, Hillsville, Independence, Marion, Rural Retreat, Saltville, Troutdale, and Wytheville.

Funding through the Virginia Department of Emergency Management and the Federal Emergency Management Agency.



A different side of Virginia

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INTRODUCTION

The Mount Rogers Hazard Mitigation Plan 2017 update is a revision to the region's original plan, adopted and approved by FEMA in December 2005. In this updated plan, new data and analysis has improved the hazard identification and risk assessment used to determine mitigation strategies. All sections of this plan have been updated to include the newest information and data available. In the past five years, the participating local governments (Bland, Carroll, Grayson, Smyth, Washington, and Wythe Counties, the Cities of Bristol and Galax, and the Towns of Abingdon, Chilhowie, Damascus, Fries, Glade Spring, Hillsdale, Independence, Marion, Rural Retreat, Saltville, Troutdale, and Wytheville), have participated in a yearly overview and update of the strategies and goals set forth in the original plan.



The Pre- Disaster Hazard Mitigation Update is meant to describe natural hazards and their impacts to people and property; recommend mitigations to reduce or eliminate those hazards; and outline the strategy for maintaining and updating the Plan.

This Plan addresses natural hazards of importance to the Mount Rogers Planning District region of southwest Virginia. This is a rural, mountainous region covering 2,777 square miles that stands within both the Ridge & Valley and Blue Ridge geologic provinces. This plan will focus primarily on natural hazards: dam safety, drought, earthquakes, flooding, karst & sinkholes, landslides, severe winter storms/ice, thunderstorms/lightning, tornadoes/hurricanes, wildfires and windstorms.

HAZARD MITIGATION PLANNING

The purpose of this plan is to meet the requirements set forth in the Disaster Mitigation Act 2000 (DMA 2000). The DMA 2000 requires state and local government to identify hazards, assess their risks and community vulnerability, and to describe actions to mitigate those risks and vulnerabilities. The plan is meant to be a framework for decreasing needs for post disaster funds for recovery and reconstruction through pre-disaster actions.

Adoption of the Hazard Mitigation Plan and approval from FEMA is required for localities to remain eligible to apply for the five Hazard Mitigation Assistance (HMA) Programs. They include the four annual grant programs; Pre- Disaster Mitigation Program (PDM), Flood Mitigation Assistance (FMA), Repetitive Flood Claims (RFC), and Severe Repetitive Loss (SRL) and the post- disaster Hazard Mitigation Grant Program (HMGP). Three of these programs (FMA, RFC, and SRL) are directly linked to the National Flood Insurance Program (NFIP). HMGP and PDM can also be used to fund tornado safe rooms, wildfire mitigation, etc. Adoption of this plan is also required to receive a declaration of a federal major disaster or emergency from FEMA.

There are four basic phases of emergency management: mitigation, preparedness, response, and recovery. Preparedness and mitigation measures occur prior to a disaster event.

Preparedness refers to plans and strategies for efficiently handling disasters as they occur. Response and recovery occur during and after a disaster event, respectively, to return the community to normal operations as quickly as possible. Mitigation includes the long-term strategies determined to reduce risk to life and property from a disaster event.

The benefits of planning to mitigate for natural hazards include a systematic approach for identifying hazards, their risks, and strategies for minimizing those risks. In planning prior to a disaster, the high emotions and rushed environment are absent allowing a diverse group of stakeholders to collaborate to develop strategies from which the community derives the most benefits. The opportunities offered by approaching mitigation planning proactively allow local communities to shape not only post-disaster recovery, but also achieve additional community objectives, such as recreation and housing and economic development.

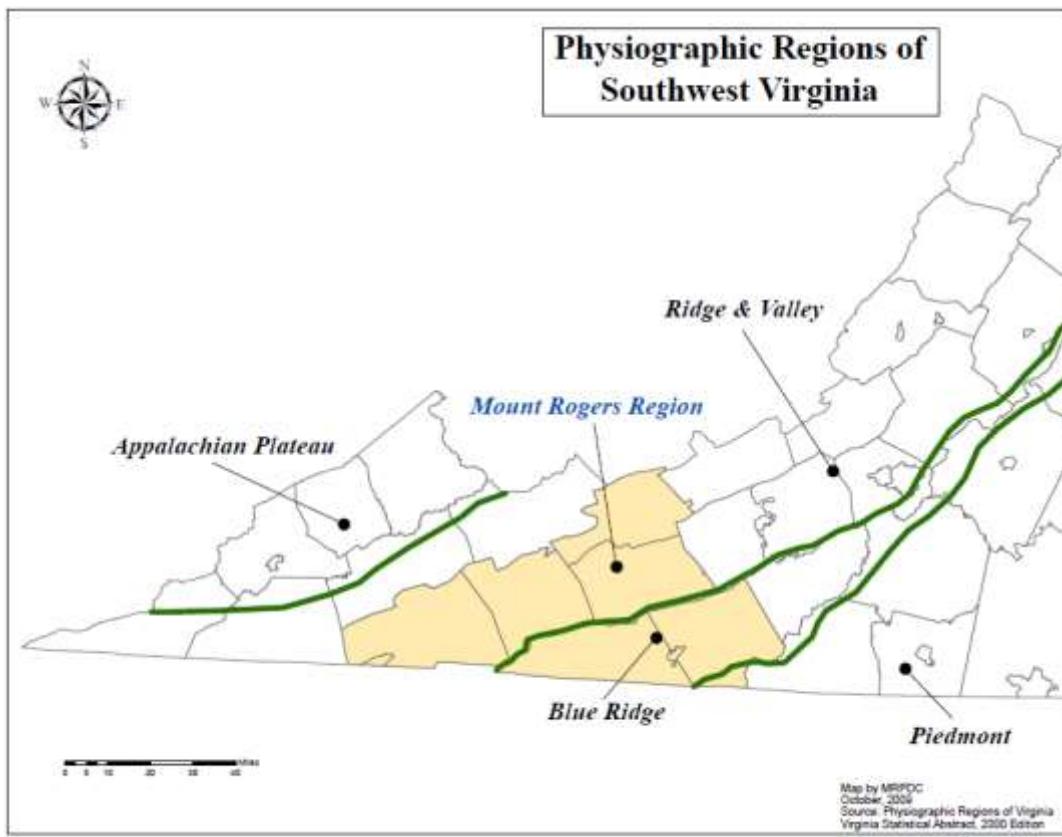
Implementation of mitigation strategies is the final step of these planning efforts. Mitigation strategies can take many forms, most commonly directed towards flooding, hurricanes, and

earthquakes, three historically catastrophic events. The true community benefits of mitigation planning are not realized until the construction or installation of these projects is completed.

Community Profile

Natural Features

The region covers 2,777 square miles and stands within both the Ridge & Valley and the Blue Ridge geologic provinces of Virginia. An image (Physiographic Regions of Southwest Virginia) is shown below.

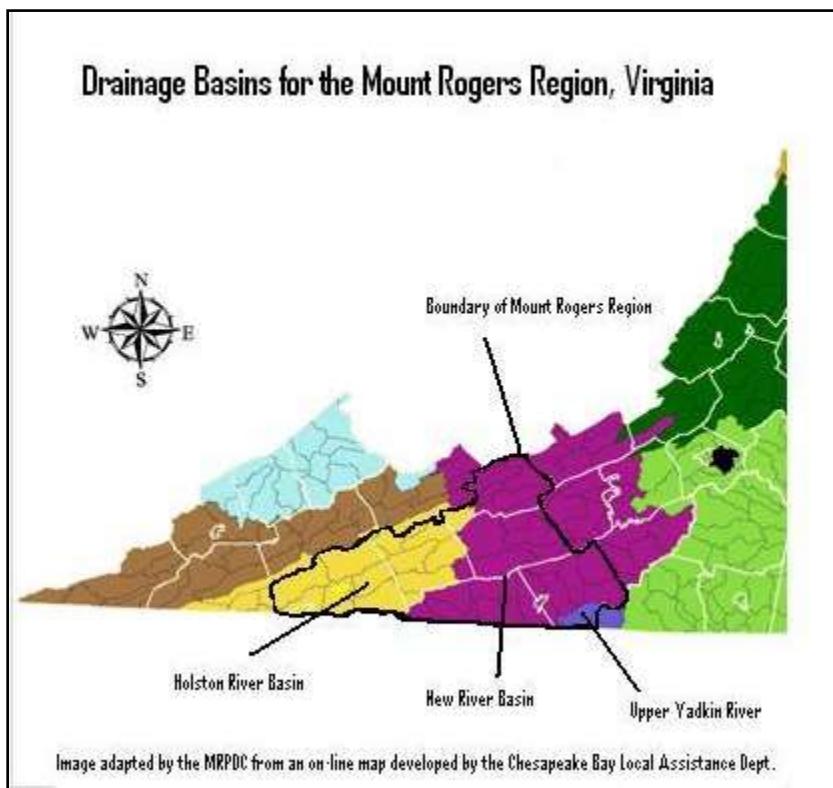


In the Ridge & Valley section, the land is characterized by valleys with low to moderate slopes underlain by carbonate rocks; this area starts in Bristol and runs in a northeasterly direction through Washington, Smyth and Wythe counties in a track toward Roanoke. Elevations generally range between 1,200 and 2,300 feet. The Blue Ridge portion generally includes Grayson and Carroll counties. The land appears as a broad upland plateau with moderate slopes. The elevations are higher, generally ranging from 2,400 to 3,000 feet, and sometimes

much higher. Mount Rogers itself, located near the junction of Grayson, Smyth and Washington counties, stands at more than 5,729 feet.

Natural Resources

The principal watersheds that drain the region include the Holston River system (including the North, South and Middle Forks), the New River, and a small portion of the Upper Yadkin River drainage as shown on the map below.



The Holston River Basin flows in a southwesterly direction to join with the Tennessee River system. The New River flows in a northerly direction into West Virginia, while the Upper Yadkin flows south into North Carolina. Much of the Mount Rogers region contains state and national forest, including the Mount Rogers National Recreation Area. The mountainous terrain generally precludes intensive development other than in the limited valley regions of the district.

Mineral resources of the region include limestone, sandstone, granite, gravel, sand, shale, iron oxide, quartzite and salt. All are actively mined, according to the state Department of Mines, Minerals and Energy. Historically important minerals in the region included coal, iron, lead, zinc,

salt, gold, and gypsum. The richer mineral resources of the west have long since replaced much of the local mining activity in the Mount Rogers region.

Temperatures and Climate

The local region stands within a temperate climate zone influenced by the mountainous nature of southwest Virginia. Temperatures range from average lows of 15° F-25° F (in January) to average highs of 80° F-90° F (in July). The differing elevations and lay of the land account for the range of differences in local weather. The MRPDC ranges in elevation from 5,729 feet at its highest point on Mount Rogers in western Grayson County, to 1,110 feet along Lovills Creek on the Carroll Surry County line. Local annual precipitation also is highly variable. It ranges from 62" annually in the highest mountains (Mount Rogers and surrounding area in the Blue Ridge) to 46" annually in other parts of the district. Weather patterns and climate are influenced by the Appalachian and Blue Ridge mountain ranges, the direction of airflow and the effects of the major river valleys. Weather systems typically move from west to east. Cloud systems may pass up and over the mountains. As clouds rise, their moisture content condenses and falls as rain or snow; that often results in heavy precipitation on the western slopes of the mountains and little or no precipitation on the eastern (or rain shadowed) slopes of the mountains. Weather systems and storms also may follow the river valleys, running parallel to the mountain ranges.

Political Boundaries

The Mount Rogers region, as designated by the Virginia General Assembly, includes six counties Bland, Carroll, Grayson, Smyth, Washington, and Wythe, two cities Bristol and Galax, twelve towns Abingdon, Chilhowie, Damascus, Fries, Glade Spring, Hillsville, Independence, Marion, Rural Retreat, Saltville, Troutdale, and Wytheville.

Key transportation systems within the region include the interstate highways (I-81 and I-77), U.S. Route 58 and U.S. Route 11, several local airports, some limited public transit service, and service from local taxicabs and Greyhound Bus Lines. The Norfolk Southern Railway is an important private hauler of freight. Passenger rail service presently is lacking in the region.

The region is variable in nature. It ranges from the very rural character of Bland County, with a population of 6,511 (a decrease of 4.6%since the last plan update) to the rapidly urbanizing character of the largest county, Washington, with a growing population of 53,789 (a decrease of 2.0%since the last plan update). Grayson and Carroll counties are known as places for

second home development, especially in areas with views of the New River. The two mid-size counties, Smyth and Wythe, with populations of roughly 30,000 each, serve as centers of commerce and manufacturing. The three largest towns, each with populations greater than 5,000, are Abingdon, Marion and Wytheville.

Population

As of 2017 the region-wide population numbered 188,498, according to the Weldon Cooper Center for Public Service at the University of Virginia. The population of the Mount Rogers Region was 193,595 as of the 2010 Census, up approximately 2.4% from the 2000 level of 188,984. Currently the region wide population has decreased 2.6% since the last census in

Locality	2017	2012	%Population Change
Bland	6,511	6,824	-4.6%
Carroll County	29,212	30,042	-2.8%
Grayson County	15,669	15,533	0.9%
Smyth County	30,686	32,208	-4.7%
Washington County	53,789	54,876	-2.0%
Wythe County	28,723	29,235	-1.8%
City of Bristol	17,160	17,835	-3.8%
City of Galax	6,748	7,042	-4.2%
Mount Rogers Planning District	188,498	193,595	-2.6%

Source: Weldon Cooper Center for Public Service, 2012 and 2017 Population Estimates

2010. The decline is distributed unevenly within the region. Only one locality saw a slight increase in population. This occurred in Grayson County. Bland County, Carroll County, Smyth County, Washington County, Wythe County, and the Cities of Bristol and Galax saw a slight decrease in population in the past five years since the last update of the Hazard Mitigation Plan.

Median family income for the region as of 2016 came to \$39,655¹, which lags behind the statewide level of \$66,149¹, as reported by the U.S. Census Bureau. This number reflects a 3% decrease in median household income for the Mount Rogers region over the past ten years. Incomes in the Mount Rogers region have traditionally lagged behind statewide averages, along with the region's rate of new job creation. At the same time, unemployment generally runs higher than the statewide average, reflecting disparities between the high job growth rates in northern Virginia compared against job growth rates in southwest Virginia.

¹ U.S. Census Bureau, 2012-2016 American Community Survey 5-Year Estimates

Ethnically, the Mount Rogers region is dominated by whites (95.4%)². Of a total population of 193,595 in the region the largest significant minority populations are African American totaling 2.2% and Hispanics totaling 2.1%

Economy

Manufacturing stands as one of the key employment sectors for the Mount Rogers region, though foreign competition is undermining the sector. From 2000 through 2011, the region lost 10,000 manufacturing jobs, with the total going from 24,274, to 14,106 a decrease of 41%. By end of the third quarter of 2017, the number of manufacturing jobs had stabilized at 13,477², a decrease of only 4.5% over the 6-year period. The sector includes production of refrigeration and heating equipment, clothing, truck trailers and motor vehicle parts, glass products, furniture, wood products, hardware, sporting and athletic goods, and mining equipment.

The next largest employment sector falls in the government category, with 13,405² jobs in third quarter 2017, 8,944 in local government, 3,963 in state government, and 498 in federal government. The next highest employment by category is retail trade (10,103) and health care and social assistance (8,495).

Agriculture and forestry offer relatively few jobs but remain an important industry to the Mount Rogers region. Chief products include livestock, poultry, with a growing sector raising produce. Christmas trees, raised in the higher elevations, also are important to the region.

Planning Process

Planning Team

Since 2017 the Mount Rogers Planning District staff has been working with its localities to update the Pre-Disaster Hazard Mitigation Plan that was approved by FEMA in 2012. Between the years of 2005-2012 each year VDEM provided us with a spreadsheet outlining the recommended mitigations for each locality. The staff at Mount Rogers facilitated a yearly update of the mitigation strategies. VDEM did not provide/require this after the last plan update in 2012. This process is scheduled to start again after the 2018 adoption of the plan on a biennial basis. The hazard mitigation steering committee was composed of county

² Virginia Employment Commission Community Profile, 2018

administrators, town managers, emergency management personnel, local and state personnel, regional governmental employees, members of the business and public utility community, and any interested stakeholders from the public. The steering committee oversaw the plan update process as well as coordinated with local fire, rescue, and police personnel.

Planning Process

The Mount Rogers Planning District Commission initiated the plan update process in the spring of 2017. A regional kick-off meeting was held at the offices of the Mount Rogers Planning District Commission in Marion, Virginia on May 25th, 2017. At this meeting, the MRPDC and the stakeholders from the various localities reviewed the process for updating the plan, as well as outlining how the old plan would be improved upon.

The Mount Rogers staff met with the steering committee members weekly or monthly in small groups or on a one on one basis throughout the rest of the year. All members were also contacted through telephone conversations or emails. A second meeting at the Mount Rogers PDC was called on November 30th, 2017. After that meeting with representatives from VDEM and FEMA some new input was requested to be added into the plan update. Another round of meetings with each locality was conducted in December of 2017 and January of 2018, in addition with meeting with other members of the community outside of local government.

Please see the table below for a listing of meetings and conversations with stakeholders.

Meetings/ Conversations with Stakeholders	
Month	Stakeholder (Day of Month)
May 2017	Kickoff Meeting (25), All localities (31)
June 2017	Town of Chilhowie (1), Smyth County (2), Town of Abingdon (7), Bland County (21)
July 2017	Bland County (5), Town of Damascus (20), Bland County (24)
August 2017	Town of Damascus (10), City of Galax (24), All localities (29), Town of Marion (30)
September 2017	Grayson County (1), Town of Chilhowie (1), Town of Marion (1), Smyth County (1), Washington County (11), Smyth County (18)
October 2017	Wythe County (24), Town of Wytheville (24), Bland County (24)
November 2017	VDEM (1, 2), FEMA (2), All localities (8), FEMA (16), Washington County (27), Town of Chilhowie (27), Grayson County (28), Meeting at MRPDC (30)
December 2017	Town of Saltville (1), FEMA (4), Washington County (6), All localities (6), FEMA (11), NOAA (14, 15)
January 2018	VDEM (3), Appalachian Power (4), DCR (9, 10), City of Bristol (23), Town of Glade Spring (24)
February 2018	Emory & Henry College (7)
March 2018	VDEM (8), All localities (28), Town of Abingdon (30)

April 2018	Wythe County (2), Town of Wytheville (2), Town of Rural Retreat (2), Washington County (3), Grayson County (12)
August 2018	All localities (6)

Sign-In Sheet

Hazard Mitigation Kick-Off Meeting

May 25, 2017

Print Name	Locality	Title	Email
BRIAN MARTIN	GCAPE SPRINGS FRIES, TROUTON	Town Mgr	BMARTIN@MRPDC.ORG
Brian Reed	RR	"	breed
Jenna Dunn	Blind County	All Emerg. Sp. Coord.	j.dunn@blind.org
Everett Lineberry	Carroll Co.	EM Coordinator	elineberry@carrollcountyna.org
Retta Jackson	Hillsville	Town Manager	hillsville@townofhillsville.com
Jason Busick	Wythe Co	EM Coordinator	jbusick@wytheva.org
Tim Estes, Sr	WASH. Co.	EM Coordinator	timestes@washcova.com
Mike Ayers	Galax	ADR Coordinator	mayers@galaxva.com
Gavin N. Blevins	Pamacus	Town Manager	gblevins@purple.org
Aaron T. Smith	Chilhowie	Lieutenant PD	atsmith.r.smith@chilhowie.org
Brandon Moore	Bristol, VA	Lieutenant	brandon.moore@bristolva.org
Mille Armstrong	Bristol, VA	Fire Chief - EM	mille.armstrong@bristolva.org
Aaron Sizemore	MR PDC	Director	a.sizemore@MRPDC.org
Rocky Warren	MRPDC	Planner	R.WARREN@mrpdc.org
Scott McCoy	MRPDC	Intern	smccoy14@vt.edu
Jimmy Moss	Grayson Co.	EM Coordinator	j.moss@graysoncora.gov
James Dillon	MRPDC	GIS Dir	j.dillon@mrpdc.org

Sign-In Sheet

Hazard Mitigation Meeting

November 30, 2017

Print Name	Locality	Title	Email
Charles Harrington	Smyth County	EM Coordinator	CHarrington@SmythCounty.org
TYLER VENCILL	ABINGDON	TOWN ENGINEER	tvencill@abingdon-va.gov
DAVE HAYNES	CHILHOWIE	FIRE CHIEF	cdhaynes 2201 @ comcast.net
Jason Basick	Wythe County	EM Coordinator ES Director	jbasick @wythecco.org
Justin Haga	VDEM	DRR	justin.haga@vde.virginia.gov
Sara Harrington	VDEM	Nat Hazards Planner	sara.harrington@vde.virginia.gov
John Clark	Chilhowie	Town Manager	chilhowie.town.mgr@chilhowie.org
Aaron Sizemore	MRPDC	Executive Dir.	asizemore@MRPDC.org
Rocky Warren	MRPDC	PLANNER	RWARREN@MRPDC.org
Mari Radford	Floyd	Emergency Planning	mari.radford@floydcountypa.org

The committee members first reviewed the existing data that was included in the last Hazard Mitigation Plan update. Throughout the 2017 Hazard Mitigation Plan Update process the materials from each section of the original plan as well as any new changes were looked over. For the most part in the past five years there were few changes the committee felt needed to be added to the updated plan due to the fact that little has changed in our region in the past five years. Focus and discussion was placed on each hazard identified to be a potential threat to the district. The committee brought in their own knowledge of any disasters that had happened in their districts within the past five years since the plan's original adoption. The committee took these ideas back to their localities and met with their local representatives in the emergency services field and gathered any additional information they could find concerning how natural disasters are dealt with, as well as any areas where the localities had vulnerabilities or difficulties in responding to disasters. All meetings were open to the public.

Following any reviews of the data gathered, the group then brainstormed mitigation objectives and strategies to include in the plan update. The final component of the committee meetings

was a capabilities and vulnerability assessment. Each member of the committee was encouraged to discuss with any person or group, or with an agency or the public that may have valuable input to add to the plan update. This cast a wider net enabling the steering committee members to consult with many people outside of local government.

Plan Participation

Below are two tables, the first outlining the localities and agencies that had input in developing the Hazard Mitigation Plan update. Some participated on the steering committee that met at the Mount Rogers PDC offices. Others participated by personal visits, phone calls, or through email. The second outlines the localities that participated in the plan update as well as the original drafting of the Hazard Mitigation Plan.

Planning Committee Member	Representing	Title/ Department
Tyler Vencill	Abingdon	Civil Engineer Public Works
Jenna Dunn	Bland County	911 Emergency Services Coordinator
Mike Armstrong Brandon Moore	Bristol	Fire Chief Lieutenant
Everett Lineberry	Carroll County	Emergency Services Coordinator
John Clark Dave Haynes	Chilhowie	Town Manager Fire Chief
Gavin Blevins	Damascus	Town Manager, Planner
Scott McCoy	Fries	Town Manager
Mike Ayers	Galax	R&R Director Fire Department
Aaron Sizemore	Glade Spring	Town Manager
Jmmy Moss	Grayson County	Emergency Services Coordinator
Retta Jackson	Hillsville	Town Manager
Jmmy Moss	Independence	Emergency Services Coordinator
Bill Rush	Marion	Town Manager
Jason Childers	Rural Retreat	Town Manager
Brian Martin	Saltville	Town Manager, Planner
Charles Harrington	Smyth County	Housing Authority
Brian Martin	Troutdale	Town Manager, Planner
Tim Estes	Washington County	Emergency Management Coordinator
Jason Busick	Wythe County	Emergency Management Coordinator
Al Newberry	Wytheville	Director of Public Safety
Sara Harrington	VDEM	All Hazards Planner
Justin Haga	VDEM	DRRO
Brian Reed	MRPDC	Planner

James Dillon	MRPDC	GIS Director
Rocky Warren	MRPDC	Planner
Phil Hysell	NOAA	Warning Coordination Meteorologist
Donny Necessary	VDOT	Bristol District Planner
Tony Miller	APCO	Distribution Systems Supervisor
Steve Gibson	LENWISCO PDC	GIS Analyst
Tom Roberts	DCR	Regional Dam Safety Engineer
Angela Beavers	Cumberland Plateau PDC	GIS Internet Technology
Patrick Wilson	NOAA	Meteorologist Intern

Locality Participation 2005, 2011, & 2017

Locality	2005 Participation	2011 Participation	2017 Participation
Abingdon	X	X	X
Bland County	X	X	X
Bristol	X	X	X
Carroll County	X	X	X
Chilhowie	X	X	X
Damascus	X	X	X
Fries	X	X	X
Galax	X	X	X
Glade Spring	X	X	X
Grayson County	X	X	X
Hillsville	X	X	X
Independence	X	X	X
Marion	X	X	X
Rural Retreat	X	X	X
Saltville	X	X	X
Smyth County	X	X	X
Troutdale	X	X	X
Washington County	X	X	X
Wythe County	X	X	X
Wytheville	X	X	X

Plan Update

For the five-year update for the Mount Rogers Hazard Mitigation Plan, the planning team and steering committee reviewed and updated each chapter of the plan. Each of the Hazard Identification and Risk Assessment (HIRA) sections were revised based on current information and the updated analysis conducted by the Mount Rogers Staff. The committee discussed both historical information focused on each hazard as well as brainstorming new mitigation objectives and strategies. These new strategies are included in each hazard section and in the

mitigation strategy chapter. The Community Summaries chapter was updated through discussions with each community's representative to the steering committee. Information was also gathered by the staff from emergency management personnel as well as interest individuals in the public. Through these discussions, new information was added where necessary and specific mitigation projects identified by the localities were included. The planning team reviewed numerous local documents to include in various sections of the updated plan, including but not limited to local comprehensive plans, emergency operations plans, and capital improvement plans. In some cases, the 2005 original Hazard Mitigation plan was included in discussions and updates of these plans. For example, in the 2011 update process for the Town of Marion comprehensive plan, the Mount Rogers Hazard Mitigation Plan was referred to specifically in reference to the developed floodplain along the Middle Fork of the Holston River. The 2017 Plan was referenced in the updates of the comprehensive plans of Town of Saltville, Grayson, County, and the Town of Chilhowie. The information gathered from these sources was included as data in the HIRA chapter, as well as providing some of the basis of the capabilities assessment section.

Public Involvement

Public input was solicited throughout the planning process. All committee members were asked to go to their localities and solicit input from their citizens. All meeting at the Mount Rogers PDC were open to the public as well. A project website was created so the public could review the original Hazard Mitigation plan and provide input toward sections of the plan update they were interested in. The website allowed the public to view the plan and share input if they could not attend the called meetings. The plan was also advertised on social media to make it easier for the public to be involved. Also at least one public meeting will be held during the adoption process to give anyone an opportunity to comment on the entire plan before its official adoption by each locality.

Other Involvement

Mount Rogers also discussed update ideas with our neighboring regional government offices Cumberland Plateau, and the LENWISCO Planning District Commissions. Emory and Henry College, Appalachian Power, the Department of Conservation and Recreation, the National Weather Service, and the Virginia Department of Transportation, and the Mount Rogers Health District were also invited to give their input into the plan update. In our meetings with our local officials we stressed to not limit data gathering and input to local governments, fire and rescue.

We asked them to talk to anyone in their community as well as local business owners and land owners to make the fact-finding process as thorough as possible.

HAZARD IDENTIFICATION AND RISK ASSESSMENT (HIRA)

Introduction

The Mount Rogers Region is susceptible to a wide range of natural hazards. Fortunately, the inland and mountainous setting of the Mount Rogers region protects it from most coastal phenomena such as hurricanes and tropical storms. This also shelters us from the brunt of most tornados. However, the parts of the region suffered severe damage in the spring of 2011 from an F3 tornado. We also suffered minor damage from an F1 tornado in fall of 2017. The mountains, steep slopes, forests, and other geographic factors subject the region to many kinds of other natural hazards. These include:

- Dam Safety
- Karst & Sinkholes
- Tornadoes/Hurricanes
- Drought
- Landslides
- Wildfires
- Earthquakes
- Severe Winter Storms/Ice
- Flooding
- Windstorms
- Thunderstorms/Lightning
- Hazardous Material Spills (HAZMAT)

This section discusses each of the natural hazards possible in the region, including history, risk assessment and vulnerability, and past or existing mitigation. The hazard risk assessment and vulnerability looks specifically at two criteria: locations where the hazard is most likely to have negative impacts and the probability and severity of the hazard should it occur. When information is available, the specific impacts of a hazard is discussed, sometimes based on the

usual impact in the region. These sections haven been completely revised since the 2005 plan to include additional, more helpful information.

Risk Assessment and Vulnerability

Risk assessment seeks to define the probability of events and the likely consequences of events. In the past five years, the Mount Rogers Planning District has experienced a population declines, which will also decrease our risk of potential disaster. Also, as our population declines the probability of loss of life and injuries will decrease.

The risk assessment and vulnerability presented herein is a result of an extensive analysis of historic event data, scholarly research and field work.

Mitigation

Many times, mitigation seeks to prevent the impacts of hazards on life and property. The primary goal of mitigation is to learn to live within the natural environment. This plan reviews past mitigation efforts in the Mount Rogers Region and identifies both strategies and specific projects that could further mitigate these impacts.

Mitigation options fall generally into six categories: prevention, property protection, natural resource protection, emergency services, structural projects and public information. Prevention projects are those activities that keep hazard areas from getting worse through effective regulatory planning efforts, such as comprehensive planning, building code update and enforcement, burying utility lines and water source planning. Property protection activities are usually undertaken on individual properties or parcels with coordination of the property owner, such as elevation, relocation and acquisition of frequently flooded or damaged structures, eliminating fuel sources surrounding the property, installing rain catchment systems and purchasing additional insurance. Natural resource protection activities seek to preserve or restore natural areas or natural functions of floodplain and watershed areas. They are often implemented by parks, recreation, or conservation agencies or organizations. Emergency services measures are taken during a hazard event to minimize its impact. These measures can include response planning, regional coordination and collaboration and critical facilities protection. Structural projects include activities associated with building new or additional infrastructure or features to minimize impacts from a hazard. The final category of public information is possibly the most important, empowering residents to take action to protect

themselves and their property in the event of a hazard event. This category can include additional information available to the public, such as maps, brochures, and workshops.

Overview of Assessments

The following section describes each of these hazards, their history, severity and impact, and likelihood of causing damage. Describing the hazards separately is problematic because natural hazards often combine. Flooding often follows severe winter storms. Thunderstorms contain lightning, high winds, and, rarely, tornadoes. Heavy rain can cause flooding and landslides. These descriptions, however, will provide detailed information and a basis for further analysis.

Dam Safety

Description

Dams exist to serve various functions within the Mount Rogers region. These include farm use, recreation, hydroelectric power generation, flood and stormwater control, navigation, water supply, fish or wildlife ponds, debris control, and tailings (from mining operations). In some cases, a single dam structure can serve multiple functions, such as generating hydroelectric power and providing recreational opportunities to boaters and fishermen.

State and federal governments regulate dam construction, maintenance and repair. On the state level, the Virginia Dam Safety Act of 1982 serves as the guiding legislation. With certain exceptions, dams that must abide by this statute fall under one of two categories:

- Dams 25 feet tall or higher, with a maximum storage capacity of 15 acre-feet or more.
- Dams 6 feet tall or higher, with a maximum storage capacity of 50 acre-feet or more.

Dams not regulated by the state include those with an agricultural exemption (95 statewide), a federal license (114 statewide), a mining exemption (20 statewide), or a size exemption (879 in the state). Spillways are channels designed to keep water from overflowing the top of the dam and to prevent erosion at the bottom, or toe, of the dam. State law regulates spillway construction based on the dam's hazard classification and site classification. The federal government maintains an inventory of dams through the National Dam Inspection Act of 1972 and, more recently, the Water Resources Development Act of 1996. Maintained by the U.S. Army Corps of Engineers, the inventory has been available on-line since January 1999. It is called the National Inventory of Dams, and its database covers roughly 77,000 dams, including

several in the Mount Rogers region. A map showing the location of all dams in the Mount Rogers Region is located in the section titled Appendix I at the end of the document.

Dam Hazard Classification

The state and federal governments have adopted slightly different methods of classifying dam hazard potential. For the federal national inventory, dams are grouped into one of three categories, based on two criteria: the potential for loss of human life and the potential to cause economic, environmental and lifeline losses, in the event of a dam failure.

Virginia's dam classification system varies in that it classifies the state- regulated dams into one of four categories. 1.) Loss of human life probable with excessive economic impact, 2.) loss of human life possible with appreciable economic impact, 3.) no loss of human life expected with minimal economic impact, and 4.) no loss of human life expected with no economic impact.

Under the state system, dam operation and maintenance plans, as well as inventory reports, must be completed every six years. Re-inspection reports, performed by professional engineers, must be made at 2- year intervals for Class I dams and 3- year intervals for Class II dams. In addition, dam owners must inspect their own dams and submit annual reports in years when professional inspections are not required.

Dam Hazard History

In the Mount Rogers region there has been some history of dam failures over the years, although obtaining a complete record has proven difficult for the purposes of this Hazard Mitigation report. Regulatory agencies at the state and federal governments are reluctant to release full information on dams, inspection histories, and known hazards. Hazard classifications, in and of themselves, serve as a bureaucratic indicator of potential hazard in the event of dam failure, but the classification does not reflect the present physical condition or status of any given dam.

In Bland County, a failure in the Crab Orchard Creek Dam at about noon on January 29, 1957 flooded the community of Bland as a result of three days and nights of continuous rains. The water went through a crack that opened when a slate hillside on one side gave way. While no one was hurt, the flooding destroyed or severely damaged many homes and also swept away outbuildings, cars, fences, machinery, livestock, and household equipment. The flooding also

damaged several downtown businesses. One house floated a mile downstream and came to rest against a bridge and other wreckage. One home was tilted on edge and carried 200 yards downstream to come to rest against a concrete bridge in the community. Estimated damages came to \$500,000. The local unit of the American Red Cross provided \$30,363 in emergency aid, with nearly \$22,395 going for structural repairs. This photo shows the tilted home (see far right of image) that was swept 200 yards downstream during the Crab Orchard dam failure and flood of 1957.



Some now believe that Interstate 77, which passes between the dam and the community, will protect Bland from a similar occurrence in the event the dam should fail again. However, the state's hazard rating on the dam was upgraded in 2004 from significant hazard (Class II) to high-hazard status (Class I). The dam owner hired an engineer as part of an effort to show why the Crab Orchard Creek Dam does not deserve a Class I rating. Another locally known dam failure occurred on Christmas Eve in 1924, when the muck dam at Saltville broke and flooded the community of Palmertown, killing 19 people and dislodging several homes from their foundations. According to at least one news account at the time, the dam failure occurred due to human intervention; police accused a 27-year-old man named Roy Patrick of using dynamite to blow up the dam.

Risk Assessment and Vulnerability

For the purposes of hazard mitigation, this report takes note of dams classified with a potential for high or significant hazard in the event of failure, as defined under the National Inventory of Dams. Those dams classified with a low hazard potential were not considered.

High-hazard and significant-hazard dams (14 total) in the Mount Rogers region primarily consist of earthen structures built for recreational use. Four of the dams are used to generate hydroelectric power, although three of those also offer recreational uses. Several of the dams combine recreational uses with flood or stormwater control. Clear Creek Dam in Washington County, near the City of Bristol, serves multiple uses. These include flood and stormwater control, recreation, water supply, and other uses.

Of the 14 previously mentioned dams, six come under federal regulations. These include the Byllesby Dam and Buck Dam on the New River in Carroll County, Hale Lake Dam in Grayson County, and Beaver Creek Dam, Clear Creek Dam and Edmondson Dam (which has been breached), all located in Washington County. These dams mainly serve to provide hydroelectric power or flood control.

Due to recent changes in state dam safety regulations, two more of the region's dams – Laurel Creek Dam and Fields Dam, both in Grayson County – will be required to prepare Emergency Action Plans. EAPs, contained in county emergency operations plans to govern emergency response for natural and man-made disasters, define roles by dam owners and emergency services personnel for monitoring of dams' physical condition and notification of downstream communities in the event of flooding or potential dam failure. For more details on all the region's dams classified as High Hazard and Significant Hazard, please see the table found at the end of this section.

There is no way to predict the likelihood of a dam failure, since failures relate to the structure, condition, age, maintenance, and natural forces (and storm events) that can affect the integrity of the dam. A well-maintained dam classified as a High Hazard structure may in fact pose little risk to downstream community.

Dam regulation first began in this country due to failures of poorly built dams in the early part of the 20th century. More regulations came following a series of dam failures in the 1970s. Legally, dam owners hold the responsibility for the safety, upkeep, and maintenance of dam structures. Of the 75,000 dams listed by the National Inventory of Dams, 95% fall to the regulation of state governments.

The possibility of failure generally increases with age, with many dams designed for an effective life of 50 years. Six of the 14 high-hazard and significant-hazard dams in the Mount

Rogers region are at least 50 years old. Dams with known structural problems can be given conditional operating permits, which point to the need to make improvements. There are 30 such dams in Virginia, with none located in the Mount Rogers region.

Property Exposure Data for Downstream Communities

Legally dam owners must properly monitor and maintain their dams, while state and federal regulators act as overseers and enforcers. But the Association of State Dam Safety Officials and others point out that the effectiveness of regulation vary among states and dam owners often lack the financial resources necessary to undertake costly repairs.

Events that can lead to dam failures include the following: overtopping, structural failure, loss of stability in the dam's foundation, cracking in the dam structure from natural settling, poor upkeep, and piping (resulting from improper filtration in the dam structure, allowing seepage and passing of soil particles to gradually create sinkholes in the dam). The vulnerability of structures and homes at risk of dam failure has not changed since the drafting of the original Hazard Mitigation Plan, and no dam failures have occurred in that time.

High-Hazard and Significant-Hazard Dams
Mount Rogers Region, Virginia

Dam and Location	Nearest Downstream Community	Dam Height and Max. Capacity*	Drainage Area (Sq. Miles)	Year Done	Hazard Potential**	Emergency Action Plan in Place***	Owner Type	Main Use	Structures at Risk	Notes
Crab Orchard Creek Dam (Bland County)	Bland	51 ft high 550 acre-ft	4.98	1953	High (recent upgrade)	Yes	Private	Recreation	19 occupied homes, 18 businesses	Based on 1995 Emergency Operations Plan for Bland County. The state now regulates this as a Class I dam.
Byllesby Dam (New River, Carroll County)	Ivanhoe Austinville	63 ft. high 2034 acre-ft	1,310	1912	High	Federal Regs	Public Utility (AEP)	Hydroelectric	N/A	Data not available. This is a federally regulated hydroelectric dam.
Buck Dam (New River, Carroll County)	Ivanhoe Austinville	45 ft. high 708 acre-ft	1,320	1912	High	Federal Regs	Public Utility (AEP)	Hydroelectric	N/A	Data not available. This is a federally regulated hydroelectric dam.
Stewarts Ck- Lovills Ck Dam #9 (Carroll County)	Mt. Airy, NC	88 ft. high 7415 acre-ft	20.92	1990	High	Yes	Local Govt (Carroll County)	Recreation	N/A	
Hidden Valley Estates Dam (Grayson County)	Not given	29.4 ft. high 77 acre-ft	0.2	1989	Significant	Yes	Private	Recreation	N/A	
Laurel Creek Dam (Laurel Creek, Grayson County)	Fox Creek	24 ft. high 60 acre-ft	0	1974	Significant	Not Yet (formerly size exempt)	Private	Recreation	N/A	Downstream risks have not yet been assessed due to prior size exemption for this dam. The state will require an EAP under new rules adopted in 2002.

Dam and Location	Nearest Downstream Community	Dam Height and Max. Capacity*	Drainage Area (Sq. Miles)	Year Done	Hazard Potential**	Emergency Action Plan in Place***	Owner Type	Main Use	Structures at Risk	Notes
Fields Dam (New River, Grayson County)	Fries	14 ft. high 2000 acre-ft	0	1930	Significant	Not Yet (formerly size exempt)	Private	Hydroelectric	N/A	Downstream risks have not yet been assessed due to prior size exemption for this dam. The state will require an EAP under new rules adopted in 2002.
Hale Lake Dam (Wolf Pen Branch, Grayson County)	Comers Rock	30 ft. high 53 acre-ft	0	1965	Significant	Federal Regs	Federal (U.S. Forest Service)	Fish & wildlife	N/A	Data not available. This is a federally regulated fish & wildlife dam.
Hungry Mother Dam (Smyth County)	Marion	45 ft. high 2500 acre-ft	12.9	1934	High	Yes	State (DCR)	Recreation	Campground A few houses	
Beaver Creek Dam (Washington County)	Bristol	85 ft. high 5020 acre-ft	13.7	1965	High	Federal Regs	Federal (TVA)	Flood control	N/A	Data not available. This is a federally regulated flood control dam owned by TVA.
Clear Creek Dam (Washington County)	Bristol	51 ft. high 2825 acre-ft	5.75	1965	High	Federal Regs	Federal (TVA)	Flood control	N/A	Data not available. This is a federally regulated flood control dam owned by TVA.
Edmondson Dam (Middle Fork Holston River, Washington County)	Mock Mill	47 ft. high 2620 acre-ft	0	1921	Significant	Federal Regs	AEPSCO	Hydroelectric	N/A	Data not available. This is a federally regulated hydroelectric dam.

Dam and Location	Nearest Downstream Community	Dam Height and Max. Capacity*	Drainage Area (Sq. Miles)	Year Done	Hazard Potential**	Emergency Action Plan in Place***	Owner Type	Main Use	Structures at Risk	Notes
Hidden Valley Lake Dam (Brumley Creek, Washington County)	Duncanville	40 ft. high 1975 acre-ft	1.67	1964	Significant	Yes	State (VDGIF)	Recreation	N/A	
Rural Retreat Dam (S. Fork Reed Creek, Wythe County)	State Rt. 749	41 ft. high 2266 acre-ft	3.34	1967	High	Yes	State (VDGIF)	Recreation	N/A	

Sources: National Inventory of Dams maintained by the U.S. Army Corps of Engineers; consultations with local emergency services coordinators; consultations with Virginia state dam safety officials.

Mount Rogers PDC

High-risk and Significant Hazard Dams



0 10 20 30 40 Miles



List of All Known Dams in Mount Rogers Region

County	Name Dam
Bland County	Hunting Camp Dam
Bland County	Crab Orchard Creek Dam
Bland County	Bland County Farm Dam
Carroll County	Russell Dam
Carroll County	Byllesby Dam
Carroll County	Buck Dam
Carroll County	Olde Mill Golf Club Dam
Carroll County	Patch Inc. Dam
Carroll County	West Dam
Carroll County	Stewarts Creek - Lovills Creek Dam #9
Carroll County	Ernest Golding Dam
Carroll County	Carol Cox Dam
Carroll County	Richard Webb Dam
Carroll County	Lakeside POA Dam
Carroll County	Grassy Creek Farm LLC Dam
Carroll County	Caviness Dam
Carroll County	Vannoy Family Farms LLC Dan
Carroll County	Bruce Bryant Dam
Grayson County	Parker Dam
Grayson County	Hale Dam
Grayson County	Fries Mill Dam
Grayson County	Fields Dam
Grayson County	Hidden Valley Estates Dam
Grayson County	Laurel Creek Dam
Grayson County	Roberts Dam
Grayson County	JbAnn Arey Dam
Grayson County	Cassell Dam
Grayson County	Bolt Dam
Grayson County	Chicago Heritage Farms LLC Dam
Grayson County	Bottomley Evergreen & Farms Inc. Dam
Grayson County	John Hart Dam
Grayson County	Henry Jones Dam
Grayson County	Highlander Dam
Grayson County	Shateley Dam
Smyth County	Glade Mtn Washer Site 3 Dam
Smyth County	Umberger No. 1 Dam
Smyth County	Brushy Mtn No 2 Dam
Smyth County	Glade Mtn Washer Site No. 1 Dam

County	Name Dam
Smyth County	Billings Dam
Smyth County	Johnson Dam
Smyth County	Waddle Dam
Smyth County	Hungry Mother Dam
Smyth County	Smyth County Dam #1
Smyth County	Smyth County Dam #2
Smyth County	Smyth County Dam #3
Washington County	Clear Creek Dam
Washington County	Straight Branch Dam
Washington County	Hidden Valley Lake Dam
Washington County	Beaver Creek Dam
Washington County	Thomas Nichols Dam
Washington County	Kenneth Nicewonder Dam
Washington County	Olde Farm Dam
Washington County	Glenrochie Dam
Washington County	Texas Brine Dam
Wythe County	No. 1 Tailings Pond Dam
Wythe County	Impoundment 173 Dam
Wythe County	Rural Retreat Dam
Wythe County	Butt Dam #1
Wythe County	Harold Leedy Dam
Wythe County	Harold Leedy Horseshoe Pond
Wythe County	Reed Creek Dam
Wythe County	Paul Riefenberg Dam
Wythe County	Talley Farms Dam
Wythe County	ALC Acquisition Dam
Wythe County	Crowder Dam
Wythe County	Wythe County Dam #1
Wythe County	Harold Leedy Dam #1
Wythe County	Harold Leedy Dam #2
Wythe County	Kenneth Tibbs Dam
Wythe County	Butt Dam #2
Wythe County	Sharon Ball Dam
Wythe County	Windy Acres Dam

Drought

Description

In simple terms, drought can be defined as “a condition of moisture deficit sufficient to have an adverse effect on vegetation, animals, and man over a sizeable area.” Drought can also be defined in terms of its effects and divided into categories, as suggested by FEMA:

- Meteorological drought: Defined solely on the degree of dryness, expressed as departure of actual precipitation from an expected average or normal amount based on monthly, seasonal, or annual time scales.
- Hydrologic drought: Related to the effects of precipitation shortfalls on streamflows and reservoir, lake, and groundwater levels.
- Agricultural drought: Defined mainly in terms of soil moisture deficiencies relative to water demands of plant life, usually crops.
- Socioeconomic drought: This occurs when the demand for water exceeds the supply as a result of a weather-related supply shortfall.

Drought occurs as part of the regular climatic regime in virtually all climates, and can occur throughout the entire Mount Rogers Region. Its causes are complex, and not readily predictable, especially in variable climates. Compared to storm events such as hurricanes and floods, drought has a slow onset and can last for months, years or even decades. Estimated dollar losses caused by drought can far exceed those of major storm events.

Some measures of drought, also known as drought indices, include:

- Percent of Normal: Calculated by dividing actual precipitation by normal precipitation (usually defined as the 30-year average) and multiplying by 100% Effective for a single region or a single season. A disadvantage is the average precipitation is often not the same as the median precipitation.
- Standardized Precipitation Index: Index based on the probability of precipitation for any time scale. This is used by the National Drought Mitigation Center. It can provide early warning of drought, can assess drought severity and is less complex than some indices.
- Palmer Drought Severity Index: This is a measure of soil moisture and was the first comprehensive drought index created in the country, in 1965. It works best in areas of

even topography but is less suitable for mountainous areas or places with frequent climatic extremes. Palmer values may lag emerging droughts by several months.

- Crop Moisture Index: A derivative of the Palmer Index. It reflects moisture supply across major crop-producing regions. It is not intended to assess long-term droughts.
- Deciles: This approach groups monthly precipitation events into deciles so that, by definition, "much lower than normal" weather cannot occur more than 20% of the time. This provides an accurate statistical measurement of precipitation, but its accuracy relies on a long climatic data record.

History

The U.S. Geological Survey has noted four major droughts statewide since the early 1900s. These occurred in 1930-1932 (one of the most severe droughts on record for the state), 1938-1942, 1962-1971 and 1980-1982 (the least severe). Other sources suggest the record is somewhat different for the Mount Rogers region. The table below gives a brief review of the some of the major droughts that have affected southwest Virginia.

Droughts in Southwest Virginia

Date	Location	Details	Impact
September 2007	Carroll, Grayson, Smyth, and Wythe Counties	Primary disaster for Carroll, Grayson, Smyth, and Wythe Counties	\$8.0 million in crop damage
2-12-03	Carroll, Grayson, Smyth, large parts of SW VA	USDA disaster declaration due to severe drought for 46 counties. Primary disaster for Carroll, Grayson, Smyth Counties. Contiguous declaration for Galax and Washington County.	Low-interest emergency loans for farmers.
July and August 2002	Statewide	State emergency drought declaration for July and August. USDA disaster declarations for Bland, Carroll, Grayson, Smyth, Wythe Counties.	Significant crop damage. Reduced streamflow and groundwater levels.
9-1-99 (NCDC)	Bland, Carroll, Galax, Grayson, Smyth, Wythe, large parts of SWVA	Dry conditions began in July 1998, subsided for several months, then returned in June 1999 and through early Sept. Drought largely ended due to heavy rain from remnants of Hurricane Dennis on Sept. 4-5, 1999.	\$8.25 million in crop damage. Very low water levels in creeks, streams and rivers.

Date	Location	Details	Impact
July to October 1998 (NCDC)	Bland, Carroll, Galax, Grayson, Smyth, Wythe, large parts of SW VA	Dryness began in July, subsided in August, resumed in September. Low water levels in creeks, streams, rivers, lakes and some shallow wells.	Water levels low. \$7.7 million crop damage.
9-1-95 (NCDC)	Bland, Carroll, Galax, Grayson, Smyth, Wythe, large parts of SW VA.	A drought that started earlier in the summer peaked in many sections of the state during the first two weeks of Sept. State of emergency declared. Widespread rainfall on Sept. 17 helped to alleviate the dryness.	Crops damaged. Many lakes and rivers with well-below normal water levels.
1988	Mount Rogers region	Drought based on the Palmer Drought Severity Index, with the region in severe drought up to nearly 50% of the time. One of the worst droughts on record for the nation (1988- 1989).	
1954-1956	Mount Rogers region	Drought based on the Palmer Drought Severity Index. Region in severe drought up to nearly 40% of the time.	
1928-1934	Mount Rogers region	Drought based on the Palmer Drought Severity Index. Region in severe drought up to nearly 20% of the time.	

For the Mount Rogers region, the worst period came in 1988, with the region in severe drought 40% 49.99% of the time. Over the long-term severe drought conditions in the Mount Rogers region occurred only up to 10% of the time.

Risk Assessment and Vulnerability

In recent years, major agricultural droughts have occurred five times from 1995 through 2003. The historical record is not as well developed for the years prior to 1995, though major droughts are known to have occurred in 1928- 1934, 1954- 1956 and in 1988.

For the 100- year period from 1895 to 1995, the region has been estimated to experience drought less than 10% of the time. In the five- year time span since the original Hazard Mitigation Plan was written, the region's vulnerability to drought has not changed.

History shows drought conditions reaching disaster proportions can affect the entire Mount Rogers region. For some parts of the region, especially in Carroll County, well development is difficult and often produces a dry hole.

The impacts appear to have the greatest impact for the farming community. In these cases, the U.S. Department of Agriculture makes damage assessments and provides financial aid to qualifying farmers through the local farm service agencies.

Water issues also are a concern for the general public, local governments, business and industry. Several engineering studies from the mid- to late- 1990s, as well as a 1996 health department survey, identified issues regarding water quantity, water quality and reliability of supply. In the unincorporated areas, most parts of the region depend upon groundwater supplies. The reported problems include low quantity, poor quality (due to mineral or bacterial content), turbidity, petroleum contamination and dry holes. Limited quantities restrict fire-fighting capabilities. Inadequate or limited water supplies also restrict future growth potential for business and industry. The table on the following page describes in more detail water related problems in the Mount Rogers District.

Water Problems Reported to the Mount Rogers Health District	
Bland County Little Creek area Hollybrook Seddon Waddletown Laurel Creek/Dry Fork Ceres	Complaints Bacteria in recently drilled wells. Mineral quality/iron bacteria. Cisterns used for some supplies. Appearance of dry wells. Cisterns used for some supplies. Mineral quality. Poor quality with some wells and springs. Cisterns used for some supplies. Poor quality in some springs and wells. Poor quality in springs and iron bacteria in wells.
Bastian/Hicksville Crandon/Mechanicsburg }	Mineral quality/iron bacteria concerns.
Carroll County Paul's Creek (Cana area) Dugspur (Rt. 753) Star (Rt. 1105) Woodlawn Piper's Gap Fancy Gap (Rt. 683) Chestnut Yard Rt. 645 (below Laurel Fork) Short Creek (Rt. 640/I-77)	Complaints Iron, turbidity, low- yield wells.
Grayson County Old Town – Fries Hill Flatwood Community Helton/Cabin Creek Area Fairview Community Nuckols Curve Area Other Comments:	Complaints High iron levels. Many wells are drilled deep. Many dry holes found. Well construction difficult due to rock formations. Many springs used as private water supplies, especially in western areas of the county. Many springs have bacteria contamination.
Smyth County Walker Mountain area	Complaints High iron/sulphur content.
Washington County Mendota (Rt. 802 area) Rt. 91 (S.F. Holston to Rhea Valley)	Complaints High iron/sulphur content in private water supplies. Low- yield wells and bacteria contamination.
Wythe County Poplar Camp, Crockett, Gateway Trailer Park (Grahams Forge), Rosenbaum Chapel area Sand Mountain area Stony Fork area }	Complaints Petroleum contamination. Dry holes and low- yield wells. High iron/sulphur levels.

Earthquakes

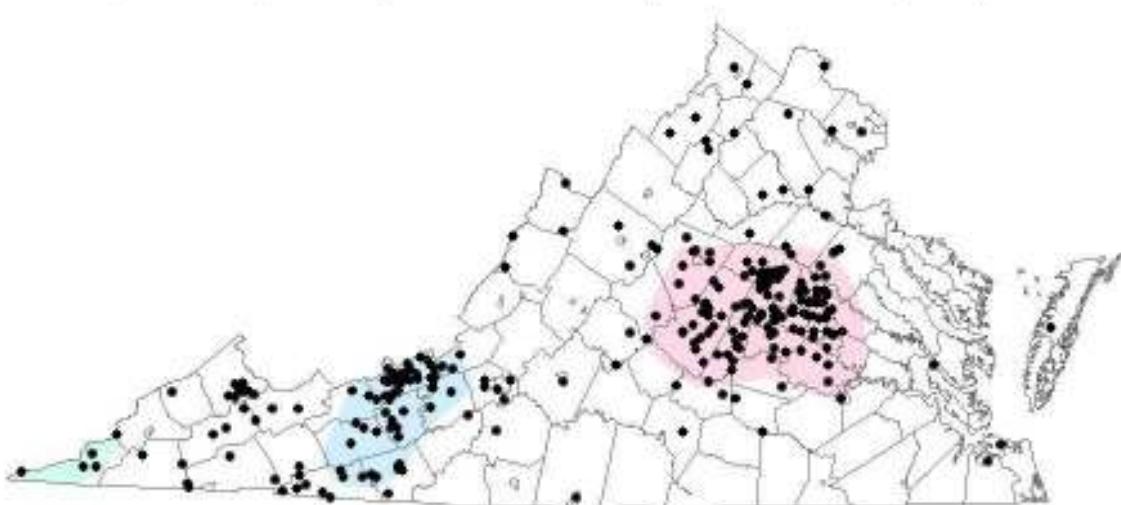
Description

An earthquake can be defined as a sudden motion or trembling caused by an abrupt release of accumulated strain on the tectonic plates that comprise the earth's crust. The theory of plate tectonics has been described since 1967 and is based on the idea the earth's crust is composed of several major plates that move slowly and continuously, at times bumping and grinding against each other and at other times creating separations.

The tectonic plates are thought to bump, slide, catch or hold as they move together. An earthquake happens when faults located near plate boundaries slip when the stress against the rock formations becomes too great. This sudden movement results in surface faulting, ground failure and tsunamis.

Surface faults are thought to occur in various forms, including strike-slip faults, normal faults (with strong vertical movement), and reverse (thrust) faults (mainly horizontal movement). Ground failure is expressed through liquefaction, when coarse soils lose their strength and act like fluids flowing over the landscape. Ground failure created by liquefaction includes lateral spreads, flow failures (the most catastrophic form), and loss of bearing strength (causing buildings to settle and tip). Tsunamis are phenomena associated with the west coast and are not considered further in this report.

Earthquakes are described in various fashions, including by intensity and magnitude. Intensity is defined as a measure of earthquake effects at a particular place on humans, structures or the land. Magnitude is a measure of the strength of an earthquake or the strain energy released by it (originally defined by Charles Richter in 1935).



This map shows the locations of known earthquake epicenters in Virginia. The Eastern Tennessee Seismic Zone is shown in green, the Giles County seismic zone is shown in blue and the Central Virginia seismic zone is shown in pink.

History

Sources such as the Virginia Department of Mines, Minerals and Energy describe the statewide risk of earthquakes as moderate, in keeping with most other states in the eastern seaboard of the United States.

Earthquake activity in Virginia has generally been, with a few exceptions, low-magnitude but persistent. The first documented earthquake in Virginia took place in 1774 near Petersburg, and many others have occurred since then, including an estimated magnitude 5.5 (VII) event in 1897 centered near Pearisburg in Giles County. A Roanoke attorney who was in Pearisburg said that for nearly fifty miles from that place he "saw hardly a sound chimney standing." In his opinion, "If the buildings throughout Giles had been largely of brick, the damage would have been very great, and serious loss of life would have occurred." The largest recorded earthquake in Virginia occurred in Louisa County on August 23, 2011 and had a magnitude of 5.8 (VII). It was felt all along the eastern seaboard by millions of people, causing light to moderate damage in central Virginia, Washington, D.C. and into southern Maryland. Since 1977, more than 195 quakes have been detected as originating beneath Virginia. Of these, at least twenty-nine were large enough to be felt at the Earth's surface. This averages out to about six earthquakes per year, of which one is felt.

Much of Virginia's earthquake activity has been in the southwest and eastern parts of the state. Counties and cities that have experienced earthquakes of intensity VI and higher include Smyth, Washington and Wythe in the local region. Local earthquake history is described by Stover and Coffman and also by the U.S. Geological Survey, through its Earthquake Hazards Program. The table below describes in more detail major recorded earthquakes in the Mount Rogers Region.

Modified Mercalli Scale

PERCEIVED SHAKING	Not felt	Weak	Light	Moderate	Strong	Very strong	Severe	Violent	Extreme
POTENTIAL DAMAGE	none	none	none	Very light	Light	Moderate	Moderate/Heavy	Heavy	Very Heavy
PEAK ACC.(%g)	<17	.17-1.4	1.4-3.9	3.9-9.2	9.2-18	18-34	34-65	65-124	>124
PEAK VEL.(cm/s)	<0.1	0.1-1.1	1.1-3.4	3.4-8.1	8.1-16	16-31	31-60	60-116	>116
INSTRUMENTAL INTENSITY	I	II-III	IV	V	VI	VII	VIII	IX	X+

Earthquakes in The Mount Rogers Region by Date/ Location, Intensity, and Description

Date/ Location	Intensity	Description
March 9, 1828 Southwest VA	V (MM)	Felt over 218,000 sq. miles, from Pennsylvania to South Carolina and the Atlantic coastal plain to Ohio. Doors and windows rattled.
April 29, 1852 Wytheville	VI (MM)	Severe earthquake shook down a chimney near Wytheville and shook down tops of chimneys at Buckingham Courthouse. Homes shook in Staunton. A brick fell from a chimney in Davie County, N.C.
Aug. 31, 1861 Southwest VA	VI (MM)	Epicenter in extreme southwest Virginia or western North Carolina. Bricks fell from chimneys at Wilkesboro, NC. Felt from Washington, D.C. to the Midwest and south to Columbus, GA.
Sept. 1, 1886 South Carolina	V (MM)	Epicenter in Charleston, S.C., with estimated intensity of X. Caused minor structural damages in various parts of Virginia (fallen plaster and chimneys, cracked walls, broken windows).
May 3, 1897 Giles County	VII (MM)	Greatest severity at Radford, where some chimneys were destroyed and plaster fell from walls. Felt in most of southwest Virginia and in a region of 89,500 sq. miles.
May 31, 1897 Giles County	VIII (MM)	Largest known earthquake originating in Virginia in history. Felt over 280,000 sq. miles. Largest effects felt from Lynchburg to Bluefield, W. Va. and from Giles County south to Bristol, Tenn. Many downed chimneys, changes in flow springs and appearance of some earth fissures.
Feb. 5, 1898 Wytheville or Pulaski	VI (MM)	Earthquake felt over 34,000 sq. miles. Bricks fell from chimneys and furniture shifted in a few houses. Effect felt throughout southwest Virginia and south to Raleigh, N.C.

April 23, 1959 Giles County	VI (MM)	Several chimneys were damaged, plaster cracked and pictures fell from walls in Eggleston and Pembroke. Felt over 2,900 sq. miles in Southwest Virginia.
Nov. 11, 1975 Giles County	VI (MM)	Windows were broken in Blacksburg and plaster cracked at Poplar Hill (south of Pearisburg, Giles County). Also felt in Pulaski County.
Sept. 13, 1976 Carroll County	VI (MM)	One of the most persistent areas of activity in recent years, with five small earthquakes felt near Hillsdale. Effects felt in the Carolinas and West Virginia.
Aug. 23, 2011 Mineral, VA	VIII (MM)	The earthquake was felt in some of the eastern parts of the Mount Rogers Region, but no damage was reported.

One notable earthquake occurred in May 1897 and was based in Giles County. It was the largest Virginia-based earthquake in recorded history. Chimneys were shaken down throughout southwest Virginia, including in Wytheville and as far west as Knoxville, Tenn. Effects of the earthquake were felt from Georgia to Pennsylvania and from the Atlantic Coast to Indiana and Kentucky. The effects were strong at Pearisburg, where brick walls cracked and some earth fissures appeared. The magnitude of this quake has been estimated at VII and VIII on the Modified Mercalli intensity scale. This event, felt over 11 states, is described as the third largest earthquake in the eastern part of the country in the past 200 years.

Risk Assessment and Vulnerability

For the Mount Rogers region, the likelihood of earthquakes appears to be moderate, based on measurements related to maximum ground acceleration and as described by FEMA. This data is incorporated into probabilistic ground motion maps published in the 2015 edition of the National Earthquake Hazards Reduction Program's *NEHRP Recommended Provisions*.

The southwest Virginia region faces a moderate chance of experiencing earthquakes. While recent history shows some part of the region experiences earthquakes roughly once every 18 years, the resulting damage has been relatively minor.

The entire Mount Rogers region is subject to the effects of an earthquake, as shown by the historical record from larger events such as the Giles quake from May 1897.

The Mount Rogers region in total covers 2,786 square miles, with over 68,000 households and a population of 188,498. The region includes 71,000 buildings with an estimated structural replacement value of \$7.3 billion. An estimated 98% of the buildings and 78% of the building value is in residential housing.

While earthquakes can create widespread destruction and death, the damages experienced in southwest Virginia are more moderate, based on the historical record. It should be noted that earthquake analysis is tricky, given that the historical record covers a period of less than 175 years. A much better record for earthquakes would cover hundreds, even thousands, of years. The risk assessment in this report is based upon this limited range of data. In the five- year time span since the original Hazard Mitigation Plan was written, the region's vulnerability to earthquakes have not changed.

For the Mount Rogers region, the worst of the earthquakes experienced historically appear to correspond to an intensity of VI on the Modified Mercalli Scale. For purposes of analysis, we assumed an intensity of 6.3 and applied the HAZUS 99- SR2 computer model to reflect the characteristics of the Giles earthquake of May 1897.

At the 6.3 level magnitude, HAZUS predicted moderate damage to 3,902 buildings and slight damage to 7,423 buildings. Only 65 buildings would be completely destroyed. Other estimates by HAZUS were as follows:

- \$6.8 million damage to bridges, railways and airports.
- Minor injuries to 47 people, with 9 hospitalized and 1 dead.
- Economic losses of \$118 million (or 1% of the total replacement value of the region's buildings).
- \$3 million in damages to communication facilities.
- Significant loss of function in several schools, especially in Bland, Carroll and Wythe counties.

Flooding

Description

Flooding is regarded as the most damaging natural hazard in Virginia. Average annual flood damages statewide amount to \$100 million. Nationwide, between 1983 and 1997, Virginia ranked 14th with flood damages of \$1,507 million.

In the Mount Rogers region, flood damages can cost millions of dollars. In November 1977, flood damages to business and industry in Smyth County was estimated at up to \$8.6 million.

Flood-Related Definitions

Base Flood: Flood with a 1% chance of being equaled or exceeded in any given year. The Base Flood is the standard used by the National Flood Insurance Program.

Base Flood Elevation: The elevation of the water surface resulting from a flood that has a 1% chance of occurring in any given year.

Floodplains: Lowlands, adjacent to rivers, lakes and oceans, subject to recurring floods.

Floodway: The stream channel and that part of the adjacent floodplain that must remain open to permit passage of the Base Flood without raising the water surface elevation by more than one foot. Flooding is the most intense and poses the greatest risk in the floodway area.

In the previous flood of April 1977, damages were estimated at \$7.8 million for 16 jurisdictions.

More recently, in March 2002, Smyth County alone sustained an estimated \$2 million in flood damages, compared to \$100,000 in Wythe County and \$360,000 in Washington County. Preliminary estimates from the November 2003 flooding came to \$485,000 for Bland County, \$251,000 for Carroll County and \$878,000 for Smyth County.

Flood hazards in the local region include *riverine flooding* and the *flash floods* that result from sudden, violent storms that produce large amounts of rainfall in short amounts of time. *Riverine flooding* involves overflows from rivers and streams. The form of flooding is often more gradual in nature and may allow more time for advance warning. *Flash flooding* – such as occurred in November 2003, resulting in federal disaster declarations for several localities may occur with little warning and yet cause significant damage.

History

The Mount Rogers region of Virginia has a long history of flooding. The floods typically result from heavy rains or from melting following a severe winter storm. Heavy rains during thunderstorms can cause flash flooding in localized areas. The data in the chart below only

relates to major flood events through spring of 2018 and does not reflect the full range of flood events that have affected the region over the years.

Major Flooding Events in Mount Rogers Planning District		
Date	Affected Localities	Description
5-24-17	Carroll County	This flood caused \$75,000 in damage
5-24-17	Grayson County	This flood caused \$150,000 in damage
4-23-17	Smyth County	This flood caused \$75,000 in damage
6-27-16	Bland County	This flash flood caused \$75,000 in damage
4-19-15	Wythe County	This flood caused \$50,000 in damage
6-29-14	Smyth County	This flash flood caused \$250,000 in damage
6-9-11	Bland County	This flood cause \$250,000 in damage
5-13-11	Grayson County	This flash flood caused \$85,000 in damage
2-28-11	Bristol	Severe storms and flooding caused \$40,000 in damage
3-4-08	Smyth County	Severe storms and flooding caused \$500,000 in damage
6-12-04	Washington County	This flood caused \$250,000 in damage
11-18-03	Bland, Smyth, Galax; 12 counties and two cities in SW VA and NE TN	Heavy rains of 1.88" to more than 5" caused heavy flooding Nov. 18-19. Federal disaster declaration for Bland, Smyth, Galax in local region. \$12 million damage across entire 12-county region.
2-15-03	Southwest Virginia (Wythe County declared a disaster)	State of emergency declared on 2-17-03 due to snow & ice in northwest VA and more than 4" of rain in southwest VA that caused flooding and mudslides. Federal disaster declared 4-28-03.
2-14-03	Washington, Bristol	Flooding from 4-day rainfall of 2-6" across southwest VA. See state of emergency declaration above.
4-17-02	Smyth, Washington, Wythe	Severe storms and flooding
3-17-02	All counties in Mount Rogers Planning District	State of emergency declared on 3-18-02 due to heavy rainfall and flash flooding.
8-20-01	Washington	Severe storms and flooding
8-9-01	Smyth	Severe storms and flooding
7-26-01	Smyth, Washington	State of emergency declared on 7-29-01 and \$4.4 million in state and federal aid. This was part of the same weather pattern causing flooding on 7-8-01.
2-2-96	Bland, Grayson, Washington, Wythe	Flooding (resulting from Blizzard of 1996)

Major Flooding Events in Mount Rogers Planning District		
Date	Affected Localities	Description
5-17-94	Galax	Severe ice storms and flooding
3-28-94	Bristol	Severe ice storms and flooding
3-10-94	Bland, Carroll, Grayson, Smyth, Washington, Wythe	Severe ice storms and flooding
5-19-92	Carroll	Severe storms and flooding
5-29-84	Washington	Severe storms and flooding
5-07-84	Town of Damascus	Flooding on Beaverdam Creek. Town declared a federal disaster area for damage to sewer system, Virginia Creeper Trail and private homes.
11-17-77	Carroll	Severe storms and flooding
11-12-77	Grayson, Smyth, Washington	Severe storms and flooding
10-02-77	Bristol	This 20-year flood caused \$3 million in damage in 1977 dollars.
4-21-77	Carroll	Severe storms and flooding
4-7-77	Bland, Grayson, Smyth, Washington, Wythe	Severe storms and flooding
9-8-72	Smyth, Galax	Tropical Storm Agnes (flooding)
March 1867	Bristol	Flood of record for Beaver Creek in Bristol, TN and Bristol, VA. This was a 250-year flood.

For Bristol the flood of record occurred in March 1867. This 250-year flood on Beaver Creek and its tributaries caused \$1 million worth of damages (in 1867 dollars). More recently, in October 1977, a 20-year flood caused \$3 million worth of damages (in 1977 dollars) on the Bristol, Virginia side alone. The worst and most costly of flood damages on an annual basis occurs along the main stem of Beaver Creek.

For the Mount Rogers region as a whole, the worst flooding within the past 50 years occurred in April and November of 1977. The floods of 1977 later led to engineering reports that encouraged people to move out of the floodplain.

Engineering Studies

Town of Chilhowie

An engineering study in 1978 on flooding in Smyth County eventually led to a special project in Chilhowie that relocated 67 families and created the Chilhowie Recreation Park.

The Middle Fork Holston River Flood Control Improvements Study, completed in March 1978, studied flooding issues in Smyth County, with special focus on the Town of Chilhowie/ Seven Mile Ford community and the Town of Marion/ Atkins community.

Initial recommendations from that 1978 study carried a total implementation cost of \$18 million. Later the study was reduced to three sub- projects, but the price tag still proved very high. The recommendations included channelizing parts of the Middle Fork Holston River, with rip rap or concrete reinforcement, flood- proofing for selected businesses and industries, rebuilding several bridges to accommodate the widened river channel, relocations out of the floodplain, and installing some levees and pump stations. Of all the proposals discussed in the 1978 study, channelizing the river was deemed as a top priority with the potential for making the greatest impact on future flood levels.

The recommendations also included removing obstructions from the Middle Fork (including the breached dam at the old Marion Ice Plant), development of six flood storage reservoirs along six tributaries, and implementation of floodplain ordinances to limit future development in the floodplain area.

Although the 1977 floods had serious impacts for several industries located in the Middle Fork Holston floodplain, the industries declined to implement the recommendations due to the high cost. The local communities felt equally intimidated by the proposed mitigation costs, and there was little hope of major help from among a range of federal agencies to provide the 100% grant funding needed to carry out any of the proposed projects. The Planning District Commission finally decided to try to get the most for the funds available by demolishing the most flood- prone structures in Chilhowie and relocating families out of the floodplain.

The project that eventually emerged was a \$2.8 million multi- part proposal to relocate families out of the Middle Fork Holston floodplain in Chilhowie, build replacement housing in a new subdivision created for the relocation, and to provide water treatment improvements for the town of Chilhowie. The project area included 72 homes, three churches, three businesses and one lodge. To succeed at all, the effort had to overcome numerous complications created by the funding agencies, the attitudes of local residents, and the feelings of the town council, which observers felt cared more about the water treatment project than the flood mitigation project.

In the end, 67 families moved out of the floodplain. Of those, 53 families had help from the Tennessee Valley Authority and 14 had help through the Department of Housing and Urban Development. Due to the time it took to form the Chilhowie Redevelopment and Housing Authority (created in July 1979) and the new subdivision, most families relocated elsewhere. Only six families opted to relocate to the subdivision as planned. The town had the abandoned property demolished and built a community recreation park in the floodplain area (between Holston Street and Railroad Avenue). The project took seven years to complete.

Town of Damascus

Building on flood study work begun by the Tennessee Valley Authority in the late 1950s, the Town of Damascus also undertook projects to relocate 34 homes (88 residents) and three businesses out of the floodplain following the 1977 flooding. Historically a flood-prone community due to development along Beaverdam and Laurel Creeks, along with obstructions in the creeks, Damascus suffered three major floods in 1977 (in April, October, and November). Twice in 1977 the community qualified as a federal disaster area. The 1977 flood events 1977 led to a comprehensive flood mitigation study completed in 1979. An initial cost estimate of more than \$3.2 million would have built a levee emergency access route, relocated flood-prone homes out of the floodplain, flood-proofed some homes and businesses, removed two abandoned dams from Laurel Creek, installed storm drainage collection systems, and required more control of floodplain development by the town. In 1981, a follow-up flood mitigation program proposed by the town was estimated at \$4.3 million.

Successful efforts by Damascus to mitigate its flooding problems over the years have included the following:

- A \$559,000 grant from the HUD in 1981 to install storm sewers along Mock, Surber, and Haney Hollows (finished in 1983).
- State and federal disaster assistance following another major flood in May 1984 helped make repairs to nearly \$86,000 worth of damage to the community.



Image 1: 2003 Flooding in Damascus



Image 2: Flooding in Marion, VA
View of flooding at Baughman Street Bridge in Marion. The bridge itself becomes a barrier during times of high water

- Grant funding in 1984 (\$700,000 from the state CDBG program and \$190,000 from the Tennessee Valley Authority) to relocate 34 families (88 people) and three local businesses out of the floodplain (1985 through 1988).
- The town also converted the old Damascus Elementary School for housing under a project funded by the state CDBG program.

Recent Flood Events

The more recent flood events from 2001-2011 were less drastic in extent and damages compared to the floods of 1977. Nonetheless the floods disrupted the lives of those who had to endure them, including the first major flood in several decades for the City of Galax.

The events of 2001 occurred in late July and early August. Heavy rainstorms caused flooding that forced more than 100 Smyth County residents from their homes, according to news accounts. Smyth and Washington counties became federal disaster areas. In all the flooding affected nine counties in southwest Virginia and led to at least \$4.4 million in state and federal aid.

The next round of disaster-level flooding occurred March 17-20, 2002. Three to six inches of rain fell in a 36-hour period and led to federal disaster declarations for Smyth, Washington and Wythe counties.

The event affected numerous homes and businesses, with residential evacuations along the North Fork Holston River in Smyth County near the Town of Saltville and in remote parts of eastern Washington County near the Smyth County line. The floods also created overflows for water and sewer plants in the Towns of Saltville, Chilhowie, and Rural Retreat and in Washington County. Additionally, floods ruined some businesses and temporarily stranded some communities, such as Downtown Chilhowie. FEMA disaster aid came to more than \$500,000 in the local region as of June 2002, with an estimated \$2.5 million total in damages.

For the entire southwest Virginia region, state and federal disaster assistance had reached \$8 million.

The 2002 flooding led Chilhowie to undergo a preliminary \$100,000 study by the U.S. Army Corps of Engineers on causes of the flooding and potential solutions, including river dredging and use of levees. In March 2004, the Chilhowie Town Manager recommended buy-outs of the 15 properties that flood most often and the decision was made to buy out six homeowners located on River Bottom Circle along the North Fork Holston River.

The flood disasters continued into 2003, with a federal declaration resulting from two back-to-back snowstorms February 15-28, affecting all localities in the Mount Rogers Planning District. In total, the storm cost \$37 million in snow removal costs and \$71 million in damages to homes, businesses, public facilities, roads and other property. In the local region, Bland and Wythe counties sought federal aid for flood damages to public and private property.

On November 18-19, 2003, heavy rains caused severe flooding across 10 counties in northeast Tennessee and southwest Virginia. In Bland County damages were estimated at \$485,000, with \$878,000 in damage in Smyth County and \$251,000 in damage in Carroll County. This included major damage or destruction of numerous homes, flooded roadways, damage to public and private property, some evacuations and temporary closure of area schools.

The City of Galax suffered its first major flooding since 1940; initial reports to FEMA included damage to 10 businesses and 70 homes in an area that included the city's main business district along Chestnut Creek. Some sinkholes appeared, and there was flooding in several nearby residential communities. Total damages amounted to \$100,000, with about half consumed by the cost of cleanup by the city, according to city officials. Because Galax does not participate in the National Flood Insurance Program, the designated floodplain area was not eligible for federal disaster assistance. The city so far has resisted suggestions it consider rejoining the flood insurance program. Damaged properties located out of the designated floodplain were eligible for disaster assistance. City officials have said many flooding problems are caused by undersized and deteriorated stormwater drainage systems.

In the past five years only one flood event in the Town of Fries was recorded. In May of 2011 a flash flood caused minor flooding at the elementary school, damaged approximately 20

vehicles, and caused some minor damage at an RV park. This flood also caused a manure spill that caused some localized water contamination. The town residents were asked by officials at the water treatment plant to conserve water. The town had enough water in reserve until the spill was cleaned.

National Flood Insurance Program

Most communities with flooding issues in the local region participate in the National Flood Insurance program (NFIP). Participation in NFIP allows homeowners and commercial businesses to obtain flood damage protection. For single-family homes, the insurance provides up to \$250,000 for structural damages and up to \$100,000 for contents damages. Commercial businesses can be covered for up to \$500,000 in structural damages and up to \$500,000 in contents damages.

Flood insurance helps cover flood damages during minor and major flood events. Insurance coverage through NFIP also covers a larger amount for losses than typically would be available during a federal disaster. Emergency aid that is available following declaration of a federal disaster most often comes in the form of a low-interest loan. FEMA promotes participation in NFIP for all qualifying communities.

Community Participation in NFIP
Mount Rogers Region, Virginia

Jurisdiction	NFIP Status			
	Y	N	N/A	CRS Class
Bland County	X			N/A
Carroll County	X			N/A
Grayson County	X			N/A
Smyth County	X			N/A
Washington County	X			N/A
Wythe County	X			N/A
City of Bristol	X			N/A
City of Galax		X		N/A
Town of Abingdon	X			N/A
Town of Chilhowie	X			N/A
Town of Damascus	X			N/A
Town of Fries	X			N/A
Town of Glade Spring	X			N/A
Town of Hillsville	X			N/A
Town of Independence	X			N/A
Town of Marion	X			N/A
Town of Rural Retreat	X			N/A
Town of Saltville	X			N/A
Town of Troutdale		X		N/A
Town of Wytheville	X			N/A

As shown in table above, most of the localities participate in floodplain management and make NFIP coverage available to property owners. The City of Galax, with Chestnut Creek flowing through the city's downtown industrial district, participated in NFIP for a few years before dropping out. As a result of the November 2003 flood disaster, the city met with state and federal flood program officials. The city has opted to remain a non-participant. Galax recently submitted a request to the US Army Corps of Engineers to look at possible projects upstream of Chestnut Creek through the Flood Damage Reduction Program (Section 205 of the 1948 Flood Control Act). The end result would be a project that would reduce the 100-year flood plain to the Chestnut Creek channel. The Town of Troutdale due to its small size and the fact that relatively little water runs through the town does not find it feasible to participate in the NFIP.

The FEMA floodplain maps available for communities participating in the National Flood Insurance Program (NFIP) depict 100- year floodplains for flood- prone areas. That means, in any given year, the floodplain area faces a 1% chance of having a flood.

One major drawback for the floodplain maps in effect for the Mount Rogers region, as well as for many communities nationwide, is the age and relative inaccuracy of the maps. Although a fine effort has been made by FEMA to update the existing maps digitally, there are still existing accuracy issues, however, FEMA is in the process of rectifying these errors. We expect new data for much of the Mount Rogers Region in the next two years.

In addition, most local floodplains have not been subject to hydrological studies to determine the Base Flood Elevations; the floodplain extent in such cases has been estimated based on the local topography.

Risk Assessment and Vulnerability

The Mount Rogers region has experienced 18 presidential disaster declarations or state-level emergencies related to flooding over 30 years. That does not account for the more minor flooding that may occur from time-to-time due to a brief but severe rainstorm or thunderstorm causing small stream flooding in localized areas.

As shown in the table below, Smyth County has received a relatively large share of payments under the National Flood Insurance Program, due to the frequency and severity of flooding in that county.

NFIP Claims Data as of October 31, 2018			
Community Name	Losses	Total Payments	Average Payments
Bland County	19	177,105	9,321.32
Carroll County	19	136,910	7,205.79
Grayson County	6	14,563	2,427.17
Smyth County	89	841,130	9,450.90
Town of Chilhowie	40	222,697	5,567.43
Town of Marion	32	192,960	6,030.00
Town of Saltville	1	1,271	1,271.00
Washington County	44	499,023	11,341.40
Town of Abingdon	11	158,112	14,373.80
Town of Damascus	10	6,311	631.10
Town of Glade Spring	1	4,347	4,347.00

Wythe County	15	66,077	4,405.13
Town of Wytheville	1	35,472	35,472.00
City of Bristol	19	71,753	3,776.47
City of Galax	2	3,227.00	1,613.50

The NFIP defines Repetitive Loss Properties as those with 2 or more claims of at least \$1,000 over a 10-year rolling period. There are 21 such properties in the Mount Rogers Region. The breakdown by locality follows in the table below:

Repetitive Loss Properties for Mount Rogers Planning District, as of 2018	
Locality	Number of Properties
Town of Abingdon	2
Bland County	6
City of Bristol	2
Town of Chilhowie	3
Town of Hillsville	1
Town of Marion	1
Town of Saltville	3
Washington County	1
Wythe County	1
Town of Wytheville	1

The Hazard Mitigation Assistance program defines Repetitive Loss as having incurred flood-related damage on 2 occasions, in which the cost of the repair, on the average, equaled or exceeded 25 percent of the market value of the structure at the time of each such flood event; and, at the time of the second incidence of flood-related damage, the contract for flood insurance contains increased cost of compliance coverage.

Flooding causes damages ranging from blocked roadways and flooded basements to severe damage and destruction of homes and businesses. People sometimes die when they attempt to cross flood-swollen creeks that under normal circumstances appear fairly harmless. Severe flooding can take out bridges and sections of roadway. Flooding can also force people out of their homes into emergency shelters as a way to save lives and prevent people in flood-prone areas from becoming stranded. Fortunately, despite the constant threat of flooding for much of the Mount Rogers region, few people have died. Many more have sustained property damage, and some have been relocated out of the floodplain through government-sponsored programs.

A map showing the 100-year floodplain for all localities in the Mount Rogers Region is located in the section titled Appendix I at the end of the document.

The localities in the Mount Rogers Region do not allow construction inside the floodplain unless the structure is elevated above the 100-year floodplain elevation. For this reason, the vulnerability of structures inside the floodplain have either not changed or become less vulnerable since the original writing of the 2005 Hazard Mitigation Plan.

At-risk Structures in the 100-year Flood Plain				
Locality	Number of Structures	%of Total Structures	Total \$ Value of Structures*	Estimated Potential Damage (25%of Total Structure \$ Value)
Bland County	237	6.25%	\$11,376,000	\$2,844,000
Carroll County	31	0.16%	\$1,488,000	\$372,000
Grayson County	48	0.44%	\$2,304,000	\$576,000
Smyth County	425	2.44%	\$20,400,000	\$5,100,000
Washington County	216	0.76%	\$10,368,000	\$2,592,000
Wythe County	226	1.42%	\$10,848,000	\$2,712,000
City of Bristol	146	1.77%	\$7,008,000	\$1,752,000
City of Galax	53	1.54%	\$2,544,000	\$636,000

* Average value of structure in flood plain is \$48,000

Hazardous Material Spills

Description

Hazardous materials can be found in many forms and quantities that can potentially cause death; serious injury; long-lasting health effects; and damage to buildings, homes, and other property in varying degrees. Such materials are routinely used and stored in many homes and businesses and are also shipped daily on the nation's highways, railroads, waterways, and pipelines. This subsection on the hazardous material hazard is intended to provide a general overview of the hazard, and the threshold for identifying fixed and mobile sources of hazardous materials is limited to general information on rail, highway, and FEMA-identified fixed HAZMAT sites determined to be of greatest significance as appropriate for the purposes of this plan.

Hazardous material (HAZMAT) incidents can apply to fixed facilities as well as mobile, transportation-related accidents in the air, by rail, on the nation's highways, and on the water. Approximately 6,774 HAZMAT events occur each year, 5,517 of which are highway incidents, 991 are railroad incidents, and 266 are due to other causes. In essence, HAZMAT incidents consist of solid, liquid, and/or gaseous contaminants that are released from fixed or mobile

containers, whether by accident or by design as with an intentional terrorist attack. A HAZMAT incident can last hours to days, while some chemicals can be corrosive or otherwise damaging over longer periods of time. In addition to the primary release, explosions and/or fires can result from a release, and contaminants can be extended beyond the initial area by persons, vehicles, water, wind, and possibly wildlife as well.

HAZMAT incidents can also occur as a result of, or in tandem with, natural hazard events, such as floods, hurricanes, tornadoes, and earthquakes, which in addition to causing incidents can also hinder response efforts. In the case of Hurricane Floyd in September 1999, communities along the Eastern United States were faced with flooded junkyards, disturbed cemeteries, deceased livestock, floating propane tanks, uncontrolled fertilizer spills, and a variety of other environmental pollutants that caused widespread toxicological concern.

Hazardous material incidents can include the spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing into the environment of a hazardous material, but exclude:

- 1) any release which results in exposure to poisons solely within the workplace with respect to claims which such persons may assert against the employer of such persons;
- 2) emissions from the engine exhaust of a motor vehicle, rolling stock, aircraft, vessel or pipeline pumping station engine;
- 3) release of source, byproduct, or special nuclear material from a nuclear incident; and
- 4) the normal application of fertilizer.

Risk Assessment and Vulnerability

The majority of Hazardous events in the Mount Rogers Region are due to fuel/oil releases from motor vehicle crashes. Typically range from a few ounces up to over one hundred gallons of diesel and oil from overturned tractor trailers.

The easiest way to mitigate against these events is early notification and have the appropriate agency (typically the fire department) to perform Hazardous Materials Operations level job functions such as, damming, diking, plugging, placing absorbent pads and/or booms down. Of course, this is for the small fuel spills. If the region has a larger event, then a large-scale HAZMAT team response would be necessary.

Karst and Sinkholes

Description

Sinkholes are bowl-shaped, funnel-shaped, or vertical-sided depressions in the land surface that form over underground voids. These depressions, which can range in size from a few feet to several hundred feet in diameter, usually result from the natural collapse of the roofs of caves eroded in soluble bedrock, but they can also result from man-made activity such as mining, groundwater pumping, or the failure of sewer and storm water drains. Subsidence of the ground is usually gradual, but on occasions it can be sudden and dramatic.

In regions of carbonate bedrock such as limestone or dolomite, slightly acidic rainwater percolating through organic soil dissolves the carbonate minerals as it comes into contact with the bedrock. Over time, this persistent process can create extensive systems of underground fissures and caves. The surface of such a region is often pocked with depressions. This type of topography is called karst terrain. In well-developed karst terrain, chains of sinkholes form what are known as solution valleys and streams frequently disappear underground.

Sinkhole collapse, either slow or dramatic, regularly causes considerable damage to buildings, highways, rails, bridges, pipelines, storm drains, and sewers. In addition, sinkholes provide a pathway for surface water to directly enter groundwater aquifers. The increasing potential for pollution is particularly high due to the minimal filtering of surface water.

A poor understanding of Karst terrain has led to land-use practices that pose significant economic and environmental impacts to households and communities. Sinkhole formation is closely related to local hydrological conditions, and human-induced changes to the local hydrology commonly accelerate the process. Diverting surface water, pumping groundwater, and constructing reservoirs all contribute to sinkhole collapse. An extreme example occurred in Florida on February 25, 1998, when, during the flushing of a newly drilled irrigation well, hundreds of sinkholes up to a hundred and fifty feet across formed over a twenty-acre area within a few hours. Runaway urbanization and development dramatically increases water usage, alters drainage pathways, and overloads the ground surface. According to the Federal Emergency Management Agency, the number of human-induced sinkholes has doubled since 1930, while insurance claims for related damages has increased 1,200 % from 1987 to 1991, costing nearly \$100 million. Subsidence is not covered by standard homeowners insurance.

In Virginia, the principal area affected by sinkholes is the Valley and Ridge province, an extensive karst terrain underlain by limestone and dolomite, but the narrow marble belts in the Piedmont and some shelly beds in the Coastal Plain are also pocked with sinkholes. Dramatic collapses that swallow homes or persons have happened in Virginia, but are rare. The most notable incidents occurred in the City of Staunton: on August 11, 1910, parts of several homes and the firehouse were lost in a series of sinkholes on Baldwin Street and Central Avenue, and on October 28, 2001, a 45-foot deep chasm opened up on Lewis Street. In April of 2000, thirty-two sinkholes were reported in the upper Shenandoah Valley after seven inches of rain fell after a long dry spell.

Sinkholes regularly cause problems for transportation infrastructure in the Commonwealth. During the past thirty years, VDOT has recorded approximately 500 sinkholes that have damaged roads throughout the state. In March 2001, a nine-mile stretch of Interstate 81 in Augusta County was closed after the sudden appearance of three sinkholes, the largest measuring 20 feet long, 11 feet wide and 22 feet deep. On October 5, 2004, the right southbound lane of I-81 just north of the Exit 118 Cramp in Montgomery County collapsed. Due to the potential for damage to infrastructure and danger to the travelling public, VDOT maintains an emergency contract for sinkhole repair. In general, sinkhole occurrence is unpredictable and the size of a sinkhole cannot be estimated from the surface collapse, so repair costs range from the tens of thousands to the hundreds of thousands of dollars per sinkhole. Research into sinkhole distribution and early prediction is ongoing; however, a true method of early prediction remains elusive.

Groundwater contamination is a common problem in populated areas overlying karst terrain. Karst aquifer contaminants in Virginia have included petroleum products, herbicides, solvents, fertilizers, sheep and cattle dip, sewage, dead livestock, and household garbage. In the late 1800s, a Shenandoah County community was subjected to a cholera outbreak due to the pollution of the local karst aquifer. A significant concern is the vulnerability of karst aquifers to contamination along the I-81 corridor, where hazardous materials are regularly transported and accidents can occur. For some chemicals that do not readily mix with water, contamination can be widespread and remain in the groundwater for many years. Most of Virginia's karst region follows Interstate 81, and twenty-seven of Virginia's counties lie in this zone, where hundreds of thousands of people get their drinking water from wells and springs.

State law prohibits the dumping of waste into sinkholes, and some Virginia counties have implemented ordinances about sinkhole dumping and outfalls. Meanwhile, the Virginia Health Department discourages the use of karst springs as public water supplies and requires periodic testing of those karst springs that are used. The Virginia Department of Conservation and Recreation's Natural Heritage Karst Program is responsible for groundwater and habitat protection in karst areas, supported by EPA Section 319 Clean Water Act Program. The USGS, working with various state agencies, has developed a National Karst Map.

Areas over underground mine workings are also susceptible to subsidence. Mine collapses have resulted in losses of homes, roadways, utilities and other infrastructure. Subsidence is often exacerbated by the extensive pumping of groundwater associated with underground mining. Abandoned coal mines occur in Buchanan, Dickenson, Lee, Scott, Russell, Tazewell, Wise, Montgomery, and Pulaski counties in southwest Virginia; and Henrico, Chesterfield and Goochland counties in the Richmond coal basin. Other abandoned underground mines occur throughout the state. Information of past mining activity can be obtained from the Virginia Division of Mineral Mining and Division of Mined Land Reclamation.



*Virginia counties containing significant karst terrain. Modified from Virginia Natural Heritage Karst Program.
Source: Department of Mines, Minerals, and Energy*

History

In the local region, sinkholes suddenly appear from time to time on Interstate 81, which passes through the karst region of Virginia. One recent incident occurred in October 2003, when a sinkhole appeared on I-81 about one mile past the junction with I-77 in Wythe County. Both the Virginia Department of Transportation and Duke Energy said the sinkhole appeared in connection with drilling under the highway in connection with installation of a 24-inch natural

gas pipeline. The incident blocked a northbound lane of I-81 for a few days before VDOT completed the needed repairs and the reopened the lane to regular use.

Subsidence also has been a problem for Saltville due to mining for salt and gypsum. Salt mining first began in 1782 and continued until 1972 with the shutdown of Olin Industries, once a major employer in Saltville. Commercial production of salt resumed in 2000 with completion of an evaporator plant by Virginia Gas Company, which was removing brine from the underground caverns to make room for natural gas storage.

Gypsum mining began in 1815 and continued under the U.S. Gypsum Company, starting in the early 1900s. U.S. Gypsum, which has since moved to production of artificial gypsum, closed its Saltville area facilities in 2000.

In 1960 a major collapse occurred in a section of the high-pressure brine field located just southwest of Saltville. The collapse involved four wells spaced closely together and considered shallow, ranging from 450 to 800 feet deep, according to expert testimony. Over time the bottom cavities of the wells appeared to have merged together. The underground collapse moved upwards through the relatively thin rock "roof" layers (themselves 200-316 feet thick) to the surface. This resulted in a crater 400 feet wide and 250 feet deep.

More recently, a section of State Rt. 91 collapsed into a 50-foot wide sinkhole in front of the offices of U.S. Gypsum. In the past gypsum mining had occurred under the collapse site and may have been a contributing factor. Blame was also placed on a leaking water line that had apparently dissolved the underlying limestone, thereby weakening the underground support structure and leading to the collapse. It should be noted these incidents have resulted from human-induced activities, while the focus of this study has been on hazards created by nature.

In the Wythe County community of Ivanhoe an underlying sinkhole eventually caused the floor of the local post office to fall through. A new post office has since been established for Ivanhoe. Karst terrain also is a factor in the Town of Chilhowie, which is investigating why the town water system loses 16 million gallons a month; some is thought to leak into the underlying terrain. Construction workers for Duke Energy Gas Transmission also encountered karst terrain during the recent installation of the Patriot Extension natural gas pipeline near New River Trail State Park (near Foster Falls in Wythe County).

Risk Assessment and Vulnerability

There is no known way to predict when sinkholes might open up or when subsidence might occur. There is only limited data available on karst terrain, its extent, and its importance from an ecological standpoint and as a natural hazard.

The ecological importance of this landform is only beginning to be understood through the efforts of various state and federal agencies and by groups such as the Karst Waters Institute, Cave Conservancy of the Virginias, The Nature Conservancy, and others.

As noted in the section on landslides, detailed basic geology maps are still under development in the state and local region. It is not possible to make any risk assessment other than in a generalized fashion. This task may become possible in the future under a new program on karst and subsidence hazards proposed for the National Cooperative Geologic Mapping Program. The NOGMP is a digitized mapping effort by the U.S. Geological Survey in coordination with the Association of American State Geologists. The Geologic Mapping Act of 1992 mandated creation of a national geologic database.

The Karst and Subsidence Hazards program has been planned to develop better understanding of groundwater contamination, sinkhole formation, new techniques for karst analysis through remote sensing and geophysics, regional karst issues in the Appalachians, and understanding of karst issues on a national scale through development of a new National Atlas karst map.

Karst terrain is a special concern for Bland, Wythe, Smyth and Washington counties as a feature of the Valley and Ridge geological province. In the five- year time span since the original Hazard Mitigation Plan was written, the region's vulnerability to karst and sinkholes have not changed.

Karst as a natural hazard can be a costly matter for the community. There are the long- term costs associated with environmental pollution and contamination of the groundwater supply. There also are costs associated with damage created by subsidence, such as the collapse of State Rt. 91 into a sinkhole near Saltville in 1977. In 2004 VDOT was nearing completion on relocating 0.5 miles of Rt. 91 at an estimated cost of \$2 million.

Due to the lack of mapping of significant karst terrain, incidents involving the sudden appearance of sinkholes and leakage often come as a surprise to local governments. No historical events have occurred since 2005.

Landslides

Description

Landslides can be defined as the downward and outward movement of soils and slope-forming materials reacting under the force of gravity. These movements can be triggered by floods, earthquakes, volcanic eruptions and excessive rain. The three important natural factors include topography, geology and precipitation. Human-caused factors include cut-and-fill highway construction, mining and construction of buildings and railroads.

Types of landslides include slides, flows, falls and topples (which occur rapidly), and lateral spreads (which occur much more slowly).

The Appalachian Highlands, along with other mountainous regions of the United States, are known to be highly susceptible to landslides. These come in the form of earth flows, debris flows and debris avalanches, mainly in areas of weathered bedrock and colluvium. Debris avalanches can occur during period of continual steady rainfall followed by a sudden heavy downpour. Areas prone to landslides include the plateau of the western Appalachian Highlands (especially in Tennessee and Kentucky) and southeast of the Appalachian Plateau, in the flanks of the Appalachian Ridge and the Blue Ridge (which includes the Mount Rogers region). For the most part these movements are comprised of slowly moving debris slides.

On a generalized scale, hazard-prone areas have been mapped by the U.S. Geological Survey. However, this information needs to be evaluated at ground level to more clearly identify the landslide-prone areas of the Mount Rogers region. A map showing landslide incidence and susceptibility in the Mount Rogers Region is located in the section titled Appendix I at the end of the document.

History

Information is limited regarding landslides and debris flows for the Mount Rogers region. While generalized statewide geology maps have been published, detailed maps for the local region are still in development. These will become the basic geology maps that in the future can be used in landslide risk assessment. Geologists with the Virginia Department of Mines, Minerals and Energy were in the process in 2003 of creating basic geology maps in Washington County and were planning to move into Smyth County and other parts of the Interstate 81 corridor. In the past most geologic mapping related to resources of economic value, such as coal.

The record is scant concerning landslide incidents in the Mount Rogers region. A staff review of a comprehensive, nationwide database giving locations of debris flows, debris avalanches, and mud flows revealed no information pertaining to the local region.

Small-scale landslides are known to occur on steep slopes and can sometimes block roadways. The Virginia Department of Transportation makes emergency repairs as needed. On occasion, a major landslide can block a roadway. Heavy rains and the annual freeze-thaw cycle can trigger these landslides.

More recently in March of 2011 a rockslide occurred in Carroll County. The event happened on Interstate 77 at mile marker 3.8 in the left northbound lane. A boulder roughly the size of a car fell onto the highway. A man struck the boulder with his car killing him instantly. VDOT officials surveyed the cliff above and determined that no other rocks were in danger of falling.

Risk Assessment and Vulnerability

The Mount Rogers region is mountainous in nature, and its steep slopes make parts of the region susceptible to landslides. The hazard-prone areas have been generally mapped by the U.S. Geological Survey, as shown below.

The USGS divides landslide risk into six categories. These six categories were grouped into three, broader categories to be used for the risk analysis and ranking; geographic extent is based off of these groupings. These categories include:

High Risk

1. High susceptibility to landsliding and moderate incidence.
2. High susceptibility to landsliding and low incidence.
3. High landslide incidence (more than 15% of the area is involved in landsliding).

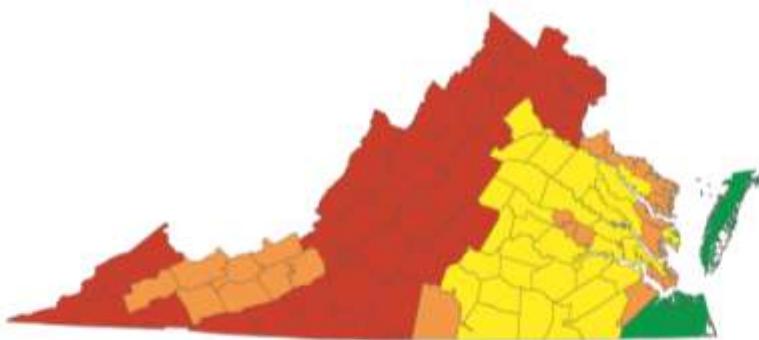
Moderate Risk

4. Moderate susceptibility to landsliding and low incidence.
5. Moderate landslide incidence (1.5 - 15% of the area is involved in landsliding).

Low Risk

6. Low landslide incidence (less than 1.5 % of the area is involved in landsliding).

The six categories were grouped into High (categories 1-3), Medium (categories 4 –5), and Low (category 6) to assess the risk to state facilities, critical facilities and jurisdictions.



Counties in Virginia that are susceptible to landslides.

Red = high potential; orange = moderate potential; yellow = moderate to low potential; green = low potential.

Source: Department of Mines, Minerals, and Energy

Certain types of rocks and geologic conditions, when they occur on slopes, make an area prone to landsliding. These types include fine- grained clastic rocks (those consisting mainly of silt and clay- sized particles), highly sheared rocks and loose slope accumulations of fine- grained surface debris, which give way during times of intense or sustained rainfall. Steep slopes also can add to the likelihood of landslides. Debris flows, for instance, are known to occur mainly on slopes steeper than 25°.

There is no accepted method for determining the likelihood of a landslide in the Mount Rogers region. Given the relative lack of historical data on catastrophic landslides affecting the region, our best guess is a major landslide incident appears to be unlikely.

Landslides are not well understood in the Mount Rogers region. Most geologic studies have been focused on mineral resources (especially coal) of economic importance. Basic geologic mapping is only beginning to get underway in the region. More information will be needed before any detailed risk assessment can be made for localities in the Mount Rogers region.

Please see the image above (Generalized Landslide Image of Southwest Virginia) for a visual depiction of potential landslide risk areas in the local region.

Generally speaking, the areas posing the greatest landslide risk include the pink and red regions. The pink regions include parts of Washington, Smyth and Grayson counties and a corner of Carroll County. The red regions include much of Carroll County and the border area between Washington, Smyth and Grayson counties.

Landslides can damage or destroy roads, railroads, pipelines, utilities and infrastructure, forests, fisheries, parks and farms. Damages can include economic losses to local, state and

federal agencies – because of the impacts to public infrastructure – and to the private sector for impacts to land and buildings. When located near communities, sudden landslides also can cause death. In the five- year time span since the original Hazard Mitigation Plan was written, the region's vulnerability to Landslides have not changed.

Severe Winter Storms and Ice

Description

Blizzards represent the worst of the winter season, combining heavy snowfall, high winds, extreme cold and ice storms. Severe winter storms can be characterized by heavy snowfall but lacking the severity usually associated with blizzards. They often begin as mid- latitude depressions or cyclonic weather systems and sometimes follow the jet stream.

For the Mount Rogers region storm systems travel in from the Midwest and Tennessee Valley, from the Gulf Coast region and sometimes as a result of a major coastal storm that passes inland. On the northern side, extreme cold weather and Arctic cold fronts move in from Canada and are known to sweep into the Mid- Atlantic region. The severity of these storms may result from high snowfall accumulations that lead to major snowdrifts and blizzard conditions or that later melt and cause flooding. Wetter storms may have only limited amounts of snow but are severe due to accumulations of ice. A light covering of ice can easily create numerous traffic accidents. Both ice and heavy snow can tear down tree limbs, trees, power lines and telephone lines, creating major disruptions that sometimes cannot be cleared up for weeks. A map showing the heaviest average snow accumulations in the Mount Rogers Region is located in the section titled Appendix I at the end of the document.

History

The historical record for snowstorms and blizzards in the Mount Rogers regions gives numerous examples of how bad these storms can get. major winter events in the region resulted in seven federal disaster declarations and at least four state emergency declarations. The chart below contains inconsistencies in monetary values and locations of damage due to poor recordkeeping within localities.

