7. Action Plan (continued)

Confirm Feasibility, Design, and Implement

Three Flood Risk Mitigation Actions have been identified in the Confirm Feasibility, Design, and Implement category. These actions have preliminary solutions that have been identified for implementation. Prior to implementation a feasibility study should be performed to confirm the benefits of the identified solution and possible barriers to implementation. Feasibility needs to be confirmed to avoid paying for solutions without confirming they have the proper benefit. Identified costs, estimated time to complete, and funding sources are provided at a high planning level and should be confirmed during the feasibility study.

Removal of Abandoned Mill Building and Associated Dam

PRIORITY ACTION

Problem Description

The abandoned mill building, and associated dam (formerly Farm Bureau) obstruct the creek, as shown in **Figure 71**. The dam and building block the natural flow of the creek as well as capture significant debris. Residents have noted the mill building contributes to the flooding of the community on Blacksburg Street by causing water to build up. The community reports frequent flooding from multiple sides of the creek, which is likely worsened by the mill building, beavers, sedimentation, and debris. The location of the dam and its relation to the Blacksburg Street Building is shown in **Figure 72**.

Figures of Problem Area

Figure 71: Mill Building March 2023 capturing debris

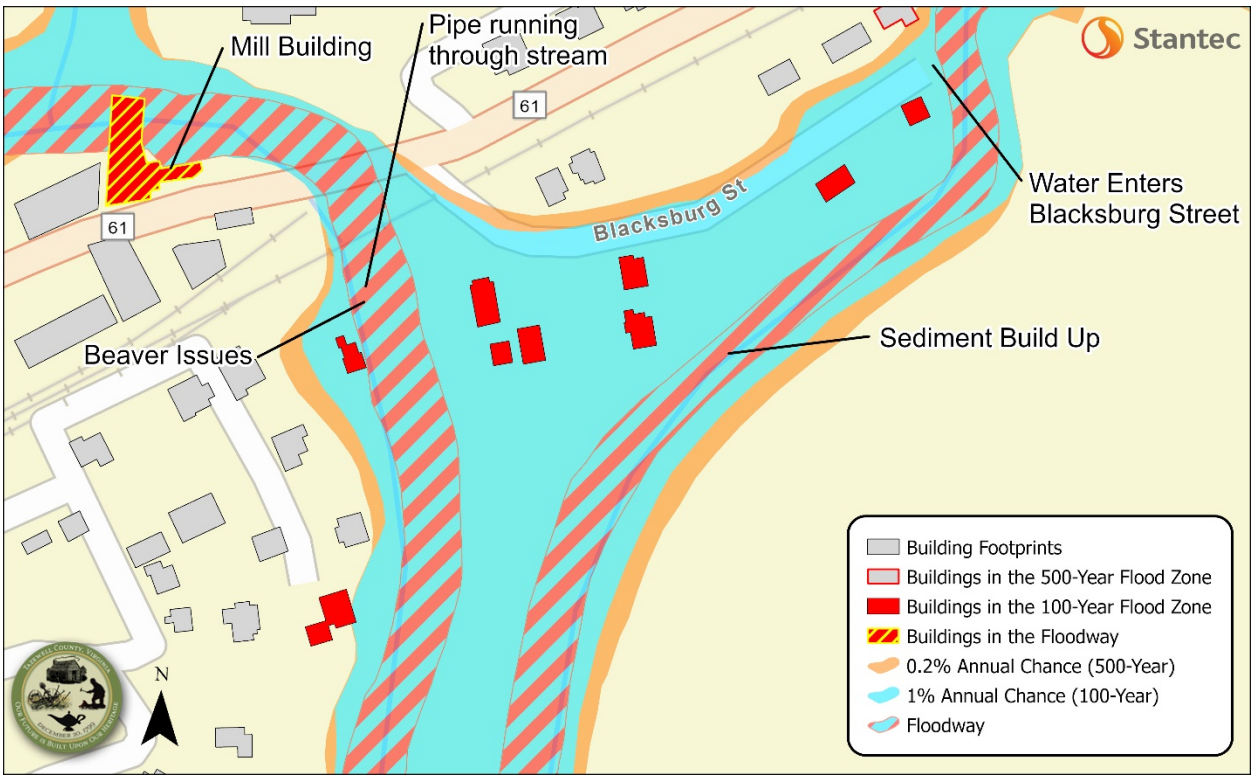

Figure 72: Mill building location

Project Type
Confirm Feasibility, Design, and Implement

Total Estimated Cost
$3.4 - $4.5 million

Estimated Time to Complete
5 + years

Project Lead
Town of Tazewell

Action Description
Pursue the removal of the mill building and dam to restore the natural flow of the creek, limit the accumulation of debris, and reduce flooding of the Blacksburg Street Community. **The property owner and community should be engaged early and often throughout the process**. Given the presence of several endangered species of mussel in the Clinch River, U.S. Fish and Wildlife Services should be engaged throughout the project to ensure all environmental regulations are met. In order to meet environmental regulations, actions may need to be taken throughout the project to protect mussels such as mussel surveys and mussel relocation. This action should be pursued in conjunction with other actions to mitigate flooding of the Blacksburg community such as:

- Acquisition of undeveloped parcels for flood storage
- Acquisition of properties to return to natural recreation areas.

- Assess flood risk reduction options for Blacksburg Street Community

Given the high projected cost, the Town may need to hire a consultant to assist with grant preparation and benefit cost analysis. The Town should consider grants that cover planning, design, and construction as this is a large multiphase project. Separate funding sources will likely need to be pursued throughout the project to cover the phases. Consultants can be hired to assist with the preparation of grant applications especially to be competitive for large federal grants. For example, consultants are frequently hired to assist with BRIC grants and the required benefit cost analysis. A BRIC application prepared by a consultant typically costs at least $50,000.

Steps (step #, step description, timeline, estimated cost)

Step #	Step Description	Estimated Time to	Estimated Cost (By Step)	Potential Funding Sources (By Step)
1	**Project Scoping and Development –** The removal of the structure will be a high-cost project that has the possibility for multiple phases. To start pursuing implementation, it is recommended that the Town engage the community, engage the property owner, and pursue larger grant opportunities. Recommend engaging the property owner early and often to verify that the property owner is open to selling. Additionally, the community should be engaged to receive feedback and help develop plans for the site once the structure is removed. When pursuing grants such as HMGP or BRIC, the Town may need to hire a consultant to assist	3-4 months	$50,000 + (BRIC application prepared by a consultant)	• HMGP Advanced Assistance • BRIC Capability and Capacity Building • CFPF • Fish Passage Technical and Planning Assistance
2	**Gap Analysis and Document Review –** Recommend a consultant engineer be hired to assess and design the removal of the structure from the river and floodplain. The first step is to review and collect existing data such as as-builts, endangered species presence, and existing hydraulic information. The engineer can then determine data needed to complete the	2 weeks	$350,000 - 400,000	
3	**Topological and Geomorphic Survey –** The engineer will have a topological and geomorphic survey performed to gain a better understanding of stream stability	1 month		
4	**Hydrologic and Hydraulic Modeling (H&H) Modeling –** A study will need to be performed to understand the impact of the structure removal on the river and surrounding areas. This study may be performed as a part of the Assess Flood Risk Reduction Options for the Blacksburg Street Community Mitigation Action. The study will give a better understanding of the impact to downstream properties from the	2 months		

Step #	Step Description	Estimated Time to	Estimated Cost (By Step)	Potential Funding Sources (By Step)
5	**Alternatives Study –** Based on the results of the H&H Modeling, the engineer may need to review alternative approaches for removing the structure. This could include possible grade control structures, floodplain storage, and stream stabilization. The engineer can then provide a recommendation to the County for removal. The alternative study is recommended to include cost estimates for each alternative.	2 months		
6	**Design & Permitting –** Once the preferred alternative is selected, an engineer can lead the design and permitting process. Given the complex nature of the project, the engineer may need to perform additional steps such as survey collection, biological studies, and federal agency coordination. The engineer should	4+ months		• Community Challenge • BRIC • Five Star and Urban Waters Restoration • Outdoor Recreation Legacy Partnership (ORLP) Land and Water Conservation Fund • CFPF • Recreational Trails Program • Virginia Land Conservation Fund • Section 319(h) Nonpoint Source (NPS) Implementation Program • SLAF • Get Outdoors (GO) • Preservation Trust Fund
7	**Structure Removal –** Hire a contractor to remove the structure from the stream while minimizing environmental impacts. The contractor should obtain and follow all proper	1+ years	$3,000,000 - $4,000,000	
8	**Stream Restoration –** Following the removal of the structure, restore the surrounding area and stream to natural areas. The area may serve as public amenities such as a public park, walking trails, or kayak launch. Development rights should be maintained to avoid future development on the property.	1-2 years		

Funding Sources

- See Table

Figure of Action

N/A

Richlands EMS and Police Station Relocation

PRIORITY ACTION

Problem Description

The Richlands EMS and Police Station are both located in the 1% Annual Chance Floodplain as shown in **Figure 73**. They are in separate buildings located on the same property and utilize the same access points. The County reports frequent flooding of the access points along Allegheny Street, preventing ingress/egress. During the 2020 floods, the access points were inundated, which impeded response, as shown in **Figure 74**.[1] The National Guard brought in boats to assist with the emergency response efforts. The access was also blocked during the February 2023 floods. The Town has not reported flooding impacts to the buildings. The Town previously considered relocating the police station; however, funding was not secured.

