

FOR PUBLIC RELEASE

Source Water Protection Plan Corporation Of Harpers Ferry

PWSID: WV3301912

Jefferson County

October 2021

Prepared By:

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In cooperation with Corporation Of Harpers Ferry

WV Bureau for Public Health, Source Water Assessment and Protection Program

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I Certify the information in the source water protection plan is complete and accurate to the best of my knowledge.

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7/7/2021

Date of Submission (mm/dd/yyyy):

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SOURCE WATER PROGRAM ACRONYMS

AST	Aboveground Storage Tank
BMP	Best Management Practices
ERP	Emergency Response Plan
GWUDI	Ground Water Under the Direct Influence of Surface Water
LEPC	Local Emergency Planning Committee
OEHS	EED Office of Environmental Health Services/Environmental Engineering Division
PE	Professional Engineer
PSSCs	Potential Source of Significant Contamination
PWSU	Public Water System Utility
RAIN	River Alert Information Network
RPDC	Regional Planning and Development Council
SDWA	Safe Drinking Water Act
SWAP	Source Water Assessment and Protection
SWAPP	Source Water Assessment and Protection Program
SWP	Source Water Protection
SWPA	Source Water Protection Area
SWPP	Source Water Protection Plan
WARN	Water/Wastewater Agency Response Network
WHPA	Wellhead Protection Area
WHPP	Wellhead Protection Program
WSDA	Watershed Delineation Area
WVBPH	West Virginia Bureau for Public Health
WVDEP	West Virginia Department of Environmental Protection
WVDHHR	West Virginia Department of Health and Human Resources
WVDHSEM	West Virginia Division of Homeland Security and Emergency Management
ZCC	Zone of Critical Concern
ZPC	Zone of Peripheral Concern

1.0 PURPOSE

The goal of the West Virginia Bureau of Public Health (WVBPH) source water assessment and protection (SWAP) program is to prevent degradation of source waters which may preclude present and future uses of drinking water supplies to provide safe water in sufficient quantity to users. The most efficient way to accomplish this goal is to encourage and oversee source water protection on a local level. Many aspects of source water protection may be best addressed by engaging local stakeholders.

The intent of this document is to describe what Corporation Of Harpers Ferry has done, is currently doing, and plans to do to protect its source of drinking water. Although this water system treats the water to meet federal and state drinking water standards, conventional treatment does not fully eradicate all potential contaminants and treatment that goes beyond conventional methods is often very expensive. By completing this plan, Corporation Of Harpers Ferry acknowledges that implementing measures to minimize and mitigate contamination can be a relatively economical way to help ensure the safety of the drinking water.

1.1. WHAT ARE THE BENEFITS OF PREPARING A SOURCE WATER PROTECTION PLAN?

- Fulfilling the requirement for the public water utilities to complete or update their source water protection plan.
- Identifying and prioritizing potential threats to the source of drinking water; and establishing strategies to minimize the threats.
- Planning for emergency response to incidents that compromise the water supply by contamination or depletion, including how the public, state, and local agencies will be informed.
- Planning for future expansion and development, including establishing secondary sources of water.
- Ensuring conditions to provide the safest and highest quality drinking water to customers at the lowest possible cost.
- Providing more opportunities for funding to improve infrastructure, purchase land in the protection area, and other improvements to the intake or source water protection areas.

2.0 BACKGROUND: WV SOURCE WATER ASSESSMENT AND PROTECTION PROGRAM

Since 1974, the federal Safe Drinking Water Act (SDWA) has set minimum standards on the construction, operation, and quality of water provided by public water systems. In 1986, Congress amended the SDWA. A portion of those amendments were designed to protect the source water contribution areas around ground water supply wells. This program eventually became known as the Wellhead Protection Program (WHPP). The purpose of the WHPP is to prevent pollution of the source water supplying the wells.

The Safe Drinking Water Act Amendments of 1996 expanded the concept of wellhead protection to include surface water sources under the umbrella term of Source Water Protection. The amendments encourage states to establish SWAP programs to protect all public drinking water supplies. As part of this initiative states must explain how protection areas for each public water system will be delineated, how potential contaminant sources will be inventoried, and how susceptibility ratings will be established.

In 1999, the WVBPH published the West Virginia Source Water Assessment and Protection Program, which was endorsed by the United States Environmental Protection Agency. Over the next few years, WVBPH staff completed an assessment (i.e., delineation, inventory and susceptibility analysis) for all of West Virginia's public water systems. Each public water system was sent a copy of its assessment report. Information regarding assessment reports for Corporation Of Harpers Ferry can be found in **Table 1**.

3.0 STATE REGULATORY REQUIREMENTS

On June 6, 2014, §16 1 2 and §16 1 9a of the Code of West Virginia, 1931, was reenacted and amended by adding three new sections, designated §16 1 9c, §16 1 9d and §16-1-9e. The changes to the code outlines specific requirements for public water utilities that draw water from a surface water source or a surface water influenced groundwater source.

Under the amended and new codes each existing public water utility using surface water or ground water influenced by surface water as a source must have completed or updated a source water protection plan by July 1, 2016, and must continue to update their plan every three years. Existing source water protection plans have been developed for many public water utilities in the past. If available, these plans were reviewed and considered in the development of this updated plan. Any new water system established after July 1, 2016 must submit a source water protection plan before they start to operate. A new plan is also required when there is a significant change in the potential sources of significant contamination (PSSC) within the zone of critical concern (ZCC).

The code also requires that public water utilities include details regarding PSSCs, protection measures, system capacities, contingency plans, and communication plans. Before a plan can be approved, the local health department and public will be invited to contribute information for consideration. In some instances, public water utilities may be asked to conduct independent studies of the source water protection area and specific threats to gain additional information.

4.0 SYSTEM INFORMATION

CORPORATION OF HARPERS FERRY is classified as a state regulated public utility and operates a community public water system. A community public water system is a system that regularly supplies drinking water from its own sources to at least 15 service connections used by year round residents of the area or regularly serves 25 or more people throughout the entire year. For purposes of this source water protection plan, community public water systems are also referred to as public water utilities. Information on the population served by this utility is presented in **Table 1** below.

Table 1. Population Served by CORPORATION OF HARPERS FERRY

Administrative office location:	1000 Washington St, Harpers Ferry, JEFFERSON, WV, 25425		
Is the system a public utility, according to the Public Service Commission rule?	Yes		
Date of Most Recent Source Water Assessment Report:	3/1/2003		
Date of Most Recent Source Water Protection Plan:	7/1/2019		
Population served directly:	2122		
Bulk Water Purchaser Systems:	System Name	PWSID Number	Population
Total Population Served by the Utility:	2122		
Does utility have multiple Source Water Protection Areas(SWPAs)?	Yes		
How many SWPAs does the utility have?	3		

5.0 WATER TREATMENT AND STORAGE

As required, Corporation Of Harpers Ferry has assessed their system (e.g., treatment capacity, storage capacity, unaccounted for water, contingency plans) to evaluate their ability to provide drinking water and protect public health. **Table 2** contains information on the water treatment methods and capacity of the utility. Information about the surface sources from which Corporation Of Harpers Ferry draws water can be found in **Table 3**. If the utility draws water from any groundwater sources to blend with the surface water the information about these ground water sources can be found in **Table 4**.

Table 2. Corporation Of Harpers Ferry Water Treatment Information

Corporation of Harpers Ferry	
Water treatment processes (in order of occurrence) includes:	pre-sedimentation, coagulation, flocculation, sedimentation, filtration, disinfection, fluoridation
The treatment capacity is approximately (GPD):	500,000
Current average production is approximately (GPD):	229,000
Maximum gallons of water treated and produced at that plant in one day during the past year was:	387,000
Minimum gallons of water treated and produced at that plant in one day during the past year was:	88,000
Plant is operated an average of hours a day:	12
Maximum number of hours of operation in one day at that plant during the past year was:	24
Minimum number of hours of operation in one day at that plant during the past year was:	4
How many storage tank(s) are maintained on systems distribution system:	3
Total gallons of treated water storage:	991,000
Total gallons of raw water storage (GALs):	77,000

Table 3. Corporation Of Harpers Ferry Surface Water Sources

Intake Name	Facility #	Local Name	Describe Intake	State Id Code	Date Constructed / Modified	Frequency of Use (Primary / Backup / Emergency)	Activity Status (Active/Inactive)
ELK RUN INTAKE	1940550	HARPER'S FERRY WATER WORKS PRIMARY	Above ground intake located in the Elk Run. Surface water and is located 150 feet from the railroad.	IN001		Permanent	Active
POTOMAC RIVER INTAKE	3491093	HARPER'S FERRY WATER WORKS BACKUP1	Submersible intake located in the Potomac River. It is located at the 1000 yards away from the river access.	IN002	1/1/1983	Emergency	Active

Table 4. Corporation Of Harpers Ferry Ground Water Sources

Well/Spring Name	Facility #	Local Name	Date Constructed / Modified	Completion Report Available (Yes/No)	Well Depth (ft)	Casting Depth (ft)	Grout (Yes/No)	Frequency of Use (Primary / Backup / Emergency)	Activity Status (Active/Inactive)
TOWN SPRING	-	HARPER'S FERRY WATER WORKS BACKUP2	1/1/1937	No	0	0	None	Other	Active

6.0 DELINEATIONS

For surface water systems, delineation is the process used to identify and map the drainage basin that supplies water to a surface water intake. This area is generally referred to as the source water protection area (SWPA). All surface waters are susceptible to contamination because they are exposed at the surface and lack a protective barrier from contamination. Accidental spills, releases, sudden precipitation events that result in overland runoff, or storm sewer discharges can allow pollutants to readily enter the source water and potentially contaminate the drinking water at the intake. The SWPA for surface water is distinguished as a Watershed Delineation Area (WSDA) for planning purposes; and the Zone of Peripheral Concern (ZPC) and Zone of Critical Concern (ZCC) are defined for regulatory purposes.

The WSDA includes the entire watershed area upstream of the intake to the boundary of the State of West Virginia border, or a topographic boundary. The ZCC for a public surface water supply is a corridor along streams within the watershed that warrant more detailed scrutiny due to its proximity to the surface water intake and the intake's susceptibility to potential contaminants within that corridor. The ZCC is determined using a mathematical model that accounts for stream flows, gradient and area topography. The length of the ZCC is based on a five-hour time-of-travel of water in the streams to the water intake, plus an additional one-quarter mile below the water intake. The width of the zone of critical concern is 1,000 feet measured horizontally from each bank of the principal stream, and five hundred feet measured horizontally from each bank of the tributaries draining into the principal stream. Ohio River ZCC delineations are based on ORSANCO guidance and extend 25 miles above the intake. The Ohio River ZCC delineations include 1,320 feet (1/4 mile) measured from the bank of the main stem of the Ohio River and 500 feet on a tributary.

The ZPC for a public surface water supply source and for a public surface water influenced groundwater supply source is a corridor along streams within a watershed that warrants scrutiny due to its proximity to the surface water intake and the intake's susceptibility to potential contaminants within that corridor. The ZPC is determined using a mathematical model that accounts for stream flows, gradient and area topography. The length of the zone of peripheral concern is based on an additional five-hour time-of-travel of water in the streams beyond the perimeter of the zone of critical concern, which creates a protection zone of ten hours above the water intake. The width of the zone of peripheral concern is one thousand feet measured horizontally from each bank of the principal stream and five hundred feet measured horizontally from each bank of the tributaries draining into the principal stream.

For groundwater supplies there are two types of SWPA delineations: 1) wellhead delineations and 2) conjunctive delineations, which are developed for supplies identified as groundwater under the direct influence of surface water, or GWUDIs. A wellhead protection area is determined to be the area contributing to the recharge of the groundwater source (well or spring), within a five year time of travel. A conjunctive delineation combines a wellhead protection area for the hydrogeologic recharge and a connected surface area contributing to the wellhead.

Information and maps of the WSDA, ZCC, ZPC and Wellhead Protection Area for this public water supply were provided to the utility and are attached to this report. See **Appendix A. Figures**. Other information about the WSDA is shown in **Table 5**.

Table 5. Watershed Delineation Information

Intake Name	Elk Run
Size of WSDA (Square Miles)	18
River Watershed Name (8-digit HUC)	Conococheague-Opequon - 02070004
Size of Zone of Critical Concern (Acres)	2573
Size of Zone of Peripheral Concern (Acres) (Include ZCC area)	0
Do you blend with ground water	Yes
Do you have an intake or well/spring missing from the list?	No
Intake Name	Potomac River
Size of WSDA (Square Miles)	6305
River Watershed Name (8-digit HUC)	Conococheague-Opequon - 02070004
Size of Zone of Critical Concern (Acres)	10685
Size of Zone of Peripheral Concern (Acres) (Include ZCC area)	16075
Do you blend with ground water	Yes
Do you have an intake or well/spring missing from the list?	No
Intake Name	HARPER'S FERRY WATER WORKS BACKUP2
Method of Delineation for Groundwater Sources	Radius
Area of Wellhead Protection Area (Acres)	289

7.0 PROTECTION TEAM

One important step in preparing a source water protection plan is to organize a source water protection team who will help develop and implement the plan. The legislative rule requires that water utilities make every effort to inform and engage the public, local government, local emergency planners, the local health department and affected residents at all levels of the development of the protection plan. WVBPH recommends that the water utility invite representatives from these organizations to join the protection team, which will ensure that they are given an opportunity to contribute in all aspects of source water protection plan development. Public water utilities should document their efforts to engage representatives and provide an explanation if any local stakeholder is unable to participate. In addition, other local stakeholders may be invited to participate on the team or contribute information to be considered. These individuals may be emergency response personnel, local decision makers, business and industry representatives, land owners (of land in the protection area), and additional concerned citizens.

The administrative contact for Corporation Of Harpers Ferry is responsible for assembling the protection team and ensuring that members are provided the opportunity to contribute to the development of the plan. The acting members of the Protection Team are listed in **Table 6**.

The role of the protection team members will be to contribute information to the development of the source water protection plan, review draft plans and make recommendations to ensure accuracy and completeness, and when possible contribute to implementation and maintenance of the protection plan. The protection team members are chosen as trusted representatives of the community served by the water utility and may be designated to access confidential data that contains details about the local PSSCs. The input of the protection team will be carefully considered by the water utility when making final decisions relative to the documentation and implementation of the source water protection plan.

Corporation Of Harpers Ferry will be responsible for updating the source water protection plan and rely upon input from the protection team and the public to better inform their decisions. To find out how you can become involved as a participant or contributor, visit the utility website or call the utility phone number, which are provided in **Table 6**.