Major Winter Storms, Cold and Ice
Mount Rogers Region, Virginia 1993-2017

Date	Localities	Description
01-17-13	Bland, Carroll, Grayson, Smyth, Wythe, Galax	The region was hit by a winter storm that brought heavy snow fall ranging from 12 inches in Rocky Gap (Bland County) to 6.0 inches in Ceres (Bland County). This winter storm brought the interstate to a standstill with accidents and heavy snow fall.
4-28-03	Wythe County	Severe winter storm, near record snowfall, heavy rain, flooding, and mudslide. 39 jurisdictions had disaster declarations. Wythe qualified in April for public assistance as result of the March storm.
3-30-03	Bland, Carroll, Grayson, Smyth, Wythe, Galax	Winter storm with heavy snow that began during the predawn hours of the 30 th and continued through the early afternoon. Snow accumulated 6- 12", brought down numerous tree limbs and power lines, resulting in more than 50,000 power outages.
2-15-03	Bland, Grayson, Wythe	State emergency declaration due to severe winter storm, impassable roads and flooding. SW Virginia got more than 4" of rain. Evacuations from homes in Bland and Wythe counties.
12-11-02	Carroll, Galax	State emergency declaration due to icy conditions creating massive power outages. Accretions of $\frac{1}{4}$ " of ice. An icy winter storm followed on Dec. 13.
12-04-02	Bland, Carroll, Grayson, Smyth, Washington, Wythe, Galax.	Winter storm affected a wide area of SW Virginia. Snowfall amounted to 5- 10" and ice of 1" or more in Carroll and Floyd counties. Numerous traffic accidents.
5-22-02	Bland, Carroll, Wythe, Bristol, Galax	Freeze damage affected Christmas tree growers.
2-28-00	Bland, Carroll, Grayson, Smyth, Washington, Wythe	Severe winter storm. 107 jurisdictions had disaster declarations for winter storm from Jan. 25-30, 2000.
1-25-00	Bland, Carroll, Grayson, Wythe, Galax	State emergency declaration due to winter storm with high winds that dumped up to 18" of snow across much of the state, with drifting and blizzard conditions. Local storm occurred on Jan. 29. Snow mixed with sleet amounting to 4-8" inches, 11" in higher elevations.
3-15-99	Bland, Carroll, Smyth, Wythe, Galax	Winter storm developed with rain and sleet changed to a wet snow early in the morning. Snow amounts of 4-8", with up to 10" in the higher elevations. The snow downed power lines and small trees, resulting in power outages.

Date	Localities	Description
3-03-99	Bland, Carroll, Grayson, Smyth, Wythe, Galax	Winter storm resulted from rain changing to sleet and then snow, with accumulations of 6-12". Numerous motor vehicle accidents. Motorists stranded for 5-6 hours on I-77.
12-23-98	Bland, Carroll, Grayson, Smyth, Wythe, Galax	Ice storm created ice accretions of $\frac{1}{2}$ " and sometimes as much as 1". Ice downed tree limbs and power lines and created numerous power outages. Many traffic accidents and some injuries due to ice-covered roads and bridges.
1-28-98	Bland, Carroll, Grayson, Smyth, Wythe, Galax	State emergency declaration for severe winter storm with heavy snowfall in the western part of the state causing riverine flooding. Snowfall of 15-32" closed schools, businesses & church services & stranded people in vehicles & homes. Numerous traffic accidents. A charter bus overturned on I-81 near Marion, injuring 20 people. I-81 was closed for several hours during the height of the storm. Power lines, tree limbs and trees were knocked down.
12-29-97	Bland, Carroll, Grayson, Smyth, Wythe, Galax	Heavy winter snowstorm produced accumulations of 5-10", with 4-7" in Bland County. Bad road conditions resulted in numerous traffic accidents.
3-28-96	Bland, Carroll, Wythe, Galax (Bath County hardest hit)	Ice storm with freezing rain all day created significant ice cover above 1900 feet. Ice downed tree limbs, power lines, telephone lines. Numerous power outages and some traffic accidents.
2-02-96	Bland, Carroll, Grayson, Smyth, Washington, Wythe, Bristol, Galax	State emergency declaration for a winter storm with heavy snow, followed by extreme cold Feb. 3 rd - 6 th . Burkes Garden in Bland County recorded 22° below zero. Most locations had morning lows on the 5 th of zero to 12° below zero. Emergency declaration based on an Arctic air mass moving across state Feb. 1-4, with potential to cause widespread power outages.
1-06-96	Bland, Carroll, Grayson, Smyth, Wythe, Galax	Blizzard of 1996. State emergency declaration for a predicted winter storm with blizzard conditions and snowfall of 12-24" expected. Statewide disaster declaration. Occurred Jan. 6-13.
Winter of 1995-96	VDEM "Virginia Winters" account	Unusually heavy snowfall for the winter. Burkes Garden had 97", while Bland had 62". Some schools lost up to 15 days due to snow.
3-28-94	Bristol	Severe ice storms, flooding
3-10-94	Bland, Carroll, Grayson, Smyth, Washington, Wythe	Severe ice storms, flooding. May be related to the state emergency declaration of March 2, 1994.

Date	Localities	Description
3-12-93 to 3-13-93	Bland, Carroll, Grayson, Smyth, Wythe, Galax (affected a region from Florida to New England)	Blizzard of 1993. 43 jurisdictions received disaster declarations statewide. Extreme cold and heavy snowfall, along with high winds, sleet and freezing rain left many motorists stranded. \$5 million property damage. It was the biggest storm in a decade in Virginia. SW VA got 24-42" of snow. Interstate highways were closed and emergency shelters were opened to house up to 4,000 motorists.
12-18 2009	Grayson, Carroll, Smyth, Washington.	Grayson County received federal assistance. A total of \$600,000 of damage was reported

Source: Virginia Department of Emergency Management and National Climatic Data Center.

Note: Items with dates appearing in boldface and shading resulted in presidential disaster declarations.

Major storms such as the Blizzard of 1993 closed down interstate highways, stranded motorists in their vehicles and trapped people in their homes. The event also brought high winds, sleet and freezing rain, adding to the disruptions created by the snowfall. In southwest Virginia, snowfall ranged from 24 to 42 inches in what was the largest snowstorm in a decade for the state. The Blizzard of 1996 (January 6-13) began in the southeastern states and moved into the northeastern states to cover the entire eastern seaboard. Snowfall amounted to one to four feet, with the greatest impacts for Virginia and West Virginia. On a statewide level, Virginia had 48 inches of snow, followed by West Virginia with 43 inches of snow. Much of the same region experienced two more snowstorms that dumped up to 12 inches more within the next 10 days. The National Climatic Data Center listed the storm of December 2009 as the only winter storm since the writing of the original plan that caused major monetary damage.

Below is the Northeast Snowfall Impact Scale (NESIS) that characterizes and ranks high impact winter storms.

Category	NESIS Value	Description
1	1—2.499	Notable
2	2.5—3.99	Significant
3	4—5.99	Major
4	6—9.99	Crippling
5	10.0+	Extreme

Locality	Avg. Annual Total Snowfall
Abingdon	16.3"
Bland	25.5"
Burkes Garden	46.3"
Byllesby	11.4"
Chilhowie	19.2"
Damascus	22.0"
Galax Radio	19.1"
Hillsville	18.9"
Independence	20.2"
Mendota	15.6"
Saltville	13.4"
Troutdale	20.2"
Wytheville	19.9"

Snowstorms pose a threat not only because of dangerous driving conditions and downed power lines, but also due to the melting that can lead to flooding. During the 2002-2003 winter season, severe winter storms later created flooding problems in Bland, Grayson and Wythe counties, with Wythe declared eligible for federal disaster assistance.

Due to variable topography and other factors, average annual snowfall amounts vary greatly throughout the Mount Rogers region, based on available weather records shown in the accompanying table shown at left. The data covers time periods as long as 81 years.

Risk Assessment and Vulnerability

Winter storms are a regular part of the weather regime for the Mount Rogers region. The severity of the season varies from year-to-year and can be highly variable among the localities for any given storm event. The variability can be due to differences in elevation, differences in temperature and the track of given storm systems.

In recent years there have been at least seven federal disaster declarations and four state emergency declarations due to severe winter storms over a 10-year period, as shown in the table on Major Winter Storms, Cold and Ice. Based on this brief time period, it is likely localities in the Mount Rogers region will experience at least one major snow and/or ice storm per year with the potential to become a federal disaster. The winter season typically runs from November to April of each year.

The average winter season in the Mount Rogers region can create annual snowfall amounts ranging from 8 to 46 inches. The average snow season in Roanoke produces 23 inches per year. The average winter season in the Mount Rogers region can create annual snowfall amounts ranging from 8 to 46 inches. The average snow season in Roanoke produces 23 inches per year (over 49 years) and in the Bristol-Johnson City-Kingsport, Tenn. area produces 15.6 inches per year (over 59 years).

Any major winter storm or blizzard is likely to affect the entire Mount Rogers region, with the most direct impacts affecting highways and power lines. Most snow-related deaths result from traffic accidents, overexertion, and exposure. Sometimes also there is damage to buildings from collapsed roofs and other structural damage. In the five-year time span since the original Hazard Mitigation Plan was written, the region's vulnerability to winter storms have not changed. There is no way that we know of to calculate the likely costs of a major winter snow or ice storm. The available data, through the National Climatic Data Center, reports damages by storm event, but this is not broken down by locality.

Severe winter storms and ice can cause death and injury on the highways and trap people in their motor vehicles or in their homes due to impassable roads. Snowstorms also regularly result in the closing of schools; in some years, the local schools have been closed as much as 15 days due to winter conditions. Forecasts of impending snowstorms also regularly result in early school closings to reduce risk from bus and traffic accidents. Likewise, winter conditions can result in temporary disruptions of business activity, with workers advised to remain home until driving conditions improve.

The Virginia Department of Transportation deals directly with the effects of snowstorms. On average in the past five years, VDOT has spent \$83 million annually on snow removal. As a general rule, the first priority is to plow interstate highways, major primary roads and secondary roads. Plowing in subdivision and residential areas are the second priority during winter storms. VDOT seeks to get ahead of snow conditions on the roadways through pre-treatments with liquid chloride and close monitoring of storm conditions and incoming storms.

For American Electric Power the main concern is icing, which can tear down overhead power lines. AEP is sometimes hampered in its efforts to restore power during major snowstorms due to the poor condition of the roads. The state's system of highway maintenance, carried out by several private contractors, at times creates uneven results during snow clearing.

Thunderstorms and Lightning

Description

Thunderstorms arise from atmospheric turbulence caused by unstable warm air rising rapidly into the atmosphere, enough moisture to form clouds and rain and an upward lift of air currents caused by colliding warm and cold weather fronts, sea breezes or mountains.

Thunderstorms are always accompanied by lightning, but they may also be associated with heavy rains, hail and violent thunderstorm winds.

Thunderstorms occur most often during the spring and summer months and can occur throughout the entire Mount Rogers Region. Nationwide the average storm is 15 miles wide and generally last less than 30 minutes at any given location. Some storm systems have been known to travel more than 600 miles. A map showing the favored high wind areas in the Mount Rogers Region is located in the section titled Appendix I at the end of the document.

History

Storm events reported to the National Climatic Data Center reflect the kind of activity and damages resulting from high winds and thunderstorm winds. Describing the data can be problematic, since storms often travel over wide regions. The reported damages represent those for the entire storm event and are not usually limited to a given locality. The data given in the table below offers a guide to thunderstorm history in the Mount Rogers region.

Storm Event History for Thunderstorm Winds, as of April 2018					
Location	Time Period	No. Of Years	No. Of Events	Avg. Per Year	Reported Damages
Bland County	May 1989- April 2018	28	38	1.4	\$334,000
Carroll County	June 1960- April 2018	57	81	1.4	\$1,430,000
Grayson County	May 1962- April 2018	55	62	1.1	\$672,000
Smyth County	April 1972- April 2018	45	62	1.4	\$828,000
Washington County	June 1995- April 2018	22	119	6	\$1,570,000
Wythe County	July 1962- April 2018	55	55	1	\$705,000
City of Bristol	July 1980- April 2018	37	46	1.3	\$252,000
City of Galax	Jan. 1998- April 2018	19	14	0.7	\$29,000

Another event, on July 4, 1997, captured in the NCDCdata involved a supercell thunderstorm and associated severe thunderstorms affecting a region stretching from Tazewell to Pittsylvania counties. Thunderstorm winds estimated at 60-80 mph and hail the size of golf

balls damaged at least 29 homes, 16 mobile homes, five outbuildings, four businesses and a church in a two-mile path near Wytheville. There was also widespread damage to vehicles, roofs, sidings, satellite dishes, trees and a large sign knocked down by the winds. Wytheville Community College sustained 100 broken windows. Hail drifts amounted to six to eight inches deep in several locations. The event caused an estimated \$300,000 in property damage.

A supercell thunderstorm, while rare, is often the most violent known form of thunderstorm and is associated with tornadoes, damaging straight-line winds and large hail. These events are defined as long-lived thunderstorms with a persistent rotating updraft. They often contain a mesocyclone, or storm-scale regions of rotation typically two to six miles in diameter that may produce tornadoes.

Lightning

Thunderstorms are always accompanied by lightning, which can cause fires, injury and death. Florida is known for having the greatest number of thunderstorms and the highest density lightning strikes in the contiguous United States.

Lightning becomes a problem when the discharge of a lightning bolt connects with an object or surface on the ground. Lightning will be considered together with thunderstorms in judging the importance of this hazard for the Mount Rogers region.

Risk Assessment and vulnerability

Southwest Virginia experiences 60-80 thunderstorms on average per year. Most of these occur during the summer months, extending from May through September, with July the peak month for thunderstorms statewide, according to the state climatology office. This is moderate compared to other parts of the country with more than 130 thunderstorms annually. During the peak of the thunderstorm season in the local region, storms may roll through at the rate of three or four per week, which is relatively frequent.

People and property throughout the Mount Rogers region are subject to damages and injuries created by lightning and thunderstorms. But any individual storm is likely to affect only a very limited area. In the five-year time span since the original Hazard Mitigation Plan was written, the region's vulnerability to thunderstorms and lightning has not changed.

Virginia experiences a moderate number of thunderstorms and lightning strikes compared to other parts of the country, according to research cited by FEMA. Thunderstorms in the Mount

Rogers region typically last 70- 80 minutes in any given location, which falls in the mid- range for storm duration nationwide. In some areas thunderstorms last 130 minutes or more, based on findings by the National Weather Service for the years 1949- 1977.

These storms can cause serious structural damage to buildings, start forest fires and wildfires, blow down trees and power lines, and cause death. On rare occasions, events such as the supercell thunderstorm from July 1997 can cause widespread damage, as previously discussed on the history section.

Nationally, Virginia falls in the mid- range for lightning fatalities, based on the cited research through the National Oceanic and Atmospheric Administration. States such as Florida, North Carolina, New York and Tennessee rank far ahead of Virginia. The lightning that accompanies thunderstorms in the Mount Rogers region averages 4- 6 strikes per square kilometer, which is relatively low.

It is not possible based on available data to quantify the impacts of thunderstorms and lightning for localities in the Mount Rogers region. Available data from the National Climatic Data Center, which tracks incidents of thunderstorms and thunderstorm wind damage, is reported on a regionalized basis often covering numerous localities as a storm system moves through. Data resources will have to improve in the future to be able to make these calculations on the local level.

Tornadoes and Hurricanes

Description

A tornado appears as a rapidly spinning vortex or funnel of air extending to the ground from an overhead storm system (usually a thunderstorm). Tornadoes come in many sizes, ranging from several yards to more than a mile wide. The severest tornadoes can achieve wind speeds of more than 300 mph, though most are 100 mph or less. The weakest tornadoes may last only about a minute, while the stronger ones may continue for 30 minutes at a time and travel miles before dissipating. Virginia is said to have an average of seven reported tornadoes per year (1950 through 2006), though the actual number of tornadoes may be higher.

Statistically the peak month for tornadoes in Virginia is July, though the tornado season goes from spring through fall. Tornadoes spring from an estimated 1 %of all thunderstorms; of the group that produces tornadoes, only about 2%are considered violent with winds over 200 mph

(categories F3, F4 and F5 on the Fujita scale). Tornadoes also can be associated with hurricanes, though hurricanes are not a significant factor in southwest Virginia.

FUJITA SCALE			DERIVED EF SCALE		OPERATIONAL EF SCALE	
F Number	Fastest 1/4-mile (mph)	3 Second Gust (mph)	EF Number	3 Second Gust (mph)	EF Number	3 Second Gust (mph)
0	40-72	45-78	0	65-85	0	65-85
1	73-112	79-117	1	86-109	1	86-110
2	113-157	118-161	2	110-137	2	111-135
3	158-207	162-209	3	138-167	3	136-165
4	208-260	210-261	4	168-199	4	166-200
5	261-318	262-317	5	200-234	5	Over 200

As seen in table shown above, tornadoes are measured on the Enhanced Fujita Scale, with categories ranging from F0 to F5. The categories are defined according to wind speed and the types and severity of damage caused. Parts of southwest Virginia show some tendency toward tornadoes in an area that extends from Tennessee into Bristol and Washington County due to the lay of the land and its influence on storm systems. Maps showing tropical cyclone tracks and tornado hazard frequency in the Mount Rogers Region are located in the section titled Appendix I at the end of the document.

History

Between 1950 and 2005, Virginia experienced six tornadoes per year or 1.6 tornadoes annually per 10,000 square miles. Two storms per year on average were rated as strong or violent (F2-F5), with 0.5 such storms per 10,000 square miles per year.

Tornado History: Mount Rogers Region 1950 through 2017

Locality	Date	Time	Dead	Hurt	F Scale
Bland Co.	-	-	-	-	-
Carroll Co.	Aug. 1, 1965	0230	0	5	F1
	Aug. 21, 1977	1700	0	0	F2
	July 4, 1979	1620	0	0	F1
	May, 6 2009	2126	0	0	F0
Grayson Co.	July 10, 1959	1500	0	0	F1
	May, 6 2009	2125	0	0	F0
	October 23, 2017	1747	0	0	F1

Locality	Date	Time	Dead	Hurt	F Scale
Smyth Co.	April 4, 1974	0405	0	3	F3
	Jan. 25, 1975	2335	0	2	F2
	June 5, 1975	1815	0	0	F0
	July 13, 1975	1900	0	0	F1
	April 28, 2011	0200	0	1	F2
	April 28, 2011	0015	0	0	F2
Washington Co.	April 30, 1953	1845	0	0	F0
	June 10, 1953	1500	0	0	F1
	June 3, 1962	1600	0	0	F2
	April 4, 1974	0400	1	1	F3
	Jan. 25, 1975	2330	0	0	F2
	April 30, 1990	1725	0	0	F0
	April 28, 2011	0100	4	50	F3
Wythe Co.	-	-	-	-	-
City of Bristol	April 4, 1974	0300	0	0	F0
City of Galax	-	-	-	-	-
Totals:	20 events		5	61	

For the Mount Rogers region there have been 20 reported tornadoes from 1950 through April 2011, with 5 people killed and 61 people injured. The highest intensity ever recorded for these storms was F3. See the table above for more details.

On the Fujita scale, an F3 category tornado is considered severe, with winds up to 206 mph. This fits with the FEMA Wind Zone III designation for the region. By definition, Zone III communities are known to experience winds of 160- 200 mph.

The tornadoes of April 4, 1974 were part of what is known as the "Super Outbreak," when severe thunderstorms at the leading edge of a cold front moved into southwest Virginia. Eight tornadoes struck statewide, killing one person and hurting 15. The destruction affected more than 200 homes and barns and more than 40 mobile homes and trailers. The storm event in total spawned 148 tornadoes killed 315 people and injured 5,484. "Super Outbreak" created the most tornadoes ever recorded in a 24-hour period and the worst tornado outbreak since Feb. 19, 1884. This was true until the tornado outbreak of April 25-28 of 2011. This outbreak produced at least 336 tornados in 21 states from Texas to New York and even created isolated tornadoes in Canada. The storms caused \$10 billion worth of damage and tragically resulted in

346 deaths. In the Mount Rogers Planning District, the storms resulted in 4 fatalities and caused \$38.5 million in damages.

One of the tornadoes, rated at F0 to F1, struck near Bristol, demolishing several mobile homes and hurting four people. A stronger F3 tornado hit the Saltville area, traveling up the valley of the North Fork Holston River from Washington County, then following Tumbling Creek into Poor Valley and traveling up the Poor Valley to Cardwell Town. The storms resulted in one dead, one injured and destruction of two houses, two mobile homes, a church and three barns. There was also damage to 42 homes, two mobile homes and the roof of a high school. Wind damage was reported in Bland and Wythe counties.

Hurricanes

Generally speaking, the Mount Rogers region does not have hurricanes and is not considered hurricane-susceptible like communities all along the east coast. Hurricanes become a factor on those rare occasions when the storm systems take an inland route as they pass over the Mid-Atlantic region. Two of the most significant hurricanes in recent decades affecting the Mount Rogers region were *Hurricane Agnes* (June 1972) and *Hurricane Hugo* (September 1989).

Hurricane Agnes, originating off the coast of the Yucatan Peninsula in Mexico, became a tropical storm on June 16, 1972 and then a hurricane in June 19, 1972. It crossed the Florida panhandle on June 19 and passed through Georgia, South Carolina and North Carolina before returning to the Atlantic Ocean to regain strength. The storm made landfall a second time on June 22, 1972 in southeastern New York and moved west across the southern tier of New York and into north-central Pennsylvania, where the \$3.1 billion hurricane made its greatest impact.

Though the local record is scanty for this storm, 106 jurisdictions in Virginia qualified for a presidential disaster declaration due to widespread flooding. Those included Smyth County and the City of Galax. Most notable for damage caused by flooding, Agnes dropped an average of 6-10 inches of rain over the Mid-Atlantic region from June 20-25, 1972. The storm in Virginia created an estimated \$126 million in damages and resulted in 13 deaths.

Hurricane Hugo began as a cluster of thunderstorms moving west off the coast of Africa. As the storm system passed over the Atlantic Ocean, it gained strength to become a tropical depression and then a hurricane, on Sept. 13, 1989. Once classified as a Category 5 storm

(highest intensity hurricane) on the Saffir-Simpson Scale, Hugo did great damage in the Caribbean and Puerto Rico. By Sept. 19 the storm had weakened and moved back over the Atlantic, where Hugo regained strength and became a Category 4 hurricane with winds up to 135 mph when it made landfall near Charleston, S.C. on Sept. 22, 1989. By the time Hugo passed west of Charlotte, N.C., it had weakened to a tropical storm with peak winds of 87 mph. The storm continued tracking north over southwest Virginia and West Virginia; the Appalachian Mountains helped weaken the storm further as it continued into western New York and passed out of the country. In the end, six Virginians died as a result of Hugo. As the storm passed over the Appalachians, orographic effects were thought to cause locally heavy rainfalls of more than six inches over western North Carolina and southwest Virginia, causing small stream flooding. Orographic effects are defined as those caused by the presence of mountains; most commonly, this occurs when air rises over the mountains and then cools, creating condensation and rainfall. In total Hugo was estimated as a \$9 billion storm in damages and economic losses, with \$7 billion of that total occurring on the mainland, particularly in the Carolinas.

Risk Assessment and Vulnerability

The Mount Rogers region appears to face a low risk of tornadoes and hurricanes. FEMA classifies the region under Wind Zone III, meaning winds can reach speeds ranging from 160 mph to 200 mph. The region also, based on historical information, experiences less than one tornado per 1,000 square miles. Tornadoes are rare for the Mount Rogers region.

FEMA High Wind Matrix
Tornado and Hurricane Risk

		Wind Zone			
		I	II	III	IV
No. of Tornadoes per 1,000 sq. miles	< 1	Low Risk	Low Risk *	Low Risk *	Moderate Risk
	1-5	Low Risk	Moderate Risk *	High Risk	High Risk
	6-10	Low Risk	Moderate Risk *	High Risk	High Risk
	11-15	High Risk	High Risk	High Risk	High Risk
	> 15	High Risk	High Risk	High Risk	High Risk

Saffir-Simpson Scale

Category	Winds	Effects
One	74-95 mph	No real damage to building structures. Damage primarily to unanchored mobile homes, shrubbery, and trees. Also, some coastal road flooding and minor pier damage
Two	96-110 mph	Some roofing material, door, and window damage to buildings. Considerable damage to vegetation, mobile homes, and piers. Coastal and low-lying escape routes flood 2-4 hours before arrival of center. Small craft in unprotected anchorages break moorings.
Three	111-130 mph	Some structural damage to small residences and utility buildings with a minor amount of curtainwall failures. Mobile homes are destroyed. Flooding near the coast destroys smaller structures with larger structures damaged by floating debris. Terrain continuously lower than 5 feet ASL may be flooded inland 8 miles or more.
Four	131-155 mph	More extensive curtainwall failures with some complete roof structure failure on small residences. Major erosion of beach. Major damage to lower floors of structures near the shore. Terrain continuously lower than 10 feet ASL may be flooded requiring massive evacuation of residential areas inland as far as 6 miles.
Five	greater than 155 mph	Complete roof failure on many residences and industrial buildings. Some complete building failures with small utility buildings blown over or away. Major damage to lower floors of all structures located less than 15 feet ASL and within 500 yards of the shoreline. Massive evacuation of residential areas on low ground within 5 to 10 miles of the shoreline may be required.

A tool to judge damage potential from tornadoes and hurricanes can be found in a FEMA publication called *Taking Shelter from the Storm: Building a Safe Room Inside Your House*. The tool appears in the table above.

The matrix and the wind zone assignments are based on 40 years of tornado history and more than 100 years of hurricane history in the United States, as well as research by the Wind Engineering Research Center at Texas Tech University. This serves as the basis for a low risk rating for the Mount Rogers region.

Tornadoes, though rare for the Mount Rogers region, have been known to achieve an F3 intensity rating, based on the Fujita scale. These most severe known tornado incidents have occurred in Smyth and Washington counties. An F3 intensity tornado contains sufficient power to tear roofs and walls from well-built homes, uproot most trees, and lift objects such as

automobiles off the ground and send them flying through the air. These storms can generate wind speeds of 158-206 mph.

As for hurricanes, the Mount Rogers region stands far inland and is not part of the coastal zone region where hurricanes cause most of their damage. Generally speaking, the local region experiences the outer effects of hurricanes; this can include high winds and heavy rainfall. Since heavy rainfall mainly results in flooding, hurricane impacts in this plan are covered in the section on flooding. In the five- year time span since the original Hazard Mitigation Plan was written, the region's vulnerability to tornadoes and hurricanes has not changed.

Wildfires

Description

Wildfires occur as a regular part of the natural environment and are fueled by trees, brush and grasses. The three primary factors that influence these fires are topography, fuel and weather. Nationwide, the most frequent and worst of the wildfires occur in the western states, due to the dry climate and the prevalence of conifer and brush fuel types.

Wildfires also occur as a result of human actions, with increasing numbers of people choosing to live in wooded and wildland settings (described as the wildland urban interface), a factor that is also an issue for the eastern states, including the Mount Rogers region.

It is possible to group wildfires into four categories, as follows:

- Wildland fires occur in national forests and parks and are fueled by natural vegetation. Federal agencies typically hold the lead role for fire management and suppression for this group of fires.
- Interface or intermix fires happen at or near the junction between natural vegetation and the built environment.
- Firestorms are high- intensity fire events that are impossible to control or suppress until conditions change or the available fuel is gone. Firestorms have been a particular problem in the western states.

Prescribed fires and prescribed natural fires include those that are intentionally set and those that are allowed to burn as part of a fire management program to help clear out excessive accumulations of vegetative fuels.

A map showing wildfire risk in the Mount Rogers Region is located in the section titled Appendix I at the end of the document.

History

Wildfires in the Mount Rogers region are not as prevalent or as damaging as the massive fire events that occur every year in the western states. But the risks still exist due to the amount of forested land in the region, presence of contributing factors (steep slopes, pine woods, wildfire history), and residential development in remote, wooded areas throughout the region.

From 1995 through 2011 the Mount Rogers region had roughly 505 fires causing an estimated \$730,000 in damages as shown in the table below. Total property saved from destruction was estimated at more than \$23 million, according to data by the Virginia Department of Forestry (VDOF). The greatest number of fires occurred in Carroll County. Though it had fewer fires during the seven- year period, Washington County sustained fire damage to the largest total land mass.

VDOF data also points to debris burning and incendiary (arson) sources as the most common cause of fires in the Mount Rogers region. Those two sources accounted for 370, or 73% of the 505 fires occurring between 1995 and 2011. Less frequent fire causes included equipment use, miscellaneous, smoking and children.

On the federal level, catastrophic fire losses in the western states have led to the development of the National Fire Plan and the Healthy Forests Initiative.

The National Fire Plan has resulted in more spending by state and federal agencies for improved prevention of wildfires. In the George Washington and Jefferson National Forests, which include the Mount Rogers region, the added funding supported efforts to reduce levels of fire- prone fuels and to establish a Type I firefighting crew. The National Fire Plan aims to provide sufficient resources for firefighting, rehabilitate fire- damaged ecosystems, reduce levels of fire- prone fuels found in the forests, and reduce fire risk faced by woodland property owners.

The Healthy Forests Initiative is a long-term plan promoted by federal agencies to improve management of federal lands and expedite forest and rangeland restoration projects. This effort is focused on communities near the wildland urban interface, in high-risk municipal watersheds, in watersheds containing habitat for threatened and endangered species, and where ecosystems are being destroyed by insect and disease epidemics and face increased threat of catastrophic wildfire. The wildland urban interface, particularly where rural housing development intermingles with the forest, is a concern for the Mount Rogers region.

Risk Assessment and Vulnerability

The Mount Rogers region covers an estimated 1.77 million acres of land. Of that total, an estimated 1 million acres of land (roughly 58%) is classified as forestland, with nearly all used as timberland. Areas subject to fire risk include the forestlands and places where people are building homes and residential subdivisions in wooded settings.

Virginia Department of Forestry (VDOF) criteria for determining areas of highest risk take into account factors such as density of historical wildfires, nature of the land cover (pines are more flammable than hardwoods), steepness and orientation of slope, population density, distance to roads, road density and developed areas, and presence of railroads. VDOF is incorporating its data into a GIS-based mapping system called ForestRIM to help make wildfire risk assessments and to identify woodlands home communities.

VDOF statistics for the state show most fires occur during the spring fire season (February-May) and on a lesser level during the fall fire season (October-December). More fires occur during these periods due to drier weather conditions, higher winds and the presence of cured fuels that can easily ignite. Causes of fires statewide include: open burning (30%), arson (20%), smokers (14%), miscellaneous (11%), children (9%), equipment use (7%), railroads (5%), lightning (3%), and campfires (1%).

In any given year on average, the Mount Rogers region may experience 70 wildfires, based on the state forestry data over the past 15 years.

Information on wildfire risk was being developed through VDOF and its GIS-based ForestRIM program, which mapped areas of risk into categories of low, moderate and high, based on criteria described above. The VDOF data did not include information on wildfires occurring on

federal lands (which would include the national forests and the Mount Rogers National Recreation Area).

The VDOF wildfire risk data as available in early 2004 showed:

- Carroll and Washington counties contained the largest amount of land subject to high risk of wildfire (more than 100,000 acres for each county).
- Washington County appeared to have the highest number of woodland homes subject to high risk of wildfire, followed by Carroll County.
- Substantial regions of high wildfire risk were also apparent for Smyth County (in its midsection and far northwestern corner, roughly 70,000 acres) and Grayson County (all along its eastern border and generally along the U.S. Rt. 58 corridor, roughly 60,000 acres).
- Areas with lesser acreages subject to high risk of wildfire included Bland (approximately 27,000 acres) and Wythe counties (roughly 20,000 acres).

Loss estimates have been based on the preliminary data available through the Forest RIM program (for housing counts) and estimates (for housing values) as applied by the MRPDC.

The values shown in the table below reflect the estimated value of all woodland homes in the region. In any given wildfire, only a portion of this housing stock would be at risk of destruction. However, any given woodland home that catches on fire faces a high risk of substantial or total destruction in some of the more remote parts of the local region. We have no way of estimating the potential loss for any given wildfire event.

LOSS ESTIMATES FOR WOODLAND HOMES, as of 2018

Locality	Est. Number Homes at Risk	Total Value of Homes at Risk	Est. Total Land Mass at Risk
Bland County	265	\$34,430,390	27,000 acres
Carroll County	712	\$92,507,312	> 100,000 acres
Grayson County (incl. Galax)	258	\$33,520,908	60,000 acres
Smyth County	475	\$56,895,500	70,000 acres
Washington County	804	\$96,303,120	> 100,000 acres
Wythe County	No data avail.		20,000 acres
City of Bristol	No data avail.		
City of Galax	67	\$8,705,042	

People with homes in woodland communities can face a substantial risk of wildfire and catastrophic loss. These homes generally cannot be insured against loss, which places the

entire financial burden on the homeowners. In some cases, private housing developments in wooded settings contain narrow, poorly designed roads that cannot accommodate fire-fighting equipment. Other potentially serious issues include lack of access to a water supply, remote location, unidentified roads, and presence of vegetation (pines, broom sage) that is more prone to catch on fire. Wildfire can result in loss of property, injury and loss of life. In the five-year time span since the original Hazard Mitigation Plan was written, the region's vulnerability to wildfires has not changed. This is due to a lack of development in this short time span, and or lack of historical events.

The table on the following page shows a detailed breakdown the land cover in the Counties of the Mount Rogers Region.

Land Cover Information: Mount Rogers Region

County	All Land	Forest Land				Non-forest Land
		Total	Timberland	Woodland	Reserved	
Bland	229,545	172,214	166,519	na	5,695	57,331
Carroll	308,115	162,291	160,499	na	1,792	144,141
Grayson	285,304	173,873	161,883	na	11,991	111,431
Smyth	289,337	183,428	178,103	na	5,325	105,909
Washington	368,481	192,734	191,190	na	1,544	174,119
Wythe	296,480	153,942	153,610	na	332	142,538
Total	1,777,262	1,038,482	1,011,804	na	26,679	735,469

Windstorms

Description

Wind can be defined as the motion of air relative to the earth's surface. Extreme wind events may come in the form of cyclones, severe thunderstorms, tornadoes, downbursts and microbursts.

Wind speeds may vary from 0 at ground level to 200 mph in the upper atmosphere.

Nationwide the mean annual wind speed falls in the 8- 12 mph range. Frequently, wind speeds reach 50 mph and sometimes exceed 70 mph. Coastal areas from Texas to Maine may experience tropical cyclone winds with speeds of greater than 100 mph. The Mount Rogers region is located in Wind Zone III, with winds reaching up to 200 mph. A *special wind region* is known to occur in an area reaching from northeast Tennessee into southwest Virginia.

History

High winds in the Mount Rogers region blow down trees and power lines and cause varying amounts of property damage. A wind tunnel effect observed in a *special wind region* reaching from northeast Tennessee into southwest Virginia sometimes blows tractor trailers off I- 77 in Carroll County. Some winds have lifted trucks off the highway and deposited them some distance away, like the effects of tornadoes. The image below is of such a storm that occurred in January 2003.



Since the writing of the original Hazard Mitigation Plan in 2005, Virginia Department of Transportation has installed a highway warning system, (overhead signs) designed to alert truck drivers to wind and fog incidents in the Fancy Gap area as well as other areas along the interstate system. The system is intended to help drivers avoid these hazards to the extent possible. In the Mount Rogers region, high winds have been known to tear down trees and power lines, blow in parts of buildings, and cause other kinds of property damage. An accounting of several recent high-wind incidents in the region is shown in the table below.

High Wind Incidents as of 2018

Date	Location	Description	Damages
10-5-95	Entire Mount Rogers region, plus much of SW VA	No description available.	\$20,000 property
11-11-95	Bland, Carroll, Galax	Two windstorms occurred on same day.	\$8,000 property
1-19-96	Carroll, Galax	No description available.	None reported
9-6-96	Carroll, Galax, Floyd, Franklin, Patrick	No description available.	\$175,000 property, \$200,000 crops
4-1-97	Carroll, Galax	Tractor-trailer blown over on I- 77.	\$7,000 property

Date	Location	Description	Damages
2-4-98	Carroll, Galax, Patrick	Winds downed trees and damaged some mobile homes.	\$15,000 property
3-3-99	Bland, along with Floyd, Giles, Montgomery, Pulaski	Winds downed trees and power lines.	\$11,000 property
4-12-99	Carroll, Galax, Franklin, Patrick	High winds blew over a tractor-trailer on Rte. 58 and a mobile home (Patrick County). Winds blew over two tractor-trailers 5 miles south of Fancy Gap on I-77.	\$14,000 property
1-13-00	Entire Mount Rogers region, plus much of SW VA	Winds downed large trees and power lines, caused minor property damage in all counties. Winds at 68 knots in Bland County.	\$180,000 property
3-20-00	Smyth, Wythe	Winds downed trees and power lines.	\$6,000 property
1-10-01	Carroll, Galax, Bedford	Winds of 65 knots blew over 3 tractor-trailers on I-77. Much damage in Bedford County with shingles and siding stripped off more than 90 homes. Winds also downed power lines, power poles and numerous trees.	\$410,000 property
3-6-01	Carroll, Galax, Grayson, Patrick	Winds associated with a snowstorm downed trees and power lines. Winds blew in a wall and partly collapsed a roof on an auto repair shop in Carroll County.	\$80,000 property
3-10-02	Carroll, Galax, Grayson	High winds downed trees across Grayson and Carroll counties.	None reported
12-25-02	All of Mount Rogers region, plus wide area of SW VA	Winds downed numerous trees and power lines. A tree fell on a house in Roanoke, damaging the roof and crushing the front porch.	\$20,000 property
1-8-03	Carroll, Galax, Grayson, other parts of SW VA	Winds of 50 knots downed trees and power lines. Many downed trees in Grayson County damaged several homes.	\$80,000 property
1-9-03	Carroll, Galax, Wythe, plus 6 other SW VA counties	Winds of 60 knots downed trees and power lines.	None reported
1-23-03	Carroll, Galax, Wythe, other parts of SW VA	Winds of 100 knots blew over 6 tractor-trailers on I-77, near Fancy Gap. Trees and power lines downed throughout region.	\$50,000 property
2-22-03	All of Mount Rogers region, plus wide reaches of SW VA	Winds of 80 knots downed numerous trees and power lines. Many people lost power across the region. Roof blown off an outbuilding in Tazewell County.	\$3,000 property

Date	Location	Description	Damages
5-11-03	Bland County	Winds of 70 knots downed several trees and power lines.	None reported
7-15-05	Grayson County	A small microburst causing winds of 70 knots blew the roof off a vacant hotel, and damaged 10 trees.	None reported
3-06-11	Carroll County	High winds overturned 2 tractor trailers on Interstate 77 at the 2.8 mile marker.	\$200,000 property
4-17-14	Carroll County	High winds overturned 2 tractor trailers on Interstate 77 at the between the 2.7 and 2.8 mile marker.	\$300,000 property

The details for these high wind events were drawn from the National Climatic Data Center's database, as well as from news reports and emergency management personnel. For some incidents, even when damages are reported, an accompanying description of the event is not always available.

Risk Assessment and Vulnerability

Of the high wind events reported to the National Climatic Data Center, some part of the Mount Rogers region experienced damaging winds at least 15 times in eight years. That amounts to an average of roughly twice a year when winds are known to cause at least some damage.

Though the entire region is subject to high winds, Carroll County and the City of Galax appear to be hit the most often. Given the regionalized nature of the available data, it is not possible to quantify what a typical wind incident might consist of and how much cost it may create for the community or to private individuals.

Damage estimates through the National Climatic Data Center are reported by incident rather than by locality, unless the damages are confined to a small geographic area. Based on the reported incidents, damages may range from zero to up to more than \$400,000.

The reported damages include downed trees, tree limbs and power lines; shingles, siding and roofs torn away from homes; damage and uprooting of mobile homes; tractor-trailers blown over and sometimes lifted off the highway, particularly near the Fancy Gap area of Interstate 77; and loss of electrical power. High wind events, while they occur frequently, appear to cause only scattered property damage. This hazard does not appear to pose a disaster-level hazard to the Mount Rogers region as a whole, although some localities regularly sustain high winds.

In the five-year time span since the original Hazard Mitigation Plan was written, the region's vulnerability to windstorms has not changed.

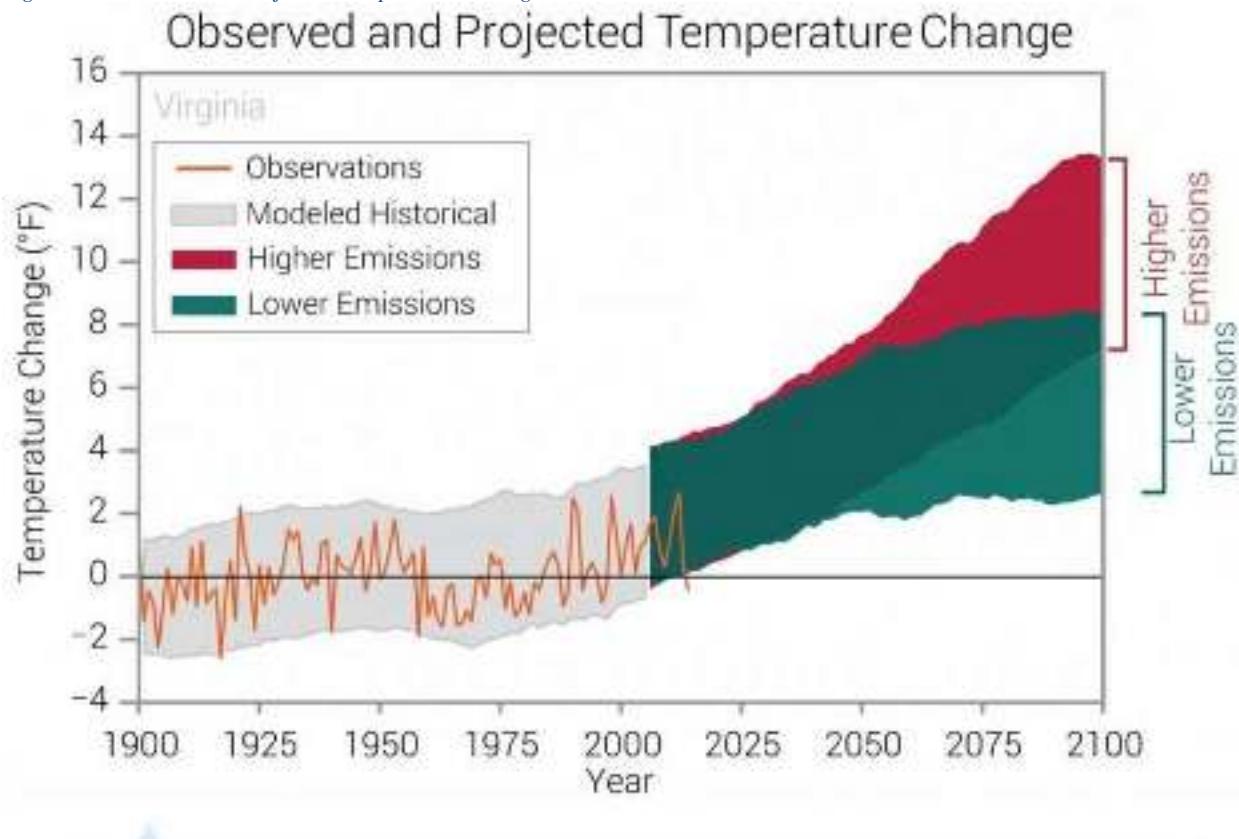
Climate Change

2017 NOAA Technical Report NESDIS³

Virginia has a humid climate with very warm summers and moderately cold winters. The climate exhibits substantial regional variation due to the state's diverse geographic elements, which include the Appalachian Mountains and Blue Ridge Mountains in the west and the Atlantic coastal region in the east. Temperature and precipitation patterns are highly influenced by these geographic features with the west and north being cooler and drier than the eastern coastal region. Statewide average temperatures range from 35° F in January to 75° F in July. The amount of rainfall generally decreases toward the west. For example, total annual precipitation is less than 40 inches in parts of the central mountain region of the state compared to around 50 inches along the tidewater coastal region.

³ Runkle, J., K. Kunkel, L. Stevens, S. Champion, B. Stewart, R. Frankson, and W. Sweet, 2017: Virginia State Summary. *NOAA Technical Report NESDIS*

Figure 1: Observed and Projected Temperature Change



Observed and projected changes (compared to the 1901-1960 average) in near-surface air temperature for Virginia. Observed data are for 1900-2014. Projected changes for 2006-2100 are from global climate models for two possible futures: one in which greenhouse gas emissions continue to increase (higher emissions) and another in which greenhouse gas emissions increase at a slower rate (lower emissions). Temperatures in Virginia (orange line) have risen about 1.5°F since the beginning of the 20th century. Shading indicates the range of annual temperatures from the set of models. Observed temperatures are generally within the envelope of model simulations of the historical period (gray shading). Historically unprecedented warming is projected during the 21st century. Less warming is expected under a lower emissions future (the coldest years being about as warm as the hottest year in the historical record; green shading) and more warming under a higher emissions future (the hottest years being about 1°F warmer than the hottest year in the historical record; red shading). Source: CICS-NC and NOAA NCEI.

Since the beginning of the 20th century, temperatures have risen approximately 1.5° F. The 1930s and 1950s were very warm, followed by a period of generally below average temperatures during the 1960s through early 1980s (Figure 1). Although the 5-year average highest number of very hot days (maximum temperature above 95° F) and corresponding number of very warm nights (minimum temperature above 75° F) occurred in the early 1930s (Figures 2a and 2b), gradual warming has occurred since the early 1990s.

Figure 2: Observed Number of Very Hot Days and Very Warm Nights



There is no overall trend in average annual precipitation in Virginia (Figure 2c), although over the past two decades (1995–2014), annual precipitation has been generally above the long-term average. The driest multi-year periods were in the early 1930s and late 1960s; the wettest period was in the 1970s. The driest 5-year period was 1963–1967 and the wettest was 1971–1975 (Figure 2c). The year 2003 was the wettest on record (statewide average of 62 inches) while 1930 was the driest (25 inches). There is an upward trend in the annual number

of extreme precipitation events (precipitation greater than 2 inches) over the past two decades (1995–2014), with the number of such events in 1995–1999 surpassing record levels of the early 1940s. Average annual summer precipitation (Figure 2d) has been below or near the long-term average during the most recent decade (2005–2014).

Figure 3: Observed Number of Very Cold Nights

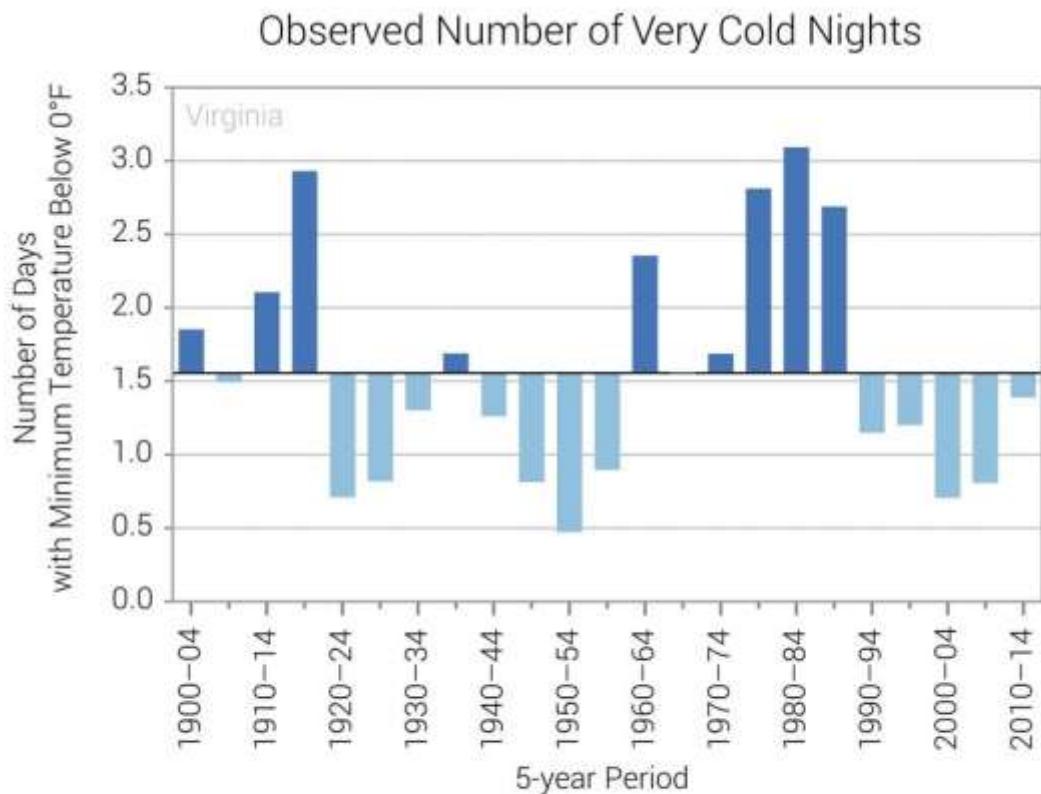


Figure 3: The observed number of very cold nights (minimum temperature below 0°F) for 1900–2014, averaged over 5-year periods. These values are averages from nine long-term reporting stations. The number of very cold nights dropped below the long-term average between the 1920s and 1960s, followed by an above average number of such events until the early 1990s. The number of very cold nights has remained below average for the past two decades (1990–2014). The dark horizontal line is the long-term average (1900–2014) of 1.6 days per year. Source: OCS-NC and NOAA NCEI.

Average annual temperatures during the 21st century (2000–2014) have exceeded the previous highs of the 1930s. A winter warming trend is reflected in the below average number of very cold nights (minimum temperature below 0° F) since 1990 (Figure 3). Average summer temperatures in the most recent decade (2005–2014) exceeded those in the early 1930s (Figure 4).

Figure 4: Observed Summer Temperature

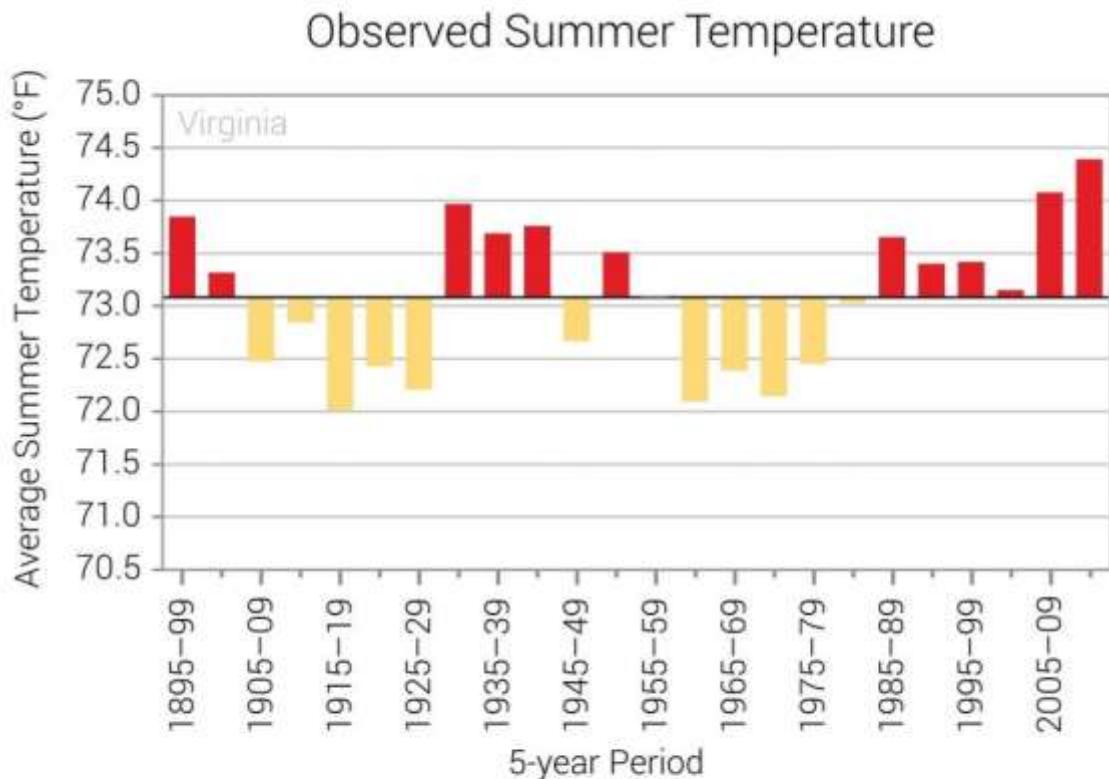


Figure 4: The observed annual summer temperature for 1900–2014, averaged over 5-year periods; these values are averages from NCEI's version 2 climate division dataset. Average annual summer temperature has been the warmest on record over the last decade (2005–2014). The dark horizontal line is the long-term average (1900–2014) of 73.1°F. Source: CICS-NC and NOAA NCEI.

Weather hazards in the state include severe thunderstorms, tornadoes, winter storms, tropical storms, hurricanes, droughts, and heat waves. Virginia was affected by 35 of the 144 U.S. billion-dollar disaster events that occurred between 1980 and 2012. The costliest event to ever affect the state was Superstorm Sandy (a post-tropical storm) in 2012, which caused severe coastal flooding from storm surges. The 2012 North American Derecho, an intense, long-lasting series of thunderstorms characterized by hurricane-force winds, was also very costly to the state, causing \$3 billion in total damages. This historic summer derecho event interrupted power for more than 1 million residents in Virginia, Washington D.C., and Maryland. Winds of up to 70 mph were recorded at Reagan National Airport, causing portions of Northern Virginia to be without emergency 911 services. Tropical Storm Lee in 2011 also resulted in total damages of \$3 billion, with Washington Dulles International Airport receiving a total of 8.74 inches of rainfall from the storm.

Under a higher emissions pathway, historically unprecedented warming is projected by the end of the 21st century (Figure 1). Even under a pathway of lower greenhouse gas emissions,

average annual temperatures are projected to most likely exceed historical record levels by the middle of the 21st century. However, there is a large range of temperature increases under both pathways, and under the lower pathway, a few projections are only slightly warmer than historical records. If the warming trend continues, future heat waves are likely to be more intense. This will pose human health risks, particularly in the large metropolitan areas. While heat waves are projected to become more intense, cold waves are projected to become less intense.

Figure 5: Projected Change in Annual Precipitation

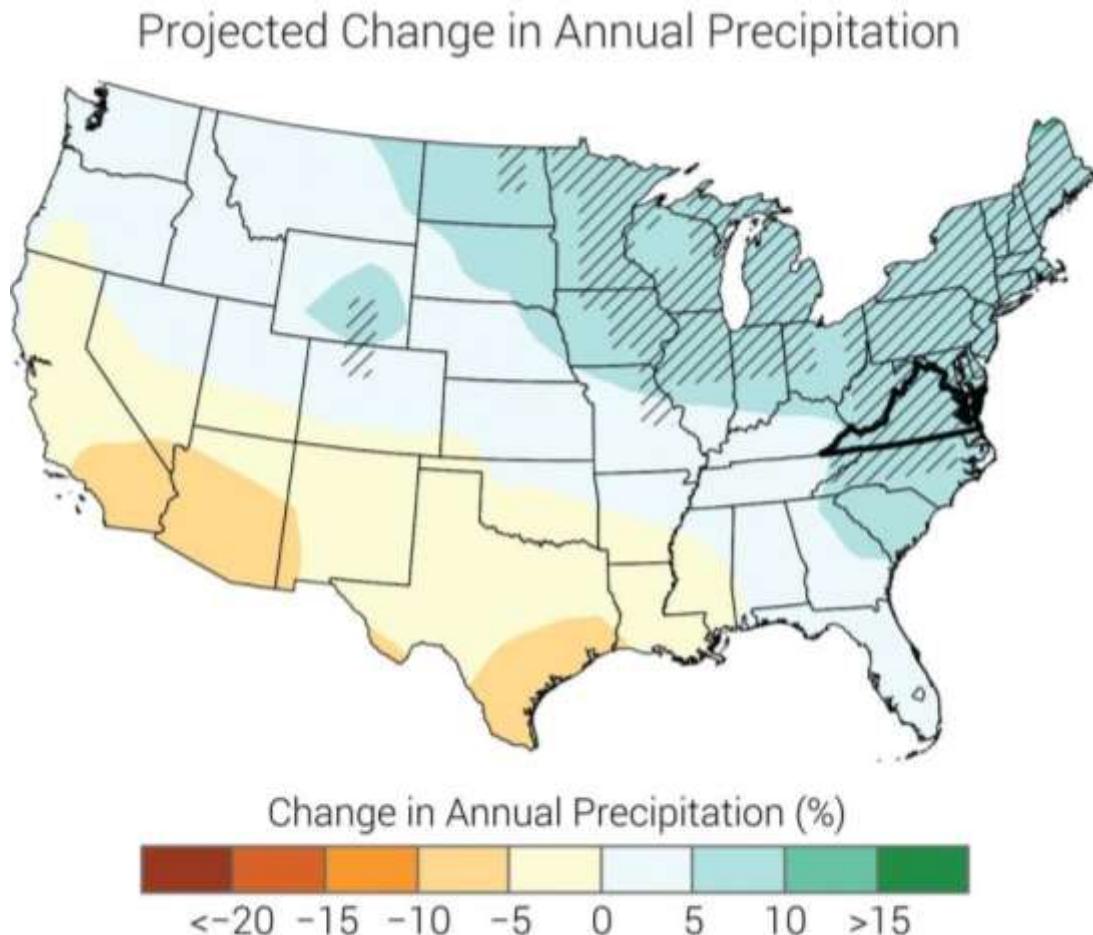


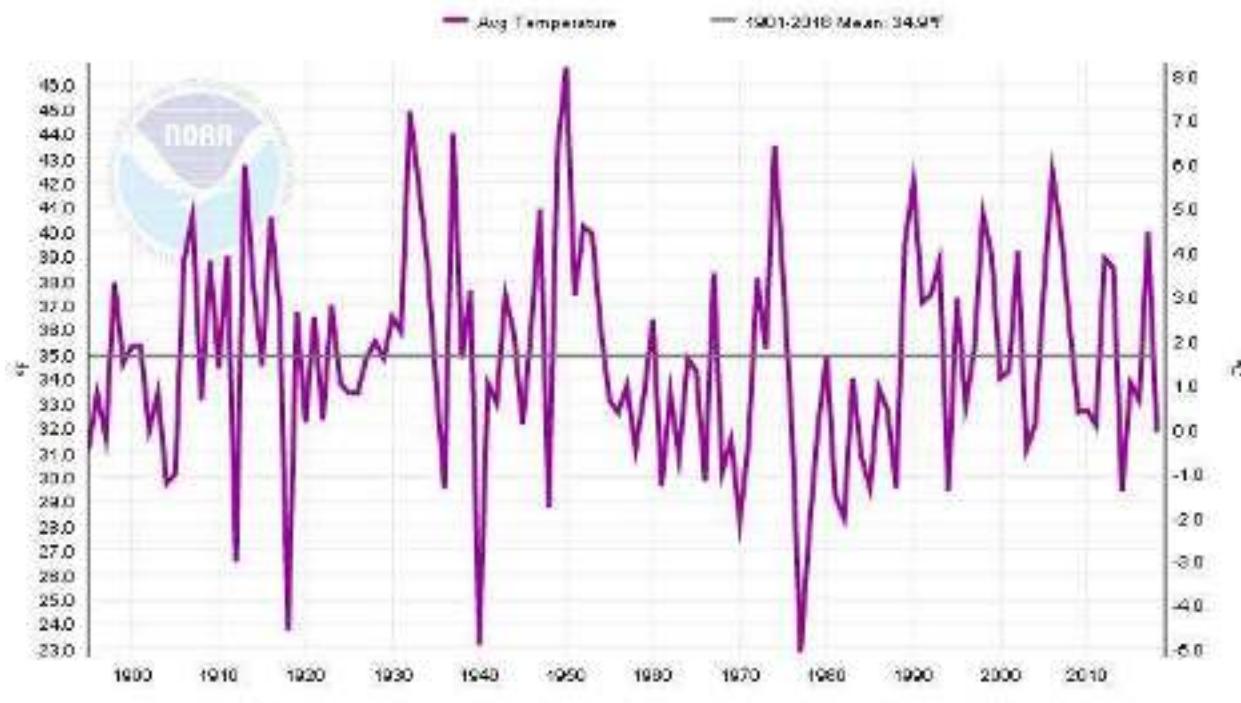
Figure 6: Projected change in annual precipitation (%) for the middle of the 21st century compared to the late 20th century under a higher emissions pathway. Hatching represents areas where the majority of climate models indicate a statistically significant change. Virginia is part of a large area of projected increases that includes all of the northeastern United States. Source: CICS-NC, NOAA NCEI, and NEMAC.

Annual precipitation is projected to increase in Virginia (Figure 5). The state is part of a large area of projected increases in precipitation across the northern and central United States by the middle of the 21st century. The number and intensity of heavy precipitation events is also projected to increase, continuing recent trends. Drought is a periodically- occurring natural

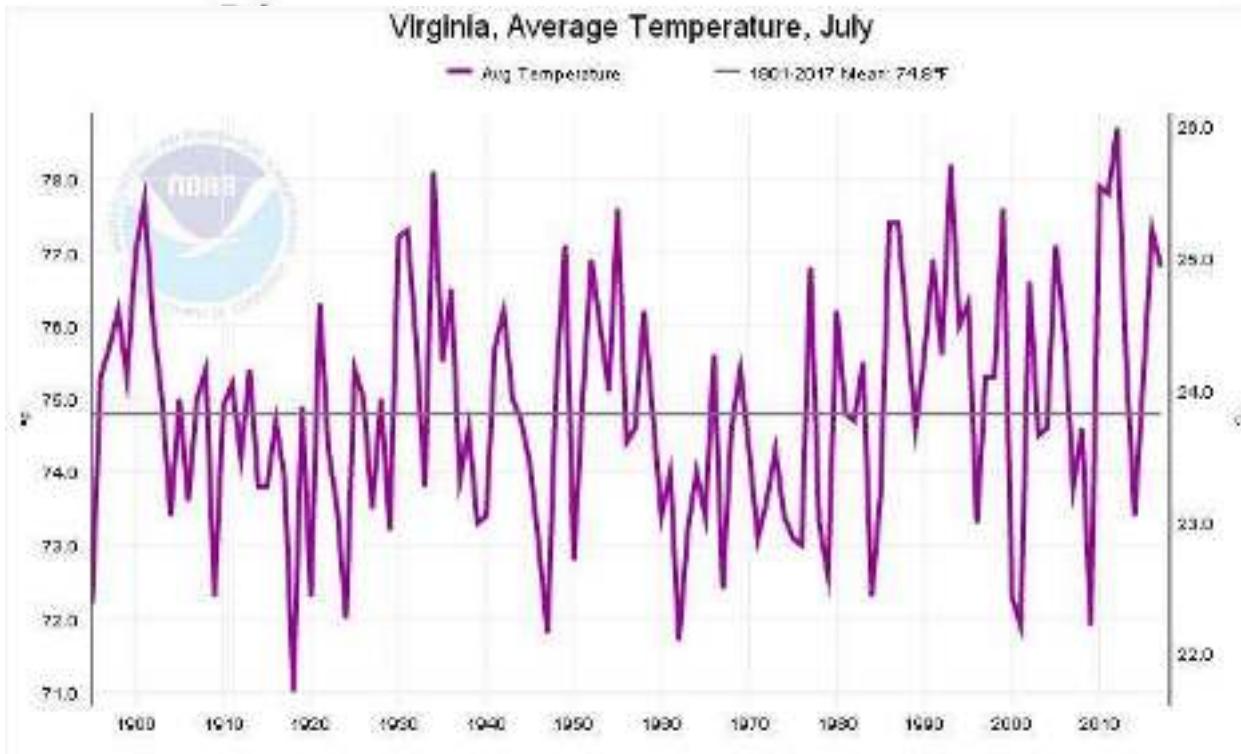
phenomenon within the state. Even if overall precipitation increases, naturally occurring droughts are projected to be more intense because higher temperatures will increase the rate of loss of soil moisture during dry spells. During such periods, decreased water availability will likely have important implications for the state's agricultural economy.

Increasing temperatures raise concerns for sea level rise in coastal areas. Since 1880, global sea level has risen by about 8 inches. It has risen even more along the Virginia coast with a rise of 14.5 inches between 1930 and 2010 at Sewell Point, Global sea level is projected to rise another 1 to 4 feet by 2100 as a result of both past and future emissions due to human activities with greater rises possible along the Virginia coast following historical trends. Sea level rise has caused an increase in tidal floods associated with nuisance-level impacts. Nuisance floods are events in which water levels exceed the local threshold (set by NOAA's National Weather Service) for minor impacts. These events can damage infrastructure, cause road closures, and overwhelm storm drains. As sea level has risen along the Virginia coastline, the number of tidal flood days (all days exceeding the nuisance level threshold) has also increased, with the greatest number occurring in 2007.

Virginia, Average Temperature, January



Virginia, Average Temperature, July





Other Hazards

Animal-related Damage

Appalachian Power have had a problem in the past 5 years with bears scratching power poles rendering them structurally weakened to the point they need to be replaced. Bears have also been known to climb the poles and electrocute themselves to death causing a localized power outage. This problem has been reported in Washington and Grayson counties in the Mount Rogers District.

Hazard Identification and Risk Assessment: Conclusions

Hazard Risk Matrix

The risk assessment analysis has been used to create the Hazard Risk Matrix shown below to provide a guideline on the relative importance of natural hazards across the entire Mount Rogers region. The rankings for individual localities will differ from the regional matrix due to differences in terrain, impacts from flooding, potential for wildfire, and so on. This plan rates natural disasters as an average over time. It was the view of the steering committee that our risk to various natural hazards in the Mount Rogers Region had changed little since the plan update five years ago. The risk ratings went down slightly for dams and earthquakes. Our rankings do not necessarily reflect the rankings shown the Hazard Rankings Maps in the Appendix, however, we feel confident that these rankings are consistent with the priorities of our region.

Hazard Risk Matrix

Hazard	Frequency	Geographic Extent	Impact	Hazard Risk Index Rating
Dam Safety	2	1	3	6
Drought	2	4	1	7
Earthquakes	1	2	1	4
Flooding	4	2	3	9

Hazard	Frequency	Geographic Extent	Impact	Hazard Risk Index Rating
Karst and Sinkholes	2	1	1	4
Landslides	1	1	2	4
Snow/Ice	4	4	1	9
Thunderstorms/Lightning	4	1	1	6
Tornadoes/Hurricanes	4	1	1	6
Wildfires	4	1	2	7
Winds	4	2	1	7

Note: Highest numbers mean highest risk or impact.

The frequency column is based on likelihood of occurrence: 4=More than once in 10 years 3=More than once in 10-100 years 2=More than once in 100-1,000 years 1=Less than once in 1,000 years	The geographic extent column relates to the extent any given hazard affects the jurisdiction: 4=More than 50% of jurisdiction affected 3=Estimated 25-50% of jurisdiction affected 2=Estimated 10-25% of jurisdiction affected 1=Less than 10% of jurisdiction affected
The impact column relates to the amount of death, injury, destruction and inconvenience created for the affected area, as shown below: 4=Many deaths and injuries possible. More than 50% of property in affected area damaged or destroyed. Complete shutdown of critical facilities for 30 days or more. 3=Multiple injuries possible. More than 25% of property in affected area damaged or destroyed. Complete shutdown of critical facilities more than one week. 2=Minor injuries only. More than 10% of property in affected area damaged or destroyed. Complete shutdown of critical facilities more than one day. 1=Very few injuries, if any. Only minor property damage and minimal disruption of quality of life. Temporary shutdown of critical facilities.	

Natural hazards on a regional basis can then be ranked as shown in the table below. As already noted, there will be some variances for some localities.

Hazard Risk Categories

High Risk Hazards (score 8 or higher) ➡	Flooding Severe Winter Storms/Ice
Moderate Risk Hazards (score of 7) ➡	Drought Wildfires Winds
Low Risk Hazards (score of 6 or less) ➡	Dam Safety Earthquakes Karst and Sinkholes Landslides Thunderstorms/Lightning Tornadoes/Hurricanes

Hazard Risk Assessment By Jurisdiction

The main natural hazards faced by the 20 local jurisdictions in the Mount Rogers region are displayed in the matrix shown below. This data has been drawn from the descriptions given in the preceding pages of this section. The table below was reviewed and updated by the steering committee in the Hazard Mitigation Plan Update.

Identified Natural Hazards, By Locality
Mount Rogers Region, Virginia (6 counties, 2 cities, and 12 towns)

Hazard Type	Hazards Identified	Individual Localities																		
		Bland County	Carroll County	Grayson County	Smyth County	Wash. County	Wythe County	City Bristol	City Galax	Abingdon	Chilhowie	Damascus	Fries	Glade Spring	Hillsville	Independence	Marion	Rural Retreat	Saltville	Troutdale
Avalanche																				
Coastal Erosion																				
Coastal Storm																				
Dam Safety	X	X	X	X	X	X	X	na	na	na	na	na	na	na	na	na	na	na	na	na
Drought	X	M	M	M	M	M	M	L	L	L	L	L	L	L	L	L	L	L	L	L
Earthquake	X	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Expansive Soils																				
Extreme Heat																				
Flood	X	H	L	H	H	H	H	H	H	H	H	H	H	H	L	L	H	L	H	M
Hailstorm																				
Hazardous Material Spills	X	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Hurricane (see Tornadoes)																				
Karst and Sinkholes	X	X	na	na	X	X	X	na	na	na	na	na	na	na	na	na	na	na	na	na
Landslide	X	L	H	H	H	H	H	L	na	na	na	na	na	na	na	na	na	na	na	na
Severe Winter Storm/Ice	X	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H
Tornadoes/Hurricanes	X	L	L	L	M	M	L	L	M	M	L	L	M	L	L	L	L	L	L	L
Tsunami																				
Volcano																				
Wildfire	X	M	H	M	H	H	H	na	M	na	na	na	na	na	na	na	na	na	na	na
Windstorm	X	M	H	M	M	M	M	M	H	M	M	M	M	M	H	M	M	M	M	M
Thunderstorms/Lightning	X	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L

Notes:

The term "na" means the hazard data is not available.

The H, M, and L symbols refer to the relative likelihood and/or relative severity of given hazards, comparing one locality to another. H = highest likelihood, M = moderate likelihood, and L = low likelihood. X indicates the hazard was identified, but further hazard assessment data was lacking.

MITIGATION STRATEGY

Defining Hazard Mitigation

FEMA defines hazard mitigation as "sustained actions taken to reduce or eliminate long-term risk from hazards and their effects."

These sustained actions can come in the form of physical projects (enlargement of drainage culverts, streambank stabilization and restoration, vegetation removal, installation of advance warning systems, etc.) or educational programs designed to help local officials and property owners understand and reduce hazard risk (media campaigns, special mailings, special events, self-help guides, etc.).

For some hazards, these actions could involve simply getting out of the way – such as not building in the floodplain or removing structures from the floodplain, when feasible. For other hazards, such as major weather events that cover large areas of landscape, the mitigations could involve more indirect methods, such as improved building codes to strengthen structures and reduce damages from violent windstorms or major blizzards. Some hazards – such as an F4 or F5 tornado – carry such force that a direct hit means destruction is assured, although properly built "safe rooms" can reduce loss of life.

In the previous section of this study, we have identified and ranked the main natural hazards that can afflict communities in the Mount Rogers region of southwest Virginia. We are now moving on in this next section to describe the following:

- Planning process used to develop the hazard mitigation strategy.
- Goals and objectives for the overall hazard mitigation strategy for the region.
- Recommended hazard mitigations on a locality-by-locality basis.

Process Used to Develop Mitigation Strategy

MRPDC staff, the Hazard Mitigation Advisory Team, and representatives from the local jurisdictions worked together to develop the Hazard Mitigation Strategy for the Mount Rogers region.

Following the guidance found in the FEMA Local Multi-Hazard Mitigation Planning Guidance, MRPDC staff identified the at-risk hazards that affect the region and its 20 local jurisdictions.

This was done based on available data. With the basic data assembled, the MRPDC organized a Hazard Mitigation Steering Committee to review and make comments on the hazard vulnerability assessments. Some of the recommended mitigations emerged from those discussions, such as a suggestion by a representative from Appalachian Power to work to improve coordination among emergency response organizations to improve snow-removal and accelerate restoration of electric power following major snow and ice storms. In addition, the MRPDC mailed out draft copies of the hazard vulnerability assessments to the 20 local jurisdictions and invited comments from local planners, emergency services personnel, and the public.

MRPDC staff moved on to develop the specifics for both the Hazard Mitigation Strategy and proposed mitigations. In some cases, we have followed the advice of experts, such as the applications of Firewise methods to reduce wildfire risks. In other cases, we have proposed mitigation strategies based on limitations of the available data and on long-understood shortcomings, such as the lack of accurate floodplain mapping (as determined by hydrological engineering studies) and the lack of floodplain mapping in some areas known to be flood-prone but passed over by previous mapping efforts.

For flood hazards, which affect much of the population of the Mount Rogers region, MRPDC staff applied the principles of FRED (i.e., Fix and Repair, Elevate, Relocate or Demolish). Staff developed generalized cost estimates based on the experience of the staff and others in the region that had past experience in such matters.

All participants in the process have always recognized that any major undertakings will only be possible with outside funding support (i.e., state and federal grants), since most localities in the Mount Rogers region are sparsely populated, sparsely staffed, and lack the financial means to provide little other than basic government programs and services.

Regional Hazard Mitigation Strategy

The following outline consists of goals and objections for the natural hazard mitigation strategy to be applied in the Mount Rogers region of Virginia. These goals were reviewed by the members of the steering committee as well as other stakeholders during the update process. They were reviewed in our meetings throughout the summer months of 2011, as well as reviewed by participants on an individual basis.

Goal: Addition of a Nexedge System or the RIOS-Comlinc system (radio communications system) for each locality in the Mount Rogers District

Objective: Make communications better across different localities.

Strategy:

- Link counties together for a better coverage of communications and reduce response time in times of natural disasters.

Cost Benefit: Better communications will help reduce the loss of live and property

Responsible Office: Police; Fire; and Rescue.

Goal: Protect Lives and Property from Flooding

Objective: Increase Public Awareness

Strategy:

- Promote and make the public aware of the need for mitigation
- Promote planning as well as membership in the National Flood Insurance Program

Objective: Improve data resources to improve the regional Hazard Mitigation opportunities.

Strategy:

- Further develop local capacity to document the number, size, age and value of the approximately 1,400 (PDCtotal) structures located in the floodplain.
- Update FEMA flood plain maps throughout the Mount Rogers region. (FEMA/DCR responsible for updating floodplain maps).
- Develop new FEMA floodplain maps for areas not previously mapped.

Objective: Provide opportunities for property owners of flood prone and/ or repetitive loss properties to acquire and relocate from the flood plain, elevate structures, acquire and demolish, flood proof their property, or apply for funds to construct minor localized flood control projects.

Strategy:

- Pursue funding for such projects from federal and state agencies such as FEMA, VDEM, as well community development block grants.

Cost Benefit: The benefits of flood protection are ongoing. Money should be invested wisely to protect existing structures, as well as to prevent future losses to new structures. This will be a savings to the localities, as well as to the property owners in the form of repair and insurance cost. \$100,000 spent today, could save millions of dollars in damage over long periods of time, as well as save lives.

Responsible Office: MRPDC; local Board of Supervisors; Local Emergency Management

Goal: Encourage Public Safety in the Event of Snowstorms, Ice and High Winds, Earthquakes, Landslides, Tornadoes, Hurricanes, and/or Drought

Objective: Increase public awareness of actions before, during, and after such events.

Strategy:

- Educate public on the methods recommended by the American Red Cross to prepare for these events.
- Inform motorist of high wind potential along selected highways.

Cost Benefit: Public awareness is crucial to prevent losses due to natural hazards. Not only prevention, but a large savings of time and money could be seen during and after such adverse weather. \$100,000- \$500,000 spent on increased road advisories will save money on working traffic accidents, as well as work hours lost in Traffic.

Responsible Office: VDOT; Local Board of Supervisors; Red Cross; VDEM

Goal: Increase Dam Safety for the Mount Rogers Region

Strategy:

- Improve the availability of data resources for dam safety to save lives and property coordinated through agencies such as FEMA and the Department of Conservation and Recreation.

Cost Benefit: Knowledge and being aware of potential hazards plays a key role in their prevention. Due to many recent events, information on dams in the region is hard to come by. Property owners in a high-risk area could benefit from greater knowledge of possible dangers. For a minimal cost, this could save property as well as lives.

Responsible Office: Department of Conservation and Recreation; Corps of Engineers

Goal: Minimize the Impact of Wildfires on Woodland Communities.

Objective: Increase public awareness.

Strategy:

- Educate homeowners on Firewise and Department of Forestry programs on methods to cope with drought.
- Support and encourage the existing education efforts of the American Red Cross in ways homeowners can reduce the risk of wildfires by property maintenance and cleanup.
- Projects creating perimeters around homes, structures, and critical facilities through the removal or reduction of flammable vegetation.
- Projects that apply ignition resistant techniques and/or non-combustible materials on new and existing homes, structures, and critical facilities.
- Projects that remove vegetative fuels proximate to the at-risk structure that, if ignited, pose significant threat to human life and property, especially critical facilities.

Cost Benefit: Education is invaluable to prevent Wildfires. For a minimal cost, educational programs for homeowners in woodland communities will help minimize fire damage to property, and natural resources.

Responsible Office: USDA; VA Dept. of Forestry; American Red Cross; FireWise; Local Fire and Rescue

Goal: Encourage Citizens to Prepare for Possible Damage from Sinkholes and Karst

Objective: Increase public awareness

Strategy:

- Make sure local building codes and zoning ordinances address placement of structures in such areas.
- Educate the public on karst safety through educational efforts such as agencies like the Virginia Cave Board.
- Map areas that are in danger of karst and sinkholes with the state division of mineral resources, and the Virginia Cave Board.

Cost Benefit: Having and making available good data where land is susceptible to karst and sinkholes can pay dividends in the future. Accurate mapping of such areas made available to local officials can greatly reduce the risk of structures and roads being damaged by these hazards.

Responsible Office: Local Building inspector; VDOT, Department of Conservation and Recreation

Goal: Minimize Damage due to Thunderstorms as well as Tornadoes/ Hurricanes

Strategy:

- Support and encourage existing efforts by the American Red Cross to educate homeowners on retrofitting and mitigation.
- Educate citizens on tornado and severe storm safety.

Cost Benefit: Public awareness is crucial to prevent losses due to natural hazards. Not only prevention, but a large savings of time and money could be seen during and after such adverse weather.

Responsible Office: Local emergency management departments

Goal: Reduce the risk of hazards on new buildings and infrastructure

Objective: Encourage continued practice of proper building site construction.

Strategy:

- Incorporate the hazard mitigation plan into comprehensive planning.
- Use the hazard mitigation plan in the permit process for new construction in floodplain or high hazard areas.

Cost Benefit: Proper planning in new construction will result in a large savings after natural disasters.

Responsible Office: Local building inspectors.

Regional Strategic Priorities

This section outlines the top regional priorities for Pre- Disaster Hazard Mitigation in the Mount Rogers region. These have been determined through discussions among MRPDCstaff and the members of the Hazard Mitigation Steering Committee. The priorities presented in this section correspond to the objectives listed under the six goal statements given for the regional strategic plan described above. MRPDCstaff initially developed the goals- and- objectives outline, and then presented it to the Hazard Mitigation Advisory Team for comment.

The Steering Committee ranked individual objectives as follows, high priority, mid- level priority, and lowest priorities. More than one objective could be assigned to any given priority level. Each marker carried a value of one point, with the highest point scores indicating the objectives of highest importance. The Steering Committee reviewed the table below from the original 2005 Hazard Mitigation Plan and determined that it was still applicable.

Prioritized Listing of Hazard Mitigation Objectives

Objective	Points
Further develop local capacity to document the number, size, age and value of the approximately 1,400 (PDCtotal) structures located in the floodplain.	12
Promote need for pre-disaster mitigation to prevent future losses.	12
Update FEMA floodplain maps as applicable throughout the Mount Rogers Region.	12
Promote prevention methods homeowners can undertake.	12
Implement in-the- ground projects to reduce natural hazard risks.	9
Provide copies of the Pre- Disaster Hazard Mitigation Plan to the 20 local jurisdictions in the Mount Rogers region.	8
Support projects offering the best benefit/cost ratio.	6
Publicize successful mitigation projects.	5
Support guidelines for flood mitigation:	5
A property is a candidate for relocation if the first- floor floods twice (or more) in 50 years.	5
A property is a candidate for elevation or flood- proofing if flooding occurs below the first floor twice (or more) in 50 years.	5
Meet requirements of the Uniform Relocation Act.	5
The top priorities for federal relocation assistance should be based on need, frequency of flooding, and a favorable benefit/cost ratio.	5
Create project serving multiple objectives (social, community, economic, mitigation).	4
Support educational efforts of existing organizations, such as the American Red Cross.	4
Develop new FEMA floodplain maps for flood- prone areas not previously mapped.	3
Promote useful programs, such as the National Flood Insurance Program.	1

Support state/federal efforts to improve data resources for dam safety, drought, karst and sinkholes, landslides, thunderstorms, and windstorms.	1
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Capabilities Assessment

Most localities in the Mount Rogers region are for the most part limited by financial issues and staff size. The capabilities of the localities are largely defined through staff and organizational capacity, technical capacity, and fiscal capacity. Most of our localities, especially the towns, require assistance due to the size of budgets, and number of personal. Many of the strategies from the 2012 plan have not been completed due to the lack of existing resources.

Existing Locality Staffing, as of 2018	
Locality	Number of Staff
Bland	1
Carroll County	1
Grayson County	1
Smyth County	2
Washington County	2
Wythe County	1
City of Galax	1
City of Bristol	1
Hillsville	1
Independence	0
Fries	0
Troutdale	0
Marion	1
Chilhowie	1
Saltville	0
Abingdon	6
Damascus	0
Glade Spring	0
Wytheville	1
Rural Retreat	1

All localities in the Mount Rogers Planning District have little to no staff dedicated to work on natural hazards and mitigation planning. For the counties, cities and larger towns, other departments are available to assist on special projects and in times of emergency. For the six smallest towns, there is no staff dedicated to all hazards planning; in fact, for five of the six smallest towns, MRPDC staff provides town management, due to small populations and lack of funding for full-time staff. The Mount Rogers PDC is the agency that fills this role in almost

100% capacity. The PDC also assists all 20 localities in hazard mitigation planning. Contact information for these departments is listed in the multi-jurisdiction summary sheet in the appendix.

Community Summaries & Recommended Mitigations

The following section provides descriptions, by jurisdiction, of high- and moderate-risk natural hazards, past or ongoing mitigations (if any), and recommended mitigations resulting from this study. For the hazards of floods, wildfire, dam safety, snowstorms/ice, high winds, landslides, sinkholes/karst, drought, hurricanes/tornados, and earthquake mitigation strategies for each locality are included in the recommended mitigations section. The hazard of thunderstorm/lightening did not warrant a local mitigation action due to its low risk. The section is organized in alphabetical order by county and the towns contained within that county, followed by the cities. This includes:

- Bland County
- Carroll County and the Town of Hillsville
- Grayson County and the towns of Fries, Independence, and Troutdale
- Smyth County and the towns of Chilhowie, Marion, and Saltville
- Washington County and the towns of Abingdon, Damascus, and Glade Spring
- Wythe County and the towns of Rural Retreat and Wytheville
- The City of Bristol
- The City of Galax

Regionwide Weather Events in the Past Five Years, As Reported by Localities

Below is a listing of major weather events within the region, for a more detailed list of all weather events see the community hazard profile for each locality. Within the community hazards profiles, there may or may not be more weather events officially recorded, some were omitted due to redundancy in geographic distance or the weather event being too insignificant to list.

7-27-12 Regionwide

The Mount Rogers Region was affected by a Derecho that knocked down road signs, disrupted power, and brought down several trees and limbs. As a result, several power outages were reported.

1-17-13 Bland County

Bland County was hit by a winter storm that brought heavy snow fall ranging from 12 inches in Rocky Gap to 6.0 inches in Ceres. This winter storm brought the interstate to a standstill with accidents and heavy snow fall. A local emergency was declared and a shelter was opened at the Bland County Rescue Squad. The shelter received approximately 40 individuals.

3-31-13 Carroll County

"Excessive fog" in the Fancy Gap Mountain area, near the North Carolina border, caused at least 75 vehicles to crash in the southbound lanes of the I- 77. Three people were killed and at least 25 were taken to the hospital after the pile- up.

5-19-13 Saltville, Smyth County

A torrential downpour caused a flood through the streets of Saltville. Drains and ditches overflowed sending rushing water into several businesses and rocks the size of baseballs hurtling down Palmer Avenue. Saltville fire, police, and rescue responded in minutes to the danger. Town employees and VDOT helped clear the town roads. The National Weather Service said that over five inches of rain fell in about an hour.

7-12-13 Galax

July of 2013 saw 600% of the average expected rainfall for the month. On the 12th the streets of downtown Galax were flooded causing damage to cars and businesses. The flooding was due to storm drains not being able to handle the amount of water from the massive downpour.

4-17-14 Carroll County

Estimated Wind gust of 100 miles per hour caused 2 tractor trailers to overturn on I- 77 north. Both tractor trailers overturned between the 2.7 and 2.8- mile marker. As the trailers were being overturned the wind blew one 30 feet and fell against the side of a state trooper car and a VDOT truck.

3-5-15 Chilhowie, Smyth County

Heavy rain and melting snow caused the Holston River to overflow its banks. Rt. 604 (Dry Fork Rd) was closed in Chilhowie. A small mud slide on B.F. Buchanan Hwy caused an interruption in one lane of traffic which was cleared by VDOT.

4-19-15 Bland County

Wolf Creek flooded into the road at Shady Branch Circle. The rain left several roads flooded with debris due to clogged culverts. Also, Several Houses had flooded basements. This caused the county roads of West Bluegrass Trail, Suiter Road, Waddletown Road, and White Pine Drive to be closed and schools were also closed for one day.

4-19-15 Wythe County

Between 2.5 and 3.5 inches of Rain fell in one day. The Schools as well as 20 roads were closed in the county due to washouts, flooding, and downed Trees. The hardest hit areas were Max Meadows, the Stony Fork area off of Highway 52, and Ivanhoe along the New River. The trash convenience center in Max Meadows was flooded. A man had to be rescued from a truck in Ivanhoe. According to the U.S. Geological Survey, Reed Creek at Graham's Forge crested at 9.14 feet. That's the highest reading since a level of 10 feet on April 5, 1977.

4-26-17 Marion, Smyth County

The Bridge to the Holston Hills Community Golf Course was critically damaged by flood waters.

4-26-17 Smyth County

A 14-inch sewer line was damaged in Seven Mile Ford. Houses were flooded in the McCreedy and North Holston communities outside of Saltville.

4-26-17 Chilhowie, Smyth County

Berry Metals along the Holston River received flood damage. A Section of 107 was closed near McDonalds due to high water. Springs serving the town were out of commission for about a week and water had to be purchased from Washington County.

5-22-17 Hillsboro, Carroll County

Members of the Carroll County Fire/ EMS are reporting several roads are flooded to excessive rain that fell over the county Thursday evening.

Flooding was also reported along Pilgrims Trail, depositing debris along 221. Several mudslides have been reported along Buck Horn Road. Additional reports of flooding in the vicinity of Hillsboro and Dugspur.

Water is flowing onto many roadways along creeks and poor drainage areas. A flash flood warning was issued for Carroll County until 8:30 p.m.

10-23-17 Fries, Grayson County

An F-1 Tornado Touched down at 5:47 in the evening of October 23. The tornado traveled about a third of a mile and caused damage about 150 yards wide. The storm caused trees to be uprooted and barns to be damaged. There was also localized flooding in the area.

Recommended Mitigations

Rank	Activity	Hazard Addressed	Responsible Party	Timeline/ Status	Comments
High	Addition of a NEXEDGE System or the RIOS-Comlinc system for each locality in the Mount Rogers District.	All hazards	All Localities, MRPDC, VITA	3-5 Years/ Not Started	Funding needed from VDEM/FEMA
High	Further develop local capacity to document the number, size, age and value of the approximately 1,400 (PDC total) structures located in the floodplain.	Floods	All localities, MRPDC, VDEM, DCR	1-3 Years/ Not Started	Funding needed from VDEM/FEMA
Low	Provide public outreach and start an educational campaign to inform citizens of actions to take before, during, and after an earthquake strikes.	Earthquake	All Localities, MRPDC	3-5 Years/ Not Started	Funding needed from VDEM/FEMA
Low	Make sure local building codes and zoning ordinances address placement of structures in areas susceptible to karst and sinkholes, and map areas that are in danger of such hazards.	Karst/Sink holes	All Localities, MRPDC	3-5 Years/ Not Started	Funding needed from VDEM/FEMA
Low	Make sure local building codes and zoning ordinances address placement of structures in areas susceptible to landslides, and map areas that are in danger of such hazards.	Landslides	All Localities, MRPDC	3-5 Years/ Not Started	Funding needed from VDEM/FEMA
Low	Provide public outreach and start an educational campaign to inform citizens of actions to take before, during, and after a tornado or hurricane event strikes.	Tornadoes/ Hurricanes	All Localities, MRPDC	3-5 Years/ Not Started	Funding needed from VDEM/FEMA
Low	Provide public outreach and start an educational campaign to inform citizens of actions to take during a severe drought if water supplies are depleted.	Drought	All Localities, MRPDC	3-5 Years/ Not Started	Funding needed from VDEM/FEMA

Bland County

Community Hazard Profile

Bland County is a rural, lightly populated community of nearly 6,511 (which is a decrease of 4.6% since the last plan update) with Interstate 77 bisecting the county as the highway travels in a north-south direction. There are no incorporated towns, though county administrative functions are centered in the community of Bland, located at the junction of I-77 and State Rt. 42. The Appalachian Trail crosses through parts of the county.

The main natural hazards faced in Bland County are flooding, severe snow and ice storms, wildfire, and potential dam failure. Due to its mountainous terrain, communities are subject to flash flooding caused by heavy rainfalls and snowmelt; this is especially true for Rocky Gap, a small, unincorporated community located almost entirely in the floodplain. Bland County also experiences its share of high-wind conditions, though these have not been known to create natural disasters.

In January 1957, the community of Bland sustained substantial damage from a failure in the Crab Orchard Creek Dam, which had been under development as a privately-owned recreation attraction. The dam break occurred following three days and nights of continuous rain, and the resulting flood caused \$500,000 worth of damage to the small community. There is now some thought that, with construction of I-77 (which passes between the dam and the community), a similar event would not happen again, since I-77 and its drainage systems would redirect the flood flows.⁴

Past or Ongoing Mitigations

Bland County centralizes its emergency response system through its E-911 and emergency services coordinator (one individual). Emergency responders include a system of local volunteer fire departments and rescue squads, as well as the sheriff's department and state police. The county's building codes are in line with the most recent statewide revisions known as the Uniform Statewide Building Code, which took effect in 2009.

Bland County has not engaged in pre-disaster mitigation efforts in the past.

For flood hazards, Bland County contains six repetitive loss properties, including four in the community of Rocky Gap.

⁴ This information was given to us by an engineer at a hazard mitigation meeting in the early 2000s.

Severe Weather Events

Begin Location	Begin Date	Event Type	Deaths Direct	Injuries Direct	Damage Property Number	Damage Crops Number	Source
	4/4/13	Winter Weather	0	0	\$-	0	County Official
Stowersville	5/19/13	Flood	0	0	\$-	0	State Official
Point Pleasant	5/22/13	Hail	0	0	\$-	0	Public
Ceres	8/12/13	Flash Flood	0	0	\$5,000	0	Trained Spotter
	12/8/13	Ice Storm	0	0	\$-	0	Trained Spotter
	1/7/14	Cold/Wind Chill	0	0	\$-	0	AWOS
	2/12/14	Heavy Snow	0	0	\$-	0	Trained Spotter
Bland	6/10/14	Hail	0	0	\$-	0	911 Call Center
	11/1/14	Winter Weather	0	0	\$-	0	Law Enforcement
	11/26/14	Winter Weather	0	0	\$-	0	Public
	1/23/15	Winter Weather	0	0	\$-	0	Public
	2/16/15	Winter Storm	0	0	\$-	0	Trained Spotter
	2/19/15	Extreme Cold/Wind Chill	0	0	\$-	0	Mesonet
	2/21/15	Winter Storm	0	0	\$-	0	Public
	2/25/15	Winter Weather	0	0	\$-	0	Trained Spotter
Long Spur	4/19/15	Flood	0	0	\$-	0	Trained Spotter
Holly Brook	4/20/15	Flood	0	0	\$-	0	State Official
	1/22/16	Winter Storm	0	0	\$-	0	Trained Spotter
	2/14/16	Winter Storm	0	0	\$-	0	Broadcast Media
	4/3/16	Avalanche	0	0	\$1,000	0	Law Enforcement
Bastian	6/27/16	Flash Flood	0	0	\$75,000	0	Broadcast Media
Rocky Gap	4/23/17	Flood	0	0	\$-	0	Public
			0	0	\$81,000	0	

Flood Loss Statics, as of 3/31/2017

Total Losses- 56

Closed losses- 42

Open losses- 0

CWOP (Closed without Payment losses- 14

Total Payments \$726,016.36

Recommended Mitigations

Rank	Activity	Hazard Addressed	Responsible Party	Timeline/ Status	Comments
High	Further develop local capacity to document the number, size, age and value of the approximately 1,400 (PDC total) structures located in the floodplain.	Floods	Bland County, MRPDC, VDEM, DCR	1-3 Years/ Not Started	Funding needed from VDEM/ FEMA
High	Conduct hydrological/engineering studies to properly determine Base Flood Elevations in those watersheds with estimated floodplains.	Floods	Bland County, MRPDC, DCR, VDEM	3-5 Years/ Not Started	Funding needed from VDEM/ FEMA
High	Conduct detailed studies to determine the most cost-effective mitigations for communities with flooding issues, which include Bland, Bastian, and Rocky Gap.	Floods	Bland County, MRPDC, DCR, VDEM	3-5 Years/ Not Started	Funding needed from VDEM/ FEMA
High	Use the flood analysis as a basis for consideration of future relocation/demolition and flood-proofing projects.	Floods	Bland County, MRPDC, DCR, VDEM	3-5 Years/ Not Started	Funding needed from VDEM/ FEMA
High	Mitigate against future flood losses, with highest priority given to repetitive loss properties.	Floods	Bland County, MRPDC, DCR, VDEM	3-5 Years/ Not Started	Funding needed from VDEM/ FEMA
High	Comply with NFIP for floodplain identification and mapping, responsible floodplain management, and the promotion of flood insurance.	Floods	Bland County, MRPDC, DCR, VDEM	1-3 Years/ Ongoing	Done through compliance with NFIP
Medium	Promote the Firewise program for people who live in woodland	Wildfire	Bland County, MRPDC,	3-5 Years/	Funding needed from

Rank	Activity	Hazard Addressed	Responsible Party	Timeline/ Status	Comments
	communities. An estimated 265 homes fall into this category in various parts of Bland County.		RC&D, DOF	Not Started	VDEM/ FEMA
Medium	Work with the New River-Highlands RC&D Council a wildfire strategic plan for Bland County.	Wildfire	Bland County, MRPDC, RC&D, DOF	3-5 Years/ Not Started	Funding needed from VDEM/ FEMA
Low	Educate residents on methods recommended by the American Red Cross to prepare for various types of natural disaster.	Floods Snowstorms/ Ice High Winds	Bland County, MRPDC, DCR, VDEM, American Red Cross	3-5 Years/ Not Started	Funding needed from VDEM/ FEMA
Low	Continue inspection and enforcement as necessary on the Crab Orchard Creek Dam, rated Class I for hazard potential.	Dam Safety	Bland County, MRPDC, DCR	1-3 Years/ Ongoing/	Done through Federal State and local codes
Low	Verify the geographic location of all NFIP repetitive losses and make inquiries as to whether the properties have been mitigated, and if so, by what means.	Floods	Bland County, MRPDC, DCR, VDEM	1-3 Years/ Not Started	Will start next year

Carroll County and Hillsdale

Community Hazard Profile

Carroll County abuts the northern border of North Carolina and includes a section of the Blue Ridge Parkway and the New River Trail State Park. A community of 29,212 (decrease of 2.8% since 2012), the county includes the incorporated Town of Hillsdale, which serves as the county seat, and abuts the City of Galax to the west. Elevations vary from 3,570 feet above sea level at Fisher Peak to 1,110 feet above sea level at Cana. The county also is notable for the Blue Ridge Escarpment (steep slope) that separates the piedmont of North Carolina from the Blue Ridge Plateau. More than half of the land area has slopes greater than 20% which precludes most development.

Carroll County is bisected by Interstate 77 in a north-south direction and by U.S. Rt. 58 in an east-west direction. The county is known for high wind conditions at Fancy Gap, where tractor trailers sometimes get blown over or even lifted away from the highway altogether and dumped into a field some distance away. Carroll County is part of a Special Wind Region, with potential wind speeds up to 200 mph.

Other natural hazards experienced in Carroll County include severe winter storms and ice, wildfires, drought, and undefined risk potential for landslides and impacts from karst terrain. Flood hazards are limited (one repetitive loss property in or near Hillsdale). There are two federally regulated hydroelectric dams and one state-regulated dam in Carroll County.

Past or Ongoing Mitigations

A special project by the New River-Highlands RC&D Council has produced a draft strategic plan for wildfire hazard reduction in Carroll County. For emergency response, the area is served by the Twin County E-911 system, volunteer fire departments and rescue squads, a paid EMS, and the sheriff's department and state police.

VDOT has installed a warning system to help truckers get off I-77 and find alternate routes during high-wind conditions and other potentially dangerous conditions, such as fog, another ongoing problem in the Fancy Gap area. Members of the Hazard Mitigation Advisory Team have said the warning system has limited usefulness since there are few exits from the highway.

The county's building codes are in line with the most recent statewide revisions known as the Uniform Statewide Building Code, which took effect in 2009.

Severe Weather Events

Multicar Pileup Due to Dense Fog

On March 31, 2013, at least three people were killed and at least 25 were taken to the hospital after a pile-up involving dozens of cars today on a Virginia interstate.

Virginia State Police said "excessive fog" in the Fancy Gap Mountain area, near the North Carolina border, caused at least 75 vehicles to crash in the southbound lanes of the I-77.

The first emergency calls began coming in at 1:15 p.m. ET, authorities said. The northbound lanes were closed to allow emergency vehicles to quickly reach people needing assistance at the scene, according to a statement from the Virginia State Police.

While the cause of the initial crash remains under investigation, Virginia State Police spokeswoman Corinne Geller said it was a classic pile up.

"[There were] 17 separate traffic crashes, but they all occurred as a chain reaction in that one-mile stretch of Interstate 77," Geller said. "The initial crash, the very first one, we're still investigating obviously what caused that one exactly, that's still under investigation."

After the first crash, she said, other vehicles on the highway were traveling too fast to stop by the time they saw the accidents ahead of them in the thick fog.

"People were traveling too fast for the road conditions and you had the initial crash and then you had a chain reaction, a series of crashes because the fog was so thick, people could not see what was up ahead," she said.

Traffic was re-directed in both directions as authorities worked to clear the scene and investigate the crashes, the Virginia State Police said.

The highway was expected to reopen at around 9 p.m. ET.

Authorities advised travelers, many of whom may be traveling for the Easter holiday, to make alternate travel plans or to expect significant delays.

Begin Location	Begin Date	Event Type	Deaths Direct	Injuries Direct	Damage Property Number	Damage Crops Number	Source
	3/31/13	Dense Fog	3	25	\$500,000 ⁵	0	Newspaper
	4/4/13	Winter Weather	0	0	\$-	0	Trained Spotter
Eona	6/7/13	Flash Flood	0	0	\$-	0	911 Call Center
Pipers Gap	6/7/13	Flash Flood	0	0	\$-	0	911 Call Center
Cliffview	6/7/13	Flash Flood	0	0	\$-	0	911 Call Center
Gadeville	6/25/13	Hail	0	0	\$-	0	Public
Dugspur	6/25/13	Hail	0	0	\$-	0	Public
Hillsville	7/5/13	Flash Flood	0	0	\$-	0	Trained Spotter
Fries Jct	8/12/13	Flash Flood	0	0	\$-	0	County Official
	12/8/13	Ice Storm	0	0	\$-	0	COOP Observer
	1/7/14	Cold/Wind Chill	0	0	\$-	0	AWOS
	2/12/14	Heavy Snow	0	0	\$-	0	Trained Spotter
	3/6/14	Winter Storm	0	0	\$-	0	Public
Hillsville	5/15/14	Flash Flood	0	0	\$-	0	911 Call Center
Fries Jct	6/16/14	Hail	0	0	\$-	0	Trained Spotter
Hilltown	6/16/14	Hail	0	0	\$-	0	Public
	11/1/14	Winter Weather	0	0	\$-	0	CoCoRaHS
	11/26/14	Winter Weather	0	0	\$-	0	Trained Spotter
	1/23/15	Winter Weather	0	0	\$-	0	Trained Spotter
	2/16/15	Winter Storm	0	0	\$-	0	Public
	2/19/15	Extreme Cold/ Wind Chill	0	0	\$-	0	AWOS
	2/25/15	Winter Storm	0	0	\$-	0	Amateur Radio
Cana	4/19/15	Flash Flood	0	0	\$-	0	State Official
Hillsville	6/18/15	Hail	0	0	\$-	0	Trained Spotter
	1/22/16	Winter Storm	0	0	\$-	0	Trained Spotter
	2/14/16	Winter Storm	0	0	\$-	0	Trained Spotter
	4/5/16	Frost/Freeze	0	0	\$-	0	County Official
	1/6/17	Winter Storm	0	0	\$-	0	Trained Spotter
Dugspur	5/18/17	Hail	0	0	\$-	0	Public
Dugspur	5/18/17	Heavy Rain	0	0	\$-	0	Public
Dugspur	5/18/17	Flash Flood	0	0	\$5,000	0	911 Call Center
Cana	5/19/17	Hail	0	0	\$-	0	Public
Hilltown	5/24/17	Flood	0	0	\$75,000	0	Broadcast Media
Gadeville	7/18/17	Hail	0	0	\$-	0	Trained Spotter

⁵ The total amount of damage included the 75 damaged vehicles

TOTAL	3	25	\$580,000	
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Recommended Mitigations: Carroll County and Hillsdale

Rank	Activity	Hazard Addressed	Responsible Party	Timeline/ Status	Comments
High	Promote the Firewise program for people who live in woodland communities. An estimated 712 homes fall into this category in various parts of Carroll County. This represents one of the worst natural hazard threats in the region.	Wildfire	Carroll County RC&D, Firewise, MRPDC, DOF	3-5 Years/ Not Started	Funding needed from VDEM/FEMA
High	Educate residents on methods recommended by the American Red Cross to prepare for various types of natural disaster.	Floods Snowstorms/Ice High Winds	Carroll County, MRPDC, VDEM, DCR, American Red Cross	3-5 Years/ Not Started	Funding needed from VDEM/FEMA
Medium	Further develop local capacity to document the number, size, age and value of the approximately 1,400 (PDCtotal) structures located in the floodplain.	Floods	Carroll County, MRPDC, VDEM, DCR	1-3 Years/ Not Started	Funding needed from VDEM/FEMA
Medium	Comply with NFIP for floodplain identification and mapping, responsible floodplain management, and the promotion of flood insurance.	Floods	Carroll County, MRPDC, VDEM, DCR	1-3 Years/ Ongoing	Done through compliance with NFIP
Low	Consider flood-proofing or relocation/demolition for the repetitive loss property near Hillsdale.	Floods	Town of Hillsdale, MRPDC, VDEM, DCR	3-5 Years/ Not Started	Funding needed from VDEM/FEMA
Low	Properly inspect and enforce applicable state and federal dam regulations for high- and significant-hazard dams.	Dam Safety	Carroll County, MRPDC, DCR	1-3 Years/ Ongoing	Done through Federal, State, and Local codes
Low	Verify the geographic location of all NFIP repetitive losses and make inquiries as to whether the properties have been mitigated, and if so, by what means.	Floods	Carroll County, MRPDC, VDEM, DCR	1-3 Years/ Not Started	Will be looked at next year

Grayson County and Fries, Independence and Troutdale

Community Hazard Profile

Grayson County is a remote, rural area with a population of 15,669 (increase of 0.9% since 2012). The county is traversed east-west by U.S. Rt. 58, north-south by State Rt. 16 (passing through the Town of Troutdale), and north-south by U.S. Rt. 21 (passing through the Town of Independence). The three incorporated towns include Fries, Independence, and Troutdale. Parts of the county border the independent City of Galax at the county's eastern border. Grayson's mountainous terrain includes Grayson Highlands State Park in the western end and parts of the Mount Rogers National Recreation Area running roughly along the county's northern border.