[1] "More flooding out of Richlands, Virginia in Tazewell County", Billy Bowling, WOAT TV, More flooding out of Richlands, Virginia in Tazewell County. Video provided by Billy Bowling. - YouTube

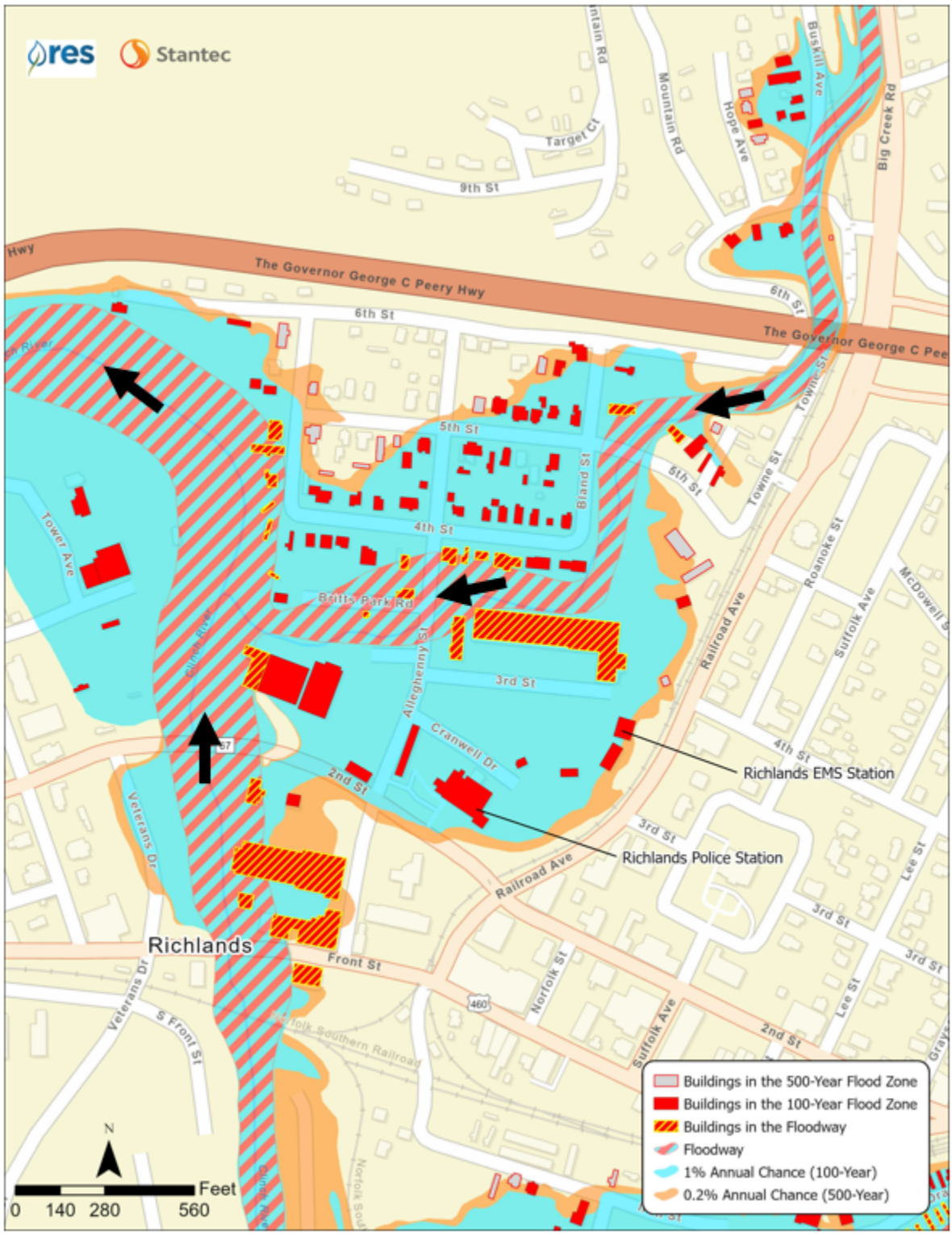

Figure 73: Richlands EMS Station and Police Station Location

Figure 74: Richlands EMS and Police Station during the February 2020 Floods

Project Type
Confirm Feasibility, Design, and Implement

Total Estimated Cost
$ 6 million +

Estimated Time to Complete
5 + years

Project Lead
Town of Richlands

Action Description
Relocate the EMS Station and Police Station outside of the floodplain. The EMS Station can be acquired and demolished to utilize as natural flood storage or a public amenity such as a playground. The Planning Team has expressed a desire to maintain the police station building to supplement the recreation facilities on the property. The building was previously a school, so it has a gym and spaces for gathering. To best meet the community's needs, two routes can be pursued to minimize flood risk to the police station. With both routes, the police station (personnel, property, and equipment) will be relocated outside of the flood plan. The two options are shown below:

1. **Relocate and Repurpose** – Relocate the police station outside of the floodplain to minimize flood risk to the critical facility. Elevate or floodproof the structure to utilize as a community center to enhance the open space utilization on the property. The center will not house any critical services.

2. **Acquire, Relocate, and Restore** – The rights to the property will be acquired to limit future development. The police station will be relocated outside of the floodplain to minimize flood risk to the critical facility. The existing structure will be demolished and restored to natural space or a public amenity such as a park.

The preference of the Planning Team is to pursue relocation and repurpose. However, both routes are listed as grant funding may be more streamlined for restoration-based projects. When pursuing grant funds, the EMS Station and Police Station projects may be grouped together or separately as funding becomes available.

If the critical facilities are damaged by a declared disaster, relocation of the facilities may be eligible for FEMA's Public Assistance (PA) program. PA funds could be used for activities such as relocating the police and fire services personnel and equipment to a new location. In most instances, FEMA grant applications require the preparation of Benefit Cost Analysis (BCA). When flooding events occur, the Town should start tracking all impacts to the Police and EMS Stations and any overtime hours. Under PA they can seek reimbursement for emergency protective measures undertaken and these costs can help support and justify the relocation of the facilities. Direct damages to the EMS or Police Station would likely be required in order to relocate utilizing FEMA funds.

Steps (step #, step description, timeline, estimated cost)

Step #	Step Description	Estimated Time to	Estimated Cost (By Step)	Potential Funding Sources (By Step)
1	**Identify Funding Source –** As this is a larger project with multiple phases, the Town may need to pursue grant funding to assist with project scoping, studies, and larger grant applications. For pursuing larger grant opportunities such as HMGP or BRIC, a consultant or disaster recovery services coordinator may be beneficial to prepare the application. HMGP Advanced Assistance or BRIC Capability and Capacity Building grants may be pursued to assist with planning and scoping to	1 month	Staff Time	• HMGP Advanced Assistance • BRIC Capability and Capacity Building
2	**Identify New Location Outside of the Floodplain –** A new location must be identified for the facilities. A study may be needed to decide on the best location for the facilities. Considerations for the study include proximity to the floodplain, proximity to the service area, and the roads providing access to and from the service area. The Town may also consider existing facilities outside of the floodplain that may be converted to house the Police Station and/or EMS Station. The Town should consider grants when selecting the site for the new facilities. Some grants may	3-6 months	$100,000 +	
3	**Pursue Funding Source –** Once the Town has identified the new location and goals for each site, pursue grant funds for design, construction, demolition, and restoration as applicable. HMGP Advanced Assistance or BRIC Capability and Capacity Building grants may be pursued to assist	3 months	$50,000 + for BRIC application prepared by a consultant	

Step #	Step Description	Estimated Time to	Estimated Cost (By Step)	Potential Funding Sources (By Step)
4	**Design New Facilities** - Once a site has been selected, hire and architect to design the facilities. The architect will lead coordination with other professionals as needed for the design of the building. The buildings may be new construction or retrofits to existing facilities.	6 months	$6 million +	• Community Challenge • BRIC • Community Flood Preparedness Fund (CFPF) • FMA (Requires Flood Insurance) • Virginia Pooled Financing Program • HMGP
5	**Permitting** – Depending on the solution selected, permits may be required for construction. These may include, but are not limited to environmental permits, land disturbance permits, and land use permits. Permits may include additional fees.	6 months		• Community Challenge • BRIC • Community Flood Preparedness Fund (CFPF) • FMA (Requires Flood Insurance) • Virginia Pooled Financing Program • HMGP • PA
6	**Construct New Facilities** – Hire a contractor to construct the new facilities according to the	1-2 years		
7	**Relocate Operations –** Develop a plan to smoothly transition operations from the existing facilities to the new locations. The plan will need to incorporate the transition while continuing the	3 months		
8a	**Demolish Existing Facilities and Restrict Future Development** – As applicable, demolish the existing structures to restore the locations to natural space. Restrict future development on the site. An engineer may need to be hired to design plans for the safe demolition of the buildings	2-3 months		

Step #	Step Description	Estimated Time to	Estimated Cost (By Step)	Potential Funding Sources (By Step)
8b	**Restore Natural Areas –** As applicable, restore the sites to natural areas to allow for flood storage. The natural areas may include public amenities such as a park or green space that are able to flood. Given the history of floods of the area and location in the floodplain, consider integrating the restoration with other buyouts in the future. For example, the commercial shopping centers along Big Creek. Some of the grants for restoration may also be leveraged for design of the restoration, natural areas, and public amenities.	2-3 months	$6 million + Dependent on Solution	• Five Star and Urban Waters Restoration • Outdoor Recreation Legacy Partnership (ORLP) Land and Water Conservation Fund • Rivers, Trails, and Conservation Assistance (RTCA) • Transportation Alternatives Program (TAP) • Recreational Trails Program • Virginia Land Conservation Fund • Section 319(h) Nonpoint
8c	**Floodproofing** – If the Police Station building is retained to supplement the recreation facilities as a community center, the building will need floodproofing to help mitigate potential damages. Flooding proofing could include elevation, wet floodproofing, or dry floodproofing. Examples include installing openings to allow the entry / exiting of floodwaters and reduce hydrostatic pressure, raising critical mechanical and electrical	Dependent on Solution		• HMGP • BRIC • PA Section 165 of the Water Resources Development Act of 2020

Step #	Step Description	Estimated Time to	Estimated Cost (By Step)	Potential Funding Sources (By Step)
9	**Maintenance** - Depending on the selected and constructed solution, routine maintenance may be needed. A maintenance plan should be made including maintenance frequency, actions needed, associated costs, and funding.	Dependent on Solution	Dependent on Solution	• Town Operating Funds

Funding Sources

See Table

Figure of Action

N/A

Richlands Elementary School Stormwater

PRIORITY ACTION

Problem Description

Two county stormwater lines run underneath the school campus of Richlands Elementary School and are exceeding capacity. Additionally, a stormwater drain that is part of the system is frequently blocked. During heavy rain events, the elementary school parking lot floods. This parking lot is used for student drop-off and pick-up and gets covered in excess stormwater blocking access. The pipes are unable to be relocated easily as they run directly underneath the school. The school campus is shown in **Figure 75**.