Table 6. Protection Team Member and Contact Information

Name	Representing	Title	Phone Number	Email
	Corporation Of Harpers Ferry			
Chris Styer	Corporation Of Harpers Ferry	Superintendent	(304)535-6555	cstyer@harpersferrywv.us
	Corporation Of Harpers Ferry			
Bill Robinson	Corporation Of Harpers Ferry	Chairperson/Water Commissisoner		william.r.robinson@gmail.com
Steve Allen	Corporation Of Harpers Ferry	Director		sallen@jeffersoncountywv.org
Greg Vaughn	Corporation Of Harpers Ferry	Mayor	(304)535-2206	gvaughn@harpersferrywv.us
Laurel Drake	Harpers Ferry Water Commission	Council	(304)702-7004	ldrake@harpersferrywv.us
Alana Hartman	WVDEP Watershed Improvement Branch	Environmental Resources Analyst	(304)993-6814	alana.c.hartman@wv.gov
Kristen Bisom	West Virginia Conservation Agency	Conservation Specialist	(304)263-4376	_kbisom@wvca.us
John D Brown	Harpers Ferry Police Department	Chief of Police	(304)535-6366	jbrown@shepherd.edu
Jennifer M. Brockman*	Jefferson County Office of Planning and Zoning	County Planner	(304)728-3228	planningdepartment@jeffersoncountywv.org
Steve Stolipher	Jefferson County Commission	Commissioner, Harpers Ferry District		
Autumn Crowe	West Virginia Rivers Coalition	Eastern Panhandle Field Coordinator	(304)992-6070	acrowe@wvrivers.org
Colin Stine	JCWAC	Member		ocsphd@gmail.com
Date of First Protection Team Meeting:		Protection Team Meeting was held Friday, March 18, 2016 at Corporation Of Harpers Ferry. Meeting minutes attached in Appendix E.		
Efforts made to inform and engage local stakeholders (public, local government, local emergency planners, local health department, and affected residents) and explain absence of recommended stakeholders		A list of local stakeholders invited to join the Protection Team is provided in Appendix E-4. Reasons for their absence are explained therein. PUBLIC MEETING JUNE 10 2019 6:30 PM HARPERS FERRY TOWN HALL		

8.0 POTENTIAL SOURCES OF SIGNIFICANT CONTAMINATION

Source water protection plans should provide a complete and comprehensive list of the PSSCs contained within the ZCC, based upon information obtained from the WVBPH, working in cooperation with the West Virginia Department of Environmental Protection (WVDEP) and the West Virginia Division of Homeland Security and Emergency Management (WVDHSEM). A facility or activity is listed as a PSSC if it has the potential to release a contaminant that could potentially impact a nearby public water supply, and it does not necessarily indicate that any release has occurred.

The list of PSSCs located in the SWPA is organized into two types: 1) SWAP PSSCs, and 2) Regulated Data. SWAP PSSCs are those that have been collected and verified by the WVBPH SWAP program during previous field investigations to form source water assessment reports and source water protection plans. Regulated PSSCs are derived from federal and state regulated databases, and may include data from WVDEP, US Environmental Protection Agency, WVDHSEM, and from state data sources.

8.1. CONFIDENTIALITY OF PSSCS

A list of the PSSCs contained within the ZCC should be included in the source water protection plan. In the event of a chemical spill, release or other related emergency, information pertaining to the contaminant shall be immediately disseminated to any emergency responders reporting to the site. The designees for Corporation Of Harpers Ferry are identified in the communication planning section of the source water protection plan.

PSSC data from some agencies (ex. WVDHSEM, WVDEP, etc.) may be restricted due to the sensitive nature of the data. Locational data will be provided to the public water utility. However, to obtain specific details regarding contaminants, (such as information included in Tier II reports), water utilities should contact the local emergency planning commission (LEPC) or agencies, directly. While the maps and lists of the PSSCs and regulated sites are to be maintained in a confidential manner, these data are provided in **Appendix A. Figures** for internal review and planning uses only.

8.2. LOCAL AND REGIONAL PSSCS

For the purposes of this source water protection plan, local PSSCs are those that are identified by local stakeholders in addition to the PSSCs lists distributed by the WVBPH and other agencies. Local stakeholders may identify local PSSCs for two main reasons. The first is that it is possible that threats exist from unregulated sources and land uses that have not already been inventoried and do not appear in regulated databases. For this reason each public water utility should investigate their protection area for local PSSCs. A PSSC inventory should identify all contaminant sources and land uses in the delineated ZCC. The second reason local PSSCs are identified is because public water utilities may consider expanding the PSSC inventory effort outside of the ZCC into the ZPC and WSDA if necessary to properly identify all threats that could impact the drinking water source. As the utility considers threats in the watershed they may consider collaborating with upstream communities to identify and manage regional PSSCs.

When conducting local and regional PSSC inventories, utilities should consider that some sources may be obvious like above ground storage tanks, landfills, livestock confinement areas, highway or railroad right of ways, and sewage treatment facilities. Others are harder to locate like abandoned cesspools, underground tanks, French

drains, dry wells, or old dumps and mines.

The Corporation Of Harpers Ferry reviewed intake locations and the delineated SWPAs to verify the existence of PSSCs provided by the WVBPH and identify new PSSCs. If possible, locations of regulated sites within the SWPA were confirmed. Information on any new or updated PSSCs identified by Corporation Of Harpers Ferry and not already appearing in datasets from the WVBPH can be found in **.Table 7.**

Table 7. Locally Identified potential Sources of Significant Contamination

Please see Appendix A to view this information.

8.3. PRIORITIZATION OF THREATS AND MANAGEMENT STRATEGIES

Once the utility has identified local concerns, they must develop a management plan that identifies specific activities that will be pursued by the public water utility in cooperation and concert with the WVBPH, local health departments, local emergency responders, LEPC and other agencies and organizations to protect the source water from contamination threats.

Depending on the number identified, it may not be feasible to develop management strategies for all of the PSSCs in the SWPA. The identified PSSCs can be prioritized by potential threat to water quality, proximity to the intake(s), and local concern. The highest priority PSSCs can be addressed first in the initial management plan. Lower ranked PSSCs can be addressed in the future as time and resources allow. To assess the threat to the source water, water systems should consider confidential information about each PSSC. This information may be obtained from state or local emergency planning agencies, Tier II reports, facility owner, facility groundwater protection plans, spill prevention response plans, results of field investigations, etc.

In addition to identifying and prioritizing PSSCs within the SWPA, local source water concerns may also focus on critical areas. For the purposes of this source water protection plan, a critical area is defined as an area that is identified by local stakeholders and can lie within or outside of the ZCC. Critical areas may contain one or more PSSCs which would require immediate response to address a potential incident that could impact the source water.

A list of these priority PSSCs was selected and ranked by the Corporation Of Harpers Ferry Protection Team. This list reflects the concerns of this specific utility and may contain PSSCs not previously identified and not within the ZCC or ZPC. **Table 8** contains a description of why each critical area or PSSC is considered a threat and what management strategies the utility is either currently using or could use in the future to address each threat.

9.0 IMPLEMENTATION PLAN FOR MANAGEMENT STRATEGIES

Corporation Of Harpers Ferry reviewed the recommended strategies listed in their previous source water protection plan, to consider if any of them should be adopted and incorporated in this updated plan. **Table 9** provides a brief statement summarizing the status of the recommended strategies. **Table 9** also lists strategies from a previous plan that are being incorporated in this plan update.

When considering source management strategies and education and outreach strategies, this utility has considered how and when the strategies will be implemented. The initial step in implementation is to establish responsible parties and timelines to implement the strategies. The water utility, working in conjunction with the Protection Team members, can determine the best process for completing activities within the projected time periods. Additional meetings may be needed during the initial effort to complete activities, after which the Protection Team should consider meeting annually to review and update the Source Water Protection Plan. A system of regular updates should be included in every implementation plan.

Proposed commitments and schedules may change but should be well documented and reported to the local stakeholders. If possible, utilities should include cost estimates for strategies to better plan for implementation and possible funding opportunities. Corporation Of Harpers Ferry has developed an implementation plan for priority concerns listed in **Table 8**. The responsible team member, timeline, and potential cost of each strategy are presented in **Table 9**. Note: Because timelines may change, future plan updates should describe the status of each strategy and explain the lack of progress.

Table 8. Priority PSSCs or Critical Areas

PSSC or Critical Area	Priority Number	Reason for Concern
CSX and Norfolk Southern Railroads	1	Railroads present a potential threat to surface water and shallow karst aquifers due to the possibility of spills and train derailments. A CSX Railroad runs through the ZCC along Elk Branch for approximately 5.4 miles and passes the water treatment plant in close proximity. A railway owned and operated by Norfolk Southern also runs through the headwater areas of both Elk Branch and Elks Run. A direct spill into Elk Branch would take less than 5 hours to reach the Water Treatment Plant.
Agricultural Activities	2	As a result of agricultural and pastoral land uses in the area, nutrient levels can become elevated in surrounding surface water bodies and/or the underlying groundwater system. Such activities may also introduce bacteriologicals and sediment to local waterways.
Septic Systems & Public Sewer	3	The status of some older septic systems is unknown and failures and leaks are possible. Unlike other areas, in karst terrain a septic tends to fail downwards and can therefore be virtually undetectable. Where feasible, public sewer expansion is more favorable, but sinkhole monitoring and leak detection are encouraged. BATs and pre-treatment are encouraged for new septic systems that come to be built in the watershed, particularly in the SWPA.
Commercial & Industrial Activities	4	These facilities pose a threat due to the potential for accidental leaks, spills, improper disposal of petroleum products and other wastes, or improperly managed stormwater runoff. However, contributions from these facilities are likely minimal relative to the volume of water moving through the watershed. Harpers Ferry does not have the capability to treat for some contaminants that may originate from these sites. Other industrial facilities are located within the watershed, but outside of the ZCC, and are concentrated at the Burr Industrial Park. The Burr Industrial Park overlies the most upgradient portion of the recharge area contributing to the Elks Run Watershed.
General Watershed	5	n/a
New Subdivisions	6	n/a
Previous Plan Status	7	n/a

Table 9. Priority PSSC Management Strategies

PSSC or Critical Area	Management Activity	Responsible Protection Team Member	Status / Schedule	Comments	Estimated Cost
Previous Plan	There were eight management	Harpers Ferry	Ongoing	Comments	Staff time, except

Table 9. Priority PSSC Management Strategies

PSSC or Critical Area	Management Activity	Responsible Protection Team Member	Status / Schedule	Comments	Estimated Cost
Status	strategies recommended in the existing plan. Two of these strategies have been undertaken. All eight of these are ongoing or continue to be a concern. These are incorporated in this plan update and are provided in Appendix E-3.	Water Commission		regarding implementation of management activities can be found in the previous SWPP, which is included in Appendix E-3.	for sewer expansion, which included engineering and equipment costs.
CSX and Norfolk Southern Railroads	Harpers Ferry Water Works and Harpers Ferry Police Department personnel will contact Jefferson County OHSEM and LEPC coordinators to discuss utilizing the training materials provided by CSX railways (i.e., planning guides and in-person/on-site trainings, featuring a safety rail car) across the County. Discussions will help ensure that OHSEM and emergency responders will have access to the CSX Rail Respond program, which provides easy mobile access to critical information about what's traveling on CSX rails. Information regarding these programs is provided in Appendix E-7. Discussions may also focus on performing routine Emergency Response drills for Highway and Railroad spills. Stockpiling spill response equipment in key locations proximal to water utilities will also be discussed. Harpers Ferry Water Works will work with WV DEP or BPH, along with OHSEM, and the railroad companies to discuss safety measures, emergency plans and inspection routine(s).	Chris Styer (HFWW) and Chief Brown (Harpers Ferry Police Department)	Ongoing		Staff time involving members from Harpers Ferry Water Works, DOT, OHSEM, other LEPC agencies and BPH and/or WV DEP. Staff time at the LEPC level, and for members of local emergency response stations (e.g., local fire department, police department, etc.).

Table 9. Priority PSSC Management Strategies

PSSC or Critical Area	Management Activity	Responsible Protection Team Member	Status / Schedule	Comments	Estimated Cost
New Subdivisions	<p>The Harpers Ferry Protection Team is working with the Jefferson County Planning Department to discuss the concept of providing education for open-space preservation and open-space conservation subdivision planning. Outside of educational awareness, the Harpers Ferry Protection Team will also inquire as to whether or not local ordinances can be revised to protect or rehabilitate riparian zones impacted by development. Stormwater management requirements will also be reviewed and discussed to determine if better management strategies can be incorporated into subdivision designs through regulations. Should revised ordinances and regulations prove infeasible, the Harpers Ferry Protection Team also plans to discuss an economic incentive program whereby land developers who utilize BMPs to reduce stormwater runoff receive economic credits, whereas those who do not or exceed a percent impervious surface pay a fee that can be used to fund watershed restoration efforts elsewhere in the watershed. These strategies will be discussed with the Jefferson County Commission.</p>	Harpers Ferry Protection Team	Ongoing		Staff time pursuing this possibility; otherwise dependent on future agreements.

Table 9. Priority PSSC Management Strategies

PSSC or Critical Area	Management Activity	Responsible Protection Team Member	Status / Schedule	Comments	Estimated Cost
Commercial & Industrial Activities	Harpers Ferry Water Works will distribute site-specific Best Management Practice lists, along with advanced hazardous materials containment options, to commercial facilities within the ZCC on an as-needed basis. Consideration may also be given to providing similar information to commercial and industrial business owners outside the ZCC, but within the watershed.	Harpers Ferry Water Works and Christy Huddle, Chairperson Harpers Ferry Water Commission	Ongoing		Staff time compiling materials and cost of postage.
General Watershed	The utility will contact the Potomac River Basin Drinking Water Source Protection Partnership, which is composed of multiple state agencies and other water systems that use the Potomac River as a primary source, to discuss membership opportunities. The Protection Partnership works together to target key contaminants concerns of point and non-point source origin, and to raise educational awareness via public outreach measures.	Christy Huddle, Harpers Ferry Water Commission (HFWC)	Ongoing		Staff time for the initial inquiry and any attended meetings, in addition to membership dues.

Table 9. Priority PSSC Management Strategies

PSSC or Critical Area	Management Activity	Responsible Protection Team Member	Status / Schedule	Comments	Estimated Cost
Agricultural Activities	Harpers Ferry Water Works and the West Virginia Conservation Agency will work with the County Extension Service, the Soil and Water Conservation District, and/or Natural Resources Conservation Service (NRCS) to encourage agricultural land owners to participate in nutrient management planning, forest conservation, land retirement and management programs (including riparian zone preservation or restoration) within the SWPA. Efforts will primarily focus on education and outreach measures, though the WVCA also promotes cost-sharing programs to provide cattle fencing, etc.	Christy Huddle (HFWC) and Kristen Bisom (WVCA)	Ongoing	This includes in participating in the WV Safe Water Collaborative, coordinated by WV Rivers Coalition to accelerate land conservation and source water protection areas.	Staff time and time/grant funding from the WVCA.
Septic Systems & Public Sewer	The Harpers Ferry Protection Team is working with the Jefferson County Planning Department (and Health Department) to explore the possibility of requiring Best Available Technologies (BATs) for new septic systems that will be installed within the ZCC delineated by the West Virginia Bureau for Public Health. Discussions will focus on whether or not local ordinances could require the use of BAT's in the ZCC.	Harpers Ferry Protection Team	Ongoing		Staff time pursuing this possibility; otherwise dependent on future agreements.