Chief natural hazards occurring in Grayson County include flooding, severe snow and ice storms, high winds, and risk of wildfire. Flooding affects relatively few properties, and there is no FEMA record of repetitive loss properties. Substantial parts of Grayson, encompassing roughly 60,000 acres, are subject to wildfire risk. Grayson also contains four dams rated for significant hazard potential and has a risk of potential for landslides, especially in the northern part of the county.

Past or Ongoing Mitigations

A special project by the New River-Highlands RC&D Council has produced a draft strategic plan for wildfire hazard reduction in Grayson County. The emergency services system includes the Twin County E-911 center, several volunteer fire departments and rescue squads, the sheriff's department and the state police.

The county's building codes are in line with the most recent statewide revisions known as the Uniform Statewide Building Code, which took effect in 2009.

Grayson County has not participated in the pre-disaster hazard mitigation projects in the past, other than what has already been noted. Like the other localities in the Mount Rogers region, most hazard mitigation efforts are not possible without substantial outside support from state and federal grants.

Severe Weather Events

Begin Location	Begin Date	Event Type	Deaths Direct	Injuries Direct	Damage Property Number	Damage Crops Number	Source
	4/4/13	Winter Weather	0	0	\$-	0	Trained Spotter
Reavistown	7/12/13	Flash Flood	0	0	\$5,000 ⁶	0	Trained Spotter
Reavistown	7/19/13	Hail	0	0	\$-	0	Public
	12/8/13	Winter Weather	0	0	\$-	0	Trained Spotter
	1/7/14	Cold/Wind Chill	0	0	\$-	0	AWOS
	2/12/14	Heavy Snow	0	0	\$-	0	Public
Independence	5/10/14	Hail	0	0	\$-	0	Trained Spotter
	11/1/14	Winter Weather	0	0	\$-	0	Trained Spotter
	11/26/14	Winter Storm	0	0	\$-	0	Park/Forest Service
	1/23/15	Winter Weather	0	0	\$-	0	Trained Spotter
	2/15/15	Extreme Cold/Wind Chill	0	0	\$-	0	Mesonet
	2/16/15	Winter Storm	0	0	\$-	0	Trained Spotter
	2/19/15	Extreme Cold/Wind Chill	0	0	\$-	0	Mesonet
	2/25/15	Winter Storm	0	0	\$-	0	Trained Spotter
Reavistown	4/19/15	Flash Flood	0	0	\$-	0	State Official
Benington Mills	5/11/15	Flash Flood	0	0	\$-	0	Public
Carsonville	5/11/15	Debris Flow	0	0	\$-	0	Law Enforcement
	1/22/16	Winter Storm	0	0	\$ -	0	Trained Spotter
	2/14/16	Winter Storm	0	0	\$ -	0	Trained

⁶ Property Damage Totals resulted from septic system damage

Begin Location	Begin Date	Event Type	Deaths Direct	Injuries Direct	Damage Property Number	Damage Crops Number	Source
							Spotter
	1/6/17	Winter Storm	0	0	\$ -	0	Trained Spotter
Stevens Creek	4/24/17	Flood	0	0	\$ -	0	911 Call Center
Rugby	5/9/17	Hail	0	0	\$ -	0	Park/Forest Service
Rugby	5/20/17	Flash Flood	0	0	\$ -	0	Public
Oak Hill	5/24/17	Flood	0	0	\$150,000 ⁷	0	Broadcast Media
Carsonville	6/15/17	Heavy Rain	0	0	\$ -	0	Trained Spotter
Carsonville	6/15/17	Heavy Rain	0	0	\$ -	0	Trained Spotter
Independence	6/15/17	Flash Flood	0	0	\$2,000	0	911 Call Center
Riverside	7/12/17	Hail	0	0	\$ -	0	Public
TOTAL			0	0	\$157,000	\$ -	

Recommended Mitigations: Grayson County and Fries, Independence, and Troutdale

Rank	Activity	Hazard Addressed	Responsible Party	Timeline/ Status	Comments
High	Pursue federal certification of the Base Flood Elevation of the Grayson Highlands Combined School floodwall, as well as funds for possible repairs or additions, as needed, to the floodwall	Floods	Grayson County, MRPDC, VDEM, DCR	3-5 Years/ Not Started	Funding needed from VDEM/ FEMA
High	Support implementation of the strategic plan for wildfire hazard reduction in Grayson County.	Wildfire	Grayson County RC&D MRPDC, DOF	3-5 Years/ Not Started	Funding needed from VDEM/ FEMA

⁷ Property Damage Totals resulted from campers and camper covers that sustained flood damage along the New River

Rank	Activity	Hazard Addressed	Responsible Party	Timeline/ Status	Comments
High	Support educational programs to promote Firewise methods to affected residents of woodland communities. An estimated 258 homes are part of woodland communities in Grayson County.	Wildfire	Grayson County RC&D Firewise, MRPDC, DOF	3-5 Years/ Not Started	Funding needed from VDEM/ FEMA
High	Educate residents on methods recommended by the American Red Cross to prepare for various types of natural disaster.	Floods Snowstorms/Ice High Winds	Grayson County, MRPDC, VDEM, DCR, American Red Cross	3-5 Years/ Not Started	Funding needed from VDEM/ FEMA
Medium	Further develop local capacity to document the number, size, age and value of the approximately 1,400 (PDCtotal) structures located in the floodplain.	Floods	Grayson County, MRPDC, VDEM, DCR	1-3 Years/ Not Started	Funding needed from VDEM/ FEMA
Medium	Conduct hydrological/ engineering studies to properly determine Base Flood Elevations in those watersheds with estimated floodplains.	Floods	Grayson County, MRPDC, VDEM, DCR	3-5 Years/ Not Started	Funding needed from VDEM/ FEMA
Medium	Conduct hydrological/ engineering studies to determine Base Flood Elevations within the Town of Troutdale, which presently lacks a recognized floodplain.	Floods	Grayson County, MRPDC, VDEM, DCR	Project Complete	Flood mapping has been provided
Medium	Identify flood prone properties for potential acquisition/demolition, elevation, flood proofing, and minor localized flood control projects.	Floods	Grayson County, MRPDC, VDEM, DCR	3-5 Years/ Not Started	Funding needed from VDEM/ FEMA
Medium	Conduct hydrological/ engineering studies to determine Base Flood Elevations within the Towns of Fries and Independence.	Floods	Town of Independence, Town of Fries, MRPDC, VDEM, DCR	3-5 Years/ Not Started	Funding needed from VDEM/ FEMA

Rank	Activity	Hazard Addressed	Responsible Party	Timeline/ Status	Comments
Medium	Comply with NFIP for floodplain identification and mapping, responsible floodplain management, and the promotion of flood insurance.	Floods	Grayson County, MRPDC, VDEM, DCR	1-3 Years/ Ongoing	Done through compliance with the NFIP
Low	Properly inspect and enforce applicable state and federal dam regulations for high- and significant-hazard dams.	Dam Safety	Grayson County, MRPDC, DCR	1-3 Years/ Ongoing	Done though local and state codes

Smyth County and Chilhowie, Marion, and Saltville

Community Hazard Profile

Smyth County, with a population of 30,686 (decrease of 4.7% since 2012), stands along the east-west path of I-81 and also is part of the Mount Rogers National Recreation Area.

Population growth is stagnant, due in part to loss of the traditional industrial base and limited housing development. Despite those drawbacks, the county is traversed by the Appalachian Trail, offers appealing country vistas, and stands within easy reach of many natural resource attractions.

The main natural hazards affecting Smyth County include flooding along the North, Middle, and South Forks of the Holston River, as well as several tributaries; severe winter storms and ice; some potential for dam failure; drought; and undetermined risk from landslides and karst terrain, which appears in an estimated 30% of the county's territory. The county is also part of a Special Wind Region (with wind speed potential of 200 mph), but this problem rarely causes enough damage to be considered a major hazard. Smyth County contains seven repetitive loss properties. The county has the most flood-prone properties in the Mount Rogers Region (see At-risk Structures in the 100-year Flood Plain table in the Flood Risk Assessment and Vulnerability Section). While not a frequent event as defined by our hazard matrix, Smyth and Washington Counties suffered a severe tornado in April of 2011 that resulted in 4 deaths (all in Washington County), and over 50 injuries throughout the two counties.

Past or Ongoing Mitigations

Due to its long history with disaster-level flooding, Smyth County and its communities have participated in special flood mitigation projects. Record-level disasters resulting from the floods of 1977 led to a flood mitigation engineering study for the towns of Chilhowie and Marion, as well as the nearby communities of Atkins and Seven Mile Ford. In Chilhowie, the work resulted in the eventual relocation of 67 families and the creation of the Chilhowie Recreation Park. Other recommended flood mitigations have not been pursued due to lack of funding.

Also, as a result of flooding in 2001 and 2002, Smyth County obtained federal disaster relief funds and relocated five homes out of the floodplain in River Bottom Circle, located near the Broadford community along the North Fork of the Holston River.

More recently the Town of Chilhowie participated in a preliminary flood reduction study by the U.S. Army Corps of Engineers. About 12-15 properties continue to sustain flood damage within town borders. The town has opted against pursuing a more detailed study due to the high cost and instead is advocating for mitigating the most flood-prone structures in the town.

Emergency response is coordinated through Smyth County's centralized E-911 system. The county also creating a modernized countywide communications system for emergency response and direct radio communications among police, fire departments, and rescue squad organizations.

The county's building codes are in line with the most recent statewide revisions known as the Uniform Statewide Building Code, which took effect in 2009.

Severe Weather Events

In April of 2017, the Holston Hills Country Club bridge was critically damaged in a massive flood event, rendering the bridge impassable. Since that time the bridge has been rebuilt and reopened to through traffic.

Begin Location	Begin Date	Event Type	Deaths Direct	Injuries Direct	Damage Property Number	Damage Crops Number	Source
	4/4/13	Winter Weather	0	0	\$ -	0	Public
Marion	5/10/13	Heavy Rain	0	0	\$ -	0	Public
Saltville	5/19/13	Hail	0	0	\$ -	0	Public
Saltville	5/19/13	Flash Flood	0	0	\$ -	0	State Official
Groseclose	6/13/13	Lightning	0	0	\$5,000	0	State Official
Adwolf	7/10/13	Flood	0	0	\$ -	0	Emergency Manager
	1/7/14	Cold/Wind Chill	0	0	\$ -	0	AWOS
	1/25/14	Winter Weather	0	1	\$50,000	0	911 Call Center
	2/12/14	Heavy Snow	0	0	\$ -	0	Trained Spotter

Begin Location	Begin Date	Event Type	Deaths Direct	Injuries Direct	Damage Property Number	Damage Crops Number	Source
Chilhowie	6/29/14	Flash Flood	0	0	\$250,000 ⁸	0	911 Call Center
	11/1/14	Winter Weather	0	0	\$ -	0	Trained Spotter
	11/26/14	Winter Weather	0	0	\$ -	0	Public
	2/15/15	Extreme Cold/Wind Chill	0	0	\$ -	0	AWOS
	2/16/15	Winter Storm	0	0	\$ -	0	Trained Spotter
	2/19/15	Extreme Cold/Wind Chill	0	0	\$ -	0	AWOS
	2/21/15	Winter Storm	0	0	\$ -	0	Trained Spotter
	2/25/15	Winter Weather	0	0	\$ -	0	Trained Spotter
Sugar Grove	4/19/15	Flood	0	0	\$ -	0	Department of Highways
Thomas Bridge	4/20/15	Flood	0	0	\$ -	0	State Official
	1/22/16	Winter Storm	0	0	\$ -	0	Trained Spotter
	2/14/16	Winter Storm	0	0	\$ -	0	Trained Spotter
Saltville	8/16/16	Hail	0	0	\$ -	0	Trained Spotter
Mt Carmel	4/23/17	Flood	0	0	\$75,000 ⁹	0	Newspaper
McMullin	4/23/17	Flash Flood	0	0	\$ -	0	County Official
Marion	4/29/17	Hail	0	0	\$ -	0	Trained Spotter
Furnace Hill	4/29/17	Hail	0	0	\$ -	0	Broadcast Media
Chilhowie	4/29/17	Hail	0	0	\$ -	0	Trained

⁸ Total Property Damage includes homes damaged in northern parts of the county and in the Town of Saltville.

⁹ Property Damage Totals includes flooding in downtown Town of Chilhowie, which caused damage to buildings and vehicles.

Begin Location	Begin Date	Event Type	Deaths Direct	Injuries Direct	Damage Property Number	Damage Crops Number	Source
							Spotter
Saltville	5/27/17	Hail	0	0	\$ -	0	Broadcast Media
Saltville	5/27/17	Hail	0	0	\$ -	0	Broadcast Media
McOrady	5/27/17	Hail	0	0	\$ -	0	Public
Broadford	5/27/17	Hail	0	0	\$ -	0	Broadcast Media
Adwolf	5/27/17	Hail	0	0	\$ -	0	Public
Sevenmile Ford	5/27/17	Hail	0	0	\$ -	0	Broadcast Media
McMullin	5/27/17	Hail	0	0	\$ -	0	Amateur Radio
Thomas Bridge	5/27/17	Hail	0	0	\$ -	0	Public
Sugar Grove	10/23/17	Flash Flood	0	0	\$ -	0	Emergency Manager
TOTAL			0	1	\$380,000	0	

Recommended Mitigations: Smyth County and Chilhowie, Marion, and Saltville

Rank	Activity	Hazard Addressed	Responsible Party	Timeline/ Status	Comments
High	Further develop local capacity to document the number, size, age and value of the approximately 1,400 (PDCtotal) structures located in the floodplain.	Floods	Smyth County, MRPDC, VDEM, DCR	1-3 Years/ Not Started	Funding needed from VDEM/ FEMA
High	Mitigate against future flood losses, with highest priority given to the repetitive loss properties.	Floods	Smyth County, MRPDC, VDEM, DCR	3-5 Years/ Not Started	Funding needed from VDEM/ FEMA
High	Conduct hydrological/engineering studies to determine Base Flood Elevations in watersheds containing estimated floodplains.	Floods	Smyth County, MRPDC, VDEM, DCR	3-5 Years/ Not Started	Funding needed from VDEM/ FEMA

High	Comply with NFIP for floodplain identification and mapping, responsible floodplain management, and the promotion of flood insurance.	Floods	Smyth County, MRPDC, VDEM, DCR	1-3 Years/ Ongoing	Done through compliance with NFIP
High	Use the flood analysis as a basis for consideration of future relocation/demolition and flood-proofing projects.	Floods	Smyth County, MRPDC, VDEM, DCR	1-3 Years/ Ongoing	When this issue arises, flood analysis is used
High	Identify flood prone properties for potential acquisition/demolition, elevation, flood proofing, and minor localized flood control projects.	Floods	Smyth County, MRPDC, VDEM, DCR	3-5 Years/ Not Started	Funding needed from VDEM/ FEMA
High	Support the continued development of the improved countywide radio communications system to improve emergency response and coordination during major disasters and other emergencies.	All	Smyth County, MRPDC, VDEM	1-3 Years/ Ongoing	Worked on when possible
Medium	Support educational programs to promote Firewise methods to affected residents of woodland communities. An estimated 475 homes are located in wooded settings and subject to risk of wildfire.	Wildfire	Smyth County RC&D Firewise MRPDC, DOF	3-5 Years/ Not Started	Funding needed from VDEM/ FEMA
Low	Educate residents on methods recommended by the American Red Cross to prepare for various types of natural disaster.	Floods Snowstorms/Ice High Winds	Smyth County, MRPDC, VDEM, DCR, American Red Cross	3-5 Years/ Not Started	Funding needed from VDEM/ FEMA
Low	Properly inspect and enforce applicable state and federal dam regulations for high- and significant-hazard dams. Presently Hungry Mother Dam is regulated as a high-risk potential dam in the county.	Dam Safety	Smyth County, MRPDC, DCR	1-3 Years/ Ongoing	Done though federal, state, and local codes

Low	Verify the geographic location of all NFIP repetitive losses and make inquiries as to whether the properties have been mitigated, and if so, by what means.	Floods	Smyth County, MRPDC, VDEM, DCR	1-3 Years/ Not Started	Will be looked at next year
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Washington County and Abingdon, Damascus, and Glade Spring Community Hazard Profile

Washington County is a rapidly developing area located on the west end of the Mount Rogers region and is bisected by Interstate 81 in an east-west direction. Within the past decade the most change and growth has been occurring along the I-81 corridor between the Town of Abingdon and the City of Bristol, with much housing development, as well as burgeoning commercial development at the Exit 7 area. Former communities consisting largely of open space and farming are being converted into residential subdivisions to accommodate the population of 53,789 (decrease of 2.0% since 2012).

The chief natural hazards of concern to Washington County and its localities include flooding, wildfires, severe winter storms and ice, drought, undetermined risk for impacts from landslides and karst terrain (which occurs in 50% of the county's territory), and high winds. While not a frequent event as defined by our hazard matrix, Smyth and Washington Counties suffered a severe tornado in April of 2011 that resulted in 4 deaths (all in Washington County), and over 50 injuries throughout the two counties.

The flooding results from sustained heavy rainfalls, violent thunderstorms, or as the aftermath of a major snowstorm. FEMA records show three repetitive loss properties with an average claim of \$10,063.89. Wildfire risks derive from being located in a rural, forested region and development of woodland home communities (encompassing more than 100,000 acres in the county). Severe winter storms and/or ice have been known to lead to disaster declarations, while drought is only an occasional hazard with impacts mainly for the farming community.

Washington County also contains four dams rated for high- or significant-hazard in the event of failure. Two are flood control structures owned by the Tennessee Valley Authority and one is a hydroelectric dam that has been breached and is no longer active. A fourth dam, owned by the state Department of Game and Inland Fisheries, is a recreational area regulated by the state.

Past or Ongoing Mitigations

Washington County operates its own E-911 system for emergency response from among an array of volunteer fire departments and rescue squads, the sheriff's department and the state police.

A long history of disaster-level flooding led to a comprehensive flood mitigation study for the Town of Damascus completed in 1979. In time, with support from outside grant funding, the town relocated 34 families (88 people) and three local businesses out of the floodplain. The town also was able to install storm drainage systems along flood-prone areas in Mock, Surber, and Haney Hollows. Damascus continues to face a serious flood threat due to its location at the confluence of Beaverdam and Laurel creeks and the lack of developable land outside of the floodplain.

As with the flood mitigation studies done for Smyth County, Damascus could not afford the high cost of the comprehensive approach. In addition, some mitigations considered in the 1970s and 1980s – including stream channelization and installation of levees – would not be allowed under modern state and federal regulations.

The Town of Glade Spring obtained funding to install a culvert underneath Grace Street and the Town Square intersection as part of a downtown revitalization effort.

The Town of Abingdon has recently updated some of its floodplain maps but has not been involved in mitigation efforts such as elevations or relocations and demolitions. Currently Abingdon is pursuing funding from FEMA to mitigate against losses associated with flooding in the Country Club Estates and surrounding areas. This area is in the southern portion of the town. Over the past 25 years there have been several rainfall events that have caused localized flooding to several homes in the drainage swale that conveys stormwater from east to west, crossing Fairway Drive, Bogey Drive, and Birdie Drive. After a flooding event in 1992, the Town Council commissioned the “Preliminary Engineering Report, Country Club Estates, Storm Drainage Improvements, Abingdon, Virginia.” This study resulted in solution alternatives with associated cost estimates. Very few, if any, of the recommendations in that report were implemented. There have been other flood events in this area, most recently in July of 2009. During that storm, stormwater encroached nearby and even into several of the residences along the drainage path. Another Preliminary Engineering Report has since been commissioned by the Town Council to update the previous study discussed above.

The Town of Abingdon identifies as an ongoing need for the immediate future the review of all streams and creeks within the Town’s corporate limits, which includes the Town Creek and Wolf Creek drainage basins and their tributaries and a drainage swale paralleling Hillman Highway that contributes floodwaters to Fifteen Mile Creek.

Flooding issues affecting private and public property specifically identified within the Town Creek Basin are:

- 1) Tributary #1 to Town Creek – This tributary is in FEMA Special Flood Hazard Zone A from Hillside Drive downstream to Railroad Street
- 2) Tributary #2 to Town Creek- This tributary is in FEMA Special Flood Hazard Zone A from Thompson Drive downstream to Tanner Street
- 3) Tributary #3 to Town Creek – This tributary is in FEMA Special Flood Hazard Zone A from Washington County along Whites Mill Road downstream to Town Creek and
- 4) Town Creek – In FEMA Special Flood Hazard Zones AE and X and experiences localized flooding from Branch Street to Interstate 81.

Flooding issues specifically identified within the Wolf Creek Basin occur within Tributary #2 to Wolf Creek. Portions of this tributary are in FEMA Special Flood Hazard Zone A and flooding affects private and public property along the drainage path from Hill Street to Wolf Creek.

Although not specifically identified on the Town of Abingdon Flood Insurance Rate Map, private properties located within the drainage swale paralleling Hillman Highway experience damage from floodwaters of the drainage basin. The headwaters of this swale begin near East Main Street and discharge into Fifteen Mile Creek. Continued development within the watershed areas, which includes portions of Washington County, has created additional impervious surfaces, such as roofs and pavements that increase storm water runoff. Portions of all of the aforementioned sections within the Town are prone to flooding, property damage, loss and possible harm to residents.

In order to mitigate the conditions as described briefly above, the Town must perform hydrologic and hydraulic analyses of the watershed areas that specifically identify the problem areas and develop solutions and plans that address the problems. The aforementioned practices including analysis, planning, establishing priorities and application for available funds will help enable project work to progress so that all concerned can be protected from flooding.

The county's building codes are in line with the most recent statewide revisions known as the Uniform Statewide Building Code, which took effect in 2009.

Severe Weather Events

The Town recently had to intercede and perform emergency repairs on a property at 341 East Main Street, Abingdon, VA (Tax # 013-1-79) to allow Town Creek to flow properly and eliminate a blockage that was ponding water in East Main Street and became a potential flood hazard for neighboring properties. The Town would like to purchase the property to perform improvements to help alleviate the potential for high water at the intersection of East Main Street and Town Creek and the potential flooding of adjacent properties. The building on the property dates from the 1930s and it would not be cost effective to attempt to renovate or flood proof. Our intent will be to demolish the existing building and pavement, reestablish the stream bank on both sides of Town Creek, and to create a floodplain on the rest of the property for future storm events. This will be a precursor to a larger project to improve the existing drainage under East Main Street and improve pedestrian movement.

Begin Location	Begin Date	Event Type	Deaths Direct	Injuries Direct	Damage Property Number	Damage Crops Number	Source
	3/5/13	Heavy Snow	0	0	\$ -	0	Law Enforcement
Damascus	5/22/13	Flash Flood	0	0	\$5,000	0	911 Call Center
	2/13/14	Heavy Snow	0	0	\$ -	0	Trained Spotter
	2/13/14	Heavy Snow	0	0	\$ -	0	Amateur Radio
	2/13/14	Heavy Snow	0	0	\$ -	0	Public
	2/13/14	Heavy Snow	0	0	\$ -	0	Public
	2/13/14	Heavy Snow	0	0	\$ -	0	Public
Shakesville	9/4/14	Flash Flood	0	0	\$ -	0	Broadcast Media
	11/1/14	Heavy Snow	0	0	\$ -	0	911 Call Center
	11/1/14	Heavy Snow	0	0	\$ -	0	911 Call Center
	2/16/15	Heavy Snow	0	0	\$ -	0	Trained Spotter
	2/16/15	Heavy Snow	0	0	\$ -	0	Public
	2/17/15	Heavy Snow	0	0	\$ -	0	Emergency Manager
	2/21/15	Heavy Snow	0	0	\$ -	0	Public
	2/26/15	Heavy Snow	0	0	\$ -	0	COOP Observer
Saltville	3/5/15	Flood	0	0	\$1,000	0	Emergency Manager
Saltville	4/25/15	Hail	0	0	\$ -	0	Public
Saltville	4/25/15	Hail	0	0	\$ -	0	Public
Damascus	8/14/15	Flash Flood	0	0	\$ -	0	911 Call Center
	1/22/16	Heavy Snow	0	0	\$ -	0	Public
	1/22/16	Heavy Snow	0	0	\$ -	0	Broadcast Media
	2/8/16	Heavy Snow	0	0	\$ -	0	911 Call Center

	2/14/16	Heavy Snow	0	0	\$ -	0	Public
Watauga	3/14/16	Hail	0	0	\$ -	0	Public
Abingdon	6/22/16	Hail	0	0	\$ -	0	Post Office
	1/6/17	Heavy Snow	0	0	\$ -	0	Public
	1/6/17	Heavy Snow	0	0	\$ -	0	Public
			0	0	\$6,000	0	

Recommended Mitigations: Washington County and Abingdon, Damascus, and Glade Spring

Rank	Activity	Hazard Addressed	Responsible Party	Timeline/ Status	Comments
High	Make flood improvements at the intersection of E. Main St. and Town Creek; reestablish the stream bank and create a floodplain.	Floods	Town of Abingdon, MRPDC, VDEM, DCR	1-3 Years/ Not Started	Funding needed from VDEM/FEMA
High	Further develop local capacity to document the number, size, age and value of the approximately 1,400 (PDCtotal) structures located in the floodplain.	Floods	Washington County, MRPDC, VDEM, DCR	1-3 Years/ Not Started	Funding needed from VDEM/FEMA
High	Conduct hydrological/ engineering studies to determine Base Flood Elevations in watersheds containing estimated floodplains.	Floods	Washington County, MRPDC, VDEM, DCR	3-5 Years/ Not Started	Funding needed from VDEM/FEMA
High	Encourage more property owners to insure their homes through the National Flood Insurance Program.	Floods	Washington County, MRPDC, VDEM, DCR	1-3 Years/ Ongoing	Residents are encouraged to do so
High	Consider appropriate mitigation projects for the three repetitive loss properties identified by FEMA data.	Floods	Washington County, MRPDC, VDEM, DCR	3-5 Years/ Not Started	Funding needed from VDEM/FEMA
High	Conduct hydrological/ engineering studies to determine Base Flood Elevations and create new floodplain map for Cedar Creek in the Meadowview community.	Floods	Washington County, MRPDC, VDEM, DCR	3-5 Years/ Not Started	Funding needed from VDEM/FEMA
High	Use the flood analysis as a basis for consideration of future relocation/demolition and flood-proofing projects.	Floods	Washington County, MRPDC, VDEM, DCR	1-3 Years/ Ongoing	When this issue arises flood analysis is used
High	Comply with NFIP for floodplain identification and mapping, responsible floodplain management, and the promotion of flood insurance.	Floods	Washington County, MRPDC, VDEM, DCR	1-3 Years/ Ongoing	Done through compliance with the NFIP

Rank	Activity	Hazard Addressed	Responsible Party	Timeline/ Status	Comments
High	Support educational programs to promote Firewise methods to affected residents of woodland communities. An estimated 804 homes are located in wooded settings and subject to risk of wildfire.	Wildfire	Washington County, RC&D, Firewise, MRPDC, DOF	3-5 Years/ Not Started	Funding needed from VDEM/FEMA
Medium	Educate residents on methods recommended by the American Red Cross to prepare for various types of natural disaster.	Floods Snowstorms/ Ice High Winds	Washington County, MRPDC, VDEM, DCR, American Red Cross	3-5 Years/ Not Started	Funding needed from VDEM/FEMA
Low	Properly inspect and enforce applicable state and federal dam regulations for high- and significant-hazard dams. There are four such dams in Washington County, one of which has been breached.	Dam Safety	Washington County, MRPDC, DCR	1-3 Years/ Ongoing	Done through federal, state, and local codes
Low	Verify the geographic location of all NFIP repetitive losses, and making inquiries as to whether the properties have been mitigated, and if so, by what means.	Floods	Washington County, MRPDC, VDEM, DCR	1-3 Years/ Not Started	Will be looked at next year

Wythe County and Rural Retreat and Wytheville

Community Hazard Profile

Wythe County is a community of 28,723 that is traversed north-south by Interstate 77 and east-west by Interstate 81, as well as routes 21, 52, and 94. The county includes the incorporated towns of Rural Retreat and Wytheville, which serves as the county seat. The county caters to the trucking industry and also facilitated the construction of a major new Pepsi bottling plant along the I-81 corridor. More than 50% of the county contains slopes of more than 20% which hinders development in those steep areas.

Chief natural hazards experienced in Wythe County and its localities include flooding, severe winter storms and ice, high winds, drought, and undetermined hazards from karst terrain (which appears in roughly 30% of the county's landscape). There is one high-hazard potential dam (Rural Retreat Dam) owned as a recreational attraction by the Virginia Department of Game and Inland Fisheries.

The flooding results from sustained heavy rainfalls, violent thunderstorms, and melting as the aftermath of a major snowstorm. Flood hazards have been identified for the Town of Wytheville and the community of Max Meadows east of Wytheville. There are two repetitive loss properties in Wythe County.

Past or Ongoing Mitigations

Emergency response is based around the county's E-911 system, the sheriff's department, the state police, and several fire departments and rescue squads, including both paid and volunteer units.

The county's building codes are in line with the most recent statewide revisions known as the Uniform Statewide Building Code, which took effect in 2009. These modern codes help protect against hazard damages, such as those from high winds.

Severe Weather Events

Begin Location	Begin Date	Event Type	Deaths Direct	Injuries Direct	Damage Property Number	Damage Crops Number	Source
	4/4/13	Heavy Snow	0	0	\$-	0	Public
Catron	7/10/13	Flash Flood	0	0	\$5,000	0	911 Call Center
Lots Gap	7/11/13	Flash Flood	0	0	\$16,000	0	Emergency Manager
Blacklick	7/17/13	Lightning	0	0	\$1,500	0	911 Call Center
Fort Chiswell	8/12/13	Flash Flood	0	0	\$-	0	Law Enforcement
	12/8/13	Winter Weather	0	0	\$-	0	Trained Spotter
	1/7/14	Cold/Wind Chill	0	0	\$-	0	AWOS
	1/10/14	Winter Weather	0	0	\$50,000	0	911 Call Center
	2/12/14	Heavy Snow	0	0	\$-	0	Public
	11/1/14	Winter Weather	0	0	\$-	0	Public
	11/26/14	Winter Weather	0	0	\$-	0	Public
	1/23/15	Winter Weather	0	0	\$-	0	COOP Observer
	2/16/15	Winter Storm	0	0	\$-	0	Trained Spotter
	2/19/15	Extreme Cold/Wind Chill	0	0	\$-	0	Mesonet
	2/25/15	Winter Weather	0	0	\$-	0	Trained Spotter
Cedar Springs	4/19/15	Flood	0	0	\$50,000	0	Newspaper
Simmerman	4/19/15	Flood	1	0	\$-	0	Broadcast Media
Max Meadows	4/20/15	Flood	0	0	\$-	0	Trained Spotter
Wytheville	4/20/15	Hail	0	0	\$-	0	Public
Max	4/20/15	Flash Flood	0	0	\$-	0	State Official

Begin Location	Begin Date	Event Type	Deaths Direct	Injuries Direct	Damage Property Number	Damage Crops Number	Source
Meadows							
Fort Chiswell	4/20/15	Flash Flood	0	0	\$-	0	State Official
	1/22/16	Winter Storm	0	0	\$-	0	Trained Spotter
	2/14/16	Winter Storm	0	0	\$-	0	Trained Spotter
	1/6/17	Winter Storm	0	0	\$-	0	Trained Spotter
Porters Crossroads	4/24/17	Flood	0	0	\$-	0	Department of Highways
Favonia	4/24/17	Flood	0	0	\$-	0	Newspaper
Max Meadows	4/24/17	Flood	0	0	\$-	0	Department of Highways
Rural Retreat	4/29/17	Hail	0	0	\$-	0	Broadcast Media
Haven	4/29/17	Hail	0	0	\$-	0	Trained Spotter
Rural Retreat	4/29/17	Flash Flood	0	0	\$1,000	0	Public
Gunton Park	5/24/17	Flood	0	0	\$-	0	Emergency Manager
TOTAL		1	0		\$123,500	0	

Recommended Mitigations: Wythe County and Rural Retreat and Wytheville

Rank	Activity	Hazard Addressed	Responsible Party	Timeline/ Status	Comments
High	Apply for funding to purchase and install generators at Wythe County's main pumping station.	All hazards	Wythe County, MRPDC, VDEM, DCR	1-3 Years/ Ongoing	Funding needed from VDEM/ FEMA
High	Further develop local capacity to document the number, size, age and value of the approximately 1,400 (PDC total) structures located in the floodplain.	Floods	Wythe County, MRPDC, VDEM, DCR	1-3 Years/ Not Started	Funding needed from VDEM/ FEMA
High	Conduct hydrological/engineering studies to determine Base Flood Elevations in watersheds containing estimated floodplains.	Floods	Wythe County, MRPDC, VDEM, DCR	3-5 Years/ Not Started	Funding needed from VDEM/ FEMA
High	Comply with NFIP for floodplain identification and mapping, responsible floodplain management, and the promotion of flood insurance.	Floods	Wythe County, MRPDC, VDEM, DCR	1-3 Years/ Ongoing	Done through compliance with the NFIP
High	Use the flood analysis as a basis for consideration of future relocation/demolition and flood-proofing projects.	Floods	Wythe County, MRPDC, VDEM, DCR	1-3 Years/ Ongoing	Used when these projects are looked at
Medium	Support development of strategic wildfire risk reduction plans such as being promoted by the New River-Highlands RC&D Council.	Wildfire	Wythe County, RC&D, MRPDC, DOF	3-5 Years/ Not Started	Funding needed from VDEM/ FEMA
Medium	Support educational programs to promote Firewise methods to affected residents of woodland communities. An estimated 20,000 acres of land (unknown number of woodland homes) are subject to wildfire risk in Wythe County.	Wildfire	Wythe County, RC&D, Firewise, MRPDC, DOF	3-5 Years/ Not Started	Funding needed from VDEM/ FEMA

Rank	Activity	Hazard Addressed	Responsible Party	Timeline/ Status	Comments
Low	Educate residents on methods recommended by the American Red Cross to prepare for various types of natural disaster.	Floods Snowstorms/Ice High Winds	Wythe County, MRPDC, VDEM, DCR, American Red Cross	3-5 Years/ Not Started	Funding needed from VDEM/ FEMA
Low	Properly inspect and enforce applicable state and federal dam regulations for high- and significant-hazard dams. Rural Retreat Dam falls into the high-hazard potential category in Wythe County.	Dam Safety	Wythe County, MRPDC, DCR	1-3 Years/ Ongoing	Done through Federal, State, and local codes
Low	Verify the geographic location of all NFIP repetitive losses and make inquiries as to whether the properties have been mitigated, and if so, by what means.	Floods	Wythe County, MRPDC, VDEM, DCR	1-3 Years/ Not Started	Will start next year

City of Bristol

Community Hazard Profile

The City of Bristol, Virginia is a community of 17,160 (decrease of 3.8% since 2012) located along Interstate 81 and abutting the far southwestern reach of Washington County. The city has experienced some transition in some traditional residential areas being converted to commercial uses and some shift toward high-tech industry. Bristol stands in the lowlands of the Valley and Ridge physiographic province, and this area is characterized by karst terrain.

Chief natural hazards experienced in the City of Bristol include flooding, which in the past has caused damages in the millions of dollars according to a study by the U.S. Army Corps of Engineers. Other natural hazards faced in Bristol include severe winter storms and ice, high winds, and undetermined hazard risks from karst terrain and landslides. Two high-hazard potential dams affecting Bristol include Clear Creek Dam and Beaver Creek Dam, both located upstream in Washington County. The City of Bristol contains two repetitive loss properties.

Past or Ongoing Mitigations

Emergency response is based around the city's E-911 system, the Washington County Sheriff's Department, the City of Bristol Police Department, the state police, and fire department and rescue squads.

In the spring of 2015, the City of Bristol installed a new water management device at Sugar Hollow Dam. The 1.1 million Dollar phase was part of a larger \$6.9 million project by the U.S. Army Corps of Engineers. The project addresses flood events along Beaver Creek by replacing a water control structure on the upstream side of the dam.

The City of Bristol, Virginia teamed up with the City of Bristol, Tennessee to work with the U.S. Army Corps of Engineers to conduct the "Flood Damage Reduction Feasibility Study" of 2003 to identify ways to reduce continuing flood damage, especially along the main stem of Beaver Creek, which passes through the center of the adjacent cities. The Corps of Engineers recommended the following flood mitigations in July 2003:

- Widening the Beaver Creek channel near 6th Street (in Bristol, Tennessee)
- Replacing a pedestrian bridge and removing the 8th Street Bridge (in Bristol, Tennessee)
- Removing the old Sears commercial building near State Street (in Bristol, Tennessee)

- Replacing the existing outlet structure (a 48-inch diameter pipe) on Beaver Creek Dam with a larger reinforced concrete structure to more effectively hold back flood flows.

The Corps of Engineers estimated the proposed mitigations will reduce total average annual flood damages by 20% and reduce flood levels by nearly one foot in the central business districts of both Bristol, Virginia and Bristol, Tennessee.

The city's building codes are in line with the most recent statewide revisions known as the Uniform Statewide Building Code, which took effect in 2009. These modern building codes help offset damages caused by natural hazards, such as high winds, for new construction.

Severe Weather Events

The City of Bristol, VA experienced flooding conditions due to a heavy rainfall event on August 18, 2018. A small un-named stream that flows from the north side of Interstate 81 through the Briarwood Subdivision (located just south of the interstate) overflowed and flooded basements of several homes specifically along Brookdale Circle, in addition to the parking lot of a neighboring business located on Lee Highway (Rt. 11). The FIRM panel map (510022-0008 D) shows no Special Flood Hazard Area for this area. The City would like to do a flood risk analysis of this area and a mitigation plan for measures that could be done to address future flood events. In addition, Mumpower Creek which is a small tributary to Beaver Creek overflowed its banks with the same event on the 18th, affecting several homes located in the floodplain. If resources are available, the City would like to also do a flood study of this area between Valley Drive and Beaver Creek to address mitigation.

The anticipated cost of the study would be \$60,000. The City would provide the required 25% match with in-kind staff time (valued at \$15,000 – salary and fringes) from our Engineering staff.

Begin Location	Begin Date	Event Type	Deaths Direct	Injuries Direct	Damage Property Number	Damage Crops Number	Source
	3/5/13	Heavy Snow	0	\$-	0	0	Law Enforcement
	2/13/14	Heavy Snow	0	\$-	0	0	Trained Spotter
	2/13/14	Heavy Snow	0	\$-	0	0	Public
Bristol	7/27/14	Hail	0	\$-	0	0	Trained Spotter
	11/1/14	Heavy Snow	0	\$-	0	0	911 Call Center
	2/16/15	Heavy Snow	0	\$-	0	0	Trained Spotter
	2/17/15	Heavy Snow	0	\$-	0	0	Emergency Manager
	2/21/15	Heavy Snow	0	\$-	0	0	Public
	2/26/15	Heavy Snow	0	\$-	0	0	COOP Observer
	1/22/16	Heavy Snow	0	\$-	0	0	Broadcast Media
	2/8/16	Heavy Snow	0	\$-	0	0	911 Call Center
	2/14/16	Heavy Snow	0	\$-	0	0	Public
	1/6/17	Heavy Snow	0	\$-	0	0	Public
TOTAL			0	\$0	0	0	

Recommended Mitigations: City of Bristol

Rank	Activity	Hazard Addressed	Responsible Party	Timeline/ Status	Comments
High	Perform flood studies at Briarwood Subdivision along Brookdale Circle and along Lee Hwy; also at Mumpower Creek between Valley Drive and Beaver Creek.	Floods	City of Bristol, MRPDC, VDEM, DCR	1-3 Years/ Ongoing	Funded by Bristol, TN/VA
High	Further develop local capacity to document the number, size, age and value of the approximately 1,400 (PDCtotal) structures located in the floodplain.	Floods	City of Bristol, MRPDC, VDEM, DCR	1-3 Years/ Not Started	Funding needed from VDEM/ FEMA
High	Support implementation of the remedies outlined by the U.S. Army Corps of Engineers for the cities of Bristol in Virginia and Tennessee.	Floods	City of Bristol, MRPDC, VDEM, DCR	3-5 Years/ Ongoing	Funded by Bristol, TN/VA
High	Identify flood prone properties for potential acquisition/demolition, elevation, flood proofing, and minor localized flood control projects.	Floods	City of Bristol, MRPDC, VDEM, DCR	3-5 Years/ Not Started	Funding needed from VDEM/ FEMA
High	Comply with NFIP for floodplain identification and mapping, responsible floodplain management, and the promotion of flood insurance.	Floods	City of Bristol, MRPDC, VDEM, DCR	1-3 Years/ Ongoing	Done through compliance with the NFIP
Medium	Support educational programs to promote Firewise methods, as appropriate to residents of woodland communities. More specific data for the city was not available at the time this report was written.	Wildfire	City of Bristol, Firewise, MRPDC, VDEM, DCR, DOF	3-5 Years/ Not Started	Funding needed from VDEM/ FEMA
Low	Educate residents on methods recommended by the American Red Cross to prepare for various types of natural disaster.	Floods Snowstorms/Ice High Winds	City of Bristol, MRPDC, VDEM, DCR, American Red Cross	3-5 Years/ Not Started	Funding needed from VDEM/ FEMA

Rank	Activity	Hazard Addressed	Responsible Party	Timeline/ Status	Comments
Low	Properly inspect and enforce applicable state and federal dam regulations for high- and significant-hazard dams. These include Clear Creek Dam and Beaver Creek Dam.	Dam Safety	City of Bristol, MRPDC, DCR	1-3 Years/ Ongoing	Done through Federal, State, and Local codes
Low	Verify the geographic location of all NFIP repetitive losses and make inquiries as to whether the properties have been mitigated, and if so, by what means.	Floods	City of Bristol, MRPDC, VDEM, DCR	1-3 Years/ Not Started	Will start next year

City of Galax

Community Hazard Profile

The City of Galax, a community of 6,748 (decrease of 4.2% since 2012), is located in a hilly area with above-sea elevations ranging from 2,340 feet to 2,980 feet at Ward Knob.

While the City of Galax contains a defined floodplain along Chestnut Creek, which flows north-south through the city core, Galax does not participate in the National Flood Insurance Program and has resisted suggestions it rejoin the program, despite disaster-level flooding in November 2003 and repeat flooding problems in 2004. For communities that refuse to participate in NFIP, disaster help from FEMA is not available in the defined floodplains. Flooding problems also have been evident recently along the tributary of Mill Creek, which is not part of a recognized FEMA floodplain. Flooding on the tributaries occurs because the city's storm drainage system is aging (50 years old), with parts of the piping collapsing; these problems block storm water drainage and worsen flooding problems in some residential neighborhoods.

Other natural hazards faced by the City of Galax include wildfires and high winds. The city, along with much of the Mount Rogers region, is part of a Special Wind Zone (winds up to 200 mph), although the problems created do not appear to be of disaster level and the city does enforce current building codes.

Past or Ongoing Mitigations

The City of Galax grew up around its industrial district along Chestnut Creek in the core of the city. Due to disastrous flooding problems along Chestnut Creek (especially in 1940), the U.S. Army Corps of Engineers in 1950 channelized the creek through the downtown area and flood-proofed the industrial buildings located there. Following the flood disaster from November 2003, Galax city officials said they had developed a P.E.R. to improve the drainage system to help alleviate flooding problems, but this was not in the city budget at this time. Galax recently submitted a request to the US Army Corps of Engineers to look at possible projects upstream of Chestnut Creek through the Flood Damage Reduction Program (Section 205 of the 1948 Flood Control Act). The end result would be a project that would reduce the 100-year flood plain to the Chestnut Creek channel.

The city's building codes are in line with the most recent statewide revisions known as the Uniform Statewide Building Code, which took effect in 2009. These modern codes help to

offset the impacts of natural hazards such as winds for new construction. For emergency response, the City of Galax participates in the Twin County E-911 system, which covers the entire city, along with the adjoining counties of Carroll and Grayson. Responders include fire departments and rescue squads, local police and sheriff's departments, and the state police.

Severe Weather Events

Begin Location	Begin Date	Event Type	Deaths Direct	Injuries Direct	Damage Property Number	Damage Crops Number	Source
	4/4/13	Winter Weather	0	0	\$-	0	Trained Spotter
Galax	6/18/13	Heavy Rain	0	0	\$-	0	Law Enforcement
Galax	7/3/13	Flood	0	0	\$-	0	Trained Spotter
Galax	7/11/13	Heavy Rain	0	0	\$-	0	Trained Spotter
Galax	7/12/13	Flash Flood	0	0	\$-	0	Trained Spotter
Galax	7/27/13	Flash Flood	0	0	\$20,000	0	Trained Spotter
Galax	8/12/13	Flash Flood	0	0	\$-	0	Public
	12/8/13	Ice Storm	0	0	\$-	0	COOP Observer
	1/7/14	Cold/Wind Chill	0	0	\$-	0	AWOS
	2/12/14	Heavy Snow	0	0	\$-	0	Trained Spotter
	3/6/14	Winter Storm	0	0	\$-	0	Public
Galax	7/3/14	Flood	0	0	\$-	0	911 Call Center
	11/1/14	Winter Weather	0	0	\$-	0	CoCoRaHS
	11/26/14	Winter Weather	0	0	\$-	0	Trained Spotter
	1/23/15	Winter Weather	0	0	\$-	0	Trained Spotter
	2/16/15	Winter Storm	0	0	\$-	0	Public
	2/19/15	Extreme Cold/Wind Chill	0	0	\$-	0	AWOS
	2/25/15	Winter Storm	0	0	\$-	0	Amateur Radio
	1/22/16	Winter Storm	0	0	\$-	0	Trained Spotter
	2/14/16	Winter Storm	0	0	\$-	0	Trained Spotter
	4/5/16	Frost/Freeze	0	0	\$-	0	County Official
	1/6/17	Winter Storm	0	0	\$-	0	Trained Spotter
			0	0	\$20,000	0	

Recommended Mitigations: City of Galax

Rank	Activity	Hazard Addressed	Responsible Party	Timeline/ Status	Comments
High	Addition of a NEXEDGE System or the RIOS-ComLinc system for Twin County Region (counties of Carroll and Grayson and the City of Galax).	All hazards	City of Galax, MRPDC, VDEM, DCR	3-5 Years/ Not Started	Funding needed from VDEM/FEMA
High	Educate residents on methods recommended by the American Red Cross to prepare for all types of natural disaster.	All hazards	City of Galax, MRPDC, VDEM, DCR, American Red Cross	3-5 Years/ Not Started	Funding needed from VDEM/FEMA
Medium	Further develop local capacity to document the number, size, age and value of the approximately 1,400 (PDC total) structures located in the floodplain.	Floods	City of Galax, MRPDC, VDEM, DCR	1-3 Years/ Not Started	Funding needed from VDEM/FEMA
Medium	Support development of strategic wildfire risk reduction plans such as being promoted by the New River-Highlands RC&D Council.	Wildfire	City of Galax, RC&D, MRPDC, DOF	3-5 Years/ Not Started	Funding needed from VDEM/FEMA
Medium	Support educational programs to promote Firewise methods to affected residents of woodland communities. An estimated 67 homes in Galax are in wooded settings and at risk of wildfire.	Wildfire	City of Galax Firewise, RC&D, MRPDC, DOF	3-5 Years/ Not Started	Funding needed from VDEM/FEMA

PLAN MAINTENANCE

Plan Adoption

It is anticipated that the 2018 revision of the Mount Rogers Hazard Mitigation Plan will be adopted in the summer of 2018. All resolutions for adoption of the plan by participating localities will be included in the final document. The plan was available for public comment throughout the update process. The Public will also have an opportunity to view the plan during the final adoption phase by the localities. The MRPDC will assist any locality in guiding the plan through the adoption process with all necessary public hearings and provide the adoption resolutions.

Plan Implementation

The Mount Rogers Hazard Mitigation Plan will be implemented as follows:

- 1) policy changes that avoid development in hazard areas or that protect buildings from future impacts, and
- 2) implementation projects that physically change the environment to reduce impacts or educate landowners and residents on how to protect themselves and their property in the case of an event.

The goal of implementing the identified strategies is to reduce the loss of life and/or property due to natural hazard events. Policy changes are an ongoing way to implement the hazard mitigation plan. As local plans are updated, such as comprehensive plans, zoning and subdivision ordinances, or capital improvement plans, strategies for mitigating hazard impacts can be included. Changes to these plans do require some foresight and public involvement but can be a way for localities to make significant progress with little capital investment. The MRPDC works regularly with its member localities as they update these plans and is willing to provide technical assistance for including hazard mitigation specific strategies and language when requested.

Implementing projects require more work and investment from the locality or lead agency. Many of the identified projects are contingent on finding grant funding and partnering with other agencies and organizations to complete the project. Grant funding is especially critical in the current economic situation.

Plan Maintenance

The Mount Rogers Hazard Mitigation Plan will be reviewed annually by the staff of the Mount Rogers Planning District Commission with local government staffs to ensure that the project list stays up-to-date (and completed projects are noted). If necessary, the plan will be reviewed and revised after significant hazard events impacting the region. Cost-effective projects may be added to the locality project list each year, with that local government's approval. This review and potential update may be conducted electronically or through an annual meeting of the Hazard Mitigation Steering Committee. The PDC will ensure that each locality section of the mitigation plan is integrated into the comprehensive plans as updates occur. The method of review will depend on the events of the previous year and the extent of potential revisions to be made. An annual report of the status of mitigation actions will be reviewed and sent to VDEM to reduce the burden of evaluating strategies for the required five-year revision.

In five years, the Mount Rogers PDC will work to find funding from VDEM and/or FEMA to update the Mount Rogers Hazard Mitigation Plan. Any update of the plan will include a public input session or strategy to engage the community in this planning effort. At the time of the next update, the effectiveness of the mitigation strategies will be evaluated by determining any reduction in vulnerability to a particular hazard. New vulnerabilities will be identified by looking at event history in the past five years, as well as development that may have occurred in hazard areas. During the interceding five years, the Mount Rogers PDC will maintain the hazard mitigation website and will update it periodically with grant funding availability and project updates from localities, if available. This will also allow for continued public input throughout the plan implementation phase.

Strengthen public participation by providing more avenues for the public to comment on and ask questions about the Hazard Mitigation Plan and its development. The PDC recommends holding at least two regional public input sessions, one to be held in Wytheville for the Bland, Wythe, Carroll, Galax, areas, and one to be held in Marion for the Grayson, Smyth, Washington, Bristol areas. The PDC will also stress to the localities the importance of educating the public on the Mitigation Plan and the need for community support. This outreach can be done via websites and social media.

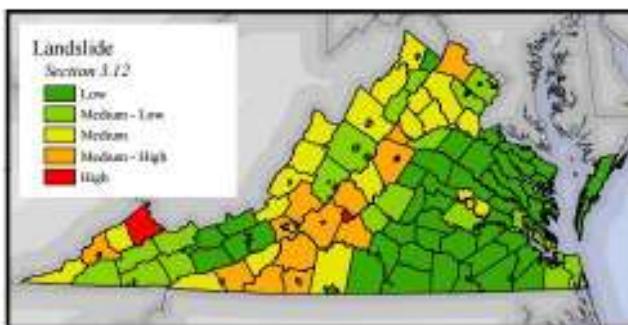
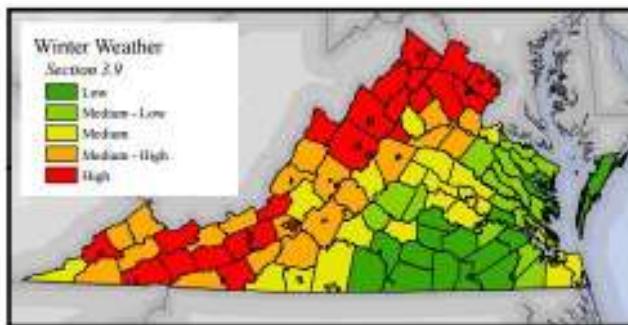
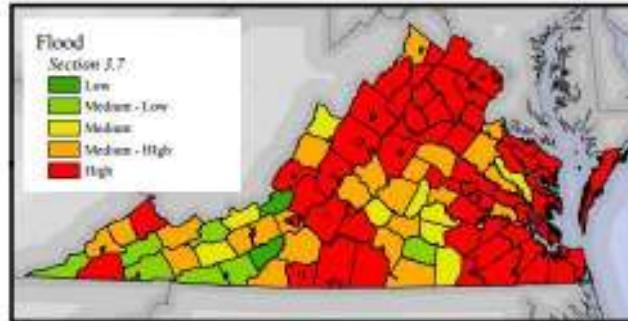
APPENDIX I

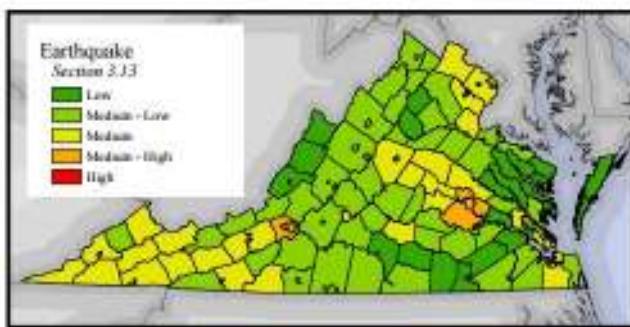
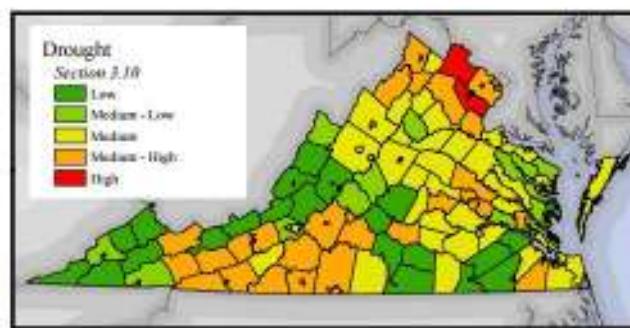
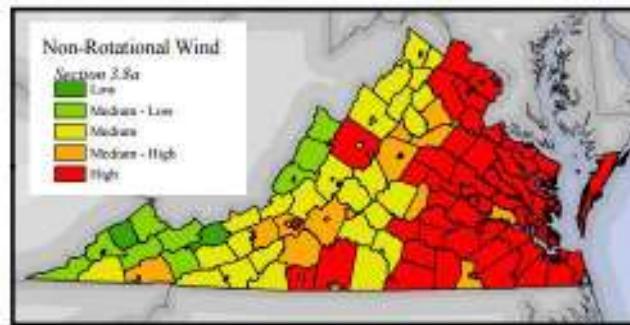
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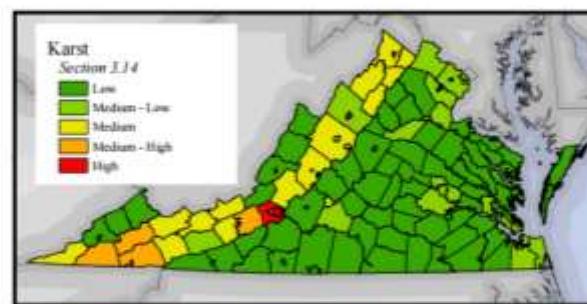
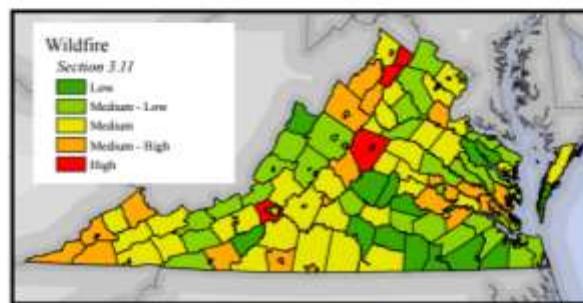
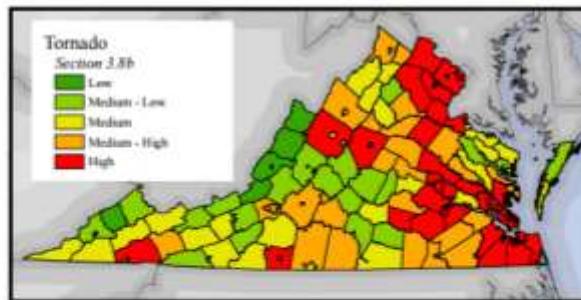
Emergency Management Personnel Contact Information

Jurisdiction Name	Plan POC	Mailing Address	Email	Phone
Bland County	Jenna Dunn	612 Main St. Bland VA24315	jdunn@bland.org	276-688-4641
Carroll County	Everett Lineberry	605-2 Pine St, Hillsville, VA 24343	elineberry@carrollcountyVAorg	276-730-3012
Grayson County	Jmmy Moss	129 Davis St. Independence VA 24348	jmooss@graysoncountyVAgov	276-773-3673
Smyth County	Charles Harrington	121 Bagley Circle Suite 100. Marion VA 24354	cph@marionrha.com	276-783-3381
Washington County	Theresa Kingsley	20281 Rustic Ln, Abingdon VA 24210	tkingsley@washcoVAcum	276-525-1330
Wythe County	Curtis Crawford	340 6 th Street, Wytheville VA 24382	ccrawford@wytheco.org	276-724-6000
City of Galax	Mike Ayers	300 West Grayson St., Galax VA, 24333	mayers@galaxVAcum	276-235-9580
City of Bristol	Mike Armstrong	211 Lee St. Bristol VA 24201	Mike.armstrong@bristolVAorg	276-645-7303
Town of Hillsdale	Retta Jackson	410 N. Main St., P.O. Box 545, Hillsdale, VA 24343	hillsville@townofhillsville.com	276-728-2128
Town of Independence	Jmmy Moss	129 Davis St. Independence VA 24348	jmooss@graysoncountyVAgov	276-773-3673
Town of Fries	Scott McCoy	1021 Terrace Drive, Marion, VA 24354	smccoy@mrpdc.org	276-783-5103
Town of Troutdale	Scott McCoy	1021 Terrace Drive, Marion, VA 24354	smccoy@mrpdc.org	276-783-5103
Town of Marion	Bill Rush	138 W. Main Street, Marion VA 24354	brush@marionVAorg	276-783-4113
Town of Chilhowie	Jhnn Clark	325 East Lee Highway, PO Box 5012, Chilhowie, VA 24319	chilhowie.townmgr@chilhowie.org	276-646-3232
Town of Saltville	Brian Martin	217 Palmer Ave. Saltville VA 24370	townmanager@saltville.org	276-496-5342
Town of Abingdon	Tyler Vencill	P.O. Box 789, Abingdon VA 24212	tvencill@abingdon-va.gov	276-628-3167
Town of Damascus	Gavin Blevins	1021 Terrace Drive, Marion, VA 24354	gblevins@mrpdc.org	276-783-5103
Town of Glade Spring	Aaron Sizemore	1021 Terrace Drive, Marion, VA 24354	asizemore@mrpdc.org	276-783-5103
Town of Wytheville	Ian Bishop	150 E. Monroe St, Wytheville, VA 24382	iab@wytheville.org	276-223-3302
Town of Rural Retreat	Jason Childers	PO Box 130, Rural Retreat, VA 24368	jasonc@townofruralretreat.com	276-686-4221

Hazard Ranking Risk Maps







HAZARD RANKING

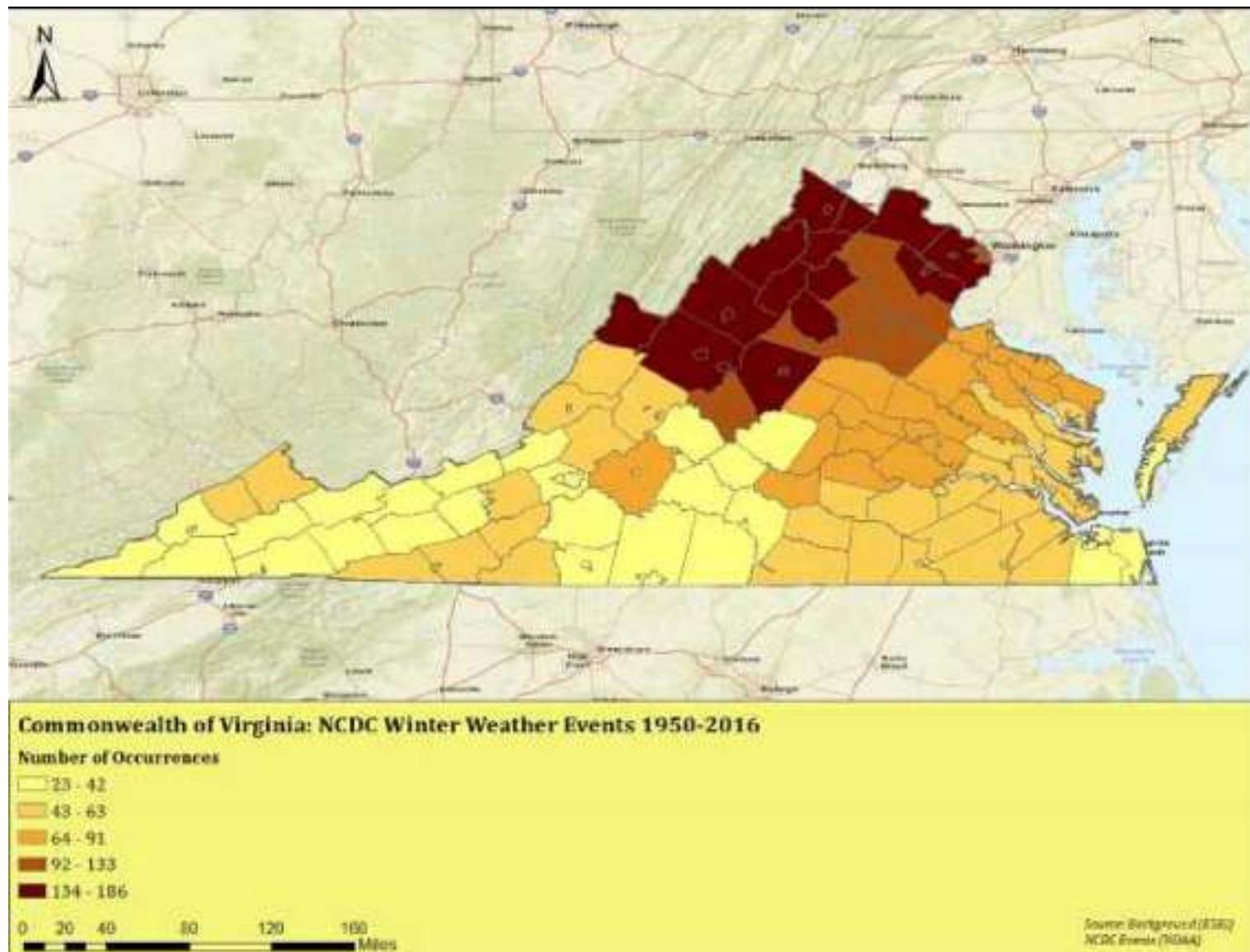
This is a summary of the individual hazard risk maps found in Section 3.7 through Section 3.14. The parameters used to create the Hazard Ranking Parameters and Risk Maps are explained in Section 3.5.

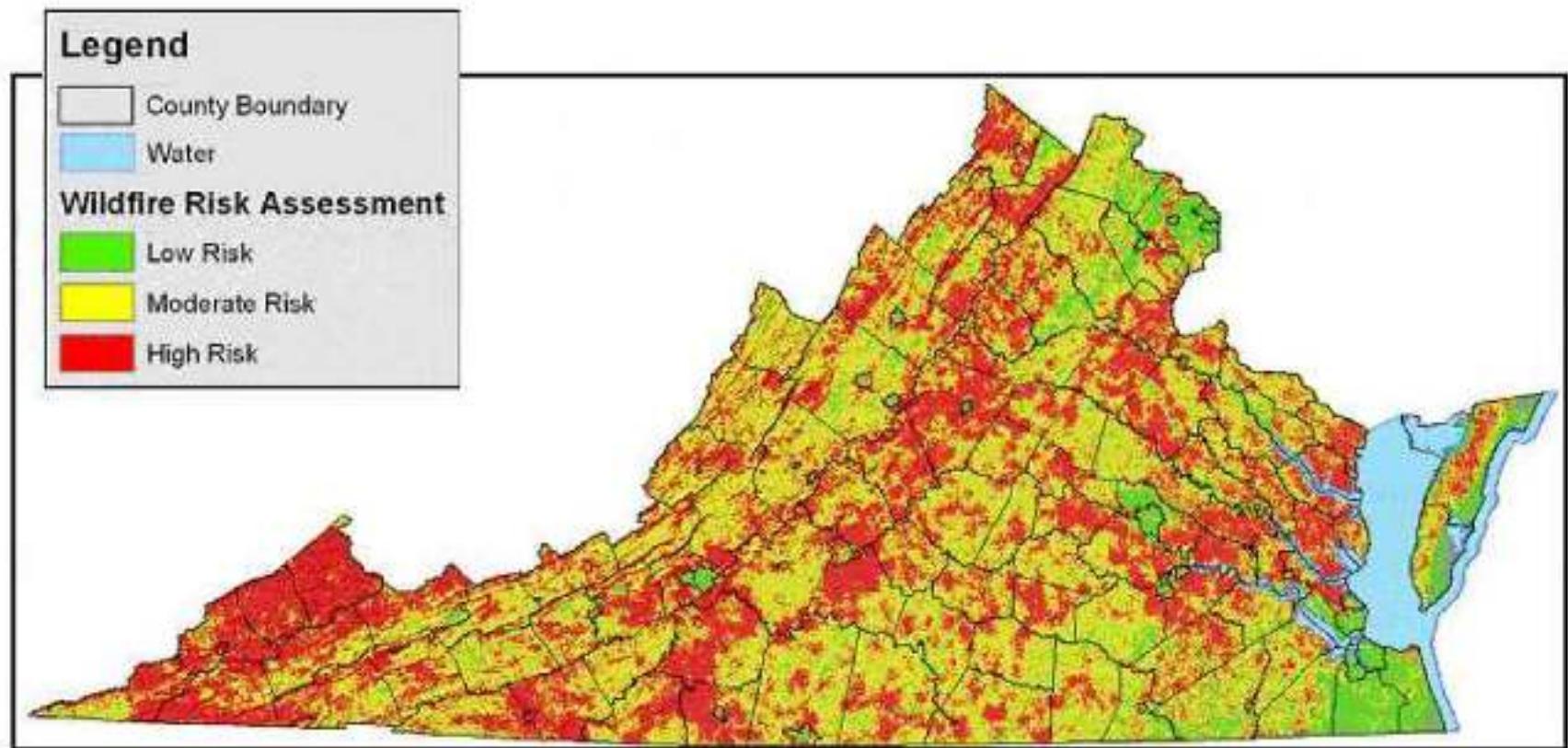
DATA SOURCES

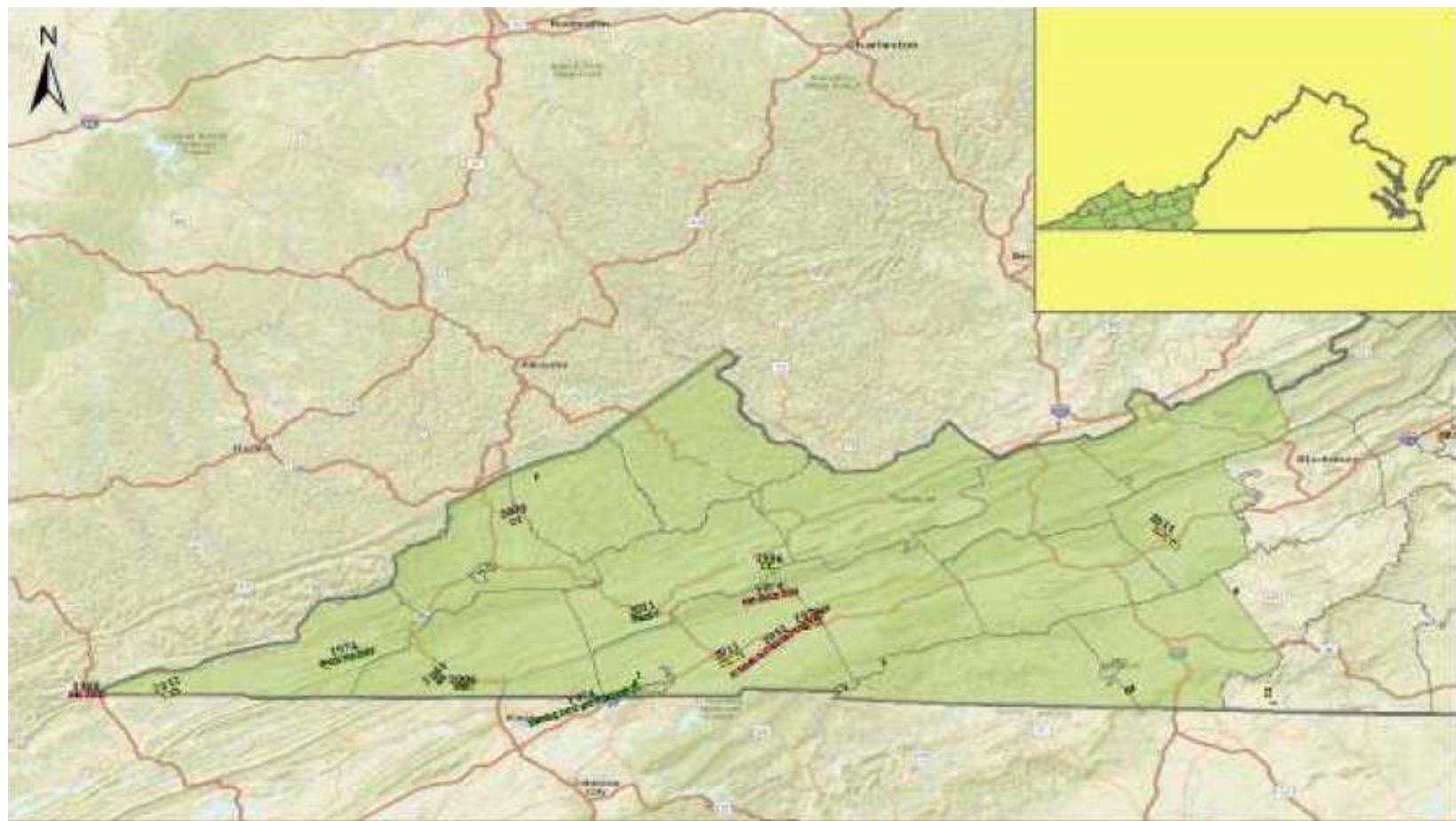
CGIT Ranking Methodology
VGIN Jurisdictional Boundaries
ESRI State Boundaries

Hazard Identification Maps

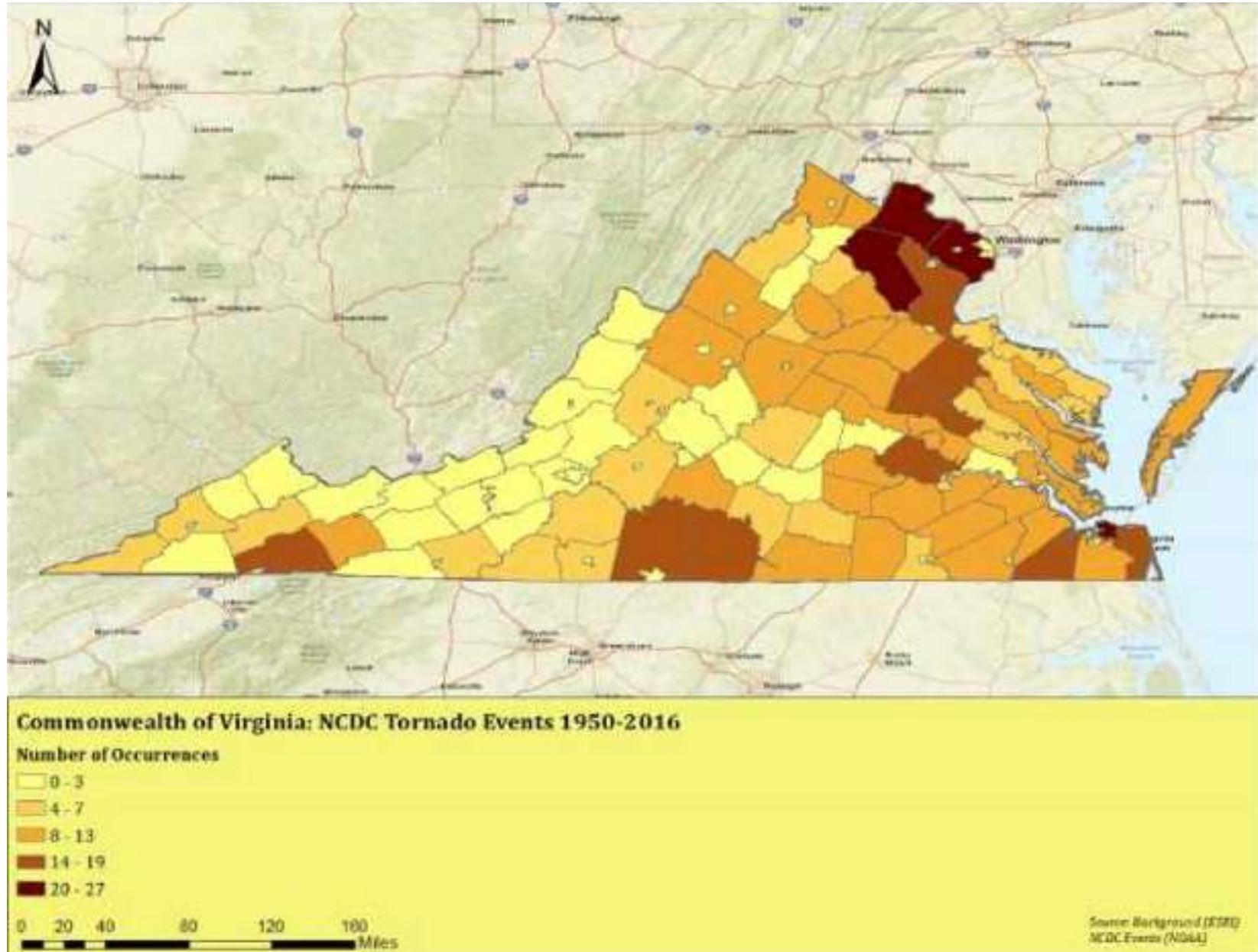
The following maps are sourced from the Virginia Hazard Mitigation Plan.

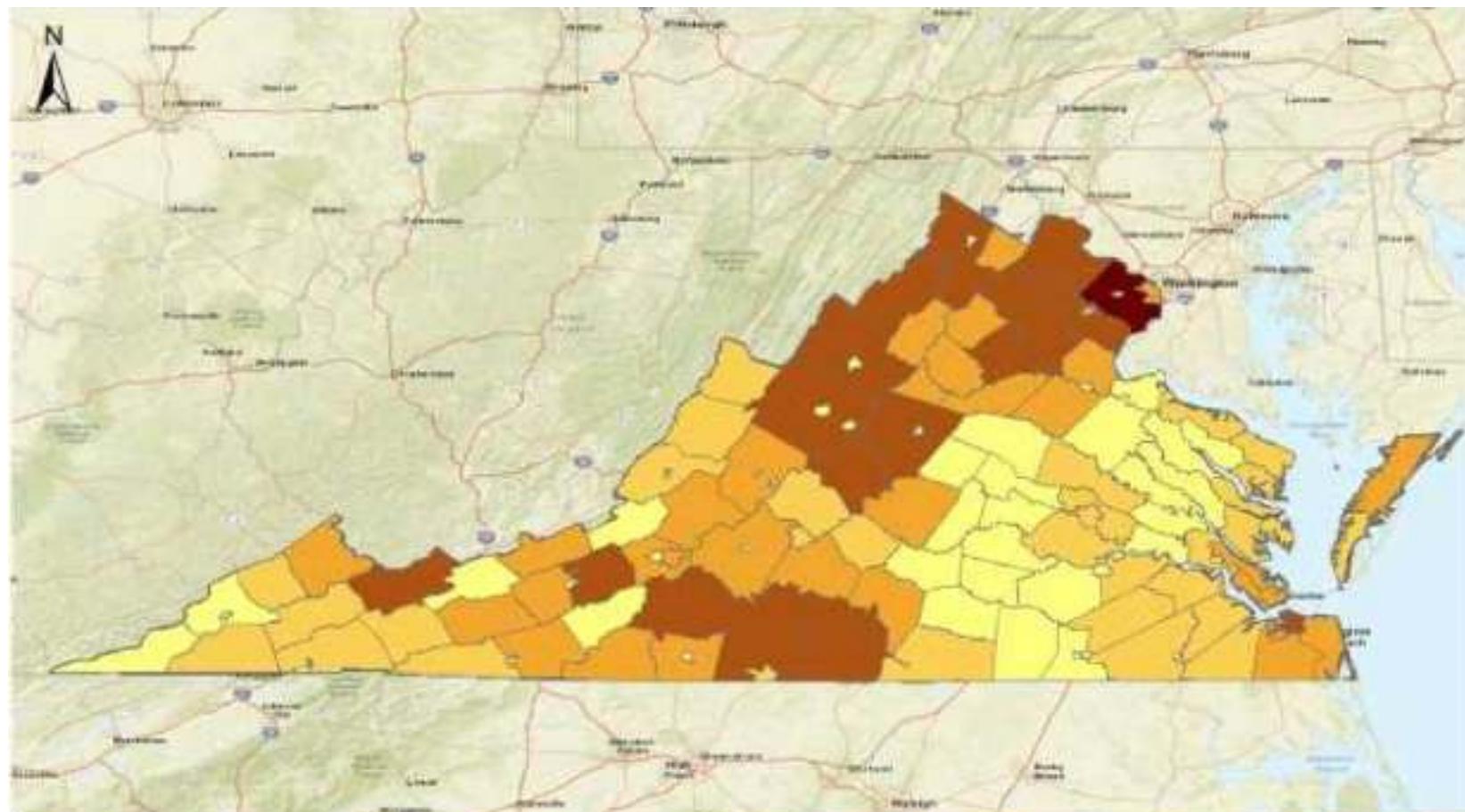






Source: Background (ESRI)
Regions (VDEM)
Tornadoes (NOAA)





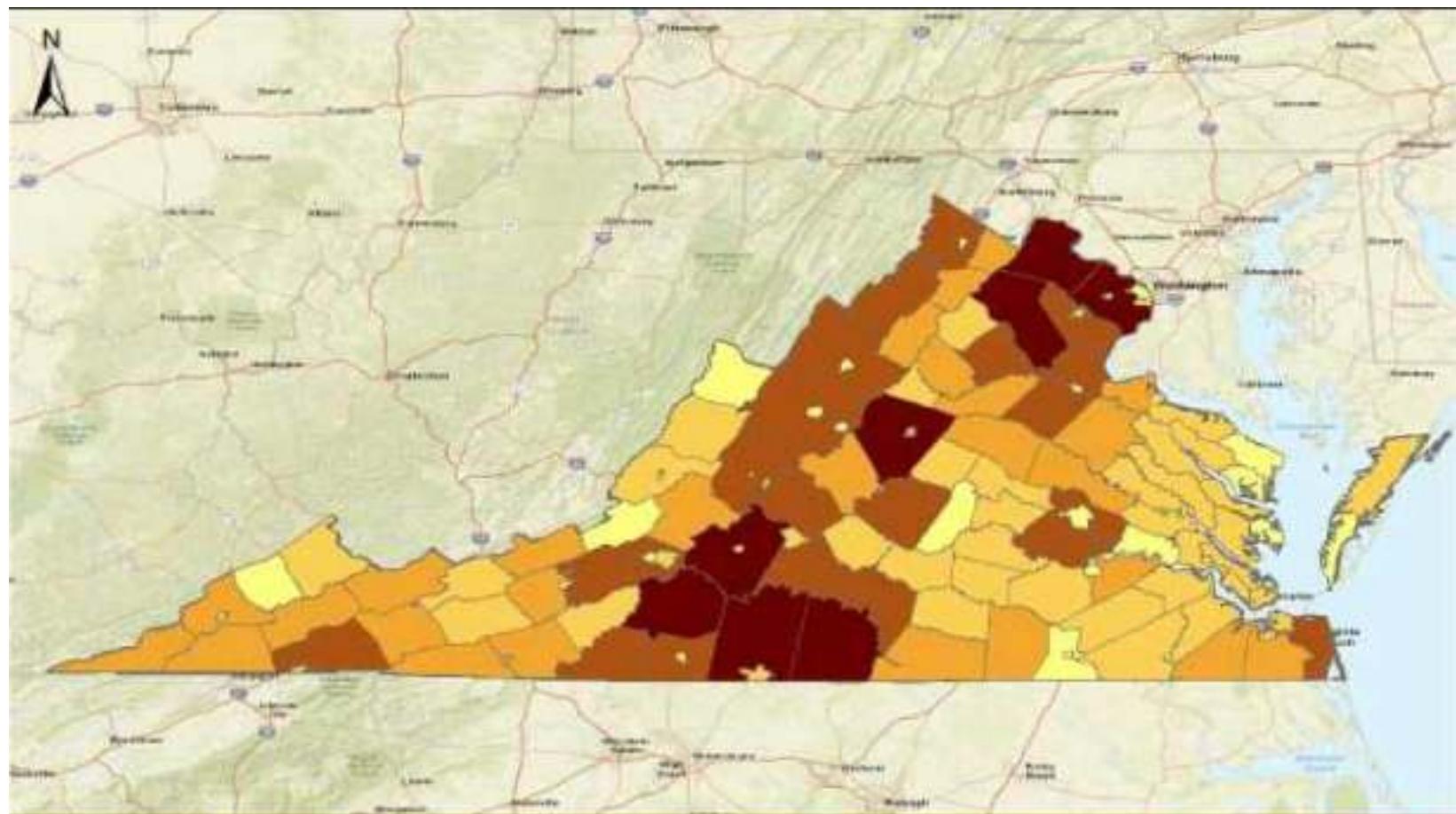
Commonwealth of Virginia: NCDC Flood Events 1950-2016

Number of Occurrences

- 5 - 24
- 25 - 41
- 42 - 67
- 68 - 131
- 132 - 214

0 20 40 60 120 160 Miles

Source: Background (ESRI)
NCDC Events (NOAA)



Commonwealth of Virginia: NCDC Wind Events 1950-2016

Number of Occurrences

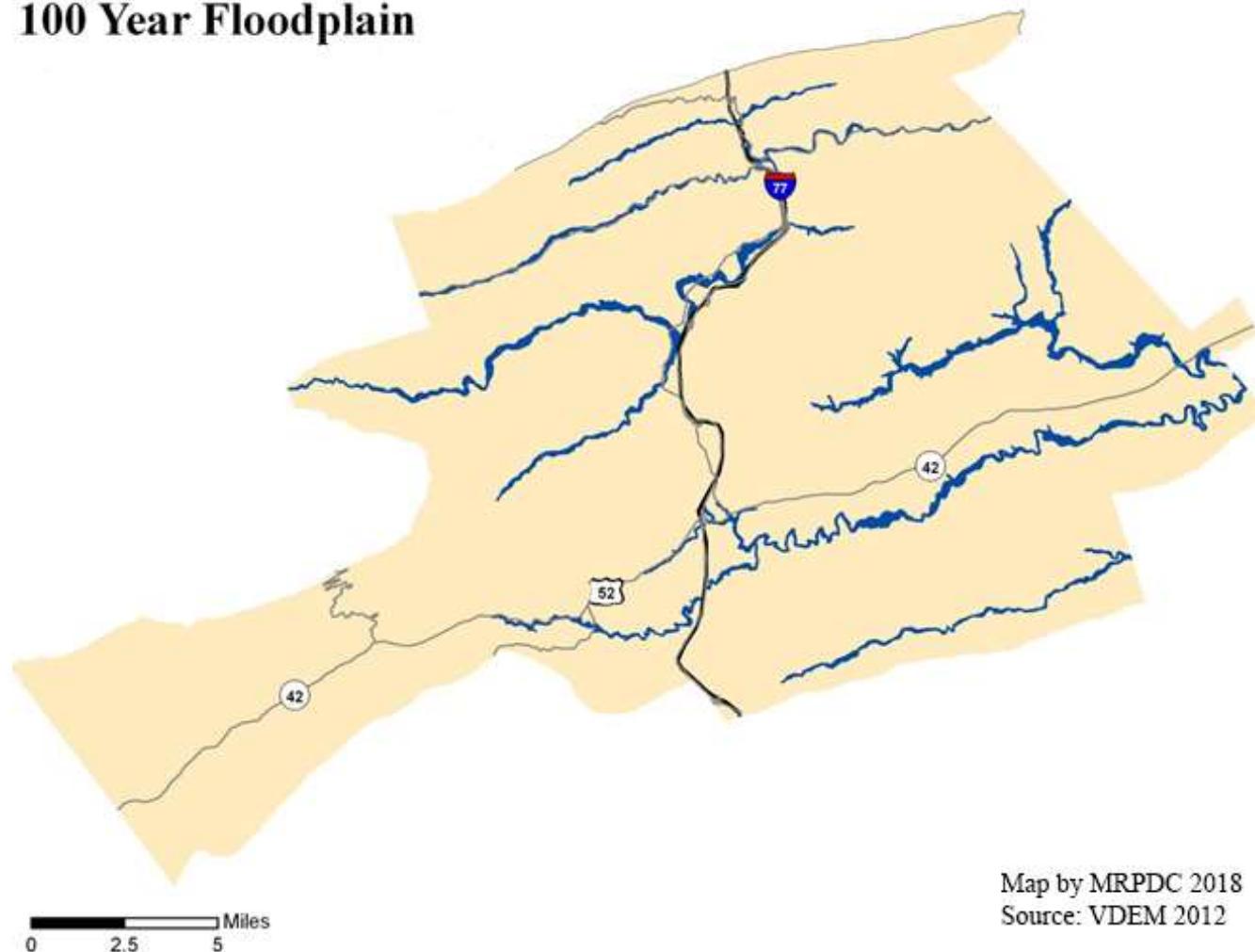
- 15 - 62
- 63 - 104
- 105 - 153
- 154 - 229
- 230 - 464

0 20 40 60 80 100 Miles

Source: Background (ESRI)
NCDC Events (NOAA)

Bland County

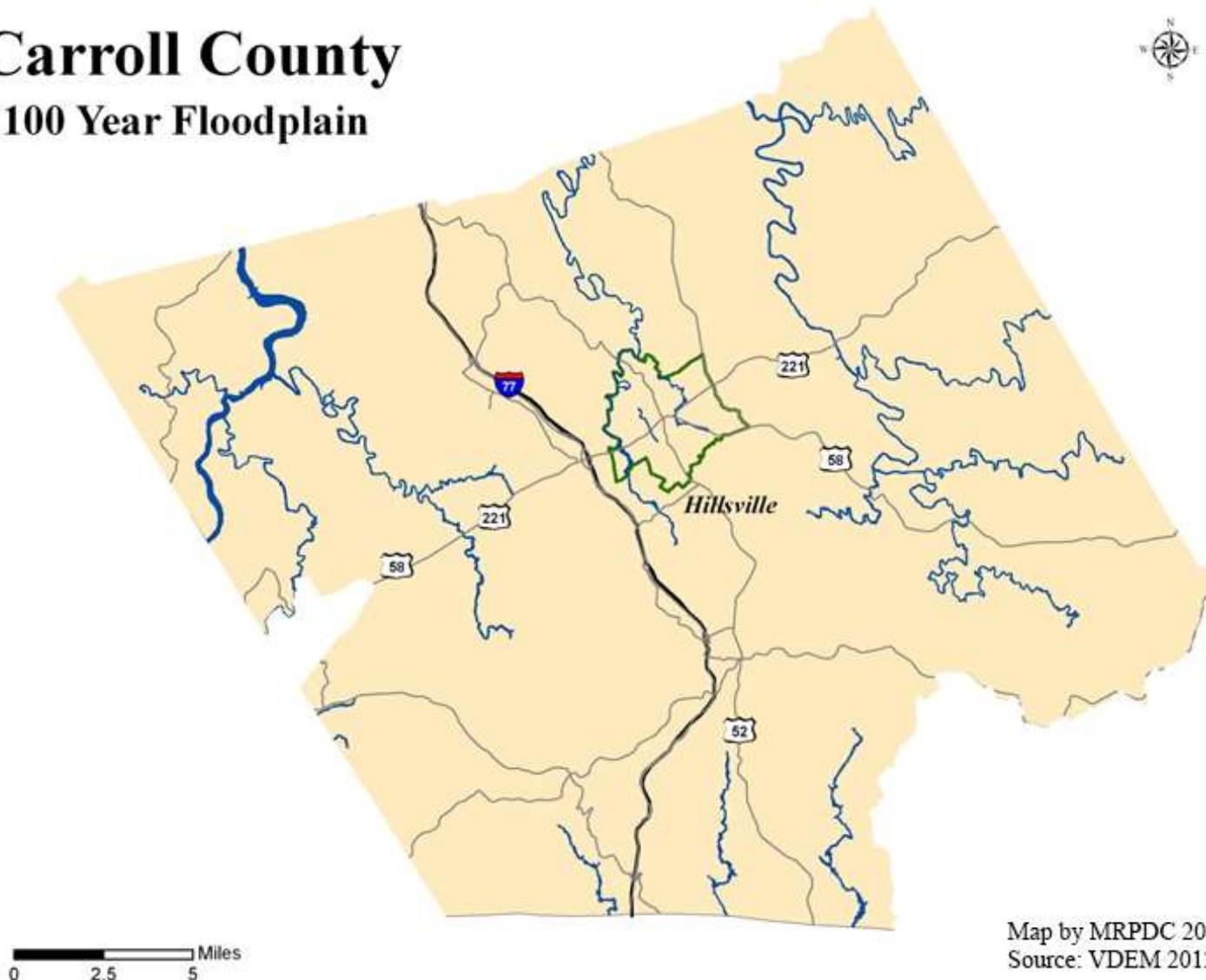
100 Year Floodplain



Map by MRPDC 2018
Source: VDEM 2012

Carroll County

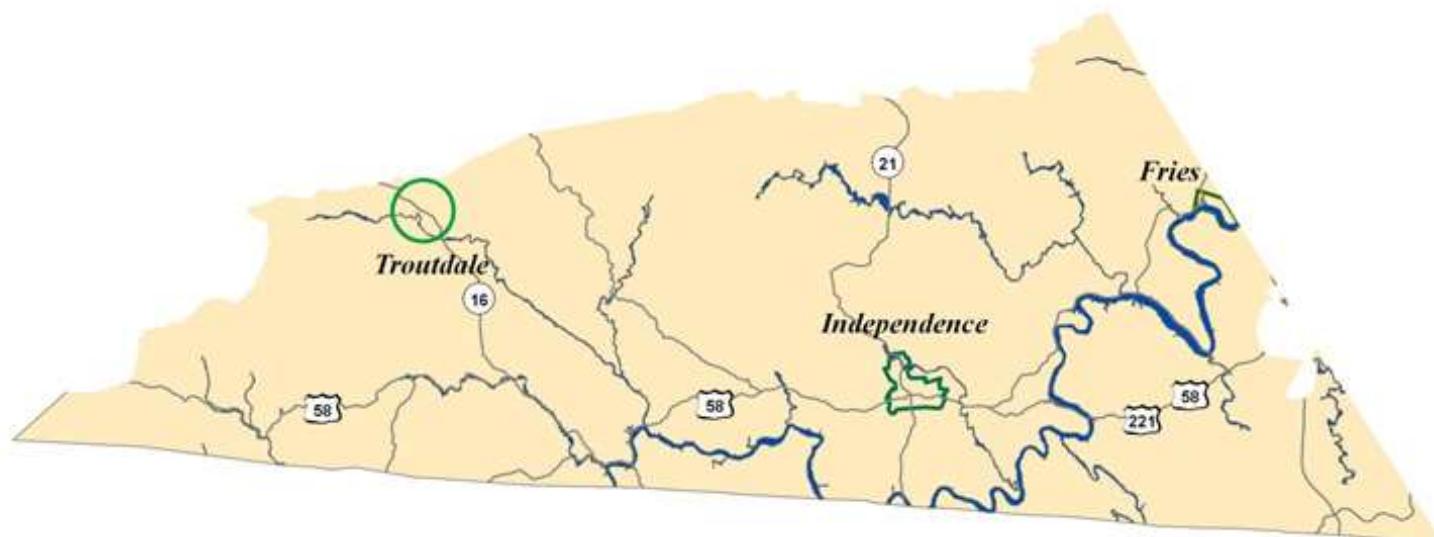
100 Year Floodplain



Map by MRPDC 2018
Source: VDEM 2012

Grayson County

100 Year Floodplain

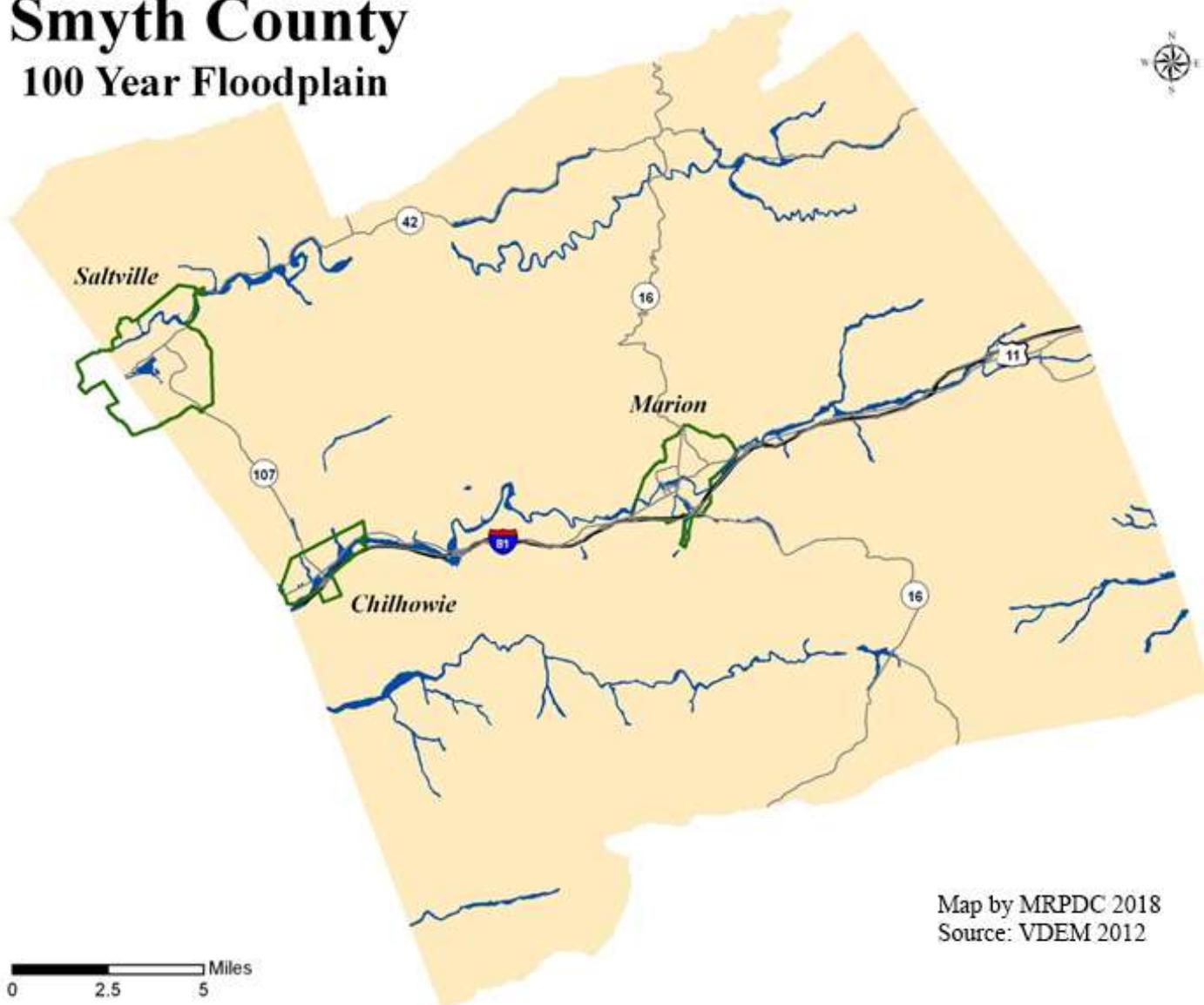


Map by MRPDC 2018
Source: VDEM 2012

0 2.5 5 Miles

Smyth County

100 Year Floodplain



Map by MRPDC 2018
Source: VDEM 2012

0 2.5 5 Miles

Washington County

100 Year Floodplain

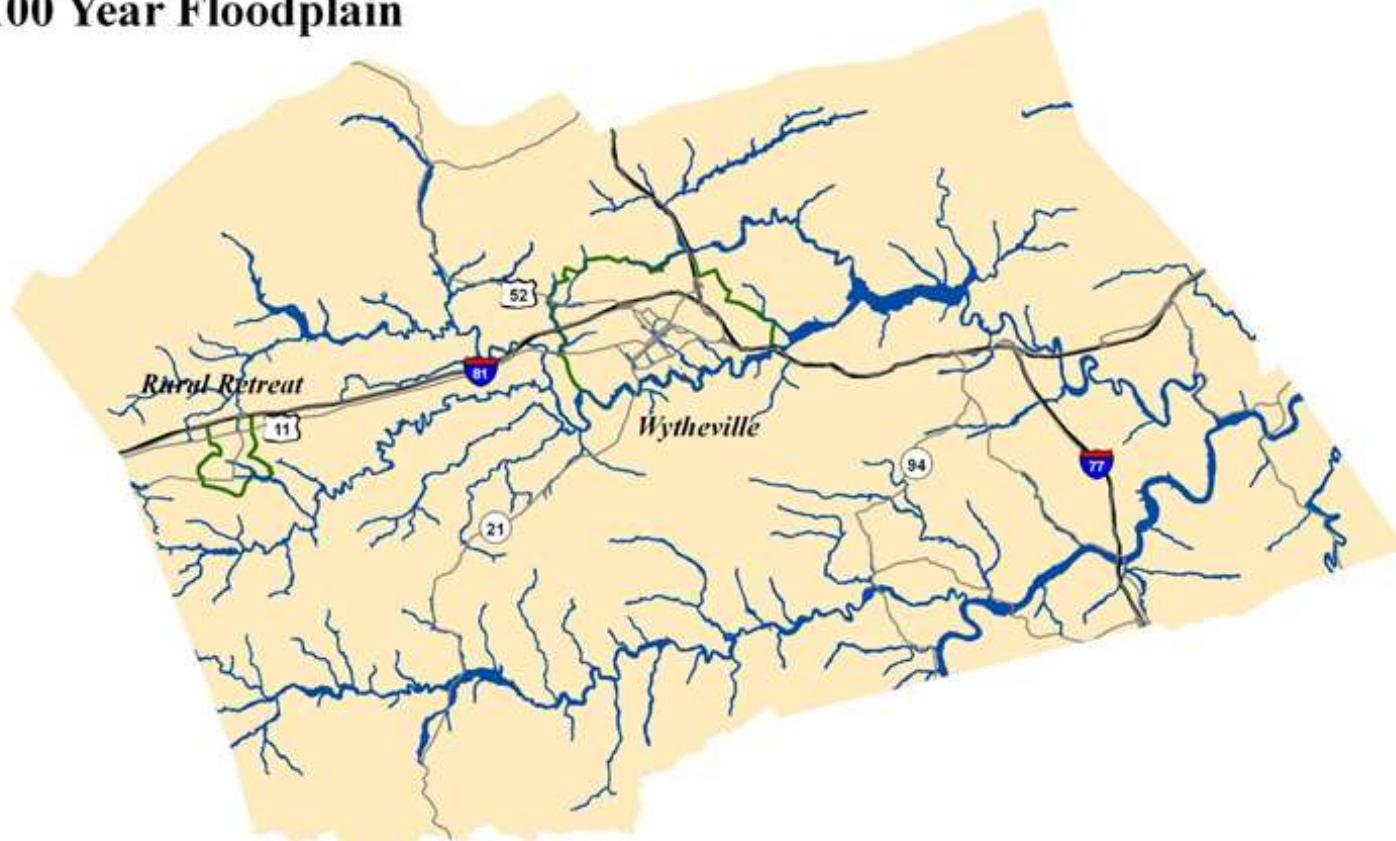


Map by MRPDC 2018
Source: VDEM 2012

0 2.5 5 Miles

Wythe County

100 Year Floodplain



Map by MRPDC 2018
Source: VDEM 2012

0 2.5 Miles

City of Bristol

100 Year Floodplain

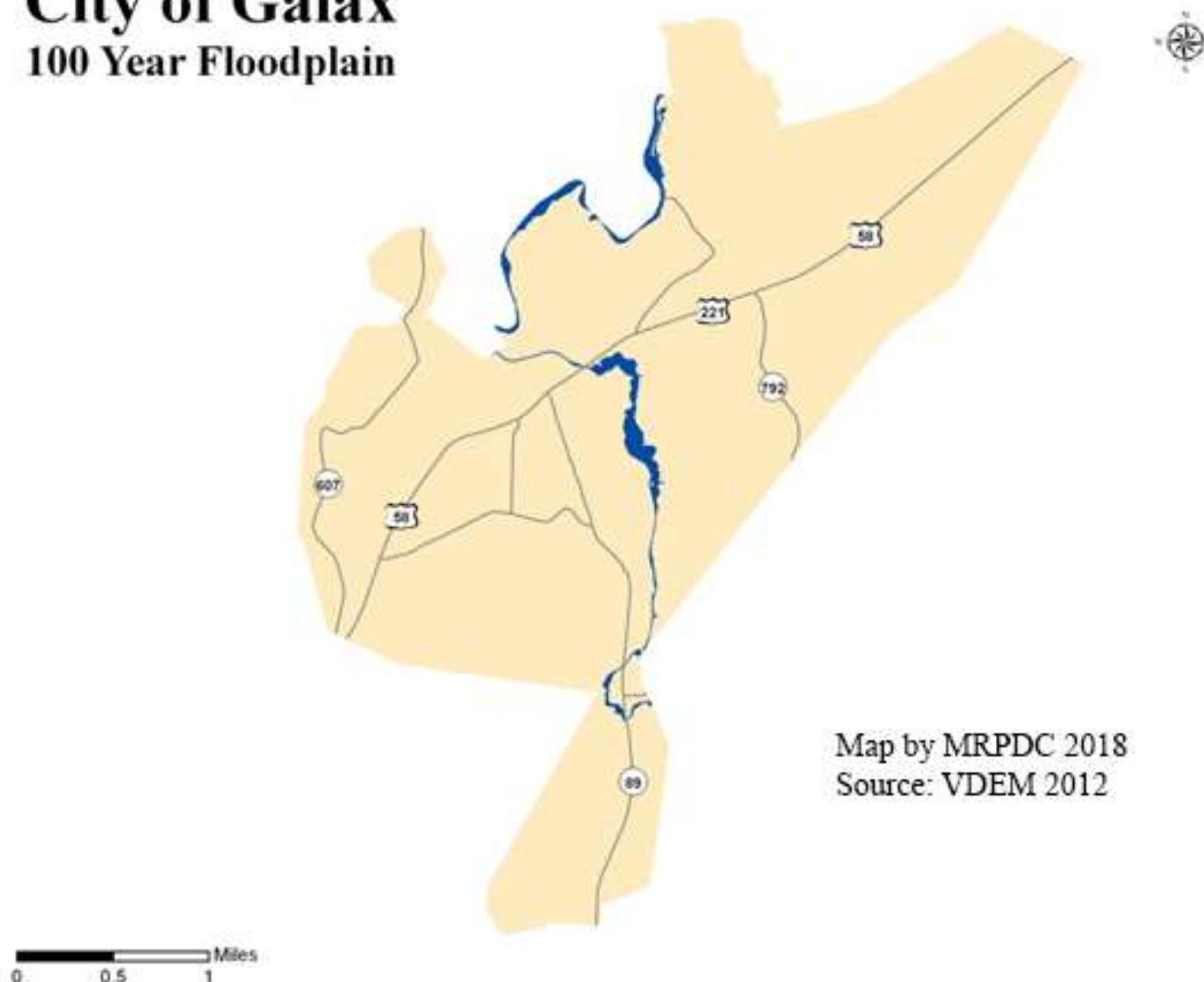


Map by MRPDC 2018
Source: VDEM 2012



City of Galax

100 Year Floodplain



Sec. 50-51. - General provisions.