Figures of Problem Area

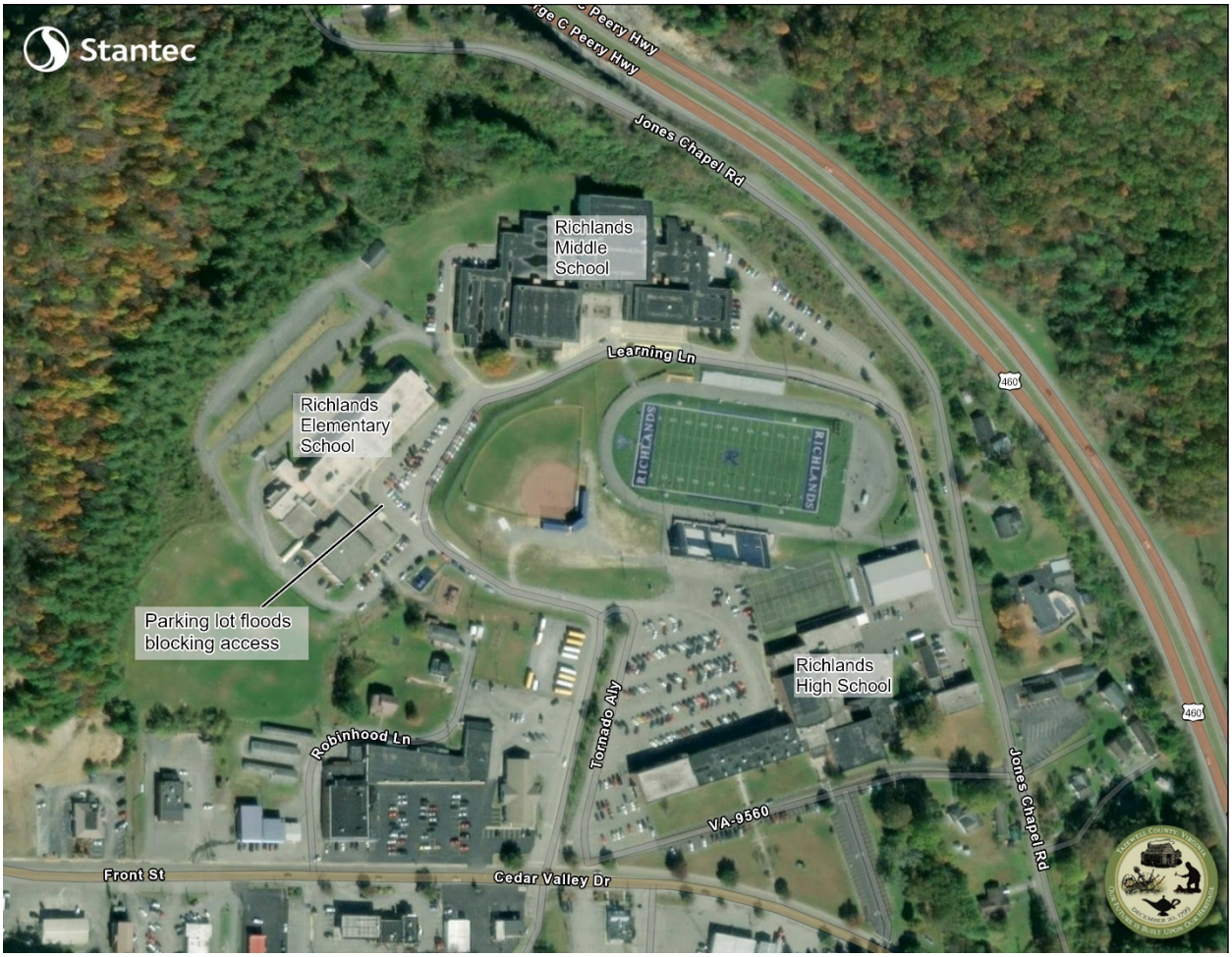

Figure 75: Richlands School Campus

Project Type

Confirm Feasibility, Design, and Implement

Total Estimated Cost
$450,000 +

Estimated Time to Complete
2 – 5 years

Project Lead
Tazewell County and Tazewell County Public Schools

Action Description
An engineer can perform a hydraulic study to confirm that excess stormwater is the source of the flooding. Once the source is confirmed, the engineer will calculate the target reduction volume and study potential solutions. It is anticipated that a gray infrastructure and/or a nature-based solutions will be needed to improve stormwater retention and reroute the flooding from the parking lot. Tazewell County has areas at risk to karst which may require more detailed soil surveys to design retention-based solutions. Additionally, previous studies have identified an aquifer underneath the school property which may require more data collection.

Steps (step #, step description, timeline, estimated cost)

	Step Description	Estimated Time to	Estimated Cost/LOE (By Step)	Funding Sources (By Step)
Ste				
1	**Baseline and Initial Conditions Review** - A stormwater engineer will review existing information provided by the County and perform a preliminary site visit. This review will allow the engineer to gain a basic understanding of	1 month	$3,000	• SLAF • CFPF
2	**Preliminary Hydrologic Study** - A stormwater engineer will perform a preliminary hydrologic study to identify a target reduction volume for the improvements. For the study, additional surveys and/or soil assessments may be	3-6 months	$3,000	
3	**Alternative Review** - Based on the identified target reduction volume and flow study, a stormwater engineer will identify three alternatives to reach the target reduction volume. The engineer will assess the viability of each option and provide a comparison of the alternatives to assist with selection. The stormwater engineer will	6-12 months	$7,000	
4	**Design** - After a preferred alternative is selected, the stormwater engineer will design the identified solution. Additional surveys or data may be needed to complete the design. Completed plans will allow the responsible	6-12 months	$40,000	
5	**Permitting** – Depending on the solution selected, permits may be required to construct the stormwater improvements. These may include, but are not limited to environmental permits, land disturbance permits, and	8-12 months	$15,000	
6	**Construction** - The selected contractor will build the selected solution based on the design.	1-3 months	$350,000 (dependent on solution)	
7	**Maintenance** - Depending on the selected and constructed solution, routine maintenance may be needed. A maintenance plan should be made including maintenance frequency, actions needed, associated costs,	Annually	Dependent on solution ($1,500 / yr.)	

Funding Sources

- See table

Figure of Action

N/A

Programmatic

Six Flood Risk Mitigation Actions have been identified in the Programmatic category. These actions represent those that are needed at a large scale in multiple areas throughout the County or those that are policy-based. They have been developed into programs so the County can address these problems on an ongoing basis often with the assistance of contractors to supplement county staff.

Beaver Management Program

Problem Description

Beavers are the largest rodent in North America and can be found across the United States. County staff and the community have reported beaver presence worsening flooding in areas throughout the County. Beavers and beaver dams have many ecological benefits such as providing habitat for other species, slowing water velocity, changing water temperatures, and improving water quality.[2] However, as reported in Tazewell County, beavers can also cause significant damage. Most damage caused by beavers is the result of dam building and associated flooding, bank burrowing, and tree cutting. Beaver damage in Virginia is estimated to cause losses from $3 million to $5 million annually.[3] Beaver dams can impede stream flow leading to worsening flooding and standing water often in areas that would not otherwise flood frequently. Beavers can also increase debris in streams. Beavers build two types of dens. Lodges are free standing dens built similarly to dams in slower moving ponds. The second type is known as a bank den. Bank dens and associated access tunnels can collapse and damage property and infrastructure.

Figures of Problem Area

N/A

Project Type

Programmatic

Total Estimated Cost

Dependent on the number of sites per year

Estimated Time to Complete

Ongoing Program

Project Lead

Tazewell County

Action Description

While beavers have many ecological benefits, there are times when it becomes necessary to control beavers in an area to protect property and infrastructure. Therefore, it is recommended that Tazewell County establish a Beaver Management Program. An effective Beaver Management Program should include identification of potential and existing beaver-related activity that could impact county infrastructure and/or personal property. In areas where there is the potential for beaver activity, there are several non-lethal activities that can be implemented to deter beaver use of an area. These include

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[2] "Environmental Benefits of Beavers", King County, Environmental Benefits of Beavers - King County

[3] "Beaver Removal", Virginia Professional Wildlife Removal Services, Beaver Removal - How To Get Rid Of Beavers | VA Pro Wildlife Removal (virginiaprofessionalwildliferemovalservices.com)

exclusion (fencing, barriers to prevent beavers from accessing an area), repellents (sprays, devices to deter beavers) and habitat modification (removing vegetation near the water's edge).[4] Given the environmental importance and protections surrounding the Clinch River, any treatment methods should consider permitting requirements and environmental impact.

Areas with existing beaver activity should be similarly evaluated to determine if there is a threat to infrastructure or personal property. In Virginia, live trapping and relocating beavers to another area is not permitted. Therefore, problem beavers will need to be removed using lethal methods and proper disposal. There are many non-lethal measures such as bypassing flow or fencing that may be more appropriate and cost effective when compared to lethal trapping. However, there are some scenarios where lethal measures may be necessary, as described below.

Some situations that may warrant lethal measures could include:

- Flooding from beaver dams impacting public infrastructure causing safety concerns such as worsening flooding of primary ingress/egress routes.
- Flooding from beaver dams threatening structures and infrastructure upstream of the dam.
- A large beaver colony forming which is likely to cause future issues.

As part of the Beaver Management Program the County should explore options for contracting with one or more Wildlife Management and Control Contractors. The selected contractor(s) should have the appropriate training, safety program, insurance, and Commercial Nuisance Permits. The County should work with the contractor to understand the best treatment method for each unique case.