10.0 EDUCATION AND OUTREACH STRATEGIES

The goal of education and outreach is to raise awareness of the need to protect drinking water supplies and build support for implementation strategies. Education and outreach activities will also ensure that affected citizens and other local stakeholders are kept informed and provided an opportunity to contribute to the development of the source water protection plan. Corporation Of Harpers Ferry has created an Education and Outreach plan that describes activities it has either already implemented or could implement in the future to keep the local community involved in protecting their source of drinking water. This information can be found in **Table 10**.

Table 10. Education and Outreach Implementation Plan

Education and Outreach Strategy	Description of Activity	Responsible Protection Team Member	Status / Schedule	Comments	Estimated Cost
Become a PRBSWPP member	ALWI recommends that Harpers Ferry Water Works become a member of the PRBSWPP (Potomac River Basin Source Water Protection Partnership), which is an interstate program that provides SWP education and outreach opportunities, among various other services oriented towards protecting and improving the quality of water for the Potomac River. While the Potomac River Intake is only a backup source for Harpers Ferry, Elks Run (the primary source for Harpers Ferry) is still within the Potomac River Watershed and it discharges to the Potomac River.	Barbara Humes, (HFWC)	Completed	The HFWC will contact the Potomac River Basin Drinking Water Source Protection Partnership, to discuss membership opportunities.	Staff time and any membership fees
Early Education	Work with area schools to include source water protection information into the curriculum, or present information at assemblies or in classroom events (e.g., environmental science class).	Kristen Bisom (West Virginia Conservation Agency)	Ongoing	The West Virginia Conservation Agency runs a macroinvertebrate analysis program (in the Elks Run Watershed) with local middle school students. WVCA also hosts workshops and improvement projects throughout the watershed.	
BMP lists	Distribute lists of industry specific BMPs to the owners of (1) Car Repair Shops and (2) Agricultural Lands/Facilities within the SWPA (Future Farmers, etc.). Provide SWPP education materials. Additional areas outside the ZCC but within the Elks Run Watershed may also be considered.	Harpers Ferry Protection Team	Ongoing		Staff time and fees associated with mailing information

Table 10. Education and Outreach Implementation Plan

Education and Outreach Strategy	Description of Activity	Responsible Protection Team Member	Status / Schedule	Comments	Estimated Cost
Clean Up Events	Coordinate with local cleanup efforts and publicize projects. Work closely with Watershed Associations in this regard.	Kristen Bisom (WVCA) & Harpers Ferry Water Works	Ongoing		Volunteer and staff time, otherwise, project dependent for cost of materials.
Display Information	Include informational materials (i.e., brochures, maps, etc.) in county government offices and other public places (i.e., local fairs). Host nonconfidential SWPP online for public review and comment. Work with DOT for protection area sign expansion/coverage.	Christy Huddle (HFWC) and Harpers Ferry Water Works	Ongoing		Staff time associated with getting permission from County entities, staff time and cost associated with printing materials.

11.0 CONTINGENCY PLAN

The goal of contingency planning is to identify and document how the utility will prepare for and respond to any drinking water shortages or emergencies that may occur due to short and long term water interruption, or incidents of spill or contamination. During contingency planning, utilities should examine their capacity to protect their intake, treatment, and distribution system from contamination. They should also review their ability to use alternative sources and minimize water loss, as well as their ability to operate during power outages. In addition, utilities should report the feasibility of establishing an early warning monitoring system and meeting future water demands.

Isolating or diverting any possible contaminant from the intake for a public water system is an important strategy in the event of an emergency. One commonly used method of diverting contaminants from an intake is establishing booms around the intake. This can be effective, but only for contaminants that float on the surface of the water. Alternatively, utilities can choose to pump floating contaminants from the water or chemically neutralize the contaminant before it enters the treatment facility.

Public utilities using surface sources should be able to close the intake by one means or another. However, depending upon the system, methods for doing so could vary greatly and include closing valves, lowering hatches or gates, raising the intake piping out of the water, or shutting down pumps. Systems should have plans in place in advance as to the best method to protect the intake and treatment facility. Utilities may benefit from turning off pumps and, if possible, closing the intake opening to prevent contaminants from entering the piping leading to the pumps. Utilities should also have a plan in place to sample raw water to identify the movement of a contaminant plume and allow for maximum pumping time before shutting down an intake (See Early Warning Monitoring System). The amount of time that an intake can remain closed depends on the water infrastructure and should be determined by the utility before an emergency occurs. The longer an intake can remain closed in such a case, the better.

Raw and treated water storage capacity also becomes extremely important in the event of such an emergency. Storage capacity can directly determine how effectively a water system can respond to a contamination event and how long an intake can remain closed. Information regarding the water shortage response capability of Corporation Of Harpers Ferry is provided in **Table 11**.

11.1. RESPONSE NETWORKS AND COMMUNICATION

PSSC data from some agencies (ex. WVDHSEM, WVDEP, etc.) may be restricted due to the sensitive nature of the data. Locational data will be provided to the public water utility. However, to obtain specific details regarding contaminants, (such as information included in Tier II reports), water utilities should contact the local emergency planning commission (LEPC) or agencies, directly. While the maps and lists of the PSSCs and regulated sites are to be maintained in a confidential manner, these data are provided in **Appendix A. Figures** for internal review and planning uses only.

Table 11. Corporation Of Harpers Ferry Water Shortage Response Capacity

Can the water utility isolate or divert contamination from the intake and groundwater supply?	No
Describe the results of an examination and analysis of the public water system's ability to isolate or divert contaminated waters from its surface water intake or groundwater supply:	[REDACTED]
Describe the results of an examination and analysis of the public water system's existing ability to switch to an alternative water source or intake in the event of contamination of its primary water source:	The Utility has the capability of switching to an alternate water source through surface withdraw from the Potomac River. [REDACTED]
Is the Utility able to close the water intake in the event of a spill?	Yes
How long can the Utility keep the intake closed?	Indefinitely
Describe the process to close the intake:	[REDACTED] The utility has 3-4 days of finished water storage, as well as a backup intake on the Potomac River, the capacity of which significantly surpasses system demands.
Describe the treated water system's storage capacity of the water system:	The utility possess 991,000 gallons of treated water storage between three water tanks. Tank #1: 241,000 Gallons Tank #2: 250,000 Gallons Tank #3: 500,000 Gallons
Gallons of storage capacity (raw water)	0
Gallons of storage capacity (treated water)	0
Is the Utility a member of WVRWA Emergency Response Team?:	Yes
Is the Utility a member of WV-WARN?:	No
List other agreements to provide receive assistance in case of emergency:	Harpers Ferry has a verbal agreement to provide and receive assistance to/from the National Park Service in the event that their lands are directly affected.,Homeland Security

11.2. OPERATION DURING LOSS OF POWER

Corporation Of Harpers Ferry analyzed its ability to operate effectively during a loss of power. This involved ensuring a means to supply water through treatment, storage, and distribution without creating a public health emergency. Information regarding the utility's capacity for operation during power outages is summarized in **Table 12**.

Table 12. Generator Capacity

Can you connect to a generator at the intake/wellhead?:		[Redacted]	
Please provide a scenario that best describes your system:			
What do you have (KW)?			
What do you need (KW)?			
Can you connect to a generator at the treatment facility?:		[Redacted]	
Please provide a scenario that best describes your system:			
What do you have (KW)?			
What do you need (KW)?			
Can you connect to a generator at the distribution system?:		[Redacted]	
Please provide a scenario that best describes your system:			
What do you have (KW)?			
What do you need (KW)?			
Does the utility have fuel on hand for generator?:		No	
Hours:			
Gallons:			
Provide a list of suppliers and alternate suppliers that could provide fuel in the event of an emergency:		Supplier	Phone Number
	Fuel	ESI Total Fuel Management	(800)411-3284
Does the utility test the generator(s) periodically?:		No	
Does the utility routinely maintain the generator(s)?:		No	
If the Utility does not have generator or the ability to connect to a generator, describe plans to respond to power outages:		<p>The utility is currently working on conceptual plans to upgrade the facility and provisions for backup power are part of this conceptual plan.</p> <p>A 3 Phase, 125 KVA, Diesel generator is needed to power the treatment plant and a 3 Phase, 37 KVA, Diesel generator is needed to power the intake pump station.</p>	

11.3. FUTURE WATER SUPPLY NEEDS

When planning for potential emergencies and developing contingency plans, a utility needs to not only consider their current demands for treated water but also account for likely future needs. This could mean expanding current intake sources or developing new ones in the near future. This can be an expensive and time consuming process, and any water utility should take this into account when determining emergency preparedness. Corporation Of Harpers Ferry has analyzed its ability to meet future water demands at current capacity, and this information is included in **Table 13**

Table 13. Future Water Supply Needs for Corporation Of Harpers Ferry

Is the Utility able to meet water demands with the current capacity for the next five years?	Yes
Explain how you plan to do so:	n/a

11.4. WATER LOSS CALCULATION

In any public water system there is a certain percentage of the total treated water that does not reach the customer. Some of this water is used in treatment plant processes such as back washing filters or flushing piping, but there is usually at least a small percentage that goes unaccounted for. To measure and report on this unaccounted for water, a public utility must use the method described in the Public Service Commission’s rule, Rules for the Government of Water Utilities, 150CSR7, section 5.6. The rule defines unaccounted for water as the volume of water introduced into the distribution system less all metered usage and all known non-metered usage which can be estimated with reasonable accuracy.

To further clarify, metered usages are most often those that are distributed to customers. Non-metered usages that are being estimated include usage by fire departments for fires or training, un-metered bulk sells, flushing to maintain the distribution system, and water used for backwashing filters and cleaning settling basins. By totaling the known metered and non-metered uses the utility calculates unaccounted for water. Note: To complete annual reports submitted to the PSC, utilities typically account for known water main breaks by estimating the amount of water lost. However, for the purposes of the source water protection plan, any water lost due to leaks, even if the system is aware of how much water is lost at a main break, is not considered a use. Water lost through leaks and main breaks cannot be controlled during a water shortages or other emergencies and should be included in the calculation of percentage of water loss for purposes of the source water protection plan. The data in **Table 13** is taken from the most recently submitted Corporation Of Harpers Ferry PSC Annual Report.

Table 14. Water Loss Information

Water pumped - Total Gallons:	75,123,000	
*Water purchased - Total Gallons:	0	
Total gallons of water pumped and purchased:	75,123,000	
Total gallons of water loss accounted for except main leaks:	Mains, plant, filters, flushing, etc - Total Gallons:	2,558,000
	Fire department - Total Gallons:	374,000
	Back washing - Total Gallons:	3,075,000
	Blowing settling basins - Total Gallons:	0
Total Accounted for Water Loss	6,007,000	
Unaccounted for lost water - Total Gallons:	17,168,000	
Water sold - Gallons:	38,698,000	
Water Lost From Main Leaks:	13,250,000	
Total Gallons of Unaccounted for Lost Water and Water Lost from Main Leaks:	30,418,000	
Total percent unaccounted for water	40	

<p>Describe the measures to correct water loss greater than 15%:</p>	<p>The Harpers Ferry Water Works has a leak detection program that makes the use of leak detection equipment to monitor and measure the sound of water flow in the pipes. The fire department has failed to report its water use and we know nearby fire departments are taking hydrant water without permission. The HFWW's is initiating a program to determine if hydrants have been opened without permission and is pursuing reporting by the local fire department for its use in training and fire suppression. Our aging system requires constant repairs. Some of the infrastructure is almost 100 years old. We have initiated a major upgrade to our distribution system and anticipate receiving a loan from U.S. Dept. of Agriculture this year. Total percent unaccounted for water should be changed to 15%. The water works found a huge leak in the fall of 2020 and fixed it. This brought our water loss average down to 15%. Delete the last line, since our loss is now within the ok range.</p>
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11.5. EARLY WARNING MONITORING SYSTEM

Public water utilities are required to provide an examination of the technical and economic feasibility of implementing an early warning monitoring system. Implementing an early warning monitoring system may be approached in different ways depending upon the water utility's resources and threats to the source water. A utility may install a continuous monitoring system that will provide real time information regarding water quality conditions. This would require utilities to analyze the data to establish what condition is indicative of a contamination event. Continuous monitoring will provide results for a predetermined set of parameters. The more parameters that are being monitored, the more sophisticated the monitoring equipment will need to be. When establishing a continuous monitoring system, the utility should consider the logistics of placing and maintaining the equipment, and receiving output data from the equipment.

Alternately, or in addition, a utility may also pull periodic grab samples on a regular basis, or in case of a reported incident. The grab samples may be analyzed for specific contaminants. A utility should examine their PSSCs to determine what chemical contaminants could pose a threat to the water source. If possible, the utility should plan in advance how those contaminants will be detected. Consideration should be given to where samples will be collected, the preservations and hold times for samples, available laboratories to analyze samples, and costs associated with the sampling event. Regardless of the type of monitoring (continuous or grab), utilities should collect samples for their source throughout the year to better understand the baseline water quality conditions and natural seasonal fluctuations. Establishing a baseline will help determine if changes in the water quality are indicative of a contamination event and inform the needed response.

Every utility should establish a system or process for receiving or detecting chemical threats with sufficient time to respond to protect the treatment facility and public health. All approaches to receiving and responding to an early warning should incorporate communication with facility owners and operators that pose a threat to the water quality, with state and local emergency response agencies, with surrounding water utilities, and with the public. Communication plays an important role in knowing how to interpret data and how to respond.

Corporation Of Harpers Ferry has analyzed its ability to monitor for and detect potential contaminants that could impact its source water. Information regarding this utility's early warning monitoring system capabilities is provided in **Table 15** and in **Appendix B**.