- (a) *Purpose.* In accordance with the general purpose of this article as stated in section 50-5, and the legislative authority for zoning provided for in Code of Virginia, § 15.2-2280, the purpose of these provisions is to prevent the loss of life and property, the creation of health and safety hazards, the disruption of commerce, institutional and governmental services, the extraordinary and unnecessary expenditure of public funds for flood protection and relief, and the impairment of the tax base by:
- (1) Regulating uses, activities, and development which, alone or in combination with other existing or future uses, activities, and development, will cause unacceptable increases in flood heights, velocities, and frequencies.
 - (2) Restricting or prohibiting certain uses, activities, and development from locating within districts subject to flooding.
 - (3) Requiring all those uses, activities, and developments that do occur in flood-prone districts to be protected and/or flood-proofed against flooding and flood damage.
 - (4) Protecting individuals from buying land and structures which are unsuited for intended purposes because of flood hazards.
- (b) *Applicability.* These provisions shall apply to all lands within the jurisdiction of the City of Bristol and identified as being in the special flood hazard area (SFHA) by the Federal Insurance Administration.
- (c) *Compliance and liability.*
- (1) No land shall hereafter be developed and no structure shall be located, relocated, constructed, reconstructed, enlarged, or structurally altered except in full compliance with the terms and provisions of this article and any other applicable ordinances and regulations which apply to uses within the jurisdiction of this division.
 - (2) The degree of flood protection sought by the provisions of this division is considered reasonable for regulatory purposes and is based on acceptable engineering methods of study. Larger floods may occur on rare occasions. Flood heights may be increased by manmade or natural causes, such as ice jams and bridge openings restricted by debris. This division does not imply that districts outside the floodplain district, or that land uses permitted within such district will be free from flooding or flood damages.
 - (3) This division shall not create liability on the part of the City of Bristol or any officer or employee thereof for any flood damages that result from reliance on this chapter or any administrative decision lawfully made thereunder.
 - (4)

Any person who fails to comply with any provisions of this division shall be subject to penalties, corrections, and remedies. The VA USBC addresses building code violations and associated penalties. Violations and associated penalties of this article are addressed in division 17.

- (d) *Abrogation and greater restrictions.* This division supersedes any ordinance currently in effect in flood-prone districts. However, any underlying ordinance shall remain in full force and effect to the extent that its provisions are more restrictive than this division.
- (e) *Severability.* If any section, subsection, paragraph, sentence, clause, or phrase of this chapter shall be declared invalid for any reason whatever, such decision shall not affect the remaining portions of this division. The remaining portions shall remain in full force and effect; and for this purpose, the provisions of this division are hereby declared to be severable.
- (f) *Administration.* The zoning administrator is responsible for administering the provisions of this division and serves as the community floodplain administrator with duties including, but not limited to, the following:
 - (1) Review applications for permits to determine whether proposed activities will be located in the special flood hazard area (SFHA).
 - (2) Approve permits for new construction and substantial improvements that meet the requirements of these regulations.
 - (3) Interpret floodplain boundaries and provide available base flood elevation and flood hazard information.
 - (4) Review applications to determine that all necessary permits have been obtained, and in particular permits from state agencies for construction, reconstruction, repair, or alteration of a dam, reservoir, or waterway obstruction (including bridges, culverts, structures), any alteration of a watercourse, or any change of the course, current, or cross section of a stream or body of water.
 - (5) Review elevation certificates and require incomplete or deficient certificates to be corrected.
 - (6) Submit to the Federal Emergency Management Authority (FEMA), or require applicants to submit to FEMA, data and information necessary to maintain flood insurance rate maps, including hydrologic and hydraulic engineering analysis prepared by or for the city, within six months after such data and information becomes available if the analyses indicated changes in base flood elevation (BFE).
 - (7) Maintain and permanently keep records that are necessary for the administration of these regulations, including flood insurance studies, flood insurance rate maps, letters of map changes, documentation supporting issuance and denial of permits, elevation certificates, variances, and records of enforcement action.
 - (8) Prepare staff reports and recommendations to the board of zoning appeals for each application for a variance.

(Ord. No. 20-4, 11-24-20)

Sec. 50-52. - Establishment of zoning districts.

(a) *Description of districts.*

- (1) *Basis of districts.* The various floodplain districts shall include areas subject to inundation by waters of the base flood. The basis for the delineation of these districts shall be the flood insurance study (FIS) and flood insurance rate map (FIRM) for the City of Bristol prepared by the Federal Emergency Management Agency, Federal Insurance Administration, dated February 4, 2004, and any subsequent revisions or amendments thereto.
- a. The floodway district is delineated, for purposes of this article, using the criterion that certain area within the floodplain must be capable of carrying the waters of the base flood without increasing the water surface elevation of that flood more than one foot at any point. The areas included in this district are specifically defined in Table 3 of the above-referenced flood insurance study and shown on the accompanying FIRM.
 - b. The flood-fringe district shall be that area of the SFHA not included in the floodway district. The basis for the outermost boundary of the district shall be the base flood elevation (BFE) contained in the flood profiles of the above-referenced flood insurance study and as shown on the accompanying FIRM. The AE zone shown on the FIRM comprises both floodway and flood-fringe districts, although there may be flood-fringe districts without floodway.
 - c. The approximated floodplain district shall be that floodplain area for which no detailed flood profiles or elevations are provided, but where a SFHA boundary has been approximated. Such areas are shown as Zone A on the maps accompanying the flood insurance study. For these areas, the BFE and floodway information from federal, state, and other acceptable sources shall be used, when available. Where the specific BFE cannot be determined for this area using other sources of data, such as the U. S. Army Corps of Engineers (USACE) Floodplain Information Reports, U. S. Geological Survey Flood-Prone Quadrangles, etc., then the applicant for any proposed use, development and/or activity that exceeds either five acres or five lots shall determine this elevation in accordance with hydrologic and hydraulic engineering techniques. Hydrologic and hydraulic analyses shall be undertaken only by professional engineers or others of demonstrated qualifications, who shall certify that the technical methods used correctly reflect currently accepted technical concepts. Studies, analyses, computations, etc., shall be submitted in sufficient detail to allow a thorough review by the city.
 - d. The city reserves the right to require that base flood elevation be provided for development in flood-prone areas within 50 feet of any main drainage channel or stream that is not included in the flood insurance study. The BFE shall be determined by the same

methods indicated in subsection c. of this subsection.

(2) *Overlay concept.*

- a. The floodplain districts described above shall be overlays to the existing underlying districts as shown on the official zoning map, and as such, the provisions for the floodplain districts shall serve as a supplement to the underlying district provisions.
 - b. Any conflict between the provisions or requirements of the floodplain districts and those of any underlying district, the more restrictive provisions and/or those pertaining to the floodplain districts shall apply.
 - c. In the event any provision concerning a floodplain district is declared inapplicable as a result of any legislative or administrative actions or judicial decision, the basic underlying provisions shall remain applicable.
- (b) *Official zoning map.* The boundaries of the floodplain districts are established as shown on the FIRM which is declared to be a part of this article and which shall be kept on file at the City of Bristol offices.
- (c) *District boundary changes.* The delineation of any of the floodplain districts may be revised by the city where natural or manmade changes have occurred and/or where more detailed studies have been conducted or undertaken by the USACE or other qualified agency, or an individual documents the need for such change. However, prior to any such change, approval must be obtained from the federal insurance administration.
- (d) *Interpretation of district boundaries.* The zoning administrator shall make initial interpretations of the boundaries of the floodplain districts. Should a dispute arise concerning the boundaries of any of the districts, the board of zoning appeals shall make the necessary determination. The person questioning or contesting the location of the district boundary shall be given a reasonable opportunity to present his case to the board and to submit his own technical evidence if he so desires.

(Ord. No. 20-4, 11-24-20)

Sec. 50-53. - District provisions.

(a) *General provisions.*

- (1) *Permit requirement.* All uses, activities, and development occurring within any floodplain district shall be undertaken only upon the issuance of the necessary permit(s). Such development shall be undertaken only in strict compliance with the provisions of the division and with all other applicable codes and ordinances, such as the Virginia Uniform Statewide Building Code and the City of Bristol Subdivision Ordinance. Prior to the issuance of any such permit, the zoning administrator shall require all applications to include compliance with all

applicable state and federal laws. Under no circumstances shall any use, activity, and/or development adversely affect the capacity of the channels or floodway of any watercourse, drainage ditch, or any other drainage facility or system.

- (2) *Alteration or relocation of watercourse.* Prior to any proposed alteration or relocation of any channels or of any watercourse, stream, etc., within the city a permit shall be obtained from the USACE, the Virginia Department of Environmental Quality (DEQ), and the Virginia Marine Resources Commission (a joint permit application is available from any of these organizations). Furthermore, in riverine areas, notification of the proposal shall be given by the applicant to all affected adjacent jurisdictions, the Virginia Department of Conservation and Recreation (Division Dam Safety and Floodplain Management), and other appropriate agencies (such as the DEQ and the USACE) and copies of such notifications shall be submitted to FEMA.
- (3) *Drainage facilities.* Storm drainage facilities shall be designed to convey the flow of storm water runoff in a safe and efficient manner. The system shall insure proper drainage along streets, and provide positive drainage away from buildings. The system shall also be designed to prevent the discharge of excess runoff onto adjacent properties.
- (4) *Site plans and permit applications.* All applications for development in the floodplain district and all building permits issued for the floodplain shall incorporate the following information:
 - a. For structures to be elevated, the elevation of the lowest floor (including basement).
 - b. For structures to be flood-proofed, the elevation to which the structure will be flood-proofed.
 - c. The elevation of the base flood at the site.
 - d. Topographic information showing existing and proposed ground elevations.
- (5) *Construction requirements.* The building official shall review all permit applications for new construction or substantial improvements to determine if the proposed building site(s) will be reasonably safe from flooding. If a proposed site is located in the SFHA (i.e. AE zone) all new construction or substantial improvements shall:
 - a. Be designed or modified and adequately anchored to prevent floatation, collapse, or lateral movement of the structure resulting from hydrodynamic and hydrostatic loads, including the effects of buoyancy.
 - b. Be constructed with materials resistant to flood damage.
 - c. Be constructed by methods and practices that minimize flood damages.
 - d.

Be constructed with electrical, heating, ventilation, plumbing and air conditioning equipment, and other service facilities that are designed and/or located so as to prevent water from entering or accumulating within the components during conditions of flooding.

- e. For new or replacement water and sanitary sewer system projects, be designed to minimize or eliminate infiltration of flood waters into the system.
 - f. For any on-site waste disposal systems, be located and constructed to avoid impairment or contamination.
- (6) *Recreational vehicles* are considered ready for highway use if it is on its wheels or jacking system, is attached to the site only by quick disconnect type utilities and security devices, and has no permanently attached additions. Any such vehicle placed on a site must either:
- a. Be on the site for fewer than 180 consecutive days, be fully licensed and ready for highway use, or
 - b. Meet the permit requirements for placement and the elevation and anchoring requirements for manufactured homes as contained in the Virginia Uniform Statewide Building Code.
- (7) *Certification.* For all new or substantially improved structures located in the SFHA, the applicant shall furnish the following information to the building official, as determined by a professional engineer, architect, or other qualified professional:
- a. The as-built elevation (in relation to NGVD, 1988) of the lowest floor (including basement) and include whether or not such structures contain a basement.
 - b. If the structure has been flood-proofed, the as-built elevation to which the structure was flood-proofed.
 - c. Any certification of flood-proofing.
- (8) *Manufactured homes.* All manufactured homes to be placed or substantially improved within the SFHA shall be elevated on a permanent foundation such that the lowest floor of the manufactured home is one foot above the base flood elevation; and be securely anchored to resist floatation, collapse, or lateral movement. Methods of anchoring may include, but are not limited to, use of over-the-top or frame ties to ground anchors.
- (9) *New construction and substantial improvements.* Fully enclosed areas below the lowest floor that are subject to flooding are permitted provided they meet the following requirements:
- a. The enclosed area is unfinished or flood resistant, usable solely for the parking of vehicles, building access or storage,
 - b. The area is not a basement,
 - c.

The area shall be designed to automatically equalize hydrostatic flood forces on exterior walls by allowing for entry and exit of floodwater. Designs for meeting this requirement must either be certified by a registered professional engineer or architect or must meet or exceed the following minimum criteria: A minimum of two openings having a total net area of not less than one square inch for every square foot of enclosed area subject to flooding shall be provided. The bottom of all openings shall be no higher than one foot above grade. Openings may be equipped with screens, louvers and other coverings or devices provided that they permit automatic entry and exit of floodwater.

(10) *Subdivisions.*

- a. All subdivision proposals shall be consistent with the need to minimize flood damage;
- b. All subdivision proposals shall have public utilities and facilities such as sewer, gas, electrical and water systems located and constructed to minimize flood damage;
- c. All subdivision proposals shall have adequate drainage provided to reduce exposure to flood hazards.

(11) *Accessory structures.* Accessory structures in the SFHA shall comply with all applicable requirements of this division. If not elevated to one foot above BFE or dry flood-proofed, the structure shall meet the following requirements:

- a. Shall not be used for human habitation;
- b. Shall be limited to no more than 600 square feet in total floor area;
- c. Shall be used only for parking of vehicles or limited storage, and any electrical or mechanical equipment elevated above the BFE;
- d. Shall be constructed with flood damage-resistant materials below the BFE, and be anchored to prevent flotation, collapse, and lateral movement;
- e. Shall meet the design requirements in section 50-53(9)c. regarding openings to allow entry and exit of floodwaters.

(b) *Floodway district.* In the floodway district no encroachments, including fill, new construction, substantial improvements, or other development shall be permitted unless it has been demonstrated through hydrologic and hydraulic analyses performed in accordance with standard engineering practice that the proposed encroachment would not result in any increase in the BFE. If any such development is allowed, it must also meet the requirements of the flood fringe district in (c).

(c) *Flood-fringe and approximated floodplain districts.* In the flood-fringe and approximated floodplain districts, the development and/or use of land shall be permitted in accordance with the regulations of the underlying area provided that all such uses, activities, and/or development shall be undertaken in strict compliance with the flood-proofing and related provisions contained in the Virginia Uniform Statewide Building Code and all other applicable codes and ordinances. In

the flood-fringe district, the elevation of the lowest floor of approved residential structures shall be one foot above the base flood elevation Non-residential structures must have the lowest floor elevated or flood-proofed to one foot above the base flood elevation or more.

Within the approximated floodplain district, all new subdivision proposals and other proposed developments shall include within such proposals base flood elevation data. The applicant shall also delineate a floodway area based on the requirement that all existing and future development does not increase the BFE more than one foot at any one point. Within the floodway area delineated by the applicant, the provisions of subsection (b) shall apply.

Non-residential buildings located in the flood-fringe district may be floodproofed in lieu of being elevated, provided that all areas of building components below the elevation corresponding to the BFE plus one foot are water tight with walls substantially impermeable to the passage of water, and use structural components having the capability of resisting hydrostatic and hydrodynamic loads and the effect of buoyancy. A registered professional engineer or architect shall certify that the standards of this subsection area satisfied. Such certification include the specific elevation (in relation to mean seal level) to which such structures are floodproofed, shall be maintained by the zoning administrator.

For any flood-fringe district without a designated floodway, new development shall not be permitted unless it is demonstrated that the cumulative effect of all past and projected development will not increase the BFE by more than one foot.

(Ord. No. 20-4, 11-24-20)

Sec. 50-54. - Variances; factors to be considered.

Variances shall be issued only upon: (i) a showing of good and sufficient cause, (ii) after the board of zoning appeals has determined that failure to grant the variance would result in exceptional hardship to the applicant, and (iii) after the board of zoning appeals has determined that the granting of such variance will not result in (a) unacceptable or prohibited increases in flood heights, (b) additional threats to public safety, (c) extraordinary public expense; and will not (d) create nuisances, (e) cause fraud or victimization of the public, or (f) conflict with local laws or ordinances.

While the granting of variances generally is limited to a lot size less than one-half acre, deviations from that limitation may occur. However, as the lot size increases beyond one-half acre, the technical justification required for issuing a variance increases. Variances may be issued by the board of zoning appeals for new construction and substantial improvements to be erected on a lot of one-half acre or less in size contiguous to and surrounded by lots with existing structures constructed below the base flood level, in conformance with the provisions of this section.

Variances may be issued for new construction and substantial improvements and for other development necessary for the conduct of a functionally dependent use provided that the criteria of this section are met, and the structure or other development is protected by methods that minimize flood damages during the base flood and create no additional threats to public safety.

- (1) In passing upon applications for variances, the board of zoning appeals shall satisfy all relevant factors and procedures specified in other sections of the zoning ordinance and consider the following additional factors:
 - a. The danger to life and property due to increased flood heights or velocities caused by encroachments. No variance shall be granted for any proposed use, development, or activity within any floodway district that will cause any increase in the BFE.
 - b. The danger that materials may be swept on to other lands or downstream to the injury of others.
 - c. The proposed water supply and sanitation systems and the ability of these systems to prevent disease, contamination, and unsanitary conditions.
 - d. The susceptibility of the proposed facility and its contents to flood damage and the effect of such damage on the individual owners.
 - e. The importance of the services provided by the proposed facility to the community.
 - f. The requirements of the facility for a waterfront location.
 - g. The availability of alternative locations not subject to flooding for the proposed use.
 - h. The compatibility of the proposed use with existing development and development anticipated in the foreseeable future.
 - i. The relationship of the proposed use to the comprehensive plan and floodplain management program for the area.
 - j. The safety of access by ordinary and emergency vehicles to the property in the time of flood.
 - k. The expected heights, velocity, duration, rate of rise, and sediment transport of the flood waters expected at the site.
 - l. Such other factors which are relevant to the purposes of this division.
- (2) The board of zoning appeals may refer any application and accompanying documentation pertaining to any request for a variance to any engineer or other qualified person or agency for technical assistance in evaluating the proposed project in relation to flood heights and velocities, and the adequacy of the plans for flood protection and other related matters.
- (3) Variances shall be issued only after the board of zoning appeals has determined that the granting of such will not result in: 1) unacceptable or prohibited increases in flood heights, 2) additional threats to public safety, 3) extraordinary public expense; and will not 4) create

nuisances, 5) cause fraud or victimization of the public, or 6) conflict with local laws or ordinances.

- (4) Variances shall be issued only after the board of zoning appeals has determined that variance will be the minimum required to provide relief from any hardship to the applicant.
- (5) The board of zoning appeals shall notify the applicant for a variance, in writing, that the issuance of a variance to construct a structure below the BFE: (a) increases the risks to life and property, and (b) will result in increased premium rates for flood insurance.
- (6) A record shall be maintained of the above notification as well as all variance actions, including justification for the issuance of the variances. Any variances which are issued shall be noted in the annual or biennial report submitted to the federal insurance administrator.

(Ord. No. 20-4, 11-24-20)

Sec. 50-55. - Existing structures in floodplain districts.

- (a) A structure or use of a structure or premises which lawfully existed before the enactment of these provisions, but which is not in conformity with these provisions, may be continued subject to the following conditions:
 - (1) Existing structures in the floodway district shall not be expanded or enlarged unless it has been demonstrated through hydrologic and hydraulic analyses performed in accordance with standard engineering practice that the proposed expansion would not result in any increase in the base flood elevation.
 - (2) Any modifications, alteration, repair, reconstruction, or improvement of any kind to a structure and/or use located in any floodplain area to an extent or amount of less than 50 percent of its market value, elevation and/or flood-proofing should be considered to the greatest extent possible.
 - (3) The modification, alteration, repair, reconstruction, or improvement of any kind to a structure and/or use, regardless of its locations in a floodplain area, to an extent or amount of 50 percent or more of its market value shall be undertaken only in full compliance with the provisions of this division and the Virginia Uniform Statewide Building Code.

(Ord. No. 20-4, 11-24-20)

Secs. 50-56—50-62. - Reserved.



City of Bristol, Virginia **Comprehensive Plan**

Adopted March 28, 2017



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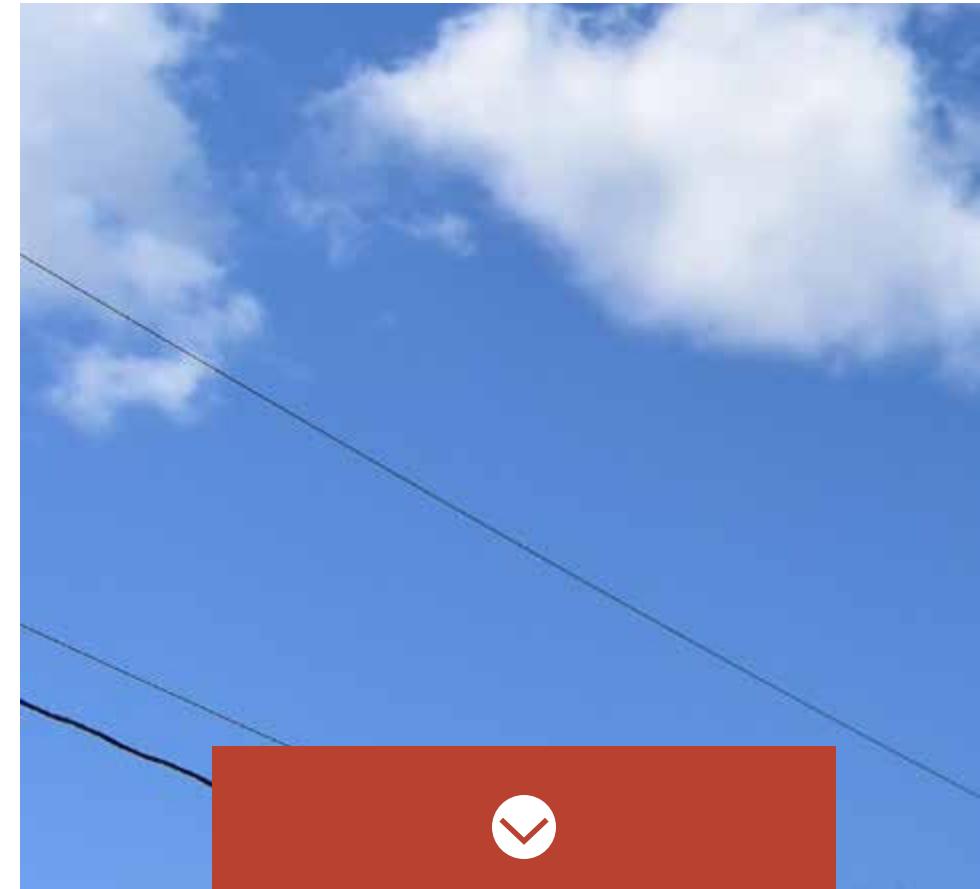
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INTRODUCTION

Bristol, Virginia is a historic community along the Virginia-Tennessee line that balances southern charm and small-town roots with regional cultural, recreational, and shopping destinations. Residents and visitors alike can visit Bristol's Birthplace of Country Music Museum, stroll through an energized and revitalized Downtown, take in a NASCAR race at the nearby Bristol Motor Speedway, enjoy historic homes on tree-lined streets, and play outdoors in any of the city's beautiful parks or golf course. Bristol truly is "a good place to live."

The completion of the new Comprehensive Plan marks a new chapter in Bristol's storied history. After eighteen months of community input and engagement, this document represents the aspirations of the community as well as the policies and recommendations that government officials, staff, residents, business leaders, investors, developers, and more can undertake to make Bristol an even better place to live, work, invest, recreate, entertain, and visit.



The Comprehensive Plan is organized into ten chapters.

Chapter 01: Introduction

Chapter 02: Community Outreach

Chapter 03: Community Profile

Chapter 04: Vision

Chapter 05: Land Use & Development Plan

Chapter 06: Bob Morrison Boulevard & Downtown Sub-Area Plans

Chapter 07: Transportation & Mobility Plan

Chapter 08: Parks, Open Space & Environmental Features Plan

Chapter 09: Community Facilities & Infrastructure Plan

Chapter 10: Implementation Plan



Purpose of the Comprehensive Plan

The Comprehensive Plan for the City of Bristol, VA is the City's official guide for land use and development over the next 10–20 years. It is Bristol's "road map," detailing a long-term vision and policy agenda for important issues like land use, housing, parks, infrastructure, transportation, and more. Ultimately, the Plan answers: "what should Bristol look like in 10–20 years and how do we get there?"

Virginia law (Virginia Code Section 15.2–2223) requires every county, city, and town to adopt a Comprehensive Plan for physical development within its jurisdiction. The City's previous Comprehensive Plan was adopted in 2002.

Big Ideas

What is the Comprehensive Plan seeking to achieve? While the Comprehensive Plan provides policy guidance and recommendations for a variety of topics, an extensive outreach process identified several issues that were exceptionally important to the community. These "big ideas" form the core of the Comprehensive Plan and will help to make Bristol an even better place to live and work.

- Stabilize and reinvest in Bristol's neighborhoods, particularly in core neighborhoods surrounding the Downtown;
- Continue diversification of Bristol's residential areas with quality contemporary development, senior housing, and higher density product;
- Protect Bristol's historic character and leverage its roots, history, and charm for both tourism and local pride;

- Make Bristol the "place to do business" in the Tri Cities region and ensure job growth;
- Improve the community's appearance through beautification investments and regulatory changes;
- Support Downtown Bristol as the social, cultural, and entertainment heart of the community;
- Complete the Falls development and encourage further redevelopment of the Lee Highway area;
- Create a healthy municipal financial environment;
- Improve city-wide pedestrian and bike connectivity; and
- Protect and enhance Bristol's unique green spaces and natural features.

Plan Organization

The Comprehensive Plan is organized into ten chapters:

- **Chapter 1 – Introduction,** introducing the purpose of the Comprehensive Plan, its big ideas, and the organization of the document;
- **Chapter 2 – Community Outreach,** summarizing all of the in-person and on-line outreach that was conducted over the course of eighteen months;
- **Chapter 3 – Community Profile,** detailing a variety of important background information, such as the City's history, development controls, existing land uses, and demographics;
- **Chapter 4 – Vision,** establishing the community vision that guides the Comprehensive Plan document and paints a picture of what Bristol will look like in 2035;
- **Chapter 5 – Land Use & Development Plan,** illustrating and describing in general terms the type and location of future land uses within Bristol. This section also provides detailed recommendations and policies targeted at the improvement of Bristol's residential, commercial, and employment areas;
- **Chapter 6 – Bob Morrison Boulevard & Downtown Sub-Area Plans,** establishing a vision for the Bob Morrison Boulevard and Downtown areas, including site concepts and planning recommendations;
- **Chapter 7 – Transportation & Mobility Plan,** providing recommendations for the City's roads, trails, sidewalks, and more, and identifying opportunities to increase community connectivity;
- **Chapter 8 – Parks, Open Space, & Environmental Features Plan,** providing recommendations intended to enhance the park and trail system, and protect and enhance Bristol's natural areas and environmental features;
- **Chapter 9 – Community Facilities & Infrastructure Plan,** identifying the future need for community facilities and offering long-range recommendations to ensure that residents are adequately served by service providers; and
- **Chapter 10 – Implementation Plan,** presenting specific actions, as well as potential funding sources, that the City should pursue as it seeks to implement the recommendations of the Comprehensive Plan.



COMMUNITY OUTREACH

The Comprehensive Plan is the result of a process that has actively sought input from a variety of stakeholders, including residents, business owners, developers, service providers, elected and appointed officials, and City staff. A variety of outreach efforts, both in-person and online, were used to gather the concerns, ideas, and aspirations of residents. This feedback and input provided a foundation for the Comprehensive Plan, guiding the recommendations and strategies of the plan to address key issues and opportunities in the community. This section summarizes the community outreach efforts that have been completed thus far in the planning process.



This chapter summarizes the community outreach efforts that have been completed thus far in the planning process.

- Kick-Off Workshop
- Community Workshop
- Business Workshop
- Youth Workshop
- Key Person Interviews
- Visioning Workshop
- Project Website
- Resident Questionnaire
- Business Questionnaire
- sMap Online Mapping Tool



Kick-Off Workshops

Two kick-off workshops were held in February 2015 at City Hall: one with the Comprehensive Plan Advisory Committee (CPAC) on February 9th, 2015 and the other with the City's elected and appointed officials on February 10th, 2015. Also in attendance were many City of Bristol staff. The purpose of both events was to introduce CPAC members and the City's elected and appointed officials to the comprehensive planning process and give them a chance to voice initial issues, aspirations, and priorities regarding the Bristol Comprehensive Plan.

Summary of Input

While a variety of issues and opportunities were identified, discussion focused on the key topics of poverty and blight, need for economic growth and employment retention, management of city finances, quality of education, and the disrepair of transportation infrastructure.

Community Workshop

On April 30th, 2015, a Community Workshop was held at Virginia High School from 7:00pm to 8:30pm to allow residents to communicate their issues, aspirations, and priorities for the future of Bristol, VA. This workshop was the first opportunity for members of the public to discuss issues and challenges related to living in Bristol. After a review of the scope of work and questions and comments from those in attendance, the consultant led a group exercise to gather input from the public.

Summary of Input

While a variety of issues and opportunities were identified, discussion focused on the key topics of job creation, neighborhood blight, management of City finances, drug abuse, and improvements to Downtown.

Business Workshop

A Business Workshop was held at the Bristol Public Library on March 24, 2015. The purpose of the workshop was to give the community's business leaders and managers an opportunity to share concerns, issues, aspirations, and priorities regarding development of the Bristol Comprehensive Plan, as well as be briefed about the planning process.

Summary of Input

While participants discussed a variety of city-wide issues and opportunities, the focus of the discussion centered on the city's business climate and workforce, particularly the key topics of the City's financial condition, competition versus cooperation with neighboring jurisdictions, the need for well-paying jobs, the lack of parking Downtown, and the deterioration of infrastructure.

Key Person Interviews

In order to get greater detail about important issues and more accurately assess "on the ground" conditions and potentials, the consultant team conducted confidential one-on-one interviews and roundtable discussions in March 2015 with more than two dozen individuals. Those interviewed possessed a wide range of perspectives and backgrounds, including small and large business owners, local experts, key service providers, institutional partners, developers, and activists. Each group of participants was asked a series of questions about Bristol, with interviews generally lasting about one hour.

Youth Workshop

A Youth Workshop was held with nineteen high school students at Virginia High School on March 24, 2015. Participating students were a mixture of freshmen, sophomores, juniors, and seniors. The purpose of the workshop was to engage Bristol's youth and give them an opportunity to share concerns, issues, aspirations, and priorities regarding development of the Bristol Comprehensive Plan.

Summary of Input

While a variety of issues and opportunities were identified, discussion focused on the key topics of blight and vacancy; the need for youth activities; Bristol Mall; poor connectivity and the lack of sidewalks, bike lanes, and trails; education and school operations; and the deteriorating road infrastructure resulting in increased traffic.

Visioning Workshop

On September 15, 2015, the City of Bristol, VA held a Visioning Workshop at the Bristol Public Schools Headquarters. Attendees were assigned to one of six "breakout" groups and provided with markers and a large map of the city. Over the course of an hour, each group worked as a team to draw their "vision" for the City of Bristol on maps.

Summary of Input

Generally, workshop participants felt strongly about developing historic zoning and preservation policies, particularly within Downtown and the Euclid Avenue, Virginia Hill, and Solar Hill neighborhoods; beautifying key corridors; enhancing Downtown as the center of the community; adding sidewalks, trails, and pathways along major corridors such as Lee Highway, Euclid Avenue, and Commonwealth Avenue; extending bus service (both hours and routes); and increasing the diversity of the housing stock (e.g. senior housing, apartments, condos, etc.).

Project Website

A project website was created to establish a centralized location for information regarding the Bristol Comprehensive Plan. The website contained information and updates concerning the project, meeting notices, and downloadable versions of project documents and reports. The project website also contained links to online questionnaires for residents and business owners, as well as the sMap mapping tool.

Resident Questionnaire

A total of 96 individuals completed the Resident Questionnaire, which remained open throughout the planning process. The questionnaire was designed to supplement in-person outreach activities and gather input from those unable to attend those events. While the questionnaire does provide a statistical approach to community input, it is not intended to act as a scientific survey instrument.

Summary of Input

Overall, residents who completed the questionnaire were satisfied but not enthusiastic about living and working in Bristol. Attracting new employment and more industry was identified as significant objective for the community. Similarly, residents chose development and growth potential, schools, and city government and services as the three top priorities that should be addressed within the Comprehensive Plan.

Business Questionnaire

The business questionnaire was designed to supplement in-person outreach activities while also obtaining input from the perspective of business owners and operators within Bristol. Sixteen businesses completed the survey.

Summary of Input

Business owners identified commercial development, greater support for local business, and more public relations and promotions as improvements they would like to see. In addition, respondents believe that Bristol has improved in the past 10 years and the majority said they would not move their business out of Bristol if given the opportunity.

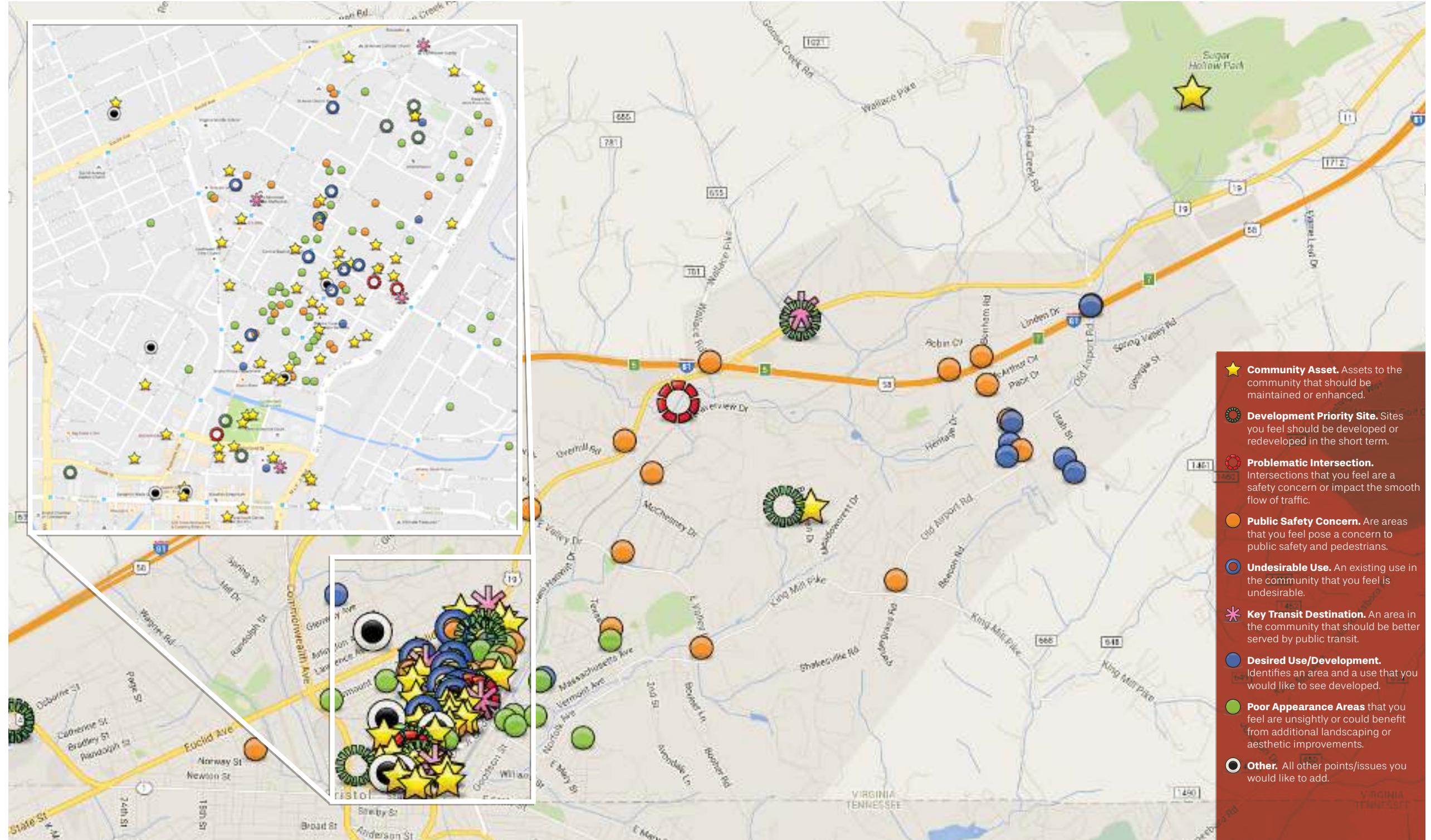


sMap

sMap is a social mapping application developed by Houseal Lavigne Associates that allows residents to actively participate in the planning process. This tool enables participants to create their own community maps, making note of issues and opportunities while providing comments tagged to specific locations. On the Bristol sMap, 10 maps were created with a total of 188 points.

Summary of Input

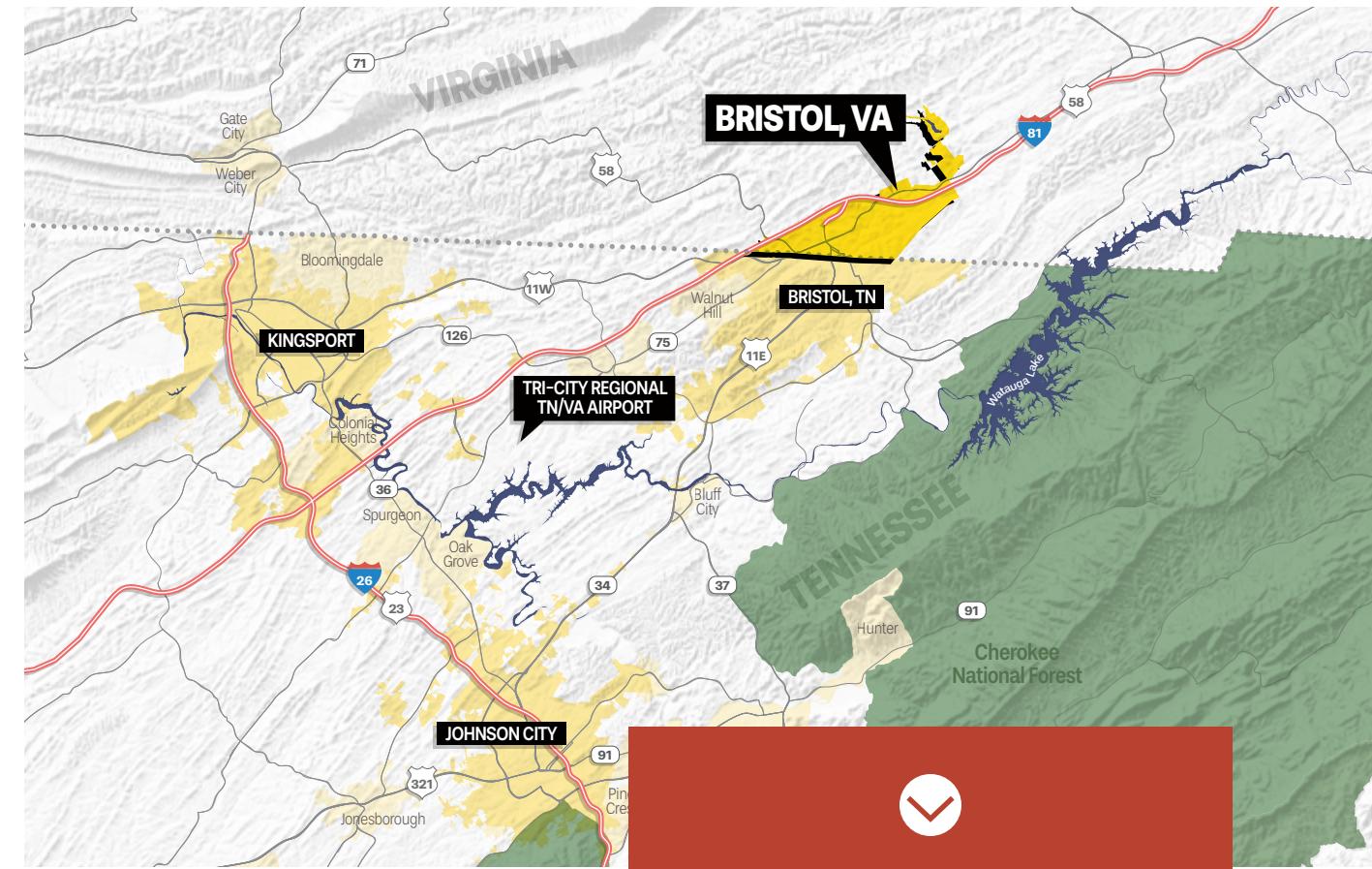
While a larger variety of points were marked, a few common trends were noted. Participants identified 55 sites as community assets, particularly Virginia Intermont College campus, Girls Incorporated of Bristol, Fred Hayes Park, Cumberland Park, and the Paramount Theater. The Bristol Mall, Virginia Intermont College campus, and the I-81 exit 5 areas were noted as important development priority sites. A large number of points identified areas that are public safety concerns or have poor appearance.





COMMUNITY PROFILE

Long-range visioning and planning is founded upon an understanding of where the community is today. This chapter provides important background information about the community that has helped inform and shape the planning recommendations in the following chapters.



This chapter provides important background information about the community.

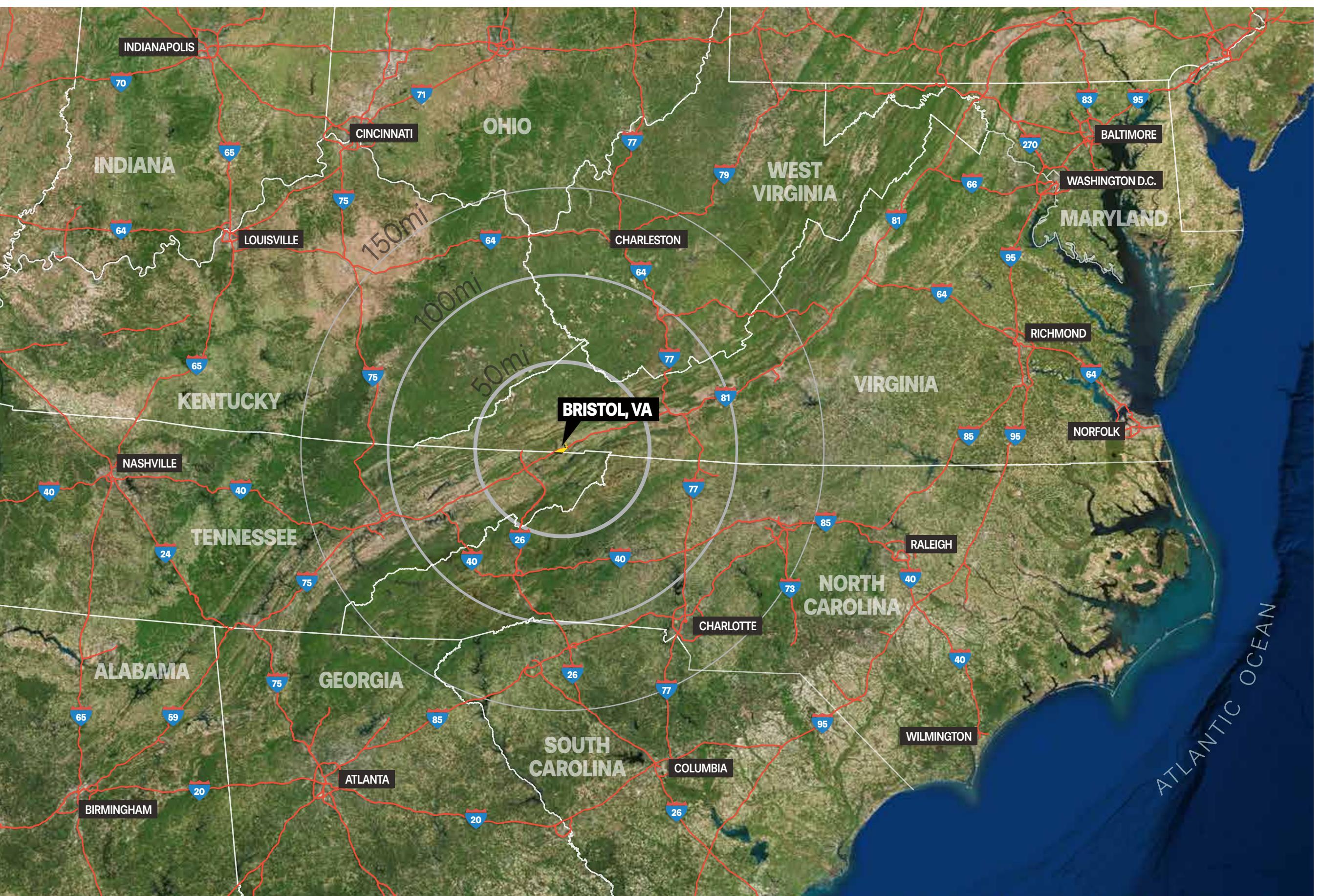
Regional Setting

History

Community Assets

Past Plans & Studies

Market & Demographic Analysis



History

Frontier Town

Bristol's original residents were the Cherokee and Yuchi Native American tribes. Treaties and land grants led to settlement by pioneers in the 18th century on both sides of the Virginia and Tennessee state line. After construction of a fort within what is now Downtown Bristol, the area became an important trading destination for explorers and frontiersmen, including Daniel Boone and George Rogers Clark. In 1856, charters were given to both the land north of the state line (Goodson, VA) and the land south of the state line (Bristol, TN). In 1890, Goodson, VA was renamed to Bristol, VA, and the two Bristols became known as the "twin cities."



Civil War

The expansion of the Virginia and Tennessee Railroads to Bristol in 1856 led to rapid growth, and during the Civil War, Bristol became an important link between the Confederate government in Richmond and the states of the Deep South. As part of the Confederacy, Bristol manufactured and supplied goods for the Confederate Army, but was also located close to several Union strongholds. Union raids during the war led to fire and destruction of several buildings in Bristol. Throughout the war, Bristol remained a Confederate stronghold, housing both hospitals and prisoner of war camps. East Hill Cemetery along East State Street is the final resting place for many who perished in the Civil War, both Union and Confederate.

Growing City

Weathering through booms and busts, the City of Bristol continued to grow. In 1870, Sullins College opened its doors; in 1891, Virginia Intermont College did the same. In 1875, the two Bristols had a combined eight manufacturing firms, 27 commercial enterprises, and 17 lawyers. By the end of the 20th century, Bristol contained the region's first department store and was the premier commercial destination within a 200 mile radius.

Infrastructure and civil society continued to evolve with the growth of the city. The first daily newspaper was established in 1888, the first public school in 1891, and electricity began illuminating State Street in 1913. Bristol's famous "A Good Place to Live" sign was erected in 1921 after a contest held by the Bristol Advertising Club. That sign was added to the National Register of Historic Places in 1988, one of only 33 signs on the register.

Over the course of thirty years, Bristol doubled in population from 4,579 in 1900 to 8,840 in 1930.

Birthplace of Country Music

In 1927, a recording executive named Ralph Peer traveled to Bristol to set up a temporary recording studio and capture the music of southern Appalachia. During his two week visit, he recorded 76 songs by 19 different acts, including Jimmy Rodgers ("the Father of Country Music") and the Carter Family ("the First Family of Country Music"). These recordings changed the course of music history. Johnny Cash later stated, "these recordings in Bristol in 1927 are the single most important event in the history of country music." In 1998, the U.S. Congress named Bristol officially the Birthplace of Country Music, and in 2002, the Library of Congress ranked the sessions among the 50 most significant sound recording events of all time.

Post-War

In the 1960s, I-81 was built as a part of a national push for highway expansion, linking Bristol to the northeastern states and Canada. In keeping with national trends, Downtown Bristol fell into decline in the 1970s and 1980s, with new commercial development along Lee Highway, Euclid Avenue, Gate City Highway, and at the Bristol Mall. The City was able to expand its footprint and annex land up until 1987, when the state legislature approved a moratorium on annexation. Peak population occurred in 1980, with 19,042 residents.

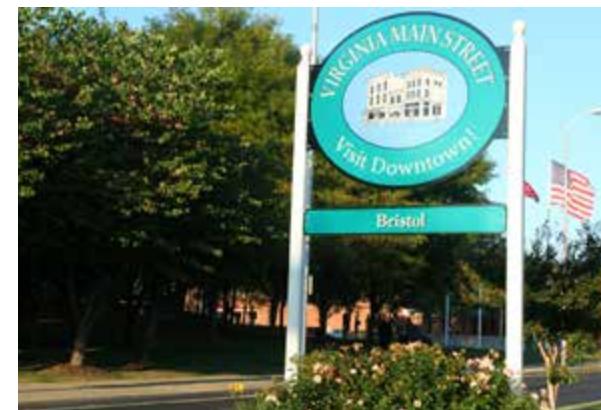
Present Day

Today, Bristol remains a hub of culture, recreation, and entertainment, as well as a "good place to live." 17,835 people called Bristol, VA home in 2010. Downtown has experienced a rebirth, with millions of dollars in new investment, establishment of a new Smithsonian Institution-affiliated Birthplace of Country Music Museum, and the regular hosting of concerts and festivals, such as Rhythm and Roots.



Community Assets

What makes Bristol a great and unique place to live? This section details several contributing elements that the Comprehensive Plan seeks to preserve, elevate, and enhance. Each of these elements, as well as many others, combine to form a unique sense of place within Bristol and make it an attractive place to live, work, shop, and visit. As implementation of new projects begins, it is important not to lose focus of the many significant elements of the past and present that have made Bristol into the special place that it is today.



Downtown Bristol

Downtown Bristol is the heart of the community. Its historic architecture, murals, and leafy street trees help create a sense of place. With the state line running down the center of State Street, and dividing Virginia from Tennessee, Bristol also offers a character unique to most American cities. Offices, lofts, restaurants, bars, festivals, and cultural facilities provide a full range of day and night, weekday and weekend uses. Recent redevelopment has stimulated new investment and attention to the Downtown area.



Events & Festivals

A variety of unique entertainment and sporting events draw thousands to Bristol each year and bolster its reputation as a hub for fun community activities. Rhythm & Roots, held on the third weekend of each September, is one of the largest music festivals in the South, drawing national acts such as the Avett Brothers and Emmylou Harris. Sporting events include the nearby NASCAR Bristol Motor Speedway and the Bristol Pirates, a rookie league team associated with the Pittsburgh Pirates. The "Cumberplunge," a 500 foot water slide erected along Cumberland Street, is becoming a local summer staple.



Small-Town Feel

Bristol residents cherish quiet streets, neighborhood parks, and the "Main Street" feel of Downtown Bristol. Throughout the outreach process, participants continually cite the City's friendliness, warmth, and civic mindedness as some of the community's greatest assets. Bristol is also a tight knit community that includes multiple generations of families and a place where most of today's population has deep roots in the region.



Country Music Heritage

A series of tape recordings made in Bristol by music executive Ralph Peer changed the course of music history forever. They captured and popularized an undiscovered style of music found in southern Appalachia. In 1998, the U.S. Congress named Bristol officially the "birthplace of country music," and in 2014, the Smithsonian-affiliated Birthplace of Country Music Museum opened in Downtown Bristol. This heritage is crucial to community pride and identity as well as tourism, marketing, and branding.



Historic Architecture

Bristol offers a variety of historic neighborhoods and architecture that give it a distinctive flavor and identity. Located in one of the original colonies, but situated in the mountains where the nation once transitioned to the frontier, Bristol's buildings tell part of America's story and embody the longevity and resilience of the local area. Majestic mansions with proud columns line the streets of Solar Hill, "grand old ladies" that were the stomping grounds of famous Americans such as President Andrew Jackson. Downtown's historic streetwall remains largely intact, displaying interesting facades with patterned masonry and detailed cornices that harken back to its status as a 19th century rail town.

Bristol Sign

The Bristol sign over State Street is the community's most distinctive landmark. Originally built in 1910, the phrase "A Good Place to Live" was added in 1921. It is only one of 33 signs to be listed on the National Register of Historic Places.

Capital of Southwest Virginia

Bristol has the largest concentration of culture, shopping, and entertainment in southwest Virginia. Its informal status as the "capital" communicates its regional influence as well as consumer draw. Bristol serves as a crossroads and meeting place for many throughout the region. Bristol is home to many local residents, but as a regional destination it plays a role in the lives of many more people and its importance is greater than its official municipal boundaries.

Sister Cities

Oftentimes, neighboring communities do not have much in common – but Bristol, VA and Bristol, TN are part of a larger community that shares the same name and has grown together over time. Although they are separate jurisdictions, Bristol is often seen as one community. The division of State Street between Virginia and Tennessee creates an extremely unique environment within Downtown, and cross-border partnerships such as "Believe in Bristol" and the development of a joint-branding campaign help facilitate close relationships between the two sister cities.

Past Plans & Studies

This section contains a review of past plans and studies impacting policy, planning, and development within the City of Bristol. The comprehensive planning process recognizes the value of these prior planning efforts and will build upon them where applicable as a component of the community's new vision.

Bristol, TN/VA Joint Planning Commission

Ignite Vision & Strategic Plan (1999)

After a two year planning process, a joint planning effort between the communities of both Bristol, TN and Bristol, VA produced a shared vision and strategic plan. The Plan's central recommendation was that Downtown Bristol represents the greatest untapped opportunity for both communities, and that new investments should make Downtown Bristol the "Tri Cities' Downtown."

Some of the key recommendations to achieve that vision included both cities making a commitment to quality development and urban design, coordinating efforts and investment among different stakeholders, revitalizing the train station, promoting tourism through bike trails linked to the Downtown, and building the Beaver Creek Walk. Other goals and recommendations were provided related to topics such as community pride, culture and the arts, social services, recreation, and more.

City of Bristol, VA Comprehensive Plan (2002)

The City's last Comprehensive Plan was adopted in 2002, updating the prior 1995 Plan. It serves as the City's official policy guide for land use and development until adoption of the new Comprehensive Plan in 2016. The Plan identified future land uses for every parcel in the City, and established goals and priorities for land use, transportation, housing, economic development, and Downtown.

In 2013, the City evaluated and appraised the 2002 Comprehensive Plan to see how well it aligned with the current needs of City governance and the community at-large. The study found that while the Plan was well drafted, it lacks many components common in more modern plans and its recommendations and future land use map no longer aligns with market realities and community needs ("substandard"). These findings led to the beginning of the development of a new Comprehensive Plan.

City of Bristol, VA Moore Street Walkability & Parking Study (2010)

Moore Street is a critical, but underutilized, road that could better connect Lee Highway, a major thoroughfare, with Downtown Bristol. The Moore Street Walkability & Parking Study evaluated the corridor's walkability, traffic conditions, transportation options, and parking. Some of the study's key findings included that the corridor was not very walkable (e.g. few pedestrian amenities, no buffers, sidewalk gaps, narrow sidewalks, etc.), usage of public transportation was minimal, and that the corridor contained a surplus of parking (13 acres of parking pavement).

Bristol Metropolitan Planning Organization

Long Range Transportation Plan for 2035 (2011)

The Bristol Metropolitan Planning Organization includes Bluff City (TN), Bristol (TN), Bristol (VA), Sullivan County (TN), Abingdon (VA), and Washington County (VA). Key priorities of the Long Range Transportation Plan include system efficiency and maintenance, economic development, environmental quality and livable communities, mobility, and user safety and security. The Plan projects minimal population change in Bristol, VA between 2007 and 2035 (17,451 people in 2007 vs. 17,708 people in 2035; + 257) but a noticeable increase in total employment (15,619 jobs in 2007 vs. 18,359 jobs in 2035; +2,740 jobs).

Roads identified as experiencing significant congestion in 2035 (LOS E or F) included parts of Lee Highway, Old Airport Road, and Commonwealth. Road projects identified within Bristol include traffic signal coordination along Lee Highway, widening and adding turn-lanes on Old Airport Road, extending the multi-lane portions of Lee Highway from near Kerin Drive to the northern corporate limits, widening Bonham Road between Lee Highway and I-81, and widening East Valley Drive from Lee Highway to Kings Mill Pike, among others. The Plan notes that sidewalks are confined to the central business district, older residential districts, and near schools, with most other areas lacking. The Plan recommends continual upgrade, repair, reconstruction, and expansion of sidewalks and trails.



City of Bristol, VA **Comprehensive Parking Study & Parking Management Plan for Downtown (2011)**

This study examined parking needs in the Downtown and evaluated existing parking supply to determine if it adequately met parking demand. Demands for both Downtown Bristol, TN and Bristol, VA were examined. The study determined that there is currently an existing daytime surplus of 359 parking spaces; however, there are block to block deficiencies due to poor parking management and lax enforcement of regulations.

As the Downtown continues to revitalize and redevelop, the study estimates that this will lead to a daytime deficit of about 628 spaces within five years and a deficit of 1,122 spaces within ten years. Some of the key parking challenges identified included that employees often park on the street (utilizing spaces for consumers), a lack of wayfinding and identification signage, a lack of shared parking, and poor appearance of lots. The study also notes that the City only has jurisdictional control over 43% of parking within Downtown, with the other 57% in Bristol, TN.

City of Bristol, VA **Moore Street Corridor Small Area Plan (2011)**

This Plan offers recommendations and tools to visually and culturally enhance the Moore Street corridor area, a roughly oval-shaped planning area that spans from Scott Street in the south to the five point intersection in the north, Oakview Avenue in the west to Martin Luther King, Jr. Boulevard in the east. The Plan envisions Moore Street as a welcoming, aesthetically pleasing, and historic neighborhood serving as a gateway to Downtown Bristol. The goals of the Plan include:

- Create gateways and distinctive neighborhoods within Moore Street
- Improve pedestrian safety
- Improve and create a transportation plan for the area
- Revitalize and aesthetically improve the streetscape

City of Bristol, VA **Analysis of Potential Options for Meeting the City's Jail Needs (2014)**

The City's existing jail was built in the 1960s and is insufficient to meet the demands currently placed on it. The jail lacks an outside security perimeter, secure entrance/exit, smoke removal and sprinkler systems, and has insufficient space for inmates. Its rated capacity is 67 inmates; it currently houses 150+ inmates. The Analysis of Potential Opportunities for Meeting the City's Jail Needs Study presents two scenarios for meeting its jail needs: the local alternative and the regional alternative. The former scenario includes construction of a new 270-bed jail, while the latter involves joining the Southwest Virginia Regional Jail Authority system and transition Bristol's city jail to a holding facility.

City of Bristol, VA **Our Vision, Our Future (2014)**

Bristol: Our Vision Our Future was prepared by the Virginia City Council during a 2014 planning retreat. Written from the perspective of the 2034 City Council, it sets a course for action in several policy areas. The document envisions Bristol as:

- An economic hub
- A destination for culture, heritage and natural resources
- A community with an impressive public education system preparing students to enter the workforce and is accessible by all
- Having vibrant neighborhoods with mixed income levels and mixed uses
- Providing outstanding city services
- Having a healthy financial environment
- Maintaining superb facilities and infrastructure

Commonwealth of Virginia **VTrans2040 Plan (2015)**

VTrans2040 is a long-range multimodal policy document that identifies transportation needs within Virginia. Only projects that help address a need identified in VTrans2040 will be considered for funding under the statewide prioritization process. VTrans 2040 is being developed in two phases: (1) a Vision Plan completed in 2015, and (2) a Multimodal Transportation Plan which will replace the 2035 Virginia Surface Transportation Plan, to be completed in 2016. Goals of Vision Plan include:

- Optimize return on investment
- Ensure safety, security, and resiliency

- Efficiently deliver programs
- Consider operational improvements and demand management first
- Provide transparency and accountability through performance management
- Improve coordination between transportation and land use
- Ensure efficient intermodal connections



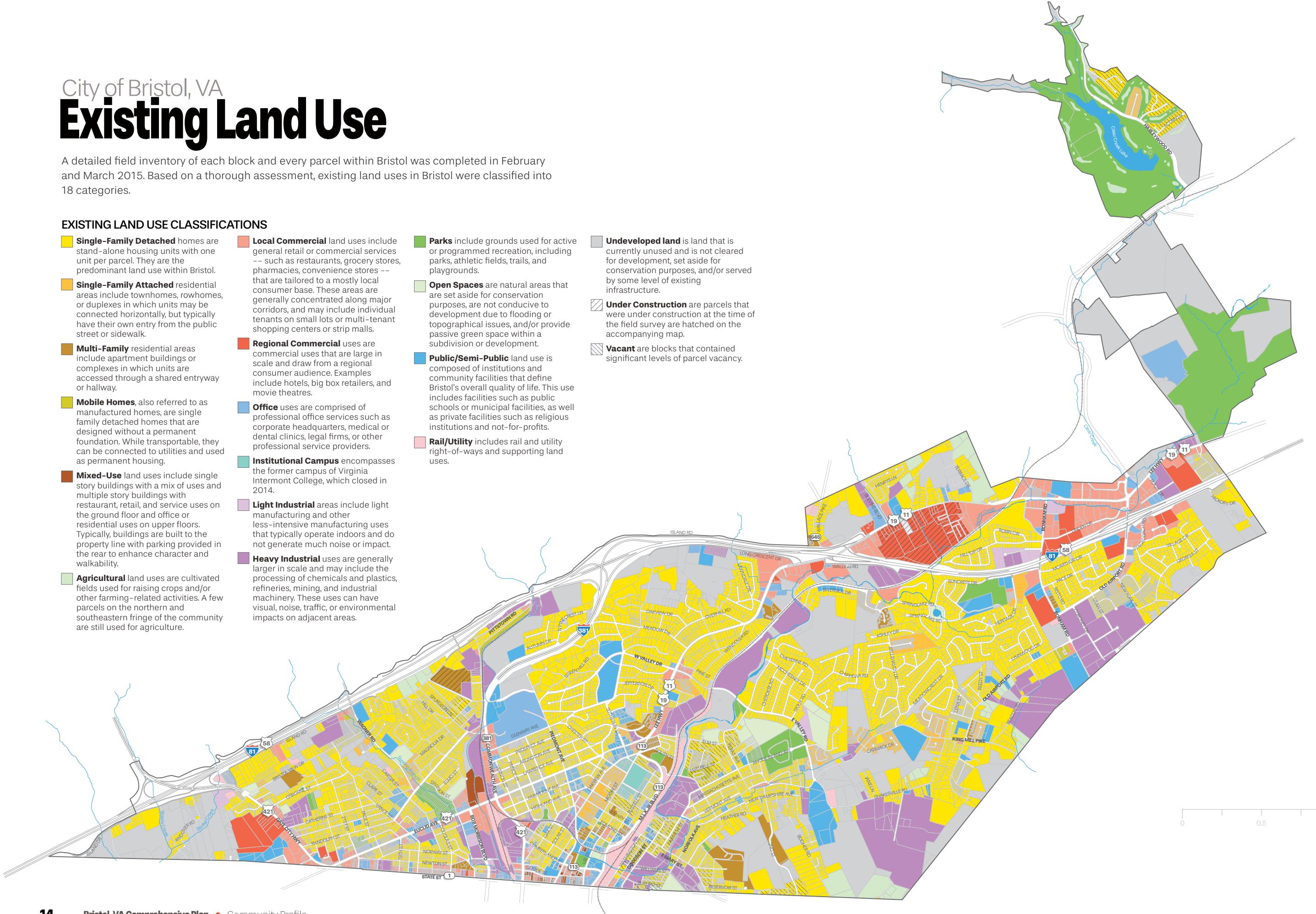
City of Bristol, VA Existing Land Use

A detailed field inventory of each block and every parcel within Bristol was completed in February and March 2015. Based on a thorough assessment, existing land uses in Bristol were classified into 18 categories.

EXISTING LAND USE CLASSIFICATIONS

- Single-Family Detached** homes are stand-alone housing units with one unit per parcel. They are the predominant land use within Bristol.
- Single-Family Attached** residential areas include townhomes, rowhomes, or duplexes in which units may be connected horizontally, but typically have their own entry from the public street or sidewalk.
- Multi-Family** residential areas include apartment buildings or complexes in which units are accessed through a shared entryway or hallway.
- Mobile Homes**, also referred to as manufactured homes, are single family detached homes that are designed without a permanent foundation. While transportable, they can be connected to utilities and used as permanent housing.
- Mixed-Use** land uses include single story buildings with a mix of uses and multiple story buildings with restaurant, retail, and service uses on the ground floor and office or residential uses on upper floors. Typically, buildings are built to the property line with parking provided in the rear to enhance character and walkability.
- Agricultural** land uses are cultivated fields used for raising crops and/or other farming-related activities. A few parcels on the northern and southeastern fringe of the community are still used for agriculture.

- Local Commercial** land uses include general retail or commercial services -- such as restaurants, grocery stores, pharmacies, convenience stores -- that are tailored to a mostly local consumer base. These areas are generally concentrated along major corridors, and may include individual tenants on small lots or multi-tenant shopping centers or strip malls.
- Regional Commercial** uses are commercial uses that are large in scale and draw from a regional consumer audience. Examples include hotels, big box retailers, and movie theaters.
- Office** uses are comprised of professional office services such as corporate headquarters, medical or dental clinics, legal firms, or other professional service providers.
- Institutional Campus** encompasses the former campus of Virginia Intermont College, which closed in 2014.
- Light Industrial** areas include light manufacturing and other less-intensive manufacturing uses that typically operate indoors and do not generate much noise or impact.
- Heavy Industrial** uses are generally larger in scale and may include the processing of chemicals and plastics, refineries, mining, and industrial machinery. These uses can have visual, noise, traffic, or environmental impacts on adjacent areas.
- Parks** include grounds used for active or programmed recreation, including parks, athletic fields, trails, and playgrounds.
- Open Spaces** are natural areas that are set aside for conservation purposes, are not conducive to development due to flooding or topographical issues, and/or provide passive green space within a subdivision or development.
- Public/Semi-Public** land use is composed of institutions and community facilities that define Bristol's overall quality of life. This use includes facilities such as public schools or municipal facilities, as well as private facilities such as religious institutions and not-for-profits.
- Rail/Utility** includes rail and utility right-of-ways and supporting land uses.
- Undeveloped land** is land that is currently unused and is not cleared for development, set aside for conservation purposes, and/or served by some level of existing infrastructure.
- Under Construction** are parcels that were under construction at the time of the field survey are hatched on the accompanying map.
- Vacant** are blocks that contained significant levels of parcel vacancy.



City of Bristol, VA Current Zoning

The City's Land Use Code (Chapter 50) within the Code of Ordinances regulates the usage and density of land (zoning), as well as the design and appearance of structures, signage, subdivision development, parking, and landscaping. These regulations have the expressed purpose of promoting the health, safety, convenience, order, prosperity, and general welfare of the people of the city.

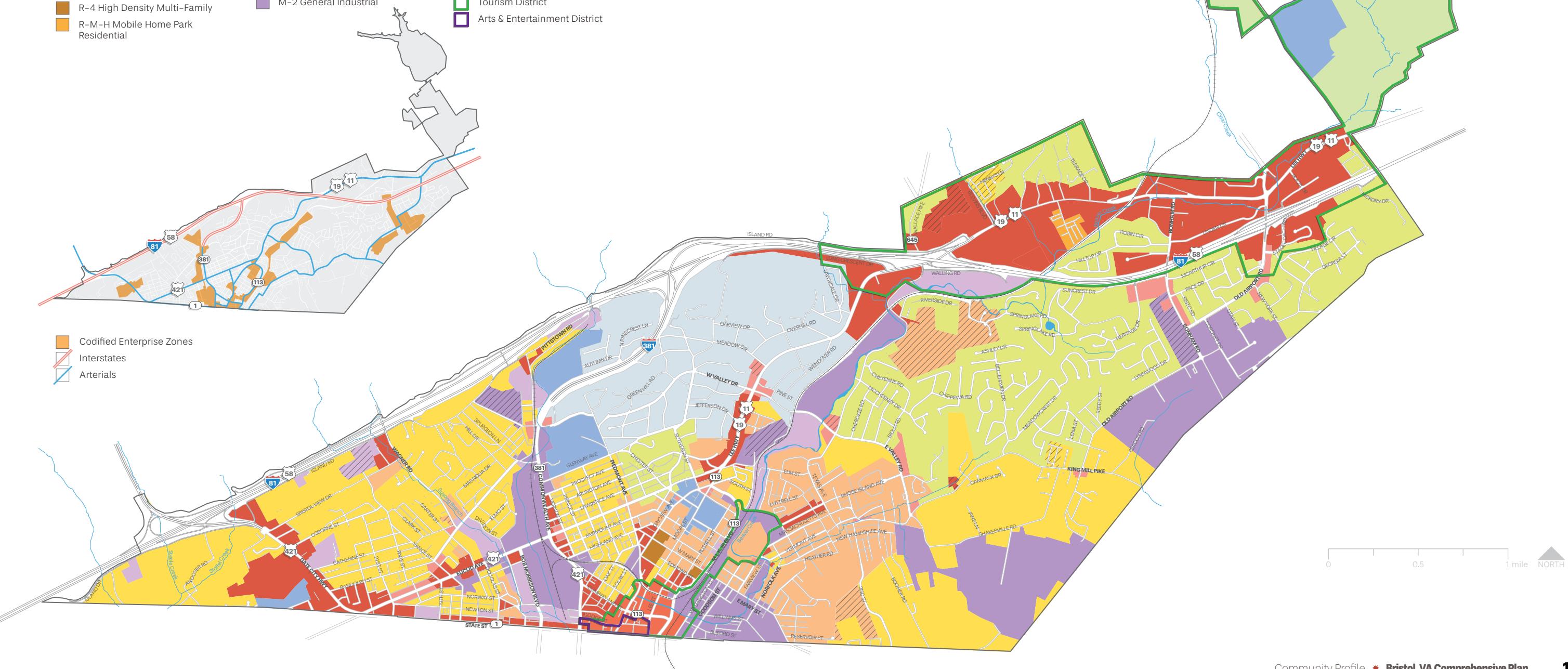
ZONING DISTRICTS

R-1A Single Family Residential	O-1 Office and Institution
R-1 Single Family Residence	GCR Golf Course Residential
R-2 Single and Two Family Residence	A Agricultural
R-3 Moderate Density Residential	Parcels with Conditional Zoning
R-4 High Density Multi-Family	
R-M-H Mobile Home Park Residential	

B-1 Neighborhood Shopping
B-2 Central Business
B-3 Intermediate Business
M-1 Light Industrial
M-2 General Industrial

SPECIAL OVERLAY DISTRICTS

Tourism District
Arts & Entertainment District



Other Development Controls

Subdivisions

The City's subdivision regulations are found in Chapter 50, Article 3 of the Code of Ordinances and they seek to guide the change that occurs when land and acreage become urban in character as a result of development for residential, business or industrial purposes; to provide assurance that the purchasers of lots are buying a commodity that is suitable for development and use; and to make possible the provision of public services in a safe, adequate and efficient manner. The Article articulates processes and requirements for new subdivisions within the City.

Signage

The City's signage regulations are found in Chapter 50, Article 11, Division 14 of the Code of Ordinances and were adopted in 2012. Prohibited signs include: those with motion or intermittent lighting (outside of those that provide public information), those that obstruct clear vision of traffic or rail, overly bright signage, and similar types of signs. All signs must be safe and presentable and in good structural condition. All off-premise signs are prohibited.

Pole signs are only allowed within 1,000 feet of I-81 and shall not be taller than 40 feet in height. Multi-tenant, ground signs, and wall signs are allowed on frontage of roads within nonresidential zones, with different regulations depending on the type of roadway and the length of frontage.

Normal maintenance of nonconforming signage shall be permitted, however, no structural alteration, enlargement, or extension can be made unless it reduces the nonconforming features of the sign.

Parking

Off-street parking is regulated by Chapter 50, Article 7, Division 2 of the Code of Ordinances and ensures that adequate parking is provided within new development. The B-2 district (covering Downtown Bristol) does not have any off-street parking requirements for uses. Outside of the B-2 district, retail stores or shops are required to provide one space per 200 square feet of sales floor area for the first 5,000 square plus one [space] per each additional 500 square feet. Residential structures are required two spaces per dwelling unit.

Landscaping, Screening, & Buffering

The Code of Ordinances does not have a section dedicated to landscaping, screening, and buffering, and accordingly, is regulated minimally. The R-T district details examples of "green areas" such as lawns, decorative plantings, and recreational areas. It is a factor within site plans, but specificity on what is expected is not detailed. City code does require that any business or manufacturing district that abuts a residential district shall be provided with either masonry- or evergreen-vegetation-type screening, or such other type as may be acceptable to the planning commission.

This also applies to any new construction or development within a business or manufacturing district on a property that is contiguous with a residential district. Off-street parking only requires screening (earthen berms, planted buffers, decorative fences, decorative walls, etc.) within the B-2 district. A minimum 25 foot buffer strip is also required on the outer perimeter of communications towers property, where it abuts residentially or commercially zoned areas.

Landscape guidelines were developed for "The Falls" development but are only for that particular site.

Design Guidelines

Believe in Bristol's Design Committee assists property owners within the Downtown identify suitable designs and opportunities for historic rehabilitation, however, the City does not have any official design guidelines.



Market & Demographic Analysis

An analysis of the City of Bristol's demographic and market conditions was conducted to better inform the planning process and provide the necessary background information for developing market-viable recommendations.

This analysis presents and assesses current trends, notes important market implications, and assesses potential for future growth and development opportunities. Where applicable, Bristol is compared with the greater Kingsport-Bristol-Bristol, TN-VA Metropolitan Statistical Area (MSA). Collectively, this information provides a snapshot of the city's current and future competitive position within the region.

Demographics

This section provides an overview of key demographic factors within Bristol, such as population, age, income, race, and ethnicity. All data was obtained from ESRI Business Analyst and the U.S. Census Bureau.

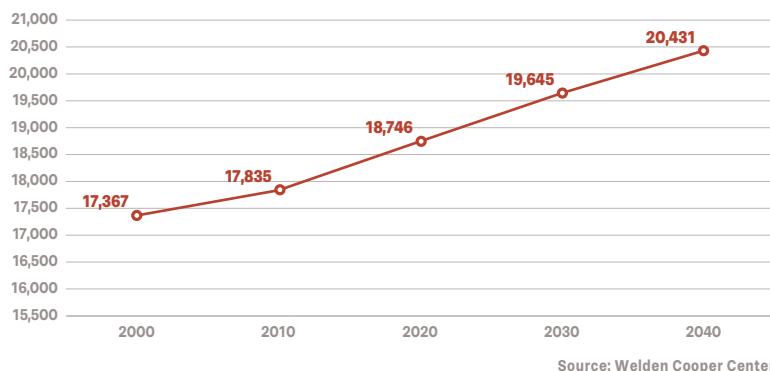
Population

Bristol's population has remained relatively stable although it has increased slightly over the past several years, a trend that is projected to continue through 2040. Virginia is growing as well, however, at a faster rate.

As a side note, The Weldon Cooper Center for Public Service at the University Virginia also forecasts population for cities throughout Virginia.

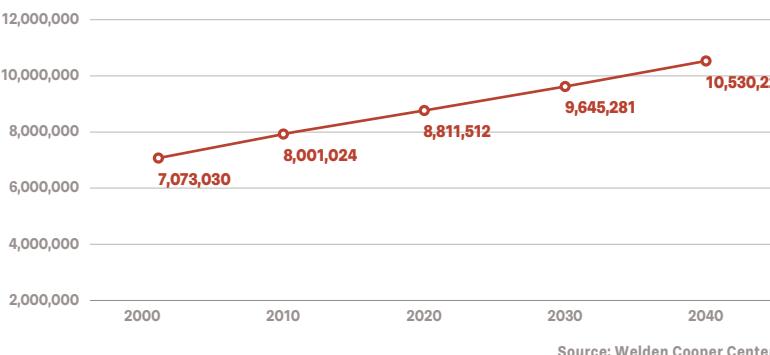
Population Change (2000 - 2040)

Bristol, VA



Population Change (2000-2040)

Virginia



Demographic Summary (2000-2040)

	2000	2010	2020	2030	2040	Projected Change (2010-2040)
Bristol, VA						
Population	17,367	17,835	18,746	19,645	20,431	+3,064 +17.6%

	2000	2010	2020	2030	2040	Projected Change (2010-2040)
Virginia						
Population	7,079,030	8,001,024	8,811,512	9,645,281	10,530,229	+3,451,199 +48.8%

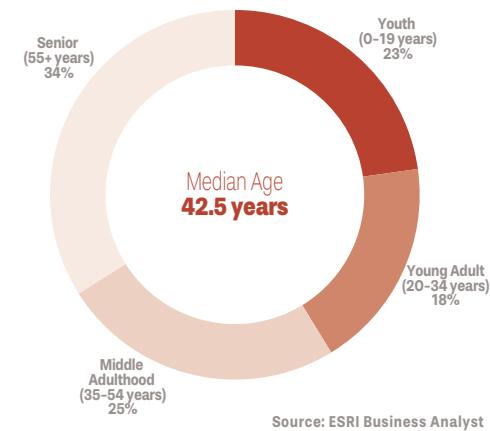
Source: ESRI Business Analyst; Welden Cooper Center; Houseal Lavigne Associates

Age

The distribution of population among age cohorts is relatively the same in both the City and MSA. While both the City and region are getting older, the City's median age of 42.5 is approximately 2 ½ years lower than that of the MSA (44.9). Currently more than 20% of the population in both areas is over 65.

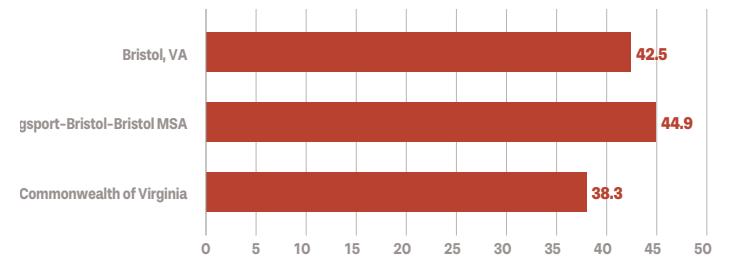
Age Distribution (2015)

Bristol, VA



Median Age (2015)

Bristol, VA, Kingsport-Bristol-Bristol MSA & Commonwealth of Virginia



Race & Ethnicity

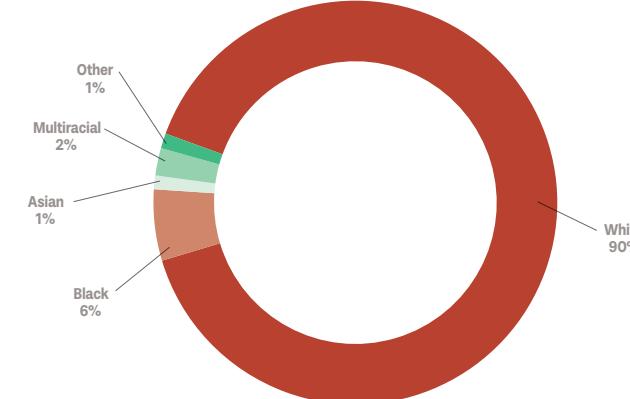
Bristol is a primarily white community (as defined by the U.S. Census). However, the City's white population is slightly lower than that of the region (90% versus 95%).

Projections indicate that the racial composition of Bristol will remain relatively unchanged between 2015 and 2020, consistent with projected trends for the region. Both the City and MSA are expected to see slight increases in the Hispanic population.

NOTE: The racial and ethnic categories discussed here are defined by the U.S. Census. For the U.S. Census definition, those individuals who identify themselves as "Hispanic" (which is an ethnicity) also identify with a racial category such as "White" or "Black". As such, the Hispanic category cannot be added to the sum of the racial categories.

Racial Composition (2015)

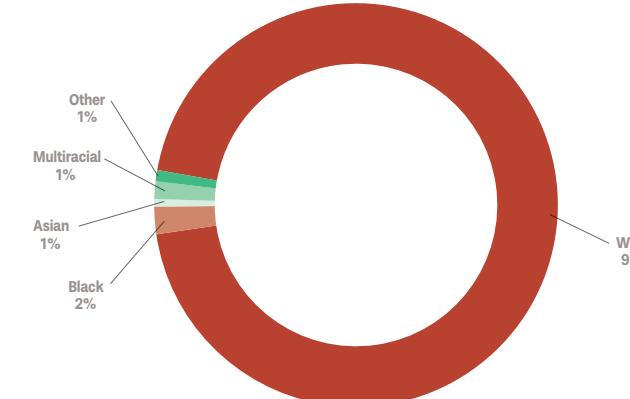
Bristol, VA



Source: ESRI Business Analyst

Racial Composition (2015)

Kingsport-Bristol-Bristol MSA



Source: ESRI Business Analyst

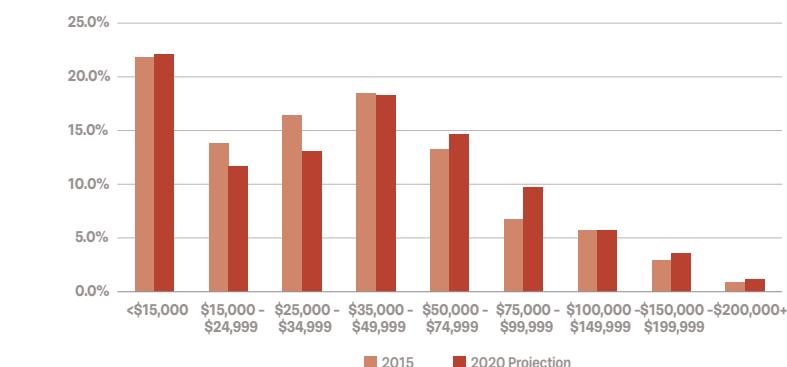
Income

The City's median household income for 2015 is \$33,430, which is approximately 13% lower than that of the MSA median of \$38,584. The gap between City and regional median household incomes is expected to increase to 17% between 2015 and 2020.

Projections indicate that income cohorts earning greater than \$50,000 will increase in share of the population between 2015 and 2020, while income cohorts earning less than \$50,000 will decrease in share. Household incomes between \$25,000 to \$34,999 will see the largest decrease in share while incomes between \$75,000 – \$99,999 will see the largest growth.

Households by Income (2015, 2020)

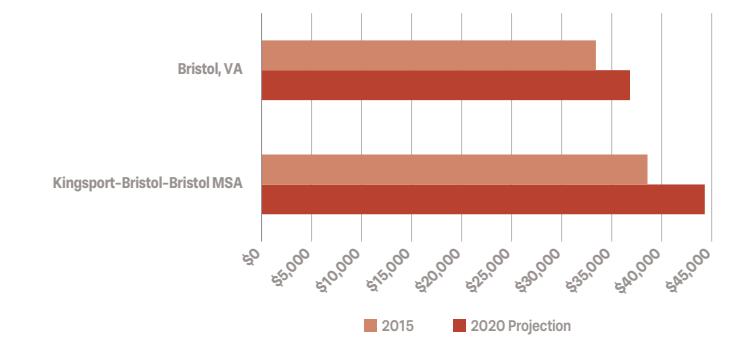
Bristol, VA



Source: ESRI Business Analyst

Median Household Income (2015, 2020)

Bristol, VA & Kingsport-Bristol-Bristol MSA



Source: ESRI Business Analyst



Market Implications

Overall, the population of the City of Bristol and the region has been relatively stable and is projected to continue to remain relatively unchanged. The City is aging and household incomes

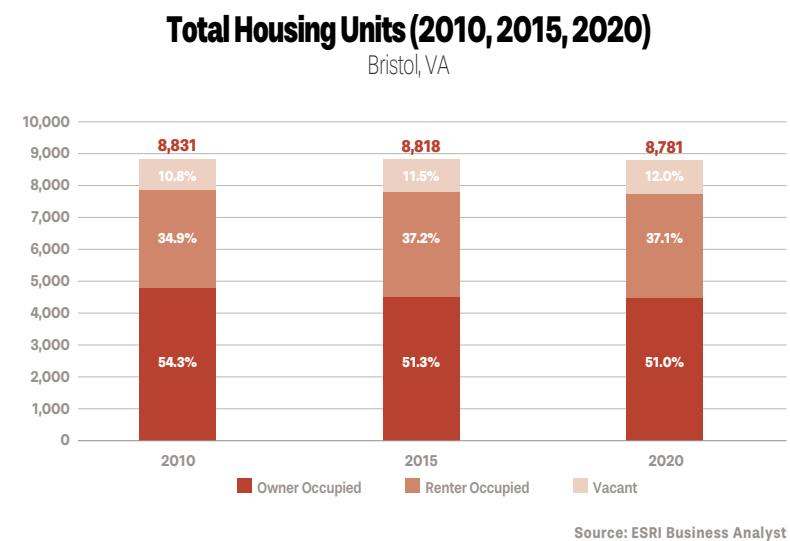
are increasing. Future residential and commercial development, as well as city services and recreational options, will need to accommodate and address the needs of a senior and aging-in-place population.

Increases in household incomes will serve to provide the market support for new investment.

Housing

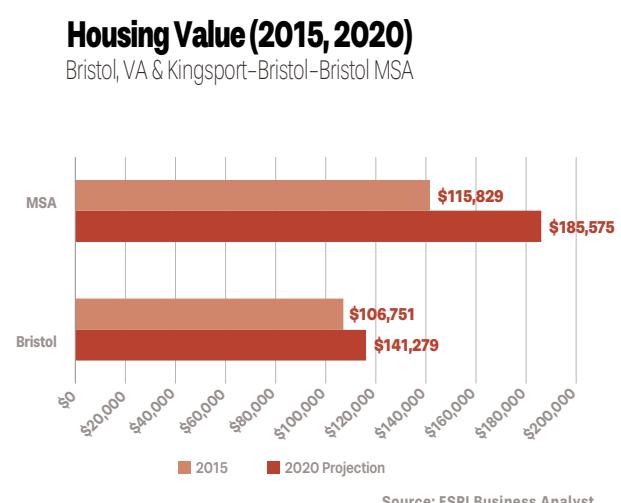
Total Units

In 2015 the City of Bristol contained 8,818 housing units, including 475 vacant dwellings. The vacancy rate, at 11.5% in 2015, is projected to remain relatively stable though it is projected to increase slightly. The actual total number of housing units in Bristol is projected to decrease by about 50 units over the next several years through a combination of lot consolidation and demolition of older housing units.



Value

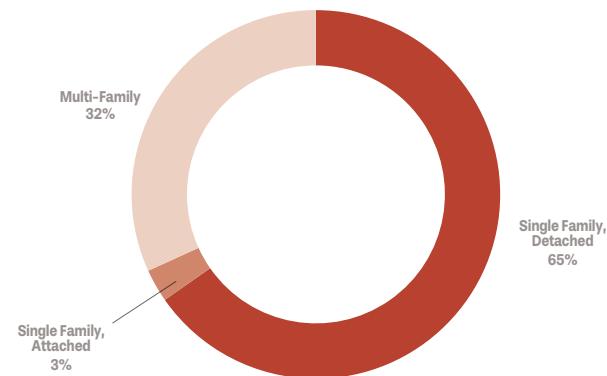
The median home value in 2015 of a home in Bristol is \$106,751. It is projected to increase to \$115,829 by 2020. This is lower than the estimated median value of the MSA, which is \$141,279 (2015) and \$185,575 (2020).



Type & Tenure

The typical housing unit in Bristol is an owner-occupied, single family detached home. Roughly half of the homes in Bristol are owner-occupied. Single family detached homes account for about two-thirds of the housing stock with multi-family approximately one-third. There are very few attached single-family (townhomes/rowhomes) units in the City.

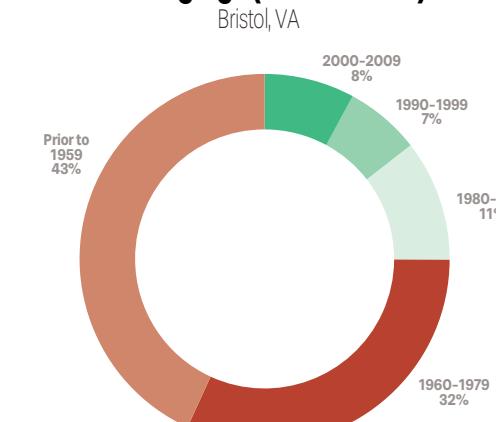
Housing by Tenure (2015)



Age of Housing Stock

More than half of the City's housing stock was built prior to 1970. New construction decreased further in recent years as result of regional and national economic conditions with less than 8% of the housing supply having been built since 2000.

Housing Age (<1950-2013)



Market Implications

The City is in need of greater diversity in the housing stock. In addition to the fact that there are few newly constructed units, there is a need for move up housing and quality age targeted product geared for empty-nesters and seniors as well as young professionals. Reinvestment in the housing market can help to attract young people and families as well as providing the opportunity for older residents to downsize and age-in-place without having to leave Bristol. This, in turn, opens up opportunities for young families to purchase those same homes.

Employment

Total Employment

The City of Bristol experienced a marked decline in employment between 2009 and 2013. This was, however, not unique to Bristol as the nation experienced a significant recession. While retail, manufacturing, and accommodation and food services continue to be amongst the top employment categories in Bristol, they also experienced the greatest job losses during that period. Transportation and Warehousing, while not as large of a provider of jobs, also experienced a significant reduction.

Primary Jobs by Industry (2009-2013)

Bristol, VA

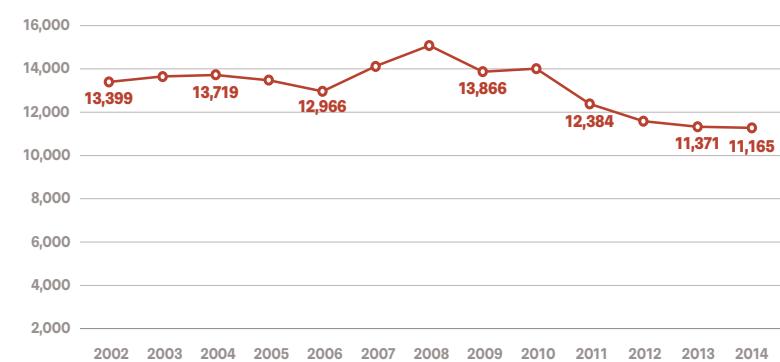
	2009		2010		2011		2012		2013	
	Count	Share								
Total Primary Jobs	13,866	100.0%	14,013	100.0%	12,384	100.0%	11,602	100.0%	11,371	100.0%
Agriculture, Forestry, Fishing and Hunting	47	0.3%	47	0.3%	49	0.4%	50	0.4%	51	0.4%
Mining, Quarrying, and Oil and Gas Extraction	27	0.2%	11	0.1%	11	0.1%	23	0.2%	13	0.1%
Utilities	10	0.1%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Construction	302	2.2%	333	2.4%	232	1.9%	344	3.0%	325	2.9%
Manufacturing	2,178	15.7%	2,000	14.3%	1,875	15.1%	1,673	14.4%	1,706	15.0%
Wholesale Trade	950	6.9%	903	6.4%	873	7.0%	861	7.4%	855	7.5%
Retail Trade	2,278	16.4%	2,239	16.0%	1,922	15.5%	1,678	14.5%	1,881	16.5%
Transportation and Warehousing	84	0.6%	451	3.2%	95	0.8%	331	2.9%	298	2.6%
Information	390	2.8%	355	2.5%	330	2.7%	330	2.8%	335	2.9%
Finance and Insurance	378	2.7%	372	2.7%	332	2.7%	297	2.6%	346	3.0%
Real Estate and Rental and Leasing	95	0.7%	108	0.8%	47	0.4%	37	0.3%	46	0.4%
Professional, Scientific, and Technical Services	302	2.2%	167	1.2%	176	1.4%	251	2.2%	266	2.3%
Management of Companies and Enterprises	142	1.0%	115	0.8%	106	0.9%	133	1.1%	132	1.2%
Administration, Waste Management and Remediation	1,756	12.7%	1,820	13.0%	1,577	12.7%	1,424	12.3%	1,248	2.2%
Educational Services	911	6.6%	745	5.3%	790	6.4%	550	4.7%	676	5.9%
Health Care and Social Assistance	621	4.5%	692	4.9%	831	6.7%	852	7.3%	819	7.2%
Arts, Entertainment, and Recreation	68	0.5%	65	0.5%	59	0.5%	51	0.4%	63	0.6%
Accommodation and Food Services	2,357	17.0%	2,309	16.5%	1,900	15.3%	1,845	15.9%	2,125	18.7%
Other Services (excluding Public Administration)	451	3.3%	428	3.1%	367	3.0%	413	3.6%	374	3.3%
Public Administration	519	3.7%	853	6.1%	812	6.6%	459	4.0%	812	7.1%

This table depicts total primary employment within the City of Bristol, VA. A "primary job" is defined as the one job during the reference period that provides each person with the most earnings. If a person holds one job, that is their primary job. If a person holds two or more jobs, then the one with the most earnings is defined as the primary job.

Source: U.S. Census "On the Map"; Houseal Lavigne Associates

Total Primary Jobs (2002-2014)

Bristol, VA



Source: U.S. Census Bureau, Center for Economic Studies

The State of Virginia estimates future employment levels, including the number of jobs within each industry. Bristol is located within the New River/Mt. Rogers Local Workforce Investment Area. Within the area the three industries projected to see the greatest increase in jobs between

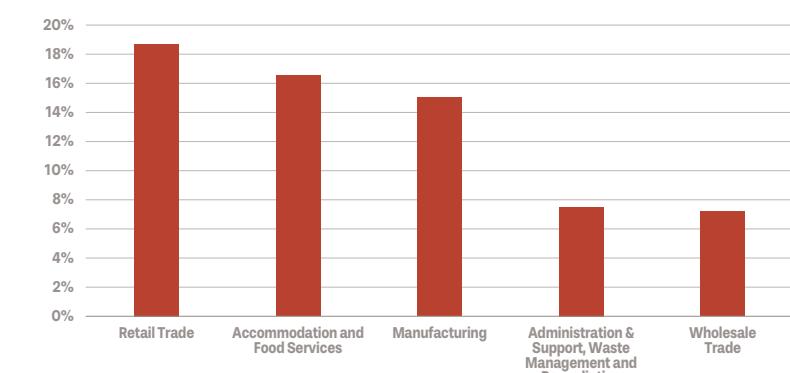
2012 and 2022 are: Professional Scientific and Technical Services; Construction; and Health Care and Social Assistance. While these are areas of growth within the region, they do not necessarily match directly with growth and employment in Bristol.

Commute & Labor Shed

Commute and labor sheds demonstrate where employees are commuting to and commute from in relation to Bristol. The commute shed shows where employed residents who live within Bristol commute to for work. The labor shed shows where individuals employed within Bristol travel from to fill those jobs.

Top Five Industries (2013)

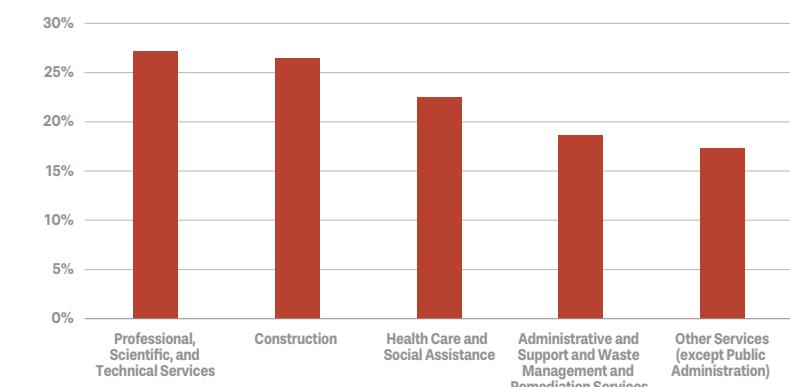
Jobs Located in Bristol, VA



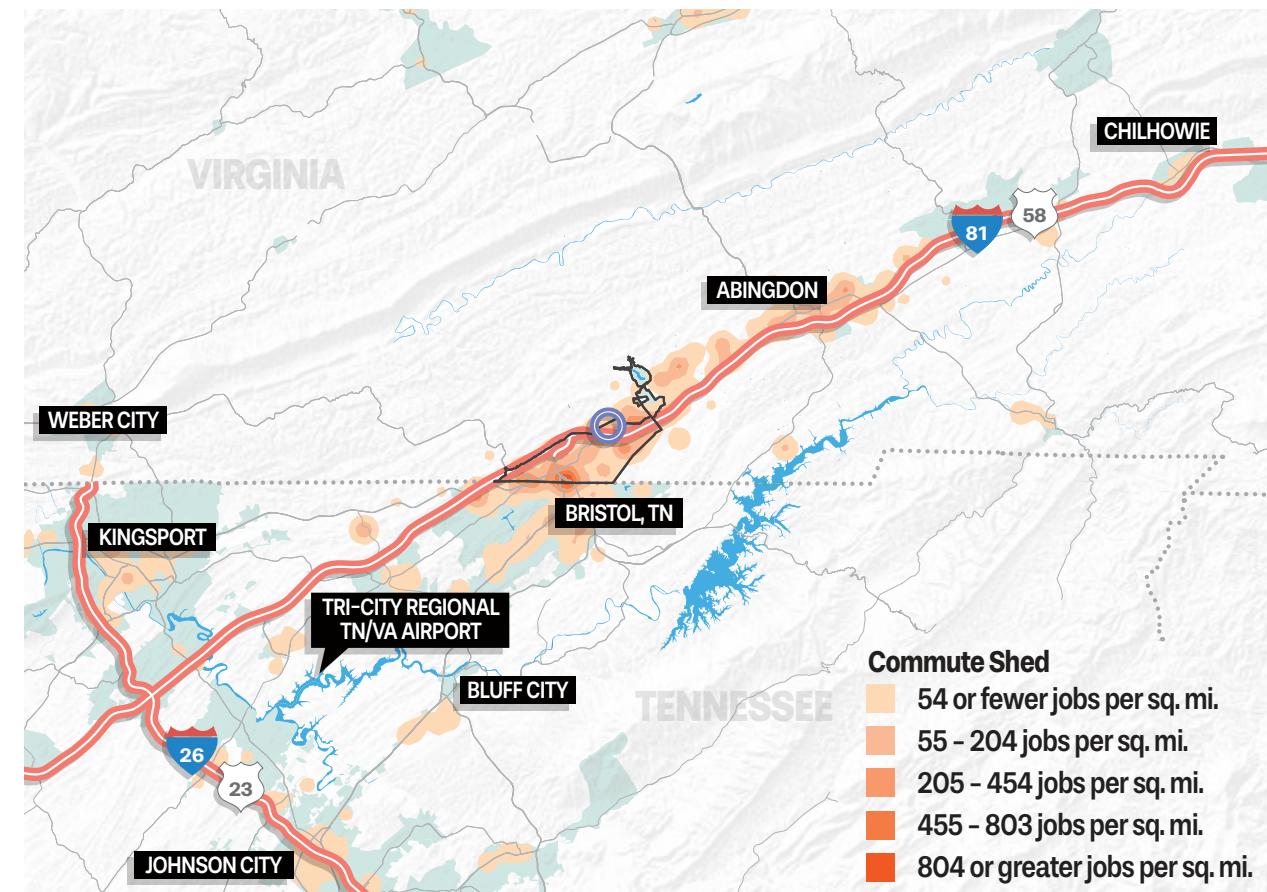
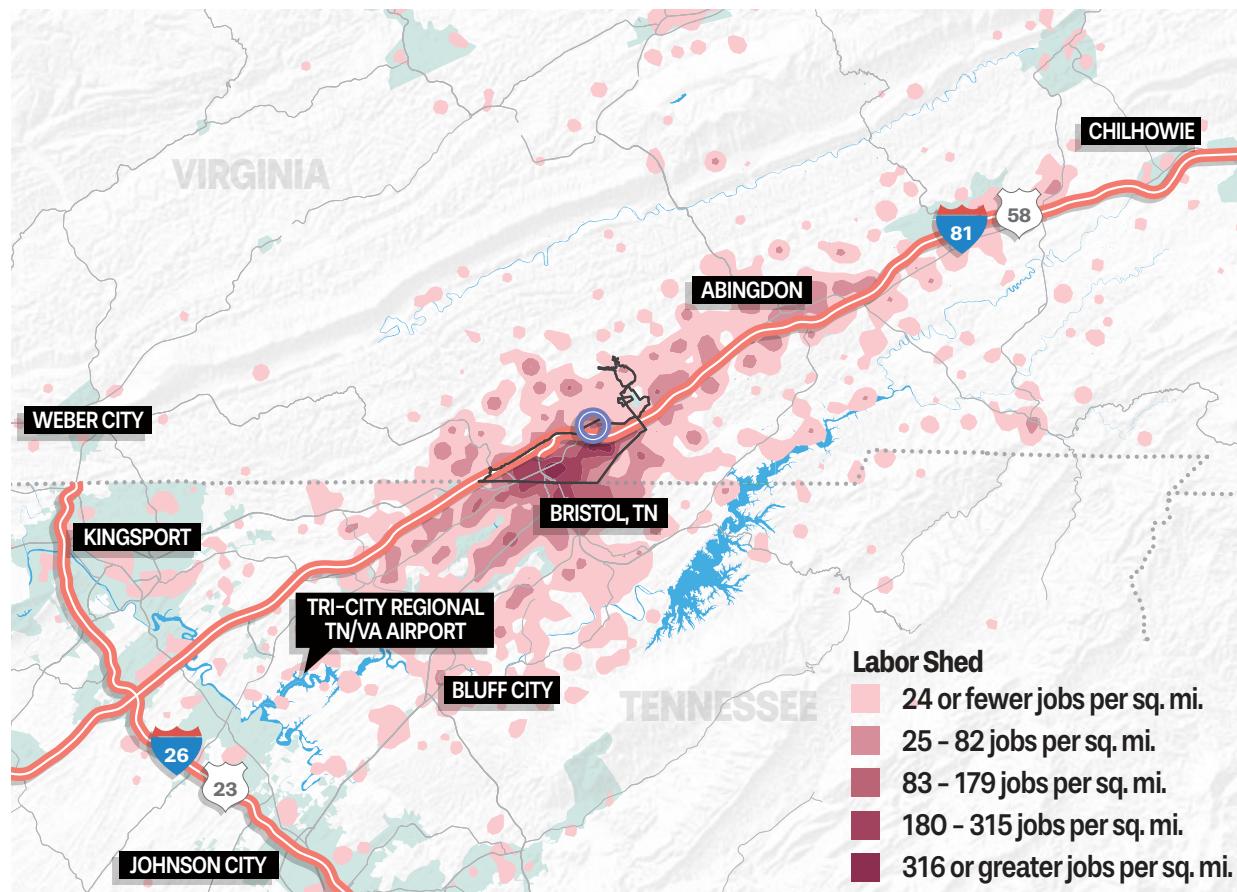
Source: U.S. Census Bureau, Center for Economic Studies

Top Five Growth Industries (2012-2022)

New River/Mt. Rogers (LWIA II)



Source: Virginia Employment Commission



Market Implications

While the region has regained some of the job loss that occurred during the downturn in the economy the City of Bristol should continue to take efforts to ensure that it is able to capture a proportionate share of growth and investment. Some of the categories in which job growth is projected are not being met within Bristol. Initiatives to attract new businesses and associated jobs are directly tied to residential and commercial growth as well. Business attraction/retention and economic development should be a key consideration in all future policy decisions.