The County may also explore the use of local trappers in the area. By allowing them access to trap and keep the fur, the County may save money and help control beavers. This option would only apply during the appropriate trapping season in the County.

When a beaver is trapped, the beaver dam should be immediately removed to mitigate the flooding issues. The beaver dam should be disposed of outside of the floodplain extents to minimize debris entering the stream. Following the removal of the beaver and the dam, other treatment measures should be considered to prevent other beavers from relocating to the same spot. Examples could include fencing, barriers, and repellants.

Several initial priority areas have been identified during stakeholder engagement for beaver control including:

- Blacksburg Street Area in North Tazewell
- Springville Area
- Leatherwood Lane / College Drive area in Bluefield

Additionally, any treatments that impact the Clinch River may require environmental permits. **The environmental permitting process may need to be included in the Habitat Conservation Plan developed in the Routine Debris Removal action**. The hired contractor should be licensed and

[4] "Beaver Removal", Virginia Professional Wildlife Removal Services, Beaver Removal - How To Get Rid Of Beavers | VA Pro Wildlife Removal (virginiaprofessionalwildliferemovalservices.com)

knowledgeable about permitting requirements. Depending on the contractors' abilities, it may be possible to hire the same contractor for debris removal service.

The County should draft and issue an RFP for contractors for the Beaver Management Program. The contract should include a yearly retainer and set pricing for routine beaver removal activities such as site investigations, non-lethal beaver deterrents, and trapping for a set length of time. The contract should also include procedures for communication, expected time between notification and treatment, and procedures for working on private property. The County should work with the contractor to gain permission before entering or implementing beaver control on private property.

Steps (step #, step description, timeline, estimated cost)

Step #	Step Description	Estimated Time to	Estimated Cost (By Step)	Potential Funding Sources (By Step)
1	**Establish Program –** Identify County staff to manage the beaver control program. Staff will be responsible for identifying priority areas, managing funding, hiring a contractor, and	0 - 2 years	Staff Time	County Operating Funds
2	**Identify Priority Areas –** Recommend the County supplement the priority areas in this plan by identifying additional hot spots for beaver control. These hotspots could be identified through engagement methods such as staff interviews or public surveys. The County			
3	**Identify Funding Source –** Identify an annual funding source for the program as funding will most likely come from County Operating Funds.			
4	**Hire On-Call Contractor –** Recommend the County hire on-call contractors for beaver control. The contract should include the processes to be followed by the contractor and County once a site has been identified. Additionally, the contract should include set costs for routine control activities. The contractor should maintain a Virginia Commercial Nuisance Animal Permit and be			
5	**Maintain Program –** Recommend the County actively work to maintain the program. When sites are identified for beaver control, the County should notify the contractor. The contractor should visit the site and provide the County with treatment recommendations. After approval by the County, the contractor should	Annual Basis	Dependent on treatment	

Funding Sources

- See table

Figure of Action

N/A

Routine Debris and Sediment Removal Program

PRIORITY ACTION

Problem Description

Throughout the planning process, public and planning team input has included issues with debris build up that reduces stream capacities and worsens flooding. Residents report increasing issues with debris and sediment associated with growth in logging in the area and minimal debris removal from the previous floods.

Woody debris in rivers is an important component of the structural and functional elements of riverine ecosystems. Wood in rivers may provide grade control, retain dissolved and particulate organic matter, provide a food source for aquatic invertebrates, and cover for fish. Rivers may recruit wood through a variety of mechanisms including bank erosion, windthrow, landslides, tree mortality, and/or flood pulses (periodic inundation of the floodplain). However, debris and sediment may accumulate at dams, culverts, and low-lying bridges, leading to infrastructure damage. Debris jams have been observed throughout Tazewell County by residents and County staff as shown in **Figure 75**.

The Clinch River is a globally significant river. The Clinch River is home to more species of mussels than any other river in the world.[5] The river is home to 48 imperiled and vulnerable species of mussels and fish.[6] In addition, the river is home to rare plants, mammals, and birds. The Clinch River has been identified as the number-one hotspot in the United States for imperiled aquatic species. Due to the presence of endangered species, federal actions that adversely impact the endangered species, such as debris and sediment removal, must complete consultation under Section 7 of the Endangered Species Act (ESA). Prior to the protections by the ESA, residents reported more frequent cleaning and removal of debris and sediment from the river. While the importance of protecting endangered species is acknowledged, the associated restrictions and regulatory processes are a burden to resource-limited County staff and is believed to be an underlying reason for less active debris management programs. Understanding which debris-removal actions are allowed under the ESA and how to obtain permissions to take such actions requires time and expertise not currently had by county staff.

Debris within waterways is also a problem after a major flood, as fast-moving floodwaters pick up and carry not only woody debris and sediments, but structures, infrastructure, cars, and other personal property. This type of debris requires additional considerations as it may contain hazardous materials. In addition, separate regulations and funding opportunities exist around debris removal after an emergency event. Therefore, Emergency Debris Removal is considered as a separate action within the plan.

[5] "Clinch River", Virginia Department of Wildlife Resources, Clinch River | Virginia DWR

[6] "Clinch River", The Natural Conservancy, Clinch River (nature.org)

Figures of Problem Area

Figure 76: Example of debris captured on dam in North Tazewell

Project Type
Programmatic

Total Estimated Cost
Unavailable

Estimated Time to Complete
Ongoing Program

Project Lead
Tazewell County

Action Description
The County needs a mechanism in place to routinely remove debris and sediment while maintaining compliance with ESA and other environmental requirements, as there are streams in the County designated as critical habitat for endangered species. If needed, the County should hire contractors to increase staff capacity for debris removal. Contractors could include program administration, crews for debris removal, or environmental permitting experts. The mechanism for *emergency debris removal* will vary and is broken out into a separate action.

The routine debris and sediment removal program should have short-term and long-term goals. In the short-term, the focus should be on understanding the mechanisms needed to remove debris and sediment. The County should focus on clearing debris that is captured on infrastructure and removing sediment that is blocking the flow of the stream. For example, many culverts throughout the County are filled with sediment which worsens flooding by limiting the capacity of the culvert. Prior to removing debris, the location should also be evaluated for long-term solutions. While debris removal is necessary in some parts of the County from years of buildup on infrastructure, repeated routine debris removal from the same locations is expensive and damaging to the environment. The County should focus on

solving the long-term problem by resizing infrastructure to accommodate seasonal flow and debris delivery. The long-term focus should be reducing the sources of unnatural debris and sediment through actions such as studies to identify sources of debris and sediment, strengthening sediment and erosion control ordinances, increasing staff capacity to support enforcement, and resizing infrastructure to accommodate seasonal flow and debris delivery.

There are several mechanisms that can be utilized to obtain proper environmental permits to remove debris and sediment. Additionally, the best process may be determined by owner of the infrastructure. For example, VDOT may already have routine procedures and permitting to remove debris from VDOT structures utilizing a Nationwide Permit and/or Programmatic Agreements. The proposed steps outline the recommended approach for the Routine Debris and Sediment Removal Program. However, the U.S. Fish and Wildlife Service (FWS), U.S. Army Corps of Engineers (USACE), and Virginia Department of Transportation (VDOT) should be engaged throughout this process to identify the most streamlined process.

For removal of debris and sediment, it is recommended that the County develop a *Habitat Conservation Plan (HCP)* including procedures for debris and sediment removal under *Section 10 of the Endangered Species Act*. An HCP is a planning document designed to accommodate economic development to the extent possible by authorizing the limited and unintentional take of listed species when it occurs incidental to otherwise lawful activities.[7] The plan is designed help landowners and communities while providing long-term benefits to species and their habitats. HCPs describe the anticipated effects of the proposed taking, how those impacts will be minimized or mitigated, and how the conservation measures included in the plan will be funded.

If the FWS finds an HCP meets the specified criteria, it issues an incidental take permit. This allows the permit holder to proceed with an activity that could otherwise result in the unlawful take of a listed species. The benefits of the HCP include creating set procedures for actions within the river to balance conservation with flood risk reduction, available grant funding, agency coordination, and provisions for routine and emergency debris removal. In addition, the procedures within the HCP are set for the life of the HCP even if some ESA requirements change. HCPs may cover both listed and unlisted species. For example, if the regulatory status of an unlisted species changes during the term of the HCP, the obligations of the applicant do not.

[7] "Habitat Conservation Plans", U.S. Fish & Wildlife Service, Habitat Conservation Plans | U.S. Fish & Wildlife Service (fws.gov)

Steps (step #, step description, timeline, estimated cost)

Step #	Step Description	Estimated Time to	Estimated Cost (By Step)	Potential Funding Sources
Short-term Goals				
1	**Identify Staffing –** Recommend the County identify staff to manage and champion the Routine Debris and Sediment Removal Program. If staff does not have the capacity, the County should hire a consultant to lead the effort. The consultant could fill multiple roles identified through the	0-1 years	County Staff Time	
2	**Identify Priority Areas –** Recommend the County identify priority areas for debris and sediment removal throughout the County. The Community should be engaged throughout the process to provide input. By identifying priority areas, the County can develop goals for each year of the program	0-1 years		
3	**Agency Coordination –** There are several potential paths to obtain permits for removing debris and sediment within Tazewell County. The County should set up an initial engagement meeting with VDOT staff to understand Nationwide Permits held by VDOT. For structures owned by VDOT, there may already be a process in place for debris removal. If VDOT does not hold permits, the County may need to pursue a Nationwide Permit which will include notification of FWS with each action. The County should set up initial engagement meetings with FWS to present the proposed approach before moving forward with developing a Habitat Conservation Plan (HCP)	1-3 months	County Staff Time	
4	**Secure Funding for an HCP –** The County should pursue funding to develop the HCP. FWS has funds to help communities establish HCP through its Cooperative			
5	**Develop HCP –** The County should hire a consultant to prepare the HCP. Throughout the plan, the County should coordinate with FWS to ensure all Section 10 requirements of the ESA are met. Once the plan is completed, FWS will evaluate the plan to ensure it meets NEPA and HCP requirements to issue an incidental take permit.	1-2 years	$50,000 - $200,000	Cooperative Endangered Species Conservation Fund – Conservation Planning