Table 15. Early Warning Monitoring System Capabilities

Does your system currently receive spill notifications from a state agency, neighboring water system, local emergency responders, or other facilities?		Yes
From whom do you receive notices?		Yes; notifications are received from the West Virginia Department of Environmental Protection and Local Fire and Police Stations. The Department of Health and Human Resources Bureau for Public Health also sends out emails regarding spills reported throughout the County.
Are you aware of any facilities, land uses, or critical areas within your protection areas where chemical contaminants could be released or spilled?		Yes
Are you prepared to detect potential contaminants if notified of a spill?		Yes
List laboratories (and contact information) on whom you would rely to analyze water samples in case of a reported spill.	Laboratories	
	Name	Phone Number
	[REDACTED]	[REDACTED]
	[REDACTED]	[REDACTED]
Do you have an understanding of baseline or normal conditions for your source water quality that accounts for seasonal fluctuations?		Yes
Does your utility (aside from turbidity monitoring) currently monitor your raw water through continuous monitoring at the surface water intake or groundwater source to detect changes in water quality that could indicate contamination?		Yes
Does your utility collect periodic grab samples (ex. possess reserved sample bottles, on-call laboratory services, and trained personnel) in response to a spill notification or to investigate changes in water quality that could indicate contamination?		Yes
Please explain:		Yes; turbidity is continuously monitored and recorded. pH and temperature measurements are recorded every 4 hours. Finally, alkalinity, hardness and fluoride are measured and recorded on a daily basis. The system is also contemplating acquiring equipment to monitor conductivity, dissolved oxygen and dissolved solids.
Provide or estimate the capital and O&M costs for your current or proposed early warning system or upgraded system.	Capital Cost:	[REDACTED]
	O&M Cost:	[REDACTED]
Do you serve more than 100,000 customers?		No
Does your system currently receive spill notifications from a state agency, neighboring water system, local emergency responders, or other facilities?		Yes
Are you prepared to detect potential contaminants if notified of a spill?		Yes

<p>Please describe the methods you use to monitor at the same technical levels utilized by ORSANCO:</p>	
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12.0 SINGLE SOURCE FEASIBILITY STUDY

If a public water utility's water supply plant is served by a single-source intake to a surface water source of supply or a surface water influenced source of supply, the submitted source water protection plan must also include an examination and analysis of the technical and economic feasibility of alternative sources of water to provide continued safe and reliable public water service in the event that its primary source of supply is detrimentally affected by contamination, release, spill event or other reason. These alternatives may include a secondary intake, two days of additional raw or treated water storage, an interconnection with neighboring systems, or other options identified on a local level. Note: a suitable secondary intake would draw water supplies from a substantially different location or water source.

To accomplish this requirement, utilities should examine all existing or possible alternatives and rank them by their technical, economic, and environmental feasibility. To have a consistent and complete method for ranking alternatives, WVBPH has developed a feasibility study guide. This guide provides several criteria to consider for each category, organized in a Feasibility Study Matrix. By completing the Feasibility Study Matrix, utilities will demonstrate the process used to examine the feasibility of each alternative and document scores that compare the alternatives. The Feasibility Study matrix and summary of the results are presented in an alternatives feasibility study attached as **Appendix D**.

13.0 COMMUNICATION PLAN

Corporation Of Harpers Ferry has also developed a Communication Plan that documents the manner in which the public water utility, working in concert with state and local emergency response agencies, shall notify the local health agencies and the public of the initial spill or contamination event and provide updated information related to any contamination or impairment of the system's drinking water supply. The initial notification to the public will occur in any event no later than thirty minutes after the public water system becomes aware of the spill, release, or potential contamination of the public water system. A copy of the source water protection plan and the Communication Plan has been provided to the local fire department. Corporation Of Harpers Ferry will update the Communication Plan as needed to ensure contact information is up to date.

Procedures should be in place to effectively react to the kinds of catastrophic spills that can reasonably be predicted at the source location or within the SWPA. The chain-of-command, notification procedures and response actions should be known by all water system employees.

The WVBPH has developed a recommended communication plan template that provides a tiered incident communication process to provide a universal system of alert levels to utilities and water system managers. The comprehensive Communication Plan for Corporation Of Harpers Ferry is attached as **Appendix C** for internal review and planning purposes only.

The West Virginia Department of Environmental Protection is capable of providing expertise and assistance related to prevention, containment, and clean-up of chemical spills. The West Virginia Department of Environmental Protection Emergency Response 24-hour Phone is 1-800-642-3074. The West Virginia Department of Environmental Protection also operates an upstream distance estimator that can be used to determine the distance from a spill site to the closest public water supply surface water intake.

14.0 EMERGENCY RESPONSE

A public water utility must be prepared for any number of emergency scenarios and events that would require immediate response. It is imperative that information about key contacts, emergency services, and downstream water systems be posted and readily available in the event of an emergency. Elements of this source water protection plan, such as the contingency planning and communication plan, may contain similar information to the utility's emergency response plan. However, the emergency response plan is to be kept confidential and is not included in this source water protection plan. An Emergency Short Form is included in **Appendix C** to support the Communicate Plan by providing quick access to important information about emergency response and are to be used for internal review and planning purposes only.

15.0 CONCLUSION

This report represents a detailed explanation of the required elements of Corporation Of Harpers Ferry's Source Water Protection Plan. Any supporting documentation or other materials that the utility considers relevant to their plan can be found in **Appendix E**.

This source water protection plan is intended to help prepare community public water systems all over West Virginia to properly handle any emergencies that might compromise the quality of the system's source water supply. It is imperative that this plan is updated as often as necessary to reflect the changing circumstances within the water system. The protection team should continue to meet regularly and continue to engage the public whenever possible. Communities taking local responsibility for the quality of their source water is the most effective way to prevent contamination and protect a water system against contaminated drinking water. Community cooperation, sufficient preparation, and accurate monitoring are all critical components of this source water protection plan, and a multi-faceted approach is the only way to ensure that a system is as protected as possible against source water degradation.

APPENDIX A. FIGURES AND TABLES

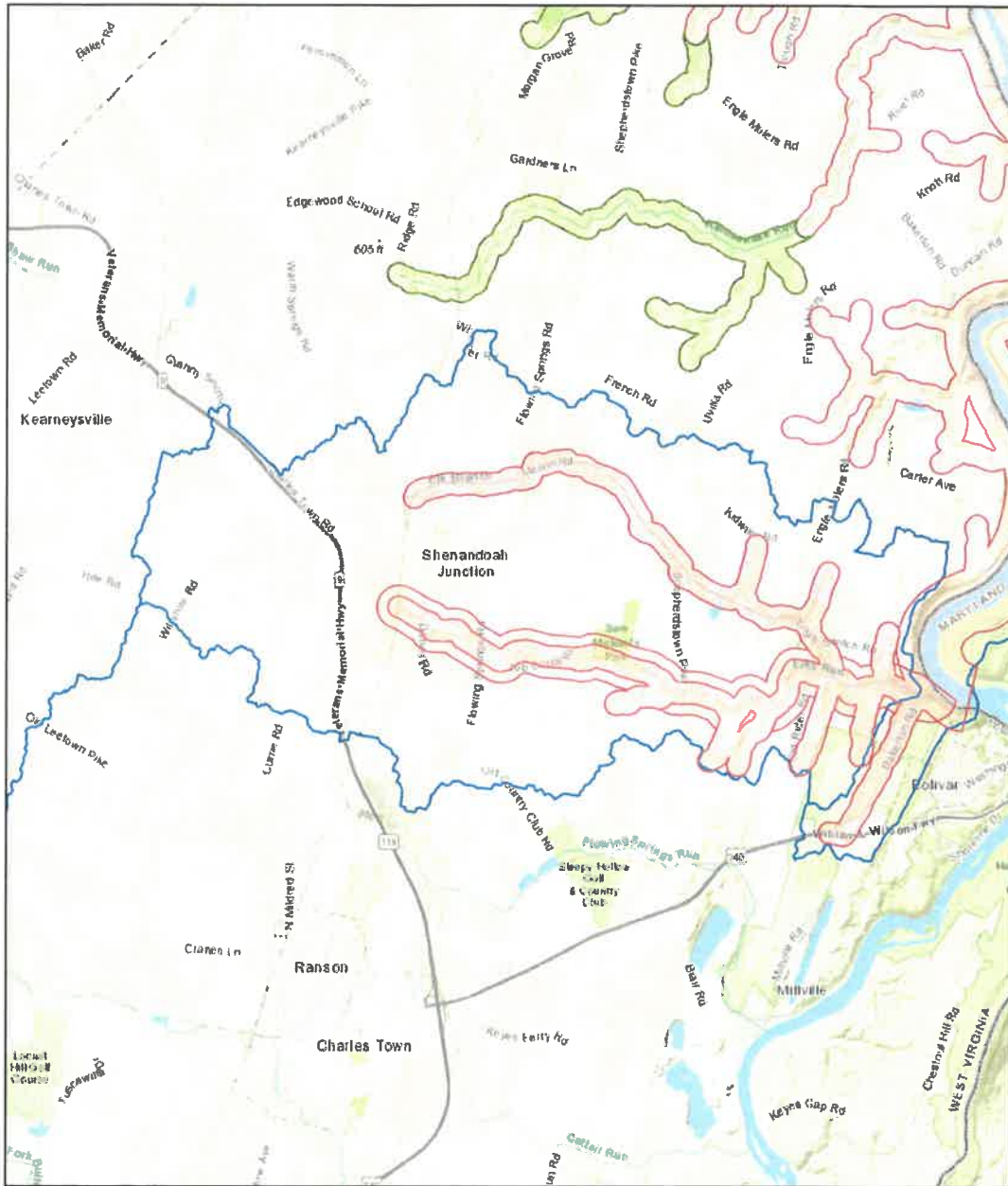
Water Source / Delineation

Surface Water Sources

Intake: Elk Run

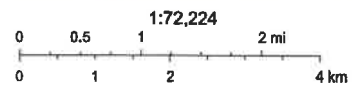
Map of watershed delineation area

Elk Run WSDA



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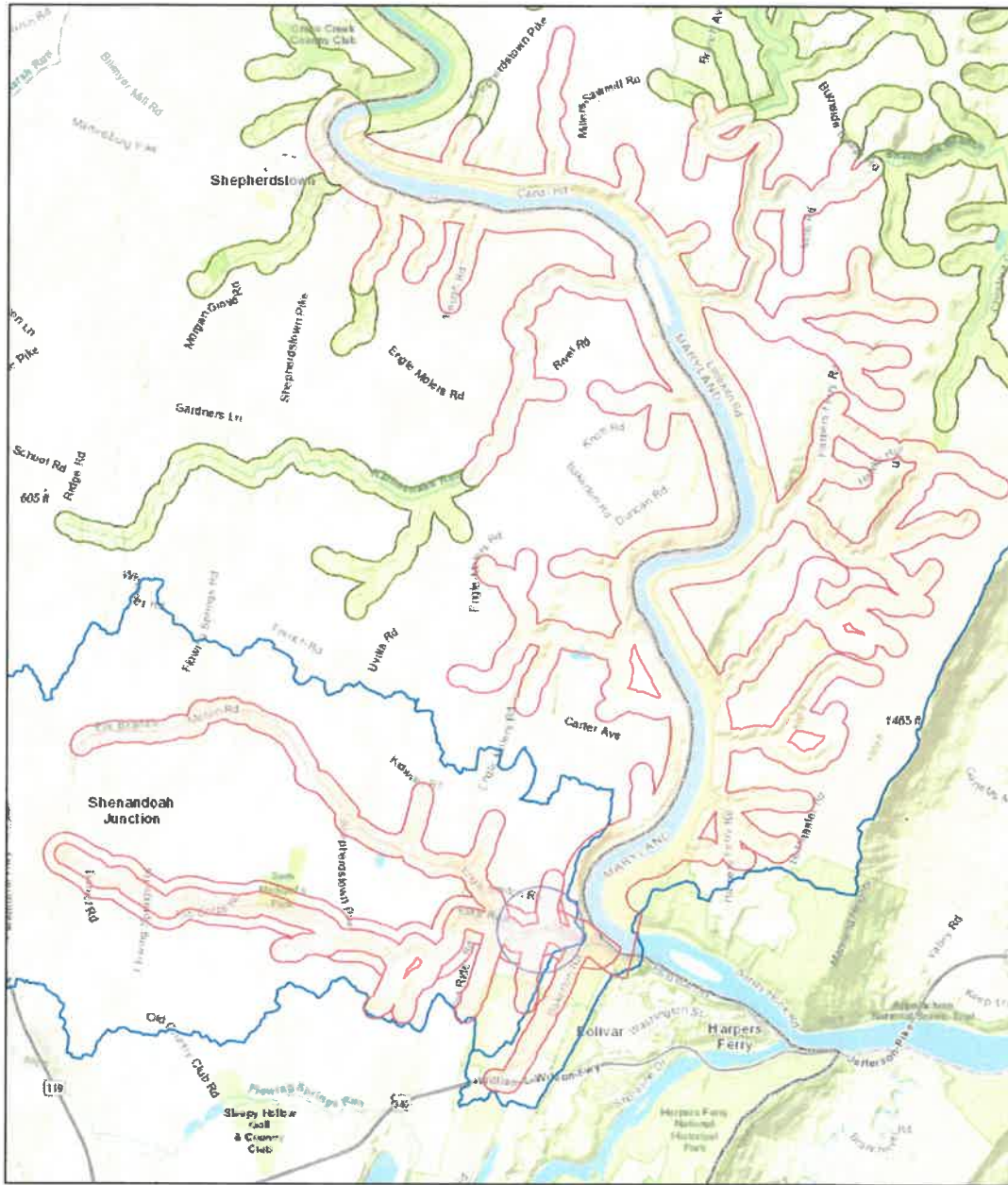


Sources: Esri, HERE, Garmin, Intermap, Increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

Source Water Assessment and Wellhead Protection Programs

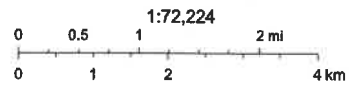
Map of zone of critical Concerns

WV3301912



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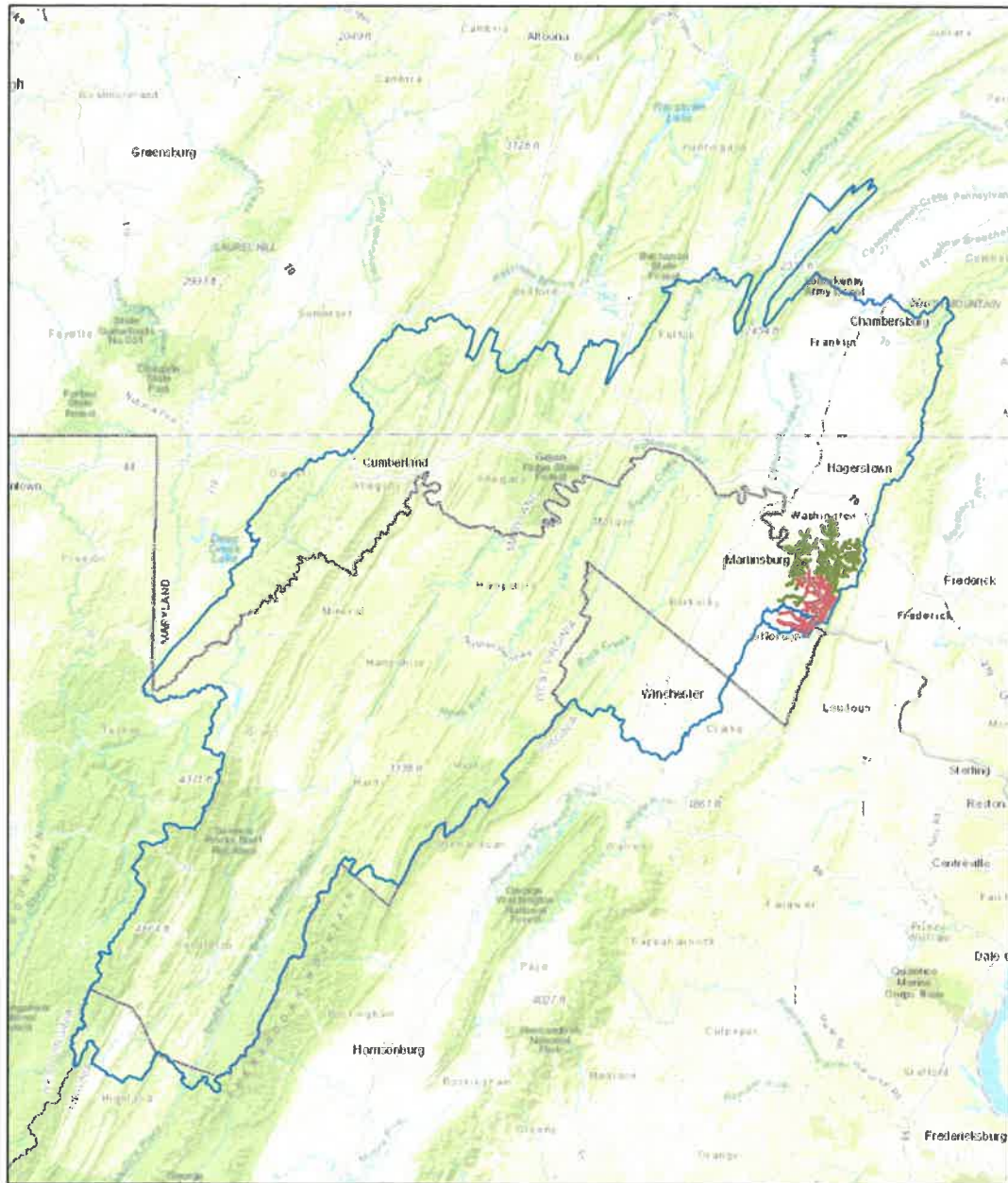