Retail Market

This section overviews current market trends in Bristol and the region's retail markets. Unlike many cities of its size, Bristol, Virginia has multiple retail nodes that each function differently.

The City's iconic Downtown includes a mix of restaurants, niche retailers, cultural attractions and service uses that, together with the Bristol, Tennessee side of State Street, create a destination environment that attracts many visitors from outside the area as well as catering to local residents who patronize shops and restaurants on a daily basis.

Exit 5 and Exit 7 areas both have a regional pull that serve a very large market area. In addition, given their proximity to Interstate 81, these areas capture traffic passing through the area and overnight visitors utilizing the several hotel options. Like the Downtown however, the areas do also cater to the local resident population as well.

There are several other commercial corridors and retail nodes in the community that include a mix of convenience and neighborhood retail uses serving a more local market.

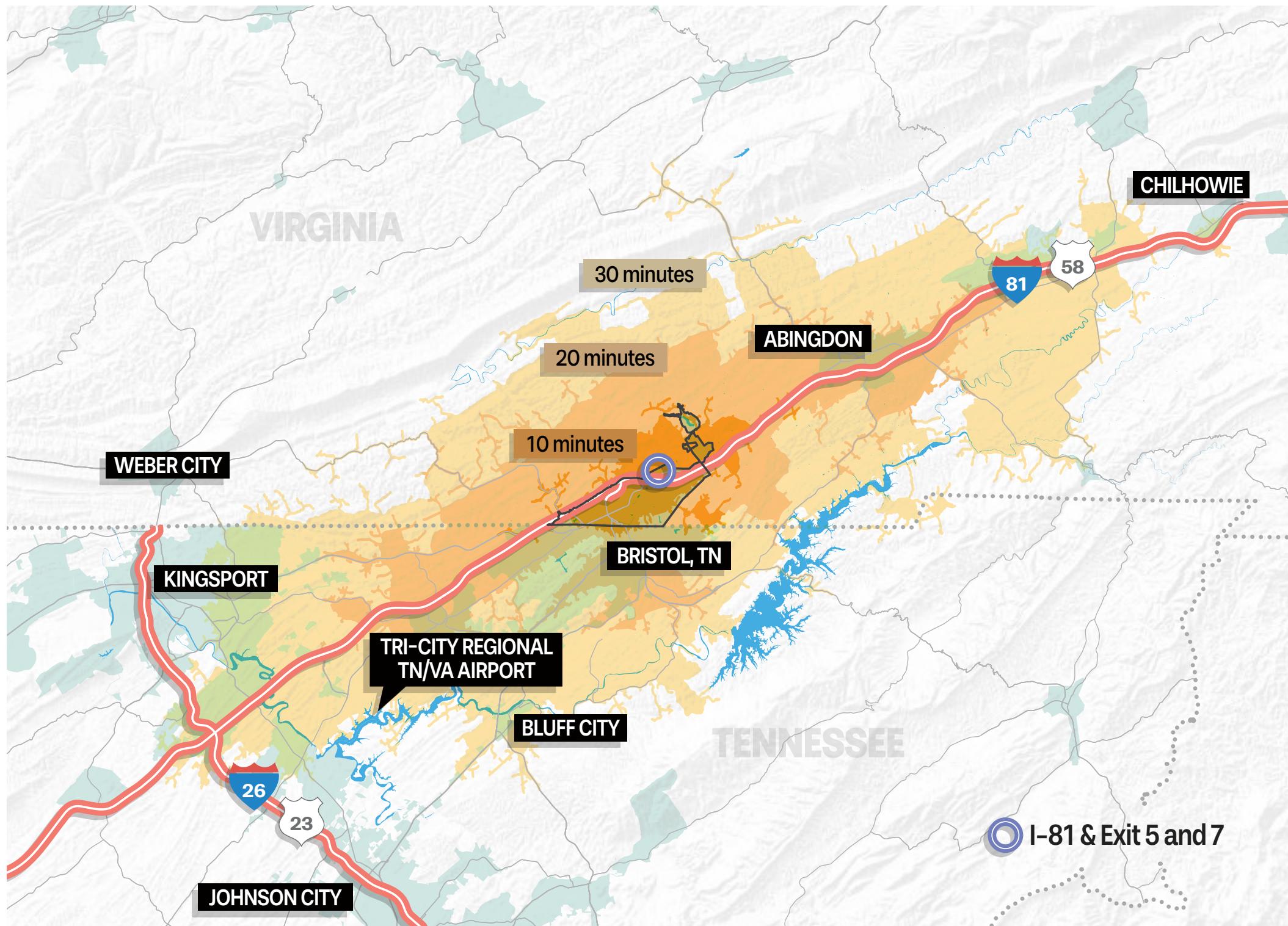
While all of these areas are located within Bristol, the respective market areas often extend well beyond City boundaries. In some cases, market areas can vary based on location and accessibility. In order to measure respective market potentials, a market area is defined for each. As consumers shop based on convenience and proximity, a drivetime best models consumer behavior as opposed to using mileage, geographic or jurisdictional boundaries. Consumers will generally travel relatively shorter distances for groceries and day-to-day-needs, but travel longer to purchase more durable items such as refrigerators, cars, or high-end clothing. In a location such as Bristol, consumers will generally travel 10 to 20 minutes for day-to-day needs such as groceries, but travel 20 minutes and further for more durable and less frequently purchased goods such as electronics.

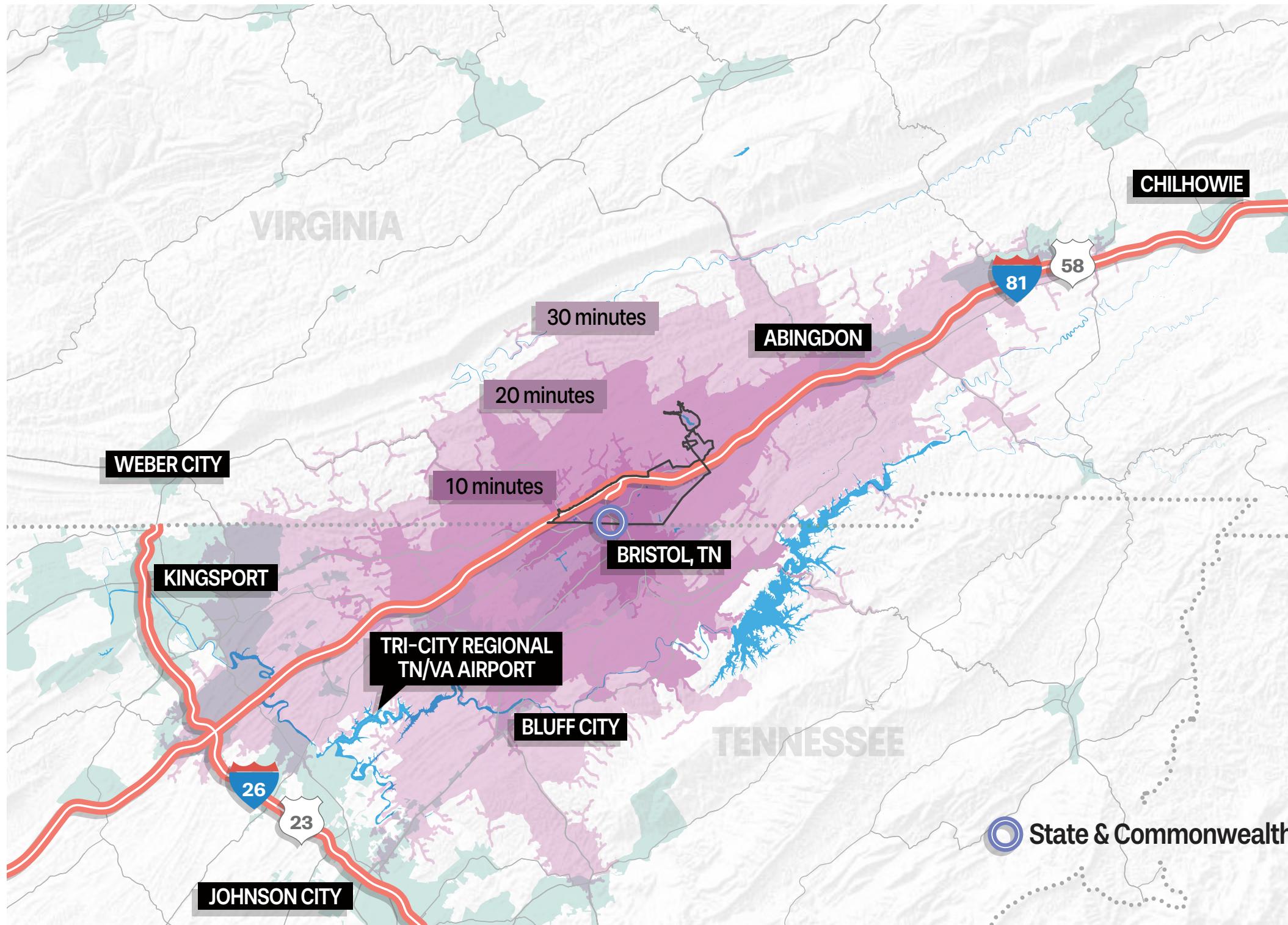
Drivetimes of 10, 20 and 30 minutes were studied from two different points – The intersection of State and Commonwealth (Downtown) and Lee Highway between Interstate 81 Exit 5 and Exit 7. The intent of looking at these two locations separately was to see if the market potential varied. The only variance of note was that proximity to the Interstate expanded the market area somewhat, but otherwise overall market potential was fairly consistent. While the two locations identified are the nexus of each, the data can be applied to all locations within the City and the greater market area.

Retail Gap

The following "gap analysis" compares retail supply and demand within the defined market areas illustrated in the accompanying graphics. A gap analysis compares aggregate consumer spending (demand) to aggregate retail sales (supply) within a given retail category and drive time. When demand is greater than supply, "leakage" exists, suggesting that residents are spending dollars outside of the given market area. As such, retail categories with leakage are potential opportunities for growth, as local demand for these goods and services already exists, but is unmet by existing supply. Leakage is noted on the accompanying table as a positive number in green.







Retail Gap Analysis Summary (2015)

Bristol VA: State Street & Commonwealth Avenue

Summary Demographics	10 Minute Drivetime	20 Minute Drivetime	30 Minute Drivetime
Population	38,071	86,913	179,042
Households	16,641	37,274	75,814
Median Disposable Income	\$28,354	\$32,287	\$35,007
Per Capita Income	\$20,335	\$22,441	\$24,034

Overview	10 Minute Drivetime	20 Minute Drivetime	30 Minute Drivetime
Total Retail Gap	-\$709.2	-\$934.8	-\$927.7
Total Retail Trade	-\$665.0	-\$878.7	-\$879.2
Total Food & Drink	-\$44.1	-\$56.1	-\$48.6

Retail Gap by Industry Group	Retail Gap (\$M)	"Potential" (Sq.Ft)*"	Retail Gap (\$M)	"Potential" (Sq.Ft)*"	Retail Gap (\$M)	"Potential" (Sq.Ft)*"
Motor Vehicle & Parts Dealers	-\$45.5	--	-\$102.6	--	-\$158.2	--
Furniture & Home Furnishings Stores	\$1.2	3,000	-\$72	-17,921	-\$4.1	-10,200
Electronics & Appliance Stores	\$2.0	4,973	-\$15.5	-38,722	-\$35.3	-88,347
Bldg Materials, Garden Equip. & Supply Stores	-\$9.6	-23,950	-\$36.0	-90,118	-\$38.8	-97,117
Food & Beverage Stores	-\$48.5	-121,183	-\$60.8	-152,031	-\$21.7	-54,164
Health & Personal Care Stores	-\$3.5	-8,656	-\$21.8	-54,462	-\$57.9	-144,644
Gasoline Stations	\$25.0	--	\$54.8	--	\$54.5	--
Clothing & Clothing Accessories Stores	\$8.0	19,993	\$16.8	41,903	\$30.2	75,562
Sporting Goods, Hobby, Book, & Music Stores	-\$3.9	-9,827	-\$3.9	-9,675	-\$3.4	-8,412
General Merchandise Stores	\$15.5	38,643	-\$124.2	-310,483	-\$112.1	-280,331
Miscellaneous Store Retailers	\$1.7	4,179	-\$4.3	-10,867	\$1.3	3,165
Nonstore Retailers	-\$607.4	--	-\$574.0	--	-\$533.8	--
Food Services & Drinking Places	-\$44.1	-110,298	-\$56.1	-140,172	-\$48.6	-121,435

*Potential is based on an average sales of \$400/sq. ft. Motor Vehicles & Parts Dealers, Gas Stations, and Nonstore Retailers are not included in this calculation.

Source: ESRI Business Analyst; Houseal Lavigne Associates

Retail Potential/Surplus in Square Footage

In addition to surplus and leakage figures, the accompanying charts also include supported retail potential in square footage. Converting leakage figures into square footage allows a visualization of what size and scale of retail could be supported. While sales-per-square-foot revenues vary by individual retailer and industry sources, general assumptions of supportable square footage can be made by using a benchmark average. A generally accepted range for national retailers is \$200 to \$400 per-square-foot.

The use of a per-square-foot amount on the higher end of this range allows for a more conservative approach so as not to overstate retail potential. As shown in the Gap Analysis tables, when a per-square-foot amount of \$400 is applied, demand is effectively translated to a potential number of square feet that could be supported within a five, ten, or fifteen minute drivetime. Equally, if there is a surplus, the amount of square footage in which the market is oversupplied is indicated.

It is important to note, however, that calculations cannot be effectively applied to uses such as car dealerships or gas stations. This same methodology is applied to each of the three market areas analyzed.

To help envision development potential in square footage, the following provides the average size of an assortment of retail stores, based off of data obtained by industry sources. Supported square footage from the Retail Gap Analysis can be compared to this list for context. It is important to note that these stores are listed merely for contextual purposes and not to support development of any particular brand over another.

- Chipotle – 2,650 ft²
- CVS – 19,856 ft²
- Buffalo Wild Wings – 5,600 ft²
- Olive Garden – 7,336 ft²
- The Gap – 12,503 ft²
- Barnes & Noble – 25,525 ft²
- Whole Foods – 33,739 ft²
- Best Buy – 38,631 ft²
- Kohl's – 75,230 ft²
- Walmart – 102,683 ft²
- Home Depot – 105,192 ft²
- Macy's – 181,946 ft²

Cost of Living

Cost of living comparisons measure the affordability of a variety of goods and services such as groceries, housing, utilities, transportation, and healthcare between different cities. Based on available data from Sperling's Best Places (a reputable website maintained by cost of living expert Bert Sperling), Bristol, VA has a relatively low cost of living.

Sperling's index uses 100.0 as the national average; any score below that means that living in a given community is more affordable than the national average and any score higher than 100.0 indicates that the community is more expensive than the national average. The index also allows for percentage comparison. For example, a community that scored 90.0 would be 10% more affordable than the national average of 100.0 while a community that scored 110.0 would be 10% more expensive than the national average.

Bristol's cost of living is indexed at 84.3 (or 15.7% more affordable than the national average). This is relatively on par with other cities in the region, such as Bristol, TN (82.0), Kingsport (85.1), and Johnson City (87.4). The Bristol region as a whole is much more affordable than other Virginia cities such as Richmond (95.4), Abingdon (100.8), Blacksburg (102.1), and Arlington (181.1).

Market Implications

Market potential is for the entire market area and is not exclusive to Bristol. A saturated market does not preclude new development or uses from locating to a specific location. It does, however, mean that the City needs to ensure that it maximizes its competitive position to ensure commercial sites have good access and exposure and that efforts are focused on uses that complement one another. The City's ability to capture its proportional share of development potential is dependent on many factors and influences. Bristol has several commercial areas, three of which are and will be major activity generators.

As the Falls develops it has the potential to be a catalyst to attract additional development around the Exit 5 area. However, it is important that new development complements and does not detract from existing uses and investment.



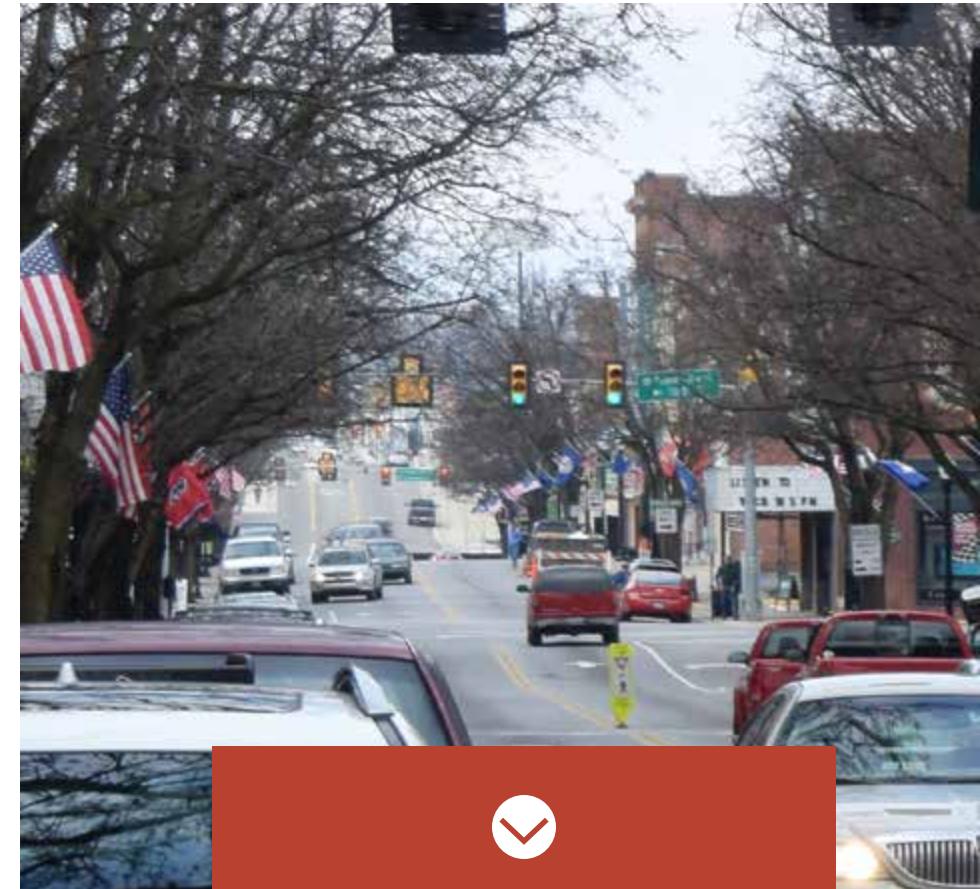
The Exit 7 area is an established restaurant hub further enhanced by hotels and a movie theater. Efforts need to ensure that this area continues to thrive through increased exposure and better accessibility. Juxtaposition to the highway and airports create an ideal location for accommodating travelers while also providing dining and entertainment options for local residents.

Downtown serves as a unique destination for visitors and the heart of the community for residents. Potential exists to build off of existing uses. However, the City, in conjunction with Bristol, TN must ensure that the image of Downtown is maintained and concerted efforts are made to attract the types of businesses that contribute to the Downtown Bristol experience.



VISION

The Vision Statement paints a picture of what Bristol will look like in the future. It is written as a retrospective in the year 2035, chronicling the accomplishments and achievements that have occurred in the City since the approval of the Comprehensive Plan. The statement incorporates the most central ideas and themes discussed throughout the community outreach process.



The Vision chapter is organized into six sections.

- Housing & Neighborhoods
- Commerce & Employment
- Transportation & Mobility
- Parks, Open Space & Environment
- Community Facilities
- Implementation



Housing & Neighborhoods

In 2035, Bristol's neighborhoods are among the most desirable places to live in the greater Tri Cities region. There are housing options for everyone, ranging from suburban styled single family homes to downtown lofts, affordable starter homes to historic mansions from Bristol's railroad heyday. New residential development is of a high quality and tastefully blends in with existing development patterns.

Twenty years ago, many neighborhoods around Downtown suffered from vacancy and disinvestment. Thanks to a mixture of targeted demolition, heightened code enforcement, better property maintenance, and private infill development, these neighborhoods have been transformed. A historic preservation ordinance was passed, and today the "grand old ladies" of the Euclid Avenue, Solar Hill, and Virginia Hill neighborhoods stand proud. It is not uncommon to see tourists getting out of their cars to take photographs of the homes and to see small groups of people on architectural walking tours. Residents cherish these core neighborhoods for their architectural distinctiveness and their walkability to the restaurants, shops, and entertainment in downtown.

Other residential areas are flourishing as well. In Downtown Bristol, mixed-use product with a residential component continues to be in high demand, with loft spaces, condominiums, and apartments capitalizing on downtown's amenities. The City's more suburban and rural neighborhoods on the western, northern, and eastern sides of Bristol receive regular maintenance and investment, and the targeted addition of trails and sidewalks have helped connect these neighborhoods with schools, parks, and commercial areas. Seniors are now easily able to downsize their single family homes to small cottage homes, apartments, assisted living, or nursing care without leaving Bristol.

Commerce & Employment

In 2035, Bristol's economy is thriving, with different areas of the city each playing a unique role and contributing to a diverse economic base. The development community has found the City's business friendly, "can-do" attitude welcoming and employment-based expansion has led to new investment across the city. Downtown Bristol remains the social and cultural heart of the city, with a vibrant mixture of retail, civic, office, and residential uses. The opening of Birthplace of Country Music Museum, breweries, and boutique hotels in 2014–2017 ignited a spark of new investment and redevelopment that continues to this day. Loft conversions and new multi-family bolstered the residential population and established a critical mass of activity, and a variety of new businesses opened their doors.

Anyone can find something to do Downtown, from a family of five to a senior citizen to a local college student, and Downtown Bristol is really the "Tri Cities' Downtown." In the face of all this investment and development, Downtown has not lost its cherished character. It remains an active pedestrian environment, and a source of pride for the community.

Complementing Downtown Bristol is the region's premier concentration of retail Exits 5 and 7 off of I-81. Anchored by The Falls, development efforts continue to this day. Single family homes along Lee Highway have been redeveloped to accommodate commercial uses, and the construction of new quality office buildings have added a white collar workforce to the area, capitalizing on proximity to the interstate and nearby hospitality and dining options. Wayfinding signage and roadway realignments have established a direct and easily navigable path between Exits 5 and 7 and Downtown Bristol.

Residents, visitors, and tourists often shop at Exit 5 and 7 and then head downtown to grab dinner or see a show.

Bristol's aging commercial corridors have also seen new public and private investment. The passage of a landscaping ordinance led to the addition of trees, flowers, and shrubbery along Euclid Avenue, Commonwealth Avenue, and Lee Highway, transforming tired looking corridors into attractive spaces. The City now partners with developers to ensure that new buildings are well-designed and attractive but still cost-effective. Because many retailers opt to locate near I-81, the City has remained flexible regarding development along its central city corridors, permitting a mixture of multi-family, office, retail, and entertainment uses and remaining open to creative new ideas.

In the face of new retail development, the City is steadfastly committed to industry and the well-paying jobs it supports. The Comprehensive Plan identified several areas for new office, light industrial, and industrial development, and since its passage, several of these areas have redeveloped and created hundreds of new jobs. The Bob Morrison Boulevard area, in particular, has taken off, and is a highly desirable location given interstate access as well as proximity to Downtown amenities and other major employers. Similarly, existing industrial areas along Old Abingdon Highway and Old Airport Road have expanded, providing a range of well-paying, stable jobs for the Bristol community.

Transportation & Mobility

In 2035, the City's transportation network is fully multi-modal and accommodates vehicular, pedestrian, freight, and rail travel. The City has played an active role in planning its transportation network, and as a result has improved access and mobility within Bristol and throughout the region. Today, the community is accessible to residents, workers, and visitors. Street improvements, better signage, and roadway re-alignments have provided residents and motorists with easier ways to move within Bristol, particularly near Exits 5 and 7 of I-81.

It used to be relatively difficult for pedestrians to get around the city. Thanks to the addition of sidewalks, crosswalks, pathways, and trails, neighborhoods are now linked to key community facilities, commercial areas, and parks. The local bike network has also been expanded as well, with the addition of sharrows, trails, and bike lanes along appropriate roadways. The City continues to work with property owners, regional partners, and other communities to connect Bristol to the regional trail network, understanding that trails support healthy lifestyles and are a critical economic development tool.

Transit has become a viable option for travel within the City and beyond. Residents can take BVT and BTT buses to reach local jobs, shopping, and more. After many years of hard work at the local, state, and federal level, the Commonwealth of Virginia and Amtrak extended passenger rail to Bristol in 2019. Today, the Bristol Train Station stands proud, serving as an active, attractive, and welcoming gateway into Bristol.

Parks, Open Spaces & Environment

In 2035, Bristol's parks and open spaces continue to define the community and make it a great place to live. Located in the midst of one of the most recognizable and distinctive environmental areas in the United States, Bristol truly is an "outdoor" community.

Sugar Hollow Park continues to be the crown jewel of the local park system, offering camping, hiking, swimming, soccer, softball, and more to its thousands of annual visitors.

The Clear Creek Golf Course is also a significant regional draw, with a new clubhouse and tournaments that attract golfers from throughout the greater Tri Cities area. New local and regional bike connections have made Bristol a destination for cyclists and other outdoor enthusiasts.

The City has also worked hard to ensure that all residents have easy access to local parks and recreation amenities. After the completion of the Comprehensive Plan, the City constructed a few small parks within underserved neighborhoods, and new sidewalks and trails that have stitched together parks, neighborhoods, and community facilities. It is easier than ever before for children to access the outdoors and for families to spend time together in nature. The City continues to engage with residents to prioritize park and recreation improvements to ensure that the benefits of parks and recreation are indeed "endless".

As growth and redevelopment has occurred, the City has been mindful to work with developers to safeguard the City's streams, mature trees, wetlands, and ponds. Beaver Creek has been protected from encroachment and offers a waterfront nature walk with informational signage and pedestrian amenities.



Community Facilities

In 2035, the quality of life in Bristol is one of the highest in the Tri Cities region and the City is well-regarded throughout Virginia and beyond. New and expanded facilities have helped support the community, particularly its youth, families, and seniors. The City continues to partner with Bristol Virginia Public Schools in striving to become one of the highest performing districts in the region, providing excellent education and attracting young families to the community.

After several years of vacancy, the City worked with Virginia Intermont College leadership to recruit a satellite campus of another well-known higher education institution. This "game-changing" deal injected millions of dollars in new investment into the community and transformed the surrounding neighborhoods, particularly Virginia Hill. Hundreds of college students can be seen strolling Bristol's streets, biking to class, and grabbing dinner or a cup of coffee in Downtown.

Implementation

By 2035, Bristol has successfully implemented much of the 2016 Comprehensive Plan and the Plan has helped bolster governmental accountability, efficiency, and transparency.

Recognizing that it is truly a "living document," the City has routinely updated the document over the years as community priorities evolved and conditions on the ground changed. Key to successful plan implementation was the re-writing of the City's zoning code. This ensured that the Plan's recommendations were codified into regulations and that the City's regulations reflected the most cutting-edge national best practices.

While 2016 Comprehensive Plan was instrumental in shaping the City to the community it is today, it has finally outlived its useful life. Now, the community is developing a new Comprehensive Plan, with an eye farther into the future.

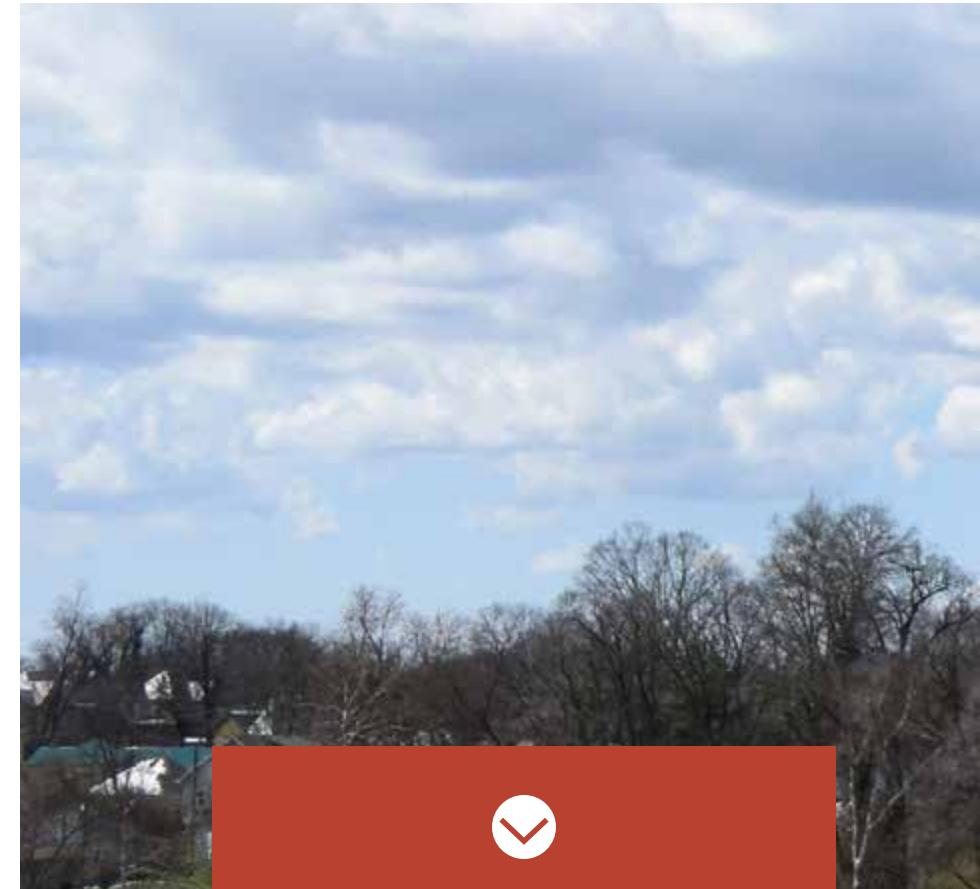




LAND USE & DEVELOPMENT PLAN

The Land Use Plan provides policies and identifies appropriate land uses for the future development of the City of Bristol. The Land Use Plan is based on sound community planning principles, as well as several factors and influences, including the Vision, Goals, and Objectives identified for Bristol; community outreach; market and demographic analysis; and an assessment of existing conditions. The Plan provides a general assessment of land use potential and recommendations for what types of land uses will best meet the needs of the community in the long-term.

As much of the community is well established, the Land Use Plan builds upon the existing land use pattern in the City. In general, the plan strives to promote a compatible land use pattern, support expansion of commerce and industry, enhance neighborhood revitalization and investment, ensure historic preservation, and promote redevelopment of underutilized sites and areas. The Plan also emphasizes the provision of community facilities, and the preservation and enhancement of desirable environmental features such as streams, wooded areas, and wetlands.



The Land Use & Development Plan chapter is organized into three sections.

The **Land Use Plan** (pg. 29), detailing community-wide land use and general land use principles (pg. 29).

The **Residential Areas Framework Plan** (pg. 36), detailing policies and recommendations for residential areas, character areas, housing types and tenures, and neighborhood reinvestment.

The **Commercial & Employment Areas Framework Plan** (pg. 48), detailing policies and recommendations for the City's major commercial areas (e.g. Downtown Bristol, corridors such as Gate City Highway and Euclid Avenue, and the Exit 5 and 7 commercial cluster) and industrial areas (e.g. Bob Morrison Boulevard, Old Abingdon Highway, Bonham Road, and Old Airport Road areas)



Land Use Plan

A goal of the Land Use & Development Plan is to assist staff, residents, businesses, and elected and appointed officials in making future land use and development related policy decisions. The Land Use Plan is intended to be a general guide to land use planning and development within Bristol and is not a development plan of rigid and finite recommendations.

The Comprehensive Plan can be amended over time, as needed, through a formal amendment process before the Planning Commission and City Council. Chapter 13 of the City Code details the process.

Key Considerations

Future Use

The Land Use and Development Plan assigns a desired future use for each parcel within the City of Bristol to produce a "full build-out" scenario. In some cases, a future use is different from an existing use. This does not necessarily mean that the City is proactively advocating today for that parcel to become that future use, or that the property will become that use during the life of this Comprehensive Plan. Development or redevelopment will be slow and incremental, and full build-out may not occur during the lifetime of the plan. Instead, the future designations helps the City understand what the area could or should become if it were to be developed/redeveloped in the future.

Flexibility

It should be underscored that the Land Use and Development Plan is a general guide for growth and development of Bristol and serves as a foundation for future decision-making; it is not a site-specific development plan. It remains flexible enough to allow for creative approaches to land development that are consistent with the policies and guidelines included in the Comprehensive Plan.

Environmental Constraints

Environmental constraints such as steep topography, wetlands, and floodplain can be barriers to development or redevelopment of land within Bristol. While some parcels may be unbuildable at present due to such constraints, each parcel within the City of Bristol is assigned a desired future land use. Topography and floodplain can be altered, and wetlands can be incorporated into development schemes. The Future Land Use Map does not denote which parcels are buildable versus unbuildable. However, it does overlay environmental constraints onto the Future Land Use Map to inform decision-making.

Annexation

Annexation is the process by which a city extends its boundaries to incorporate land outside of its existing boundaries. Generally, annexation occurs to generate tax revenue or to facilitate economic development; however, it can also be undertaken to better align infrastructure and service delivery.

In 1986, the General Assembly passed a temporary moratorium on city-initiated annexation. It continues to the present day, having been extended several times. It is expected to continue into the future for the duration of this Plan. However, friendly annexation can occur whereby (1) property owners within unincorporated areas petition for annexation or (2) cities and counties mutually agree to adjust boundary lines.

Cooperation & Coordination

Bristol, VA is a part of the larger Tri-Cities region and successful growth requires multi-jurisdictional land use cooperation and coordination. Bristol faces two unique challenges in such endeavors.

First, it is an independent city and does not fall within the jurisdiction of any county; its land use planning is separate from neighboring Washington County. Secondly, Bristol, VA's sister city of Bristol, TN is a separate municipality within a different state. The State of Tennessee has different laws regarding a wide variety of issues, from land use planning to income and sales taxes. In both cases, different levels of regulation and taxation can often lead to competition rather than coordination.

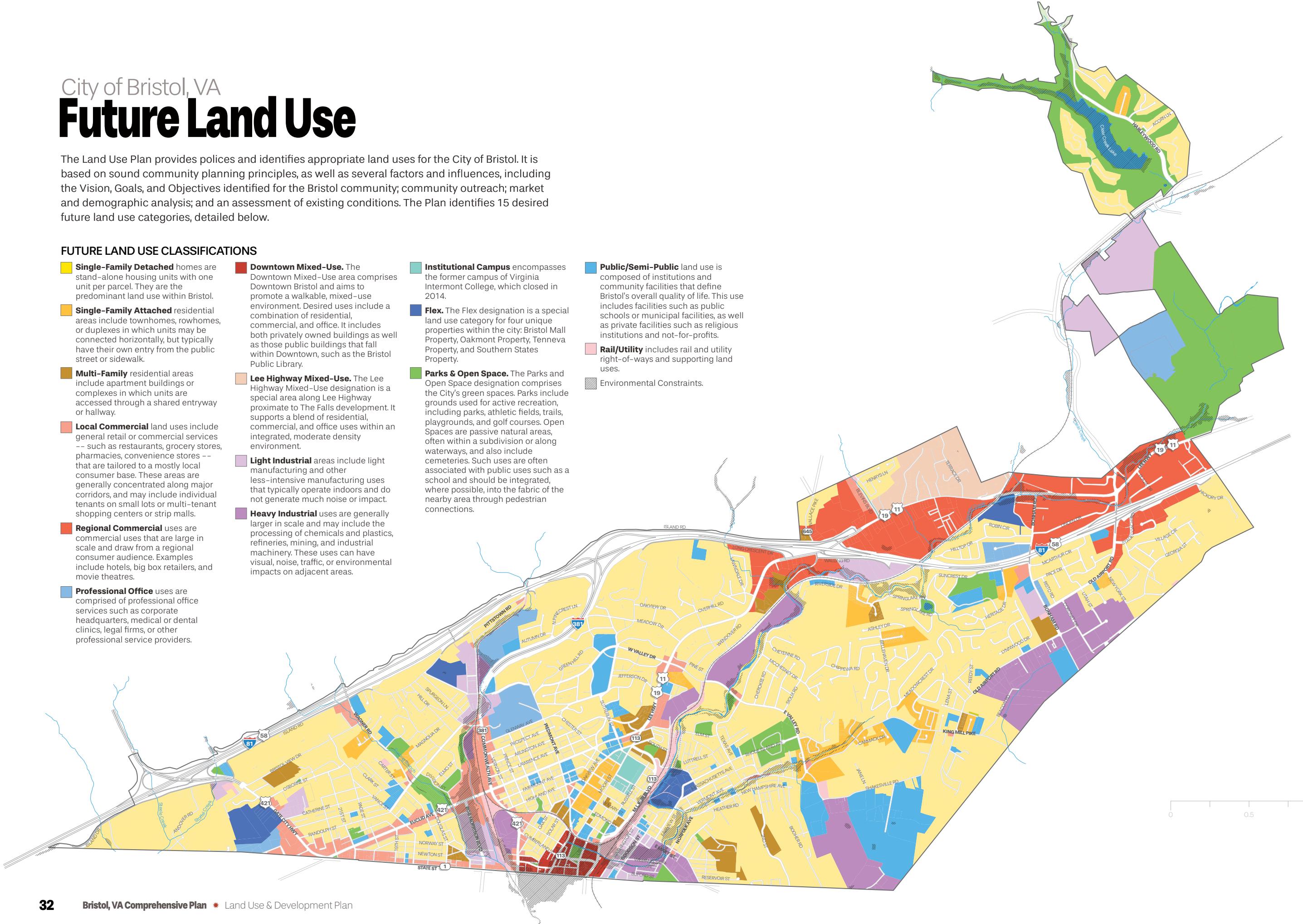
Cross-jurisdictional organizations and initiatives such as the Bristol Metropolitan Planning Organization and Believe in Bristol are examples of cross-jurisdictional collaborations that have served the region well. The City should continue to engage its neighbors in planning efforts as well as work together on key efforts that can contribute to higher regional goals.

City of Bristol, VA Future Land Use

The Land Use Plan provides policies and identifies appropriate land uses for the City of Bristol. It is based on sound community planning principles, as well as several factors and influences, including the Vision, Goals, and Objectives identified for the Bristol community; community outreach; market and demographic analysis; and an assessment of existing conditions. The Plan identifies 15 desired future land use categories, detailed below.

FUTURE LAND USE CLASSIFICATIONS

- Single-Family Detached** homes are stand-alone housing units with one unit per parcel. They are the predominant land use within Bristol.
- Single-Family Attached** residential areas include townhomes, rowhomes, or duplexes in which units may be connected horizontally, but typically have their own entry from the public street or sidewalk.
- Multi-Family** residential areas include apartment buildings or complexes in which units are accessed through a shared entryway or hallway.
- Local Commercial** land uses include general retail or commercial services -- such as restaurants, grocery stores, pharmacies, convenience stores -- that are tailored to a mostly local consumer base. These areas are generally concentrated along major corridors, and may include individual tenants on small lots or multi-tenant shopping centers or strip malls.
- Regional Commercial** uses are commercial uses that are large in scale and draw from a regional consumer audience. Examples include hotels, big box retailers, and movie theatres.
- Professional Office** uses are comprised of professional office services such as corporate headquarters, medical or dental clinics, legal firms, or other professional service providers.
- Downtown Mixed-Use.** The Downtown Mixed-Use area comprises Downtown Bristol and aims to promote a walkable, mixed-use environment. Desired uses include a combination of residential, commercial, and office. It includes both privately owned buildings as well as those public buildings that fall within Downtown, such as the Bristol Public Library.
- Lee Highway Mixed-Use.** The Lee Highway Mixed-Use designation is a special area along Lee Highway proximate to The Falls development. It supports a blend of residential, commercial, and office uses within an integrated, moderate density environment.
- Light Industrial** areas include light manufacturing and other less-intensive manufacturing uses that typically operate indoors and do not generate much noise or impact.
- Heavy Industrial** uses are generally larger in scale and may include the processing of chemicals and plastics, refineries, mining, and industrial machinery. These uses can have visual, noise, traffic, or environmental impacts on adjacent areas.
- Institutional Campus** encompasses the former campus of Virginia Intermont College, which closed in 2014.
- Flex.** The Flex designation is a special land use category for four unique properties within the city: Bristol Mall Property, Oakmont Property, Tenneva Property, and Southern States Property.
- Parks & Open Space.** The Parks and Open Space designation comprises the City's green spaces. Parks include grounds used for active recreation, including parks, athletic fields, trails, playgrounds, and golf courses. Open Spaces are passive natural areas, often within a subdivision or along waterways, and also include cemeteries. Such uses are often associated with public uses such as a school and should be integrated, where possible, into the fabric of the nearby area through pedestrian connections.
- Public/Semi-Public** land use is composed of institutions and community facilities that define Bristol's overall quality of life. This use includes facilities such as public schools or municipal facilities, as well as private facilities such as religious institutions and not-for-profits.
- Rail/Utility** includes rail and utility right-of-ways and supporting land uses.
- Environmental Constraints.**





Land Use Categories

Single Family Detached

Single-Family Detached residential areas include stand-alone housing units with one unit per parcel. It is the predominant land use in Bristol and will remain so. The character and type of single family detached neighborhoods varies widely, from smaller older homes on a traditional street grid to rural residential homes within an agrarian environment.

Within Single Family Detached areas, public and semi-public uses may be integrated into the neighborhood fabric. The Residential Areas Framework Plan provides more nuance and analysis on the different type of single family detached homes.

Single Family Attached

Single-Family Attached residential areas include townhomes, row-homes, or duplexes in which units may be connected horizontally, but typically have their own entry from the public street or sidewalk. Single Family Attached uses are scattered throughout the community, although, they should generally be located within or near major commercial areas, corridors, or Downtown.

Multi-Family

Multi-Family residential areas include apartment buildings or complexes in which units are accessed through a shared entryway or hallway. These uses range in character from a single family detached home split into several rental units to a neighborhood of multiple two or three story multi-family buildings. As with Single Family Attached uses, Multi-Family uses are scattered throughout the community but should be encouraged within or near major commercial areas, corridors, or Downtown. It is recommended that the City promote multi-family development to occur in a more coordinated and organized fashion in order to enhance neighborhood stabilization.

Local Commercial

Local Commercial areas are the least intense type of commercial land use. They are intended to provide daily goods and services conveniently to nearby neighborhoods. They should be of smaller scale and intensity, and be comprised of a mix of uses that does not attract shoppers from the larger region. Given the nature of Local Commercial, these uses are often adjacent to residential properties, and should be developed appropriately, minimizing the impact on nearby residents. Office uses are also supported, although depending on their size and intensity, they may be more suitable for Regional Commercial or Office areas.

Regional Commercial

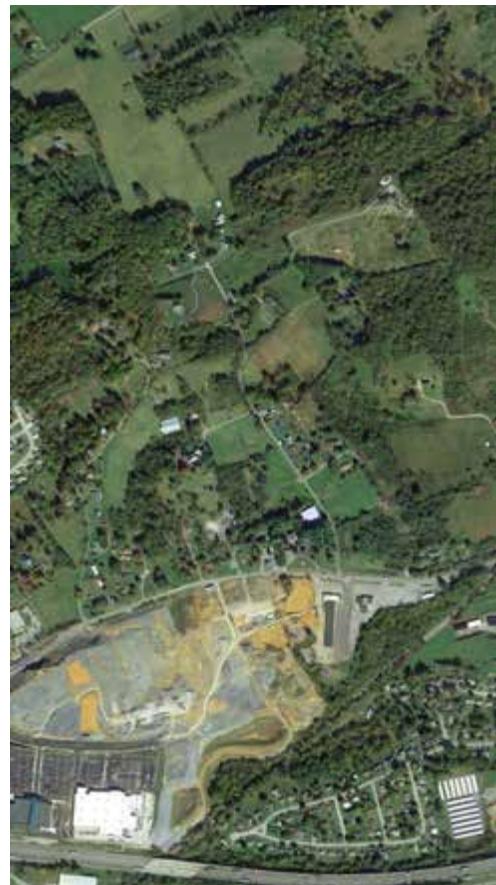
Regional Commercial uses are intense commercial uses that are large in scale and draw from a regional consumer audience traveling along I-81. These areas are intended to contain businesses or shopping centers that cater to the automobile, such as big box retailers, wholesale commercial, general commercial, and other similar businesses. Office uses are also supported, although depending on their size and intensity, they may be more suitable for Office areas.

Office

Office uses are comprised of corporate headquarters, medical uses, legal firms, or other professional service providers. They are areas specially designated for white-collar office uses and they are generally located along, or near, major corridors. While the Office land use designation is separate from the Local Commercial, Regional Commercial, and Flex Use designations, it is also appropriate for office uses to be found within such areas, where appropriate.

Downtown Mixed-Use

The Downtown Mixed-Use area comprises Downtown Bristol and aims to promote a walkable, mixed-use environment. Desired uses include a combination of residential, commercial, and office. It includes both privately owned buildings as well as those public buildings that fall within Downtown, such as the Bristol Public Library. Some buildings within this designation are mixed-use, with restaurant, retail, and/or services uses on the ground floor and residential, office or hospitality uses on the upper floors. While not every parcel within the designation shall be a mixed-use building, each parcel should contribute to a vibrant, mixed-use environment. Buildings should be built to the front property line, with parking provided in the rear if possible, to enhance the area's character, urban design, and walkability.



Lee Highway Mixed-Use

The Lee Highway Mixed-Use designation is a special area along Lee Highway within The Falls - Phase V redevelopment plan. It supports a blend of residential, commercial, and office uses within an integrated, moderate density environment. Some buildings may be mixed-use themselves while others are single-use buildings contributing to a broader mixed-use feel. It is intended that this area will be redeveloped through a coordinated master planning effort undertaken by a developer or group of developers. Commercial uses should front Lee Highway, transitioning back to lower intensity residential units as one progresses away from Lee Highway.

For more information, please see the **Commercial & Employment Areas Framework**.



Light Industrial

Light Industrial areas include light manufacturing and other less-intensive manufacturing uses that typically operate indoors and do not generate much noise or impact. Light industrial uses should consist of smaller service- and consumer-oriented businesses as opposed to large manufacturers. While light industrial uses are desirable and contribute to the economic health of the community, they can also negatively impact the environment and the quality of life for residents living in adjacent properties. Accordingly, the Land Use Plan recommends land use arrangements that seek to minimize land use conflicts.

Heavy Industrial

Heavy Industrial uses are generally larger in scale and may include the processing of chemicals and plastics, refineries, mining, and industrial machinery. These uses can have visual, noise, traffic, or environmental impacts on adjacent areas. Heavy Industrial uses are mostly located near rail access, often overlapping with major roadways. Areas identified as Industrial should be reserved for manufacturing, industry, and related uses; other uses should be discouraged within these areas. Bristol's industrial areas are already well-established; effort should be placed on ensuring their continued vitality while also safeguarding residential neighborhoods from harmful externalities.

Institutional Campus

The Institutional Campus designation encompasses the former campus of Virginia Intermont College, which closed in 2014. It covers approximately 30 acres, offering a blend of residential, entertainment, and office buildings within a campus environment. It is recommended that this property remain institutional in nature and that another college or university be recruited to occupy the property if possible.

Parks & Open Space

The Parks and Open Space designation comprises the City's green spaces. Parks include grounds used for active recreation, including parks, athletic fields, trails, playgrounds, and golf courses. Open Spaces are passive natural areas, often within a subdivision or along waterways, and also include cemeteries. Such uses are often associated with public uses such as a school and should be integrated, where possible, into the fabric of the nearby area through pedestrian connections.

Parks and Open Spaces are discussed in greater detail within **Chapter 9: Parks, Open Spaces, and Environmental Features Plan**.

Similarly, if an existing Public/Semi-Public use closes or relocates, that parcel's future use is not limited to only Public/Semi-Public uses. Re-use or redevelopment should occur that blends within the existing fabric of the area. For example, if an existing religious institution -- located along a commercial corridor -- closes or relocates, the property could either be re-used by a new religious institution or redeveloped for commercial uses.

Public/Semi-Public land uses and related policies are discussed in more detail in **Chapter 8: Community Facilities & Infrastructure Plan**.



Rail/Utility

Rail rights-of-way and utilities provide critical infrastructure throughout the city. Each are discussed in greater detail within **Chapter 7: Transportation & Mobility Plan** and **Chapter 8: Community Facilities and Infrastructure Plan**.

Flex

The Flex designation is a special land use category for four unique properties within the city:

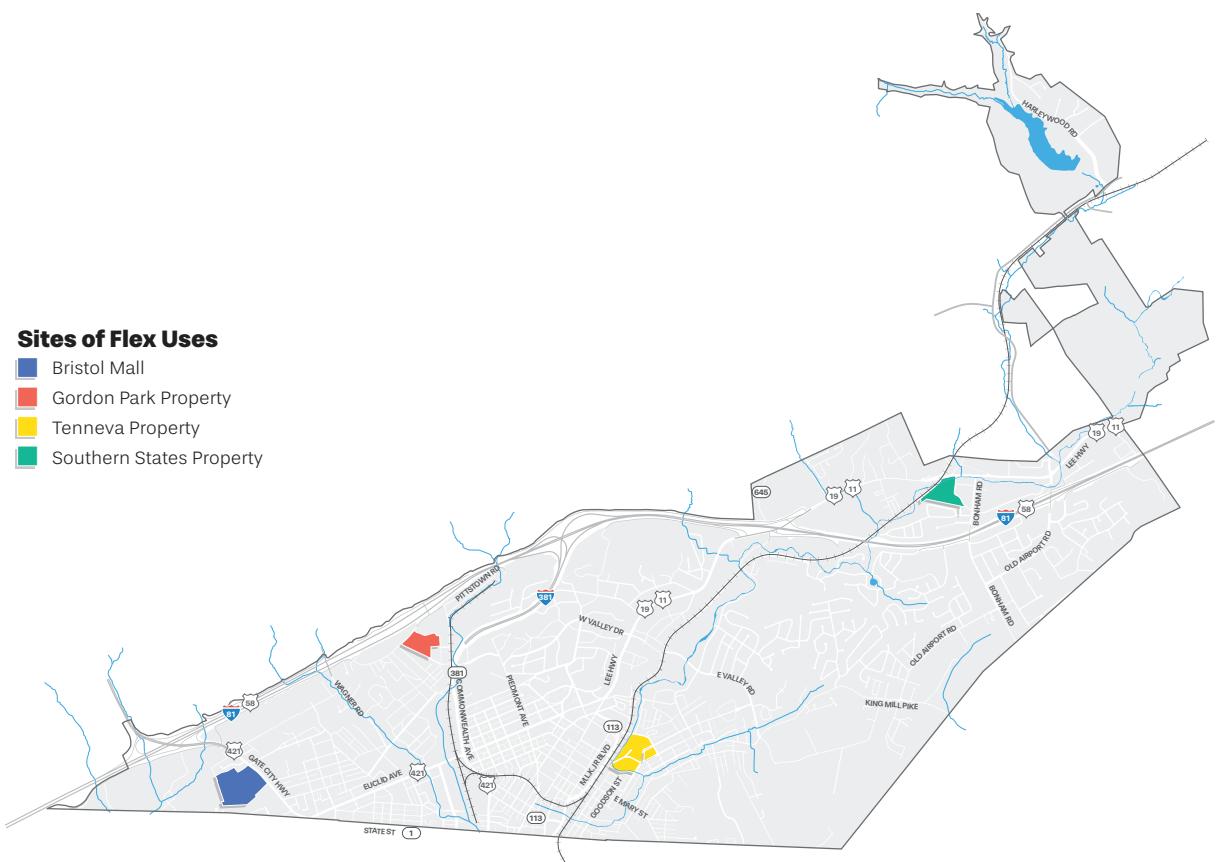
- Bristol Mall Property
- Gordon Park Property
- Tenneva Property
- Southern States Property

These properties were identified based upon a combination of the following factors: lack of a clear, uniform "highest and best use," property size; catalytic impact of redevelopment; strategic location; existing or expected investment; and community interest. Each of the four properties could accommodate several different redevelopment scenarios. Desired future uses acceptable for each of these sites is listed below, recognizing that redevelopment may include a mixture of uses or a subdivision of parcels to accommodate different uses/phasing.

The selection of these properties does not mean that they are more important than other properties within the community. Instead, flexibility must be maintained in order to respond to creative proposals.

Sites of Flex Uses

- Bristol Mall
- Gordon Park Property
- Tenneva Property
- Southern States Property



Bristol Mall

The Bristol Mall is a large property located along Gate City Highway in the western portion of the city. It has struggled in recent years after losing major anchors and was sold in a foreclosure auction in August 2015. This is due to a variety of reasons, including a shifting of commercial activity towards I-81 (e.g. The Falls, The Pinnacle), renewed interest in Downtown Bristol, and changes in consumer behavior that are not unique to Bristol. It is important to make clear that the Plan is not advocating for the mall's closure. However, the City must be proactive in planning for the site's future and developing a contingency plan. Given the size of the site, it is likely that if redevelopment occurs, it may include a master-planned blend of uses.



Acceptable Future Uses: Local Commercial, Office, Single Family Detached, Single Family Attached, Multi-Family, Light Industrial (Distribution). For more detailed information on the Bristol Mall, please see the [Commercial & Employment Areas Framework Plan](#).

Gordon Park Property

The 16-acre Gordon Park Property is located within the former Dale Gordon Business Park. In 2016, a new assisted living center will open on a portion of the site, providing housing and support for senior citizens. It is expected that the remainder of the site may be further developed to include independent patio homes for seniors, medical offices, and a skilled nursing facility.



Acceptable Future Uses: Single Family Detached, Single Family Attached, Multi-Family, Office



Tenneva Property

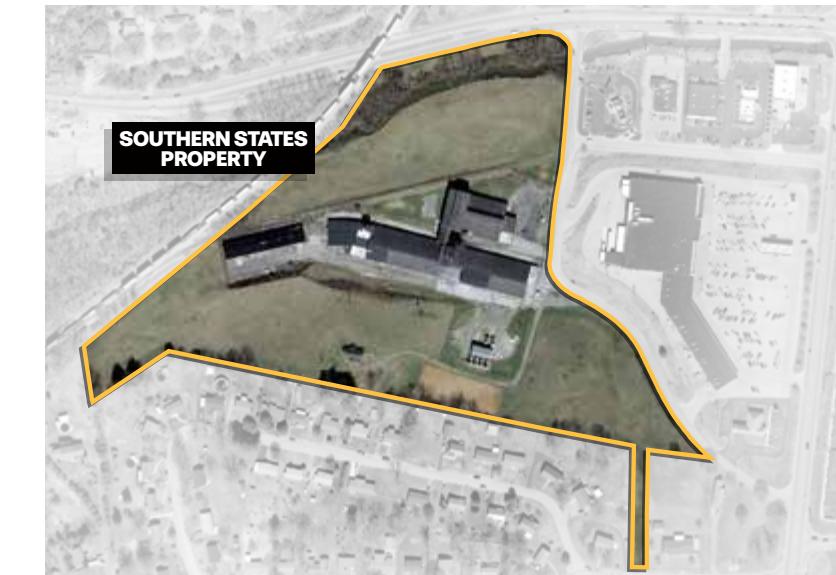
The Tenneva Property is a privately-owned site located on the east side of Bristol. It is bounded on two sides by a curve in Beaver Creek. The site was once home to industrial operations, resulting in site contamination along the western portion of the property. The Environmental Protection Agency (EPA) conducted site cleanup in 2009 and 2010 and contaminated soil was removed and the area was capped. In recent years, a variety of uses have been proposed for the site, including a winery, multi-family units, and an amusement park. The City has also expressed interest in purchasing the property for an outdoor amphitheater and public park. The site contains a large brick structure with historic qualities. Should redevelopment occur, the new site plan should attempt to integrate the existing structure, to the extent possible, as well as protect and enhance Beaver Creek.



Acceptable Future Uses: Multi-Family, Local/Regional Commercial, Public/Semi-Public, Parks & Open Space

Southern States Property

The Southern States Property is located along Lee Highway within a cluster of regional retail and is currently industrial in nature. Should redevelopment occur, the site could either shift towards Regional Commercial usage or match the mixed-use fabric of the Lee Highway Mixed-Use area to the northwest.

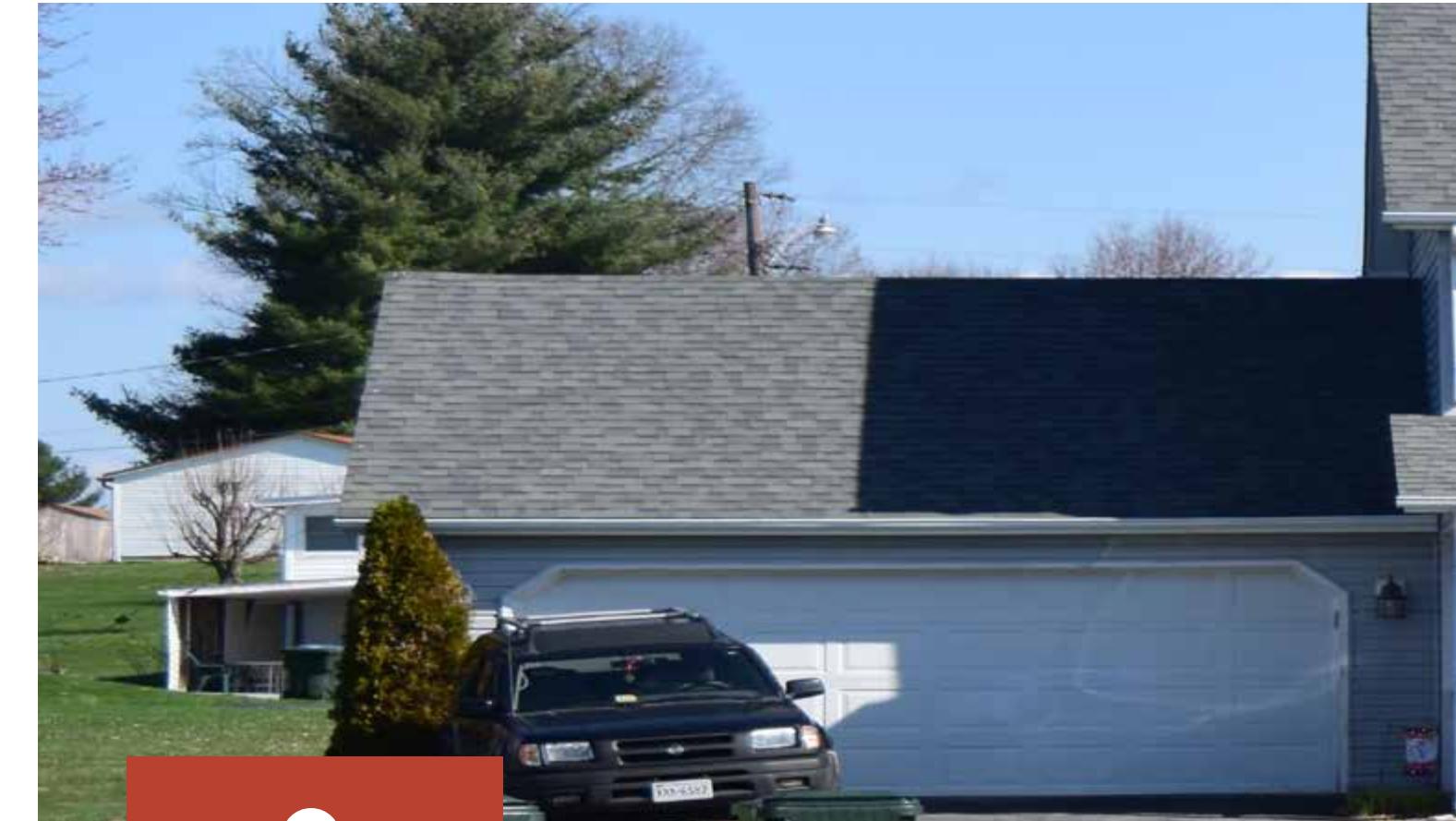


Acceptable Future Uses: Regional Commercial, Mixed-Use, Multi-Family, Office, Light Industrial (Distribution)



RESIDENTIAL AREAS FRAMEWORK PLAN

Residential uses occupy the majority of the land within the City of Bristol. The City currently contains a variety of housing options including single-family detached, single-family attached, multi-family, and senior housing. Future residential development should further expand local housing options, including senior housing, competitive single family detached housing, and quality multi-family development, and enhance the image of Bristol as a desirable place to live, raise families, and retire.



2035 Goal

In 2035, Bristol's neighborhoods will be vibrant, safe, and attractive, with a diverse range of housing products.



Priority Objectives

Objective #1

Neighborhood Revitalization & Beautification.

Stabilize and revitalize blighted and distressed residential areas.

- **1E.** Develop a residential rehabilitation incentive program using CDBG funds and/or a line-item within the CIP or annual budget.
- **1F.** Work with neighborhood groups to beautify neighborhoods with signage and landscaping.
- **1G.** Maintain close and open communication with residents, block groups, and home owners associations regarding capital improvements, neighborhood maintenance issues, and the upkeep of vacant properties and structures.
- **1H.** Require rental inspections and occupancy permits to ensure that units are safe and inhabitable, and that landlords are properly adhering to applicable regulations.
- **1A.** Transition severely distressed blocks from residential uses into other more productive uses.
- **1B.** Support the targeted demolition of homes that are blighted, unsafe, and lack historical significance.
- **1C.** Track blight, code violations, and housing conditions in GIS to provide a spatial and data-driven foundation for policy making.
- **1D.** Develop a Comprehensive Blight Elimination Plan that prioritizes areas for public investment and aligns resources in to order to reach a critical mass of investment where the private market can function without subsidies.



- **1I.** Develop a residential conversion program that would fund removal of non-conforming units and to return properties back to a lawful conforming number of units.
- **1J.** Work with property owners and developers to widen non-conforming residential parcels through acquisition of adjacent parcels as contemporary redevelopment occurs.
- **1K.** Budget for and continue to support staff in undertaking consistent and effective code enforcement throughout the community.
- **1L.** Evaluate incentivizing infill development within "tipping point" residential neighborhoods.

Objective #2

Historic Preservation.

Protect the historic character of the Downtown, Euclid Avenue, Solar Hill, and Virginia Hill neighborhoods.

- **2A.** Amend the Code of Ordinances to include a local historic preservation ordinance that can protect the Downtown, Euclid Avenue, Solar Hill, and Virginia Hill neighborhoods.
- **2B.** Encourage the re-conversion of historic single family homes that are currently divided into multi-family units back to their original single family status.

- **2C.** Actively prevent demolition-by-neglect of historic properties through a variety of policies and actions.
- **2D.** Identify and publicize grants that can be utilized by property owners to re-invest in their properties, particularly the facades.
- **2E.** Work with neighborhood groups to brand and beautify their historic neighborhoods through signage, landscaping, and promotional materials.

Objective #3

Design & Aesthetics.

Ensure that new residential product is well-designed and constructed with quality materials.

- **3A.** Develop non-binding residential design guidelines that can provide guidance to developers on styles, materials, massing, and garages.
- **3B.** Develop a landscaping ordinance that requires more appropriate and specific levels of landscaping, such as front yard and backyard trees, for all new residential construction.

Objective #4

Residential Quality of Life. Safeguard neighborhoods from incompatible industrial or commercial uses.

- **4A.** Encourage the transition and redevelopment of incompatible land use arrangements into more compatible land use arrangements.
- **4B.** Amend the Code of Ordinances to require adequate buffering and screening between residential neighborhoods and more intense uses, such as commercial or industrial areas.
- **4C.** Limit the number and/or size of recreational and commercial vehicles that are able to be parked on residential properties.
- **4D.** Work with utility providers and property owners to screen existing utility boxes and infrastructure from public view.

Objective #5

Product Diversity.

Encourage and support the development of diversity of new housing product at a variety of price points and sizes, including senior housing, at locations identified within the Future Land Use Plan.

- **5A.** Support the development of new housing at Clear Creek Golf Course at a range of appropriate densities.
- **5B.** Facilitate consolidation of small non-conforming parcels in appropriate locations to encourage infill development that can meet contemporary market needs.

- **5C.** Review zoning, building, and other related codes and ordinances to ensure that they are flexible, promote overall community accessibility, and support older adults aging within Bristol.
- **5D.** Maintain working partnerships with human and healthcare service providers to better integrate linkages with older-adult housing developments within Bristol.
- **5E.** Support the continued development of multi-family units within Downtown Bristol.
- **5F.** Encourage the de-concentration of low-income housing by scattering sites throughout the city and integrating them into the neighborhood fabric.



Actions & Supporting Information

Character Areas

The character and density of Bristol's neighborhoods vary throughout the city. Based upon the Future Land Use Map, the City's residential neighborhoods have been classified into four categories to guide future planning and investment. The designation of a particular area does not mean that every property within that area is identical or that every property within that area reflects the assigned designation. Instead, it is intended to paint a general portrait of the character of that area.

It is important to recognize that the uses of identifying terms are relative to the unique factors found within the City of Bristol and should not be compared to other cities.

Each character area is detailed through a brief overview as well as the high level policy focuses the City should undertake within each area. More details on the policy directives can be found in the following pages.

Residential Character Areas & Policy Focuses

Character Area	Description	Revitalization	Code Enforcement	Historic Preservation	Routine Maintenance	Transition of Incompatible Uses	Targeted Infill (Re)development	Block Level (Re)development	Greenfield Development	Multi-Family & High Density Product
Historic Core Neighborhoods	This area includes historic homes on a traditional street grid. It is well connected via sidewalks and benefits from proximity to Downtown. Vacancy and blight are severe issues.	X	X	X		X	X			
Core Neighborhoods	This area includes older, but not historic, homes on a traditional street grid. They are typically small homes on narrow lots. They developed without sidewalks and curb/gutter. Vacancy and blight are severe issues.	X	X			X	X	X		
Suburban Transition Neighborhoods	This area includes a blend of urban and suburban design on curvilinear streets. They lack sidewalks as well as curb-and-gutter.	X	X			X	X			
Suburban Neighborhoods	This area includes moderately sized homes on curvilinear streets, designed in a suburban fashion. Homes are generally stable and well maintained.		X		X	X	X	X	X	
High Density Neighborhoods	This includes stand-alone apartment, townhome, and duplex complexes. They are often located within single family neighborhoods.	X	X		X		X	X		X
Downtown Mixed-Use Neighborhood	This area includes Bristol's downtown, which is a blend of uses within a walkable and vibrant environment. Residential uses are mostly located on upper floors of mixed-use buildings.	X	X	X			X			X
Lee Highway Mixed-Use Neighborhood	This large redevelopment area is currently a mixture of commercial uses and single family detached homes. It is envisioned that this area will redevelop over time to become a (horizontal) mixed-use destination capitalizing on The Falls.		X			X		X	X	



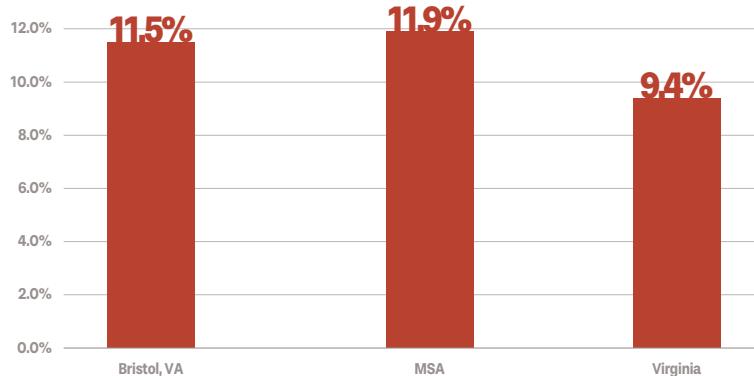
Neighborhood Revitalization

The City already contains many desirable and attractive neighborhoods. Many community members stated that they know their neighbors, and that a "small town feel" and "sense of community" are important pieces of the city fabric. However, many of the City's core neighborhoods are experiencing blight, vacancy, and general disinvestment. This was consistently identified by residents, stakeholders, students, and the business community as one of Bristol's greatest challenges.

In 2015, structural vacancy was estimated at 11.5%, or greater than one in ten homes. Many of these homes are undergoing exterior or structural deterioration. Similarly, some occupied homes within core neighborhoods are poorly maintained and not experiencing sufficient levels of investment, leading to lower property values, a reduction in community pride, and in some cases, endangerment of public health.

Structural Vacancy Rates (2015)

Bristol, VA vs. MSA vs. Virginia



Targeted Residential Transition in Blighted Areas

Blighted and dis-invested residential properties are predominantly concentrated in the City's core neighborhoods. Some blocks are particularly hard hit, with high levels of both parcel and structural vacancy, blighted conditions, and encroaching incompatible uses, such as heavy or light industrial.

The Future Land Use Plan and Housing & Neighborhoods Plan identifies and encourages the gradual transition of several low-density and blighted residential blocks south of East Mary Street into other land uses that are more appropriate and productive. While the neighborhood is proximate to Downtown, the existing active rail line (up to six tracks in some places) acts as a strong physical barrier. This neighborhood is unlikely to sustain itself due to the nature of existing higher intensity industrial uses nearby.

It is important to state that this policy does not require any resident to relocate from their existing home if they live within an identified transition area. Instead, the policy guides City investment and decision-making as well as informs what type of redevelopment should occur if the property was to be vacated in the future.

Additionally, the Future Land Use Plan and Housing & Neighborhoods Plan also encourages the gradual transition of several small, relatively stable residential pockets that conflict with neighboring industrial uses. More information on this recommendation can be found in the following section entitled "Quality of Life."



Demolition

Demolition of blighted properties can be costly at a large scale. Since 2007, 116 homes have been demolished in Bristol. The City demolished 55 of those structures, with the remaining 61 being demolished by private landowners. In a few cases, homes were deeded to the City by owners whose outstanding property taxes exceed the home's resale value. Properties have also been turned over to the Bristol Redevelopment and Housing Authority for redevelopment under the Blighted Property Donation Program; however, this is not typical.

The City should continue demolition of appropriate properties within Bristol by developing a comprehensive demolition strategy with relevant partners. The strategy would identify the scale of the problem, prioritize homes for demolition, publicize redevelopment opportunities, and identify and budget funding. Some of the criteria that should be included when evaluating demolition include, among others: structural condition, public safety concerns, public health issues, proximity to schools, historical merit, cost of renovation, and resale value.

Re-use of the vacant lot could either be for infill redevelopment, integration with a neighboring parcel to produce a larger lot, or to serve as some type of park or open space (either in the short-term until redevelopment occurs or in the long-term as a designated permanent green space).

Beautification

Locally-organized neighborhood groups and block clubs can play a vital role in beautifying residential neighborhoods. Successful neighborhood groups mow vacant lots, plant flowers in public areas, and sponsor decorative neighborhood signage, as well as coordinate and work with police department in combating public safety concerns and nuisances.

The City should continue to work with existing neighborhood groups to implement beautification projects as well as help establish such groups in neighborhoods where they do not currently exist. Coordinating with established neighborhood anchors, such as schools, not-for-profits, and religious institutions, can ensure long-term viability as well as assist in funding.

Active Code Enforcement

Effective code enforcement is vital to maintaining neighborhood character and limiting the impacts of disinvestment. While warning or fining property owners can be a sensitive issue, particularly in low income areas, allowing a home in neglect to impact others is simply not fair to the community as a whole.

At present, the City has employed a full-time inspector who routinely performs the investigation of a complaint prior to a notice of violation. It is important for the City to continue to budget for and support staff in undertaking consistent and effective code enforcement throughout the community. The City may also seek funding sources and increase resources to improve capabilities and effectiveness. Additional funds would allow the City to hire and train more inspectors and code enforcement officers allowing more frequent and regular inspections of a larger number of properties.

Residential Rehabilitation

Low-income homeowners may struggle with maintenance and improvement of the exterior of their homes. The City should develop a residential rehabilitation incentive program utilizing CDBG funds and/or a line-item within the annual budget or Capital Improvement Program. Such a program could require a match and the grant amount available could vary based on US Department of Housing and Urban Development income guidelines.

Over the long-term, better maintained homes and more attractive neighborhoods will increase property values and lead to higher tax revenues for the city.

Rental Property Maintenance

Some neighborhoods within Bristol's core neighborhoods suffer from absentee landlords and poor rental property maintenance, as well as single family detached properties that may have been improperly converted. A high concentration of rental properties under these conditions can destabilize a neighborhood and lead to an exodus of neighboring home owners, further compounding the problem. The City should proactively work with residential property owners to ensure properties are up to code and properly maintained.

To improve rental conditions, the City should:

- Require rental inspections and occupancy permits to ensure that rental units are safe and inhabitable prior to occupancy, and that landlords are properly adhering to applicable regulations.

■ Adopt and enforce maintenance standards for rental homes or vacant properties to ensure that surrounding properties are not negatively impacted. Fines for non-compliant maintenance should be structured to encourage resolutions to issues through refunds or rebates for improvements that lead to compliance, rather than being seen simply as a revenue source for the City or hardship for the property owner.

■ Consider developing a residential conversion program that would fund removal of non-conforming units and return properties back to a lawful conforming number of units. Such a program could be funded through CDBG grants, or a line item in the annual budget.



Support for Infill Development

As the City is mostly built-out and land-locked due to an annexation moratorium, most new development will occur as infill development within existing neighborhoods. Infill sites can be difficult to build on due to a wide variety of factors. For example, problematic site conditions may require demolition, clearing, or remediation, and small lot sizes may necessitate parcel assembly to accommodate modern development.

To facilitate new investment in Bristol's residential core and existing single-family neighborhoods, the City should consider incentives to assist with added costs and make infill development an economical option in comparison to greenfield development within Washington County (VA) or Bristol, TN. Examples of potential sources for funding could include a redistribution of allocated CDBG funds. Additionally, the City should support an increase in lot sizes within Kingtown and similar disinvested neighborhoods, working with property owners and developers to widen residential parcels to an appropriate width through acquisition of adjacent parcels as contemporary redevelopment occurs.

Historic Preservation

Bristol offers a variety of historic neighborhoods and architecture that give it a distinctive flavor and identity. Located in one of the original colonies, but situated in the mountains where the nation once transitioned to the frontier, Bristol's buildings tell part of America's story and embody the longevity and resilience of the local area.

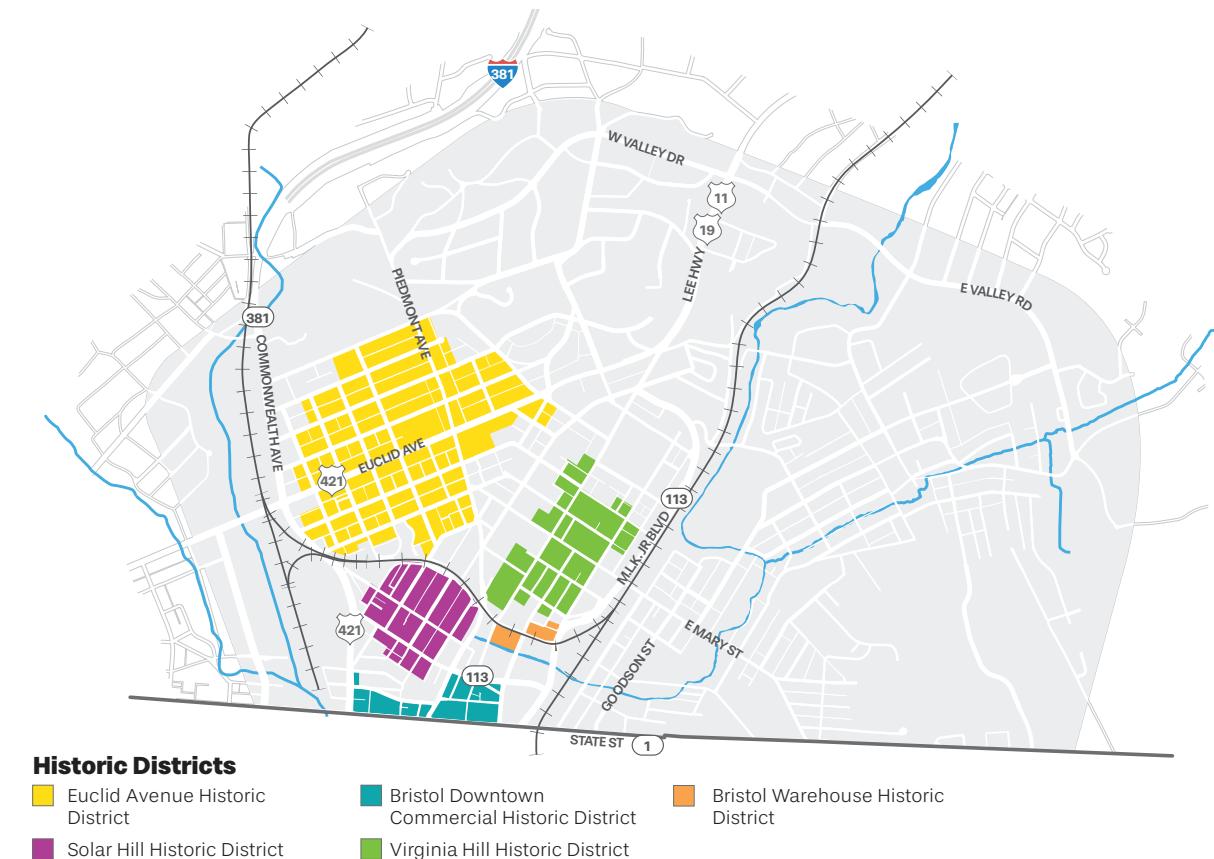
Existing Historic Districts

Historic districts include both federal, state, and local designations. Federal districts are authorized through the U.S. Department of the Interior, and are primarily used for federal tax credits as well as marketing and publicity. They do not regulate demolition or exterior alteration of the properties. Local designations, on the other hand, are often tougher and can prevent demolition or exterior alteration.

The City of Bristol contains five federally designated historic districts: the Euclid Avenue Historic District, the Solar Hill Historic District, the Virginia Hill Historic District, the Bristol Warehouse Historic District, and the Bristol Downtown Commercial District. The City does not currently have any local historic districts or historic zoning, although the City does issue annual awards to property owners and developers who make significant efforts to preserve and enhance their historic properties.

Euclid Avenue Historic District

The Euclid Avenue Historic District is located approximately eight blocks north of Downtown, bounded roughly by Glenway Avenue in the north, Chester Street in the east, Highland Avenue in the south, and Vernon Street in the west. It contains 450 primary buildings, of which 96% contribute to the historic character of the district. The neighborhood developed in the late 19th and



early 20th centuries and consists primarily of one- to two-story frame and brick dwellings constructed between 1890 and 1940.

Solar Hill Historic District

The Solar Hill Historic District is located along Johnson, Solar, West, King, Cumberland, and Sycamore Streets approximately two blocks north of Downtown. The area was named for a local observatory that was used to view the total solar eclipse of 1869.

The district developed in the late 19th and early 20th centuries and consists of primarily one- to two-story frame and brick dwellings built between 1871 and the 1930s. The district is located on a hillside overlooking Downtown, and is characterized by wide tree-lined streets with houses sited close to streets. The district contains 117 primary buildings, of which 92% are contributing buildings.

Virginia Hill Historic District

Located between Virginia Intermont College and Downtown Bristol, the Virginia Hill Historic District contains 129 primary buildings of which 92% are deemed to be contributing to the historic character of the area. The neighborhood developed in the late 19th and early 20th centuries, and contains primarily one- to two-story frame and brick dwellings built between 1868 and the 1940s. Tree-line streets with houses sited close to the street and sidewalks are common within the district, and many yards are lined with original stone or concrete retaining walls.

Downtown Commercial Historic District

The Commercial Historic District includes State Street as well as additional blocks north and south in both Virginia and Tennessee. The district developed in the late 19th century and most structures are two and three story masonry commercial build-

ings built from circa 1890s to 1950s. Comprised of 106 primary buildings, 80% are considered to be contributing structures. To this day, most of the district remains intact with minimal intrusions and the historic fabric contributes to Downtown's charm and vitality.

Warehouse Historic District

The Bristol Warehouse Historic District is a collection of six buildings in Downtown Bristol that were mostly built in the late 19th century along the rail line. These historic brick and concrete buildings are what remain of a larger warehouse district after urban renewal projects demolished much of the surrounding building stock. The Warehouse District has seen two major reinvestment projects in recent years, including the opening of Studio Brew in the old Bristol Warehouse Company building and the reuse of the old Bristol Builders Supply Company for the headquarters of Bristol Virginia Public Schools.



Creation of a Local Historic Preservation Ordinance

Currently, the City does not have any regulations prohibiting the demolition or architectural alteration of its historic buildings (referred to as a "historic preservation ordinance" or "historic zoning"). Without such protections, Bristol could lose its most distinctive and historically important structures as well as the character of some of its most cherished and architecturally rich neighborhoods. At the same time, it is important to note that a building does not necessarily have "historic value" simply because it is old. Some buildings may be deteriorating and unsightly, and lack historic character. Replacement of these buildings with new, but traditionally designed buildings, would be appropriate and desired in limited cases.

Using the existing federal districts as a starting point for local districting, the City should work with neighborhood groups and historic preservation experts to develop a local historic preservation ordinance that can protect key historic neighborhoods, such as the Downtown, Warehouse Historic District, Euclid Avenue, Solar Hill, and Virginia Hill neighborhoods. It is not necessary that local and federal districts be coterminous.

Some of the topics that would need to be addressed in such an ordinance include, among others:

- **Geography.** What areas/neighborhoods should be included? Which buildings contribute to the district and which are supporting?
- **Structural alterations.** What types of exterior alterations are permitted on a historic property?
- **Demolition.** What is the criteria and process for demolition?
- **Design standards.** If a new building is constructed on a vacant property within the heart of an existing district, what should it be permitted to look like?
- **Process.** What is the legal/municipal process for working through these issues?

Single Family Home Conversion

Within the Virginia Hill, Solar Hill, and Euclid Avenue historic areas, many large single family detached homes have been converted into several multi-family units. In some cases, this has required structural alteration of the property, compromising its historic quality.

While some conversions have been well-done, many reinforce a feeling of transiency within a historic neighborhood and discourage home ownership. The City should work with property owners to encourage the re-conversion of historic single family homes that are currently divided into multi-family units back to their original single family status, evaluating the usage of incentives or assisting with locating external financing.

Prevention of Demolition through Neglect

After a local historic preservation ordinance is established, it is important to protect structures from "demolition through neglect." This occurs when a property owner intentionally stops investing in their historic property, with the aim of creating such uninhabitable conditions that demolition becomes the only resort.

The City should actively prevent demolition through neglect by utilizing the following strategies recommended by the National Trust for Historic Preservation:

- Requiring that properties are maintained through regular code enforcement
- Having a good monitoring system of historic properties in place
- Adopting and utilizing formal demolition-by-neglect policies and procedures
- Working with property owners to apply for grants that can assist with renovations
- Commit to a clear and predictable course of enforcement



Design & Aesthetics

The design, aesthetics, and construction materials of homes affects not only property values but also the perception and pride of the community. Poorly designed and constructed homes do not age well and can be difficult to re-sell, as the costs to reinvest in the home are greater than its replacement cost. It is important for the City of Bristol to encourage quality home construction that balances cost, quality, and sound design.

Design Guidelines

Design guidelines are non-binding recommendations to new home builders on product design. They can be used by the City, architects, developers, and neighborhood groups on a cooperative basis to promote high quality new construction. By following or incorporating elements of the guidelines, developers can be ensured that their proposals can receive speedy approval, thus reducing costly delays and procedural uncertainty.

Many guidelines, such as a step-back in garage placement, are cost-neutral and promote good design without adding cost. Others may slightly increase the initial cost of development, but ensure the home's longevity as well as safeguard its resale value down the road.

The City should put together a brief flyer or policy guide highlighting preferred styles, materials, massing, and building and garage orientation for new residential construction.

Landscaping

Landscaping, such as trees and shrubbery, is not required for new residential construction in Bristol. While some developers have opted to include landscaping within new construction, others have chosen not to. In addition to environmental benefits, trees and shrubbery soften the appearance of residential blocks and create a more welcoming and peaceful experience. The City should require appropriate levels of landscaping, such as front yard and backyard trees, for all new residential construction. In locations where the right-of-way permits, the City should plant street trees within the parkway in lieu of front yard trees.

Treating Split-Faced Block

Bristol sits within the foothills of the Southern Appalachian Mountains, and the elevation of the community ranges from 1,670 feet to 2,000 feet. For comparison, the mean elevation within Virginia is 950 feet. 29% of the City's land is sloped at greater than 15%, while 61% of the City is sloped at between 5% and 15%. This hilly terrain provides for scenic vistas and a beautiful landscape but poses challenges for development.

Some new residential construction does not fully meet the grade of the parcel. This means that the front of the house is at-grade with the fronting street, but the rear of the home is at a different grade level, often exposing an untreated basement from the side street or the rear. Some developers have chosen to use untreated split-face block, which further contributes to the unattractive appearance. The City should consider requiring painting of the exposed foundation or landscaping that would shield the exposure.

CASE STUDIES NEIGHBORHOOD BLIGHT ELIMINATION

Communities across the country have developed a variety of strategies and programs to eliminate blight and promote neighborhood reinvestment. Central to most successful approaches has been the need for (a) accurate data that spatially depicts the scale and location of the problem, (b) community involvement in helping solve the problem, (c) personnel to develop and administer initiatives, and (d) financial resources to fund programming, incentives, demolition, loans, and/or staffing.

The Comprehensive Plan provides many recommendations, as well as case studies depicted below, that can be utilized to reduce blight in Bristol's older neighborhoods. However, the Comprehensive Plan itself only outlines a policy framework, and is not a Blight Elimination Plan in itself. Following adoption of the Comprehensive Plan, the City should develop an actionable Blight Elimination Plan.

The State of Michigan provides a good example of an approach to addressing blight. The Michigan Blight Elimination Handbook recommends the following 5 steps to successful blight elimination planning:



Source: M1 Blight Elimination Handbook

This section provides case studies of successful blight elimination programs and well as other tools that can be utilized in establishing a Blight Elimination Plan.

Collecting Data & Using Data to Inform Decision-Making: BlightSTAT (New Orleans, LA)

In New Orleans, the effects of Hurricane Katrina in 2005 and a history of poverty combined to create blight on an unprecedented scale. An estimated 25% of properties in the city were affected by blight following the natural disaster. With such a widespread issue, emphasis was placed on understanding the scale of the problem and creating a data-driven approach to identifying and addressing blighted areas. BlightSTAT collects and utilizes spatial data to set goals and inform resource allocation, improving the efficiency of blight elimination.

At the heart of this effort is a regularly updated database which not only provides a real-time understanding of blighted properties in the City, but also acts as a 'pipeline' for recognizing blight and taking action. This effort has been a significant factor in addressing blight in New Orleans and emphasizes the need for data that can be consistently updated and analyzed. In Bristol, housing quality and blight issues could be tracked through GIS, helping to provide a clearer spatial understanding of what blight looks like in the community.

Private-Private Partnerships: Blight Removal Task Force (Detroit, MI)

The Blight Removal Task Force was formed in 2013 with the aim of eliminating blight by involving not just state and local government, but also the private sector, nonprofit organizations, and the foundation community. With a variety of expertise and perspectives, the Task Force is establishing a blight elimination plan in Detroit. An initial component of developing the strategy was parcel-by-parcel data collection of housing occupancy and conditions.

An emphasis was placed on public-private collaboration and involvement, understanding that cooperation between these groups would be essential to not only addressing blighted properties, but reversing the trend over time. In Bristol, the smaller scale of the community supports close collaboration which can help identify issues unique to the area and provide direction for how to best address local blighted properties.

Prioritizing Neighborhoods, Focusing Resources, & Aligning Programming: Neighborhoods in Bloom (Richmond, VA)

Established in 1999, the Neighborhoods in Bloom (NIB) program identified and prioritized seven declining neighborhoods in Richmond, focusing federal, state, local, and private resources on revitalizing these neighborhoods and creating a critical mass of investment. These resources included the majority of Richmond's CDBG and HOME funds, as well as capital improvement programming, focused code enforcement, and accelerated property disposition.

Between 1990 and 2004, average home sales prices in the seven target neighborhoods increased 9.9% faster than city-wide averages and sales prices jumped from roughly 50% of the average city-wide sales average to 70%. Additionally, nearly 130 vacant homes were renovated and close to 400 new and renovated homes were sold. The success of Neighborhoods in Bloom supports the policy decision to target resources to prioritized areas in order to reach a critical mass of investment where the private market can function without subsidies.

Incentives for Rehabilitation: Residential Rehabilitation Significant Structure Improvement Grant Program (Norfolk, VA)

The Residential Rehabilitation Significant Structure Improvement Grant Program (SSIGP) offers Norfolk homeowners within conservation areas financial incentives to undertake exterior improvements, including façade restoration or improvement of the architectural integrity.

Grants can fund up to \$10,000 per property and no less than \$1,000 per property, with a 100% match required. Grants are only disbursed one time, once per property, and once per owner. The program assists lower income property with maintenance of the exterior, leading to more attractive neighborhoods, safer homes, and improved community pride. Funding for the program is provided through CDBG, Capital Improvements Program, or other public funds.

Sources: International Economic Development Council, Data Driven Detroit, City of Richmond, Federal Reserve Bank of Richmond, Virginia Commonwealth University, Norfolk Redevelopment Housing Authority



Quality of Life

Bristol's single family neighborhoods should be safe, peaceful, and attractive and should not be subjected to intense commercial or industrial uses (e.g. factories, plants, auto repair shops, and distribution facilities) that generate noise, fumes, or high levels of traffic.

Unfortunately, in several existing locations, residential areas directly abut, or are sandwiched between, more intense uses such as heavy industry or active commercial uses. The Plan encourages minimization of these conflicts by either transitioning these residential areas into more appropriate uses over time or by buffering and screening them from the conflicting use.

Incompatible Land Use Transition

Not all land uses are considered compatible with one another. The Future Land Use Plan and Residential Areas Framework Plan took into careful consideration locations where two uses clashed with one another, assessing whether it was logical to transition the residential uses gradually over time into complimentary higher intensity uses. On the Residential Areas Framework Plan, areas that are recommended for transition over time are highlighted.

One example of a very small pocket neighborhood that should be transitioned away from residential is McNeil Street, in between Pepper Street and Bob Morrison Boulevard. To the north are industrial uses with commercial uses to the south. McNeil Street itself also contains a mixture of both single family detached homes and commercial uses. This neighborhood is unlikely to sustain itself due to the nature of existing higher intensity uses nearby, such as a collision repair center and a commercial strip. It is recommended that the City encourage the transition and redevelopment of such areas into more compatible land use arrangements.

This policy does not require any resident to relocate from their existing home if they live within a transition area. Instead, the policy guides City investment and decision-making as well as informs what type of redevelopment should occur if the property was to be vacated in the future.

Screening & Buffering

Screening is the practice of visually shielding unattractive land uses and storage facilities from public view, typically through the usage of landscaping or fencing. Buffering is the usage of setbacks, berms, and other planning devices to reduce visual and physical proximity between two conflicting uses, typically residential and industrial or commercial.

Current municipal code contains minimal screening requirements. As such, industrial storage, dumpsters, and other raw materials are often viewable from either the public right-of-way or from the back- or side yards of neighboring residential neighborhoods.

As a 19th century historic railroad town, Bristol developed in an uncoordinated fashion that was typical of the time and often integrated residential and industrial uses in close proximity. Some of these conflicting uses continue to this day. In an effort to maintain employment, the Future Land Use Plan preserves several industrial areas that abut residential areas to accommodate job growth but recommends transition of other areas.

Where such conflicts exist, either in the short-term or long-term, it is imperative that the City work with property owners to implement screening and buffering. As new industry and employment development occurs, screening as well as landscaped buffers should be constructed to establish horizontal separation between more intense uses and adjacent residential areas.



Poor Example



Good Example



Recreational & Commercial Vehicles

Commercial vehicles (e.g. semi-truck cabs, tow-trucks, and maintenance trucks) and recreational vehicles (e.g. RVs and boats) are an integral part of living and working in Bristol. It is expected that families will store a boat or R/V on their property and that a local business owner or employee may bring home their work vehicle. However, property owners within a single family neighborhood should not be allowed to store their boat or R/V on a public street for an extended period of time, and full semi-trucks and fleets of commercial vehicles should not be permitted to be stored within residential neighborhoods. These actions can contribute to blight, reduce the volume of on-street parking, and produce undesired commercial activity within a residential setting.

Additionally, inoperable vehicles should be kept either within a garage or shielded from the public right-of-way.

The Comprehensive Plan is a policy guide and is not regulatory; it is recommended that the Code of Ordinances be updated to prevent this type of activity. Bristol's existing Code of Ordinances addresses some of these issues, but should be reviewed and amended to better reflect current trends and mitigate these situations.



Product Diversity

Housing product diversity is critical for Bristol to remain competitive in attracting and retaining residents in the twenty-first century. A variety of product ensures that housing is available for the community's workforce (at a variety of income brackets) and it accommodates the housing transitions of residents as they pass through different stages of life (e.g. single young professional to family of five to retiree). Without appropriate product, existing residents looking to up-size or down-size may relocate to other areas in the region. While the City cannot be "everything to everyone," but at the same time, it should provide a diversity of housing products within the desired character of Bristol, Virginia.

Bristol's existing housing stock is fairly diverse, with higher density units (e.g. townhomes, duplexes, apartments, condominiums) accounting for 35% of the housing supply and owner occupied housing only accounting for 54.3% of all units. Bristol's existing housing product ranges from downtown multi-family lofts to historic mansions, small suburban-styled starter homes to quasi-rural homesteads. What the community is lacking is: contemporary housing product for young professionals, higher-end multi-family housing, and senior housing. The City should support the development of such housing in appropriate locations identified on the Future Land Use Map and Residential Areas Framework Map.

Age Targeted and Senior Housing

Bristol is a community that is aging. In 2015, its median age was 42.5 years (compared to the national median of 37.8 years). Between 2010 and 2020, the share of the population aged 55 years and older is projected to increase from 31.7% to 35.9%. The concept of "aging in place" supports a desire within the Bristol community to provide a broader range of housing options to householders of all ages.

To better accommodate growth in older age cohorts, the City should:

- Encourage development of single-family attached and multi-family housing in accordance with the Land Use Plan with proximity to amenities such as transit and local shopping options.
- Review zoning, building, and other related codes and ordinances to ensure that they are flexible, promote overall community accessibility, and support older adults aging within Bristol.
- Maintain working partnerships with human and healthcare service providers to better integrate linkages with older-adult housing developments within Bristol.

Clear Creek Golf Course

The Clear Creek Golf Course is a beautiful eighteen hole course owned and operated by the City of Bristol. As of 2015, 33 single family detached homes and 30 town homes have been built along the course, with another 15 lots platted but vacant. Additionally, the Golf Course would like to develop a mixture of housing product on currently unplatated and undeveloped segments of the property. This location could accommodate a variety of contemporary products that could capitalize on the scenic nature of the golf course as well as access to the Club House and nature walks. The City should continue to support the full residential build out of Clear Creek Golf Course at a range of appropriate densities.

Higher Density Product Existing Product

Isolated multi-family units are scattered throughout the community, located sporadically within single-family residential neighborhoods. There are some duplexes and townhomes located within areas that are predominantly single-family, contributing to a feeling of haphazard planning. As with single-family homes in the community, there are also a number of multi-family structures that are in disrepair or suffer from deferred maintenance.

The City should promote orderly growth and development through the clustering of like uses. Multi-family development should be strategically reserved to help bolster Downtown and as a transitional land use between single family areas and other incompatible uses. To this end, the Land Use Plan identifies areas appropriate for multi-family development. In addition to new development, the City should work with property owners of existing multi-family units/complexes to assist in identifying maintenance programs that can provide funds designed to aid homeowners and landlords in improving the condition of their properties.

Downtown

Downtown Bristol is the heart of the community, and additional residential units can help further invigorate the Downtown as well as increase the consumer base for Downtown businesses. Within the Downtown Mixed-Use area identified on the Future Land Use Map and Residential Areas Framework Map, the City should continue to support development of multi-family units on upper floors of existing units, including adaptively re-used loft apartments, as well as stand-alone multi-family construction within the periphery of Downtown. The priority location for new quality multi-family development should be within Downtown Bristol.

The Falls - Phase 5

As The Falls development continues to come online, the Lee Highway area will continue to evolve in character. New multi-family and townhome units could be integrated within a master-planned, mixed-use environment on the north side of Lee Highway, roughly between Blevins Road in the west and the rail line in the east.

Contemporary Single Family Product

Much of Bristol's single family housing stock is older, but not historic. 70% of housing units were constructed between 1940 and 1979 and tend to be small to moderately sized ranch or minimal traditional styled homes. Less than 8% of the housing stock was built in the past fifteen years (2000-2015).

To that end, the City should encourage redevelopment of appropriate existing residential areas to remain competitive within the marketplace. In neighborhoods with smaller lot sizes, such as Kingtown, the City should work to increase lot sizes and consolidate parcels in appropriate locations to encourage infill development that can meet contemporary market needs.



City of Bristol, VA

Residential Areas Framework Plan

Bristol's neighborhoods are the building blocks of the community and their attractiveness, health, and character are vital to the success of the city and everyday quality of life. The Residential Areas Framework Plan provides policies and recommendations that can revitalize and reinvest in existing neighborhoods, accommodate quality redevelopment, ensure historic preservation, protect quality of life, and ensure Bristol contains a diversity of housing types at a variety of price points. As the community is mostly built out, focus tends to be on reinvestment and redevelopment.

CHARACTER AREAS

Historic Core Neighborhoods: This area includes historic homes on a traditional street grid. It is well connected via sidewalks and benefits from proximity to Downtown. Enacting historic zoning will protect homes from demolition, but the City must use a variety of reinvestment tools to improve the occupancy, appearance, and stability of these neighborhoods.

Core Neighborhood: This area includes older, but not historic, homes on a traditional street grid. They are typically small homes on narrow lots and developed without sidewalks and curb/gutter. These areas should undergo high levels of revitalization and targeted redevelopment, and in some locations, severely disinvested blocks should transition away from residential uses.

Suburban Transition Neighborhoods: This area includes a blend of urban and suburban design on curvilinear streets. They lack sidewalks as well as curb-and-gutter. While generally stable, infill development or redevelopment should occur to promote reinvestment.

Suburban Neighborhoods: This area includes moderately sized homes on curvilinear streets, designed in a suburban fashion. Homes are generally stable and well maintained. Ongoing maintenance and occasional infill redevelopment should occur.

OTHERS

High Density Neighborhoods: This area includes stand-alone apartment, townhome, and duplex complexes. They are often located within single family neighborhoods. Additional regulation of landlords should help ensure these areas stay safe and attractive.

Downtown Mixed-Use:

This area includes a blend of uses within the walkable environment of Downtown Bristol. Residential uses should be mostly located on upper floors of mixed-use buildings. Adaptive re-use is encouraged and added residential density can improve the vibrancy of Downtown.

Lee Highway Mixed-Use:

This large redevelopment area is currently a mixture of commercial uses and single family detached homes. It is envisioned that this area will redevelop over time to become a horizontal mixed-use destination capitalizing on The Falls.

Residential Transition: Blighted blocks and/or housing that conflict with neighboring uses are recommended for transition away from residential uses towards other more appropriate uses. This does not require any resident to relocate but instead informs what type of redevelopment should occur if the property was to be vacated in the future.