Step #	Step Description	Estimated Time to	Estimated Cost (By Step)	Potential Funding Sources
6	**Remove Debris and Sediment following HCP –** Once FWS issues an incidental take permit, the County can being work in accordance with the HCP and permit requirements. The County should hire a contractor to remove debris and sediment in accordance with the HCP and incidental take permit. It is important to note, violating the terms of the incidental take permit may constitute unlawful take under ESA. When removing the debris, the County should also evaluate sites that routinely capture debris. Removing	As Needed	Dependent on flood event	Section 165 of the Water Resources Development Act of 2020
7	**Maintain Program –** The program should be run on an ongoing basis including activities such as identifying priority areas, coordinating with FWS, removing debris and sediment, and resizing infrastructure as funding is available. Additionally, the HCP and incidental take permit will have	Ongoing		
Long-Term Goals				
8	**Field Review –** The County should hire a geomorphologist to perform a preliminary field visit. The geomorphologist should spend a few days reviewing hotspots for sedimentation provided by the County. Based on the field observations, the geomorphologist should make	3-6 months		
9	**Study Source of Sedimentation –** Based on the recommendations of the geomorphologist, the County should have a study of the sedimentation sources prepared. The study should consider sedimentation sources such as streambank erosion, logging, agriculture, and others as recommended by the geomorphologist. The study should identify sources of sediment and make recommendations for limiting sedimentation if there is unnatural or increased sedimentation identified. Recommendation may include	1-2 years		
10	**Strengthen Sediment and Erosion Control Ordinances –** Based on feedback from the community, it is believed that human activities are causing increased sedimentation. As recommended by the proposed study in Step 9, the County should work to strengthen the Sediment and Erosion Control Ordinance (e.g., requirements that go beyond	6-12 months	County staff time	
11	**Increase Staffing Capacity for Enforcement and Review -** As recommended by the proposed study in Step 9, the County should increase staffing capacity to better enforce the Sediment and Erosion Control Ordinance. This could include hiring consultants to perform permit review or hiring inspectors for enforcement. The staff should also	Ongoing		

Funding Sources

- See Table

Figure of Action

- N/A

Develop Emergency Debris Management Program

PRIORITY ACTION

Problem Description

Floods create a significant amount of natural and man-made debris within the stream such as trees, cars, unsecured property, and pieces of buildings and infrastructure. In the last 161 years, there have been 42 damaging flood events in Tazewell County. Since 2020, there have been seven floods within Tazewell County as discussed in *Section 4 – Existing Conditions Summary* and *Section 6 - Risk Assessment*. Residents have reported issues with debris build up that reduces flow capacities within streams and worsens flooding. Debris can also damage infrastructure and property. Residents reported that there used to be more frequent cleaning up of debris and sediment in the river following flood events. Residents reported receiving minimal assistance with removing debris. Additionally, compounding debris in streams from previous flood events worsens future flooding.

As discussed throughout the plan, the Clinch River is home to many endangered species. Due to the presence of endangered species, actions that potentially impact the species such as debris and sediment removal must meet the specifications of the Endangered Species Act (ESA). Prior to the protections by the ESA, residents reported more frequent routine cleaning up of debris and sediment in the river. County staff has limited capacity and has not been able to implement procedures to meet the ESA requirements to allow for debris and sediment removal. Special conditions/procedures may apply after an emergency flood event to allow for expedited removal of debris with respect to ESA compliance. Flood events exhaust staff capacity which limits the ability of staff to focus on debris removal after flood events. Additionally, when there is a Presidential disaster declaration, there are more sources of funding and assistance for debris removal, such as funding available through FEMA Public Assistance. Currently, staff does not have capacity to fully leverage available assistance.

Figures of Problem Area

N/A

Project Type

Programmatic

Total Estimated Cost

Unavailable

Estimated Time to Complete

Ongoing Program

Project Lead

Tazewell County

Action Description

Debris build-up is an ongoing issue in Tazewell County that worsens flooding. Additionally, to remove debris the County must navigate the proper approvals due to the presence of protected species. This action includes the creation of an Emergency Debris Management Program by establishing set procedures and permits for debris removal in streams, hiring a disaster recovery services contractor to supplement county staff, and updating the Tazewell County Emergency Operations Plans Debris Management Support Annex. A disaster recovery services contractor can assist in the acquisition and administration of grants. A disaster recovery services contractor can also assist with the procurement and management of services such as debris removal.

One of the largest disaster recovery federal programs is the Federal Emergency Management Agency (FEMA) Public Assistance (PA) Program, as authorized by section 406 of the Stafford Act. All FEMA PA funds come with an additional 5% for management costs (Category Z), which most local governments use to pay the disaster recovery services contractor. FEMA also provides additional funding as part of the PA program for hazard mitigation, so that recovery projects using PA funds are more sustainable and resilient in the face of future, similar disasters. Finally, once FEMA PA funds are totaled, a percentage of those funds may be added and given to the state to manage and fund other types of hazard mitigation projects as part of the Hazard Mitigation Grant Program (HMGP) as authorized by section 404 of the Stafford Act. It should be noted that communities that have an Emergency Debris Management Plan in place typically have higher reimbursement rates through the FEMA PA program. Hiring a disaster recovery services contractor can help Tazewell County clear debris following flood events and leverage available federal funding for recovery. This action should be pursued in conjunction with the *Routine Debris and Sediment Removal Program*. All these proposed steps should be performed in advance of flood events to help the County be prepared to actively respond.

Steps (step #, step description, timeline, estimated cost)

Step #	Step Description	Estimated Time to	Estimated Cost	Potential Funding Sources (By
1	**Hire a Disaster Recovery Services Contractor** – Throughout the plan, there have been several actions that could include support from the Disaster Recovery Services Contractor. The County should identify the specific roles and expectations for the Disaster Recovery Services Contractor and hire a firm to fill the role. The County should reach out to the VA SHMO to see if any PA funds are still available to support initial tasks for the Disaster Recovery Services Contractor. The Disaster Recovery Services Contractor can assist the County by: • Managing Public Assistance and other recovery grant applications and administration. • Guiding the County in submitting applications to fund debris removal (or for reimbursements), pump station repairs, road and culvert repairs and other recovery projects. Recovery contractors may be paid with a portion of the 5% administration costs that accompany FEMA grants. • Meeting with FEMA Program Delivery Manager (PDMG) and establish what meetings (Recovery Scoping Meeting) have occurred and deadlines for project submittal. Discussing options for debris removal and stream restoration, including the Natural Resources Conservation Service (NRCS) and United States Army Corps of Engineers (USACE) management of debris removal projects and stream restoration. • Completing the Damage Inventory (DI), including a detailed inventory of debris associated with the			• County operating funds • PA Management Costs • NRCS Emergency Watershed Protection (EWP) funds • USACE Direct Federal Assistance (DFA) • Federal Operations Support (FOS) • Mission Assignments
2	**Agency Coordination -** There are several potential paths to obtain permits for emergency debris removal. The County should set up an initial engagement meeting with VDOT staff to understand Nationwide Permits held by VDOT through USACE. For structures owned by VDOT, there may already be a process in place for debris removal. If VDOT does not hold permits, the County may need to pursue a Nationwide Permit which will include notification of FWS with each action. When a presidential disaster is declared, the USACE should be immediately requested to set up emergency debris removal utilizing Nationwide Permits.			

Step #	Step Description	Estimated Time to	Estimated Cost	Potential Funding Sources (By
3	**Acquire Nationwide 401 Permit for debris removal from non-VDOT owned infrastructure in the waterways –** The USACE issues Nationwide Permits that allow agencies to maintain their assets. Through coordination with VDOT, it should be confirmed that VDOT has and can utilize a Nationwide Permit to clear debris and sediment from VDOT assets post event. Tazewell County should obtain a Nationwide 404 permit to clear debris from assets not covered by VDOT debris removal. Due to the protected species in the Clinch River,			
4	**Include Emergency Debris Removal in Habitat Conservation Plan (HCP) –** As discussed in the *Routine Debris and Sediment Removal Program*, Tazewell County should include programmatic actions for emergency debris removal in the HCP. The plan should clearly outline actions to be taken with the Nationwide Permit and debris removal outside of infrastructure assets. By having clear approved procedures in advance of flood events, the County can expedite the acquisition of permits to remove debris post			

Step #	Step Description	Estimated Time to	Estimated Cost	Potential Funding Sources (By
5	**Amend Debris Management Support Annex (Tazewell County Emergency Operations Plan) -** The Tazewell County Emergency Operations Plan includes a Debris Management Support Annex to facilitate and coordinate the removal, collection, and disposal of debris following a disaster in order to mitigate against any potential threat to the health, safety, and welfare of the impacted citizens, expedite recovery efforts in the impacted area, and address any threat of significant damage to improved public or private property. Currently, the annex does not include specific provisions for debris removal from waterways after a flood event. The annex should include guidance for emergency removal of debris from waterways including: • Roles of County staff and Disaster Recovery Services Coordinator • The request process for debris assistance from USACE following a presidential disaster declaration. The County EM can request a USACE field assignment to remove debris when a Presidential Disaster Declaration has been made. • FEMA Trainings for County Staff assisting with Debris Management including IS-632.a (Introduction to Debris Operations) and IS-633 (Debris Management Plan Development) • Private contractors for debris removal • Resources needed for debris removal (e.g.,			

Funding Sources

- See Table

Figure of Action

N/A

Acquire Undeveloped Parcels

Problem Description

As discussed in the *Risk Assessment*, large portions of Tazewell County are at risk of flooding. Additionally, most of the development is near water features due to the flat topography along the valley bottoms. Development intensifies the magnitude and frequency of floods by increasing impermeable surfaces, amplifying the speed of drainage collection, reducing the carrying capacity of the land, and, occasionally, overwhelming sewer systems. Residents report rapid flooding with minimal warning time and high velocity floodwaters.