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Source Water Assessment and Wellhead Protection Programs

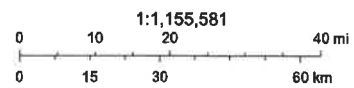
Map of watershed delineation area

Potomac River WSDA



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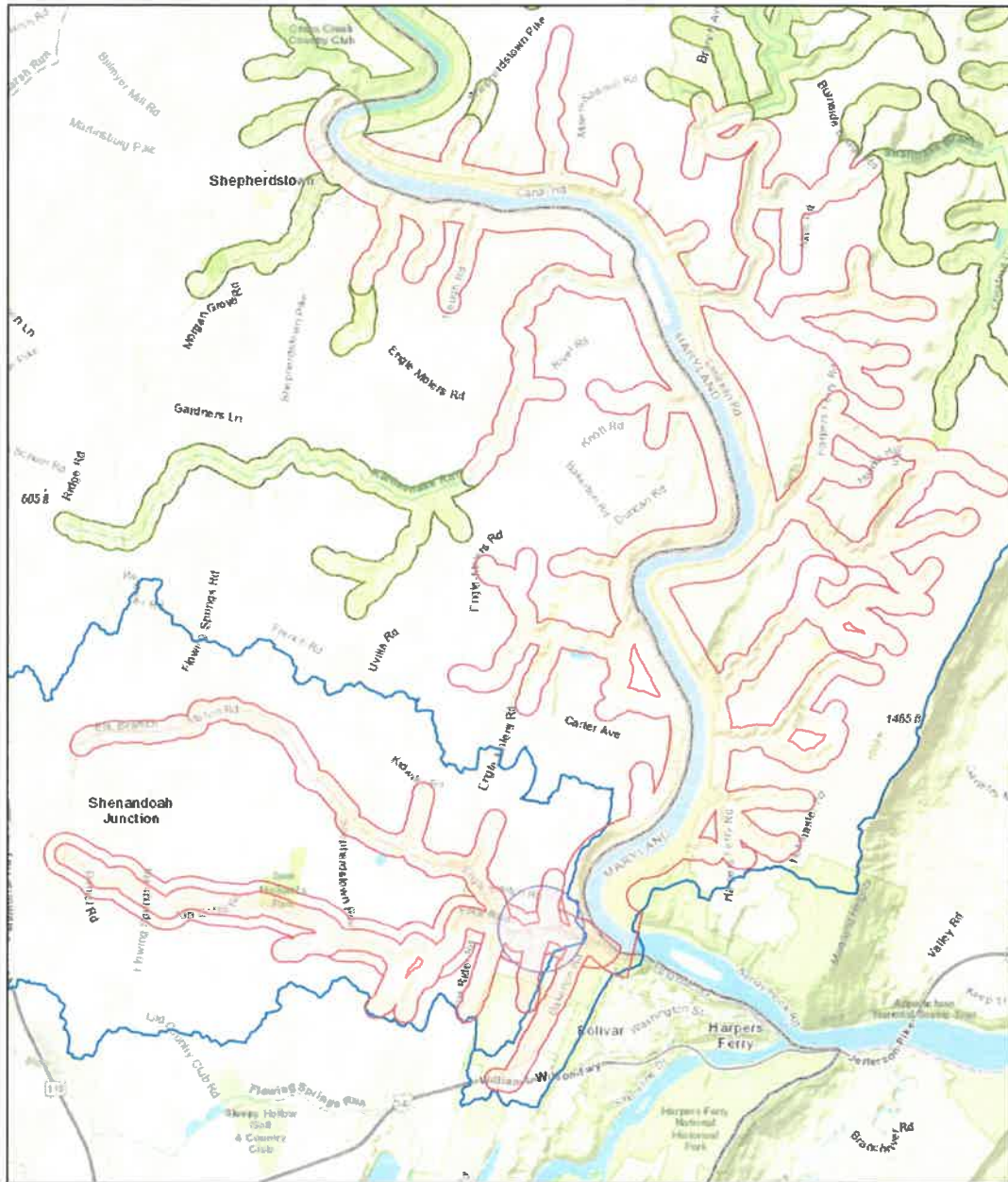


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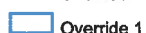

Source Water Assessment and Wellhead Protection Programs

Map of zone of critical Concerns

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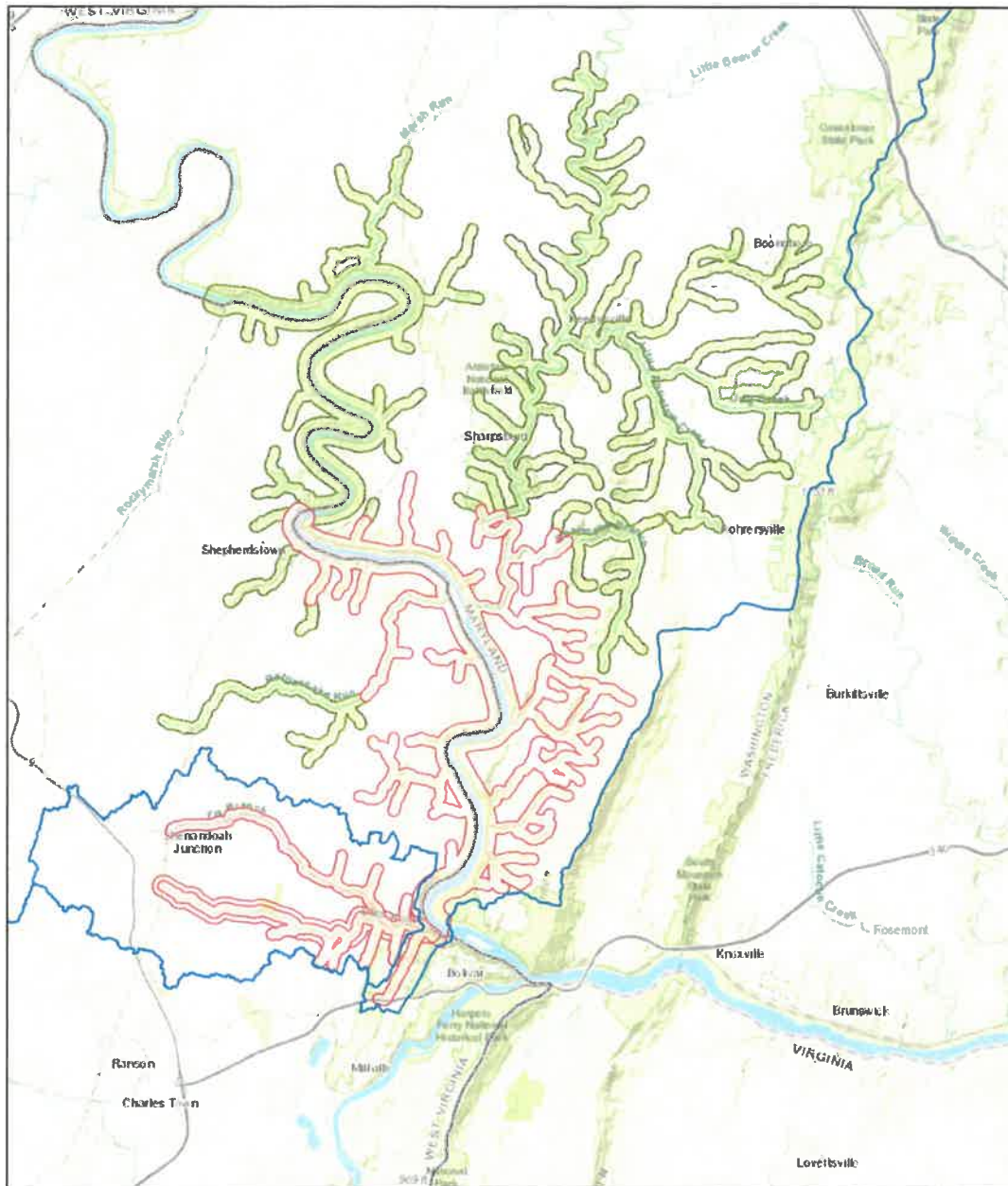


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Source Water Assessment and Wellhead Protection Programs

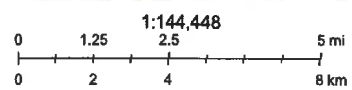
Map of zone of peripheral Concerns

WV3301912 ZPC



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Sources: Esri, HERE, Garmin, Intermap, Increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

Source Water Assessment and Wellhead Protection Programs

Ground Water Sources

Intake: SP001

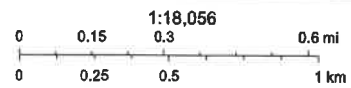
Map of wellhead protection

WV3301912 Town Spring WHPA



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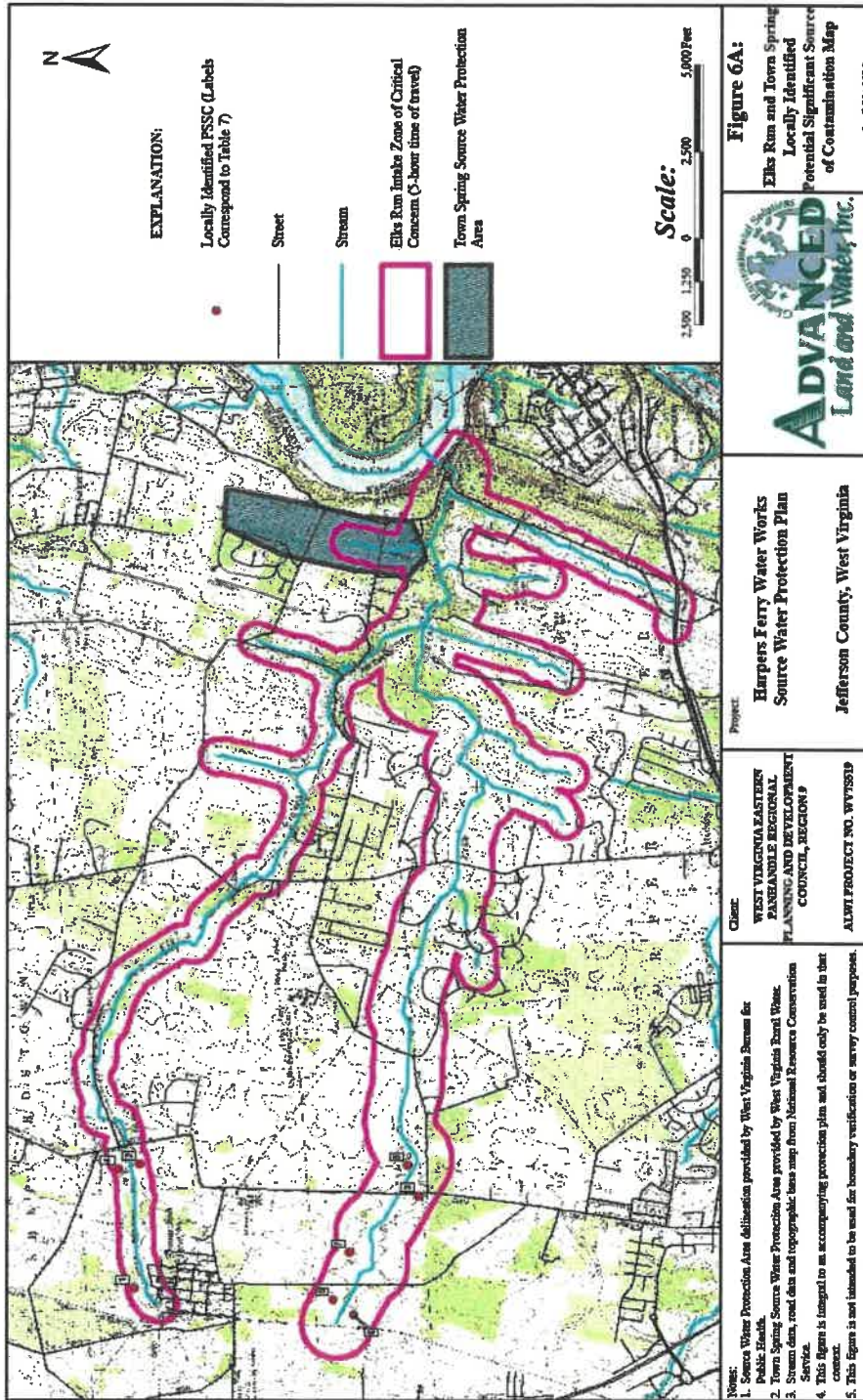


Sources: Esri, HERE, Garmin, Intermap, Increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