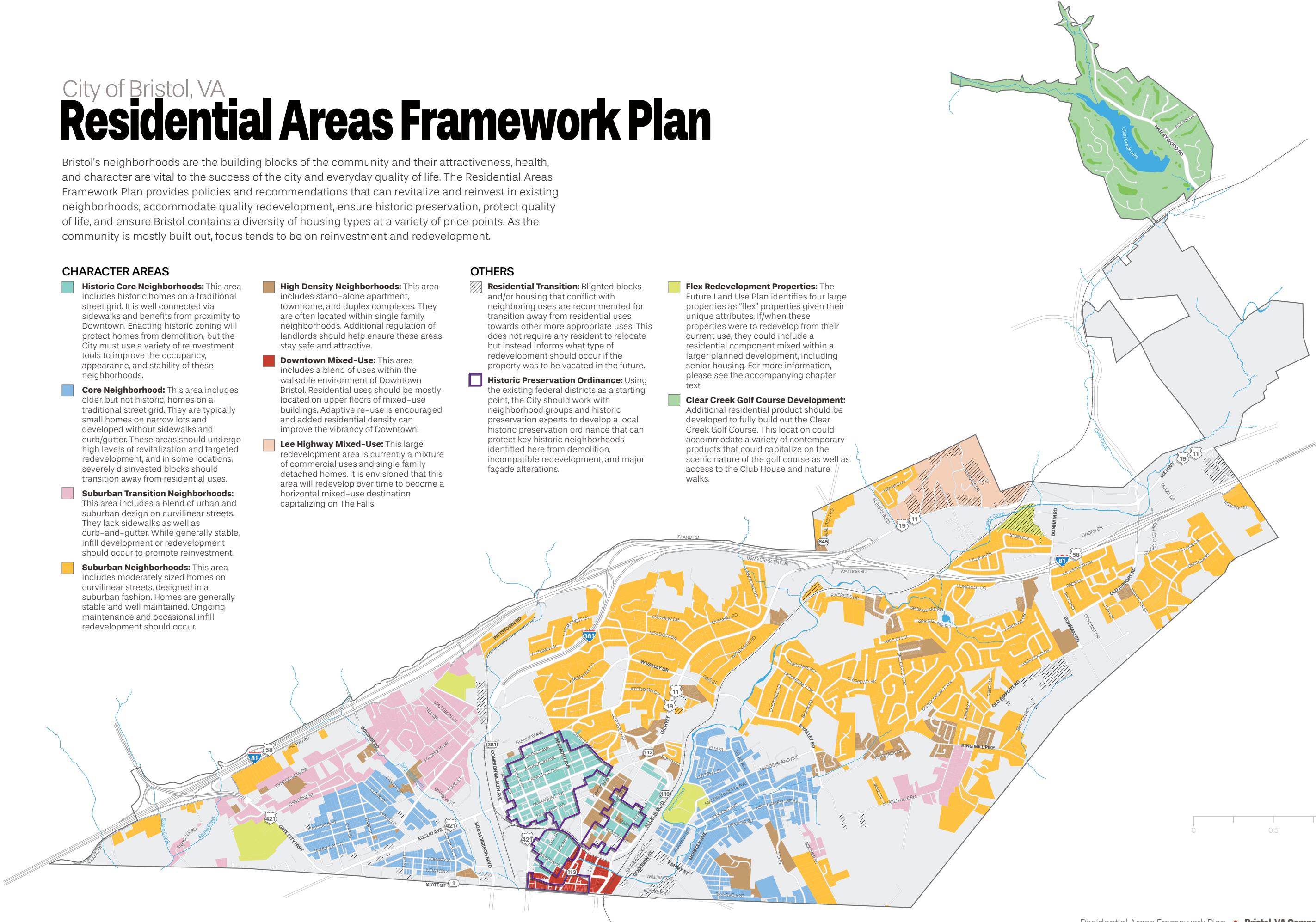
Historic Preservation Ordinance:

Using the existing federal districts as a starting point, the City should work with neighborhood groups and historic preservation experts to develop a local historic preservation ordinance that can protect key historic neighborhoods identified here from demolition,

incompatible redevelopment, and major façade alterations.

Flex Redevelopment Properties: The Future Land Use Plan identifies four large properties given their unique attributes. If/when these properties were to redevelop from their current use, they could include a residential component mixed within a larger planned development, including senior housing. For more information, please see the accompanying chapter text.

Clear Creek Golf Course Development: Additional residential product should be developed to fully build out the Clear Creek Golf Course. This location could accommodate a variety of contemporary products that could capitalize on the scenic nature of the golf course as well as access to the Club House and nature walks.



COMMERCIAL & EMPLOYMENT AREAS FRAMEWORK PLAN

Bristol is not only a "good place to live," but also a "good place to do business." Historically, Bristol has been a manufacturing town, however, its strategic location as well as excellent interstate, rail, and air service positions it well for a new wave of investment and job growth. Downtown Bristol serves as the "Tri-Cities' Downtown," and Bristol's culture, heritage, and national resources draw tourists and visitors from across the country. The completion of The Falls will make Bristol the premier shopping destination in the Tri Cities. Its industrial parks and areas employ thousands, and a variety of major employers provide good wages.

The Commercial and Employment Areas Plan details policies and recommendations to maintain and enhance the City's major commercial and industrial areas, including Downtown Bristol, commercial corridors and nodes, office areas, business parks, and industrial areas.



2035 Goal

In 2035, Bristol, Virginia will serve as the economic hub of the Tri Cities and be a major tourism destination capitalizing on assets of culture, heritage, and national resources.

Priority Objectives

Objective #1

Corridor Revitalization.

Reposition aging commercial areas, including Euclid Avenue, Commonwealth Avenue, West State Street, Gate City Highway, and Bristol Mall, for a new generation of investment and redevelopment.

- **1A.** Leverage incentives and financing tools such as Enterprise Zones and Tax Increment Financing to promote commercial re-investment along Euclid Avenue, Commonwealth Avenue, West State Street, and Gate City Highway.

- **1B.** Support the creative re-use or redevelopment of the Bristol Mall utilizing the framework provided in the Land Use and Development Plan.

- **1C.** Work with businesses and property owners to evaluate the creation of service districts that could collectively beautify and improve the infrastructure of key corridors.

- **1D.** Improve pedestrian and cyclist infrastructure along commercial corridors to increase connectivity between residents/consumers and local businesses.

- **1E.** Support and facilitate parcel consolidation, where appropriate, to encourage new investment and redevelopment.

- **1F.** Create gateway features consisting of signage, decorative lighting, and high-quality landscaping at key locations to announce entry into the City of Bristol.

Objective #2

Downtown Bristol.

Maintain Downtown Bristol as an exciting mixed-use environment and the cultural, social, and entertainment heart of the community.

- **2A.** Implement the recommendations of Chapter 6: Downtown Sub-Area Plan.

- **2B.** Continue cross-jurisdictional collaboration with Bristol, TN on Downtown planning and development matters, and support the mission of "Believe in Bristol."

- **2C.** Work with Bristol, TN to implement the Comprehensive Parking Study and Parking Management Plan for Downtown Bristol.

- **2D.** Enact historic zoning that can protect Bristol's historic structures from demolition and significant façade alterations.

- **2E.** Encourage, and/or incentivize, the adaptive re-use of Bristol's vacant or underutilized historic structures, including conversion of upper floors of commercial structures into residential units.



- **2F.** Work with property owners to restore the modernized facades, or covered up facades, of historic buildings to their original architectural design.
- **2G.** Review, and amend where necessary, the zoning code to ensure that new infill development within Downtown Bristol is engaging, context appropriate, and maximizes interaction with the existing built environment.
- **2H.** Add public art, including murals and sculptures, throughout Downtown to improve its unique sense of place.
- **2I.** Activate the historic Bristol Train Station and better integrate it into the fabric of Downtown through special events, pop-up events, rotating tenants, or the addition of a small park or plaza.
- **2J.** Support the development of lodging, including boutique hotel(s), within Downtown Bristol.
- **2K.** Improve the pedestrian experience by filling better striping crosswalks, adding crosswalk countdown timers, and evaluating opportunities for bike lanes and bike parking.
- **2L.** Continue to host large-scale music festivals and concerts, such as Rhythm & Roots or traveling acts of major bands, in the Downtown area.

Objective #3

I-81 Exits 5 & 7.

Continue efforts to make Exits 5 and 7 the premier shopping destination within the greater Tri Cities area.

- **3A.** Complete the planned phasing of The Falls.
- **3B.** Undertake the road and utility infrastructure improvements necessary to accommodate future residential and commercial development associated with The Falls and spin-off redevelopment.
- **3C.** Update the Code of Ordinances to facilitate the transition of the area north of Lee Highway (as identified on the Future Land Use Map), roughly between Blevins Road in the west and the railroad right-of-way in the east, into a master-planned mixed-use development(s) that can add residential density to the district.
- **3D.** Aggressively recruit new tenants to the district, publicizing Virginia's low sales tax.

Objective #4

Design & Aesthetics.

Improve the aesthetic appearance of Bristol's commercial and industrial areas and ensure their compatibility with neighboring uses.

- **4A.** Amend the Code of Ordinances to require on-site landscaping for all new commercial and industrial development.
- **4B.** Amend the Code of Ordinances to establish parking maximums that can prevent the development of unnecessarily large surface parking lots.
- **4C.** Amend the Code of Ordinances to require adequate buffering and screening between residential neighborhoods and more intense uses, such as commercial or industrial areas.
- **4D.** Amend the Code of Ordinances to require screening of industrial storage, dumpsters, and raw materials from the public right-of-way.

- **4E.** Reduce the usage of barbed wire and chain link fences along commercial corridors.

- **4F.** Develop non-binding residential design guidelines for commercial corridors and industrial parks that can provide guidance to developers and architects on new product.
- **4G.** Encourage the transition and redevelopment of incompatible land use arrangements, as identified on the Land Use Map, into more compatible land use arrangements.
- **4H.** Implement a program to screen utility boxes and unsightly facilities and locations, such as lift stations, pump houses, transformer sites, antennas, telephone switches, signal controls, etc.

Objective #5

Entertainment & Tourism.

Leverage Bristol's many unique assets to increase tourism and visitors to the city.

- **5A.** Establish a direct route that can efficiently link Bristol's two major activity generators: The Falls and Downtown Bristol.
- **5B.** Develop attractive and uniform gateway and wayfinding signage.
- **5C.** Continue to work with other agencies and property owners to "tell the story" of Bristol's history and support the museums and cultural amenities within the City centered upon its special heritage.
- **5D.** Promote Bristol as "the place to stay" and "place for a night out" when visiting major regional destinations such as the Bristol Motor Speedway, South Holston Lake, and the Cherokee National Forest.
- **5E.** Develop a marketing campaign to promote the advantages and benefits of living, working, doing business in, or visiting Bristol.

- **5F.** Continue to support existing programs and events and develop new events such as community festivals and holiday events and gatherings recognizing that these programs and events bring the community together, foster civic pride, and create a sense of unity.

Objective #6

Support Industry Expansion. Facilitate the redevelopment and/or expansion of underutilized areas identified on the Future Land Use Map for office, light industrial, and business park uses.

- **6A.** Implement the recommendations of Chapter 6: Bob Morrison Boulevard Sub-Area Plan.
- **6B.** As depicted on the Future Land Use Map, support the expansion of existing light industrial and industrial uses in identified transition areas.
- **6C.** As depicted on the Future Land Use Map, support the expansion of industry along Old Airport Road, Bonham Road, and Beacon Road.
- **7A.** Develop an Economic Development Strategic Plan.
- **7B.** Identify target sectors and industries to help focus and guide business recruitment and retention.
- **7C.** Market and promote Bristol's low cost of living, transportation infrastructure, and proactive business climate to prospective employers.
- **7D.** Evaluate opportunities to simplify existing regulatory and permitting processes to make them more predictable, streamlined, and business-friendly.
- **7E.** Host annual breakfasts or meetings that can bring together city staff and members of the business community to discuss challenges, share ideas, and answer regulatory questions.
- **7F.** Conduct exit interviews with businesses that relocate from Bristol to better understand what influenced their decision.

Objective #7

Business Climate.

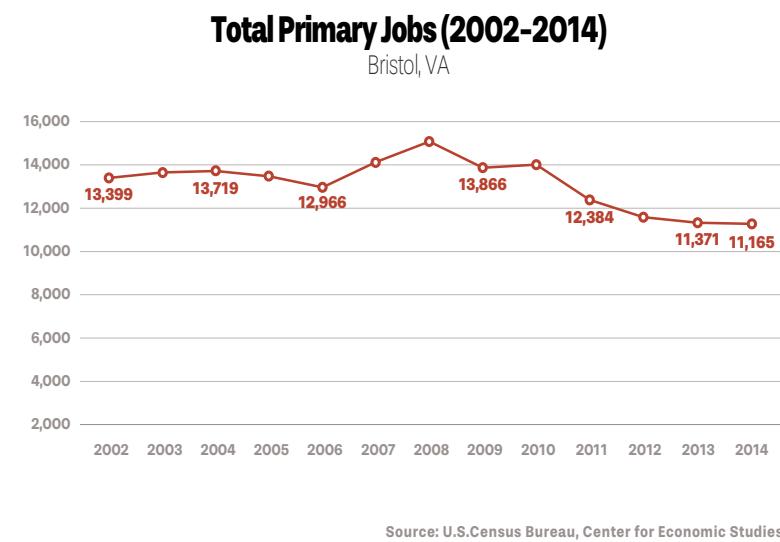
Proactively enhance the local business climate to provide well-paying employment opportunities and diversification of the tax base.



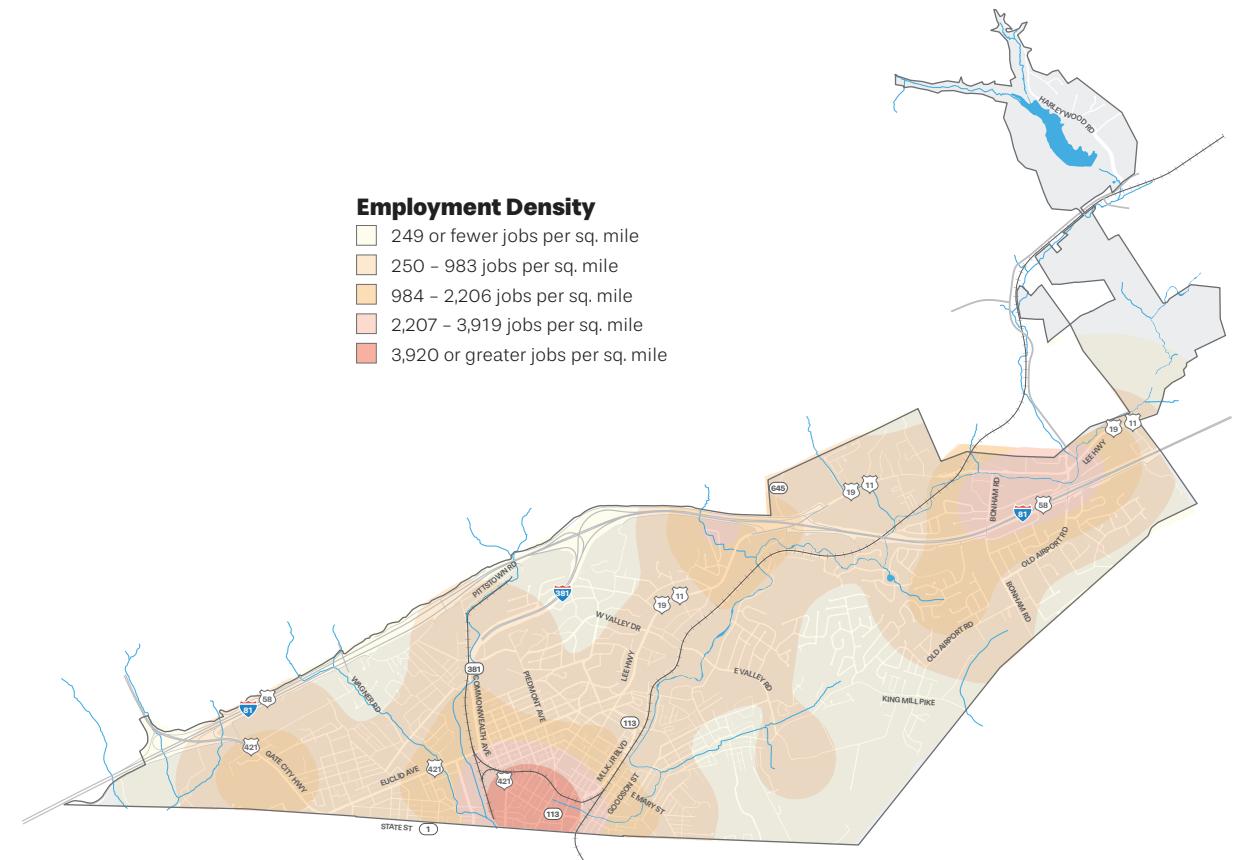
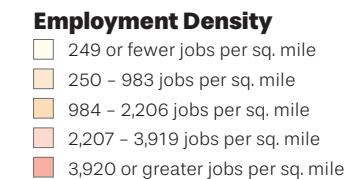
Actions & Supporting Information

Economic Snapshot

In 2014, the local economy was mostly comprised of retail, service, and "blue collar" industries. 30.8% of jobs are in the retail trade, accommodation, and food services industries; 22.1% are in manufacturing or wholesale trade industries; and 12.7% are in the administrative and support industry. Major employers within the community fall within these industries, such as Electro Mechanical Corporation (electricity products manufacturer), Shearer's (snack food plant), and Strongwell (fiber reinforced polymer manufacturer). Retail activity is mostly generated from interstate traffic originating from outside the community as well as tourism.



Bristol's local economy is a component of a broader regional economy (Kingsport-Bristol-Bristol, TN-VA metropolitan area). Between 2013 and 2016, the U.S. Conference on Mayors estimates that the region's gross metropolitan product will increase from \$11.1 billion to \$12.1 billion, putting it ahead of regions such as Champaign-Urbana, IL (home to the University of Illinois), Santa Fe, NM, and Bloomington, IN (home to the University of Indiana). By 2021, it is estimated that the region's gross metropolitan product will grow to \$14.8 billion, with an average annual growth rate of 3.9%.





Corridor Revitalization

Bristol contains several aging commercial corridors Euclid Avenue, Commonwealth Avenue, West State Street, and Gate City Highway (which includes Bristol Mall). These corridors are auto-centric, populated with a mixture of chain and local restaurants and stores. The building stock tends to be older within strip-style development patterns. As of 2015, stretches of each are experiencing blight and disinvestment. Growth in the regional retail market elsewhere has had the effect of drawing consumers away from these older corridors and shopping areas.

Note: Recommendations for other commercial areas such as Lee Highway Exits 5 and 7 and Downtown Bristol are detailed in subsequent sections.

Overview & Approach

For a city of its size, Bristol already contains a sizable level of retail, dining, and entertainment square footage. It is imperative that the City does not saturate its retail market by overdeveloping land for retail. To that end, the Future Land Use Map was carefully crafted to prevent oversaturation, although additional acreage was dedicated for regional retail along the interstate to complete The Falls development.

As regional commercial uses continue to develop along Lee Highway near the interstate, existing commercial areas such as Euclid Avenue, Commonwealth Avenue, West State Street, and Gate City Highway (which includes Bristol Mall) will transition towards occupancy mostly by local small businesses.

It is important that these older commercial corridors are not neglected, as they serve the day-to-day needs of residents in adjacent neighborhoods. New rounds of investment must occur for the corridors to stay viable and healthy. Efforts to improve these corridors should include site redevelopment and beautification, business partnerships, and creative public incentives that can spur new private investment.

New Investment, Redevelopment & Revitalization Tools

The City, corridor businesses, and other relevant stakeholders can utilize a variety of tools to help increase the vitality of Bristol's aging commercial corridors. They are detailed at the end of this chapter.

Mall Redevelopment

The Bristol Mall is a large property located along Gate City Highway in the western portion of the city. It was sold in a foreclosure auction in August 2015 and sold again in 2016, having struggled in recent years after losing major anchors. This is due to a variety of reasons, including changes in consumer behavior that are not unique to Bristol, aging infrastructure, and newer commercial development along I-81, such as The Falls (1,500,000 Gross Leasable Area) and The Pinnacle (700,000 GLA). Additionally, the 312,043 person Tri Cities market is also served by the Johnson City Mall (565,720 GLA).

It is important to make clear that under no circumstances is the Plan advocating for the mall's closure. However, the City must be proactive in planning for the site's future should the privately-operated mall cease operations. In many communities across the country, the closure of a large indoor mall often ultimately results in public involvement and costs. Communities that fail to plan and preempt market changes often find themselves in a reactive position that can delay reinvestment.

Given the size of the site, it is likely that if redevelopment occurs, it may include a master-planned blend of uses. The Future Land Use Plan identifies that Local Commercial, Professional Office, Single Family Detached, Single Family Attached, Multi-Family are all acceptable uses. Given proximity to residential uses, industrial uses are not recommended although a properly screened and buffered business park might be appropriate.



Possible redevelopment scenarios include, but are not limited to:

Potential Scenario A: Multi-Tenant Building Re-Use. The existing Bristol Mall building could be re-used by a variety of office users, including a call center which could benefit from a large footprint under one roof. Public or semi-public uses could also be incorporated, such as federal, state, or local government offices. Commercial outlots could be developed fronting Gate City Highway.

Potential Scenario B: Site Redevelopment - Residential.

The existing Bristol Mall could be demolished and redeveloped as a residential community, with multi-family along Gate City Highway transitioning into lower density single family detached or cottage home housing.

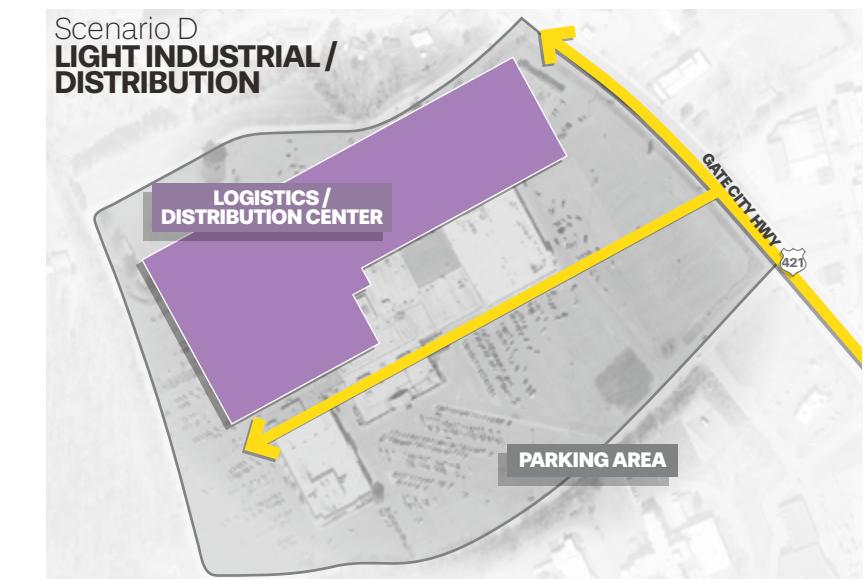
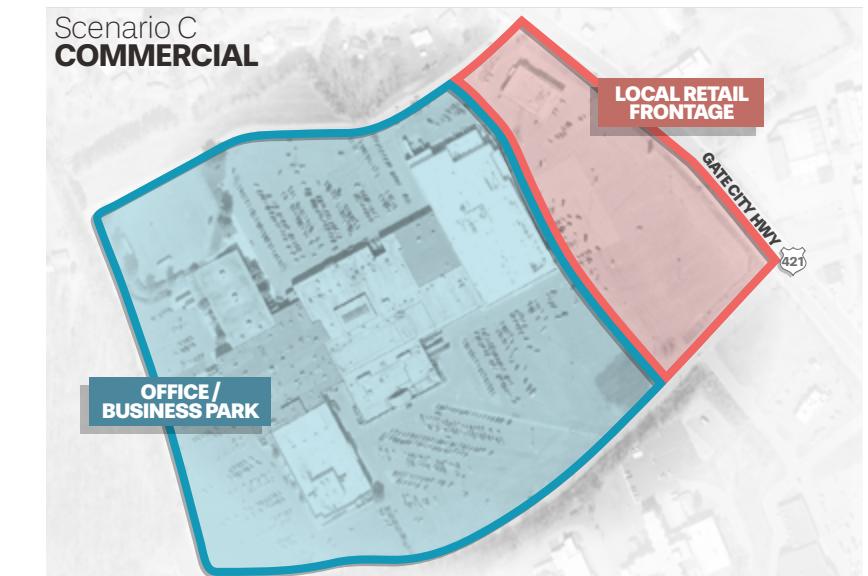
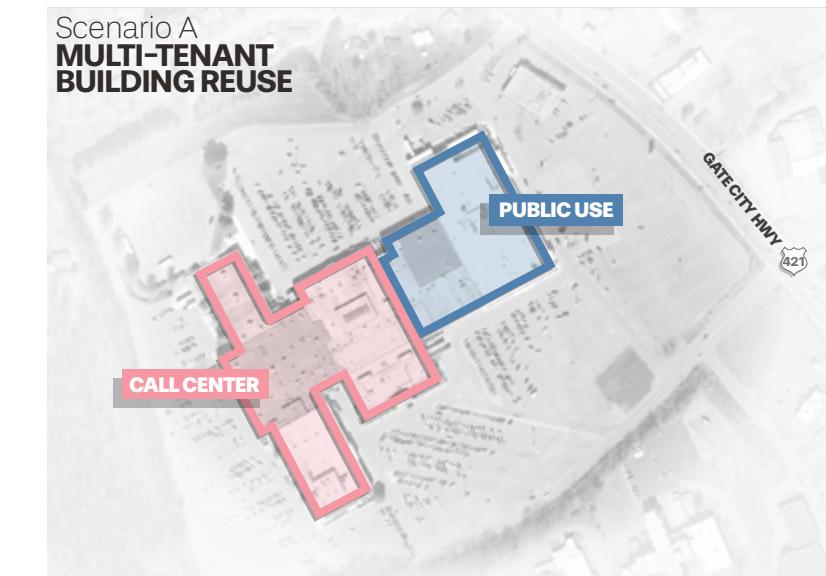
Potential Scenario C: Site Redevelopment – Commercial.

The existing Bristol Mall could be demolished and redeveloped with local retail frontage along Gate City Highway transitioning back to an office/business park.

Potential Scenario D: Light Industrial / Distribution. The existing structure could be demolished and replaced with a logistics or distribution facility.

The site's size and access to the nearby interstate could make this a competitive use.

The City should continue to engage the mall's owners to ensure open two-way communication. Should the mall cease operations, the City should support the creative re-use or redevelopment of the site utilizing the framework provided within the Comprehensive Plan.





Downtown Bristol

Downtown Bristol is a walkable mixed-use environment with historic architecture that has seen significant levels of reinvestment in recent years, including the addition of new restaurants, breweries, shops, and the Birthplace of Country Music Museum. Outdoor concerts and festivals draw residents and visitors alike to this unique, niche environment. The Plan recommends that the City maintain Downtown Bristol as an exciting mixed-use environment and the cultural, social, and entertainment heart of the community.

For a detailed vision and supporting recommendations regarding Downtown Bristol, please see **Chapter 6: Downtown Bristol Sub-Area Plan**.

I-81 Regional Commercial

Lee Highway between exits 5 and 7 are Bristol's major concentrations of "big box" style retail, entertainment, and hospitality. While developed separately over time, development patterns around each exit are starting to blend together to form one large unified commercial area. It is envisioned that this area will be the premier regional shopping development within the greater Tri Cities area, given its easy interstate access, major destination anchors such as Cabela's, and lower sales tax compared to Tennessee.

The Falls

The Falls is a 1.5 million square foot commercial development located next to I-81 that is being developed through a Public Private Partnership (P3). Anchored by the first Cabela's in Virginia, The Falls is 120 acres and upon completion is expected to generate over three million annual shoppers and millions of dollars in annual sales. Development is divided into four phases, with Phase I expected to be complete in 2016 and land already cleared for Phases II and III. Phase IV will require the acquisition and redevelopment of privately held property, and is the final phase of the project under the P3. A fifth phase will be completed by private developers.

The City should continue to complete the planned phasing of the Falls as well as undertake all road and utility infrastructure necessary to complete redevelopment.

The Falls – Phase 5 Mixed-Use

The Falls – Phase 5 Mixed-Use designation is a special area along Lee Highway adjacent to The Falls development. Currently, it is mostly rural residential with some commercial uses on the northeast corner of Blevins and Lee Highway.

It is recommended that this sizable area redevelop privately over time, either as a part of one large master planned project (with several phases) or several coordinated master planned projects. The area is ultimately envisioned as a blend of residential, retail, and office uses within an integrated, moderate density environment (also known as "horizontal mixed-use").

While the details of future redevelopment may evolve over time, it is important that what is constructed aligns with the following principles:

- **Commercial frontage along Lee Highway.** Retail, office, or hospitality uses should front Lee Highway, serving as a buffer between the road and lower intensity uses.
- **Design cohesiveness.** The different components of the development should have a similar aesthetic, architectural design, and feel.

- **Connectivity.** New development should enhance Bristol's walkability and bikeability, and encourage multiple modes of transportation. Internal roadways of different pockets should align with existing roadways. Different uses should be connected to one another via sidewalks, trails, and other pedestrian amenities.
- **Integrating green spaces and natural features.** New development may encroach on environmentally sensitive areas, including a mature tree canopy as well as Beaver Creek. Where possible, these special natural features should be protected and integrated into the development. The City may also want to develop low impact development regulations and utilize design review to provide developers with the flexibility to cluster development in certain portions of a site, thus leaving sensitive natural features undisturbed.



Design & Aesthetics

Many highly visible buildings, corridors, industrial areas, parking areas, and business signs are unattractive and detract from the community's appearance and reputation, as well as inhibit quality tenancy. Many building façades are outdated or unsightly, and most parking areas lack landscaping (perimeter and interior). Excessive lighting and deteriorating pavement can also contribute to the negative appearance of these areas.

Bristol's commercial and industrial areas do not only provide jobs to residents, they also assist in shaping perceptions of the community to motorists passing through. It is important that these areas remain attractive and welcoming.

Landscaping

Lack of greenery along a commercial corridor can make it appear to be in economic decline as well as simply aesthetically unpleasant. Parking lot landscaping, including flowers, shrubbery, and attractive fencing, can improve a community's appearance, more clearly delineate the separation between roadway and parking lot, and provide a more pleasant pedestrian experience. Furthermore, if designed appropriately, site landscaping can more efficiently manage public infrastructure and service costs, such as stormwater. Currently, City code does not specifically require standards for site landscaping. The City should amend the Code of Ordinances to require on-site landscaping for all new development.

Design Guidelines

Design guidelines are non-binding recommendations to developers and builders on product design. They can be used by the City, architects, developers, and business owners on a cooperative basis to promote high quality new commercial and industrial construction. By following or incorporating elements of the guidelines, developers can be ensured that their proposals can receive speedy approval, thus reducing costly delays and procedural uncertainty.

The City should put together a brief flyer or policy guide highlighting preferred styles, materials, massing, and building and garage orientation for new commercial and industrial construction. The City may also decide to formally incorporate certain recommendations into the Code of Ordinances.

Fencing

Chain-linked and barbed wire fencing can be found along Bristol's commercial corridors, giving them an unappealing, unwelcoming, and harsh aesthetic. Currently, barbed wire fencing is allowed by right within all non-residential districts. Along commercial corridors, it is recommended that chain-linked fencing should be discouraged and that barbed wire only be allowed with a conditional use permit.



Poor Example



Good Example



Screening

Screening is the practice of visually shielding unattractive land uses and storage facilities from public view, typically through the usage of landscaping or fencing. City code currently contains minimal screening requirements. As such, dumpsters, industrial storage, and other raw materials can often be clearly viewed from neighboring properties or the public right-of-way.

The City should amend the Code of Ordinances to require adequate screening of:

- Industrial/commercial material storage, raw materials, auto scrap, or similar product when visible from the public right-of-way or neighboring residential use;
- Utility boxes, lift stations, pump houses, signal controls, and other utility uses;
- Dumpsters when visible within a parking lot, public right-of-way, or neighboring residential use



Poor Example



Good Example

Land Use Conflicts

As a 19th century historic railroad town, Bristol developed in an uncoordinated fashion that was typical of the time and often integrated residential and industrial uses in close proximity. Some of these conflicting uses continue to this day. In an effort to maintain employment, the Future Land Use Plan preserves several industrial areas that abut residential areas to accommodate job growth but recommends transition of other areas.

Where such conflicts exist, either in the short-term or long-term, it is imperative that the City work with property owners to implement screening and buffering. As new industry and employment development occurs, screening as well as landscaped buffers should be constructed to establish horizontal separation between more intense uses and adjacent residential areas.

For more information, please see the **Residential Areas Framework Plan**.



Tourism

The City of Bristol, Virginia and the greater region are a significant destination for entertainment and recreational tourism. Key destinations include Downtown Bristol, Rhythm and Roots Reunion festival, the Birthplace of Country Music Museum, South Holston Lake, Cherokee National Forest, and the Bristol Motor Speedway.

With a historic downtown, a Smithsonian-affiliated museum, and ample access to a range of nearby recreational destinations, Bristol can not only be a "good place to live," but a "good place to visit." A key component of Bristol's economic growth must be the leveraging of the city's unique assets to increase tourism and visitors to the city.

Special Events

Given its status as the birthplace of country music, the Bristol puts on variety of music festivals and events that draw attendees from around the country. Examples include the annual Rhythm and Roots Reunion festival as well as the 2012 Mumford and Sons "Gentlemen of the Road" concert which drew 17,500 people to Downtown Bristol. In 2014, the city added a new annual event: the Cumberplunge, a 500 foot long waterslide through the heart of the downtown. Such events increase Bristol's stature as a destination.

The City should continue to support existing programs and events, as well as work with stakeholders such as state tourism officials, Believe in Bristol, and the Bristol Convention and Visitors Bureau to develop new events, festivals, and gatherings that can bring the community together, foster civic pride, and generate new tax revenue.

Gateway Signage

The points at which tourists and visitors enter a community are called "gateway" areas. The character and appearance of these areas are important factors in determining the overall image and perception of Bristol as a whole. These gateways -- such as the intersection of Commonwealth Avenue and State Street; the intersection of Gate City Highway, State Street, and Euclid Avenue; the on/off ramps of I-81 exits 1, 5, and 7; and the intersection of Lee Highway with Resting Tree Drive and Mount Vernon Road -- can all serve as locations for distinctive signage incorporating the City's logo and having similar landscape and hardscape features.

The City already has existing gateway signs in several locations. Similarly, the Chamber of Commerce has placed a large guitar at the intersection of Volunteer Parkway and State Street. The City should work to develop a consistent gateway schematic that can welcome visitors to Bristol and communicate a positive first impression.

Wayfinding Signage

Wayfinding signs effectively direct motorists, cyclists, and pedestrians to points of interest throughout a given area. The City already has some existing wayfinding signage, however, it is sporadically located as well as lacking a consistent aesthetic (e.g. some signs are brown while others are green). In conjunction with gateways, the City should install uniform wayfinding signage throughout Bristol that can direct visitors to key destinations. These signs should have a uniform design and incorporate either the City's logo or the "a good place to live" slogan/sign. The size and scale of the signs will vary depending on the scale of the environment and speed of travel. Signage should help connect visitors to both Downtown Bristol and The Falls, directing them to the other location to increase their time in Bristol.

Zoning Overlays

The City's Zoning Code currently contains two overlays that can support and promote tourism through flexible uses and regulations, as well as incentives:

■ Arts and Entertainment District Overlay

District Overlay. The purpose of this overlay is to promote investment through mixed use and commercial development that expands the presence of and/or otherwise enhances the tourism industry within the overlay and to provide economic incentives and regulatory flexibility for eligible business entities which will attract visitors. The permitted uses of the underlying zoning district shall govern the uses that can occur within a tourism zone, however, the City may administer incentives to properties within this overlay zone, including reduction of municipal fees and taxes, permit process reform, exemption from certain ordinances as permitted by state law, and gap financing.



Industry

Bristol's office and industrial areas are absolutely critical to the economic health of the City, home to a diverse variety of companies. They provide jobs, opportunities for local entrepreneurs, a daytime population to patronize local shops and restaurants, and diversity which broadens the City's tax base.

Land Constraints

Bristol's existing development pattern and hilly topography within a fixed boundary (e.g. city-initiated annexation is not permitted by the Commonwealth) have resulted in a somewhat limited volume of land for light industrial, industrial, and office development. The Future Land Use Plan took this existing condition into account and recommended the expansion of several existing employment areas into neighboring areas to accommodate economic growth. Additionally, the potential repurposing of vacant or underutilized areas, such as the Bristol Mall site, Ball Corp facility, or Bob Morrison Boulevard area, can also support economic growth.

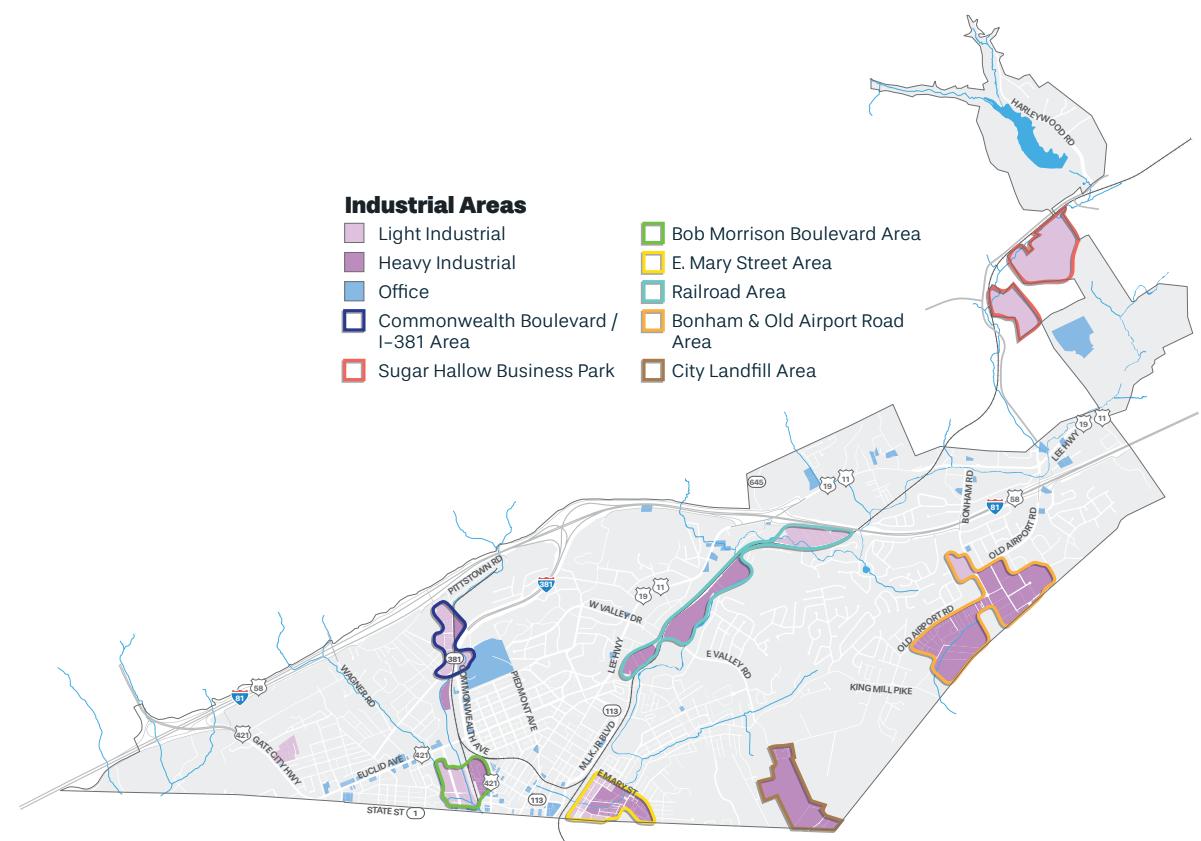
Depending on the type of desired office and industrial user, the importance of large cleared pads varies. Space requirements differ within industries. For example, square footage per office worker is at a low while advances in manufacturing processes and a resurgence in craft manufacturing support smaller building footprints. While some types of industry may not be able to be accommodated, many other types of industry can flourish with appropriate infrastructure.

Industrial Areas

The Future Land Use envisions five central areas for industrial uses within Bristol. The Future Land Use Plan recommends expansion of several of these areas to accommodate further industrial growth over the course of the next ten years. A sixth area, in the southeast corner of the community, contains the Bristol landfill and is expected to remain as such.

Industrial Areas

- | | |
|--|-------------------------------------|
| ■ | Light Industrial |
| ■ | Heavy Industrial |
| ■ | Office |
| ■ | Railroad Area |
| ■ | Commonwealth Boulevard / I-381 Area |
| ■ | Bonham & Old Airport Road Area |
| ■ | Sugar Hallow Business Park |
| ■ | City Landfill Area |





Bob Morrison Boulevard Area

Located just west of Downtown, this cluster of heavy and light industry has a rich history, including the headquarters of Strongwell. Originally home to Bristol Steel, an apparel company, and a furniture factory, a number of products were built there in the early years including aircraft, radio and TV cabinets, and during WWII, carbon parts for weaponry. Bob Morrison, for whom the boulevard is named, is renowned for the creative development of the molded fiberglass MFG process for the Corvette's fiberglass body.

Currently, the area contains a blend of office, automotive, vacant, and industrial uses. The Comprehensive Plan envisions this area as a blend of industrial and business park uses that can contribute to a vibrant Bristol economy. For more detailed information, please see **Chapter 6: Bob Morrison Boulevard Sub-Area**.

Commonwealth Boulevard/I-381 Area

Home to Shearer's and Dominion Carton, this industrial area benefits from both rail and interstate access. However, single family detached uses are sandwiched between existing industrial uses.

In locations identified on the Future Land Use Map it is recommended that single family detached homes are gradually transitioned to light industrial uses over time to create a more unified environment and reduce negative impacts on residential living. Light and heavy industrial uses should be properly screened and buffered from all adjacent residential areas.

E. Mary Street Area

The area immediately east of Downtown south of E. Mary Street is currently the headquarters of Electric Motor. Immediately north are a blend of single family detached, commercial, light industrial, and heavy industrial uses (e.g. concrete, recycling, woodworking, etc.), as well as many vacant parcels. This hodge-podge of uses severely reduces quality of life for residents as well as creates inefficiencies and nuisances for businesses.

It is recommended that the residential and commercial uses within the area gradually transition into light industrial, cottage industries, and craft manufacturing uses. Redevelopment will likely require parcel assembly. For more information, please also see the **Residential Areas Framework Plan**.

Railroad Area

Along the City's active Norfolk Southern rail line are two very large industrial properties benefitting from the rail access, including Aerus (formerly Electrolux) and the former Ball Corporation plant (which closed in 2016), as well as two smaller properties currently home to Bristol Line Power and the Bristol Concrete Plant. City efforts should focus on procuring a new tenant for the Ball Corporation plant as well as safeguarding residential neighborhoods from industrial nuisances.

Bonham & Old Airport Roads Industrial Area

The Bonham Road industrial area is Bristol's established industrial area, developed on a grid system and mostly isolated from other uses. Tenants currently include a mixture of logistics, recycling, and manufacturing.

To the south of Bonham Road, along the east side of Old Airport Road, are several other heavy industrial users intermixed with single family detached uses. As depicted on the Future Land Use Map, it is recommended that the single family detached uses along the east side of Old Airport Road gradually transition to industrial uses to reduce land use inconsistency and improve quality of life. For more information, please also see the **Residential Areas Framework Plan**.

City Landfill Area

The City's quarry landfill accepts household and commercial waste, tires, brush, yard waste, and e-waste. It is expected to remain a landfill throughout the lifetime of the Comprehensive Plan.

Sugar Hollow Business Park

The Sugar Hollow Business Park contains two large parcels behind Sugar Hollow Park. The parcels are served by rail. Future access to the sites should be along Resting Tree Lane rather than solely Clear Creek Road.

While the terrain within this site may limit future development options, the neighboring land in Washington County is more conducive to development. A cooperative agreement with Washington County could lead to a larger redevelopment scenario.



Business Climate

The City's perceived business climate is integral to economic growth. The City should undertake the following initiatives to ensure a positive climate and cooperation between the City and business owners:

- Host annual breakfasts or meetings that bring together city staff and members of the business community to discuss challenges, share ideas, answer regulatory questions, and recognize successes.
- Establish regular communication via web blasts and newsletters so that the City can identify issues impacting local businesses and be proactive in developing strategies to enhance these areas.
- Work more closely with business owners looking to invest in or improve their properties, assisting them with understanding and complying with regulations and procedures.
- Conduct exit interviews with businesses that choose to relocate from Bristol to better understand what influenced their decision.

Tools for Job Growth

Enterprise Zones

In 2014, the City was awarded a Virginia Enterprise Zone designation which is a state program to promote job creation and real estate investment through economic incentives and business assistance. The enterprise zone in Bristol is an area so designated by the Governor pursuant to Code of Virginia, § 59.1-538 et seq., under the Virginia Enterprise Zone Program, by virtue of an approved application or subsequent approved amendments. Following approval, the designation was adopted and incorporated into the City's Code of Ordinances in 2016.

The zone comprises one main area and two non-contiguous areas totaling 634 acres, including downtown Bristol, the Virginia Intermont campus, Bob Morrison Boulevard area, the Bristol Mall, and the Old Airport Road industrial area – all of these being areas with older development, yet with growth and revitalization potential.

The following six incentives are available within the City's established Enterprise Zones:

- **Building Façade Grants.** This incentive provides grants to cover 50% of the cost of improvements up to \$2,500. This work may include painting, cleaning, and repairing of the façade. It may also include landscaping and beautification improvements.
- **Design Assistance.** Assistance is provided by Believe in Bristol and includes architectural, landscaping, paint schemes, signage, and other information and suggestions that will enhance the image of each business as well as the downtown district.

Business Rental Assistance.

This incentive is to encourage new businesses to locate downtown. Businesses that create at least 4 FTE jobs and stay within their location for at least two years are eligible. Rental assistance is not to exceed \$500 monthly for six months.

- **Job Training.** This incentive provides a grant to eligible businesses that create or retain jobs. The grant is provided on a reimbursement basis after the business has documented the type of training and cost, and will be capped at \$500 per employee trained. The grant can be used for pre-employment or new employee training for jobs that are available to low and moderate income persons or training to upgrade the skills of existing workers.

Rehabilitated Real Estate

Tax Exemption. This incentive encourages the rehabilitation of older structures. The tax exemption will be over a ten-year period.

- **Expedited Permitting.** This incentive is meant to assist companies that are locating/expanding in the Enterprise Zone with getting active assistance in expediting any permitting process that may be required at the local level.

Foreign Trade Zone (FTZ)

Bristol is one community within the Tri Cities Foreign Trade Zone #204. Foreign-Trade Zone #204 is an integral part of the Tri-Cities region's network of services which, combined with a location convenient to a majority of the country's population, make the area a prime choice for international distribution centers and manufacturers. The FTZ offers importers exclusive benefits that are only available to zone users.

These benefits include the reduction or elimination of US Customs duties, the elimination of costly duty drawback programs, drastic reduction of transit times and delays at ocean ports, and an invaluable working relationship with the local Customs office. Serviced by Customs and Border Protection Port No. 2027, FTZ No. 204 gives businesses a distinct advantage. The zone includes many sites within the Tri Cities area.

Commonwealth's Opportunity Fund

The Commonwealth's Opportunity Fund (COF), formerly known as the Governor's Opportunity Fund (GOF), is a discretionary incentive available to the Governor to secure a business location or expansion project for Virginia. Grants are awarded to localities on a local matching basis with the expectation that the grant will result in a favorable location decision for the Commonwealth.

Tobacco Region Opportunity Fund

The Tobacco Region Opportunity Fund (TROF) provides performance-based monetary grants to localities such as Bristol in Virginia's tobacco producing region (as defined by the Commission) to assist in the creation of new jobs and investments, whether through new business attraction or existing business expansion. These grants are at the Commission's discretion.

Grants are evaluated in a manner consistent with the goals of the Commission and amounts are awarded commensurate with the project's impact on the community and/or region in which the project is locating. Evaluation of award amount is consistent throughout the region and is based on the following criteria: local unemployment rates, prevailing wage rates, number of new jobs, capital investment levels, industry type and the possibility of related economic multiplier effect.

TROF is the only Tobacco Commission grant program paid at the beginning of the project to help tobacco region localities be competitive in attracting new investment and jobs resulting in increased tax revenue and opportunity for quality employment in the tobacco region.

Virginia Jobs Investment Program

The Virginia Economic Development Partnership's Virginia Jobs Investment Program (VJIP) provides services and funding to companies creating new jobs or experiencing technological change. As a business development incentive supporting economic development since 1965, VJIP reduces the human resource development costs of new and expanding companies. With strong support from the Governor and General Assembly, VJIP is completely state-funded.

Eligibility for assistance in any of the programs offered by VJIP is limited to projects that create basic employment for Virginia. These businesses or functions must directly or indirectly derive more than 50% of their revenues from out of state sources, as determined by VJIP. Examples of activities that most often are considered basic include manufacturing, distribution, shared service centers, corporate headquarters, research and development facilities, and business-to-business technology operations.

Specific programs include the Virginia New Jobs Program, Small Business New Jobs Program, and Workforce Retraining Program.

Parcel Consolidation

Redevelopment and reinvestment can often be hindered by parcel size. For example, a prospective business may be interested in locating at a particular stretch of a corridor or at a prominent intersection, however, the available property may not be the appropriate size. If several separate contiguous parcels were combined and consolidated, the location would become viable. The City should support innovative public and private approaches to parcel assembly and comprehensive redevelopment along commercial corridors.

Tax Increment Financing (TIF)

Virginia law allows municipalities to create TIF districts as a financing tool for infrastructure and other public realm improvements. These investments can stimulate and assist private investment and redevelopment activities. The law is unclear on whether a municipality can directly distribute TIF funds (including the receipts from a revenue bond sale) to a private developer for private realm improvements. However, the municipality can create a public-private partnership with an Economic Development Authority to do so.

A more flexible solution is to leverage a "TIF by agreement," which is permitted under Virginia law. Similarly, a municipality can partner with an EDA or CDA to secure bonds that would be issued by those entities, who can then incrementally distribute revenues as part of a performance-based redevelopment agreement. The City should explore working with local public-private partners to put such mechanisms in place to offer flexible development incentives, particularly for Downtown and Subarea redevelopment districts.

While a TIF study would need to be conducted to determine the eligibility of Bristol's commercial corridors, certain factors are certainly present. The City should evaluate the usage of TIF to promote reinvestment and redevelopment within the identified commercial corridors.



Service Districts

Under Virginia law, Bristol may create a service district to "provide additional or more complete services of government than are required in the city as a whole." An additional real estate assessment may be utilized for a variety of improvements, including physical improvements, maintenance, business promotion, and more. Such taxing districts are often referred to as a Business Improvement District or a Special Improvement District.

Business Assistance Program

A business assistance grant program can be utilized to attract targeted retail businesses and assist existing businesses located within a particular area. As with a façade improvement program, business assistance funds are typically offered in the form of a matching grant that pays for a defined percentage of eligible expenditures. The expenditures are typically limited to build-out costs, signage, moving expenses, and physical improvements to a property necessary to accommodate a new business or the expansion of an existing business.

Priority can be given to businesses that complement the City's vision for revitalizing older commercial corridors. The size of the grant available can also be tied to the overall impact the proposed project could have on the area. For example, the grant could be varied based on the anticipated sales tax to be generated by the project.

Grant monies could be used to lessen the cost burden of relocating or expanding in Bristol, particularly for manufacturing businesses that generate well-paying jobs.

Façade & Site Improvement Programs

The purpose of a Façade Improvement Program is to encourage projects which contribute to the economic revitalization and character of an area by providing financial and technical assistance for facade improvements. Building façades, both individually and collectively, create a strong first impression of an area. Redevelopment is not the only opportunity to establish improvements. By implementing a Façade Improvement Program, current property owners are provided an opportunity to improve their outdated or failing structures without having to relocate.

The purpose of an On-Site Improvement Program would be targeted at assisting current property owners in upgrading their existing parking lots and installing onsite landscaping. The program would apply to such things as improvements to surface parking areas, privately owned open space, and other areas not directly related to façade features. This could function separately or in conjunction with a façade improvement program.

The City could also create and administer a grant program for corridor businesses wishing to improve signs, awnings, lighting, and other external appearance features.





Economic Development Strategic Plan

The creation of an Economic Development Strategic Plan could greatly assist Bristol's elected and appointed officials, City staff, business community, stakeholders, investors, and more in improving the business climate and increasing the number of well-paying jobs in Bristol. Such a plan would determine Bristol's industry clusters, competitive advantages, workforce training challenges, and opportunities for recruitment, retention, and expansion.

The World Bank recommends a five-stage planning process:

- **Stage One: Organizing the Effort.**

The process should begin by identifying the people, public institutions, businesses, community organizations, and other stakeholders that have an influence or interest in the local economy. This includes a "resource audit" of existing resources and programming as well as the establishment of committees that can develop and implement the plan.

- **Stage Two: Conducting the Local Economy Assessment.**

The second step of the process is to determine the strengths, weaknesses, opportunities, and threats to the local economy. This could include the local economic structure, workforce capital, investment climate, government processes and regulations, industry composition, and more. Comparisons should be established relative to neighboring communities or competitor communities.

- **Stage Three: Developing the Strategy.**

The third step includes the development of the vision, goals, objectives, and actions that will move the community forward. Recommendations must be aligned with available resources and staffing. The plan's actions should be incorporated into the City's operations, as well as those of supporting entities such as utilities, schools, business associations, etc.

- **Stage Four: Implementing the Strategy.**

In the first step, an accountability structure for implementation should have been established that can help achieve the strategy. In Stage 3, appropriate stakeholders for implementation of each action should be identified and held responsible for implementation.

- **Stage Five: Reviewing the Strategy.**

The plan's recommendations should be monitored and evaluated in real time to determine successes and where enhancements and adjustments are needed. Annual review of the strategy should ensure that the community remains responsive.

City of Bristol, VA Commercial & Employment Areas Framework Plan

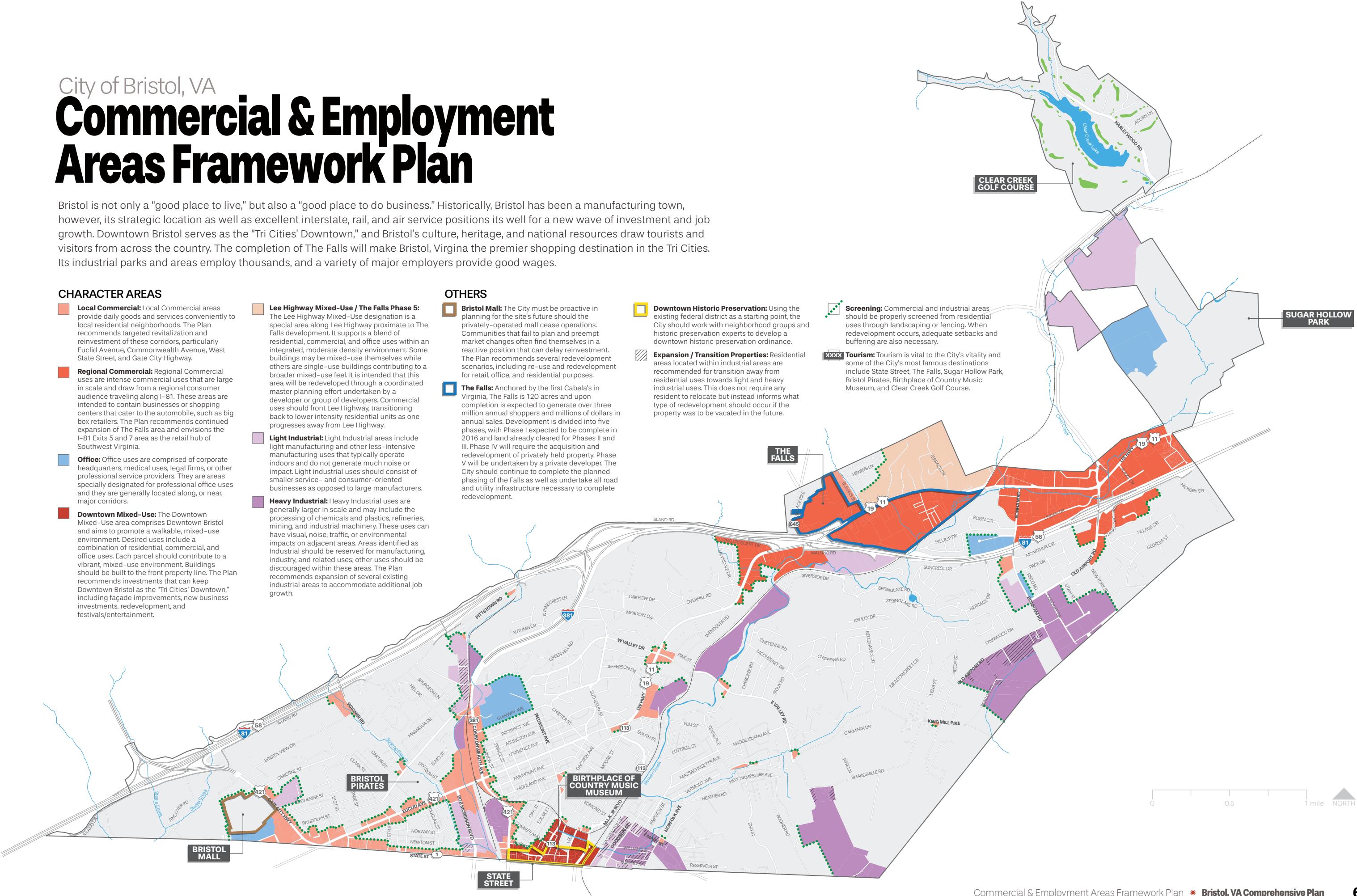
Bristol is not only a "good place to live," but also a "good place to do business." Historically, Bristol has been a manufacturing town, however, its strategic location as well as excellent interstate, rail, and air service positions its well for a new wave of investment and job growth. Downtown Bristol serves as the "Tri Cities' Downtown," and Bristol's culture, heritage, and national resources draw tourists and visitors from across the country. The completion of The Falls will make Bristol, Virginia the premier shopping destination in the Tri Cities. Its industrial parks and areas employ thousands, and a variety of major employers provide good wages.

CHARACTER AREAS

- Local Commercial:** Local Commercial areas provide daily goods and services conveniently to local residential neighborhoods. The Plan recommends targeted revitalization and reinvestment of these corridors, particularly Euclid Avenue, Commonwealth Avenue, West State Street, and Gate City Highway.
- Regional Commercial:** Regional Commercial uses are intense commercial uses that are large in scale and draw from a regional consumer audience traveling along I-81. These areas are intended to contain businesses or shopping centers that cater to the automobile, such as big box retailers. The Plan recommends continued expansion of The Falls area and envisions the I-81 Exits 5 and 7 area as the retail hub of Southwest Virginia.
- Office:** Office uses are comprised of corporate headquarters, medical uses, legal firms, or other professional service providers. They are areas specially designated for professional office uses and they are generally located along, or near, major corridors.
- Downtown Mixed-Use:** The Downtown Mixed-Use area comprises Downtown Bristol and aims to promote a walkable, mixed-use environment. Desired uses include a combination of residential, commercial, and office uses. Each parcel should contribute to a vibrant, mixed-use environment. Buildings should be built to the front property line. The Plan recommends investments that can keep Downtown Bristol as the "Tri Cities' Downtown," including façade improvements, new business investments, redevelopment, and festivals/entertainment.

OTHERS

- Lee Highway Mixed-Use / The Falls Phase 5:** The Lee Highway Mixed-Use designation is a special area along Lee Highway proximate to The Falls development. It supports a blend of residential, commercial, and office uses within an integrated, moderate density environment. Some buildings may be mixed-use themselves while others are single-use buildings contributing to a broader mixed-use feel. It is intended that this area will be redeveloped through a coordinated master planning effort undertaken by a developer or group of developers. Commercial uses should front Lee Highway, transitioning back to lower intensity residential units as one progresses away from Lee Highway.
- Light Industrial:** Light Industrial areas include light manufacturing and other less-intensive manufacturing uses that typically operate indoors and do not generate much noise or impact. Light industrial uses should consist of smaller service- and consumer-oriented businesses as opposed to large manufacturers.
- Heavy Industrial:** Heavy Industrial uses are generally larger in scale and may include the processing of chemicals and plastics, refineries, mining, and industrial machinery. These uses can have visual, noise, traffic, or environmental impacts on adjacent areas. Areas identified as Industrial should be reserved for manufacturing, industry, and related uses; other uses should be discouraged within these areas. The Plan recommends expansion of several existing industrial areas to accommodate additional job growth.
- Bristol Mall:** The City must be proactive in planning for the site's future should the privately-operated mall cease operations. Communities that fail to plan and preempt market changes often find themselves in a reactive position that can delay reinvestment. The Plan recommends several redevelopment scenarios, including re-use and redevelopment for retail, office, and residential purposes.
- The Falls:** Anchored by the first Cabela's in Virginia, The Falls is 120 acres and upon completion is expected to generate over three million annual shoppers and millions of dollars in annual sales. Development is divided into five phases, with Phase I expected to be complete in 2016 and land already cleared for Phases II and III. Phase IV will require the acquisition and redevelopment of privately held property. Phase V will be undertaken by a private developer. The City should continue to complete the planned phasing of the Falls as well as undertake all road and utility infrastructure necessary to complete redevelopment.
- Downtown Historic Preservation:** Using the existing federal district as a starting point, the City should work with neighborhood groups and historic preservation experts to develop a downtown historic preservation ordinance.
- Expansion / Transition Properties:** Residential areas located within industrial areas are recommended for transition away from residential uses towards light and heavy industrial uses. This does not require any resident to relocate but instead informs what type of redevelopment should occur if the property was to be vacated in the future.
- Screening:** Commercial and industrial areas should be properly screened from residential uses through landscaping or fencing. When redevelopment occurs, adequate setbacks and buffering are also necessary.
- Tourism:** Tourism is vital to the City's vitality and some of the City's most famous destinations include State Street, The Falls, Sugar Hollow Park, Bristol Pirates, Birthplace of Country Music Museum, and Clear Creek Golf Course.

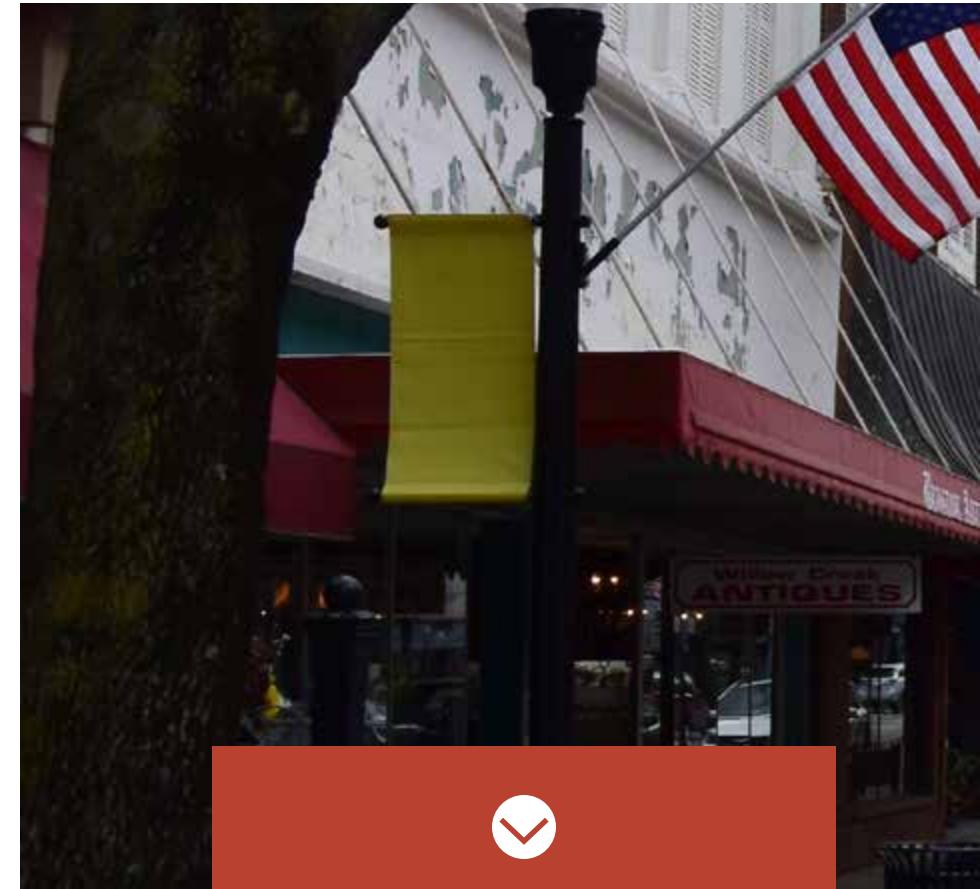




SUB-AREAS PLAN

This chapter contains detailed sub-area plans for two very important areas of Bristol: (1) the Bob Morrison Boulevard area and (2) Downtown Bristol. These areas are given elevated planning treatment within the Comprehensive Plan because of their catalytic opportunity to improve the local job base, enhance the vibrancy of the community, and generate new tax revenue.

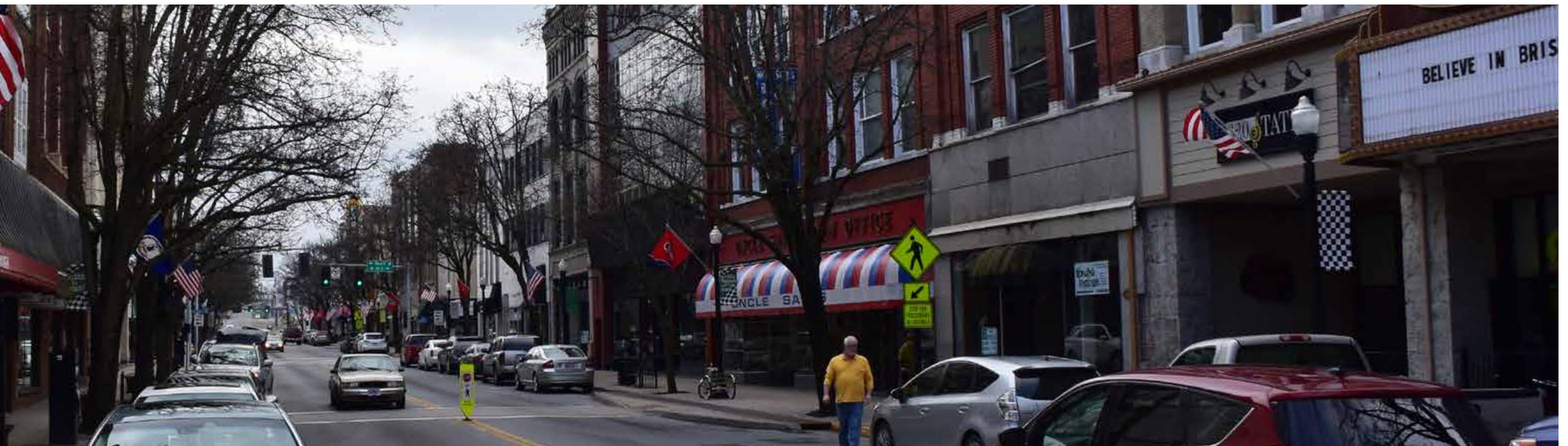
Each sub-area plan includes a vision, a detailed map of recommendations, photos of best practices, and toolbox of improvements.



The Sub-area Plan chapter is organized into two sections.

Bob Morrison Boulevard

Downtown Bristol



BOB MORRISON BOULEVARD

The Bob Morrison Boulevard sub-area sits to the west of Downtown and includes a mixture of mostly commercial and industrial properties. Several vacant and underutilized properties present an opportunity to re-imagine this area, as well as strengthen the neighboring commercial areas along Euclid Avenue, State Street, and Commonwealth Boulevard.

Throughout the community outreach process, two of the greatest themes were the need for well-paying industrial jobs and a more attractive built environment. The repositioning of this sub-area serves as a means to that end, providing a central hub along Bob Morrison Boulevard for advanced industries, research and development, innovation, and more. Additionally, improved connectivity and beautification of the sub-area can increase the attractiveness of investment, as well as better stitch the sub-area into the fabric of the adjacent Downtown area.



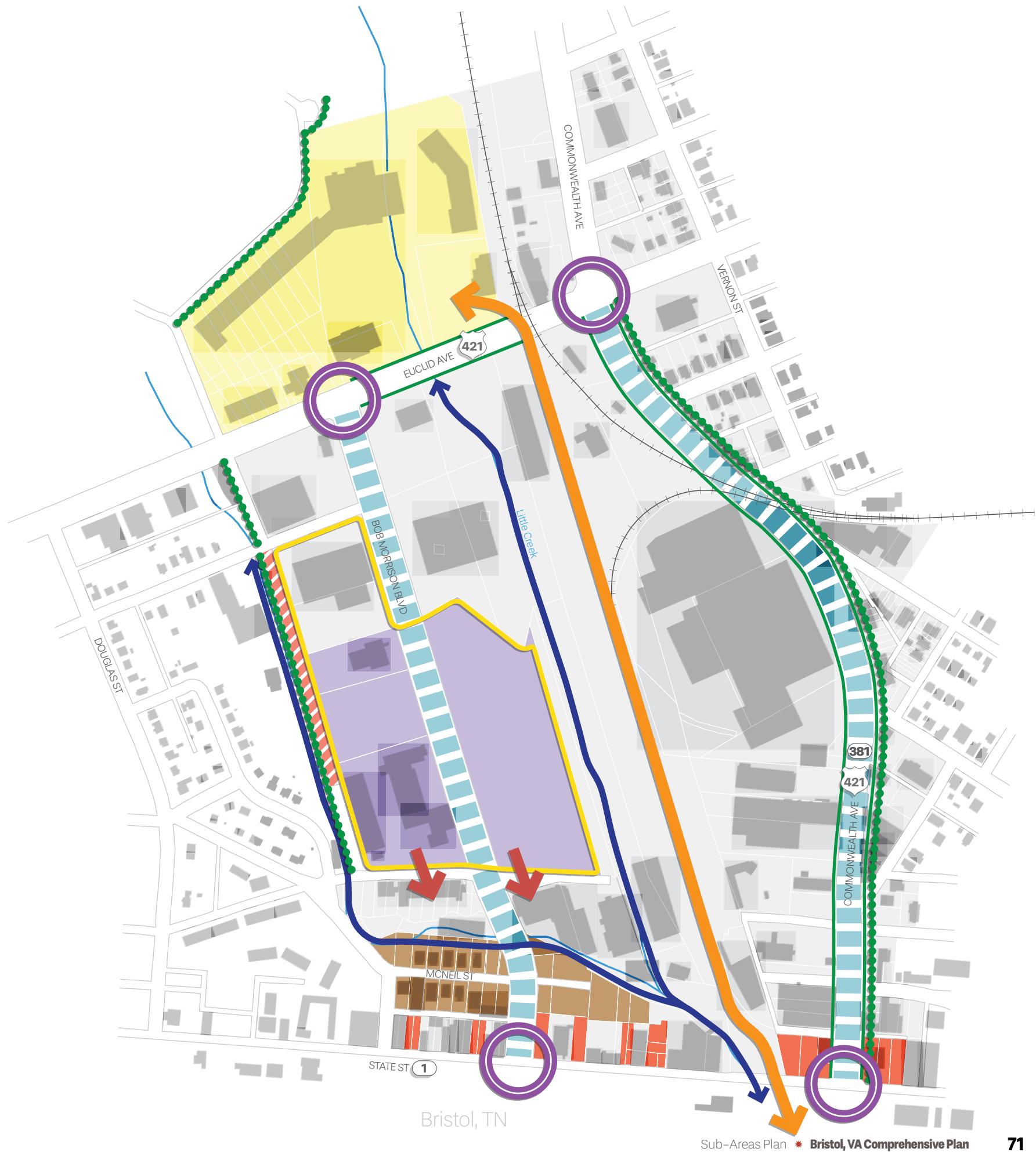
City of Bristol, VA Bob Morrison Boulevard Subarea Plan

The Bob Morrison Boulevard Sub-Area is located just west of Downtown Bristol and is roughly bounded by Division and Pepper Street to the west, the Euclid Avenue Shopping Center to the north, Commonwealth Avenue to the east, and State Street to the south. At present, the industrial core is mostly vacant and/or underutilized, and the surrounding commercial corridors surrounding are tired-looking, disinvested, and inconsistent in character.

The Plan envisions the sub-area core as a hub for light industrial, office, and business park users, surrounded on all sides by healthy and attractive commercial corridors (State Street, Euclid Avenue, and Commonwealth Avenue) and supported by an integrated trail and pedestrian network that connects to Downtown.

KEY

- **Employment Hub.** This area along Bob Morrison Boulevard could serve as a centralized job hub in light industrial and office uses that can increase local employment as well as generate new tax revenue.
- **Light Industrial Redevelopment.** These properties are either vacant or underutilized. The City should work with the existing property owners of applicable sites (identified on the accompanying visual) to sell, market, and redevelop their properties into cohesive business park, office, and/or light industrial uses.
- **Shared Parking.** The hodge-podge of uses behind the State Street frontage, including a small pocket of single family detached homes, should be transitioned to a coordinated, shared parking system that can support neighboring businesses. The creek to the north is a natural buffer between the State Street commercial area and the proposed light industrial area to the north.
- **State Street Infill & Streetwall.** A shared parking system behind State Street frontage could free up vacant parcels along State Street (currently used for surface parking) for redevelopment. This would enhance the character of the area as well as provide a more cohesive shopping district.
- **Boulevarding.** Planting additional flowers, trees, and shrubbery within existing medians will help beautify these roadways and improve the appearance of Bristol.
- **Corvette Trail & Greenway.** A new trail and greenway proximate to Little Creek and the vacated rail line could connect neighborhoods to Downtown Bristol, serve as a recreational amenity, and serve as green infrastructure.
- **Trail Extension Internal Pedestrian Circulation.** The Corvette Trail & Greenway should connect in the south to Downtown Bristol and in the north to Susong Cemetery and the Boyce Cox Field. An internal pedestrian network of pavement markings, signage, and pedestrian islands within the Euclid Avenue Shopping Center could assist in northern connectivity.
- **Susong & Little Creeks.** As redevelopment occurs within the sub-area, opportunities to daylight the creeks should be prioritized and adequate setbacks and buffering should be provided along the banks of each creek. Beautifying the banks of the creek should also be evaluated.
- **Division Street.** Division Street is currently stubbed and lacks proper traffic circulation, only providing supplemental rear access to the Bristol Herald Courier and Twin City Welding. This segment of the road should be vacated and replaced with buffering to safeguard the residential uses to the west from light industrial uses to the east.
- **Perimeter Screening.** Screening is the practice of visually shielding unattractive land uses and storage from public view, typically through the usage of landscaping or fencing. The Code of Ordinances should be updated to require the usage of attractive landscaping or fencing to screen between uses of differing intensities as well as storage of materials.
- **Landscaping.** Most existing commercial sites and parking lots lack any substantial landscaping. A mix of features such as low hedge rows, ground cover, parkway trees, decorative masonry walls, or fencing can improve the appearance of the corridor.
- **Key Pedestrian Crossings.** These four intersections represent key pedestrian crossings. Zebra striping, countdown timers, signals, and signage should be present to enhance pedestrian friendliness and connectivity.





1



2



3

The Vision

The Bob Morrison Boulevard sub-area will be a hub for innovation and advanced industries offering well-paying jobs, surrounded by healthy, vibrant, and pedestrian friendly commercial corridors.



1 Light Industrial Redevelopment

The existing composition of the employment area is not considered the best utilization of centralized land with easy access to I-381/I-81. Existing uses along the more intense stretch of Bob Morrison Boulevard include metal recycling, welding, and automotive repair. The former American Commercial Company and Gurley's Carpet and Flooring (Southeast corner of Bob Morrison Blvd. and Newton St.) properties are vacant, and the Bristol Lingerie Factory was demolished in 2014, leaving a cleared site. Many of the existing structures are in poor repair.

The City should work with the existing property owners of applicable sites (identified on the accompanying visual) to sell, market, and redevelop their properties into cohesive business park, office, and/or light industrial uses. Parcel consolidation, infrastructure improvements, and financing incentives are likely to be needed to successfully transition the area to more attractive and productive uses. Existing users could be relocated to other more suitable areas. Redevelopment could range from a large light industrial facility on either side of the boulevard to several smaller business park/professional office-style developments. New development must work around constraints such as overhead power wires, floodplain, and Little Creek.

Floodplain

Floodplains are any area of land that is susceptible to being overcome from floodwaters in the event of a 100 year flood. A significant portion of the sub-area is located within a floodplain.

By implementing floodplain management and development standards, a community can reduce the risks associated with existing floodplain, including:

- New development could be configured around the floodplain footprint.
- New development could be designed to be flood resistant, which includes the usage of flood damage-resistant building materials, anchoring, elevated building design, and backflow and automatic shut-off valves in sanitary sewer lines.
- Build out of the floodplain similar to the recent Food City development.

2 Corvette Trail & Greenway

A new trail and greenway could be added between Little Creek to the west and the old rail line (behind Strongwell), parallel to Bob Morrison Boulevard between Euclid Avenue and State Street. To the north, the proposed trail could plug into an internal pedestrian network within the Euclid Avenue Shopping Center and link up with other green spaces such as Susong Cemetery and the Boyce Cox Field complex. Trail development could also continue farther north along the banks of Little Creek. To the south, the trail could connect to the State Street sidewalk, providing direct feeder access into Downtown Bristol. Trail development would require the cooperation of private property owners (e.g. Norfolk Southern), including the purchase or right-of-way or obtainment of easements, and could be a component of a larger redevelopment of the Bob Morrison Boulevard area.

A multi-use trail, with a supporting greenway where possible, would be beneficial to the community on multiple levels. It would directly connect residential neighborhoods with Downtown Bristol, allowing families and children to avoid traveling down Commonwealth Avenue, which has narrow sidewalks with no parkways or setbacks and is heavily trafficked. It would also be a recreational amenity, accommodating lunchtime walks for nearby employees, as well as provide green infrastructure to absorb rainwater. With beautification along the creek and buffering from neighboring uses, it could also serve as a contemplative space.

Bob Morrison, a businessman for whom the boulevard was named, was renowned for the creative development of the molded fiberglass process for the Chevy Corvette. In 1954, the Chevy Corvette became the first production automobile with molded fiberglass reinforced plastic body after Morrison convinced General Motors that reinforced plastic had a use in the automotive industry. Naming the trail "Corvette Trail" could pay homage to Bristol's unique contribution to Americana and the course of automotive history.

3 Susong & Little Creeks

The Susong Creek snakes through the western portion of the sub-area and Little Creek runs through the central portion, joining together at the current location of the Builder's FirstSource storage lot. Some segments of the creeks are daylighted while others are channelized, such as Little Creek under the Euclid Avenue Shopping Center. As redevelopment occurs within the sub-area, opportunities to daylight the creeks should be prioritized and adequate setbacks and buffering should be provided along the banks of each creek. Beautifying the banks of the creek should also be evaluated. While each creek is relatively shallow, narrow, and slow moving, they are an important piece of Bristol's ecology.



4

Division Street

South of Euclid Ave, Division Street runs for only a few blocks before it is stubbed at the parcel line of the Twin City Welding and the former American Commercial Company properties. In its current configuration, it is unnecessary for traffic circulation, only providing supplemental rear access to the Bristol Herald Courier and Twin City Welding. This segment of the road should be vacated and instead replaced with buffering to safeguard the residential uses to the west from light industrial uses to the east. This clearly separates two distinctly different areas and can reduce conflicts and reinforces Bob Morrison Boulevard as the main access point for vehicular and truck traffic.

State Street Infill & McNeil Street Parking

The businesses fronting State Street between Pepper Street and Commonwealth Avenue form a relatively cohesive streetwall that almost serves as an extension of Downtown's character. Immediately behind these businesses, but south of the Susong Creek, are a hodge-podge of uses including a small pocket of single family detached homes, a local automotive business, and storage sheds. While on-street parking is provided on State Street, some businesses are utilizing narrow gaps in the streetwall for parking.

It is recommended that existing uses along McNeil Street (west of Bob Morrison Boulevard) transition over time into a surface parking lot that can provide shared parking for the businesses along State Street. Where possible, a similar configuration could be implemented on the east side of Bob Morrison Boulevard, working with local property owners such as Builders FirstSource. A new coordinated parking system behind the State Street frontage would also allow for infill development along State Street on parcels that are currently utilized for surface parking. This would complete the existing streetwall.



5

4 Food City

The Food City is an example of new investment along Euclid Avenue. It is well-designed, protects Little Creek from overdevelopment, and contributes to the vitality of the sub-area. It is an important anchor, drawing shoppers from throughout the city and beyond.

5 Euclid Avenue Shopping Center

The Euclid Avenue Shopping Center is a 129,609 square foot strip center with several outlet properties that front Euclid Avenue. At the time of the Plan's drafting, the shopping center was recently purchased, with the new owner investing capital in building rehabilitation, outlet development, and new signage. While redevelopment of the center may be necessary in the long-term, it is not expected in the short-term.

Emphasis should be placed on tenant recruitment and retention and site beautification. Better on-site landscaping should be provided to improve the site's appearance, and the addition of an internal network of sidewalks, refuge islands, striping, and signage would help increase its pedestrian friendliness and connectivity to neighboring areas. The vacant Ryan's Steakhouse is the site's greatest eyesore, and redevelopment closer to Euclid Avenue should be supported and encouraged.



6

6 Landscaping

Most existing commercial sites and parking lots lack any substantial landscaping. Negative impacts include giving Bristol's important corridors a harsh, unwelcoming aesthetic; making it difficult for pedestrians and motorists to discern between the road, sidewalk, and parking lot; and providing a negative viewshed for homes that directly face parking lots and commercial buildings. Site landscaping and screening should be provided to minimize views of parked cars from public rights-of-way and residential neighborhoods. This should consist of a mix of features such as low hedge rows, ground cover, parkway trees, decorative masonry walls, or fencing. This investment will improve the overall appearance of the gateway corridor and provide summer shade to minimize the heat island effect associated with large areas of concrete and asphalt.

7 Boulevarding

Both Bob Morrison Boulevard and Commonwealth Avenue have medians built into the existing right-of-way. Some of the medians along both roads are well-landscaped and planted with while others are not. Planting additional flowers, trees, and shrubbery will help beautify these roadways and improve the appearance of Bristol.



7

Perimeter & On-Site Screening/Landscaping

Screening is the practice of visually shielding unattractive land uses and storage from public view, typically through the usage of landscaping or fencing. Current municipal code contains minimal screening requirements. Industrial storage, dumpsters, and other raw materials should not be viewable from the public right-of-way or from neighboring residential neighborhoods. The Code of Ordinances should be updated to require the usage of attractive landscaping or fencing to screen between uses of differing intensities as well as storage of materials.



8

Use of Gravel

Gravel is currently used in several locations on commercial lots and access roads. At the car lot at the intersection of State Street and Bob Morrison Boulevard, it spills over onto the public right-of-way. It should not be permitted and should be replaced with asphalt.

Curb Cuts

Curb cuts are designed to provide access from the public street network to local land uses. However, excessive curb cuts can have negative impacts on pedestrian mobility, safety, and on-site circulation. In many cases, curb cuts can be removed or consolidated without compromising access to a site. This may improve the continuity of the sidewalk network, create fewer conflict points along busy streets, and enhance on-site parking capacity and circulation. Along Commonwealth Boulevard, the City should work with property owners to identify opportunities to implement curb cut consolidations.



9

Business Signage

Business signage within the sub-area's commercial areas is somewhat chaotic and many signs are unattractive, contributing to a "tired-looking" and unwelcoming corridor. The main challenges are the types of signs, the height of signs, materials utilized, and sign maintenance. Several businesses, such as Krystal's or Builder's First Choice, have excessively high pole signs that are out of character with the corridor. Some gas stations and convenience stores utilize a variety of low quality, temporary signs advertising cigarettes, liquor, and vapor products, some of which are posted on public rights-of-way and light posts; other businesses hang plastic signs with rope on their facades. Signs within the public rights-of-way are not legal, which the City has been enforcing.



10

On sites with closed businesses, some have "left-behind" signs or "stumps" of former signs (near the former Ryan's Steakhouse). An example of an attractive sign within the sub-area is that of NPB Insurance Services, Inc.; the monument sign is of an appropriate size and is landscaped.

The City should comprehensively re-evaluate the existing Sign Code (redone in 2012), as well as work with businesses on code enforcement, sign amortization of uncompliant signage, and utilization of incentive programs that can strengthen signage quality.

Motorist Signage

The signage directing motorists along Euclid and Commonwealth Avenues should be simplified to make it easier to navigate Bristol. This includes both highway signage (which falls under the jurisdiction of VDOT) as well as local wayfinding signage to prominent destinations. For example, one road sign on the southbound side of Commonwealth Avenue, north of Euclid Avenue, advertises ten different highway routes and is confusing to motorists.

Similarly, the City's existing wayfinding signage could be improved. Wayfinding does exist at different points, however, it is not of a consistent scheme (vary by color and size), and many prominent destinations are left out. The City should work with VDOT to simplify the highway signage and develop a coordinated wayfinding signage system.



11

Pedestrian Crossings

While sidewalks exist throughout the sub-area, it is often intimidating to cross the street as most intersections have poor quality (or non-existent) crosswalks and signals. A series of targeted pedestrian improvements should be implemented to make the corridor friendlier to residents accessing key destinations such as Food City, Euclid Avenue Shopping Center, and Downtown. Pedestrian improvements should be added at the intersections of: Bob Morrison Boulevard and Euclid Avenue (striping and signaling); Euclid Avenue and Commonwealth Avenue (new striping); Bob Morrison Boulevard and State Street (striping and signaling). The implementation of bump-outs may also be appropriate at some intersections, shortening the perceived crossing distance and encouraging traffic to slow and watch for pedestrians.

Gateway Redevelopment

The northwest and northeast corners of the intersection of State Street and Commonwealth Boulevard are the first impression of the City of Bristol and Virginia that many travelers may see. The northwest corner is currently occupied by a bank, setback from the road with a relatively bare parking lot. The structure's archways and recessed windows give it an empty feel. On the northeast corner is a gas station with four billboards lining the perimeter.

The City should encourage redevelopment of these two corners into a high quality, attractive new development that can "make a statement." Redeveloping the gas station would also help create a fabric that steers drivers into Downtown Bristol; at present, it isn't clear from the character of the intersection that a vibrant Downtown is only steps away.

Additionally, the City could add a distinctive gateway feature, similar to the guitar on the south side of the road welcoming travelers into Tennessee. One possibility would be to add a matching guitar, or a banjo, cymbal, or other musical instrument to compliment the guitar.



Improvement Areas



The Future of Bob Morrison Boulevard: A Visualization

The image to the left visualizes the recommendations detailed on pp. 68–72. Recommended improvements include:

- Enhanced buffers between proposed light industrial developments and the surrounding residential and commercial areas;
- Medians and parkway trees along Bob Morrison Boulevard and Commonwealth Avenue;
- Reconfigured intersections with pedestrian amenities such as paved crosswalks, countdown timers, and signage;
- New infill development along State Street, converting underutilized parking lots into structures with a mix of retail and service uses;
- Creation of the Corvette Trail;
- Beautification of unsightly properties with landscaping, groundcover, and lawn areas; and
- Siting developments to avoid conflicts with the existing floodplain.

DOWNTOWN

Downtown Bristol crosses into both Tennessee and Virginia, joining at the appropriately named and iconic State Street. On the Virginia side, the Downtown neighborhood travels north to the foot of a sloping hill located near Spencer Street. Downtown is a lively mix of uses in the tradition of a classic central business district. Downtown Bristol features a variety of residential, commercial, entertainment, institutional, governmental, and even industrial uses within an approximately 5 by 5 block neighborhood. It meets the needs of many individuals, serving as a major tourist destination for some, a jobs hub for others, and a home for a segment of the City's population.

The area includes both quaint alleys and narrow side streets alongside major arterial highways. The neighborhood accommodates the pedestrian and a human scale on certain blocks, while featuring expansive parking lots and newer infill construction that more closely mirrors auto-centric, suburban-style development on other blocks. The area also includes high-quality open space, Beaver Creek, a lovely greenway, and active freight railroad tracks. All of these conditions present a complex downtown fabric for Bristol, Virginia containing both deep heritage alongside tremendous potential for the 21st Century.



Serving Multiple Populations & Markets

Downtown Bristol must effectively serve multiple populations and multiple markets simultaneously. First, it is a local neighborhood with its own residents who rely on the district to meet its daily needs for housing, goods, and services. But it also serves as the hometown "Main Street" for citywide residents who populate neighborhoods across the Virginia side. Furthermore, Downtown Bristol also caters to a regional population that commutes and travels throughout the Tri Cities metropolitan area.

Finally, Downtown Bristol is the point of entry and the central hub for a major tourism industry that draws on the Birthplace of Country Music Museum, NASCAR, and other events, drawing visitors from across North America. Vibrant downtown districts successfully balance these types of complex needs and Downtown Bristol can do so by understanding its different districts, nodes, and areas, and planning according for future growth and infill development.

North-South Thoroughfares & East-West Districts

Downtown Bristol is largely defined by two arterial highways or parkways that "bookend" the neighborhood – Commonwealth Avenue and Martin Luther King, Jr. Boulevard. Further, the area is defined by the Tennessee state boundary to the south, and the elevation change up Solar Hill to the northwest and to the north near Spencer Street. Along with Lee Street and Moore Street, much of the motoring public accesses Downtown Bristol from neighborhoods to the north of I-81.

Within the Downtown neighborhood there are three clear districts, which are more east-west in orientation, away from the high-speed and high-volume traffic found on Piedmont Avenue and King, Jr. Boulevard: Scott Street, Cumberland Square, and State Street. Within each of these districts are defining features and clear nodes of activity. These three areas are examined in detail with site-specific recommendations, broken out by district. These sections comprise the Downtown Subarea Plan.



City of Bristol, VA

Downtown Subarea Sections

Scott Street. The Scott Street district is defined by the two major thoroughfares of Piedmont Avenue and Martin Luther King, Jr. Boulevard, which "bookend" a three-block portion of Scott Street. Further, the district is hemmed in from the north by steep elevation change, and to the south by the Beaver Creek greenway. This urban design context provides an enclosed district that is easily identifiable and compact. This portion stands distinctive and somewhat isolated from the remainder of the CBD to the south.

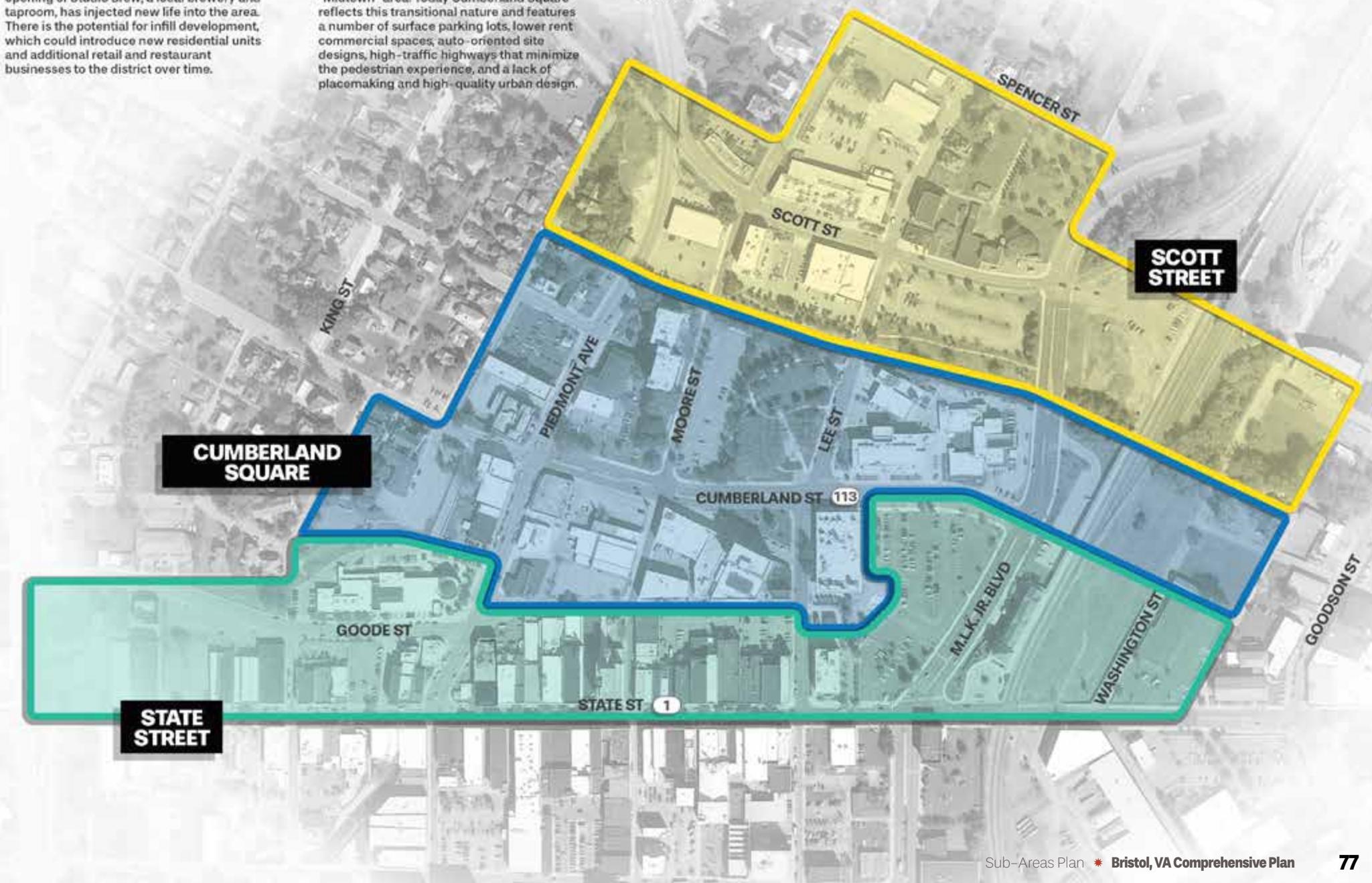
The Scott Street district is largely defined by daytime government offices; other private uses are still office in nature and generally operate within typical business hours. The opening of Studio Brew, a local brewery and taproom, has injected new life into the area. There is the potential for infill development, which could introduce new residential units and additional retail and restaurant businesses to the district over time.

Cumberland Square. The Virginia side of Downtown Bristol is anchored by Cumberland Square Park and the Birthplace of Country Music Museum. The area is generally defined by Beaver Creek to the north and Winstons Alley to the south, bookended by Piedmont Avenue and Martin Luther King, Jr. Boulevard. Cumberland Street is the primary east-west corridor that centers the district on the park.

This district transitions the Virginia side of Downtown from State Street's character, which is a classic CBD and intact "Main Street," over Beaver Creek and into the lower density civic campus district. In general, these blocks resemble a traditional "Midtown" area. Today Cumberland Square reflects this transitional nature and features a number of surface parking lots, lower rent commercial spaces, auto-oriented site designs, high-traffic highways that minimize the pedestrian experience, and a lack of placemaking and high-quality urban design.

State Street. For many, Downtown Bristol means State Street. This iconic American "Main Street" is unique because it joins not only two cities, but two states. The area is defined by its well-preserved historic streetwall and quaint, "hometown" central business district character. The Downtown component of State Street generally runs from Commonwealth Avenue to Martin Luther King, Jr. Boulevard, with multi-story, mixed-use buildings on the frontage, and rear alley styled parking lots and loading docks to the north. The district features some of the highest-quality pedestrian environments in the Bristol region and functions as the cultural heart of the community.

State Street is the truest mixed-use area of the Bristol community, featuring a blend of retail and restaurants alongside offices and entertainment uses, as well as churches, educational facilities, housing units, and even some remnant light industrial uses. The district features businesses that cater to the local neighborhood, the Bristol community, and visitors from across North America.

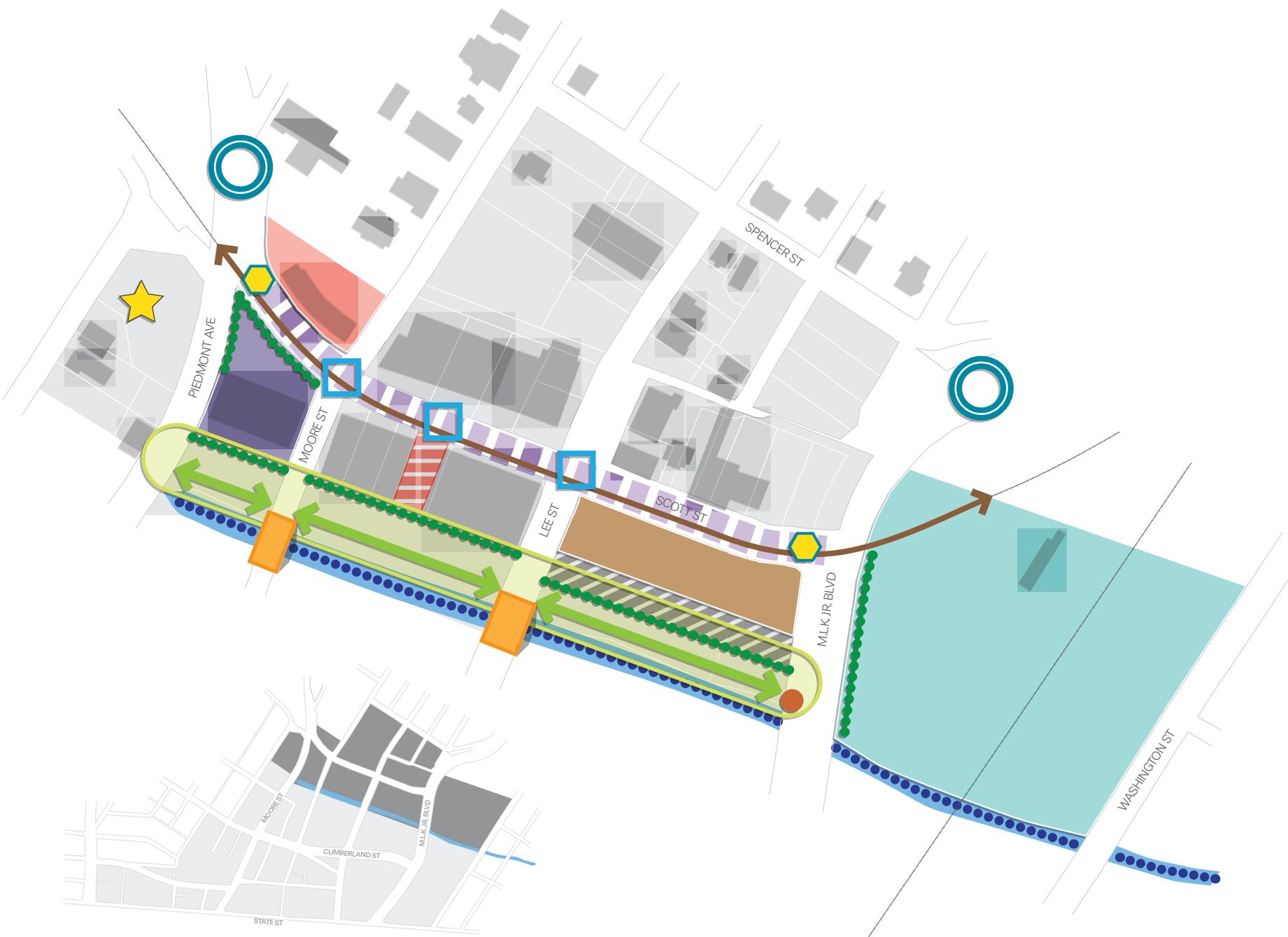


City of Bristol, VA

Downtown Subarea: Scott Street

KEY

- **Major Downtown Gateways.** Major gateway monuments that announce the entrance to Downtown Bristol should be located within these roadway corridors as they approach Scott Street.
- **District Gateways.** The Scott Street district should also be designated through minor gateway signage and streetscape branding.
- **Engaging the Greenway.** Currently, no existing structures on the south side of Scott Street engage Beaver Creek or the greenway in any meaningful way. Existing buildings and businesses, such as the new Studio Brew, could consider adding back patios and upper-floor balconies that look out onto Downtown Bristol and Beaver Creek. Further, any future infill construction should incorporate rear yard elements that engage the greenway and recognize its value to the area.
- **Crosswalk Improvements.** Crosswalks at Moore Street, Lee Street, and MLK Boulevard are not painted or marked in any way. The City should evaluate opportunities to improve these crosswalks, including using differentiated colors, pavements, and signage to indicate a pedestrian zone.
- **Bridge Improvements.** The Moore and Lee Street bridges are essentially auto-oriented and utilitarian spans that cross Beaver Creek featuring only cement sidewalks and metal handrails. The City should evaluate opportunities to improve the pedestrian experience.
- **Scott Street Greenway.** There is a short, two block greenway along Beaver Creek, primarily on the north side of the waterway. This is a beneficial amenity for the area and could be improved as a signature feature of Downtown Bristol.
- **Beaver Creek.** Beaver Creek runs east-west through the Scott Street area and other than traveling underneath the roadways, is daylight and visible from the neighborhood. Some stretches of the creek are landscaped and feature decorative fencing, but other areas are more industrial in character and primarily channelized and screened. The City should ensure the high-quality maintenance of the masonry walls that line the waterway itself while also elevating the prominence and incorporation of the creek into the Downtown experience. This could include decorative night-lighting, ecological placards and outdoor exhibitions, and managed landscaping along its banks.
- **Accommodating Parking.** Currently, it is not anticipated that the area needs additional parking, but the City could examine opportunities to use flexible and shared parking strategies in the district.
- **Streetscaping on Scott Street.** The City should evaluate a streetscaping program that adds decorative lighting, banners, street furniture, and other enhancements, while also evaluating opportunities to beautify the railroad alignment, as discussed in this Subarea Plan.
- **Small, Affordable Placemaking Opportunities.** The Beaver Creek greenway already features public art and sculpture, and more could be added to the area as it develops. There are other opportunities to add small and affordable, but still impactful, placemaking investments, such as painting the utility box located near the creek and MLK Boulevard.
- **Old Rail Viaduct Landmark.** The City should consider acquiring the site and designing the space as a public plaza and landmark feature in Downtown Bristol.
- **At-Grade Railroad Alignment.** The rail line is active and freight trains are a common characteristic of the area. This condition is expected to remain, but the City could evaluate infrastructure treatments that both provide buffering between pedestrians and the trains, as well as improve the visual aesthetic of the area.
- **Perimeter Screening.** Screening is the practice of visually shielding unattractive land uses and storage from public view, typically through the usage of landscaping or fencing. The Code of Ordinances should be updated to require the usage of attractive landscaping or fencing to screen between uses of differing intensities as well as storage of materials.
- **Placemaking & Plaza Opportunity.** This open space is below-grade from Scott Street and presents an appealing "sense of enclosure" and the opportunity for a unique placemaking opportunity that could act as an "outdoor living room" for the district. This plaza space could be used for office workers during the daytime for lunch, coffee breaks, and informal meetings, and used as a public event space at night, such as outdoor movies projected onto the side of the building. Finally, there is currently an informal midblock crosswalk between this space and City Hall and this crossing should be emphasized with differentiated pavement and striping.
- **Southeast Block #6 Infill Development Opportunity.** This site should be evaluated for infill development. Future construction should reflect the character, density, and form of the Scott Street corridor, including first-floor storefronts designed at a pedestrian-scale and abutting the sidewalk. The rear yard (southern portion) of the site should include a linear parking lot and quality screening and landscaping that buffers the development from the greenway.
- **Norfolk Southern Property.** This site acts as a major gateway into both Downtown and the Scott Street district. The City should work with Norfolk Southern to identify opportunities to improve the parking lots, add lighting, landscaping, screening, and decorative fencing along their property, adjacent to MLK Boulevard.
- **The Mosby Building (300 Moore).** The Mosby Building is the first site motorists see as they enter the Scott Street district from Piedmont Avenue, which is located on a curve that mirrors the railroad alignment. The site is generally an attractive part of the Scott Street district but could be improved by burying the overhead utility lines and adding landscaping along the site's frontage. The existing monument signage could also be upgraded to a masonry design and complemented by nighttime landscape lighting.
- **Bristol Health Department Site Improvements.** The Health Department headquarters office building is located somewhat in a "hole" created by the curving railroad tracks, and elevated intersection at Scott and Moore Street. There are no plans to relocate the facility, and therefore the City should develop a long-range, incremental improvement plan for the site. That plan should address a number of site improvements, including extending the greenway and bicycle trail across the parking lot, adding decorative retaining walls and landscaping at the wedge between the railroad bridge and Piedmont Avenue, as well as parking lot landscaping and lighting.