Figures of Problem Area

N/A

Project Type

Programmatic

Total Estimated Cost

Dependent on number of parcels identified and current market value.

Estimated Time to Complete

Ongoing Program

Project Lead

Tazewell County

Action Description

The County has expressed interest in acquiring parcels of undeveloped land within the floodplain to reduce and mitigate the impact of flooding by limiting future development in the floodplain and implementing flood storage areas. Parcels should be selected upstream of high-risk flood areas to capture, store, and slow the velocity of the channel flow. To serve as flood storage, the parcels may require minor grading, wetland restoration, stream restoration, the construction of nature-based solutions or the construction of flood storage basins. While serving as natural flood storage, the parcels can also serve as public amenities such as natural areas or parks with recreation facilities, hiking trails, or canoe access points. When acquired for flood storage, sites may need additional studies to evaluate storage capacities, flood risk reductions, and needs for nature-based solutions or restoration. Sites identified for public amenities, nature-based solutions, or storage basins may require additional planning, design, and construction.

At a minimum, the following actions should be taken at each site:

- Acquisition of property and development rights
- Restriction of future development
- Long-term maintenance plan development

In addition, the following actions should be considered for each site:

- Investigative or planning level studies
- Required permitting needs
- Stream and or wetland restoration
- Nature Based Solution installation for flood storage
- Flood storage basins
- Conversion to a public amenity (walking trails, natural areas, recreation facilities, etc.)
- Mitigation banking
- Long-term stewardship

Throughout the engagement process, several areas were identified as potential sites to be acquired for flood storage.

Areas identified for potential flood storage include:

- Parcels upstream of North Tazewell
- Parcels near the Four Way Area in Tazewell
- Parcels upstream of Richlands

When identifying funding sources for acquisition, restoration, and construction the County should pursue several opportunities. There are a wide variety of grants available for activities such as stream restoration, wetland restoration, and public recreation amenities. Sites with hard infrastructure solutions such as retention basins may not be eligible for grants focused on mitigation through nature-based solutions and restoration. The County should also consider public /private partnerships through options such as mitigation banks. Additionally, FWS provides Habitat Conservation Plan Land Acquisition Grants through the Cooperative Endangered Species Conservation Fund Grants. These funds can be utilized to acquire land to complement mitigation in areas with approved Habitat Conservations Plans. These funds could be leveraged upon the completion of the Habitat Conservation Plan as recommended in the *Routine Debris and Sediment Removal Program*.

Undeveloped parcels in flood hazard areas for North Tazewell and Richlands are shown in **Figure 76** and **Figure 77**. The total government owned undeveloped areas within flood hazard areas are summarized in **Table 71**.

Table 71: Government Owned Undeveloped Parcels within Flood Hazard Areas

Flood Hazard Area	Undeveloped Area (Acres)
Floodway	127
100-Year Flood Zone	3318
500-Year Flood Zone	32

Steps (step #, step description, timeline, estimated cost)

Step #	Step Description	Estimated Time to	Estimated Cost (By Step)	Potential Funding Sources (By Step)
1	**Property Identification –** Recommend the County develop a priority matrix that identifies priority acquisition properties based on selection criteria. Depending on the goals of the County, a study may need to be determined to understand which parcels would best reduce flood risk by serving as flood storage. The County should also identify the actions to be implemented at each site. For example, in some sites the goal may just be to acquire the site and restrict future development. Other sites may be used for flood storage		County Staff or Consultant Time	• BRIC Capability and Capacity Building
2	**Pursue Funding –** Once the County has identified priority sites and the actions to implement at each site, the County should pursue funding for the actions. Depending on the funding sources, actions may be taken one site at a time or through groupings of sites. When pursuing BRIC funds, the County should pursue larger flood mitigation actions including the			
3	**Acquisition –** Recommend the County acquire the prioritized sites and development rights to the sites. The County should restrict future development on the sites.			• BRIC • CFPF • Cooperative Endangered Species Conservation
4	**Design & Permitting–** Depending on the site, further design and permitting may be needed for flood storage, nature-based solutions, stream restoration, and public amenities. The County should hire qualified consultants as needed for design			• Community Challenge • BRIC • Five Star and Urban Waters Restoration

Step #	Step Description	Estimated Time to	Estimated Cost (By Step)	Potential Funding Sources (By Step)
5	**Implementation –** Once the design is complete, the project may be bid, and a qualified contractor selected to implement the action at each site.			• Outdoor Recreation Legacy Partnership (ORLP) Land and Water Conservation Fund • Rivers, Trails, and Conservation Assistance (RTCA) • Transportation Alternatives Program (TAP) • Community Flood Preparedness Fund (CFPF) • Recreational Trails Program • Virginia Land Conservation Fund • Section 319(h) Nonpoint Source (NPS) Implementation Program • Stormwater Local
6	**Maintenance –** Depending on the selected solution, routine maintenance may be needed. A plan for maintenance should be made including maintenance frequency,			• County Operating Funds