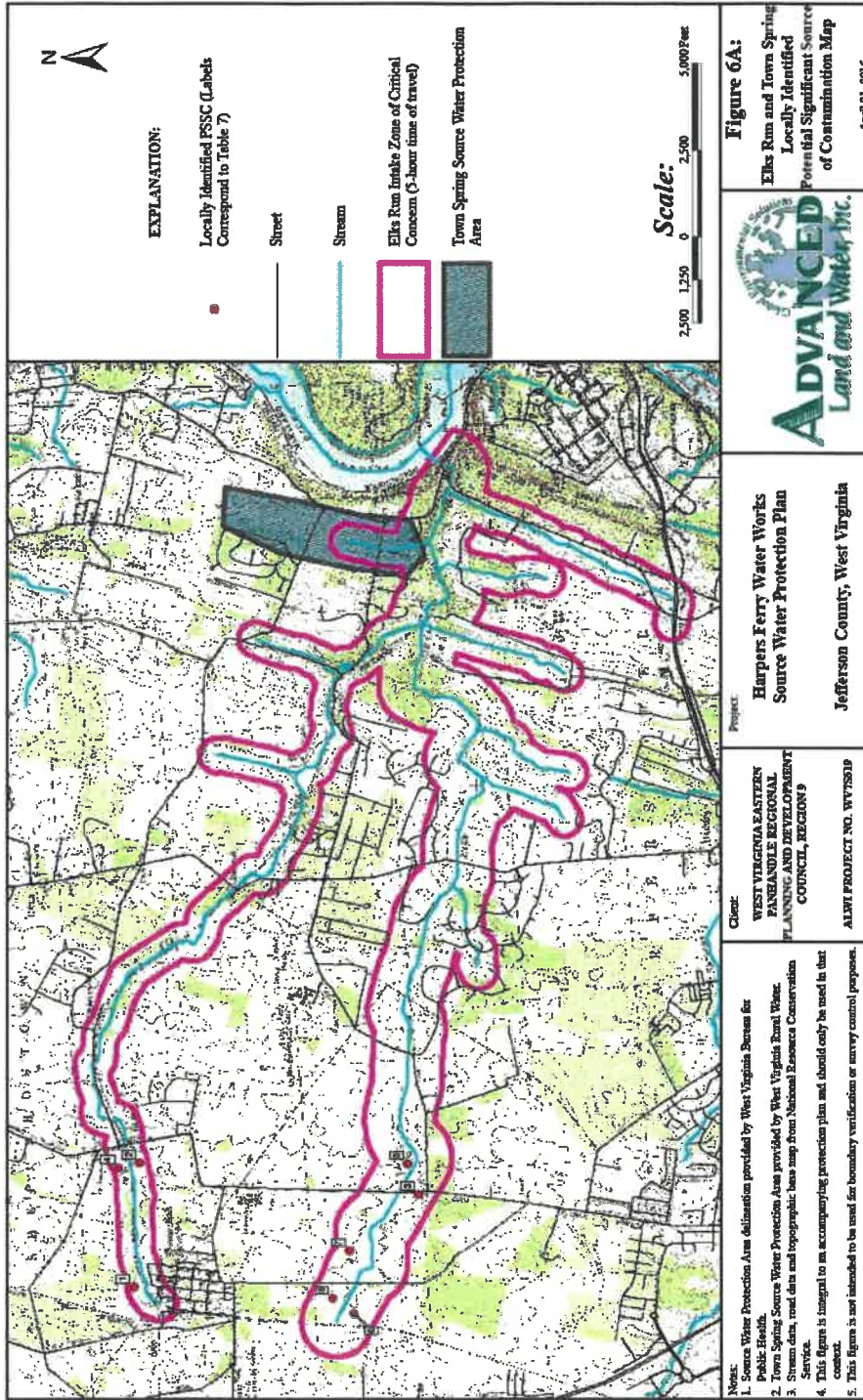
Source Water Assessment and Wellhead Protection Programs