The Vision

The Scott Street district should continue to serve as the primary "civic campus" for the Bristol, Virginia community, presenting a vibrant, active node of office workers during daytime hours. The district should better engage Beaver Creek, expand the greenway and bicycle trail, and elevate this area as a central, defining feature of the district. The streetwall located on Scott Street should be strengthened through infill construction that mirrors the historic character and urban form of the area, as well through public realm improvements, such as streetscaping, public art, and crosswalk improvements.

Further, the Scott Street area must act as an attractive, exciting gateway into Downtown Bristol for those traveling south on Piedmont and MLK. However, the three-block area itself will serve more of a "midtown" function as the transition zone between the central business district and the residential neighborhoods to the north. The Scott Street district can provide a "local option" alternative for Bristol-area residents and workers that contrasts itself with the visitor-intensive traffic experience on State Street. This neighborhood character would be reinforced by quaint, cozy open spaces along Beaver Creek and through public plazas on Scott Street that could serve as gathering spaces during lunchtime for office employees and small-scale special event space at nighttime for local residents.

Gateway Monuments

The Scott Street district acts as the gateway to Downtown Bristol from the north. Many visitors access Downtown by traveling south on Piedmont Avenue and MLK Boulevard. The area should include gateway monuments that define both Downtown and the Scott Street district.

Major Downtown Gateways

Major gateway monuments that announce the entrance to Downtown Bristol should be located within these roadway corridors as they approach Scott Street. King, Jr. Boulevard features a landscaped median that could serve as a location in that corridor, whereas the railroad bridge and underpass on Piedmont Avenue could serve as a location there. The bridge structure itself and the masonry retaining walls on Piedmont provide an opportunity for murals and unique, decorative signing that when combined with the experience of traveling through the underpass provides a distinctive arrival to Downtown Bristol.

District Gateways

The Scott Street district should also be designated through minor gateway signage and streetscape branding. At Scott and King, Jr. Boulevard intersection, there is a grass right-of-way as well as an old caboose on private property, on the northwest corner of the intersection. As part of a more extensive streetscaping project, there are opportunities for a Scott Street gateway at this location. Scott Street is accessed from Piedmont off of a left-lane ramp that navigates the grade change. The area features masonry retaining walls as well as landscaped right-of-way that could accommodate a distinctive archway sign over the top of the roadway as it turns east.

Engaging the Greenway

Currently, no existing structures on the south side of Scott Street engage Beaver Creek or the greenway in any meaningful way. The greenway is met by an unscreened surface parking lot and the buildings all present their rear door entrances to the parking lot. Existing buildings and businesses could consider adding back patios and upper-floor balconies that look out onto Downtown Bristol and Beaver Creek, such as what Studio Brew and the Bristol Virginia Public Schools building have done. Further, any future infill construction should incorporate rear yard elements that engage the greenway and recognize its value to the area.

Crosswalk Improvements

The Scott Street area features sidewalks on virtually every block and there is good pedestrian connectivity, accessibility, and mobility. However, the crosswalks at Moore Street, Lee Street, and King, Jr. Boulevard are not painted or marked in any way. The City should evaluate opportunities to improve these crosswalks, including using differentiated colors, pavements, and signage to indicate a pedestrian zone.



1



1



2

Bridge Improvements

The Moore and Lee Street bridges are essentially auto-oriented and utilitarian spans that cross Beaver Creek featuring only cement sidewalks and metal handrails. The City should evaluate opportunities to improve the pedestrian experience by adding decorative, nonstructural features to the bridge itself, including the potential to add decorative lighting in the vicinity. Crossing the creek should be a memorable experience, which also acts as the transition into the Cumberland Square area and the core central business district.

Scott Street Greenway

There is a short, two block greenway along Beaver Creek, primarily on the north side of the waterway. This is a beneficial amenity for the area and could be improved as a signature feature of Downtown Bristol. First, the greenway largely abuts surface parking lots; the City should work with property owners to better landscape and screen the greenway itself from auto traffic and parking areas. Secondly, the greenway could be expanded one block west to Piedmont Avenue to connect into the Solar Hill neighborhood, and regional trail networks beyond Downtown.

Finally, the City should evaluate what potential exists to bury the overhead utility lines over time, as the opportunity presents itself with other infrastructure projects in the area. Additionally, if connected to a regional trail network beyond Downtown, the greenway could be designed as a trailhead for the area, providing parking and cycling amenities.

1 Beaver Creek

Beaver Creek runs east-west through the Scott Street area and other than traveling underneath the roadways, is daylight and visible from the neighborhood. Some stretches of the creek are landscaped and feature decorative fencing, but other areas are more industrial in character and primarily channelized and screened. The City should ensure the high-quality maintenance of the masonry walls that line the waterway itself while also elevating the prominence and incorporation of the creek into the Downtown experience. This could include decorative night-lighting, ecological placards and outdoor exhibitions, and managed landscaping along its banks.

The Mosby Building (300 Moore)

The Mosby Building is the first site motorists see as they enter the Scott Street district from Piedmont Avenue, which is located on a curve that mirrors the railroad alignment. The façade of the building is curved to mimic the corridor and is situated on an elevated lot wrapped by a decorative stonewall. The site is generally an attractive part of the Scott Street district but could be improved by burying the overhead utility lines and adding landscaping along the site's frontage. The existing monument signage could also be upgraded to a masonry design and complemented by nighttime landscape lighting.

Bristol Health Department Site Improvements

The Health Department headquarters office building is located somewhat in a "hole" created by the curving railroad tracks, and elevated intersection at Scott and Moore Street. The structure is a 1-story brick building that is surrounded by a large surface parking lot, which does not feature any landscaping or lighting. The railroad embankment features unmanaged scrub vegetation and rip rap, which is also present along Beaver Creek on the site's southern edge.

There is also a low-rise, older billboard that should be removed from the site. There are no plans to relocate the facility, and therefore the City should develop a long-range, incremental improvement plan for the site. That plan should address a number of site improvements, including extending the greenway and bicycle trail across the parking lot, adding decorative retaining walls and landscaping at the wedge between the railroad bridge and Piedmont Avenue, as well as parking lot landscaping and lighting.

2 Place-making & Plaza Opportunity

Directly across from City Hall there is a vacant lot that features stairs and pedestrian access from the parking lot to Scott Street. Studio Brew has recently opened in the building to the west and the opportunity presents the potential to use the space as a public plaza and/or a beer garden facility. This open space is below-grade from Scott Street and presents an appealing "sense of enclosure" and the opportunity for a unique placemaking opportunity that could act as an "outdoor living room" for the district.

This plaza space could be used for office workers during the daytime for lunch, coffee breaks, and informal meetings, and used as a public event space at night, such as outdoor movies projected onto the side of the building. Finally, there is currently an informal midblock crosswalk between this space and City Hall and this crossing should be emphasized with differentiated pavement and striping.



3

Southeast Block #6 Infill Development Opportunity

The southeastern-most block in the Scott Street district is currently a large, gravel parking lot with no landscaping or other infrastructure improvements. There is frequently unscreened dumpsters and the sidewalk network does not continue through this block. The site borders the Beaver Creek greenway but does not relate or engage that area at all. This site should be evaluated for infill development that could also include parking for the neighboring Hotel Bristol. Future construction should reflect the character, density, and form of the Scott Street corridor, including first-floor storefronts designed at a pedestrian-scale and abutting the sidewalk. The rear yard (southern portion) of the site should include a linear parking lot and quality screening and landscaping that buffers the development from the greenway; this design should generally mirror the existing block's form to the west.

Parking

The Scott Street district features an off-street, surface parking lot for each of the area's six blocks. Currently, it is not anticipated that the area needs additional parking, but the City could examine opportunities to use flexible and shared parking strategies in the district. Most of the parking is publicly-owned and dedicated to government facilities, which operate during typical business hours. As infill development occurs there may be opportunities to creatively stagger and share parking in the district. Further, parking on the southern blocks along Beaver Creek should be threaded behind the streetwall of buildings on Scott Street, and well screened, buffered, and landscaped from the bicycle trail and waterway. Parking lots should be well lit and clearly signed.

3 Streetscaping

Currently Scott Street does not feature any streetscaping improvements or district branding. The only instance of overhead utility lines occurs at Moore and Scott. There are sidewalks throughout the area and many have been recently improved and/or replaced. The City should evaluate a streetscaping program that adds decorative lighting, banners, street furniture, and other enhancements, while also evaluating opportunities to beautify the railroad alignment.

Small, Affordable Placemaking Opportunities

The Beaver Creek greenway already features public art and sculpture, and more could be added to the area as it develops. There are other opportunities to add small and affordable, but still impactful, placemaking investments, such as painting the utility box located near the creek and Martin Luther King, Jr. Boulevard. The City should consider adding creative public art components as part of a Scott Street streetscaping project as well as improvements to the bridges.



4

4 Old Rail Viaduct Landmark

When motorists pass under the current railroad bridge on Piedmont Avenue they immediately see a historic railroad bridge built into the hillside on the west side of the roadway, adjacent to Johnson Street on the hilltop. The remainder of the lot is either turf grass or a poorly maintained asphalt parking lot. The City should consider acquiring the site and designing the space as a public plaza and landmark feature in Downtown Bristol. The site itself could be landscaped and modified to accommodate outdoor activities, and the bridge could act as the signature feature of the site. The bridge could include "Welcome to Downtown Bristol" signage and be up lit at night to highlight the under or deck truss structure.

At-Grade Railroad Alignment

The Scott Street corridor features an at-grade railroad alignment as it approaches the Norfolk Southern yard to the east. The rail line is active and freight trains are a common characteristic of the area. This condition is expected to remain, but the City could evaluate infrastructure treatments that both provide buffering between pedestrians and the trains, as well as improve the visual aesthetic of the area. This treatment could act as the central feature of a streetscaping program on Scott Street, including a knee-wall, fencing, and decorative lighting.

Norfolk Southern Property

Norfolk Southern owns a large property located east of Martin Luther King Jr. Boulevard that operates as its yard office, and is generally light industrial in character. It contains sheds, an operations building, outdoor material storage, and a series of both surface and gravel parking lots. This site acts as a major gateway into both Downtown and the Scott Street district. The City should work with Norfolk Southern to identify opportunities to improve the parking lots, add lighting, landscaping, screening, and decorative fencing along their property, adjacent to Martin Luther King, Jr. Boulevard.

Downtown Subarea: State Street

KEY

● **The Sessions Hotel Project.** Creative Boutique Hotels, a Virginia-based development company, has acquired a number of older industrial buildings and adjacent, vacant properties in the far western block of State Street in Downtown Bristol, bound by Commonwealth Avenue, Goode Street, and west of King Street. The project would cover 11 parcels, including the renovation and redevelopment of some existing structures, generally staggered around surface parking lots and infill buildings. The project has been working towards the commencement of construction activities for more than a year and the overall timeline is finalized.

■ **A Back-Up Development Approach.** The City should also be prepared if the Session Hotel project does not materialize. That area is currently a mix of older industrial buildings, surface parking lots (including gravel), and vacant ground.

☒ **The Sullins Block.** The area is a hodgepodge of residential, commercial, industrial, and vacant properties. As the parcels impacted by the Session Hotel redevelop, as well as the BP, the City should evaluate what opportunities exist to locate parking or other downtown-supportive uses within this isolated block that abuts Commonwealth at Goode Street and leads into Downtown Bristol.

■ **Closing Streets – Creating Places.** The City could evaluate closing King Street and/or James Street. Both segments are short and only connect Goode Street to State Street. There is other functionality and circulation for motorists at both Commonwealth and Piedmont, and no building have their front facades on this short side blocks. Both King and James offer the potential to create outdoor plazas and dining areas that would be memorable parts of the downtown experience.

■ **TriSummit Bank & WCYB Parking Lot.** The large parking lot that serves both TriSummit Bank and the WCYB building is more typical of a large suburban shopping center. Ultimately the parking lot's functionality is important and serves a role to signify the transition out of downtown; however, the lot could be improved by the addition of more landscaped islands, better lighting, and vegetated screening and buffering around the lot's perimeter.

○ **Downtown Gateways.** The City should consider working with Capital Bank to add a complementary piece, such as a banjo, on the Virginia side as part of a larger gateway treatment into downtown.

■ **Outdoor Dining.** Downtown Bristol does not feature a lot of sidewalk or outdoor dining opportunities. This experience has increased in popularity in recent years across the U.S. and downtown provides the ideal setting for such restaurant concepts.

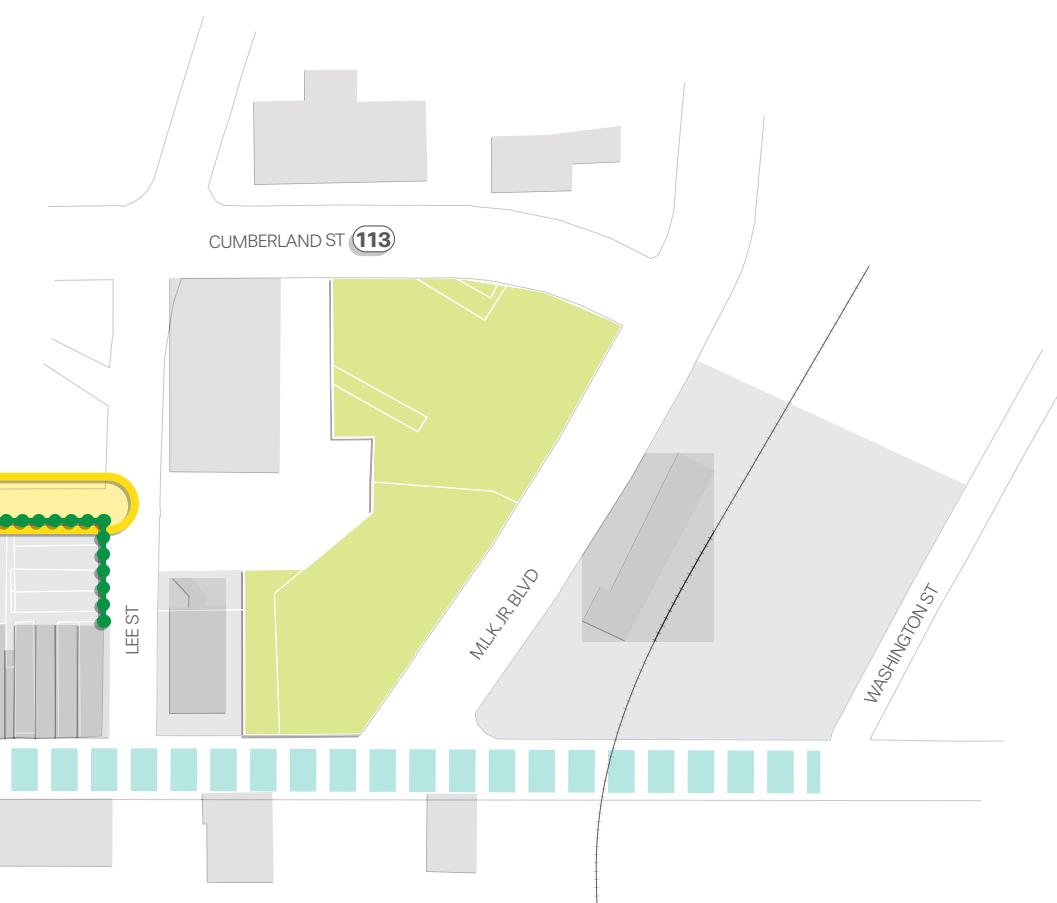
□ **Improving Crosswalks.** State Street features some of the best crosswalks in the Bristol community. Virtually all are striped and some feature differentiated pavement and signage, including midblock crosswalks. Although improving the crosswalk infrastructure is less of a priority on State Street, there are certain intersections that would benefit from better quality crossings.

■ **Parking Lot Screening.** Generally, the rear parking lots behind buildings on State Street are older and feature edge-to-edge asphalt. There is almost no landscaping or screening, and some parcels feature chain link fence. The City should examine its parking lot landscaping and screening regulations for these properties as well as consider a grant and/or financial incentive program to improve the appearance, lighting, and screening of these rear parking lots.

■ **Maintaining the Streetscape.** Additional street trees could be installed east of TriSummit Bank where the pedestrian environment deteriorates, but otherwise the strategy is to ensure the adequate budgeting and funding for the ongoing and continuous maintenance of the State Street urban design.

■ **The Cameo Theatre.** The Cameo Theatre was built in 1925 and is one of the oldest such facilities in Virginia. It is a major historical landmark on State Street and carries the potential to be a visitor destination and activity generator, particularly for the stretch of downtown located west of Piedmont Avenue. The City should organize an exploratory committee to identify potential development groups with experience renovating and revitalizing historic theaters. As part of this assessment, the City could consider potential incentive packages to redevelop the site and bring both film and live events back to the Cameo.

■ **Activating Winstons Alley.** This alleyway has the opportunity to become an interesting, intimate passageway just off of Main Street. Improvements could include brick pavers, public art, and lights strung up between buildings. While the alley would remain open to vehicles, it should be more pedestrian oriented. The hosting of events such as "Activate the Alley" or "Winstons Alley Fest" could draw activity into the space.





The Vision

State Street will continue to function as the central gathering space and destination district for all of the Bristol region. It will continue to be a dynamic, urban, mixed-use district that provides an eclectic mix of businesses alongside landmark destinations, housing, and offices. Further, the district will provide a number of outdoor plazas and public spaces with an attractive streetscape and public art display. In this way, State Street will be the point of entry of initial landing spot for visiting Downtown Bristol, acting as a gateway to its other districts and nodes on both the Virginia and Tennessee sides of the border.

The Sessions Hotel Project

Creative Boutique Hotels, a Virginia-based development company, has acquired a number of older industrial buildings and adjacent, vacant properties in the far western block of State Street in Downtown Bristol, bound by Commonwealth Avenue, Goode Street, and west of King Street. The project would cover 11 parcels, including the renovation and redevelopment of some existing structures, generally staggered around surface parking lots and infill buildings. The project has been working towards the commencement of construction activities for more than a year and the overall timeline is finalized. The City should partner and assist as much as possible to help this hotel concept materialize. The project would fill a need in the Downtown market and address some blighted properties on and near State Street. The Sessions Hotel project carries the potential to be a powerful catalyst for the State Street blocks west of King Street at an important time in Downtown's history.

A Back-Up Development Approach

The City should also be prepared if the Session Hotel project does not materialize. That area is currently a mix of older industrial buildings, surface parking lots (including gravel), and vacant ground. There is grade change that needs to be incorporated into a redevelopment, and some buildings may be justifiably demolished. A number of parcels could be consolidated and redeveloped which would yield a more marketable site that could accommodate better managed off-street parking, utilizing Goode Street. The Sessions Hotel project does not include the BP gas station, but that parcel is critical to the long-term success of this block on State Street. This area acts as the western gateway into Downtown Bristol and the City should prioritize its successful redevelopment.

The Sullins Block

Although technically outside of the Downtown study area, the block of buildings located around Sullins Street and Sullins Alley are related to older industrial buildings on the south side of Goode Street. There are substantial grade changes, but not inconsistent with those found in other parts of Downtown Bristol. The area is a hodgepodge of residential, commercial, industrial, and vacant properties. As the parcels impacted by the Session Hotel redevelop, as well as the BP, the City should evaluate what opportunities exist to locate parking or other Downtown-supportive uses within this isolated block that abuts Commonwealth at Goode Street and leads into Downtown Bristol.

Closing Streets – Creating Places

The City could evaluate closing Carter Family Way and/or Stoneman Family Drive. Both are short segments and only connect Goode Street to State Street. There is greater functionality and circulation for motorists at both Commonwealth and Piedmont, and no buildings have their front facades on these short-sided blocks. Both King and James offer the potential to create outdoor plazas and dining areas that would be memorable parts of the Downtown experience. The streets feature a sense of enclosure from the adjacent historic buildings and could be designed with lighting, public art, and other treatments like knee-walls to frame the public space.

TriSummit Bank & WCYB Parking Lot

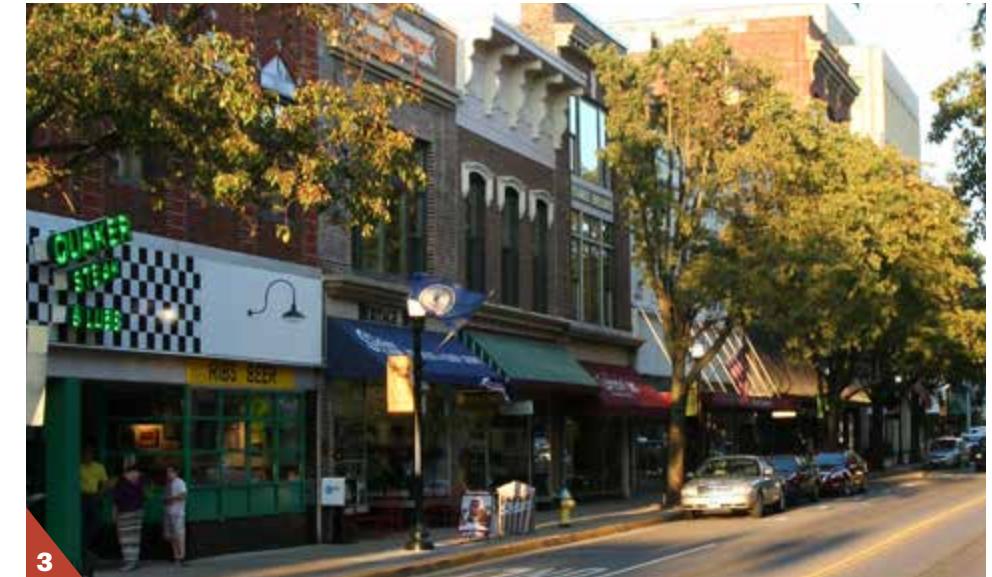
The large parking lot that serves both TriSummit Bank and the WCYB building is more typical of a large suburban shopping center. It abuts three major roadways in Cumberland, Martin Luther King, Jr., and State, and acts as the edge of the State Street corridor. The parking lot transitions into the railroad corridor and degrades the pedestrian environment, limiting connectivity to any neighborhoods to the east. Ultimately the parking lot's functionality is important and serves a role to signify the transition out of Downtown; however, the lot could be improved by the addition of more landscaped islands, better lighting, and vegetated screening and buffering around the lot's perimeter.



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Downtown Gateways

Downtown Bristol is marked by the iconic "Good Place to Live" monument sign as visitors travel in from the east on State Street, but there is no gateway signage entering from the west. On the Tennessee side, there is a large guitar sign that offers a form of a gateway to the area. The City should consider working with Capital Bank to add a complementary piece, such as a banjo, on the Virginia side as part of a larger gateway treatment into Downtown.

One Market, One Trade Area: Working Across Borders

Despite the unique governmental jurisdictional differences in the area, ultimately Downtown Bristol is one market and one trade area to both business owners and consumers alike. The community has worked hard for generations to promote and develop Downtown as such, spanning anywhere from aligning the names of the two municipalities to the work of Believe in Bristol. The community should continue to approach downtown economic development activities and any related marketing and branding work as a coordinated, collaborative effort that recognizes the functionality of the area as one Downtown district.

Pursuing a Parking Garage

Downtown Bristol, on both the Virginia and Tennessee sides, features a large amount of surface parking lots. Although there are locations where parking can be competitive, in general, it appears there is sufficient parking for regular usage. Even in the case of some special events, the Downtown area has managed parking demand relatively well. However, recent discussions about the introduction of a parking garage should continue. As Downtown Bristol continues to develop and experience infill projects, it is important to produce additional parking. As a result, in the future there will likely be sufficient demand to warrant a parking structure near State Street.

1 Outdoor Dining

Downtown Bristol does not feature a lot of sidewalk or outdoor dining opportunities. This experience has increased in popularity in recent years across the U.S. and Downtown provides the ideal setting for such restaurant concepts. Quaker Steak & Lube has been successful with their patio, and other locations such as a closed King and/or James Streets could provide similar space. Bristol's sidewalks do not tend to provide adequate space to accommodate large sidewalk cafes, however, there may be locations where some tables could be placed outdoors. Further, there may be opportunities long-term to reduce one parking spot at the intersections and install a bump-out that could accommodate more outdoor dining. The City could evaluate such strategies as part of transportation planning on State Street and look for zoning code opportunities to promote outdoor dining.

2 Improving Crosswalks

State Street features some of the best crosswalks in the Bristol community. Virtually all are striped and some feature differentiated pavement and signage, including midblock crosswalks. Although improving the crosswalk infrastructure is less of a priority on State Street, there are certain intersections that would benefit from better quality crossings. The primary crosswalk on State is at Lee Street, which is not striped and crosses a wide cross-section. Pedestrian refuge islands could be added at Martin Luther King, Jr. Boulevard and State Street, which is a very wide intersection of two arterials. However, the area needing attention is the transition from the alleys behind State Street as pedestrians head towards Cumberland Square. Crossings at King Street and Lee Street by the library have no markings or signals, and the intersection of Piedmont Avenue and Goode Street is challenging. These areas should be engineered to improve pedestrian connectivity from State Street to destinations north.

Parking Lot Screening

Generally, the rear parking lots behind buildings on State Street are older and feature edge-to-edge asphalt. There is almost no landscaping or screening, and some parcels feature chain link fence. The City should examine its parking lot landscaping and screening regulations for these properties as well as consider a grant and/or financial incentive program to improve the appearance, lighting, and screening of these rear parking lots. Although they do not detract from the experience on State Street, as Bristol works to expand the "downtown experience" transitioning north-and-south, it will be increasingly important to provide high-quality downtown parking areas.

3 Historic Preservation & Built Form

A critical part of Downtown Bristol's appeal is its historic character. Moving forward, it is critical that any infill construction or redevelopment work on State Street respect the community's support for historic preservation and the historic built form of Downtown Bristol. As part of this approach the City should evaluate adopting a historic zoning overlay district, particularly to manage the form and streetwall found along State Street. Further, the City should consider a form-based code to regulate infill construction, utilizing tools such as build-to lines.



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Source: Jennifer Catherine Photography

Façade Improvements

Although Downtown Bristol features a number of well-preserved historic facades, some have been modernized at various points in time and have been degraded. The City offers a façade improvement grant program and there have been successful projects stimulated from this funding source. The City should leverage detailed urban design standards that emphasize the historic character and quality of State Street, prioritizing the original designs of existing, historic buildings as much as possible.

Upstairs Downtown

Downtown Bristol currently features some residential units in the upper floors of buildings on State Street. The City should work with Believe in Bristol and downtown property owners to identify strategies to create a formal marketing campaign to promote living Downtown in loft residential units. In some communities this approach has been called "Upstairs Downtown." The City could consider incentives targeted to the conversion of office and/or vacant upstairs space into contemporary, market-rate residential units as part of this effort.

4 Maintaining the Streetscape

State Street features a high-quality, attractive streetscape, including street furniture, trash cans, decorative lighting, banners, and landscaping. Additional street trees could be installed east of TriSummit Bank where the pedestrian environment deteriorates, but otherwise the strategy is to ensure the adequate budgeting and funding for the ongoing and continuous maintenance of the State Street urban design. The City is already planning on replacing the existing street trees.

Some communities receive initial grants to design and install streetscaping infrastructure and then allow it to deteriorate, or replace components with inconsistent materials of lesser quality, which detract from the objective of a streetscaping plan. Downtown Bristol needs to ensure it does not happen in its community.

The Cameo Theatre

The Cameo Theatre was built in 1925 and is one of the oldest such facilities in Virginia. It is a major historical landmark on State Street and carries the potential to be a visitor destination and activity generator, particularly for the stretch of Downtown located west of Piedmont Avenue. The Board of Directors of WHCB 91.5 "The Blessing" have recently placed the vacant structure for sale. The City should organize an exploratory committee to identify potential development groups with experience renovating and revitalizing historic theaters. As part of this assessment, the City could consider potential incentive packages to redevelop the site and bring both film and live events back to the Cameo.

Addressing Vacancy

Although Downtown Bristol is a successful central business district that features many best practices, it also suffers from vacancy. This is particularly true of the blocks located west of Piedmont Avenue. Many of the first-floor storefronts are vacant, but even more upper stories are unused as well. The City, Believe in Bristol, and other organizations have made strategic efforts and designed programs and incentives around stimulating new investment. While there have been recent success stories, before there is too much emphasis on new infill construction, a retention and expansion program needs to ensure the continued stability of existing businesses on State Street.

A targeted developer recruitment strategy needs to be identified. The City should conduct a building-by-building assessment of properties with chronic vacancy, engage the property owners, and assemble a list of competitive disadvantages. Further, the City may want to examine permitted uses in Downtown zoning, and consider allowing first-floor uses west of Piedmont Avenue for residential where there is demonstrated demand, even if they are not retail and restaurant uses.

6 Activate the Alley

Winstons Alley has the opportunity to become an interesting, intimate passageway just off of Main Street. Improvements could include brick pavers, public art, and lights strung up between buildings. While the alley would remain open to vehicles, it should be a more pedestrian oriented passageway. The hosting of events such as "Activate the Alley" or "Winstons Alley Fest" could draw activity into the space.

City of Bristol, VA

Downtown Subarea: Cumberland Square

KEY

Cumberland Square Park & Its Parking Lot.

Cumberland Square Park is one of Downtown Bristol's primary assets and the City should maintain its quality and appeal.

The Node at Moore & Cumberland.

This intersection should be a priority for the City to promote infill redevelopment to both contribute to a Moore Street streetwall as well as to provide an urban experience at the entrance to this major visitor destination.

The Node at Piedmont & Cumberland.

The City should prioritize this remaining corner for infill development, thus completing an urban form through this section of Piedmont Avenue. Infill construction could be only 1-story in height, but should relate to future development to the east on Moore Street, including coordinating parking management in a shared-use, rear-access alley.

Improving the Birthplace of Country Music Way Open Space.

There is currently a short stretch of pavement that cuts diagonally from Cumberland Street to Lee Street – this is known as the Birthplace of Country Music Way. The City could consider closing this section of pavement to auto traffic and integrating the existing buildings into the triangular open space located to the north.

Redeveloping the Executive Plaza Building & its Alley.

The City needs to ensure this building is redeveloped as a catalyst project with a use that adds life and activity to the area. The park, triangular open space, and proximity to the museum all position this area as an appealing location for a hotel property, housing, or Class A office space. The alley should be redeveloped as a quaint outdoor recreation area, such as for dining or event space.

Crosswalk Improvements.

The City needs to invest in elevating the pedestrian experience to help transition the multi-modal function of Downtown Bristol as it travels north from State.

Potential Trailhead Property.

The Scott Street corridor anticipates extending the Beaver Creek greenway and bicycle trail west, crossing Piedmont Avenue. A potential alignment to travel to Commonwealth Avenue is along Sycamore Street. Within this design approach, the City could evaluate acquiring and using the linear gravel parking lot and 1-story buildings as a trailhead property.

Parking Lot Screening.

The Cumberland Square district features a considerable number of surface parking lots. Many of these lots feature no landscaping or screening and lighting is often only provided by a single cobra head or utility pole. The City should work to ensure zoning codes and development regulations require high-quality parking lot screening as part of redevelopment activities, and approach current private property owners about making investments to elevate the quality of surface lots in the district in the near-term.

The Public Safety Super Block.

The eastern edge of the Cumberland Square district is largely formed by the super block that contains Bristol, Virginia's public safety and many court and correction functions. The site features a number of built forms and designs that are required for security purposes and general functionality.

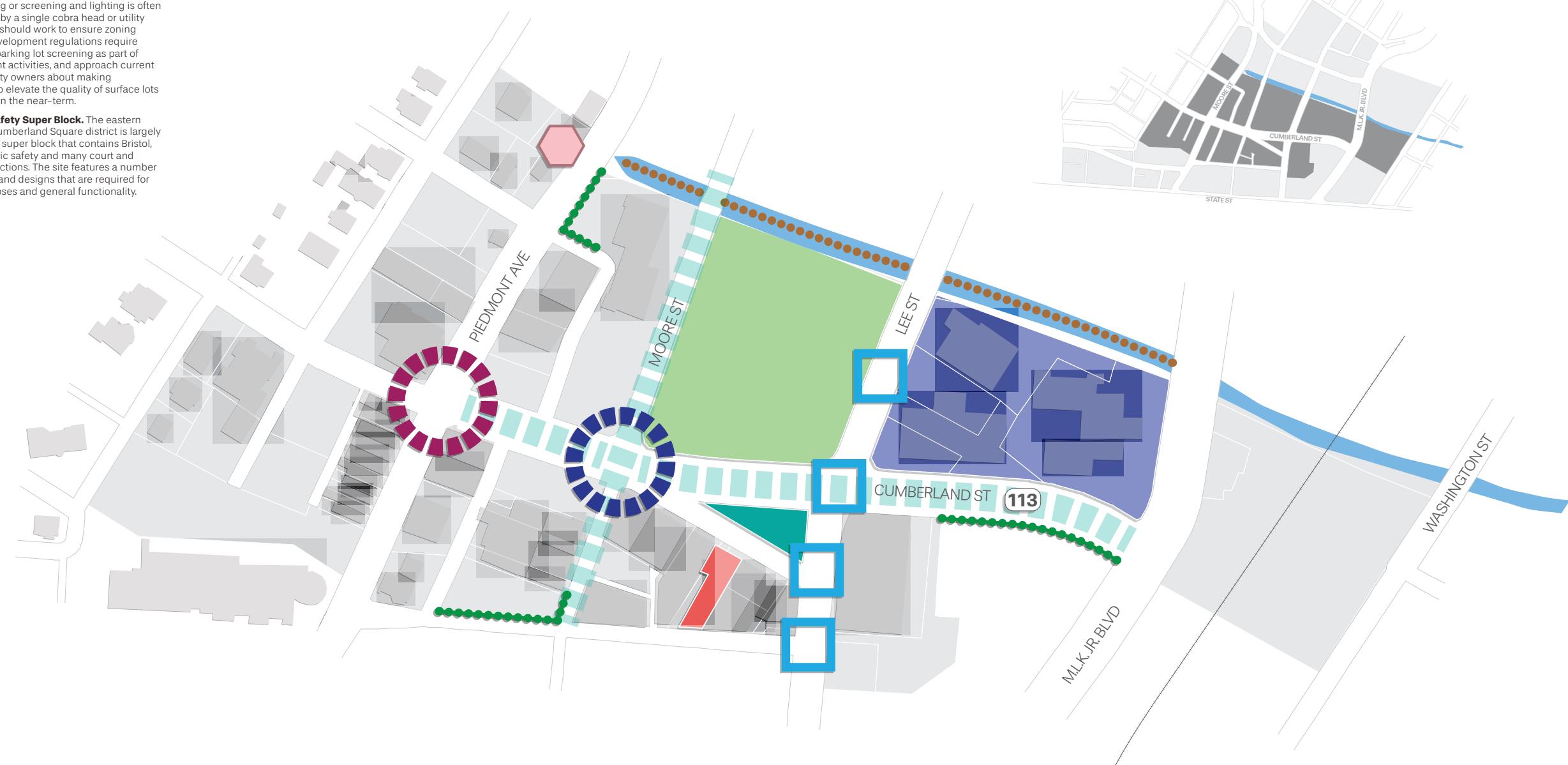
Streetscaping Improvements.

Cumberland Street does feature some stretches of landscaped medians, but does not have a contemporary streetscape typical of downtown neighborhoods. The only lighting is on the north side of the street and is older cobra head style standards used on arterial highways.

Moore Street recently had its sidewalks upgraded but there is no streetscape infrastructure within this corridor. The City should include streetscaping elements in both corridors, including expanding the landscaped boulevard treatment on Cumberland Street. The intersection of these two streets should be prominent and function as the anchoring node for the Cumberland Square district.

Engaging Beaver Creek.

Beaver Creek and the adjacent greenway really mark the transition from Cumberland Square into the Scott Street district. However, the waterway does act as the northern edge of the area and integrates with the park. As noted in the Scott Street district section of this Subarea Plan, the waterway and greenway should be an inviting pedestrian experience and a prominent urban design feature that defines these two districts of Downtown Bristol while also stitching them together.





The Vision

Cumberland Square will serve as the heart of Bristol's urban experience for locals, providing housing, lower density neighborhood retail and services, as well as open space, public plazas, and access to trail networks. This complete neighborhood will be quieter, lower density, and more "neighborhood" in character than State Street, which will function as the entry point for visitors and tourists. The center of life in the district will be an expanded Cumberland Square Park, only two blocks from both City Hall and State Street. The district will build on its existing local, small businesses while integrating new, contemporary housing products to increase overall Downtown population. Further, it will be a fully integrated part of the pedestrian network, which easy, attractive, and safe paths between the district and Downtown destinations both north and south.

Cumberland Square Park & its Parking Lot

The central feature to this district is the park, with public art, sculpture, plazas, grassy lawns, memorials, and outdoor performance space. Cumberland Square Park is one of Downtown Bristol's primary assets and the City should maintain its quality and appeal. The block also includes a surface parking lot, on its western edge abutting Moore Street. The City should evaluate the feasibility of removing this parking lot if parking capacity can be provided elsewhere. This may include flexible and shared use within Downtown, as well as through new parking provided by future development and/or the potential construction of a new parking structure nearby. The City could then use this area as an expansion of Cumberland Square Park, including creating a gateway entrance at the northeastern corner of Moore and Cumberland Street. A masonry plaza featuring a knee-wall would help "hold the corner" and mirror the street wall on adjacent corners.

The Node at Moore & Cumberland

There is an existing node at this intersection anchored by the Birthplace of Country Music Museum. The other three corners are currently surface parking. This intersection should be a priority for the City to promote infill redevelopment to both contribute to a Moore Street streetwall as well as to provide an urban experience at the entrance to this major visitor destination. The expanded park's presence at the northeastern corner of the intersection will integrate the built-form into this landmark open space, transitioning the Downtown neighborhood character from State Street into the park. Future infill construction could be only 1-story in height, or it could be a multi-story, mixed-use development.

Additionally, the expansion of the Birthplace of Country Music Museum into the neighboring Bingo Building (which the museum currently owns) should be supported.

The Node at Piedmont & Cumberland

There is another existing node at the intersection of Piedmont Avenue and Cumberland Street, anchored by the old post office, the building that contains Blackbird Bakery, and a historic one-story structure on the southeast corner. The remaining northeastern corner is currently surface parking. The City should prioritize this remaining corner for infill development, thus completing an urban form through this section of Piedmont Avenue. Infill construction could be only 1-story in height, but should relate to future development to the east on Moore Street, including coordinating parking management in a shared-use, rear-access alley.

Improving the Birthplace of Country Music Way Open Space

There is currently a short stretch of pavement that cuts diagonally from Cumberland Street to Lee Street – this is known as the Birthplace of Country Music Way. The City could consider closing this section of pavement to auto traffic and integrating the existing buildings into the triangular open space located to the north. This greenspace should be improved to function as an outdoor plaza, transitioning from the museum and existing building stock into Cumberland Square Park.

This plaza should include outdoor seating, public art, and perhaps a contemporary water feature. With existing features such as the very tall Executive Plaza Building and the vintage Coca Cola mural defining the area today, the area has the potential to be a signature landmark destination in Downtown Bristol and reinforce Cumberland Square as the central node of the district north of State Street.



1 Redeveloping the Executive Plaza Building & its Alley

The Executive Plaza Building is one of the most critical existing properties in Downtown Bristol. At 7 stories it towers over the Cumberland Square district and provides the visual landmark that defines the neighborhood. Unfortunately it is currently vacant, although there are plans to renovate the building and open a boutique hotel. Further, there is a small alley to its immediate west that provides some limited circulation and access.

The City needs to ensure this building is redeveloped as a catalyst project with a use that adds life and activity to the area. The park, triangular open space, and proximity to the museum all position this area as an appealing location for a hotel property, housing, or Class A office space. The alley should be redeveloped as a quaint outdoor recreation area, such as for dining or event space.



2 Potential Trailhead Property

The Scott Street corridor anticipates extending the Beaver Creek greenway and bicycle trail west, crossing Piedmont Avenue. A potential alignment to travel to Commonwealth Avenue is along Sycamore Street. Within this design approach, the City could evaluate acquiring and using the linear gravel parking lot and 1-story buildings as a trailhead property. The structures could hold government offices and/or provide amenities to cyclists, while the properties themselves could offer bicycle parking and maintenance equipment that would serve the Downtown neighborhood, in what is sometimes known as a "bike station" format.



Crosswalk Improvements

There are sidewalks present throughout virtually every block in the Cumberland Square district, however, the pedestrian environment is generally a lower quality than found on State Street. The City needs to invest in elevating the pedestrian experience to help transition the multi-modal function of Downtown Bristol as it travels north from State. Adequate crosswalks are a particular challenge in the Cumberland Square district, and many are not striped, mark, offer push-buttons, or have any signage for motorists. Crosswalk improvements need to be made at major intersections as well as existing mid-block crosswalks.

Parking Lot Screening

The Cumberland Square district features a considerable number of surface parking lots. Many of these lots feature no landscaping or screening and lighting is often only provided by a single cobra head or utility pole. The City should work to ensure zoning codes and development regulations require high-quality parking lot screening as part of redevelopment activities, and approach current private property owners about making investments to elevate the quality of surface lots in the district in the near-term.

The Public Safety Super Block

The eastern edge of the Cumberland Square district is largely formed by the super block that contains Bristol, Virginia's public safety and many court and correction functions. The site features a number of built forms and designs that are required for security purposes and general functionality. There are no plans to relocate or substantially redevelop this block. The block does feature a midblock crosswalk and a public plaza at the corner of Lee and Cumberland Street. The building relates to the corner and contributes to the overall character of Cumberland Square.

Streetscaping Improvements

Cumberland Street does feature some stretches of landscaped medians, but does not have a contemporary streetscape typical of downtown neighborhoods. The only lighting is on the north side of the street and is older cobra head style standards used on arterial highways. Moore Street recently had its sidewalks upgraded but there is no streetscape infrastructure within this corridor. The City should include streetscaping elements in both corridors, including expanding the landscaped boulevard treatment on Cumberland Street. The intersection of these two streets should be prominent and function as the anchoring node for the Cumberland Square district.

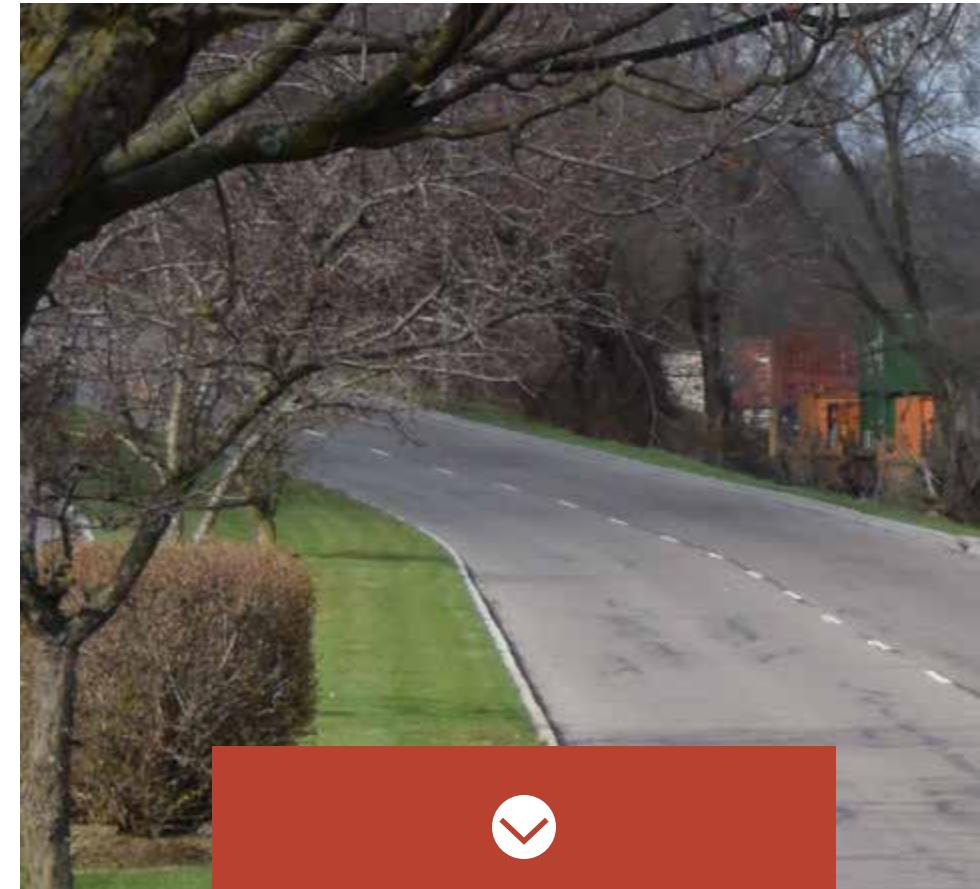
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Beaver Creek and the adjacent greenway really mark the transition from Cumberland Square into the Scott Street district. However, the waterway does act as the northern edge of the area and integrates with the park. As noted in the Scott Street district section of this Subarea Plan, the waterway and greenway should be an inviting pedestrian experience and a prominent urban design feature that defines these two districts of Downtown Bristol while also stitching them together.



TRANSPORTATION & MOBILITY PLAN

Bristol contains a robust transportation network of roadways and public transit, but lacks many pedestrian infrastructure outside of the city's core. Safe and efficient access and mobility are critical in supporting land use and development, economic development, and quality of life. This chapter of the Comprehensive Plan presents recommendations intended to guide investment in a well-balanced, multi-modal transportation system that accommodates both the automobile as well as the walker, jogger, and cyclist.



The Transportation & Mobility Plan is organized into six sections.

General Trends Affecting Transportation & Mobility

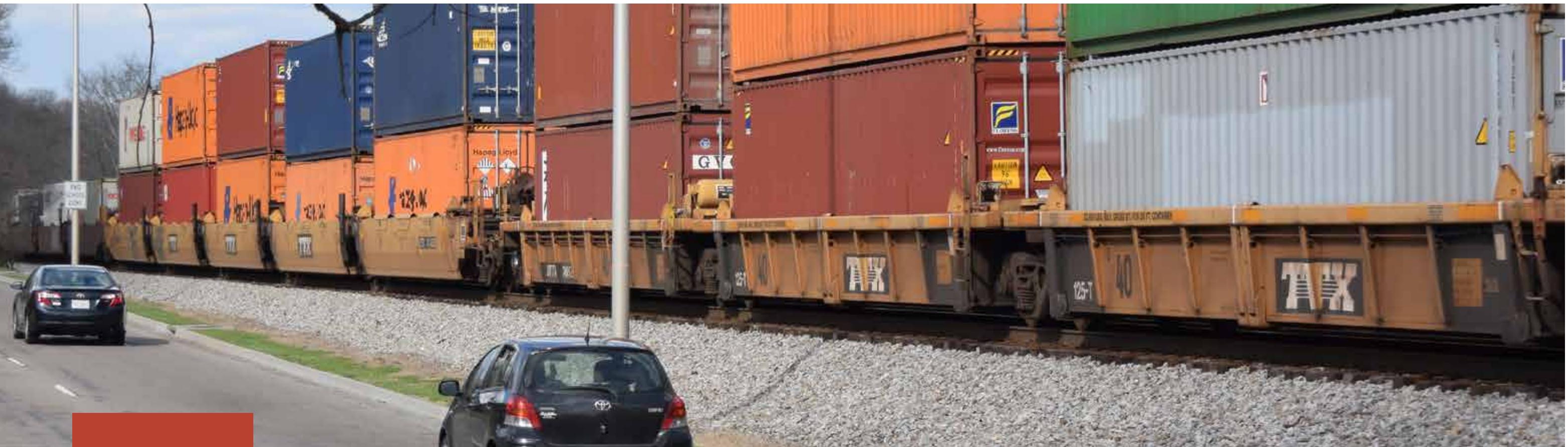
Motorized Mobility

Air

Public Transit

Freight & Passenger Rail

Bike & Pedestrian Connectivity



2035 Goal

In 2035, Bristol will have a safe, efficient, and economically competitive transportation network, with an intermodal system of roads, rail, trails, and paths that serve all residents and businesses.

Priority Objectives

Objective #1

Road Safety & Efficiency.

Ensure the safe and efficient navigation of the City's road network for all users.

- **1A.** Plan and work cooperatively with the Commonwealth of Virginia, Washington County, Bristol, TN, and Bristol MPO on improvements to Bristol's roadways, balancing regional priorities with local objectives.
- **1B.** Continue to identify and support roadway projects that enhance local circulation.
- **1C.** Identify and improve problematic intersections through realignment, enhanced signalization, and signage.
- **1D.** Budget for on-going maintenance and repairs of City owned streets and bridges as part of a Capital Improvement Plan.
- **1E.** Work with both state and local partners to improve directional and wayfinding signage to highways, interstates, and key destinations.
- **1F.** Designate, and reinforce with appropriate infrastructure, Martin Luther King, Jr. Boulevard as the connecting link to Downtown from Lee Highway and The Falls.
- **1G.** Upgrade Lee Highway with additional road infrastructure to provide additional traffic capacity associated with The Falls and adjacent redevelopment areas.
- **1H.** Continue to monitor and reduce traffic congestion along roadways identified as likely to experience high levels of congestion (LOS E and F) by 2035.
- **1I.** Identify and implement Intelligent Transportation Systems (ITS) improvements recommended in the 2008 Bristol Regional ITS Architecture and Deployment Plan.
- **1J.** Work with business owners along commercial corridors to reduce the number of curb cuts and improve cross-access.
- **1K.** Improve the ease and friendliness of parking within Downtown Bristol.

Objective #2

Public Transportation

Provide safe and reliable fixed-route and demand responsive transit services that meets the transportation needs of Bristol, Virginia residents. (*Note: some recommendations originate from the City's Transit Development Plan).

- **2A.** Implement the recommendations within the City's Transit Development Plan.
- **2B.** Ensure that transit stops are well-served by pedestrian infrastructure, including crosswalks, sidewalks, benches, and shelters, when warranted.
- **2C.** Continue to update transit routes with significant alterations in land use and provide service to any major new developments or redevelopments.
- **2D.** Provide transit service connections between residential areas and commercial areas with jobs, education, shopping and medical services.
- **2E.** Provide easily identifiable stop locations along routes and passenger shelters when warranted.
- **2F.** Actively market transit services as a travel option within the City of Bristol, VA.
- **2G.** Explore potential demand for expanding transit service to other cities in the region.
- **2H.** Maintain a systemwide fare box recovery ratio that meets or exceeds standards identified in the Transit Development Plan.
- **2I.** Achieve systemwide fixed-route ridership levels that meet or exceed standards identified in the Transit Development Plan.
- **2J.** Ensure that transit service operators maintain an accident rate of less than the standard identified in the Transit Development Plan.
- **2K.** Ensure that an adequate fleet of vehicles is maintained for the fixed-route and demand-responsive services.
- **2L.** Identify the need for replacement vehicles based on industry standards for defined useful life of vehicles.
- **2M.** Provide transit services that are accessible to all population groups within the City of Bristol, Virginia.

Objective #3

Rail

Support and enhance the City's rail network.

- **3A.** Proactively lobby for extension of Amtrak passenger rail service to Bristol.
- **3B.** Support the provision of adequate and necessary railroads and railroad infrastructure to support and attract industrial businesses to the City.
- **3C.** Continue to work with Norfolk Southern and VDOT to ensure rail crossings are safe, properly maintained, or improved whenever necessary.
- **3D.** Establish a long-term connectivity program that identifies needed sidewalks and trails, and prioritizes projects based on prospective impacts such as safety, ease of completion, cost, and benefit to residents.
- **3E.** Establish dedicated pedestrian routes between park facilities, neighborhoods, and important destinations that are marked with wayfinding signage and improved pedestrian crossings.
- **3F.** Minimize the impact of physical barriers, such as Beaver Creek, railroad tracks, Interstate 81, and other high traffic roadways, through dedicated pathways, trails, intersection crossings, and larger projects such as pedestrian bridges or tunnels.
- **4B.** Develop a continuous trail, sidewalk, and/or path network between Downtown and Sugar Hollow Park along or near Beaver Creek.
- **4C.** Establish a long-term connectivity program that identifies needed sidewalks and trails, and prioritizes projects based on prospective impacts such as safety, ease of completion, cost, and benefit to residents.
- **4D.** Establish dedicated pedestrian routes between park facilities, neighborhoods, and important destinations that are marked with wayfinding signage and improved pedestrian crossings.
- **4E.** Utilize existing waterways or open space corridors to establish dedicated greenways connected with recreational trails.
- **4F.** Require sidewalks in all new developments along key corridors,

Actions & Supporting Information

General Trends Affecting Transportation & Mobility

The utilization of Bristol's transportation network is shaped by a variety of factors, including the local and regional population, employment levels, tourism, and interstate traffic. Some of the key trends that shape the recommendations within this chapter include:

- **Bristol, Virginia's population is expected to remain relatively stable over the next decade.** ESRI Business Analyst predicts a slight population decline in the coming years (~0.2% annually) while the Bristol MPO's Long Range Transportation Plan and University of Virginia's Weldon Cooper Center both predict very slight growth (+0.1% and +0.5% annually, respectively).

- **The Tri Cities regional population is also expected to remain relatively stable over the next decade.** The Bristol MPO's Long Range Transportation Plan estimates very slight growth for the region (+0.2% annually), with an increase of only 5,049 between 2010 and 2035.

- **Bristol, Virginia's employment levels have declined.** Since 2008, the number of total primary jobs in the city has declined relatively steadily from 15,081 to 11,165. The Bristol MPO's Long Range Transportation Plan predicted an increase in local employment (18,359 by 2035), however, those calculations were predicated on pre-recession conditions. While the local economy is expected to rebound, the industry composition of jobs will continue to shift and the city may not reach pre-recession employment levels over the next decade. Virginia estimates that the New River/Mt. Rogers Workforce Investment Area (which includes Bristol, VA) will see a growth in total employment from 144,876 to 159,594 between 2012 and 2022. Applying Bristol's share of total regional employment (8.0%) in 2012 to 2022, the city could gain 1,179 jobs, which still is below pre-recession levels.

- **The regional economy is growing slowly.** Bristol's local economy is a component of a broader regional economy (Kingsport-Bristol-Bristol, TN-VA metropolitan area). Between 2013 and 2016, the U.S. Conference of Mayors estimates that the region's gross metropolitan product will increase from \$11.1 billion to \$12.1 billion. By 2021, it is estimated that the region's gross metropolitan product will grow to \$14.8 billion, with an average annual growth rate of 3.9%. However, increases in worker productivity and other factors may mean that this does not directly translate into significant employment growth for Bristol, Virginia, with only 15,000 jobs expected to be added to the entire New River/Mt. Rogers Workforce Investment Area by 2022.

- **The automobile is overwhelmingly the preferred mode of transportation within Bristol, Virginia.** According to the U.S. Census Bureau's American Community Survey, 89.9% of residents use the automobile to commute to work, with an average travel time of 17.5 minutes each way.
- **A spatial mismatch exists – workers do not live in the communities in which they work.** Most jobs within Bristol are held by individuals outside of the City. Equally, most Bristol residents travel to other locations for work. This dynamic is relatively typical across the nation, but can lead to roadway congestion as distance often translates into automobile utilization. This can be helped by increased Transportation Demand Management (TDM) efforts such as vanpooling.

- **Recreational and shopping tourism is expected to increase.** With a resurgence of Downtown Bristol, the opening of the Birthplace of Country Music Museum, heightened marketing, and the continued development of The Falls, the number of visitors to Bristol is expected to increase. For example, the City estimates that The Falls will draw approximately 2 million annual visitors.
- **Little pedestrian transportation infrastructure exists outside of the city core.** Trails, sidewalks, and paths are vital components of any community, utilized both by residents, employees, and visitors. Throughout the outreach process, residents expressed a desire for better ways to get around the community on foot and on bike.

With these factors in mind, it is expected that over the lifespan of the Comprehensive Plan:

- Surges in local/regional population and employment levels are not expected. Increases in demand on the city's transportation infrastructure will likely be a result of tourism and interstate traffic.
- The City's existing road and rail network is built out, and routine maintenance is the policy directive. However, major road improvements should occur along the Lee Highway area, between Exits 5 and 7, to accommodate the influx in traffic that is likely to occur associated with The Falls development and spin-off projects along Lee Highway.
- Pedestrian infrastructure – both for functional mobility as well as recreational purposes – is needed outside of the core of the community, particularly in growing commercial areas such as The Falls area. While sidewalks may not be feasible or even desirable in all locations, trail connections can help connect different neighborhoods and commercial areas, as well reduce commute times if cycling or walking to work becomes feasible.
- The expansion of passenger rail to Bristol will increase its attractiveness as a business and tourist destination.

City of Bristol, VA Motorized Transportation Plan

ROAD CLASSIFICATIONS

Interstates are high-speed roadways that provide a high level of mobility but no land access. I-81 and I-381 are examples. Bristol, VA has four exits: 1, 3, 5, and 7.

Principal Arterials are busy roadways that link interstates with less busy roads and serve as the main spine(s) of the community. Lee Highway and Gate City Highway are examples.

Minor Arterials support principal arterials and often intersect with them. An example is King Mill Pike or Old Airport Road.

Collectors provide access to both arterials and neighborhoods, parks, schools, and small commercial areas. They balance land access with mobility and collect traffic and disburse it onto the busier traffic grid.

Locals are the most common road classification in Bristol. They are mostly residential roadways and provide direct access to homes through driveways and curb cuts.

EMPLOYMENT DENSITY

- 249 or fewer jobs per sq. mile
- 250 - 983 jobs per sq. mile
- 984 - 2,206 jobs per sq. mile
- 2,207 - 3,919 jobs per sq. mile
- 3,920 or greater jobs per sq. mile

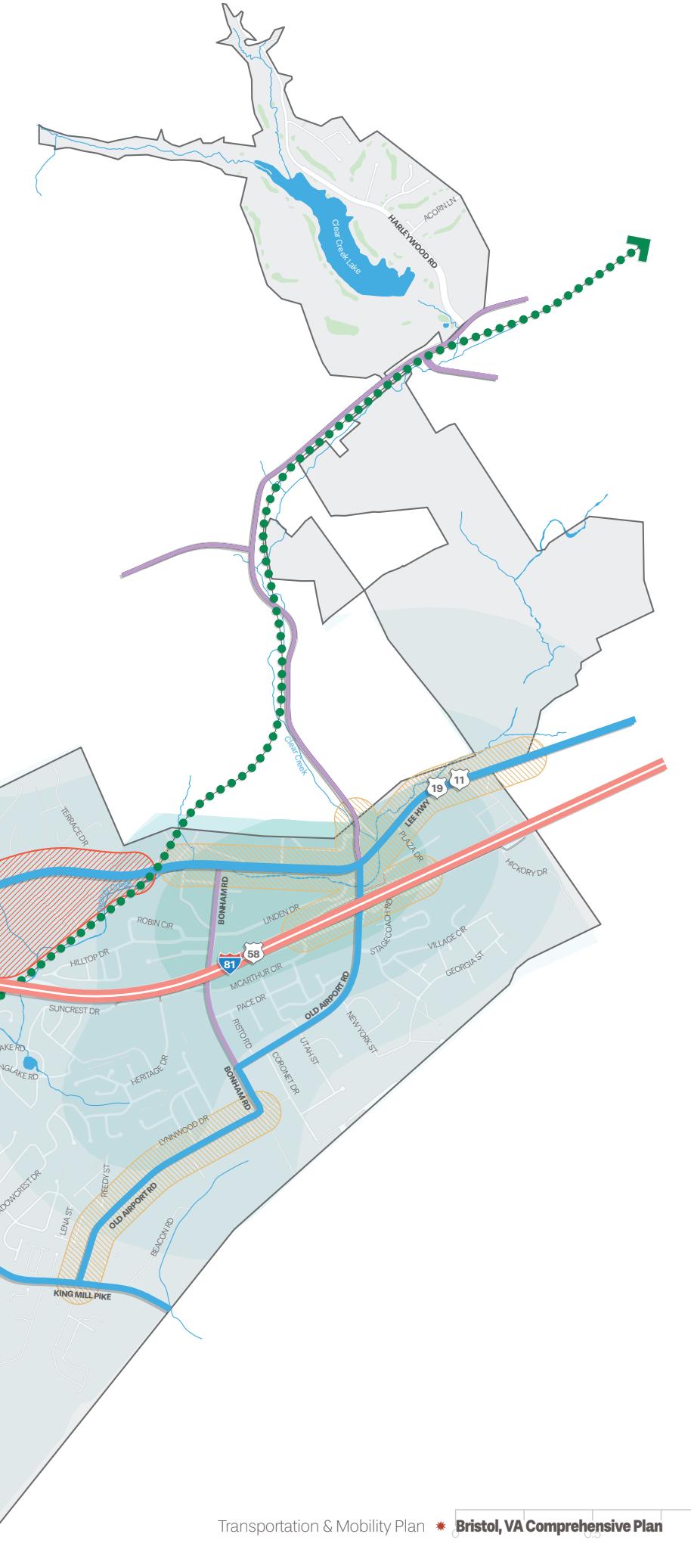
OTHERS

Congestion Mitigation Areas are stretches of roadway likely to experience high congestion during peak periods by 2035. A variety of strategies, ranging from implementation of Intelligent Transportation Systems (ITS) to better roadway design, can help mitigate congestion moving forward.

Downtown-The Falls Connector would establish a clear route or routes between Downtown and The Falls, two of the community's largest activity generators. The City should designate, and reinforce with appropriate marketing and infrastructure (e.g. signage, streetscaping, etc.) Martin Luther King, Jr. Boulevard as the connecting link to Downtown from Lee Highway and The Falls.

Amtrak Passenger Rail Service would be economically beneficial to Bristol, connecting the community to a variety of other destinations across the region. The City should continue to actively work with Commonwealth officials, including VDOT, to extend the line and provide passenger rail service to the community.

Lee Highway Expansion Area will require that transportation infrastructure continue to be upgraded to meet traffic capacity as well as ensure safe and efficient movement. A critical component of such programming is the need to widen Lee Highway between Blevins Boulevard/Cabela Drive eastward to Travalite Drive/Alexis Drive as well as install additional traffic lights. The area includes streets in The Falls development.





Motorized Mobility

Road Classifications

Bristol's roads are classified into different categories by the Virginia's Department of Transportation (VDOT) based on the level of service and access they provide. These classifications, depicted and explained on the accompanying map, assist planners and government officials in understanding the role and responsibility of different roadways, as well as what levels of investment are required.

One classification that may warrant a change is along Lee Highway (US Route 11 & 19) between Exits 5 and 7. It is currently designated as a Minor Arterial. Given the increased traffic expected, as well as planned road widenings and additional signing, that segment of roadway needs to be upgraded to a Principal Arterial.

Interjurisdictional Cooperation

Jurisdiction over Bristol's roads are split between the City of Bristol and VDOT. I-81 and I-381 are maintained by VDOT, while all other roads are maintained by the City. City streets that are also state and federal routes (e.g. US Route 11, US Route 19, US Route 421, and State Route 113) are regulated by the State but the City is responsible for day-to-day operation. Road improvements on these roads can be either self-administered by the City or administered by VDOT.

It is important the City plans and works cooperatively with the Commonwealth of Virginia and other partners on improvements to Bristol's roadways, balancing regional priorities with local objectives.

Roadway Jurisdiction

- State
- City with State Oversight
- City of Bristol



Congestion Mitigation

Based on traffic counts, I-81 is the busiest road within Bristol (53,000 vehicles daily), followed by Commonwealth Avenue (18,000), Lee Highway (17,000), State Street (14,000), and Euclid Avenue (12,000).

Road congestion is expected to stay relatively minimal based on traffic forecasting conducted by the Bristol Metropolitan Planning Organization (MPO), outside of additional traffic generated by "The Falls" development and any other new projects. The MPO identified several stretches of roadway within Bristol expected to experience moderate to high levels of congestion by 2035 (LOS E and F), and they are designated on the accompanying map as "congestion mitigation areas."

On the whole, however, the vast majority of Bristol's road segments were expected to experience low levels of congestion. The City should continue to monitor reduce traffic congestion along roadways identified as likely to experience high levels of congestion (LOS E and F) by 2035, and when possible, implement projects and policies that reduce congestion.



Key projects that the MPO has identified as mitigating future congestion levels include widening of Bonham Road, Kings Mill Pike, and Old Airport Road; modifying the narrow railroad underpass along Old Abingdon Highway; reconfiguring lanes along West State Street. Other strategies offered include (some of which are offered in the Long Range Transportation Plan):

■ **Systems management and operations strategies.** The addition or modification of turn lanes, signals, and other infrastructure can improve traffic flow.

■ **Access points coordination and design.** The quantity and engineering of access points (ingress and egress) can inhibit traffic flow. Access points should be spaced sufficiently apart in order for traffic control devices and turn lanes to operate effectively.

■ **Incident management.** Efficiently clearing traffic incidents such as crashes and fender benders from the roadway can improve traffic flow.

■ **Walking & biking.** The increased utilization of walking, biking, and carpooling to work can reduce traffic congestion.

Additionally, Intelligent Transportation Systems (ITS) can be used to improve the efficiency of a transportation network through investments in technology rather than or in conjunction with roadway infrastructure improvements. There are several forms of ITS that could be implemented in order to provide benefits to residents, businesses, and public service providers.

■ **Synchronization.** Synchronization involves the coordination of signal phasing at multiple locations throughout a network. The intent is to allow for the "platooning" of vehicles, or the efficient movement of groups of vehicles along a corridor. Synchronization can be modified to provide priority to major arterials with higher traffic volumes, and can vary throughout the day or week to respond to peak volumes.

■ **Emergency Signal Preemption.** Signal preemption allows emergency vehicles to "trip" a signal for a green light. This allows the vehicle to safely and quickly pass through the intersection while other traffic waits. Following the preemption, the signal reverts to its programmed phasing.

■ **Transit Signal Priority.** Transit Signal Priority (TSP) provides a short extended green or shortened red as a transit vehicle approaches an intersection. It does not entirely preempt the signal phasing, but modifies to enable more efficient movement for buses. TSP improvements would require both signal upgrades and vehicle technology upgrades, and may only be applicable on primary region routes.

■ **Vehicle Detection Systems.** Vehicle detection systems trigger modified signal phasing based on the current users of the intersection. At intersections with low traffic counts, this would minimize wait time for vehicles standing when there is no cross traffic. The result is less wait time and lower exhaust emissions.

In June 2008, a multi-jurisdictional task force authored a shared Bristol Regional ITS Architecture and Deployment Plan. The City should continue to identify and implement Intelligent Transportation Systems (ITS) improvements recommended in the 2008 Bristol Regional ITS Architecture and Deployment Plan.

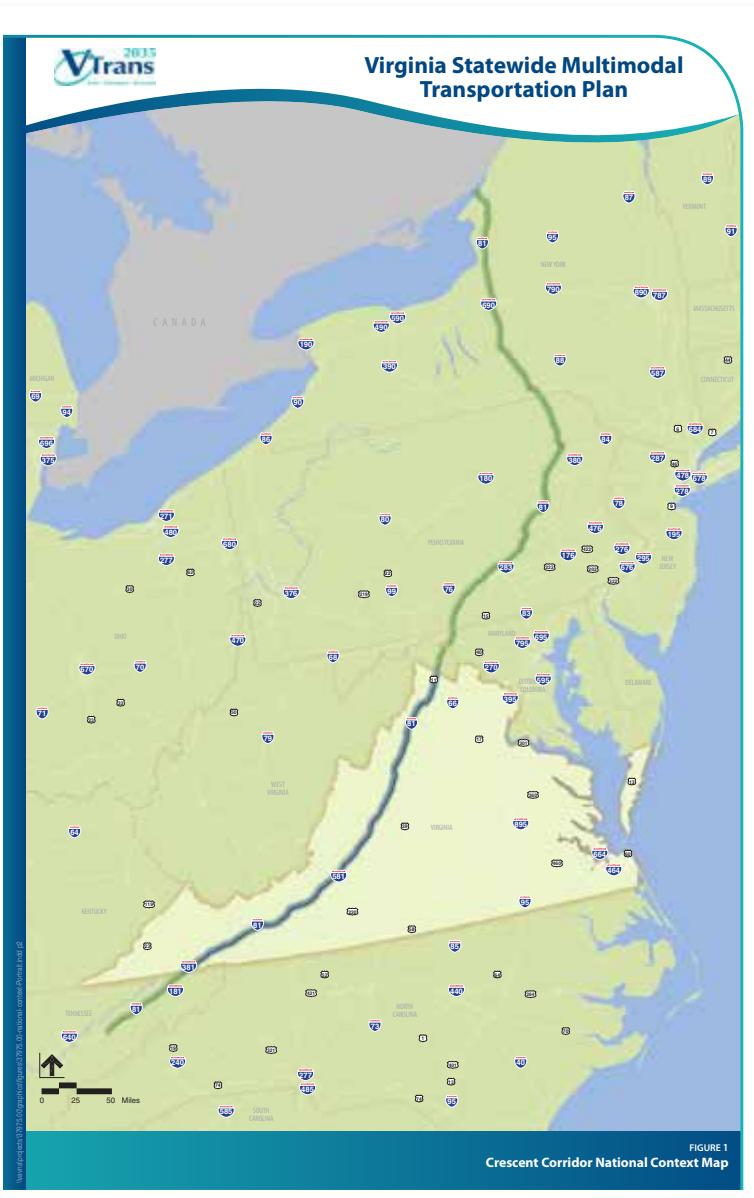
Corridors of Regional Significance: Bristol's Crescent Corridor

Several of Bristol's major roadways (I-81, I-381, and US Route 11/Lee Highway) are designated by the Commonwealth of Virginia as a part of the "Crescent Corridor" under the "Corridors of Regional Significance" program. These corridors are given elevated priority for federal and state funding as well as receiving heightened attention for planning purposes.

The Crescent Corridor is a multi-lane interstate network that stretches from Tennessee to New York, running along the Appalachian Mountains within southwest Virginia. I-81 is a major trucking and freight corridor (one of the top eight truck routes in the U.S.) both regionally and nationally. It is also an important passenger link between the urban centers of Winchester, Harrisonburg, Staunton, Roanoke, Blacksburg, and Bristol.

No existing portion of the Crescent Corridor within Bristol is deemed "over-capacity" by the Virginia Department of Transportation (VDOT). However, VDOT estimates that heightened congestion during peak usage may increase travel times along the corridor. For example, in 2035, a road trip from Bristol to Blacksburg may increase by 36% over the current timing. VDOT has issued several strategies that can help keep the Crescent Corridor competitive for personal, freight, and tourist travel, including:

- Expand freight rail service and add capacity to allow for passenger rail service;
- Support expanded freight capacity by expanding intermodal facilities;
- Increase the highway capacity of I-81 in strategic locations by improving interchanges, construction of new interchanges at strategic locations, and/or by road widening;
- Improve transit in rural areas by expanding fixed-route services and offering increased demand response services for the elderly and disabled;
- Improve air passenger service by increasing commercial air service where market forces allow; and
- Implement ITS to increase system efficiency and safety.



Highway/Interstate Directional Signage

Many federal highways and state routes converge within Bristol, including Route 11, Route 19, Route 421, and I-81. Signage for these routes, however, can be extremely confusing for motorists, often listing several different routes. The City should work with VDOT to simplify existing directional signage to ensure efficient and convenient traffic movement throughout the city.



Wayfinding Signage

Wayfinding signs effectively direct motorists, cyclists, and pedestrians to points of interest throughout a given area. The City already has some wayfinding signage within the core of the city, however, it is not of a consistent design or scheme, and appears uncoordinated as some signs only contain one destination. The City should install wayfinding signage throughout Bristol that can direct visitors to destinations such as The Falls, Downtown Bristol, Clear Creek Golf Course, Birthplace of Country Music Museum, Bristol Pirates, and more. The size and scale of the signs will vary depending on the scale of the environment and the speed of travel, with smaller pedestrian-oriented signage in Downtown and larger auto-oriented signage in corridor areas.



Downtown-The Falls Connector

The Falls and Downtown Bristol are arguably the community's two most significant destinations. However, at present there is no clearly marked route or "straight shot" between the two activity hubs. The two areas feel "disconnected" from one another when they should be mutually reinforcing.

From The Falls to Downtown, most logical connection would be Lee Highway linked to Martin Luther King, Jr. Boulevard. The City should designate, and reinforce with appropriate marketing and infrastructure (e.g. signage, streetscaping, etc.), Martin Luther King, Jr. Boulevard as the connecting link to Downtown from Lee Highway and The Falls. Efforts should be made to beautify the corridor to ensure an attractive gateway into Downtown Bristol from I-81.

Capital Projects – Roadways

Many capital projects have been identified by the Commonwealth of Virginia, Bristol Metropolitan Planning Organization (MPO), and the City of Bristol. They are detailed in the accompanying table with cost estimates provided by each aforementioned source. The City should continue to identify and support roadway projects that enhance local circulation as well as budget for on-going maintenance and repairs of City owned streets and bridges as part of a Capital Improvement Plan

Desired Roadway Capital Projects

Location	Project	Cost	Project & Cost Source
Short Range Projects			
a	Lee Highway from Alexis Drive to Old Dominion Road; Clear Creek Road at shopping center signal; Old Airport Road from Lee Highway to Interstate 81 Exit 7 interchange	\$864,000	Bristol Urban Area Long-Range Transportation Plan Year 2035
b	Lee Highway from Kerin Drive (north end of existing five-lane section) to northern corporate limits	\$11,146,000	Bristol Urban Area Long-Range Transportation Plan Year 2035
c	Bonham Road from Lee Highway to Old Airport Road, northern intersection	\$5,443,000	Bristol Urban Area Long-Range Transportation Plan Year 2035
Long Range Projects			
d	E Valley Drive from Lee Highway to Kings Mill Pike	\$8,700,000	Bristol Urban Area Long-Range Transportation Plan Year 2035
e	Kings Mill Pike from E Valley Drive to East corporate limits	\$20,229,000	Bristol Urban Area Long-Range Transportation Plan Year 2035
f	Lee Highway from Euclid Ave/Euclid Ave Ext to Overhill Road/Wendover Drive (south end of existing 5-lane section)	\$6,179,000	Bristol Urban Area Long-Range Transportation Plan Year 2035
g	Lee Highway intersection west of Old Airport Road/Clear Creek Road; Old Airport Road from Lee Highway to Exit 7 ramps (southbound); Linden Drive at Old Airport Road and at new connector to Lee Highway	\$5,720,000	Bristol Urban Area Long-Range Transportation Plan Year 2035
h	Old Abingdon Highway at railroad overpass	\$1,281,000	Bristol Urban Area Long-Range Transportation Plan Year 2035
i	Old Airport Road from Kings Mill Pike to Bonham Road, southern intersection	\$20,554,000	Bristol Urban Area Long-Range Transportation Plan Year 2035
j	Intersection of Moore Street and MLK Boulevard	\$500,000	VDOT Six-Year Improvement Program



Lee Highway – The Falls

As subsequent phasing of The Falls completes and spin-off development occurs over the next ten years, it is critical that transportation infrastructure continue to be upgraded to meet traffic capacity as well as ensure safe and efficient movement. A critical component of such programming is the need to widen Lee Highway between Blevins Boulevard/Cabela Drive eastward to Travalite Drive/Alexis Drive as well as install additional traffic lights.

Air

The City, in conjunction with Bristol, TN; Johnson City, TN; Washington County, VA; and Sullivan County, TN, jointly govern the Tri-Cities Regional Airport (TRI) located in Sullivan County, TN. It is located roughly 15 miles southwest of Bristol, VA and supports commercial, charter, and cargo flights. Carriers include Allegiant, Delta, and U.S. Airways. It is also a federal customs port, allowing an international point of entry and departure for goods and merchandise. The City should continue to support airport operations, leverage its proximity for tourism purposes, and actively market it to new industrial businesses

Public Transit

The greater Bristol area is served by the Bristol Tennessee Transit (BTT) and Bristol Virginia Transit Systems (BVT). Collectively, these two systems currently offer seven fixed-route bus lines, which operate during weekdays. All buses originate from the Downtown Transfer Center, the 800 block of State Street next to the farmers' market on the Tennessee side, as a base of arrival and departure.

As of March 2016, three of the routes provide service within Bristol, VA, covering more than 400 miles a day:

- **East Bristol/East Ridge Route**, with service to Kingtown and industrial users along Bonham Road, among others.
- **Exit 7/Wal-Mart Route**, with service to Super-WalMart and the I-81 exits 5 and 7 commercial areas, among others.

- **Mall Route**, with service to Food City and the Bristol Mall, among others.

During the Comprehensive Plan planning process, the City also developed a new Transit Development Plan (TDP). The new TDP aims to update the City's public transit and align its services with both present and future conditions, taking into account growth along the Lee Highway corridor between I-18 Exits 5 and 7. Specifically, it recommends renaming and streamlining the three existing routes to reduce the number of stops and distance traveled, as well as add an additional route that can better serve commercial areas in the north and northeastern part of the community. Both existing and proposed public transportation routes are depicted on the accompanying map. Additionally, the TDP also evaluates the addition of Saturday service, which is currently not offered.

The Comprehensive Plan fully supports the Transit Development Plan, and the City should begin to implement its recommendations. Specifically, the City should:

- Provide transit service connections between residential areas and commercial areas with jobs, education, shopping and medical services.
- Provide easily identifiable stop locations along routes and passenger shelters when warranted.
- Actively market transit services as a travel option within the City of Bristol, VA.
- Explore potential demand for expanding transit service to other cities in the region.
- Maintain a systemwide fare box recovery ratio that meets or exceeds standards identified in the Transit Development Plan.
- Achieve systemwide fixed-route ridership levels that meet or exceed standards identified in the Transit Development Plan.
- Ensure that transit service operators maintain an accident rate of less than the standard identified in the Transit Development Plan.
- Continue to update transit routes with significant alterations in land use and provide service to any major new developments or redevelopments.
- Provide transit services that are accessible to all population groups within the City of Bristol, Virginia.



Long-Term Transit Considerations

Over the long-term, possible expansion opportunities for the BVT and BTT include:

- Adding a transit stop at Sugar Hollow Park.
- Establishing inter-community service throughout the Tri Cities region.
- Developing tourism related transit shuttles between hotels near I-81 Exits 5 & 7 and Downtown Bristol, or between Bristol, VA and the Bristol Motor Speedway.

Freight & Passenger Rail

A Norfolk Southern rail line threads through the City allowing for the interstate movement of goods and raw materials. The main line enters Bristol through the northeastern part of the city from Roanoke, crossing Lee Highway, I-81, Columbia Road, Mary Street, Old Abingdon Highway, Valley Drive, and State Street. All are at separate grades from the roadway except for State Street. A branch line extends to the west and northwest, crossing several roadways at grade, including through the northern part of Downtown along Scott Street, as well as Commonwealth Ave. and Euclid Ave. Spurs provide direct access for industrial employers, although only two are in use.

While rail is a benefit to the City's economy and economic development efforts, at-grade rail crossings can impact efficient flow of traffic throughout the City and where no crossings exist, the railroads can create barriers, sectioning off areas of the City. At present, the volume of train traffic on the at-grade rail crossings (along the branch line) does not merit the significant engineering, construction, and maintenance cost of grade separation. The City should continue to monitor traffic conditions within the City should conditions change, and work with Norfolk Southern to ensure rail crossings are safe, properly maintained, or improved whenever necessary.

Amtrak Extension

Bristol is not currently serviced by passenger rail. The Commonwealth of Virginia has proposed to extend existing Amtrak service westward through Roanoke and Lynchburg to link directly to Bristol. The City should continue to actively work with Commonwealth officials, including VDOT, to extend the line and provide passenger rail service to the community. The recently-renovated historic Bristol Train Station would be a fantastic "first impression" for visitors to Bristol via Amtrak.

Bike & Pedestrian Connectivity

(Note: Some information in this section is also included in **Chapter 9: Parks, Open Spaces, & Environmental Features Plan**.)

Existing Infrastructure Sidewalks

The quantity and quality of the sidewalk network varies widely within Bristol, with pedestrian infrastructure mostly clustered in pockets found within Downtown, core residential areas, and neighborhoods around schools. Most roads within Downtown and nearby neighborhoods contain sidewalks and some level of pedestrian crossings. Downtown is compact and walkable, with zebra striping at major intersections and pedestrian amenities such as benches and trash receptacles.

The sidewalk network along major corridors is often spotty, with gaps in the network, narrow sidewalks, or a lack of signaling and striping at intersections. For example, while Gate City Highway and Euclid Avenue have a pretty consistent sidewalk network, stretches of Lee Highway do not have any sidewalks.

Areas of the City that were developed in a suburban fashion typically lack sidewalks and basic pedestrian amenities. This includes both along local streets within neighborhoods as well as along minor arterials and collectors such as Old Airport Road and King Mill Pike. The City has recently used federal grants to invest in pedestrian improvements, such as adding curb cuts and sidewalks along Commonwealth Avenue, State Street, Hillside Avenue, and Euclid Avenue. New commercial developments often include sidewalks; however, when developed in the midst of older areas without sidewalks, they can be "sidewalks to nowhere."

Existing Trails

Bristol contains two multi-purpose trails: (1) a small two-block trail along Beaver Creek between Moore Street and Martin Luther King, Jr. Boulevard and (2) the Sugar Hollow Park trail, comprised of several small nature trails ranging from 950 feet to 4,300 feet in length.

Bristol, VA also sits within the midst of several existing regional trails spanning Southwest Virginia and Northeast Tennessee. These include:

- **Virginia Creeper Trail**, a 34 mile trail running from Abingdon, VA through Damascus, VA and ending at the VA/NC state line in Whitetop, VA. It is open year round to hiking, mountain biking, and horseback riding.





■ **US Bicycle Route 76 Trail**, a cross-country multi-purpose trail that originates in Kansas and ends in Virginia.

■ **Cherokee National Forest**, which includes over 600 miles of trails throughout several states including nearly 150 miles of the scenic Appalachian Trail which extends almost 2,200 miles from Maine to Georgia.

■ **Wes Davis Greenway**, a 2800 feet trail built along a former rail bed in Bristol, TN.

■ **Steele Creek Park** includes several trails in Bristol, TN.

Connectivity Program

The City should review the pedestrian system to establish a phased Connectivity Plan & Program that identifies improvements needed to connect disparate elements of the existing network. A comprehensive network could be comprised of multiple types of pedestrian infrastructure, including sidewalks, dedicated off-road trails, on-road shared roadway trails, on-road shoulder trails, informal pathways, and more. The program should aim to comprehensively connect residents to park and recreational facilities, community facilities, and important destinations within Bristol. This program should be long-term, providing an action plan with projects and improvements prioritized based on ease of completion, costs, benefits to residents, and other prospective impacts. Opportunities to plug into the regional trail network should also continue to be evaluated.

One of the greater challenges for improved connectivity will be significant physical barriers that challenge mobility within the community. Examples of barriers include grade changes, Beaver Creek, local railroad tracks, and high traffic roadways. I-81 is a key example which blocks pedestrian and bicycle access to Sugar Hollow Park for residents who live south of the interstate. As part of the connectivity program, the City should look to minimize the impact of these barriers through pathways, trails, intersection crossings, and other projects. As a longer-term solution, the City should analyze the feasibility of larger projects, such as pedestrian and bicycle bridges and tunnels, which can transcend physical barriers.

Connecting Downtown to Sugar Hollow Park

Downtown Bristol and Sugar Hollow Park are two of Bristol's most important assets, but are not currently linked together with pedestrian infrastructure. It is recommended that the City develop a Beaver Creek Trail that would connect Downtown Bristol with Sugar Hollow Park.

The signed trail would likely be comprised of integrated sidewalks, greenways, off-street trails, and pathways, depending on the development program. Along some stretches, the trail would likely follow the flow of Beaver Creek; where this is not possible, the trail may route along nearby sidewalks, paths, or streets.

More detailed information is provided in **Chapter 9: Parks, Open Spaces, and Environmental Features**.

Lee Highway Shared Use Path

The City is in the process of developing a network of shared use paths and sidewalks along Lee Highway, Bonham Road, and Suncrest Drive (terminating at Van Pelt School). It is recommended that the City construct sidewalk along Lee Highway from Martin Luther King, Jr. Boulevard to just south of Exit 5 (at Tru-Point Bank).

New Developments

The City should require sidewalks in all new developments in areas that generate foot traffic, such as along key corridors, in Downtown, within large planned developments, and subdivisions.

MPO Proposed Trail Network

The Bristol MPO proposed a comprehensive trail network for the City. As part of the Connectivity Program, the City should continue to assess its implementable feasibility depending on available capital and grant funding. Additionally, the proposed Mendota Trail may be another trail development opportunity.

Blueways/Greenways

The City should review existing open space corridors, rail, and utility easements, and establish plans for dedicated greenways within the community. This can be accomplished either within the connectivity program or through a separate effort. The Beaver Creek and Little Creek waterways show strong potential for development as greenways, with ample room and opportunity for trails and related amenities. Development of greenways can help to protect open space and environmentally sensitive areas within the City and create safe, extended routes through the community.

An initial project could be development of the Corvette Trail & Greenway, described within **Chapter 6: Bob Morrison Boulevard Sub-Area Plan**. While small in scale, it could provide a starting point for a much larger greenway and trail network.

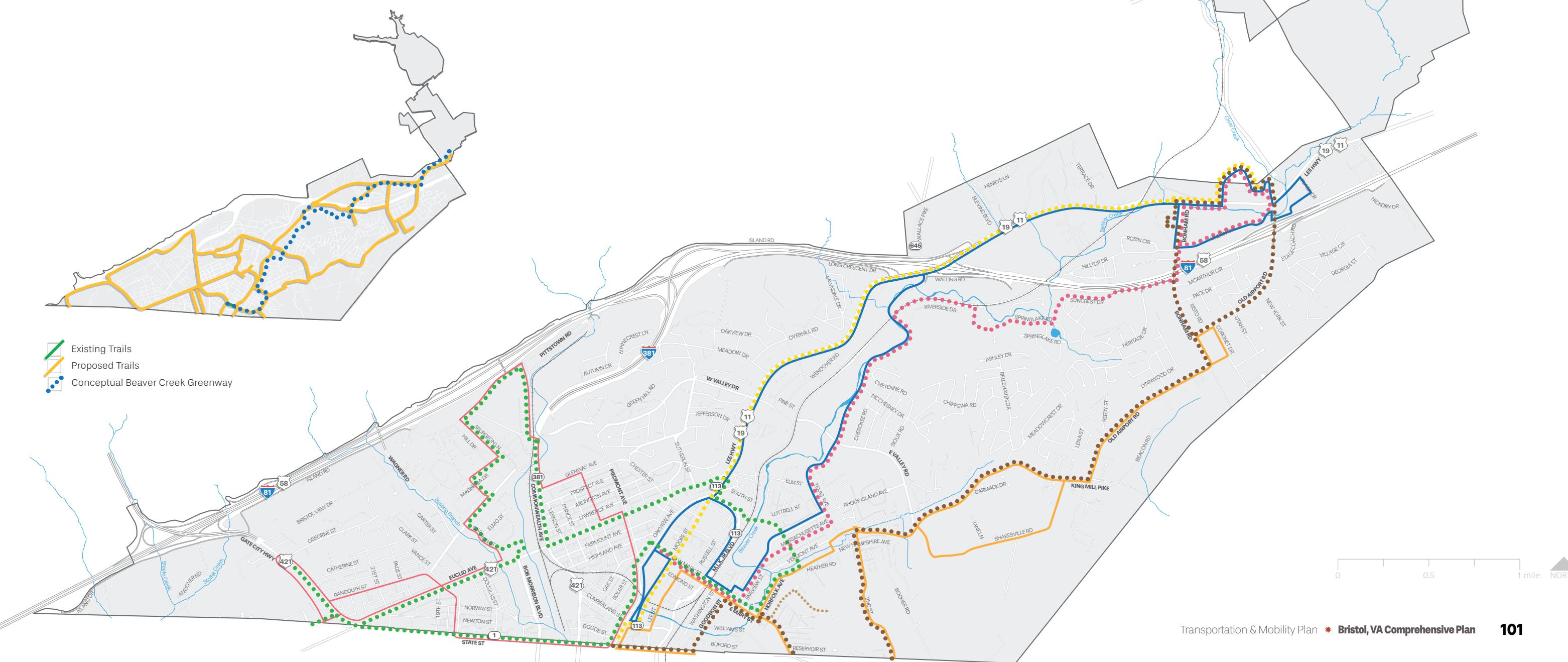
City of Bristol, VA Alternative Transportation Plan

EXISTING BUS ROUTES

- Mall Route
- E Bristol / E Ridge
- Exit 7 / Walmart

PROPOSED BUS ROUTES

- Old Airport Rd
- Moore St / Highway 11
- Euclid Avenue Circulator
- Old Abingdon Highway

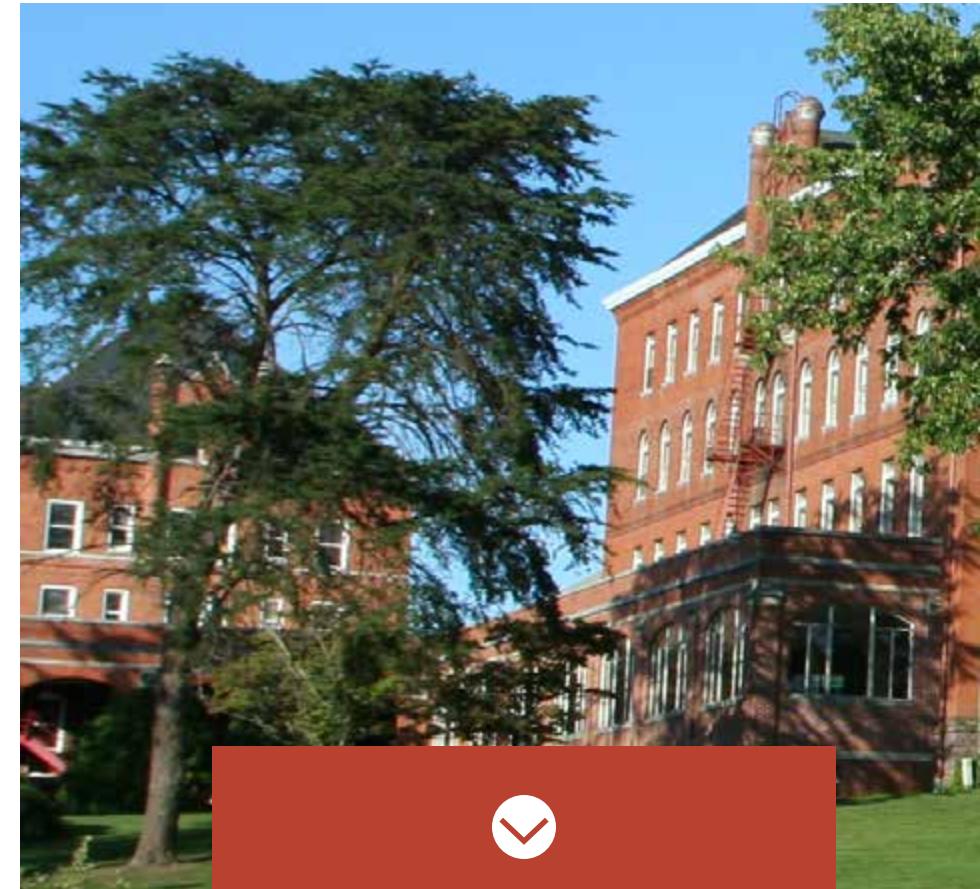




COMMUNITY FACILITIES & INFRASTRUCTURE PLAN

Community facilities support the provision of services and amenities that define local quality of life and the desirability of living and working in Bristol. This includes critical City services, as well as those services provided by other governmental bodies, such as the public school district, library, private schools, and utilities providers.

The Community Facilities & Infrastructure Plan presents general policies and guidelines to help ensure Bristol remains well-served by high quality facilities and services. However, it is not intended to supersede goals and policies of other agencies, or act as a substitute for more detailed planning that should be undertaken by the City and other providers.



The Community Facilities & Infrastructure Plan is organized into four sections.

Quality Municipal Services

Intergovernmental Support, Coordination & Cooperation

Supporting Youth

Re-Using Virginia Intermont College



2035 Goal

Provide high-quality City services, maintain adequate infrastructure and utilities throughout the community, and make Bristol one of the best places to live in Virginia.



Priority Objectives

Objective #1

Facilities & Infrastructure

Provide, or support the provision of, community facilities and services that strengthen the quality of life within Bristol.

- **1A.** Conduct a comprehensive life cycle assessment for all City buildings, equipment, vehicles, facilities, and properties.
- **1B.** Regularly identify necessary short-, medium-, and long-term facility, road, and infrastructure projects.
- **1C.** Complete and annually review a 5 year Capital Improvement Program that identifies construction, maintenance, and improvement projects as well as infrastructure replacements and upgrades to be made in the short- and long-term.
- **1D.** Regularly review services offered by the City to determine their impact and identify opportunities to better align services offered with the needs of the community.
- **1E.** Work with other public agencies to maintain adequate sites and facilities.
- **1F.** Ensure adequate levels of police and fire protection throughout the City and ensure that emergency vehicles can effectively serve all areas of the City.
- **1G.** Improve water supply and distribution for firefighting, replacing older lines and smaller feeder lines where necessary.
- **1H.** Continue to evaluate opportunities to replace Fire Department Station #1.
- **1I.** Work with the Bristol Sheriff's Office to explore options to reduce crowding in the City jail, including considerations for a new jail facility or participation in a regional jail in Abingdon.
- **1J.** Initiate a promotional campaign to heighten awareness of community services offered by the City and how residents can take advantage of these amenities.
- **1K.** Work with the Bristol, VA Public Schools (BVPS) as they re-assess their facility needs, including development of new facilities and/or redevelopment and re-use of closed facilities.
- **1L.** Work with schools to review the existing parking facilities, buildings, drop-off/pick-up areas, and bus parking, including ingress and egress to ensure they are adequate and if not, identify opportunities for improvement.
- **1M.** Work with schools to ensure proper buffering surrounding school facilities and provide safe and adequate access to all school sites.
- **1N.** Support the operations of the Bristol Public Library.
- **1O.** Increase cooperation with the City of Bristol, TN and Washington County, including continue evaluation of opportunities for shared services and partnerships.
- **1P.** Maintain positive channels of communication with all public agencies, quasi-public agencies, and community service providers to ensure better coordination of projects, alignment of long-range plans, and evaluate options for shared services.
- **1Q.** Work closely with Virginia Intermont College to creatively repurpose the vacant campus for a new higher education user.

Objective #2

Infrastructure Capacity

Align all new development with infrastructure providers, closely evaluating development proposals to ensure the intensity of new development does not overburden existing and planned utility systems, water resources, schools, roads, and other infrastructure.

- **2A.** Coordinate with utility and service providers such as BVU to establish an inventory and assessment of local infrastructure capacity, with regular updates to maintain a clear understanding of infrastructure needs in Bristol.
- **2B.** Continue to consult critical service and utility providers as the City reviews new development proposals.
- **2C.** Continue to support and advertise Bristol's access to broadband.

Objective #3

Youth

Strengthen the local education system, support the extracurricular development of the city's youth, and set the foundation for the future.

- **3F.** Review all existing youth services provided by the City and partner organizations, and identify opportunities to better promote or expand services.
- **3G.** Incorporate dedicated spaces for youth within planned developments, park and recreation facilities, and in Downtown Bristol.
- **3H.** Work with the Bristol Pirates and similar sports-related organizations to offer programs and services which encourage physical activity and recreation.
- **3A.** Engage the City's youth on civic issues through a regular outreach program with local public and private schools.
- **3B.** Evaluate creation of a high school and college student summer internship program at City Hall.
- **3C.** Encourage area employers to offer summer employment opportunities, internships, and apprenticeships to students.
- **3D.** Bolster academic and social linkages between Bristol's schools and Virginia and Tennessee colleges to better prepare students for college or other post-secondary career training program.
- **3E.** Promote mentoring programs of at-risk children in coordination with local non-profit organizations.



Actions & Supporting Information

Quality Municipal Services

As an independent city, the City of Bristol provides a range of municipal services to its residents. City government operates out of multiple facilities across the city, with the majority of administrative departments housed in the Bristol City Hall at 300 Lee Street in Downtown Bristol.

Operations are split between eighteen departments: Family Resource Center, Youth Services, Building Inspection, Circuit Court Clerk's Office, Finance Department/City Clerk, City Manager, Treasurer, Commissioner of the Revenue, Community and Economic Development, Fire, Human Resources, Parks and Recreation, Police, Public Works, Purchasing, Sheriff's Office, and Transit. Some departments are under the purview of the City Manager while others are elected constitutional offices.

The City should continue to encourage close coordination and communication between departments to ensure municipal services are high quality and identify opportunities for cooperation on projects. Often, the actions of one department will have a direct impact on other departments or elements of the City government. Communication between departments, as integral parts of the City itself, should be a top priority to guarantee civic services and amenities are provided in a quality and efficient manner.

City Hall

Bristol City Hall is a two-story building located at 300 Lee Street in the heart of Downtown. It houses the majority of the City's administrative departments. It is expected to remain City Hall during the lifespan of the Comprehensive Plan.

Police Department

The Bristol Police Department is housed in 501 Scott Street, which is also the western half of the City Hall Building. As of 2015, the department has 53 sworn police officer positions, and a non-sworn support staff of 21 full-time members for a total of 74 members. At this time, the department reports no plans to renovate or add a new facility and there are no issues with the size or location of their facility. Priorities for the department in the short term include improving the departmental garage, adding a second radio repeater and another frequency, and changing the record management system. In the medium to longer-term, the department hopes to increase the number of officers.

The City should continue to provide adequate levels of police protection throughout the City and ensure that emergency vehicles can effectively serve all areas of the City.

Sheriff's Office

The Bristol Sheriff's Office is responsible for providing a safe and secure environment for the operation of city courts and the city jail, as well as acting as the municipality's process server. They operate out of two locations, the City Courthouse at 497 Cumberland Street, and the City Jail at 417 Cumberland Street. As reported in the public "Analysis of Potential Options for Meeting the City's Jail Needs Report," the City Jail is overcrowded.

The City should continue to explore options to reduce crowding in the City Jail, including participating in a shared regional job or construction of a new jail facility, either on the current site or at a new location in the community. Options for housing inmates during construction, impacts on adjacent uses, and other potential impacts should be reviewed.

Fire Department

The Fire Department operates out of three facilities: 211 Lee Street (Station #1), 1603 Euclid Avenue (Station #2), and 105 Suncrest Drive (Station #3). They also own and operate a Fire Training Center at 2216 Shakesville Road. The department reports that water supply and distribution is inadequate, although service has gotten better over the years. Older lines and small feeder lines present issues in certain areas. The department expressed concern over the close proximity of Stations #1 and #2, which affects the credit awarded for an insurance (ISO) review. Their current rating is 2, which is much better than neighboring communities.

Over the next decade, the department is looking to replace trucks as well as a ladder unit. The department notes that they sought grant funding for a new station to replace the oldest facility (Station #1), but that the application was unsuccessful.

The City should:

- Provide adequate levels of fire protection throughout the City and ensure that emergency vehicles can effectively serve all areas of the City.
- Improve water supply and distribution for firefighting, replacing older lines and smaller feeder lines where necessary.
- Continue to evaluate opportunities to replace Fire Department Station #1.

Capital Improvements Programming

The physical infrastructure systems and facilities of Bristol provide the backbone through which public amenities are provided. This includes public roadways, stormwater and sanitary sewers, the electric grid, civic facilities, and other infrastructure systems.

Bristol's financial resources will always be limited, and public dollars must be spent wisely. A Capital Improvements Plan (CIP) is a comprehensive schedule of prioritized public improvement projects, typically extending over a five-year period. A CIP allows the City to be able to appropriately focus infrastructure improvements on supporting the existing population and non-residential users, while ensuring new development and redevelopment can be executed as directed by the Comprehensive Plan.



A Capital Improvements Plan typically schedules the implementation of a range of specific projects, particularly the restoration and upgrading of existing utilities, roads, bridges, and infrastructure facilities. Expansion or improvement of City facilities would also be included in the CIP. A CIP also assigns priorities to identified projects and includes cost estimates and potential funding sources. Non-governmental entities frequently use a CIP to map out growth and investment in facilities and infrastructure. As the City develops and monitors its own Capital Improvement Plan, City staff should coordinate with other community facilities providers to ensure that investment is occurring in a logical manner and synergies can be created between public, quasi-public, and private improvements.

The CIP should be regularly updated in conjunction with updates to the Comprehensive and the development of a five-year Strategic Plan.

The City should:

- Conduct a comprehensive life cycle assessment for all City buildings, equipment, vehicles, facilities, and properties.
 - Regularly identify necessary short-, medium-, and long-term facility, road, and infrastructure projects.
 - Complete and annually review a 5 year Capital Improvement Program that identifies construction, maintenance, and improvement projects as well as infrastructure replacements and upgrades to be made in the short- and long-term.
- The efficiency and organization of a municipality is often reliant on the ability to coordinate and cooperate between internal departments, non-jurisdictional agencies, and adjacent government organizations. The City of Bristol, VA should work to maintain positive channels of communication with all public and quasi-public agencies and community services providers, as well as support them in their mission to provide quality services and infrastructure. This will help ensure better coordination of projects and long-range planning on a local and regional scale.

Intergovernmental Support, Coordination, & Cooperation

Commonwealth of Virginia

The Commonwealth of Virginia has several branch offices within the City of Bristol, including:

- **Virginia Department of Health**, located at 205 Piedmont Avenue.
- **Virginia Department of Transportation – District Office #1**, located at 870 Bonham Road.
- **Virginia Department of Social Services**, located at 621 Washington Street.

Bristol Public Library

The Bristol Public Library is located at 701 Goode Street in Downtown Bristol. The facility is jointly-owned by the City of Bristol, VA and the City of Bristol, TN. Each City Council appoints five members to the Library Board and each municipality provides equal funding to the library annually and each has 50% ownership of its capital assets. The distinctive brick and glass facility was completed in 2006 and is considered a significant educational asset.

The City should continue to support the Bristol Public Library, recognizing it is one of the community's greatest assets and is a stabilizing anchor within Downtown Bristol.

Bristol, VA Public Schools (BVPS)

The Bristol, VA Public Schools (BVPS) is a legally separate entity from the City which operates four elementary schools, one middle school, and one high school for students residing in the City. The schools are overseen by an elected School Board, however, the City Council approves the School Board's operational and capital budgets and must approve the issuance of bonded debts.