Funding Sources

- See Table

Figure of Action

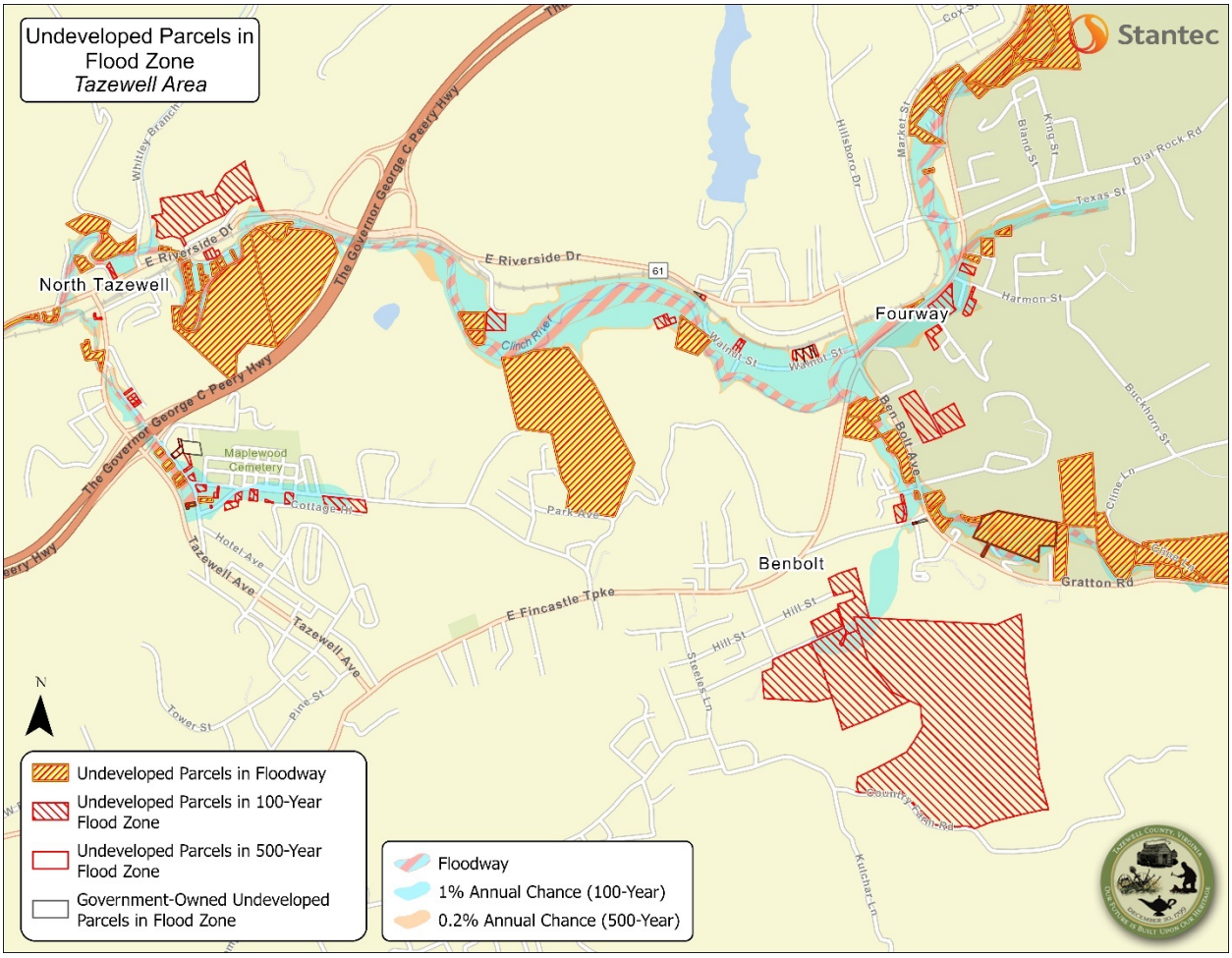

Figure 77 Undeveloped Parcels in Flood Hazard Areas in Tazewell

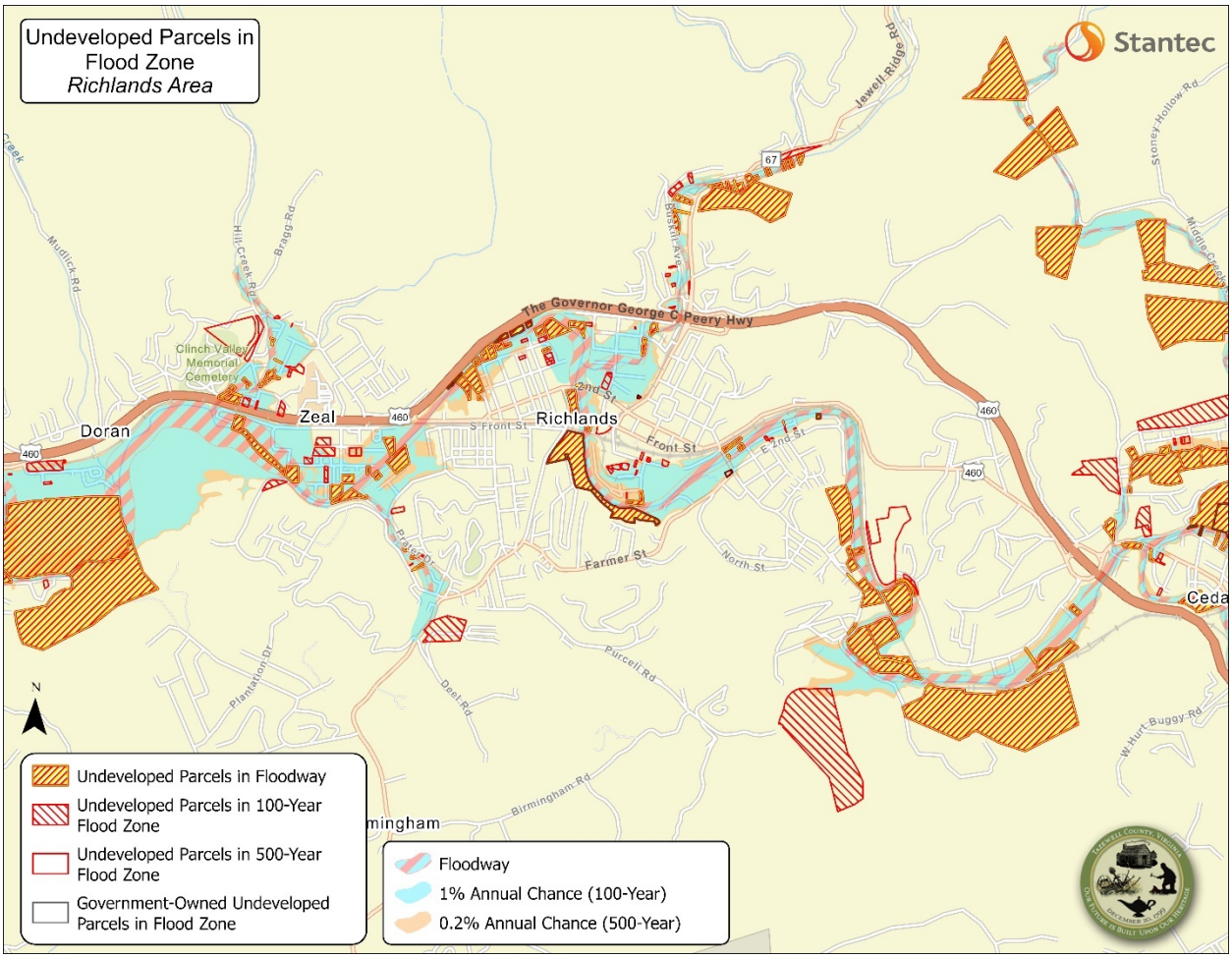

Figure 78: Undeveloped Parcels in Flood Hazard Areas in Richlands

Acquire Developed Properties

Problem Description

Tazewell County has a large number of structures located within the floodplain, as described in the *Risk Assessment*. Many of these structures were built prior to floodplain management ordinances. Development intensifies the magnitude and frequency of floods by increasing impermeable surfaces, amplifying the speed of drainage collection, reducing the carrying capacity of the land, and, occasionally, overwhelming sewer systems. Development within the floodplain puts people, property, and infrastructure at higher risk of negative impacts from flooding as shown in **Figure 78** and **Figure 79** . Additionally, many of the structures located within the floodplain are mobile homes that have higher vulnerability to flooding. Residents with high social vulnerability or without flood insurance may be unable to afford repairs to their homes and are more likely to continue to live in their homes. Tazewell County also has several residential areas that are only accessible by a single access point which strands a large number of residents and cuts-off emergency services when flooded.

Figures of Problem Area

Figure 79: Bottom Road Area during February 2020 floods (Source: Donna Whittington)

Figure 710: Allegheny Street Area during February 2020 floods (Source: WOAY TV)

Project Type
Programmatic

Total Estimated Cost
Dependent on the number of properties acquired and current market value.

Estimated Time to Complete
Ongoing Program

Project Lead
Tazewell County

Action Description
Tazewell County should develop a program to acquire properties based on prioritization located within the floodway and high hazard areas of the mapped FEMA floodplain to return to natural areas. **Priority should be given to severe / repetitive loss properties, mobile homes, abandoned buildings, properties in the floodplain or 100-year floodplain, and areas cut-off from emergency services during flooding events.** While acquisition may be pursued one property at a time, a focus should be placed on buying out multiple properties where applicable to minimize flood risk. The acquisition of property will minimize flood risk by providing opportunities within the floodway or floodplain for incorporation of flood storage (including natural or nature-based solutions) and limiting future development.

Once acquired, structures on the property should be demolished and the site should be restored to natural area. Natural areas may also be utilized for public recreation. To serve as flood storage, the parcels may require minor grading, wetland restoration, stream restoration, and or the construction of nature-based solutions. While serving as natural flood storage, the parcels can also serve as public amenities such as natural areas and parks with recreation facilities, hiking trails, and or canoe access points. When acquired for flood storage, sites may need additional studies to evaluate storage capacities, flood risk reductions, and needs for nature-based solutions or restoration. Sites identified for public amenities or nature-based solutions may require additional planning, design, and construction. Sites

with hard infrastructure solutions such as retention basins may not be eligible for grants focused on mitigation through nature-based solutions and restoration.

At a minimum, the following actions should be taken at each site:

- Acquisition of property and development rights
- Demolition of existing structures
- Restriction of future development
- Long-term maintenance plan development

In addition, the following actions should be considered for each site:

- Investigative or planning level studies.
- Required permitting needs
- Stream or wetland restoration
- Conversion to a public amenity (walking trails, natural areas, recreation facilities, etc.)
- Nature Based Solution installation for flood storage.
- Mitigation banking
- Long-term stewardship

When pursuing acquisition, the program should consider community engagement, equity, and affordable housing. Residents should be engaged throughout the process to understand their options, rights, and risk. Some property owners may require additional assistance to relocate beyond the value they are given for their home or as renters. The County should consider additional funding sources and support to ensure residents are relocated outside of the floodplain and flood risk areas. Additional support may include moving assistance, site development for relocated communities, and housing assistance. For communities that want to remain together, the County may need to provide assistance to help residents relocate to an area together.

Priority areas identified throughout this plan include:

- Blacksburg Street, North Tazewell
- Bottom Road/ Kirby Road Area, Raven
- Allegheny Street Area, Richlands
- Page Street Area, Richlands
- Four Way Area, North Tazewell
- Reynolds Avenue Area, Bluefield including Dudley Street and Mobile Estates/ Magnolia Lane

These areas were identified throughout the planning process which included public engagement and a desktop risk assessment. Other areas should be considered if they meet the program goals. Additional studies may need to be performed to acquire grant funding for property acquisition, demolition and restoration. This program should remain ongoing until the number of structures within flood hazard

areas is reduced to zero and as funding and opportunities become available. Examples of acquisition and demolition properties being turned into a public park are shown in **Figure 711** and **Figure 712**.

Steps (step #, step description, timeline, estimated cost)

Step #	Step Description	Estimated Time to Complete	Estimated Cost (By Step)	Potential Funding Sources (By Step)
1	**Establish Program –** Recommend the County identify staff to lead the program and champion the effort. The County should work to acquire properties on an ongoing basis as funding becomes available. Staff should be trained on funding sources for acquisition, demolition, and restoration. If existing staff does not have the capacity, the County may			
2	**Community Engagement –** Recommend the County hold public meetings with the identified priority communities to receive feedback on potential acquisition projects		County Staff Time	
3	**Property Identification –** Recommend the County identify priority properties to acquire and demolish through a prioritization matrix based on selected criteria. Depending on the goals of the County, a study may be needed to understand which parcels would best reduce flood risk by serving as flood storage (natural flood storage or nature-based infrastructure). The County should identify the actions to be implemented at each site. The County should			• HMGP Advanced Assistance • BRIC Project Scoping
4	**Pursue Funding –** Once the County has identified priority sites and the actions to implement at each site, recommend the County pursue funding for the actions. Depending on the funding sources, actions may be taken one site at a time or through groupings of sites. For pursuing larger grant opportunities such as HMGP or BRIC, a consultant or disaster recovery services coordinator may be beneficial to prepare the		$50,000 + for BRIC application prepared by a consultant	
5	**Acquisition / Demolition –** Recommend the County acquire the prioritized sites and development rights to the sites. The County should restrict future development on the sites. The County should coordinate with residents to ensure a streamlined process and		County Staff Time, funding for acquisition	• BRIC • CFPF • FMA • CBDG (housing development) • HMGP

Step #	Step Description	Estimated Time to Complete	Estimated Cost (By Step)	Potential Funding Sources (By Step)
6	**Design & Permitting–** Depending on the actions selected for the sites, further design and permitting may be needed for flood storage, nature-based solutions, stream restoration, and public amenities. The County should hire consultants as needed for design and permitting on the acquired properties. Most grants are focused on stream restoration for natural flood storage. If the County decided to pursue hard infrastructure solutions for			• Community Challenge • BRIC • Five Star and Urban Waters Restoration • Outdoor Recreation Legacy Partnership (ORLP) Land and Water Conservation Fund • Rivers, Trails and Conservation Assistance (RTCA) • CFPF • Recreational Trails Program • Virginia Land Conservation Fund • FMA • Section 319(h) Nonpoint Source (NPS) Implementation
7	**Implementation –** Once the design is complete, a contractor can be hired to implement the action at each site.			
8	**Maintenance –** Depending on the selected solution, routine maintenance may be needed. A plan for maintenance should be made including maintenance frequency, actions			• County operating Funds