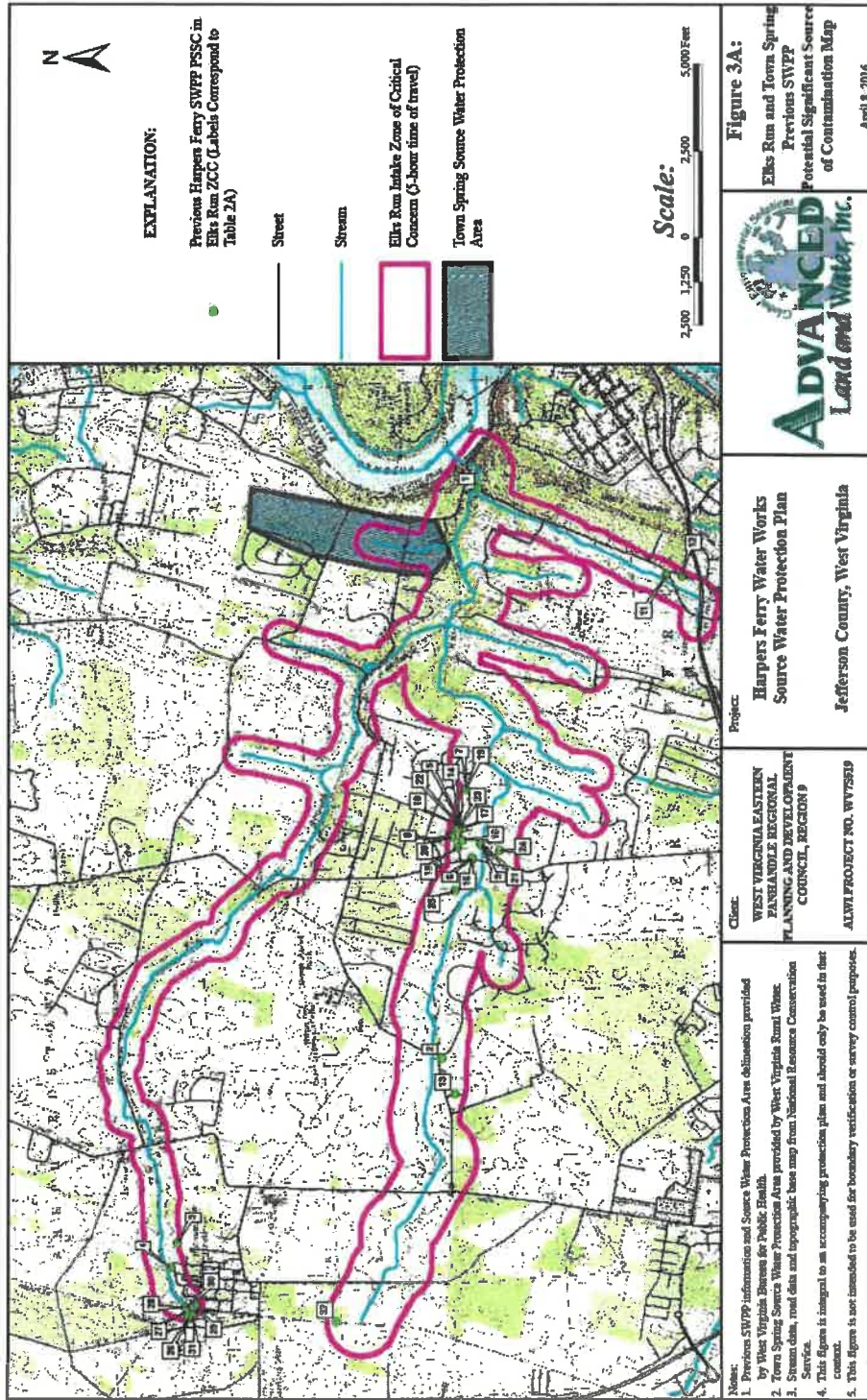
PSSC Maps

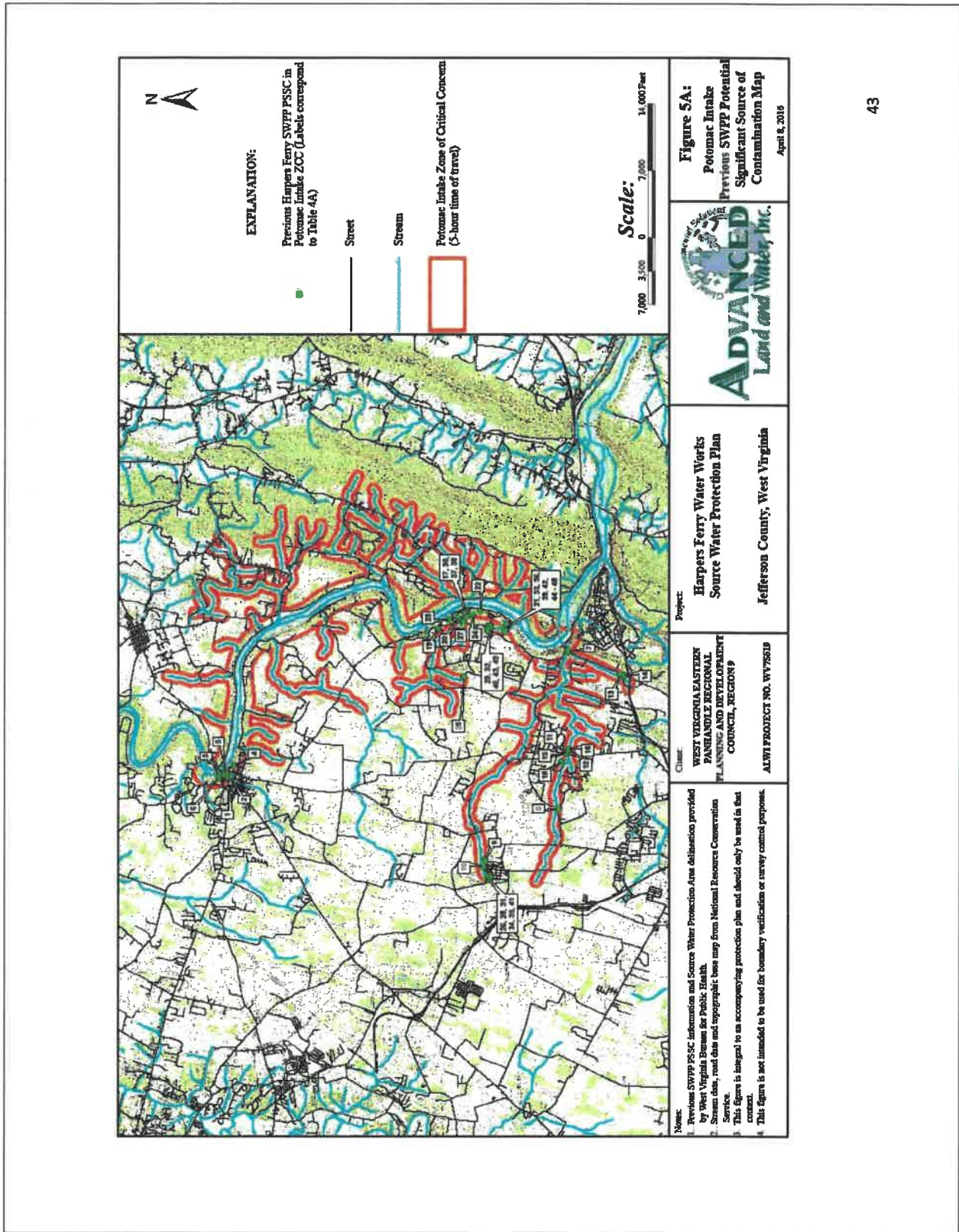
Local and Regional PSSC Map



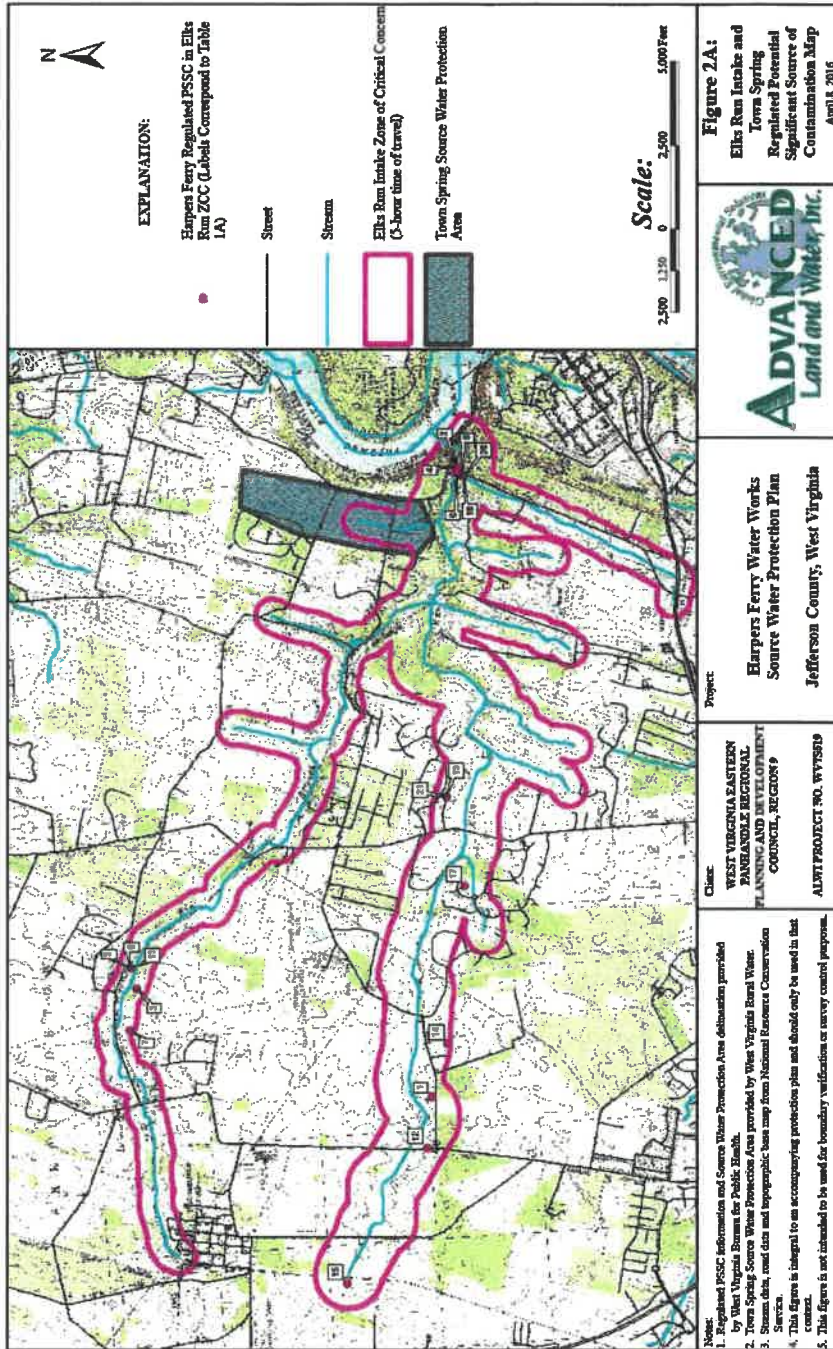
Local and Regional PSSC Map

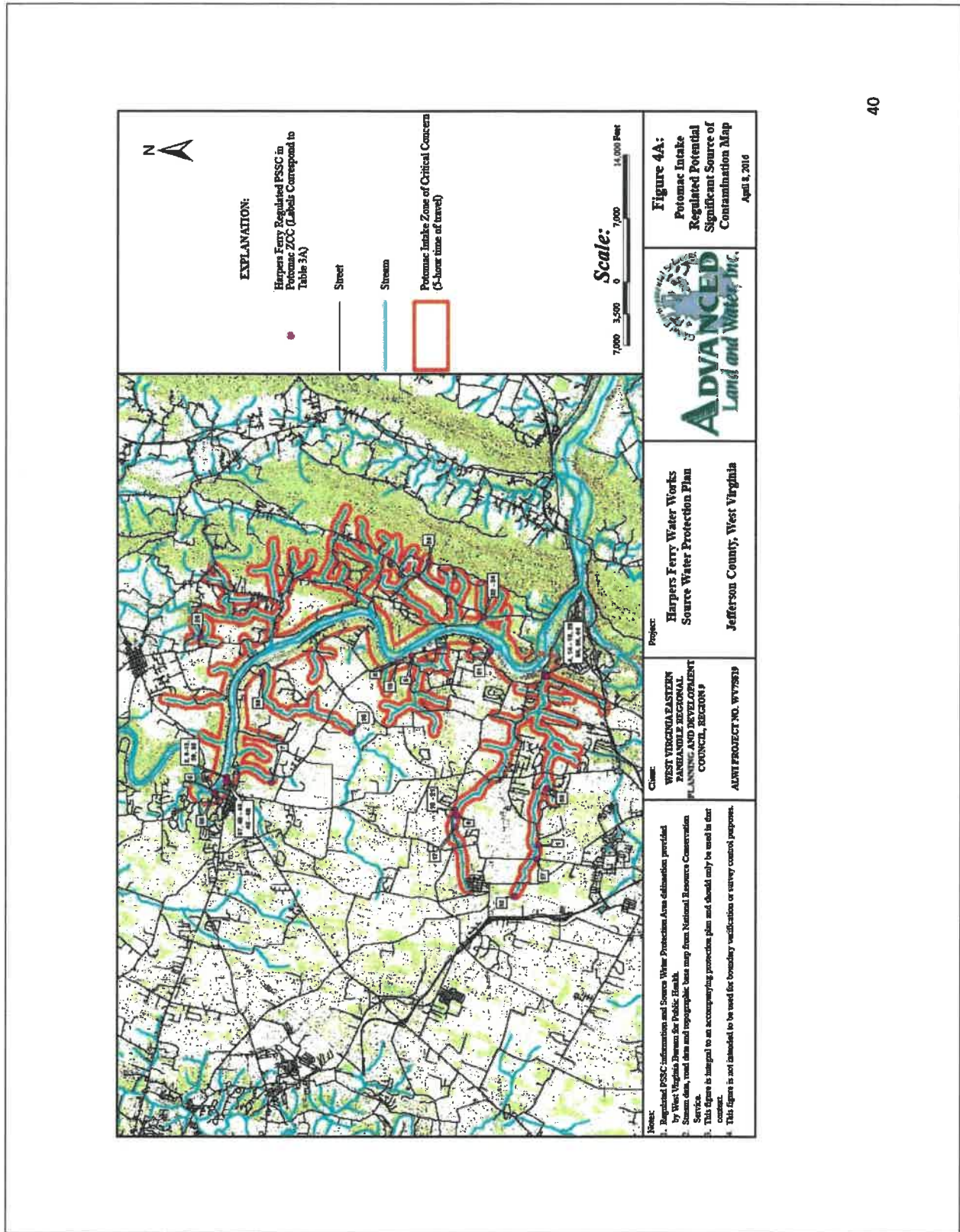






Regulated PSSC Map





PSSC Lists

Table 7. Locally Identified Potential Sources of Significant Contamination

PSSC Number	Map Code	Site Name	Site Description	Comments
1	A-6	[REDACTED]	Multiple orchard fields exist within the ZCC, immediately north of Shenandoah Junction and East of Route 16.	Unknown orchard name, plant type, fertilizer practices, and pesticide/herbicide practices. Nutrients, pesticides and herbicides may all potentially enter Elk Branch from runoff.
2	A-5	[REDACTED]	Aerially expansive agricultural lands used to cultivate corn	Located SW of the Duffields MARC Station
3	C-43	[REDACTED]	Lawn Mower and Other Equipment Repair Shop	Potential for minimal VOC and/or SOC Contamination
4	A-5	[REDACTED]	Agricultural lands used to cultivate corn	Located North of the Duffields MARC Station
5	A-5	[REDACTED]	Agricultural land west of Daniel Road	Appears to be hay or wheat based on available 2014 imagery
6	A-5	[REDACTED]	Agricultural land west of Daniel Road	Small agricultural plots and nurseries/greenhouses
7	A-5	[REDACTED]	Agricultural land east of Daniel Road	Appears to be hay or wheat based on available 2014 imagery
8	A-18	[REDACTED]	Livestock kept on south side of site in proximity to Elks Run	While cattle fencing is present, cattle appear to have direct access to Elks Run based on available 2014 imagery

Table 2A: Elks Run List of Previous SWPP PSSCs

Map Label	Source Name	Source Description	Category	Map Code	Associated Chemicals	Threat to SW	Threat to CW
1	[REDACTED]	Drinking Water Treatment Plants	Municipal	M-5	D	L	L
2	[REDACTED]	Permitted Discharge Pipe (outfall)	Industrial	I-27	ALL	L	M
3	[REDACTED]	Other	Agricultural	A-22			
4	[REDACTED]	Wastewater Treatment Plant	Municipal	M-29	MP, D	L	M
5	[REDACTED]	Storm water basins/drains	Municipal	M-25	M, VOC, MP	M	M
6	[REDACTED]	Highway	Municipal	M-7	PH, VOC, M	M	H
7	[REDACTED]	Cemeteries	Commercial	C-9	M, SOC, PH	L	L
8	[REDACTED]	Residential (single family homes)	Residential	R-4	VOC, SOC, NN	H	H
9	[REDACTED]	Pasture*	Agricultural	A-18	MP, SOC	L	L
10	[REDACTED]	Drinking Water Treatment Plants	Municipal	M-5	D	L	L
11	[REDACTED]	Crops, corn, soybean, wheat	Agricultural	A-5	NN, SOC, MP	L	L
12	[REDACTED]	Utility Substation Transformers	Commercial	C-49	PH, VOC, SOC	H	H
13	[REDACTED]	Schools	Municipal	M-21	SOC, D, VOC, PH	L	L
14	[REDACTED]	Storm water basins/drains	Municipal	M-25	M, VOC, MP	M	M
15	[REDACTED]	Residential (single family homes)	Residential	R-4	VOC, SOC, NN	H	H
16	[REDACTED]	Highway	Municipal	M-7	PH, VOC, M	M	H
17	[REDACTED]	Septic Systems (leach field)*	Residential	R-6	MP, VOC, SOC, TO, NN	M	M
18	[REDACTED]	Residential (single family homes)	Residential	R-4	VOC, SOC, NN	H	H
19	[REDACTED]	Cemeteries	Commercial	C-9	M, SOC, PH	L	L
20	[REDACTED]	Residential (single family homes)	Residential	R-4	VOC, SOC, NN	H	H
21	[REDACTED]	Pasture*	Agricultural	A-18	MP, SOC	L	L
22	[REDACTED]	Drinking Water Treatment Plants	Municipal	M-5	D	L	L
23	[REDACTED]	Residential (single family homes)	Residential	R-4	VOC, SOC, NN	H	H

Table 2A: Elks Run List of Previous SWPP PSSCs

Map Label	Source Name	Source Description	Category	Map Code	Associated Chemicals	Threat to SW	Threat to GW
24	[REDACTED]	Crops, corn, soybean, wheat	Agricultural	A-5	NN, SOC, MP	L	L
25	[REDACTED]	Residential (single family homes)	Residential	R-4	VOC, SOC, NN	H	H
26	[REDACTED]	Auto repair shops	Commercial	C-3	PH, M, VOC, HM, SOC	H	M
27	[REDACTED]	Research laboratories	Commercial	C-44	M, VOC, SOC	H	H
28	[REDACTED]	Wastewater Treatment Plant	Municipal	M-29	MP, D	L	M
29	[REDACTED]	Gas Stations	Commercial	C-18	PH, M, VOC, SOC	H	M
30	[REDACTED]	Railroad Tracks (right of way)	Municipal	M-17	M, VOC, SOC, PH	H	M
31	[REDACTED]	Wastewater Treatment Plant	Municipal	M-29	MP, D	L	M
32	[REDACTED]	Railroad Tracks (right of way)	Municipal	M-17	M, VOC, SOC, PH	H	M

Table 4A: Potomac River List of Previous SWPP PSSCs

Map Label	Source Name	Source Description	Type	Map Code	Associated Chemicals	Threat to GW	Threat to SW
1	[REDACTED]	Schools	Municipal	M-21	SOC, D, VOC, PH	L	L
2	[REDACTED]	Parking lots/malls	Commercial	C-35	VOC, PH	L	M
3	[REDACTED]	Marina/boat docks	Commercial	C-30	PH	L	H
4	[REDACTED]	Wastewater Treatment Plant	Municipal	M-29	MP, D	L	M
5	[REDACTED]	Drinking Water Treatment Plants	Municipal	M-5	D	L	L
6	[REDACTED]	Highway	Municipal	M-7	PH, VOC, M	M	H
7	[REDACTED]	Drinking Water Treatment Plants	Municipal	M-5	D	L	L
8	[REDACTED]	Permitted Discharge Pipe (outfall)	Industrial	I-27	ALL	L	M
9	[REDACTED]	Other	Agriculture	A-22			
10	[REDACTED]	Wastewater Treatment Plant	Municipal	M-29	MP, D	L	M
11	[REDACTED]	Highway	Municipal	M-7	PH, VOC, M	M	H
12	[REDACTED]	Pasture*	Agriculture	A-18	MP, SOC	L	L
13	[REDACTED]	Crops, corn, soybean, wheat	Agriculture	A-5	NN, SOC, MP	L	L
14	[REDACTED]	Utility Substation Transformers	Commercial	C-49	PH, VOC, SOC	H	H
15	[REDACTED]	Highway	Municipal	M-7	PH, VOC, M	M	H
16	[REDACTED]	Pasture*	Agriculture	A-18	MP, SOC	L	L
17	[REDACTED]	Junk yards, scrap and auto	Commercial	C-25	PH, VOC, M, HM	H	H
18	[REDACTED]	Residential (single family homes)	Residential	R-4	VOC, SOC, NN	H	H
19	[REDACTED]	Residential (single family homes)	Residential	R-4	VOC, SOC, NN	H	H
20	[REDACTED]	Residential (single family homes)	Residential	R-4	VOC, SOC, NN	H	H
21	[REDACTED]	Residential (single family homes)	Residential	R-4	VOC, SOC, NN	H	H
22	[REDACTED]	Residential (single family homes)	Residential	R-4	VOC, SOC, NN	H	H
23	[REDACTED]	Crops: other	Agriculture	A-7	NN, MP, SOC	L	M

Table 4A: Potomac River List of Previous SWPP PSSCs

24	[REDACTED]	Quarry	Industrial	I-31	M, T, PH, VOC	M	L
25	[REDACTED]	Animal Feedlots	Agriculture	A-2	NN, MP, TO	H	H
26	[REDACTED]	Auto repair shops	Commercial	C-3	PH, M, VOC, HM, SOC	H	M
27	[REDACTED]	Highway	Municipal	M-7	PH, VOC, M	M	H
28	[REDACTED]	Research laboratories	Commercial	C-44	M, VOC, SOC	H	H
29	[REDACTED]	Septic Systems (leach field)*	Residential	R-6	MP, VOC, SOC, TO, NN	M	M
30	[REDACTED]	Wells: abandoned	Municipal	M-30	VOC, SOC, MP, PH, NN	H	L
31	[REDACTED]	Wastewater Treatment Plant	Municipal	M-29	MP, D	L	M
32	[REDACTED]	Residential (single family homes)	Residential	R-4	VOC, SOC, NN	H	H
33	[REDACTED]	Drinking Water Treatment Plants	Municipal	M-5	D	L	L
34	[REDACTED]	Gas Stations	Commercial	C-18	PH, M, VOC, SOC	H	M
35	[REDACTED]	Railroad Tracks (right of way)	Municipal	M-17	M, VOC, SOC, PH	H	M
36	[REDACTED]	Septic Systems (leach field)*	Residential	R-6	MP, VOC, SOC, TO, NN	M	M
37	[REDACTED]	Drinking Water Treatment Plants	Municipal	M-5	D	L	L
38	[REDACTED]	Residential (single family homes)	Residential	R-4	VOC, SOC, NN	H	H
39	[REDACTED]	Wells: water supply	Municipal	M-31	VOC, SOC	L	L
40	[REDACTED]	Drinking Water Treatment Plants	Municipal	M-5	D	L	L
41	[REDACTED]	Wastewater Treatment Plant	Municipal	M-29	MP, D	L	M
42	[REDACTED]	Septic Systems (leach field)*	Residential	R-6	MP, VOC, SOC, TO, NN	M	M
43	[REDACTED]	Residential (single family homes)	Residential	R-4	VOC, SOC, NN	H	H
44	[REDACTED]	Residential (single family homes)	Residential	R-4	VOC, SOC, NN	H	H

Table 4A: Potomac River List of Previous SWPP PSSCs

45	[REDACTED]	Septic Systems (leach field)*	Residential	R-6	MP, VOC, SOC, TO, NN	M	M
46	[REDACTED]	Wells: water supply	Municipal	M-31	VOC, SOC	L	L
47	[REDACTED]	Residential (single family homes)	Residential	R-4	VOC, SOC, NN	H	H
48	[REDACTED]	Septic Systems (leach field)*	Residential	R-6	MP, VOC, SOC, TO, NN	M	M
49	[REDACTED]	Highway	Municipal	M-7	PH, VOC, M	M	H

Regulated PSSC List

Table 1A: Elks Run List of Regulated PSSCs

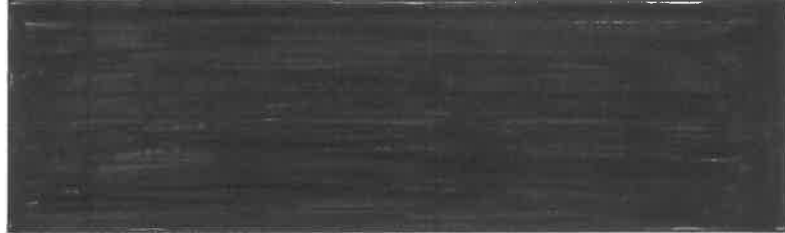
Map Label	Source Name	PSSC Type
1	Located at Meyersville Farm Site	Associated NPDES Permit
2	Harpers Ferry Water Works	Associated NPDES Permit
3	Harvest Hills - Phase II	Associated NPDES Permit
4	Harpers Ferry Water Works	NDPES Outlet
5	Harpers Ferry Water Works	NDPES Outlet
6	Harpers Ferry Water Works	NDPES Outlet
7	Harvest Hills - Phase II	NDPES Outlet
8	Harvest Hills - Phase II	NDPES Outlet
9	Harvest Hills - Phase II	NDPES Outlet
10	Harvest Hills - Phase II	NDPES Outlet
11	Harvest Hills - Phase II	NDPES Outlet
12	Deans Lawn Mower Shop	Superfund RCRA Facility
13	Harpers Ferry Water Works	Superfund RCRA Facility
14	New Jefferson Elementary School	Superfund RCRA Facility
15	0.70 MI S OF JEFF CO 20 TO 0.1	Superfund RCRA Facility
16	Harpers Ferry WTP	Superfund RCRA Facility
17	Gap View Village - Phase III	Superfund RCRA Facility