The office for the BVPS is located at 220 Lee Street in Downtown Bristol. The facility also includes space for the City's Youth Services Department. Six schools are distributed throughout the community. BVPS notes that enrollment has declined over the past five years but enrollment is expected to stay the same over the next five years.

Renovations are expected in the coming years at Van Pelt Elementary School, Virginia High School, and Virginia Middle School. BVPS reports that they hope to consolidate and close three outdated facilities and build a new school at a location to be determined.

The City should continue to:

- Work with the Bristol, VA Public Schools (BVPS) as they re-assess their facility needs, including development of new facilities and/or redevelopment and re-use of closed facilities. The closed Oak Street should be re-positioned for office uses. If that is not considered market-viable, residential uses compatible with the surrounding neighborhood may be appropriate.
- Work with schools to review the existing parking facilities, buildings, drop-off/pick-up areas, and bus parking, including ingress and egress to ensure they are adequate and if not, identify opportunities for improvement.
- Work with schools to ensure proper buffering surrounding school facilities and provide safe and adequate access to all school sites.



Re-Use of Closed Public School Buildings

School buildings are neighborhood anchors that attract activity and act as a focal point, but when left vacant they can become a liability to school operations, and a potential burden on the surrounding community. A review of existing adaptive school reuse projects indicates that there is not a strong correlation between structural characteristics and certain types of reuse. The needs of the surrounding community, market demand, and developer willingness have more to do with how the building is adapted.

Public school closures are a growing phenomenon in the nation, but marketing the school sites to buyers for repurposing proves difficult. To begin with, school districts are typically not set up to handle the challenges of property sales – their business is in education administration and not in real estate or economic development. Additionally, other entities compete with school districts to sell vacant facilities, such as private schools, which can make transactions more nimble and often have facilities in better shape than public schools.

Location changes the selling game as well – adaptation of a property on a busy corridor, is significantly more feasible than a property that is tucked away into the heart of a residential neighborhood, such as the vacant Oak Street School. A building in substandard condition that is on an active corridor, will likely have a higher asking price than a less accessible building in great condition.

Structural factors play a major part in the trouble of repurposing vacant school buildings. Typically, the larger the building, the more difficult it is to find a suitable use – smaller buildings are compatible with a wider range of uses and are easier to locate buyers for. Moreover, aged buildings may require serious renovations by the buyer, the need to be brought into compliance with the Americans with Disabilities Act (ADA), or might have insufficient parking. Excessive associated costs will drive away potential buyers.

School buildings are creatively re-utilized in a wide variety of methods. The most common occupants that take up home in closed schools are charter schools – 42% of large city school closures are reused by charters. Other institutional uses frequently establish themselves in school buildings as well, such as private schools, college and university buildings, health clinics, community or cultural centers, police stations, homeless shelters, and churches. If appropriate, the property is sometimes even bought up by the municipality, and transformed into a green park or other public space.

Commercial, residential, or office space is also sometimes compatible with the property's structure and location. Commercial and office applications have included neighborhood markets, recording studios, day-care facilities, technology centers, shopping centers, medical offices, school administration offices, movie theaters, and hotels. Residential properties, especially mixed-income apartments or mixed use developments, are also typical adaptations.

BVU Utilities

The BVU Authority provides electricity, water, wastewater, and OptiNet services to Bristol's residents. It is managed and financed separately from the City. BVU operates three substations in Bristol. They report no plans for the renovation or addition of facilities, but do expect to make improvements to water and sewer lines. It is important that the City coordinate with BVU as the City reviews new development proposals.

Other Partners

Other planning partners include Washington County, VA; Bristol, TN; Bristol Transit System; and the Bristol Metropolitan Planning Organization (MPO). The City should maintain close communication with these entities to ensure residents continue to have access to quality public services and facilities. Where appropriate, the City should take advantage of opportunities to partner with other organizations and cooperate to improve the efficiency and quality of services provided.

Supporting Youth

Bristol's future lies in its youth, who represent prospective residents, homeowners, entrepreneurs, business owners, and members of the work force. As such, it is important for the City to prioritize its youth by providing education, services, and activities that support their growth and keep them healthy, happy, and involved. To better engage and support Bristol's youth, the City should:

- Engage youth on local civic issues through a regular outreach program with local schools.
- Evaluate creation of a high school and college student summer internship program at City Hall.
- Encourage area employers to offer summer employment opportunities, internships, and apprenticeships to students.
- Bolster academic and social linkages between Bristol's schools and Virginia and Tennessee colleges to better prepare students for college.
- Promote mentoring programs of at-risk children in coordination with local non-profit organizations.

- Review all existing youth services provided by the City and partner organizations, and identify opportunities to better promote or expand services.

- Incorporate dedicated spaces for youth within planned developments, park and recreation facilities, and in Downtown Bristol.
- Work with the Bristol Pirates and similar sports-related organizations to offer programs and services which encourage physical activity and recreation.

Re-Using Virginia Intermont College

Virginia Intermont College was a small private four-year college located northeast of Downtown and north of the Virginia Hill Historic District. It was founded in 1884 and ceased operations in 2014 after experiencing financial and reaccreditation issues. The roughly 30 acre vacant campus includes several institutional buildings, a fitness center, gymnasium, a 900 seat auditorium, and a pool. College leadership have put the campus up for sale; however, the college is also exploring options.

The College reports that the historical buildings need roof repair and replacement, most buildings need renovation, and that parking also needs repair. The vacant campus is a valuable asset within Bristol and represents a significant opportunity to retain a higher educational facilities within the community. The campus also has a significant impact on the stability and attractiveness of the surrounding neighborhood.

The City should work close with college leadership to attract a new user to the site. While the site could be repurposed for a variety of uses, the continued use as a college campus is an invaluable opportunity to offer higher educational opportunities to the community. Working together, the City and college should aim to attract a new educational institution to the campus, most preferably an existing larger university within the state or region that could operate the site as a satellite campus. This would ensure that a new tenant has the support and resources to successfully utilize the campus and could be a major factor in promoting Bristol throughout the region as a center for higher education.

City of Bristol, VA Community Facilities Plan

GOVERNMENT ADMINISTRATION

- ⑯ Virginia Department of Transportation – Bristol District Office
- ⑰ Bristol Public Schools – Public Transportation Department
- ㉑ Bristol Redevelopment & Housing Authority
- ㉔ Virginia Department of Health – Bristol City Health Department
- ㉗ Bristol City Courthouse
- ㉙ Bristol Schools – District Headquarters
- ㉚ Bristol City Hall

PUBLIC SAFETY

- ② City Fire Department Station #2 & Bristol Life Savings Crew, Station L
- ⑪ City Fire Department Station #3
- ⑫ Southwest Virginia Criminal Justice Training Academy
- ⑭ Fire Department Training Academy
- ⑯ Appalachia Juvenile Commission – Highlands Juvenile Detention Center
- ㉓ Police Department
- ㉘ City Jail
- ㉙ Fire Department Station #1

EDUCATION

- ① Stonewall Jackson Elementary School
- ④ Virginia Middle School
- ⑥ Virginia Intermont College (closed)
- ⑦ Washington–Lee Elementary School
- ⑧ Virginia High School
- ⑩ Joseph Van Pelt Elementary School
- ⑲ Highland View Elementary School
- ㉕ Bristol Public Library

SOCIAL SERVICES & PROGRAMMING

- ⑤ Girls Incorporated of Bristol
- ⑨ U.S. Social Security Administration
- ㉐ Virginia Department of Social Services
- ㉑ Boys & Girls Club of Bristol

TOURISM

- ③ Boyce Cox Field (Bristol Pirates)
- ㉖ Birthplace of Country Music Museum

PUBLIC WORKS

- ㉗ Department of Public Works – Street Division & Solid Waste Division
- ㉕ Department of Public Works – Quarry Landfill

OTHERS

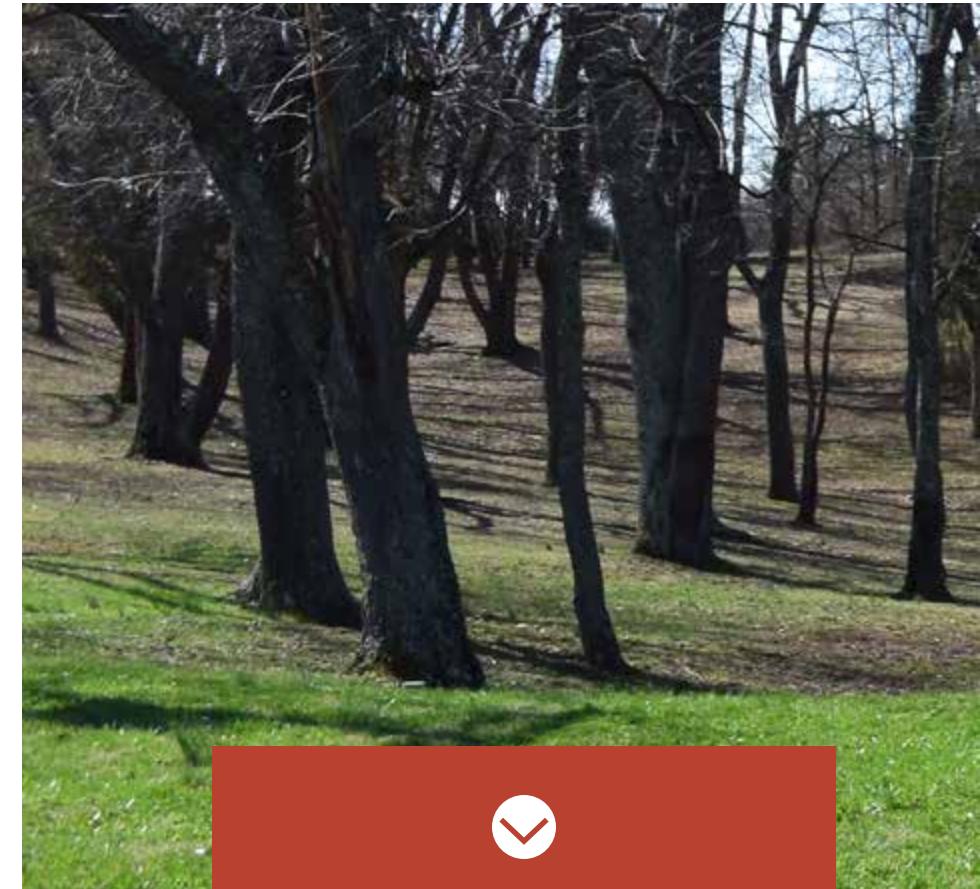
- Utilities
- Cemeteries
- Religious Uses





PARKS, OPEN SPACE & ENVIRONMENTAL FEATURES PLAN

Parks, open space and environmental features contribute significantly to the City's appeal, overall quality of life, image, character, desirability, and aesthetics. Public parks and open space provide places for residents and visitors to recreate and enjoy nature. This section of the Comprehensive Plan presents the plan, policies and recommendations which pertain to parks, open space and environmental features. The Plan seeks to preserve and protect important and sensitive environmental features and to provide adequate open space and recreation to the community.



The Parks, Open Space & Environmental Features Plan is organized into five sections.

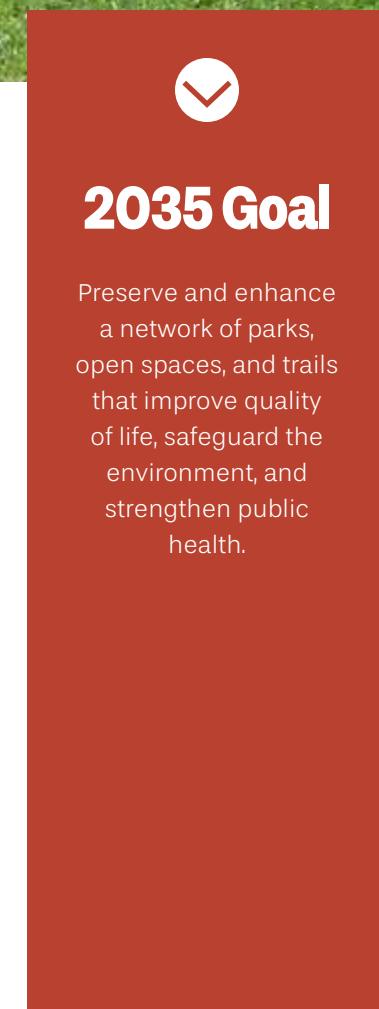
Park Network: Access & Facilities

Connectivity

Recreation Assets

Connecting Downtown to Sugar Hollow Park

Natural Features



Objective #1

Parkland Quantity & Access

Ensure Bristol's residents have equitable access to city parks and open space, expanding the park network, where necessary.

- **1A.** Develop a Parks and Recreation Master Plan that can establish a vision for the park's system, assess quality of existing facilities, forecast park needs over the course of the next ten years, prioritize expansions, and identify needed site improvements.
- **1B.** Explore opportunities for new mini-parks or neighborhood parks in older, developed neighborhoods within the City with park deficiencies identified on the accompanying map.
- **1C.** Encourage private park or open space dedications with large industrial or commercial developments for employee usage.

Objective #2

Connectivity

Provide a network of pedestrian connections between neighborhoods, parks, and recreational destinations.

- **2A.** Establish a long-term connectivity program that identifies needed sidewalks and trails, and prioritizes projects based on prospective impacts such as ease of completion, cost, and benefit to residents.
- **2B.** Develop a continuous trail, sidewalk, and/or path network between Downtown and Sugar Hollow Park along or near Beaver Creek.
- **2C.** Pursue opportunities to connect Sugar Hollow Park and Clear Creek Golf Course to residential areas to the southwest.

- **1D.** Continue to plan and budget for expansion or improvement of existing parks.
- **1E.** Evaluate opportunities to develop a shared-use program with the Bristol, VA Public Schools that allows residents to use school fields, playgrounds, and recreational amenities during non-school hours.
- **1F.** Promote the addition of new public gathering spaces, pocket parks, and plazas.

- **2D.** Develop the "Corvette Greenway" proposed within Chapter 6: Bob Morrison Boulevard Sub-Area Plan.
- **2E.** Establish dedicated pedestrian routes between park facilities, neighborhoods, and important destinations that are marked with wayfinding signage and improved pedestrian crossings.

- **2F.** Minimize the impact of physical barriers, such as Beaver Creek, railroad tracks, Interstate 81, and other high traffic roadways, through dedicated pathways, trails, intersection crossings, and larger projects such as pedestrian bridges or tunnels.
- **2G.** Utilize existing waterways or open space corridors to establish dedicated greenways connected with recreational trails.

Objective #3

Regional Recreation Assets

Leverage major recreation assets such as the Clear Creek Golf Course, Bristol Pirates, and Sugar Hollow Park to enhance local quality of life and stimulate tourism.

- **3A.** Work with the Bristol Pirates to identify and implement long-term facility needs that can elevate the team's position within the region.
- **3B.** Utilize larger recreational facilities to host community events and gatherings that will highlight the amenities these areas offer and foster greater community interaction and activity.
- **3C.** Review and make improvements to wayfinding signage, gateway features, and other branding elements that could elevate awareness of unique recreational amenities for both residents and visitors.
- **3D.** Incorporate unique recreational assets and amenities into branding and promotional efforts for the City.

Objective #4

Waterways

Enhance the health and appearance of Bristol's waterways and protect them from pollution and encroachment.

- **4A.** Establish a cross-jurisdictional program to regularly monitor waterways and review the quality of water and health of water ecosystems.
- **4B.** Develop minimum setbacks and other regulations within floodplains and near waterways to limit the impact of development and construction.
- **4C.** Update development regulations to require mitigation of stormwater runoff from large paved areas, including incentives for inclusion of raingardens, bioswales, and other methods to reduce runoff and remove pollutants from waterways.
- **4D.** Identify opportunities to leverage and protect waterways by connecting them to recreational opportunities such as dedicated parks and trails.
- **4E.** Beautify Bristol's creeks, where possible, through native plantings and removal of concrete channelization and chain linked fencing.
- **5A.** Encourage the preservation of mature trees within new developments.
- **5B.** Develop a street-tree program to maintain and expand the City's mature tree canopy by planting new trees and replace dying trees where appropriate.
- **5C.** Elevate unique natural features by incorporating them into dedicated recreational space to improve their prominence and vitality within the community.

Priority #5

Development

Minimize development impacts on natural features such as wetlands, ponds, and mature trees.





Park Network: Access & Facilities

As of 2016, Bristol contains eighteen parks and recreation facilities: fifteen traditional parks, one golf course (Clear Creek Golf Club), one recreation facility (Douglas Senior Center), and one sports complex (Randolph Field Complex). All are operated by the City of Bristol's Parks and Recreation Division. Collectively, they provide more than 660 acres of park space within the community.

Development of a Parks & Recreation Master Plan

To effectively guide the long-range provision of park and recreation opportunities for the community, it is recommended that the City build on this Comprehensive Plan with a detailed Parks and Recreation Master Plan. A more specialized planning effort would greatly assist the City in prioritizing park improvements and potential land acquisitions.

Classifications

The National Recreation Parks Association (NRPA) is the recognized authority for parks and recreation planning in the United States. Each of the City's parks have been classified based on size and function utilizing NRPA's best practices recommendations. A classification hierarchy creates a formal structure for assessing facilities and establishing the role and function of each facility.

The service areas of each park are also shown on the accompanying map to depict which areas are served or not served by the existing park systems.

■ **Mini-Parks** address a limited and small-scale recreational need and are smaller than one acre in size. They typically serve the local population that lives within a quarter-mile.

■ **Neighborhood Parks** are the basic unit of any park system and serve as the recreational and social focus of the neighborhood. They generally range from several acres to fifty acres in size. The NRPA recommends that each resident have access to a neighborhood park within a 0.5 mile walk of their home, reflecting an average walk time of 10 minutes.

■ **Community Parks** serve both local neighborhoods as well as the larger population that drives to the park. They serve a larger geographic area and often have ball fields and trails, and offer recreational activities beyond what is available in neighborhood parks. Their service area is two miles.

■ **Other Parks** include the Clear Creek Golf Club (a special use park), Douglas Senior Center (a recreation facility), and the Randolph Field Complex (a sports complex park).

City of Bristol, VA

Parks, Open Space & Recreation Plan

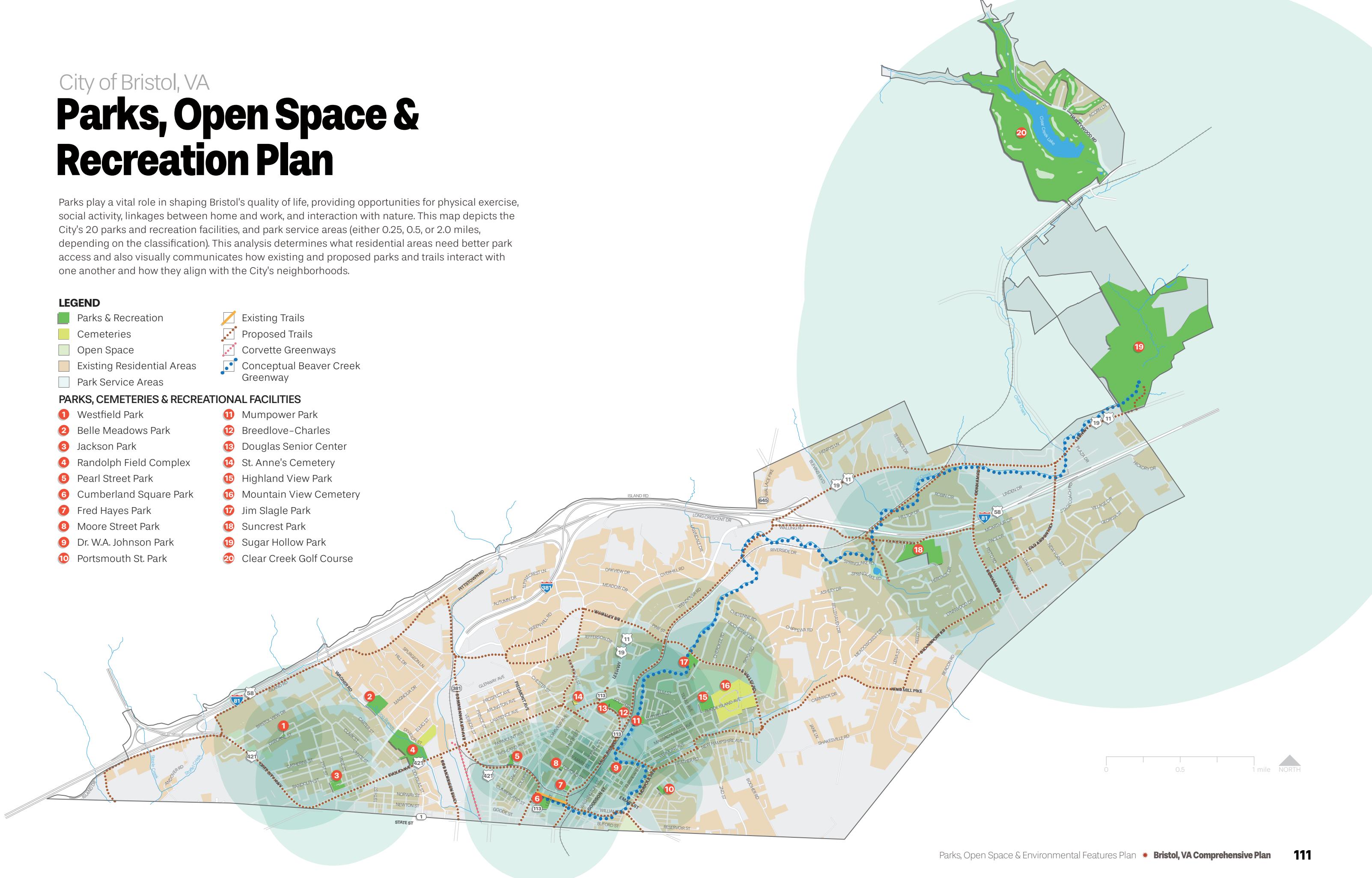
Parks play a vital role in shaping Bristol's quality of life, providing opportunities for physical exercise, social activity, linkages between home and work, and interaction with nature. This map depicts the City's 20 parks and recreation facilities, and park service areas (either 0.25, 0.5, or 2.0 miles, depending on the classification). This analysis determines what residential areas need better park access and also visually communicates how existing and proposed parks and trails interact with one another and how they align with the City's neighborhoods.

LEGEND

	Parks & Recreation
	Cemeteries
	Open Space
	Existing Residential Areas
	Park Service Areas
—	Existing Trails
—	Proposed Trails
—	Corvette Greenways
—	Conceptual Beaver Creek Greenway

PARKS, CEMETERIES & RECREATIONAL FACILITIES

- | | |
|--------------------------|---------------------------|
| ① Westfield Park | ⑪ Mumpower Park |
| ② Belle Meadows Park | ⑫ Breedlove–Charles |
| ③ Jackson Park | ⑬ Douglas Senior Center |
| ④ Randolph Field Complex | ⑭ St. Anne's Cemetery |
| ⑤ Pearl Street Park | ⑮ Highland View Park |
| ⑥ Cumberland Square Park | ⑯ Mountain View Cemetery |
| ⑦ Fred Hayes Park | ⑰ Jim Slagle Park |
| ⑧ Moore Street Park | ⑱ Suncrest Park |
| ⑨ Dr. W.A. Johnson Park | ⑲ Sugar Hollow Park |
| ⑩ Portsmouth St. Park | ⑳ Clear Creek Golf Course |





Park Supply Evaluation

The NRPA endorses an extensive list of best practices for local parks and recreation planning that commonly serve as "baseline" standards. Although these best practices are conventional, it is important to recognize that individual communities must respond to demographic changes, land use context, funding for maintenance and installation, and other factors. Considering variations in outdoor recreation environments throughout the country, the City should select guidelines that best serve its planning needs. Acknowledging this, the City can evaluate its parks and open space inventory with its own developed standards, as well as the two major NRPA standards: population-based standards and service area/geography-based standards.

Population Based Standards

On the whole, the NRPA suggests a standard of 10 acres of parkland for every 1,000 residents, not including school properties or golf courses. Bristol exceeds this rule-of-thumb significantly by more than 260 acres. However, it is important to note that 90% of the City's parkland is found in one park in the northeastern portion of the community, Sugar Hollow Park.

More specifically, it is suggested that a community have 0.5 acres of mini park space per 1,000 residents, 2.0 acres of neighborhood park space per 1,000 residents, and 7.5 acres of community park space per 1,000 residents. Outside of a very small deficit in the Mini Parks category, Bristol has a significant surplus of park space from a volume perspective.

Park Supply Evaluation: Population Based Standards

Park Type	Existing Acreage	NRPA Recommended Acreage	Deficit / Surplus
Mini Parks	6 acres	8.9 acres	- 2.9 acres
Neighborhood Parks	44 acres	35.6 acres	+ 8.4 acres
Community Parks	400 acres	133.5 acres	+266.5 acres
All Parkland	447 acres	178 acres	+ 269 acres

Note: golf courses and school properties excluded.
The 2010 Census population of 17,835 was used for calculations.

Service Area Standards

In addition to ensuring an adequate overall supply of parkland, it is important that parks are located in areas that are convenient and accessible to the population. Park and recreation master plans typically utilize service area standards to analyze the location of parks and recreation facilities. The NRPA provides suggested service standards for neighborhood parks and community-wide facilities. These standards should be used to assess the effectiveness of Bristol's parks and identified underserved areas.

All of Bristol's parks have been classified with an associated service area, which are shown on the accompanying map to depict which areas are served or not served by the existing park systems. Many of Bristol's residential neighborhoods are not served by parks based on NRPA standards.

Conclusions

Providing the Bristol community with quality parkland access requires a widespread and diverse system of park facilities that offer recreational opportunities within reasonable proximity to residents. Overall, Bristol has an adequate supply of parkland available to residents in terms of quantity. However, much of the parkland is found within one large park, and many neighborhoods fall outside of park service areas, including neighborhoods in the central-north (roughly between Wagner Road in the west and Lee Highway in the east) and eastern (around King Mill Pike and Old Airport Road) lack local park access.

It is recommended that the City:

- Develop a Parks and Recreation Master Plan that can establish a vision for the park's system, assess quality of existing facilities, forecast park needs over the course of the next ten years, and identify needed site improvements.
- Explore opportunities for new mini-parks or neighborhood parks in older, developed neighborhoods within the City with park deficiencies identified on the accompanying map.
- Continue to plan and budget for expansion or improvement of existing parks.
- Evaluate opportunities to develop a shared-use program with the Bristol, VA Public Schools that allows residents to use school fields, playgrounds, and recreational amenities during non-school hours.



Planned Upgrades

The City reports several plans to expand and improve the existing system. The City should continue to plan future projects and upgrades to facilities within the parks system both in the near future and long term. The regular inventory and review of all existing parks and recreation facilities will help identify aging amenities that should be replaced or renovated as well as opportunities to introduce new programming. Planning and review of future upgrades and projects should be completed annually as part of the City's Capital Improvement Program and budget allocation process.

Connectivity

Connectivity is necessary to ensure that residents not only have a variety of parks to visit, but have safe methods by which to visit them from their homes, schools, place of work, and beyond. Efforts to increase connectivity should be a central step in improving the parks system by complimenting new park facilities with greater accessibility. This is provided by trails, pathways, and dedicated routes that allow pedestrians and bicycles to move safely through the community.

Note: information within this section is also included in **Chapter 7: Transportation & Mobility Plan**.

Existing & Proposed Trails

Bristol contains two multi-purpose trails: (1) a small two-block trail along Beaver Creek between Moore Street and Martin Luther King, Jr. Boulevard and (2) the Sugar Hollow Park trail, comprised of several nature trails totaling 8.5 miles of trails and 2.5 miles of paved walkways. Prior planning efforts have been undertaken or proposed to extend the existing trail network within Bristol. They include:

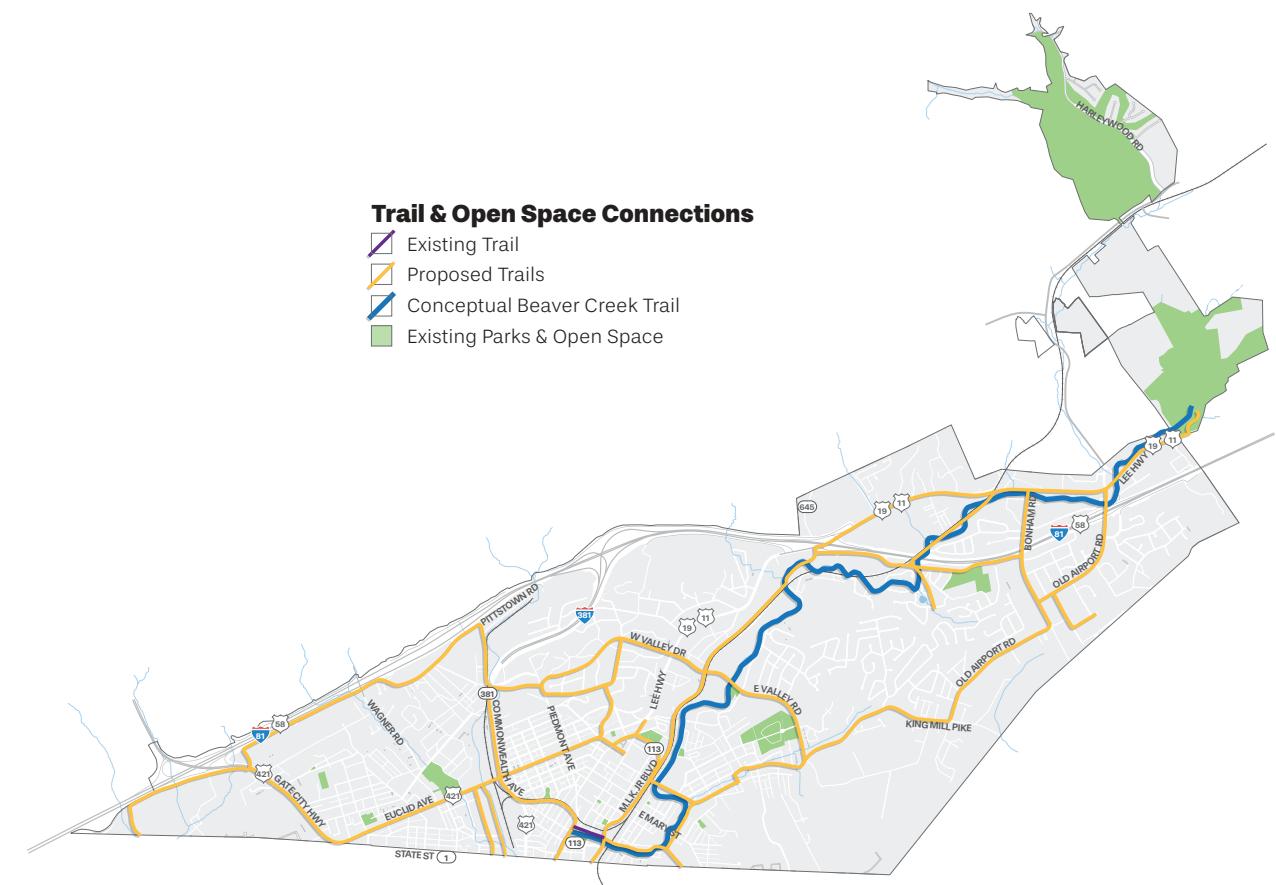
- **Local network.** The Bristol Metropolitan Planning Organization's Long Range Transportation Plan of 2011 recommended a comprehensive trail network for Bristol, including sections along rail right-of-way.
- **Beaver Creek Riverwalk.** A Beaver Creek river walk and trail that snaked through Downtown was proposed in the City's 1999 Ignite Plan.

Bristol, VA also sits within the midst of several existing regional trails spanning Southwest Virginia and Northeast Tennessee. These include:

- **Virginia Creeper Trail**, a 34 mile trail running from Abingdon, VA through Damascus, VA and ending at the VA/NC state line in Whitetop, VA.
- **US Bicycle Route 76 Trail**, a cross-country multi-purpose trail that originates in Kansas and ends in Virginia.
- **Cherokee National Forest**, which includes over 600 miles of trails throughout several states including the nearly 150 mile Appalachian National Scenic Trail.
- **Wes Davis Greenway**, a 2800 feet trail built along a former rail bed in Bristol, TN.
- **Steele Creek Park** includes several trails in Bristol, TN.

Trail & Open Space Connections

- Existing Trail
- Proposed Trails
- Conceptual Beaver Creek Trail
- Existing Parks & Open Space





Trail development should not only focus on development of a network within Bristol, but also opportunities to connect to the larger regional trail network. Expansion will not only increase resident quality of life and encourage healthy lifestyles, but also better link residents and non-residents alike to Bristol's many important destinations.

Connectivity Program

The City should review the pedestrian system to establish a comprehensive, phased Connectivity Plan & Program that identifies improvements needed to connect disparate elements of the existing network. A comprehensive network could be comprised of multiple types of pedestrian infrastructure, including sidewalks, dedicated off-road trails, on-road shared roadway trails, on-road shoulder trails, informal pathways, and more. The program should aim to comprehensively connect residents to park and recreational facilities, community facilities, and important destinations within Bristol. This program should be long-term, providing an action plan with projects and improvements prioritized based on ease of completion, costs, benefits to residents, and other prospective impacts. Opportunities to plug into the regional trail network should also continue to be evaluated.

One of the greater challenges for improved connectivity will be significant physical barriers that challenge mobility within the community. Examples of barriers include grade changes, Beaver Creek, local railroad tracks, and high traffic roadways. I-81 is a key example which blocks pedestrian and bicycle access to Sugar Hollow Park for residents who live south of the interstate. As part of the connectivity program, the City should look to minimize the impact of these barriers through pathways, trails, intersection crossings, and other projects. As a longer-term solution, the City should analyze the feasibility of larger projects, such as pedestrian and bicycle bridges and tunnels, which can transcend physical barriers.

Blueways/Greenways

The City should review existing open space corridors, rail, and utility easements, and establish plans for dedicated greenways within the community. This can be accomplished either within the connectivity program or through a separate effort. The Beaver Creek and Little Creek waterways show strong potential for development as greenways, with ample room and opportunity for trails and related amenities. Development of greenways can help to protect open space and environmentally sensitive areas within the City and create safe, extended routes through the community.



An initial project could be development of the Corvette Trail & Greenway, described within **Chapter 6: Bob Morrison Boulevard Sub-Area**.

Plan. While small in scale, it could provide a starting point for a much larger greenway and trail network.

The development of a dedicated Beaver Creek greenway or trail network is another opportunity. For more information, please see pages 114–115.

Recreation Assets

Bristol contains a number of recreation assets unique to the region, including Clear Creek Golf Course, Sugar Hollow Park, and the Bristol Pirates minor league baseball team. The City should aim to leverage these amenities to enhance the local quality of life and stimulate tourism within Bristol. This can include efforts to reposition and highlight existing facilities as well as better publicize recreation assets both locally and regionally.

The City should place an emphasis on utilizing larger recreational facilities to host community events and gatherings, particularly Sugar Hollow Park. This will help to highlight the amenities these areas offer and foster greater community interaction and activity. In addition, the City should work with the Bristol Pirates to identify potential projects and expansions to improve their operations, including relocation to a facility that could draw larger crowds and provide better amenities.



As both a tourist attraction and recreation asset, the Bristol Pirates and their facilities can have a significant impact on the City's image. Improvements to these and other significant recreation assets will elevate the team and City's position within the region.

Natural Features

Any urbanized area is located within an existing natural landscape, which typically has played an important role in shaping how the community developed. Bodies of water, topography, vegetation, and wildlife can all play an important role in understanding a community and planning for its future. Bristol is located in some of the most recognizable and distinctive environmental areas in the United States, and capturing this natural setting is important for future land use and development planning.

The City should take steps to preserve its natural features and environmentally sensitive areas from future development or encroachment which may lead to loss of habitat, flooding, or other negative impacts to the environment. This can be accomplished through the adoption of regulatory measures to protect natural areas. This should include areas of extreme topography, wetlands, waterways, floodplains, and open spaces surrounding these and other important recreational or environmental features. The overlay district should prohibit development within these areas and put in place a mechanism to review construction or expansion that could affect environmentally sensitive areas.

Where appropriate, the City can further protect unique natural features by incorporating them into dedicated recreational spaces. This will help improve their prominence and vitality within the community while converting potentially developable land into unique recreational spaces for residents and visitors.

Elevation & Topography

Bristol sits within the foothills of the Southern Appalachian Mountains, and the elevation of the community ranges from 1,670 feet to 2,000 feet. For comparison, the mean elevation in Virginia is 950 feet. 29% of the City's land is sloped at greater than 15% and 61% of the City is sloped at between 5% and 15%. This hilly terrain provides for scenic vistas and a beautiful landscape but can pose challenges for development.

Tree Canopies

Tree canopies, or a city's tree cover, act as an urban forest and help shield direct sunlight, absorb rainwater, and improve air quality. Trees also increase the quality of life by beautifying the streetscape. Outside of the city core and industrial areas, Bristol's tree canopy is relatively well-preserved.

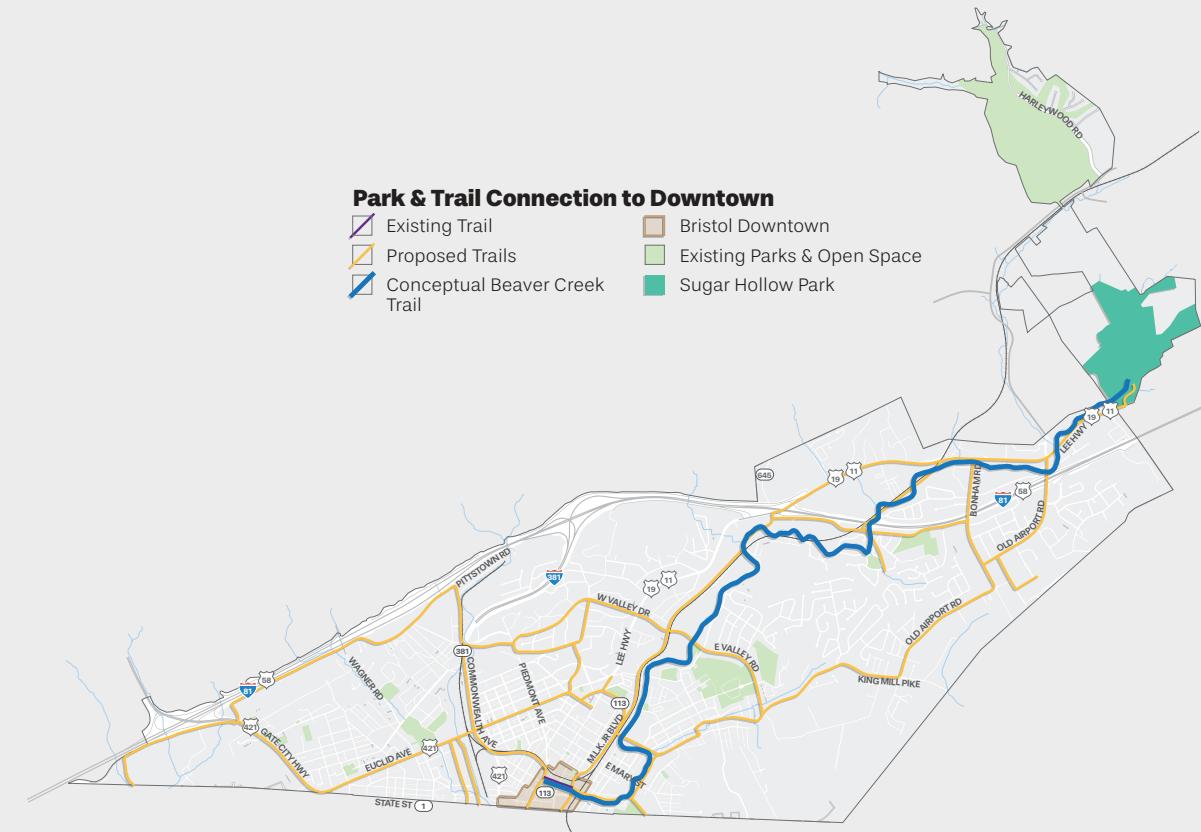
The City should take steps to preserve the existing tree canopy by protecting mature trees during redevelopment. In addition to or as part of a tree preservation policy, the City should create a street-tree program that incentivizes maintenance of existing trees and replacement of removed or aging trees where appropriate. This can apply to developments which will remove trees from the City's canopy as well as areas that have been historically deforested. Closer to Downtown, this program could be used to carefully maintain and expand parkway trees that contribute to the City's scenic image.

CONNECTING DOWNTOWN TO SUGAR HOLLOW PARK

BUILDING A BEAVER CREEK TRAIL

The proposed Beaver Creek Trail is a scenic, multi-use trail route that would follow Beaver Creek, connecting Downtown Bristol with four local parks and terminating at Sugar Hollow Park. Passing through a mix of land uses, the trail would serve both recreational and active-transportation users, providing an opportunity for residents and visitors to traverse Bristol while experiencing the City's natural and cultural amenities.

This section establishes a conceptual framework for the future development of a Beaver Creek Trail. The signed trail would likely be comprised of integrated sidewalks, greenways, off-street trails, and pathways, depending on the development program. Along some stretches, the trail would likely follow the flow of Beaver Creek; where this is not possible, the trail may route along nearby sidewalks, paths, or streets. In appropriate locations, new residential or mixed-use development could capitalize on views of and access to the creek.



Benefits

A new Beaver Creek Trail would provide many benefits to the community

Recreation & Community Health

Access to recreational amenities such as trails not only provides opportunities for leisure activities, but also improves public health and wellness. Community members that regularly take advantage of local parks and trails are shown to have lower body mass indexes, lower blood pressure, lower levels of stress, and improved quality of life.

Active Transportation

The ability of trails and greenways to function as transportation corridors make them critical components of a community's transportation network. Further, increased active transportation may reduce traffic congestion, decrease pollution, and spur economic development.

Conservation

Trails and greenways promote environmental protection and conservation. By maintaining greenways free of development, a community can maintain and enhance potential biological, aesthetic, and cultural features of a community. The natural areas that comprise a greenway offer educational and recreational opportunities, as well as environmental benefits such as cleaner air and water.

Flood Control

Comprised of natural areas with permeable surfaces, greenway components can provide critical flood management. Trails that follow bodies of water, such as Beaver Creek, serve as critical buffers to adjacent development. These natural buffers can reduce flood risks to developed area, which contribute to safer, more resilient communities.

Past Planning: Ignite (1999)

The City's 1999 Ignite Downtown Plan established the foundation for the Beaver Creek Trail. Ignite proposed a Beaver Creek Walk, or an activated walkway along the creek in Downtown Bristol that could drive new development and activate the downtown. Ignite rightly noted that Beaver Creek is underutilized and could be leveraged for environmental, recreational, and commercial benefits. The Comprehensive Plan builds upon this recommendation by proposing a city-wide path that would extend from a new Bristol Creek Walk in Downtown to Sugar Hollow Park in the northeastern part of the city.



Source: City of Bristol

Planning Process

Planning and constructing a trail network is a community effort. The chart below outlines a typical process for implementing a trail project:



Planning Considerations

Rails-with-Trails

The Norfolk Southern rail line that follows much of the proposed Beaver Creek Trail alignment provides an opportunity to take advantage of existing right-of-way and/or may require cooperation with the rail company to obtain trail easements. Trails located adjacent to active rail lines are not uncommon. As of September 2013, the Rails to Trails Conservancy identified 161 "rails-with-trails" projects in 41 states. Research has shown that these trails include a range of designs and prove to be safe, with only three reports of injury involving a trail user and train in a 20-year period.

Landowner Cooperation & Buy-In

The successful implementation of the Beaver Creek Trail will require close cooperation with adjacent land owners. While land acquisition is the most effective strategy to maintain control over trail corridors, easements provide an effective alternative. As such, landowners should be active participants in the planning process, helping to define public use under an easement, including the type of access, when and under what conditions access can be used. Easements should also be granted that limit liability to landowners. Where/when easements are not available, the usage of sidewalks or the shoulders of roads may be possible.

Potential Funding Sources

Trails and greenways can be funded through a number of state and federal programs:

- Surface Transportation Block Grant (STBG) program funding for transportation alternatives
- Recreational Trails Program
- Virginia Recreational Trails Fund (VRTF)
- Virginia Land Conservation Fund (VLCF)
- Virginia Open-Space Lands Preservation Trust Fund (VOSLPTF)
- Land and Water Conservation Fund
- Virginia Outdoors Fund
- Virginia Outdoor Recreation Legacy Partnership Program (ORLPP)

Additional information about these programs can be found in the Implementation Chapter.

Case Studies

Roanoke Valley Greenways

The Roanoke Valley Greenways is a network of greenway corridors throughout the Roanoke area that comprise a combined 270.9 miles of paved, cinder-surfaced, on-road, and natural surface trails. The project began in 1995, when a members of the non-profit group, Valley Beautiful Foundation, led the charge to engage and educate local officials on the benefits of greenways. With support from local officials, a Steering Committee was formed that helped to engage the public to create a community-based greenway plan.

In 1996, the committee secured funding through the Intermodal Surface Transportation Efficiency Act (ISTEA) to launch a pilot program for the Mill Mountain Greenway, the first of more than a dozen area greenways. The Steering Committee then organized the creation of the Greenway Commission, an advisory body with appointed citizen and staff representatives from Roanoke Valley jurisdictions that coordinates greenway planning, development, and maintenance; and Pathfinders for Greenways, a citizen non-profit group that assists with greenway education and promotion, volunteer coordination, maintenance, and fund raising.

Tobacco Heritage Trail

The Tobacco Heritage Trail is greenway trail network that spans five counties and 18 municipalities in southern Virginia. The project began in 2003, when a group of citizens and local officials presented a proposal to form a tax-exempt corporation that would acquire abandoned railroad property to develop a trail system. This established the Roanoke Rails-to-Trails Corporation (RRRT), which began work to brand the project as the Tobacco Heritage Trail and obtain approval to utilize a segment of abandoned right-of-way between the towns of La Crosse and Brodnax that was acquired by local governments in the 1970s for public use. Once obtained, the RRRT met with Norfolk Southern to acquire additional abandoned rail rights-of-way to expand the trail network.

Initial segments of the trail network were funded through a grant from the Bikes Belong Coalition, VDOT Enhancement Program, USDA Rural Development, Virginia Land Conservation Fund and the Recreational Trails Fund. The project also received advisory assistance from the National Park Service through the Rivers, Trails and Conservation Assistance Program (RTCA). RRRT continues to work with local municipalities to implement the Tobacco Heritage Trail Overall Master Plan (2008), which when complete, would encompass 160 miles of rail rights-of-way linked to 110 miles of on-road trail, new trail, and active rail right-of-way.



Source: Tobacco Heritage Trail, Flickr, East Coast Greenway, 2015

Wetlands

Wetlands are lands inundated or saturated with water at a frequency and duration sufficient to support vegetation and animals adapted for life in such conditions. Examples include marshes, bogs, and swamps. If properly maintained, they can filter water from impurities, recycle nutrients, capture rainwater and melting snow, and provide a habitat for wildlife. Bristol contains several small pockets of fresh water emergent wetlands and fresh water forested/shrub wetlands. The City should strictly prohibit development on wetlands.

Floodplain

Floodplains are any areas of land that are susceptible to being overcome from floodwaters in the event of a 100 year flood. In other words, during any given year, there is a one-percent chance that the area will be flooded. The City's zoning code restricts development in the floodplain. The floodplain is mostly concentrated within Downtown Bristol and along the City's streams and creeks. New development within a floodplain should be built out of the floodplain and include adequate green infrastructure.

Waterways

Four main waterways run through the City of Bristol, including Beaver Creek, Mumpower Creek, Susong Creek, and Little Creek. They are supplemented by three minor creeks: Clear Creek, Goose Creek, and Steele Creek. These waterways are shallow, narrow, and slow moving, but play an important role in the health and ecology of the community. Waterways support plant life and wildlife, and are vital to the cycle of water moving through a region. Pollution and encroachment by development can have a significant impact on waterways and the surrounding environment within Bristol and other communities located downstream. Further, waterways are seen as valuable amenities to residents, improving the appearance and atmosphere of an area.

The City should take proactive steps to protect these waterways from encroachment and pollution. Given historic development patterns within Bristol, this can be a challenging endeavor as many existing structures are within close proximity to the streams and many neighborhoods lack any sort of riparian buffer. However, the City could work with existing property owners, where possible, to institute a buffer on existing development or, as redevelopment occurs, ensure that new development does not encroach upon the waterway.



Development should not encroach upon waterways such as rivers and creeks.



City of Bristol, VA Environmental Features

Bodies of water, topography, vegetation, and wildlife can all play an important role in understanding a community and planning for its future. Open spaces and environmental features also sustain a healthy ecosystem and provide a beautiful landscape. Bristol is located in some of the most recognizable and distinctive environmental areas in the United States, and preserving this natural setting is important for future land use and development planning. The City should take steps to preserve its natural features and environmentally sensitive areas from future development or encroachment which may lead to loss of habitat, flooding, or other negative impacts to the environment.

LEGEND

- Parks / Open Spaces** are green spaces throughout the community that are utilized for either active or passive recreation.
- Hilly Topography** gives Bristol both a distinctive Appalachian character and scenic beauty but poses challenges for development.

- Wetlands** are lands inundated or saturated with water at a frequency and duration sufficient to support vegetation and animals adapted for life in such conditions. The City should strictly prohibit development on wetlands.

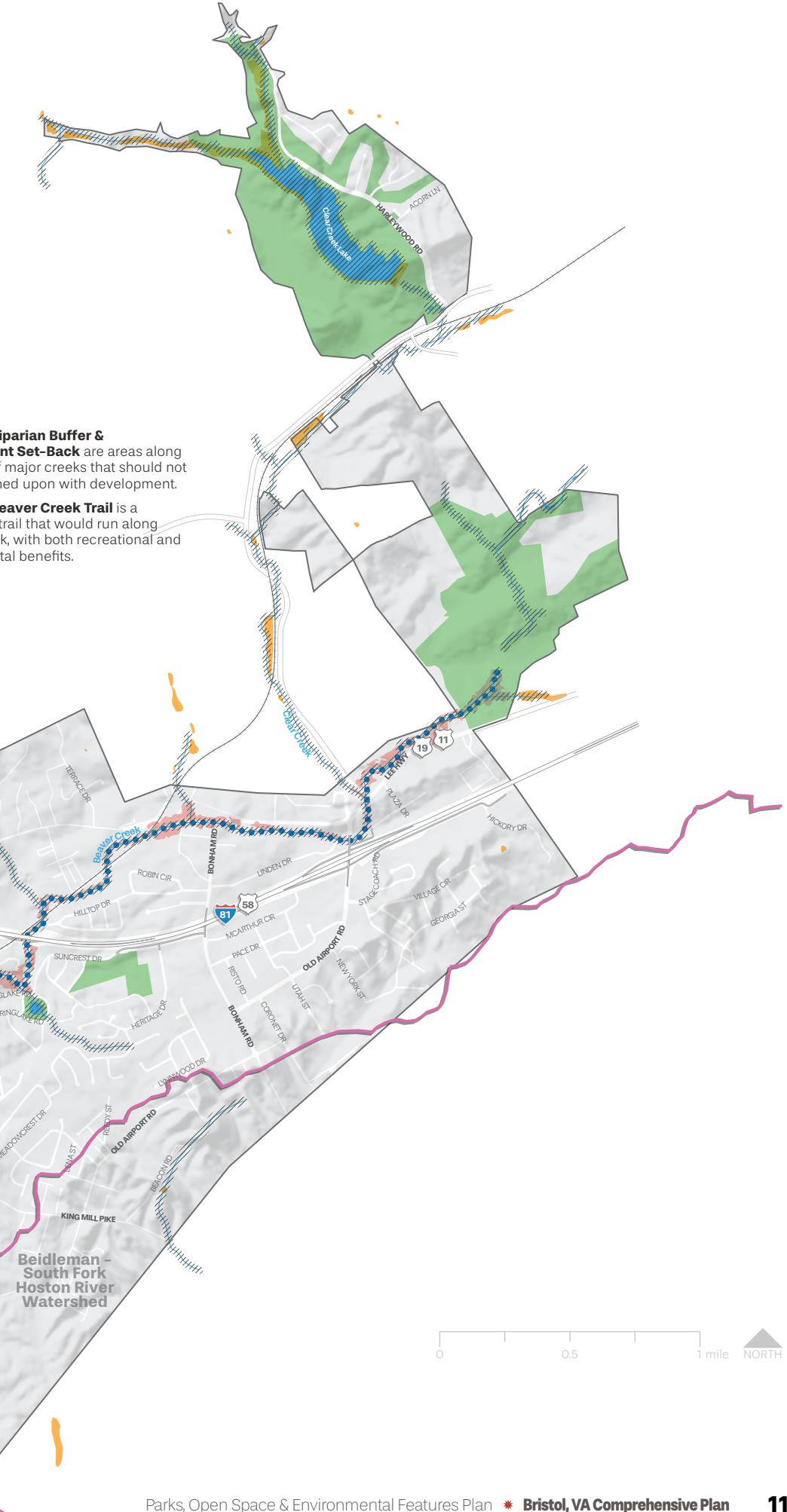
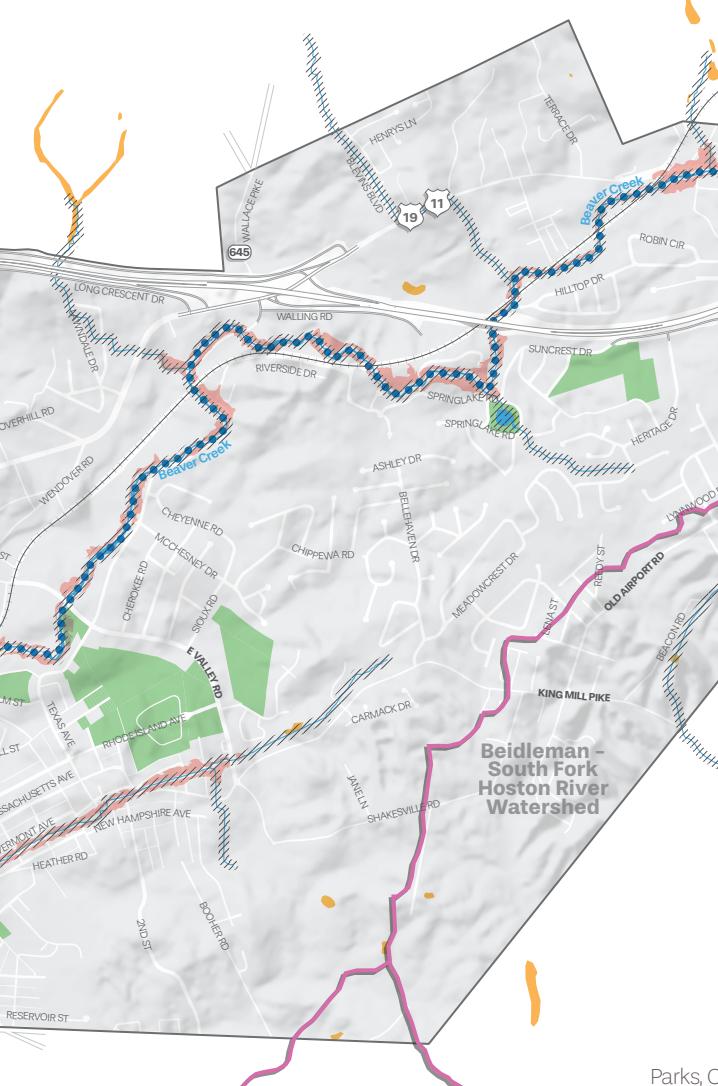
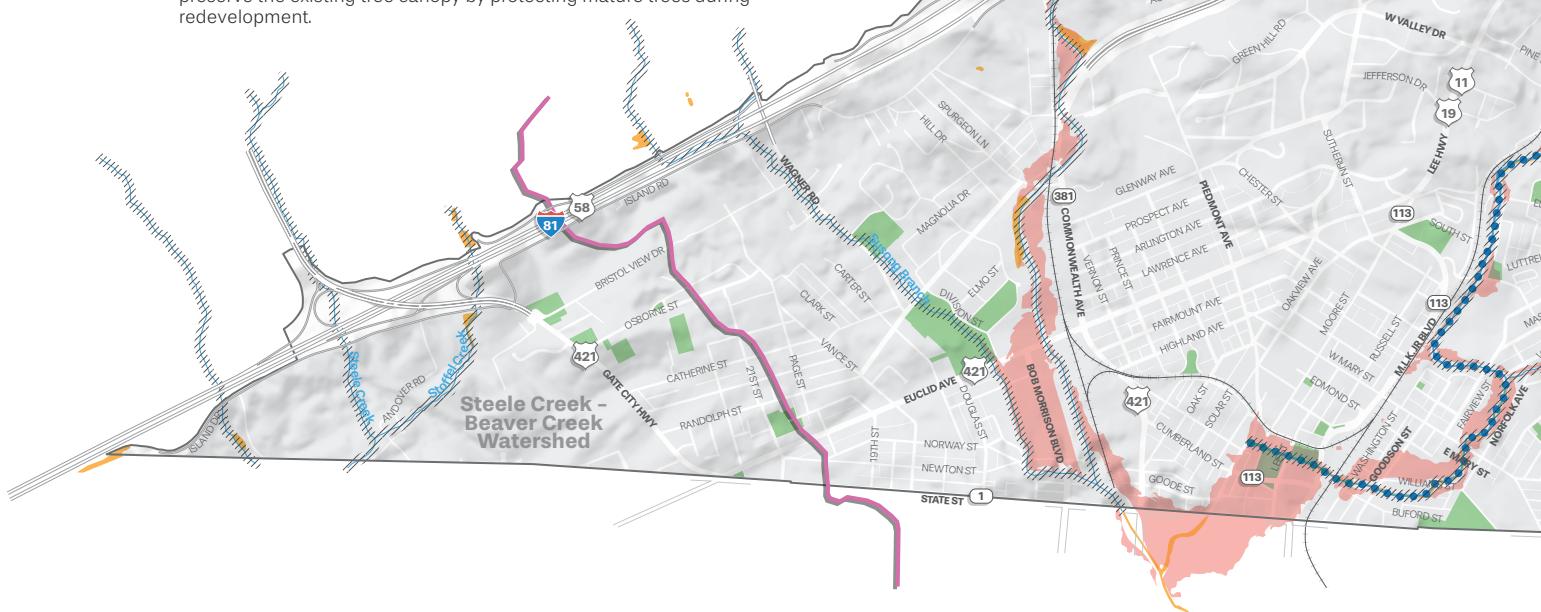
- 100-Year Floodplains** are any areas of land that are susceptible to being overcome from floodwaters in the event of a 100 year flood. New development within a floodplain should either be built out of the floodplain or not permitted; if built out, the site should include adequate green infrastructure.

- Streams & Creeks** include four major creeks and three minor creeks. Waterways support plant life and wildlife, and are vital to the cycle of water moving through a region. Pollution and encroachment by development can have a significant impact on the surrounding environment within Bristol and other communities located downstream. The City should take proactive steps to protect these waterways from encroachment and pollution.

- Proposed Riparian Buffer & Development Set-Back** are areas along the banks of major creeks that should not be encroached upon with development.
- Proposed Beaver Creek Trail** is a conceptual trail that would run along Beaver Creek, with both recreational and environmental benefits.



Tree canopies, or a city's tree cover, act as an urban forest and help shield direct sunlight, absorb rainwater, and improve air quality. The City should take steps to preserve the existing tree canopy by protecting mature trees during redevelopment.





IMPLEMENTATION

The City of Bristol Comprehensive Plan sets forth a road map to help guide the City for the next 15 to 20 years. This Implementation Chapter helps translate the Comprehensive Plan's policy and land use recommendations into direct action. It outlines the next steps to the successful execution and application of the Plan's goals, objectives, and policy recommendations.

This section outlines seven key steps the City of Bristol should undertake to begin implementation of the Comprehensive Plan.



The Implementation chapter is organized into eight sections.

Use the Plan Daily

Review & Update the Plan on a Regular Basis

Develop an Action Plan

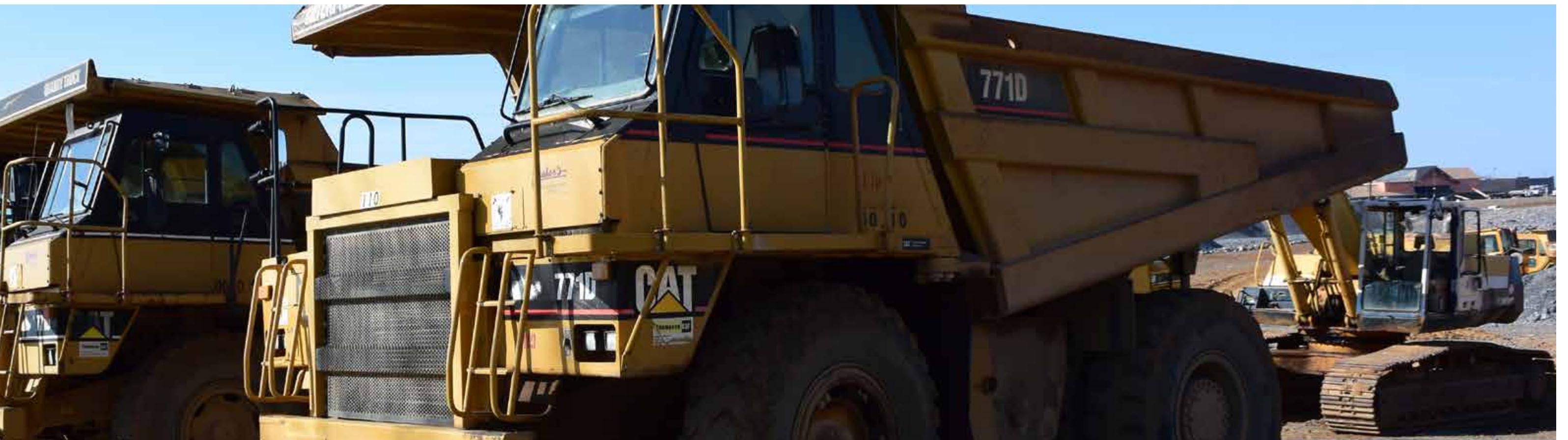
Update Development Regulations

Maintain Open Communication

Promote Cooperation

Identify & Pursue Funding

Implementation Priorities



1. Use the Plan Daily

The Comprehensive Plan is intended to serve as the official policy guide for land use and development. It should be readily available and accessible for reference and used on a day-to-day basis by City staff, officials, boards, and commissions to inform everyday decision making.

New facilities, infrastructure, and programming should align with the Plan's goals and objectives. Following adoption of the Plan, City administration should meet with all department heads for a debriefing of the Plan, highlighting the significance of its contents and how it may influence policies, projects and capital improvements.

2. Review & Update the Plan on a Regular Basis

Cities are dynamic environments and are constantly changing and evolving. As such, the Comprehensive Plan should serve as a living document that is updated on a regular basis to reflect the changing needs of the community.

■ **Annual Review.** The City should review the plan annually, maintaining a public list of potential amendments, issues, or needs which may be a subject of change, addition, or deletion from the Comprehensive Plan. Routine examination of the Plan will help ensure that the Plan remains relevant to community needs and aspirations.

■ **Plan Update.** The City should undertake a systematic review of the Plan every 3 to 5 years, and revise and update the Plan accordingly. The review should coincide with the preparation of the City's budget and Capital Improvements Program. In this manner, recommendations or changes relating to capital improvements or other programs can be considered as part of the commitments for the upcoming fiscal year.

3. Develop an Action Plan

The Comprehensive Plan includes goals and supporting objectives for each element of the plan. Each objective includes strategic recommendations and strategies to achieve the vision of the community.

The creation of a detailed Action Plan will help structure implementation in a manageable way and measure progress. Implementation items (e.g. new policies, infrastructure investments) should be prioritized and measureable. City officials should evaluate all of the Plan's recommendations and annually prioritize execution based on community needs, ease of implementation, and current and projected resources.

The Action Plan should highlight the key activities to be undertaken each year and may consist of:

- A detailed description of the projects and activities to be undertaken;
- The priority/timeframe of each project or activity (e.g. Year 1, Year 2, Year 3, Year 4, Year 5);
- An indication of the public and private sector responsibilities for initiating and participating in each activity; and
- Metrics that can be used to track the progress of each project or activity.

4. Update Development Regulations

The Comprehensive Plan sets forth policies regarding the location and uses of land within the City of Bristol and establishes guidelines for the quality, character, and intensity of new development in the years ahead. Development regulations, such as zoning and subdivision ordinances, should align with and support the Comprehensive Plan's vision, goals, and objectives. The City's development regulations in the Zoning Ordinance are the "legal teeth" for the Plan's recommendations. As such, the City's zoning, subdivision, property maintenance, and other related codes and ordinances should be reviewed and updated to ensure that all are consistent with and complementary to the Comprehensive Plan.

Zoning Ordinance amendments and ordinances may include the following:

- Modify the Zoning Map to reflect the desired locations of residential, commercial, and industrial development throughout the community;
- Amend subdivision and zoning ordinance to support cluster development, explicitly permit stormwater management best management practices, and protect open space areas, etc.
- Review the standards for older residential districts to ensure that they do not inhibit reinvestment in these important areas of the City.
- Utilize overlay districts to create distinct commercial character areas, including a higher level of design in terms of building materials, landscaping, and signage along the City's key corridors.

■ Require sidewalks along the right-of-way as redevelopment occurs to enhance connections between neighborhoods, community amenities, parks, schools and retail; particularly in neighborhoods in close proximity to Downtown.

■ Require parkway trees in new development areas and prescribe tree species that provide diversity and resiliency to disease and climate change.

5. Maintain Open Communication

The public dialogue that shaped the Bristol Comprehensive Plan should continue well into its implementation. Consistent communication and outreach with residents and businesses is essential for the successful implementation of the Plan. The City should ensure that the Plan's major recommendations and "vision" for the future are conveyed to the entire community.

To further educate the community about the Plan, the City should:

- Make copies of the Plan available and accessible online and at City Hall
- Provide assistance in explaining the role of the Plan, its policies, and its relationship to public and private development.
- Keep the public informed of all planning developments through the City's website, a newsletter, and communication through civic and community leaders.
- Continue to engage and seek feedback from residents and the business community.
- Maintain and open dialogue and communication on regional issues with Washington County and Bristol, Tennessee

6. Promote Cooperation

Strong leadership from the City of Bristol and firm partnerships and relationships between other public agencies, community groups and organizations, the local business community, and the private sector are crucial to the success of the Comprehensive Plan. The City should assume a leadership role to cooperate and coordinate with government agencies such as Washington County, Virginia Department of Natural Resources, Virginia Department of Transportation and Bristol, Tennessee.

Cooperation and communication with local service providers including the School District, public safety providers, and utility providers, are equally important. Regular communication with these entities promotes cooperation and helps identify mutually beneficial projects and opportunities.



7. Identify & Pursue Funding

The Comprehensive Plan includes a variety of policy and planning recommendations for land use and development, transportation, parks and open space, and community facilities. Many vary in terms of timeframe and cost. Some actions, such as regulatory amendments, administrative policies, or partnerships, can be executed immediately with minimal or no financial cost. Others, however, require funding that may not currently be programmed or is beyond the capacity of the City. As such, the City of Bristol should continuously identify and apply for local, state, and federally-available funds.

The funding sources identified below provide a range of potential sources to implement the Comprehensive Plan. These resources, however, are subject to change as local, state, and federal programs evolve. They should be closely monitored and assessed to understand application deadlines and eligibility requirements.

Service Districts

Any locality may create a service district to "provide additional or more complete services of government than are required in the city (county or town) as a whole." A separate assessment on real estate within the district may be used for a variety of purposes including physical improvements and maintenance, general business promotion, facilities operation and staffing.

Community Development Authorities

Cities, towns and certain counties may create community development authorities and issue tax exempt revenue bonds to develop and manage facilities and services including roads, parking, utilities, streetlights, landscaping, security, maintenance, recreation, schools, etc. A separate and additional tax on real estate may be assessed to pay the debt service on the bonds.

Assessments for Local Improvements

Virginia allows local governments to tax or assess abutting properties for local improvements including constructing, improving, replacing or enlarging sidewalks, streetlights, alleys, curb and gutter, water and sewer lines, and amenities such as benches and waste receptacles.

Tax Increment Financing (TIF)

Any locality may create TIF districts to stimulate private investment in development project areas. TIF district boundaries are set and the current or "base assessed value" of tax revenue is determined. In the ensuing years the base value continues to go to the locality's general fund, but any increase in revenue due to redevelopment (the increment) is placed in a separate TIF Fund. TIF funds are usually used to pay off debt incurred to provide redevelopment incentives such as land assembly and site preparation and infrastructure improvements.

Local Technology Zones

All cities, counties and towns may designate one or more zones to offer up to ten years of incentives and regulatory flexibility, including reductions of gross receipts tax and permit fees, special zoning, etc.

Entitlement to Certain Sales Tax Revenues

Cities that meet required criteria may use sales tax revenue generated within a new, renovated or expanded public facility (publicly-owned auditorium, coliseum, convention or conference center) to pay costs of acquisition, construction and start-up operations



Enterprise Zones

Businesses within Enterprise Zones that create jobs and improve facilities can receive grants for job creation and real estate investment.

Low-Income Housing Tax Credits

The Virginia Housing Development Authority (VHDA) allocates federal tax credits for acquiring/constructing/renovating rental units for low-income persons.

Neighborhood Assistance Program

Businesses can receive a tax credit of 45% of their investment in approved community service projects that benefit low income individuals and areas. Eligible uses include job training and daycare centers, cultural programs, and neighborhood renovations. Credits may also be taken for donations of materials, employees' paid time and services.

New Markets Tax Credits

Investors such as banks, corporations, organizations, or individuals can receive a tax credit of 39% over seven years for their investment in qualified Community Development Entities (CDEs) that in turn invest in profit-generating community development projects in low-income areas.

Appalachian Regional Commission

ARC provides matching grants to counties and cities in western and southwestern Virginia for projects fostering economic and community development and human resource improvements.

Arts and Urban Design

The National Endowment for the Arts' Visual Arts program provides matching grants for art-in-public places and the Design Arts program promotes architecture, planning, preservation, urban design, etc.

The Virginia Commission for the Arts has several matching grant programs such as local government challenge grants, general operating support for arts organizations, technical assistance grants, and touring performance artist grants.

Community Development Block Grants

Bristol is classified as an entitlement community by the Department of Housing and Urban Development (HUD). The Department of Community Development and Planning is responsible for administering Community Development Block Grant (CDBG) funds within the city. Projects must benefit low and moderate income persons, aid in the prevention or elimination of slums or blight, and meet other community development needs having a particular urgency because existing conditions pose a serious threat to the health or welfare of the community when other financial resources are not available to meet such needs (natural disaster, fire, tornado, etc.).

Establishing programs with demonstrated and quantifiable success (within the scope of CDBG) can help increase Bristol's access to additional CDBG dollars.

Tourism

The Virginia Tourism Corp. distributes matching grants for marketing through the Tourism Cooperative Advertising Fund. Applications must come from local destination marketing organizations, along with other partners, to fund new projects promoting Virginia attractions to out-of-state audiences.

Transportation

Federal Transportation Funding

In December 2015 the Fixing America's Surface Transportation (FAST) Act, a five-year transportation reauthorization bill, was established. The FAST Act replaces the Moving Ahead for Progress in the 21st Century (MAP-21) Act, which expired in October 2015 and was extended three times. The FAST Act aims to improve infrastructure, provide long-term certainty and increased flexibility for government, streamline approval processes, and encourage innovation to make the surface transportation system safer and more efficient.



The FAST Act continues funding for numerous programs previously funded through MAP-21. Given the recent passage of the FAST Act, it is still uncertain how changes in Federal policy will ultimately impact existing funding programs. The City should stay informed of the status of these programs and new funding sources that may be introduced in the near future as a result of the FAST Act.

Safe Routes to School (SRTS)

SRTS is an effort to increase safety and promote walking and bicycling to school through engineering, education, enforcement, encouragement, and evaluation. The 2015 FAST Act carries this program over from the 2005 SAFETEA-LU federal transportation bill. Eligible projects include:

- Sidewalk improvements;
- Traffic calming and speed reduction improvements;
- Pedestrian and bicycle-crossing improvements;
- On-street bicycle facilities
- Off-street bicycle and pedestrian facilities;
- Secure bicycle parking system; and,
- Traffic diversion improvements in the vicinity of schools

HB 2 & Prioritization

HB2 was signed into law in 2014 and contains two funding programs administered by the Commonwealth Transportation Board (CTB) using an objective scoring process.

There are two main pathways to funding within the process—the Construction District Grant Program (CDGP) and the High-Priority Projects Program (HPPP). These two grant programs were established this year under House Bill 1887. The CDGP is open only to localities and replaces the old "40-30-30" construction fund allocation model.

A project applying for funds from the CDGP is prioritized with projects from the same construction district. A project applying for funds from the HPPP is prioritized with projects statewide. The CTB then makes a final decision on which projects to fund.

UDA Grants

As enabled by Virginia Code § 2.2-229, the Office of Intermodal Planning and Investment (OIP) of the Secretary of Transportation is offering grants for professional planning consultant assistance to local governments and regional entities to establish and support Urban Development Areas.

Urban Development Areas (UDAs) can cover a wide variety of community types, ranging from small town or village centers to suburban activity areas to urban downtowns. UDAs can help local governments and regional entities to focus investments and create great places that attract businesses and workers alike.

Parks & Trails

Recreational Trails Program

This program provides and maintains motorized and non-motorized recreational trails and trail-related projects. Public agencies, and non-profit or private organizations are eligible to sponsor – non-profit and private sponsorship will require a public agency co-sponsor. Qualifications for funding include:

- A minimum 20% match is required.
- Trails resulting from successful applications must be maintained as a public facility for a minimum of 20 years.

Parks & Recreation

The Virginia Department of Conservation and Recreation's Division of Planning and Recreation Resources administers the Virginia Outdoors Fund, which provides matching grants for acquisition and development of public outdoor recreation areas and facilities.



Implementation Action Agenda

8. Implementation Action Matrix

The Comprehensive Plan provides many policy and program recommendations. The Implementation Action Matrix included at the end of this section provides City staff, officials and stakeholders with an organized table highlighting some of the key recommendations and strategies of the Plan along with identifying potential partners and resources.

The Implementation Action Matrix consists of:

- A detailed description of the projects and activities to be undertaken;
- The timing/priority of each project or activity;
- An indication of the public and private sector responsibilities for initiating and participating in each activity; and
- Potential funding sources and assistance programs that might be available for implementing each project or activity.

While the action matrix identifies numerous potential partners for implementing the Comprehensive Plan, the City of Bristol remains primarily responsible for all action items. The listed potential partners demonstrate opportunities for cooperation, but the action matrix does not represent a commitment or responsibility on their behalf. In addition, new funding sources may become available or certain programs may be discontinued during the life of the plan. The City should continue to explore opportunities for partnering and funding.

Action Priorities

Each action item has been designated a timing/priority level to aid with implementation of Plan recommendations. Action item priorities are broken into three levels including:

1. Actions that are on-going or capable of being implemented in the immediate to short term. Though not necessarily more important, items listed as "1" may have an immediate impact on the community, may be more easily completed, or may be necessary actions for longer term projects to begin.
2. Actions that have secondary priority and/or include longer term projects, actions that have less of a direct impact on quality of life, and actions that require other projects be completed before they can be started.
3. Actions that are similar in scope to those marked as "2" but are viewed as longer-term items. Again, not less important, but may require additional planning, are dependent on other actions or require more complex funding to accomplish.

#	Strategy	Recommendation Action	Timing	Potential Partners	Potential Funding Sources
Land Use & Development Plan					
1	Administer and Enforce the Land Use Plan	1a. Revise zoning, development, and signage regulations to ensure compatibility with the Comprehensive Plan. 1b. Maintain flexibility particularly in relation to the Bristol Mall Property, Gordon Park Property, Tenneva Property, and Southern States Property to respond to development proposals	1 1	Property Owners, Business Owners, Residents Development Community, Property Owners, Investors	Primarily City staff time and Resources Primarily City staff time and Resources
Residential Areas Framework Plan					
1	Stabilize and revitalize residential areas.	Work with property owners, developers, lenders to demolish structures that are abandoned or represent a threat to public health and safety Develop a Comprehensive Blight Elimination Plan that prioritizes areas for public investment. Develop a residential rehabilitation incentive program.	1 2 2	Property Owners, Development Community, Neighborhood Organizations, Lenders Property Owners, Development Community, Lenders Property Owners, Development Community, Lenders, Investors	Tax Increment Financing (TIF), Service Districts, Assessments for Local Improvements, Neighborhood Assistance Programs, Housing Tax Credits, HUD, CDBG Funds Primarily City staff time and Resources Tax Increment Financing (TIF), Service Districts, Assessments for Local Improvements, Neighborhood Assistance Programs, Housing Tax Credits, HUD, CDBG Funds
2	Protect the historic character of the Downtown, Euclid Avenue, Solar Hill, and Virginia Hill neighborhoods.	Require rental inspections and occupancy permits to ensure that units are safe and inhabitable, and that landlords are properly adhering to application regulations. Budget for and continue to support the undertaking of consistent and effective code enforcement Incentivize infill development in residential neighborhoods in need of reinvestment	1 1 2	Property Owners, Development Community Property Owners, Residents, Development Community Property Owners, Development Community, Lenders, Investors, Neighborhood Organizations	Primarily City staff time and Resources Primarily City staff time and Resources Tax Increment Financing (TIF), Service Districts, Assessments for Local Improvements, Neighborhood Assistance Programs, Low-Income Housing Tax Credits, HUD, CDBG Funds
3	Ensure new residential development is well-designed and constructed with quality materials.	Preserve and restore historic structures through code amendments. Develop non-binding residential design guidelines that can provide guidance to property owners and developers on styles, materials, bulk and density	2 3	Property Owners, Development Community, Lenders, Historic Preservation groups Property Owners, Residents, Stakeholders, Development Community	Primarily City staff time and Resources Primarily City staff time and Resources
4	Screen neighborhoods from incompatible industrial or commercial uses.	Require adequate buffering and screening between residential neighborhoods, utilities, and more intense uses through code amendments, parking limitations, and more compatible land use arrangements.	2	Property Owners, Development Community	Primarily City staff time and Resources
5	Expand housing options	Encourage the development of a range of housing options, including multi-family developments and "age in place" options, on sites with close proximity to community facilities and amenities. Encourage the de-concentration of low-income housing	2 2	Property Owners, Development Community, Human & Healthcare providers Property Owners, Stakeholders, Development Community	Neighborhood Assistance Programs, Housing Tax Credits, Tax Increment Financing (TIF) Neighborhood Assistance Programs, Low-Income Housing Tax Credits, HUD

#	Strategy	Recommendation Action	Timing	Potential Partners	Potential Funding Sources	#	Strategy	Recommendation Action	Timing	Potential Partners	Potential Funding Sources
Commercial & Employment Areas Framework Plan											
1	Promote redevelopment and reinvestment along Bristol's commercial corridors.	Leverage incentives and financing tools to promote commercial reinvestment along Euclid Avenue, Commonwealth Avenue, West State Street, and Gate City Highway.	2	Development Community, Property Owners	National Endowment for the Arts' Visual Arts and Urban Design programs, Appalachian Regional Commission, Neighborhood Assistance Program, New Markets Tax Credits, Enterprise Zones, Assessments for Local Improvements, Tax Increment Financing (TIF)	5	Maintain Downtown Bristol as an exciting mixed-use environment and the cultural, social, and entertainment heart of the community.	Implement the recommendations of the Downtown Sub-Area Plan.	2	Bristol, TN, Believe in Bristol, Business and Property Owners	National Endowment for the Arts' Visual Arts and Urban Design programs, Appalachian Regional Commission, Neighborhood Assistance Program, New Markets Tax Credits, Enterprise Zones, Assessments for Local Improvements, Tax Increment Financing (TIF)
		Support the creative re-use or redevelopment of the Bristol Mall utilizing the framework provided in the Land Use and Development Plan.	2	Property Owners, Development Community, Investors	Appalachian Regional Commission, Neighborhood Assistance Program, New Markets Tax Credits, Enterprise Zones, Assessments for Local Improvements, Tax Increment Financing (TIF), UDA grants			Implement the Comprehensive Parking Study and Parking Management Plan for Downtown Bristol.	2	Bristol, TN, Believe in Bristol, Business and Property Owners	Primarily City staff time and Resources
		Beautify and improve the infrastructure of key corridors and enhance gateway features at key locations to announce entry into the City of Bristol.	3	Property Owners, Businesses Owners, VDOT	VDOT administered grants and programs			Enact historic zoning that can protect Bristol's historic structures from demolition and significant façade alterations while encouraging and incentivizing the adaptive re-use of Bristol's vacant or underutilized historic structures.	2	Property Owners, Historic Preservation Organizations, Development Community, Believe in Bristol	Federal and State Historic Preservation Programs
		Improve pedestrian and cyclist infrastructure along commercial corridors to increase connectivity between residents/consumers and local businesses.	2	Property Owners, VDOT	VDOT administered grants and programs			Restore modernized and covered up facades of historic buildings to their original architectural design.	3	Property Owners, Historic Preservation Organizations, Development Community, Believe in Bristol	Federal and State Historic Preservation Programs
2	Continue efforts to make I-81 Exits 5 & 7 the premier shopping destinations within the greater Tri Cities area.	Complete the planned phasing of The Falls.	3	Business Owners, Development Community, Property Owners	Tax Increment Financing (TIF), Service Districts, Assessments for Local Improvements, CDBG Funds, Appalachian Regional Commission, UDA Grants	6	Facilitate the redevelopment and/or expansion of underutilized areas identified on the Future Land Use Map for office, light industrial, and business park uses.	Review and amend the zoning code to ensure engaging, context appropriate, new infill development.	1	Property Owners, Development Community	Primarily City staff time
		Undertake the road and utility infrastructure improvements necessary to accommodate future residential and commercial development associated with The Falls and spin-off redevelopment.	3	VDOT, BVU	Construction District Grant Program (CDGP), High-Priority Projects Program (PPP)			Add public art, including murals and sculptures, throughout Downtown to improve its unique sense of place.	3	Property Owners, Business Owners, Residents, Art Community, Bristol Virginia Public Schools	National Endowment for the Arts' Visual Arts and Urban Design programs, Appalachian Regional Commission, Neighborhood Assistance Program, Private donations, VA Tourism Corp.
		Update the Code of Ordinances to facilitate the transition of the area north of Lee Highway (as identified on the Future Land Use Map), roughly between Blevins Road in the west and the railroad right-of-way in the east, into a master-planned mixed-use development(s) that can add residential density to the district.	2	Business Owners, Development Community, Property Owners, VDOT, BVU	Primarily City Staff Time and Resources			Continue to use the historic Bristol Train Station to host special events, pop-up events, rotating tenants, and/or the addition of a small park or plaza. Continue evaluating opportunity for passenger rail use.	3	Property Owners, Business Owners, Residents	Tax Increment Financing (TIF), Service Districts, Assessments for Local Improvements, Neighborhood Assistance Programs, CDBG Funds
3	Improve the aesthetic appearance of Bristol's commercial and industrial areas and ensure compatibility with neighboring uses.	Amend the Code of Ordinances to require on-site landscaping for all new commercial and industrial development, adequate buffering and screening between residential neighborhoods and more intense uses, and screening of industrial storage, dumpsters, and raw materials from the public right-of-way.	2	Business Owners, Property Owners, Development Community	Primarily City Staff Time and Resources	6	Facilitate the redevelopment and/or expansion of underutilized areas identified on the Future Land Use Map for office, light industrial, and business park uses.	Support the development of lodging, including boutique hotel(s), within Downtown Bristol.	2	Property Owners, Development Community, Chamber of Commerce, CVB	Tax Increment Financing (TIF), Service Districts, VA Tourism Corp, Appalachian Regional Commission, Tobacco Commission
		Develop non-binding design guidelines for commercial corridors and industrial parks that can provide guidance to developers and architects on new product.	3	Business Owners, Property Owners, Development Community	Primarily City Staff Time and Resources			Improve pedestrian access by enhancing the striping of crosswalks, adding crosswalk countdown timers, and evaluating opportunities for bike lanes and bike parking.	2	Bristol, TN, Believe in Bristol, Business and Property Owners	UDA, HB2 programing funds, Virginia Department of Conservation and Recreation
		Encourage the transition and redevelopment of incompatible land use arrangements, as identified on the Land Use Map, into more compatible land use arrangements.	2	Business Owners, Property Owners, Development Community	Tax Increment Financing (TIF), Service Districts, Assessments for Local Improvements			Continue to host large-scale music festivals and concerts, such as Rhythm & Roots or traveling acts or major bands, in the Downtown area.	2	Bristol, TN, Believe in Bristol, Business and Property Owners, Residents, Chamber of Commerce, CVB	VA Tourism Corp.
4	Leverage Bristol's many unique assets to increase tourism and visitors to the city.	Establish a direct route that can efficiently link two major activity generators: The Falls and Downtown Bristol.	3	VDOT, Property Owners	Tax Increment Financing (TIF), Service Districts, Assessments for Local Improvements, CDBG Funds, Appalachian Regional Commission, UDA, HB2 programing funds			Implement the recommendations of the Bob Morrison Boulevard Sub-Area Plan.	3	Property Owners, Business Owners, Development Community	Tax Increment Financing (TIF), Service Districts, Assessments for Local Improvements, CDBG Funds, Appalachian Regional Commission, UDA, Smart Scale funds, Enterprise Zone, New Markets Tax Credits, Tobacco Commission
		Enhance marketing campaign to further promote the advantages and benefits of living, working, doing business in, or visiting Bristol.	1	Property Owners, Residents & Stakeholders, Chamber of Commerce, CVB	Primarily City Staff Time and Resources			Support the expansion of existing light industrial and industrial uses in identified transition areas as well as industry along Old Airport Road, Bonham Road, and Beacon Road.	3	Property Owners, Stakeholders, Development Community, EDA	Tax Increment Financing (TIF), Service Districts, Assessments for Local Improvements, CDBG Funds, Appalachian Regional Commission, UDA, Smart Scale funds, Enterprise Zone, New Markets Tax Credits, Tobacco Commission
		Continue to support existing programs and events and develop new events such as community festivals and holiday events and gatherings recognizing that these programs and events bring the community together, foster civic pride, and create a sense of unity.	1	Property Owners, Residents & Stakeholders	VA Tourism Corp, Service Districts, Assessments for Local Improvements						

#	Strategy	Recommendation Action	Timing	Potential Partners	Potential Funding Sources
7	Work to enhance the local business climate to attract employment opportunities as well as diversification of the tax base.	Develop an Economic Development Strategic Plan	1	Property Owners, Business Owners, EDA	Primarily City Staff Time and Resources
		Identify target sectors and industries to help focus and guide business recruitment and retention	1	Business Owners, Property Owners, EDA	Primarily City Staff Time and Resources
		Market and promote Bristol's low cost of living, transportation infrastructure, and proactive business climate to prospective employers.	1	Property Owners, Business Owners, EDA, Development Community, Real Estate Brokers	Primarily City Staff Time and Resources
		Evaluate opportunities to simplify existing regulatory and permitting processes to make them more predictable, streamlined, and business-friendly.	1	Property Owners, Business Owners, EDA, Development Community	Primarily City Staff Time and Resources
		Host regular meetings that can bring together city staff/officials and members of the business community to discuss challenges, share ideas, and answer regulatory questions.	1	Business owners, EDA	Primarily City Staff Time and Resources

Bob Morrison Boulevard Sub-area Plan

1	Transform the Bob Morrison Boulevard sub-area into a hub for innovation and advanced industries surrounded by healthy, vibrant, and pedestrian friendly commercial corridors.	Encourage new infill development along State Street, particularly underutilized surface parking.	3		Appalachian Regional Commission, Neighborhood Assistance Program, New Markets Tax Credits, Enterprise Zones, Assessments for Local Improvements, Tax Increment Financing (TIF)
		Enhance buffers between proposed light industrial developments and the surrounding residential and commercials areas	2	Property Owners	Appalachian Regional Commission, Neighborhood Assistance Programs, Assessments for Local Improvements, Tax Increment Financing (TIF)
		Provide pedestrian amenities such as paved crosswalks, countdown timers, and signage. Add landscape improvements including medians and parkway trees	3	VDOT, Property owners, Development Community	VDOT administered programs
		Develop the Corvette Trail into a multi-use trail with a supporting greenway, connecting residential neighborhoods with Downtown Bristol.	3	Property Owners, Development Community, Neighborhood Organizations	Virginia Outdoors Fund, Recreational Trails Program
		Ensure that development does not encroach on the existing floodplain and utilize green infrastructure to mitigate flooding for new and existing developments.	1	Property Owners, Development Community, Army Corp	Primarily City Staff Time and Resources

#	Strategy	Recommendation Action	Timing	Potential Partners	Potential Funding Sources
Downtown Sub-area Plan					
1	Enhance the Scott Street district so that it continues to serve as the primary "civic campus" for the Bristol, Virginia community, and presents a vibrant, active node of office workers during daytime hours.	Add gateway features, landscaping, decorative signage, murals, and mosaics to define both Downtown and the Scott Street district.	2	Property Owners, Development Community, Believe in Bristol, Arts Community	National Endowment for the Arts' Visual Arts and Urban Design programs, Appalachian Regional Commission, Neighborhood Assistance Program, New Markets Tax Credits, Enterprise Zones, Virginia Outdoors Fund, Recreational Trails Program, Assessments for Local Improvements, Tax Increment Financing (TIF)
		Screen, expand, and improve the Beaver Creek Greenway, connecting it to a regional trail network when possible.	3	Property Owners, Development Community, Believe in Bristol, Arts Community	Tax Increment Financing (TIF), UDA Grants, Recreational Trails Program
		Evaluate infrastructure treatments to the at-grade railroad alignment to provide buffering between pedestrians and the trains, as well as improve the visual aesthetic of the area.	3	Railroad, Believe in Bristol	Railroad, Tax Increment Financing (TIF), CDBG Funds, UDA Grants
2	Implement improvements to make State Street a destination and a catalyst for attracting additional development and investment to the City of Bristol, Virginia.	Partner and assist in ensuring successful development of new Downtown hotels and related development.	1	Property Owners, Development Community, Believe in Bristol	National Endowment for the Arts' Visual Arts and Urban Design programs, Appalachian Regional Commission, Neighborhood Assistance Program, New Markets Tax Credits, Enterprise Zones, Virginia Outdoors Fund, Recreational Trails Program, Assessments for Local Improvements, Tax Increment Financing (TIF)
		Evaluate closing Carter Family Way and/or Stoneman Family Drive to create outdoor plazas and dining areas with accompanying lighting, public art etc.	3	Property Owners, Believe in Bristol	Appalachian Regional Commission, Neighborhood Assistance Program, New Markets Tax Credits, Enterprise Zones, Virginia Outdoors Fund, Recreational Trails Program, Assessments for Local Improvements, Tax Increment Financing (TIF), National Endowment for the Arts' Visual Arts and Urban Design programs,
		Create gateway signage entering from the west.	2	Believe in Bristol, Bristol, TN	
		Promote and support residential units Downtown and consider incentives targeted to the conversion of office and/or vacant upstairs space into contemporary, market-rate residential units.	1	Property Owners, Development Community, Believe in Bristol	Tax Increment Financing (TIF), UDA Grants, Historic Tax Credits
		Identify potential development groups with experience renovating and revitalizing historic theaters to consider potential incentives to redevelop the Cameo Theatre and bring both film and live events back to the theater.	2	Property Owners, Development Community, Believe in Bristol	Primarily Staff Time and Resources
		Organize a retention and expansion program to ensure the continued stability of existing businesses on State Street and identify a targeted developer recruitment strategy.	1	Property Owners, Development Community, Believe in Bristol	Primarily Staff Time and Resources
3	Define Cumberland Square as the heart of Bristol's urban experience for locals, providing housing, lower density neighborhood retail and services, as well as open space, public plazas, and access to trail networks.	Evaluate feasibility of removing Cumberland Square Park's surface parking area as an expansion of Cumberland Square Park, including creating a gateway entrance at the northeastern corner of Moore and Cumberland. Important to note that this should be pursued only if it can be determined that new and/or reconfigured parking supply can accommodate for the loss of existing parking.	3	Development Community, Property Owners, Believe in Bristol	Tax Increment Financing (TIF), UDA Grants,
		Work to ensure zoning codes and development regulations encourage the City's vision for the area	1	Development Community, Property Owners, Believe in Bristol	Primarily Staff Time and Resources

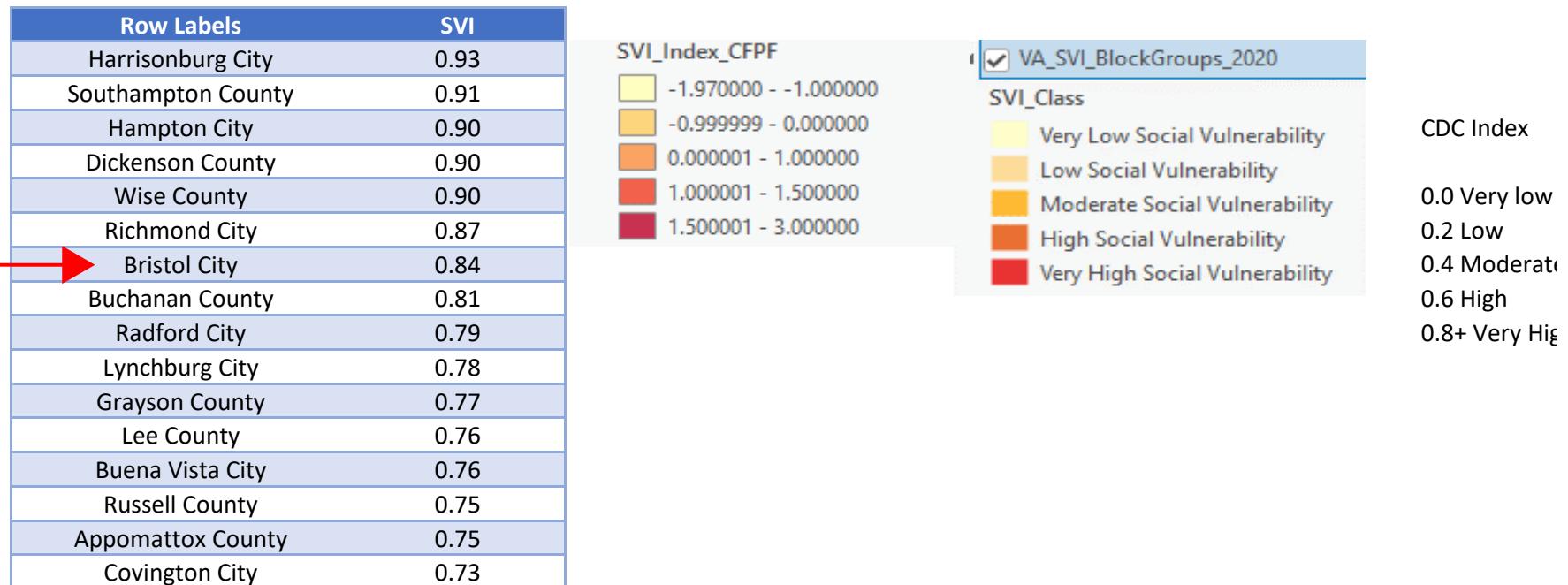
#	Strategy	Recommendation Action	Timing	Potential Partners	Potential Funding Sources
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Transportation & Mobility Plan					
1	Ensure the safe and efficient navigation and connectivity of the City's road network	Plan and work cooperatively with the Commonwealth of Virginia, Washington County, Bristol, TN, and Bristol MPO on improvements to Bristol's roadways, balancing regional priorities with local objectives.	1	VDOT, Commonwealth of Virginia, Washington County, Bristol, TN, Bristol MPO	FAST Act Funds, TIGER grants. Construction District Grant Program (CDGP), High-Priority Projects Program (HPPP), UDA Grants
	Budget for on-going maintenance and repairs of City owned streets and bridges as part of a comprehensive Capital Improvement Plan.	1	VDOT, Commonwealth of Virginia, Washington County, Bristol, TN, Bristol MPO	FAST Act Funds, TIGER grants. Construction District Grant Program (CDGP), High-Priority Projects Program (HPPP), UDA Grants. Tax Increment Financing (TIF)	
	Designate, and reinforce with appropriate infrastructure, Martin Luther King, Jr. Boulevard as the connecting link to Downtown from Lee Highway and The Falls.	2	Property Owners, Business Owners, VDOT	FAST Act Funds, TIGER grants. Construction District Grant Program (CDGP), High-Priority Projects Program (HPPP), UDA Grants, Tax Increment Financing (TIF)	
	Upgrade Lee Highway infrastructure to provide additional traffic capacity associated with The Falls and adjacent redevelopment areas.	1	Property Owners, Business Owners, VDOT	FAST Act Funds, TIGER grants. Construction District Grant Program (CDGP), High-Priority Projects Program (HPPP), UDA Grants, Tax Increment Financing (TIF)	
	Work with business owners along commercial corridors to reduce the number of curb cuts and improve cross-access	3	Property Owners, Business Owners, VDOT	FAST Act Funds, Construction District Grant Program (CDGP), High-Priority Projects Program (HPPP), UDA Grants. Tax Increment Financing (TIF)	
2	Provide safe and reliable fixed-route and demand responsive transit services that meets the transportation needs of Bristol, Virginia residents.	Implement the recommendations within the City's Transit Development Plan and ensure that the provision of transit services are accessible to all population groups within the City of Bristol, VA.	1	VDOT, BTT, BVT	FAST Act, Safe Routes to School (SRTS) Funds, Construction District Grant Program (CDGP), High-Priority Projects Program (HPPP), UDA Grants
3	Support and enhance the City's rail network.	Proactively lobby for extension of Amtrak passenger rail service to Bristol.	1	Amtrak, VDOT	FAST Act, Construction District Grant Program (CDGP), High-Priority Projects Program (HPPP)
	Continue to work with Norfolk Southern and VDOT to ensure rail crossings are safe, properly maintained, or improved whenever necessary.	1	Norfolk Southern, VDOT	FAST Act, Safe Routes to Schools Funds, Construction District Grant Program (CDGP), High-Priority Projects Program (HPPP)	
4	Establish a well-connected network of sidewalks, pathways, and trails that increase the safety and desirability of walking and biking.	Require sidewalks in all new developments along key corridors, in Downtown, within large planned developments, and subdivisions.	3	Development Community, Property Owners	FAST Act, Safe Routes to School (SRTS) Funds, Tax Increment Financing (TIF), UDA Grants
	Develop a continuous trail, sidewalk, and/or path network between Downtown and Sugar Hollow Park along or near Beaver Creek.	3	Development Community, Property Owners	Virginia Outdoors Fund, Recreational Trails Program, UDA Grants	
	Establish a long-term connectivity program that identifies needed sidewalks and trails, and prioritizes projects based on prospective impacts such as safety, ease of completion, cost, and benefit to residents.	1	Development Community, Property Owners	Primarily City Staff Time and Resources	
	Utilize existing waterways or open space corridors to establish dedicated greenways connected with recreational trails.	3	Development Community, Property Owners	Virginia Outdoors Fund, Recreational Trails Program, UDA Grants	

#	Strategy	Recommendation Action	Timing	Potential Partners	Potential Funding Sources
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Community Facilities & Infrastructure Plan					
1	Provide for and support the provision of, community facilities and services that strengthen the quality of life and public health and safety	Conduct a comprehensive needs assessment for all City buildings, equipment, vehicles, facilities, and properties	1	All City Departments	Primarily City Staff and Resources; State and Federal funding as appropriate for specific municipal service
	Work closely with Virginia Intermont College to creatively repurpose the vacant campus for a new higher education user.	1	Virginia Intermont College	Appalachian Regional Commission, Tax Increment Financing (TIF), UDA Grants	
2	Align all new development with infrastructure providers to ensure adequate capacity	Coordinate with utility and service providers such as BVU to establish an inventory and assessment of local infrastructure capacity, with regular updates to maintain a clear understanding of infrastructure needs in Bristol.	1	BVU	Primarily Staff Time and Resources
Parks, Open Space & Environmental Features Plan					
1	Ensure Bristol's residents have equitable access to city parks and open space, expanding the park network, where necessary.	Develop a Parks and Recreation Master Plan that can establish a vision for the park's system, assess quality of existing facilities, forecast park needs over the course of the next ten years, prioritize expansions, and identify needed site improvements.	2	Virginia Department of Conservation and Recreation, Property Owners, Residents, Development Community, Stakeholders	Virginia Outdoors Fund, Recreational Trails Program, UDA Grants, Appalachian Regional Commission
	Explore opportunities for new mini-parks or neighborhood parks in older, developed neighborhoods.	2	Property Owners, Residents	Virginia Outdoors Fund, Recreational Trails Program, UDA Grants, Appalachian Regional Commission	
	Continue to plan and budget for expansion or improvement of existing parks.	2	Virginia Department of Conservation and Recreation	Virginia Outdoors Fund, Recreational Trails Program, UDA Grants, Appalachian Regional Commission	
	Evaluate opportunities to develop a shared-use program with the Bristol, VA Public Schools that allows residents to use school fields, playgrounds, and recreational amenities during non-school hours.	2	BVPS	Virginia Outdoors Fund, Recreational Trails Program, UDA Grants, Appalachian Regional Commission	
	Promote the addition of new public gathering spaces, pocket parks, and plazas.	2	Property Owners, Residents	Virginia Outdoors Fund, Recreational Trails Program, UDA Grants, Appalachian Regional Commission	
2	Provide a network of pedestrian connections between neighborhoods, parks, and recreational destinations.	In conjunction with transportation improvements, establish a long-term connectivity program that identifies needed sidewalks and trails, and prioritizes projects based on prospective impacts such as ease of completion, cost, and benefit to residents.	3	Property Owners, Residents, Development Community, VDOT	Virginia Outdoors Fund, Recreational Trails Program, UDA Grants, Appalachian Regional Commission
	Develop a continuous trail, sidewalk, and/or path network between Downtown and Sugar Hollow Park along or near Beaver Creek.	3	Property Owners, Residents, Development Community, VDOT	Virginia Outdoors Fund, Recreational Trails Program, UDA Grants, Appalachian Regional Commission	
	Pursue opportunities to connect Sugar Hollow Park and Clear Creek Golf Course to residential areas to the southwest.	3	Property Owners, Residents, Development Community	Virginia Outdoors Fund, Recreational Trails Program, UDA Grants, Appalachian Regional Commission	
	Develop the "Corvette Greenway" proposed within the Bob Morrison Boulevard Sub-Area Plan.	3	Property Owners, Residents, Development Community	Virginia Outdoors Fund, Recreational Trails Program, UDA Grants, Appalachian Regional Commission	

City of Bristol - Social Vulnerability Index (SVI)



City of Bristol's SVI Index is "Moderate Social Vulnerability"

City of Bristol - Social Vulnerability Status
(Census Tracts 201, 202 & 203)
https://cmap2.vims.edu/SocialVulnerability/SocioVul_SS.html