Funding Sources

- See Table

Figure of Action

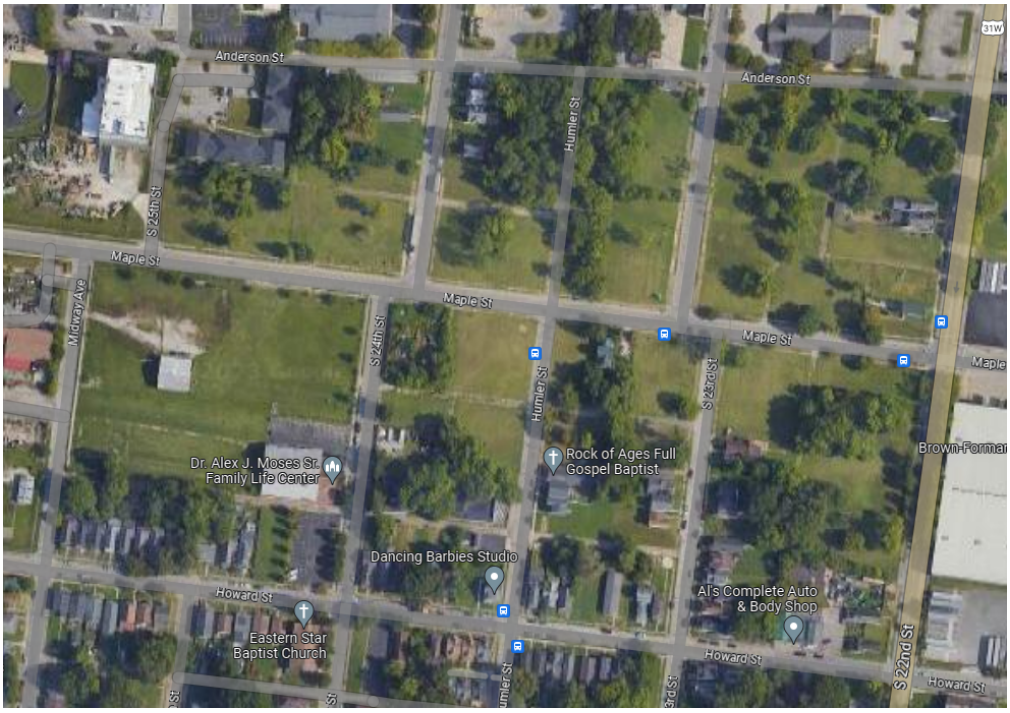

Figure 711: Example of open space post property acquisition/demolition due to flooding (California Neighborhood Louisville, Kentucky).

Figure 712:Example of a park being developed on previously acquired properties from flooding in the California Neighborhood, Louisville, Kentucky[8]

[8] "Alberta O. Jones Park", Parks Alliance of Louisville, Alberta O. Jones Park | Parks Alliance of Louisville (parksalliancelou.org)

Participate in Community Rating System (CRS)

Problem Description

Within Tazewell County, there are a large number of structures location in Flood Hazard Areas as discussed in *Section 6 - Risk Assessment*. There are 387 structures in the Floodway, 1,996 in the 1% Annual Chance Flood Hazard Area, and 525 in the 0.2% Annual Chance Flood Hazard Area. While Tazewell County participates in National Floodplain Insurance Program (NFIP), many residents report that flood insurance premiums are cost prohibitive. Without flood insurance, residents may be fully responsible for flood-related damage to their property. Flood damage can be extremely expensive. One inch of floodwater can cause up to $25,000 in damage.[9]

Figures of Problem Area

N/A

Project Type

Programmatic

Total Estimated Cost

Staff time. Additional costs associated with developing flood management planning (e.g., hiring a consultant to develop a plan, write an ordinance, or verify CRS prerequisites are met) may apply.

Estimated Time to Complete

Ongoing Program

Project Lead

Tazewell County

Action Description

Under the Community Rating System (CRS), communities are rewarded for exceeding the minimum national standards for floodplain management. Under the CRS, the flood insurance premiums of a community's residents and businesses can be discounted to reflect the community's work to reduce flood damage to existing buildings, manage development in areas not mapped by the NFIP, protect new buildings beyond the minimum NFIP protection level, preserve and /or restore natural functions of floodplains, help insurance agencies obtain flood data, and help people obtain flood insurance. Participating communities achieve certain classes that are associated with a specific discount on residents' premiums. The discounts by CRS class are shown in **Figure 713.**[10]

[9] "Flood Insurance", FEMA, Flood Insurance | FEMA.gov

[10] "National Flood Insurance Program Community Rating System Coordinator's Manual", FEMA, 2017, CRS Coordinator's Manual (fema.gov)

CRS classes, credit points, and premium discounts			
CRS Class	Credit Points (cT)	Premium Reduction	
		In SFHA	Outside SFHA
1	4,500+	45%	10%
2	4,000–4,499	40%	10%
3	3,500–3,999	35%	10%
4	3,000–3,499	30%	10%
5	2,500–2,999	25%	10%
6	2,000–2,499	20%	10%
7	1,500–1,999	15%	5%
8	1,000–1,499	10%	5%
9	500–999	5%	5%
10	0–499	0	0

SFHA: Zones A, AE, A1–A30, V, V1–V30, AO, and AH

Outside the SFHA: Zones X, B, C, A99, AR, and D

Preferred Risk Policies are not eligible for CRS premium discounts because they already have premiums lower than other policies. Preferred Risk Policies are available only in B, C, and X Zones for properties that are shown to have a minimal risk of flood damage.

Some minus-rated policies may not be eligible for CRS premium discounts.

Premium discounts are subject to change.

Figure 713: CRS classes, credit points, and premium discounts

To help lower the cost of flood insurance in Tazewell County, the goal of this action is to start participating in CRS. While communities can continue to earn more credits, an initial goal is to achieve CRS Class 9 which would result in a 5% insurance premium discount. The process to join the CRS is described in the Coordinator's Manual and summarized below. The steps reference the 2017 Coordinator's Manual, however, when applying the community should reference the latest manual as they are updated every few years.

Flood Risk Mitigation Actions from this plan including the activities performed for the completion of this plan may be leveraged for CRS Credit. For example, increased flood modeling actions may be leveraged under Activity 410 – Flood Hazard Mapping. Additionally, the Tazewell County Flood Resilience Plan may be leveraged for Activity 510 – Floodplain Management Planning with the addition of a few components. As the community pursues and implements the Flood Risk Mitigation Actions in the Tazewell County Flood Resilience Plan, the community should check if the activities meet any CRS credits.

Steps (step #, step description, timeline, estimated cost)

Step #	Step Description	Estimated Cost	Potential Funding
	Initial Classification		
1	**Meet Prerequisites** - To become and continue to be a Class 9 or better, a community must demonstrate that it has enough points to warrant the class AND meet the following six prerequisites. Below the prerequisites are summarized. The community should verify that the Class 9 prerequisites are met as defined in the Coordinator's Manual. 1. The community must have been in the Regular Phase of the NFIP for at least one year. 2. The community must be in full compliance with the minimum requirements of the NFIP. This must be verified by the FEMA Regional Office within 6 months of the initial CRS verification visit. 3. The community must maintain FEMA Elevation Certificates on all new buildings and substantial improvements constructed in the Special Flood Hazard Area (SFHA) after the community applies for CRS credit. 4. If there are one or more repetitive loss properties in the community, the community must take certain actions. These include reviewing and updating the list of repetitive loss properties, mapping repetitive loss areas, describing the causes of the losses, and sending an outreach project to those areas each year. A community with 50 or more repetitive loss properties must take additional actions. 5. The community must maintain all flood insurance policies that it has been required to carry on properties owned by the		
2	**Submit Letter of Interest -** The community will submit a letter of interest to the FEMA Regional Office and copies will the sent to the State NFIP Coordinator and Insurance Services Office, Inc. (ISO). The contents required are shown in the Coordinator's Manual. The community will also include documentation showing that the community is implementing activities to warrant at least a CRS Class 9.		
3	**Submittal Review -** If the community's submittal is complete and shows that Class 9 is likely, the ISO Specialist will contact the FEMA Regional Office for approval to conduct an initial verification visit with the community. The Regional FEMA Office must approve the submittal to ensure that the community is in full compliance with the minimum floodplain		

Step #	Step Description	Estimated Cost	Potential Funding
4	**Prepare for Community Visit -** The ISO Specialist will contact the community to schedule the community verification. During the visit, the ISO/CRS Specialist will review all the communities' activities that may deserve credit. Prior to the visit, community staff will prepare		
5	**Community Visit -** ISO will perform the verification visit and submit a verification report to FEMA. The review period may take several months. FEMA will make the final decision on the community's credit and		
6	**Credit Set -** FEMA sets the CRS credit to be granted and notifies the community, the state, insurance companies, and other appropriate		
7	**Official Classification -** The classification becomes effective on May 1 or October 1, whichever comes first, after the community's activities are		
	Recertification (Each Year)		
1	**Staffing -** Designate a community CRS coordinator and maintain the position. The CRS coordinator should be responsible for recertification each year. The CRS coordinator should also be responsible for applying for additional credits as Tazewell County completes flood mitigation activities to gain further insurance premium discounts. The process for applying for additional credits is detailed in the Coordinators Manual. For example, the Class 6 prerequisites are summarized below, which would result in a 20% premium reduction for properties in Special Flood Hazard Areas. The Coordinator's Manual should be referenced for the full criteria. 1. The community must meet all the Class 9 prerequisites. 2. The community must have received and continue to maintain a classification of 5/5 or better under the Building Code Effectiveness Grading Schedule (BCEGS).		
2	**Recertification Packet** - ISO/CRS will send the community a list of credited activities. The community must respond by the deadline provided with the annual recertification package certifying whether it is still implementing each item on the list. The community will submit the package to the ISO / CRS Specialist. Some activities will require the		

Funding Sources

- See Table

Figure of Action

N/A

Plan Implementation and Maintenance

The actions included in this section are intended to provide a near-term roadmap for Tazewell County to implement flood risk reduction measures. Ongoing monitoring to evaluate flood mitigation actions that have been successfully implemented is recommended. Going forward, it is recommended that the Planning Team meet annually (at a minimum) to review progress on the flood mitigation measures and discuss flood mitigation implementation actions to be taken in the following year.

Further, while not required, it is recommended that the County update the Flood Resilience Plan every 5-10 years in order to reassess capability and capacity and flood risk and vulnerability, as well as understand the progress made toward implementation of actions identified during this planning process, and to identify new actions for flood risk reduction.