Table 3A: Potomac River List of Regulated PSSCs

Map Label	Source Name	Source Description
1	Septic Seal Permit	Located at Meyersville Farm Site
2	CORP OF SHEPHERDSTOWN	Ind POTW
3	Briar Patch Development (Greg Harlensky - Contact Person)	5W32 - Septic Systems(Drain Field Disposal Mthd)
4	Harpers Ferry Water Works	Water Treatment Plant (GP)
5	Potomac Portable Restrooms and Septic Service LLC	Sludge/Septic POTW Disposal (GP)
6	HARVEST HILLS - PHASE II	Storm Water Construction (GP)
7	Septic Seal Permit	Located at Meyersville Farm Site
8	Gloria Ryals	Home Aeration Unit General
9	CORP OF SHEPHERDSTOWN	Ind POTW
10	SHEPHERDSTOWN CORP OF	Ind POTW
11	SHEPHERDSTOWN CORP OF	Ind POTW
12	SHEPHERDSTOWN CORP OF	Ind POTW
13	Briar Patch Development (Greg Harlensky - Contact Person)	5W32 - Septic Systems (Drain Field Disposal Mthd)
14	Harpers Ferry Water Works	Water Treatment Plant (GP)
15	Harpers Ferry Water Works	Water Treatment Plant (GP)
16	Harpers Ferry Water Works	Water Treatment Plant (GP)
17	HARVEST HILLS - PHASE II	Storm Water Construction (GP)
18	HARVEST HILLS - PHASE II	Storm Water Construction (GP)
19	HARVEST HILLS - PHASE II	Storm Water Construction (GP)
20	HARVEST HILLS - PHASE II	Storm Water Construction (GP)
21	HARVEST HILLS - PHASE II	Storm Water Construction (GP)
22	BALTIMORE WASHINGTON CONFERENCE OF THE UNITED METHODIST CHURCH	Resource Conservation and Recovery Act (RCRA) Facility of Interest
23	CAMP MANIDOKAN-WTP 1 - WELL 1	Resource Conservation and Recovery Act (RCRA) Facility of Interest
24	CAMP MANIDOKEN	Resource Conservation and Recovery Act (RCRA) Facility of Interest
25	TRI STATE ON SITE RECYCLING	Resource Conservation and Recovery Act (RCRA) Facility of Interest
26	ANTIETAM WWTP	Resource Conservation and Recovery Act (RCRA) Facility of Interest
27	DEANS LAWN MOWER SHOP	Resource Conservation and Recovery Act (RCRA) Facility of Interest
28	HARPERS FERRY WATER WORKS	Resource Conservation and Recovery Act (RCRA) Facility of Interest
29	CORP OF SHEPHERDSTOWN	Resource Conservation and Recovery Act (RCRA) Facility of Interest
30	SHEPHERDSTOWN WWTP	Resource Conservation and Recovery Act (RCRA) Facility of Interest

Table 3A: Potomac River List of Regulated PSSCs

31	[R3FY10] - WANDA-MASON BALLENGER	Resource Conservation and Recovery Act (RCRA) Facility of Interest
32	0.70 MILES OF JEFF CO 20 TO 0.1	Resource Conservation and Recovery Act (RCRA) Facility of Interest
33	JAMES RUMSEY BRIDGE	Resource Conservation and Recovery Act (RCRA) Facility of Interest
34	HARPERS FERRY WTP	Resource Conservation and Recovery Act (RCRA) Facility of Interest
35	MCMURRAN FARM	Resource Conservation and Recovery Act (RCRA) Facility of Interest
36	GAP VIEW VILLAGE, PHASE III	Resource Conservation and Recovery Act (RCRA) Facility of Interest
37	CORP OF SHEPHERDSTOWN WASTEWAT	Resource Conservation and Recovery Act (RCRA) Facility of Interest
38	RATTLESNAKE RUN	Resource Conservation and Recovery Act (RCRA) Facility of Interest



APPENDIX B. EARLY WARNING MONITORING SYSTEM FORMS

Select and Attach the Appropriate Form for Your System

Form A - Complete if you currently have an early warning monitoring system for a groundwater source.



Form B - Complete if you currently have an early warning monitoring system installed for a surface water source.

Form C - If you do not currently have an early warning monitoring system installed for a surface water intake or are planning to upgrade or replace your current system, complete this form.

Form D - If you do not currently have an early warning monitoring system installed for a groundwater source or are planning to upgrade or replace your current system, complete this form.

Note: You may need to fill out and attach more than one form to your Protection Plan, depending on your current situation.

Appendix B - Form A
Surface Monitoring Worksheet

<p>Describe the type of early warning detection equipment installed:</p> 
<p>Describe the mechanism to store the data and an institutional framework to analyze and interpret the data:</p> 
<p>Describe the process to determine the credibility of a contamination event if a change is detected in the quality of source water:</p> <p>Harpers Ferry Water Works utilizes the Potomac River Basin Commission, local and regional news, West Virginia Department of Protection, and the West Virginia State Health and Human Services Department to determine credibility of a spill, contaminant, or change in water quality. If a notable change is detected in water quality for a parameter regularly monitored, an additional water quality sample will be taken immediately for result verification. If the result is confirmed, more comprehensive testing could be performed, depending on the type of water quality change observed (for the purpose of differentiating between hazard types). Harpers Ferry Water Works personnel may also choose to close the Elks Run Intake until an appropriate course of action is determined. This would not affect the quality or quantity of water delivered to customers, as the utility has adequate storage for at least three days, as well as a backup intake on the Potomac River, which has the capacity to meet system demands. If the sample is in violation of an MCL, an additional water quality sample will be taken immediately for result verification. As water quality results are pending, Harpers Ferry Water Works personnel should close the Elks Run Intake until an appropriate course of action is determined. This would not affect the quality or quantity of water delivered to customers, as the utility has adequate storage for at least three days, as well as a backup intake on the Potomac River, which has the capacity to meet system demands.</p>

Appendix B - Form B
Proposed Ground Monitoring Worksheet

Describe the type of early warning detection equipment that could be installed, including design:
[REDACTED]
Where would the equipment be located?:
[REDACTED]
What would the maintenance plan for the monitoring equipment entail?:
[REDACTED]
Describe the proposed sampling plan at the monitoring site:
[REDACTED]
Describe the proposed procedures for data management and analysis:
[REDACTED]

APPENDIX C. COMMUNICATION PLAN TEMPLATE

Corporation Of Harpers Ferry

PWSID: WV3301912

Authorizing Signature: Greg Vaughn

Contact Phone Number: (304)535-2206

Contact Email Address: gvaughn@harpersferrywv.us

Plan Developed On: July 2021

ACKNOWLEDGMENTS:

This plan was developed by [insert name, title of person completing plan, and who they work for] to meet certain requirements of the Source Water and Assessment Protection Program (SWAPP) and the Wellhead Protection Program (WHPP) for the State of West Virginia, as directed by the federal Safe Drinking Water Act (SDWA) and state laws and regulations.

INTRODUCTION

Legislative Rule 64CSR3 requires public water systems to develop a Communication Plan that documents how public water suppliers, working in concert with state and local emergency response agencies, shall notify state and local health agencies and the public in the event of a spill or contamination event that poses a potential threat to public health and safety. The plan must indicate how the public water supplier will provide updated information, with an initial notification to the public to occur no later than thirty minutes after the supplier becomes aware that the spill, release or potential contamination of the public water system poses a potential threat to public health and safety.

The public water system has responsibility to communicate to the public, as well as to state and local health agencies. This plan is intended to comply with the requirements of Legislative Rule 64CSR3, and other state and federal regulations.

TIERS REPORTING SYSTEM

This water system has elected to use the Tiered Incident / Event Reporting System (TIERS) for communicating with the public, agencies, the media, and other entities in the event of a spill or other incident that may threaten water quality. TIERS provides a multi-level notification framework, which escalates the communicated threat level commensurate with the drinking water system risks associated with a particular contamination incident or event. TIERS also includes a procedural flow chart illustrating key incident response communication functions and how they interface with overall event response / incident management actions. Finally, TIERS identifies the roles and responsibilities for key people involved in risk response, public notification, news media and other communication.

TIERS provides an easy-to-remember five-tiered **A-B-C-D-E** risk-based incident response communication format, as described below. Table 1 provides also associated risk levels.

A = Announcement. The water system is issuing an announcement to the public and public agencies about an incident or event that may pose a threat to water quality. Additional information will be provided as it becomes available. As always, if water system customers notice anything unusual about their water, they should contact the water system.

B = Boil Water Advisory. A boil water advisory has been issued by the water system. Customers may use the water for showering, bathing, and other non-potable uses, but should boil water used for drinking or cooking.

C = Cannot Drink. The water system asks that users not drink or cook with the water at this time. Non-potable uses, such as showering, bathing, cleaning, and outdoor uses are not affected.

D = Do Not Use. An incident or event has occurred affecting nearly all uses of the water. Do not use the water for drinking, cooking, showering, bathing, cleaning, or other tasks where water can come in contact with your skin. Water can be used for flushing commodes and fire protection.

E = Emergency. Water cannot be used for any reason.

Tier	Tier Category	Risk Level	Tier Summary
A	Announcement	Low	The water system is issuing an announcement to the public and public agencies about an incident or event that could pose a threat to public health and safety. Additional information will be provided as it becomes available.
B	Boil Water Advisory	Moderate	Water system users are advised to boil any water to be used for drinking or cooking, due to possible microbial contamination. The system operator will notify users when the boil water advisory is lifted.
C	Cannot Drink	High	System users should not drink or cook with the water until further notice. The water can still be used for showering, bathing, cleaning, and other tasks.
D	Do Not Use	Very High	The water should only be used for flushing commodes and fire protection until further notice. More information on this notice will be provided as soon as it is available.
E	Emergency	Extremely High	The water should not be used for any purpose until further notice. More information on this notice will be provided as soon as it is available.

COMMUNICATION TEAM

The Communication Team for the water system is listed in the table below, along with key roles. In the event of a spill or other incident that may affect water quality, the water system spokesperson will provide initial information, until the team assembles (if necessary) to provide follow-up communication

Water system communication team members, organizations, and roles.

Team Member Name	Organization	Phone	Email
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]

In the event of a spill, release, or other incident that may threaten water quality, members of the team who are available will coordinate with the management staff of the local water supplier to:

- Collect information needed to investigate, analyze, and characterize the incident/event
- Provide information to the management staff, so they can decide how to respond
- Assist the management staff in handling event response and communication duties
- Coordinate fully and seamlessly with the management staff to ensure response effectiveness

COMMUNICATION TEAM DUTIES

The communication team will be responsible for working cooperatively with the management staff and state and local emergency response agencies to notify local health agencies and the public of the initial spill or contamination event. The team will also provide updated information related to any contamination or impairment of the source water supply or the system's drinking water supply.

According to Legislative Rule 64CSR3, the initial notification to the public will occur no later than thirty minutes after the public water system becomes aware that the spill, release or potential contamination of the public water system poses a potential threat to public health and safety.

As part of the group implementing the Source Water Protection Plan, team members are expected to be familiar with the plan, including incident/event response and communication tasks. Specifically, team members should:

- Be knowledgeable on elements of the Source Water Protection Plan and Communication Plan
- Attend team meetings to ensure up-to-date knowledge of the system and its functions
- Participate in periodic exercises that “game out” incident response and communication tasks
- Help to educate local officials, the media, and others on source water protection
- Cooperate with water supplier efforts to coordinate incident response communication
- Be prepared to respond to requests for field investigations of reported incidents
- Not speak on behalf of the water supplier unless designated as the system’s spokesperson

The primary spokesperson will be responsible for speaking on behalf of the water system to local agencies, the public, and the news media. The spokesperson should work with the management staff and the team to ensure that all communication is clear, accurate, timely, and consistent. The spokesperson may authorize and/or direct others to issue news releases or other information that has been approved by the system’s management staff. The spokesperson is expected to be on call immediately when an incident or event which may threaten water quality occurs. The spokesperson will perform the following tasks in the event of a spill, release, or other event that threatens water quality:

- Announce which risk level (A, B, C, D, or E) will apply to the public notifications that are issued
- Issue news releases, updates, and other information regarding the incident/event
- Use the news media, email, social media, and other appropriate information venues
- Ensure that news releases are sent to local health agencies and the public
- Respond to questions from the news media and others regarding the incident/event
- Appear at news conferences and interviews to explain incident response, etc.

INCIDENT / EVENT COMMUNICATION PROCEDURE

The flow chart in this section illustrates how the water system will respond when it receives a report that a spill, release, or other contamination event may have occurred. Key elements of the flow chart are described below.

Communication with agencies, the public, and the media during threat incidents

Upon initial notification of the incident/event, system managers and staff will collect information and verify the need for further investigation. Only properly trained personnel will perform onsite investigations if permitted by emergency responders. If further investigation is warranted, and the initial facts support it, the water system spokesperson will issue a public communication statement consistent with the threat level. In addition, water system personnel and partners will be dispatched to conduct reconnaissance, a threat assessment, and a threat characterization, if present. This work may include:

- Verification of the incident/event type (spill, release, etc.)
- Location of incident/event
- Type of material(s) involved in spill, release, etc.
- Quantity of material involved
- Potential of the material to move, migrate, or be transported
- Relevant time factor(s) in the risk assessment (e.g., downstream movement rate)
- Overall level of risk to water system, whether low, moderate, high, or very high
- Development of the initial risk characterization

As the flow chart indicates, several iterative cycles will occur after the initial threat assessment, including communication with local agencies and the public, further investigation of the incident, possible implementation of

the water system's contingency plan, and eventual elimination of the threat and a return to normal operations.

Communication activities during this period will include:

- The initial release (i.e., Announcement, Boil Water Advisory, Cannot Drink, Do Not Use, or Emergency)
 - Sent to local health agencies, the public, and the news media within 30 minutes
- Notification of the local water system's source water protection and communication teams
 - If warranted by initial findings regarding the spill, release, or incident
- Notification of the WV Bureau of Public Health
 - As required
- Periodic information updates, as incident response information is received
- Updates to the applicable A-B-C-D-E advisory tier, as necessary

If time permits and the need arises, after the threat level is reduced, and operations return to normal, the water system staff, the communication and source water protection teams, and their partners may conduct a post-event review and assessment. The purpose of the review is to examine the response to the incident, relevant communication activities, and overall outcomes. Plans and procedures may be updated, altered, or adapted based on lessons learned through this process.

EMERGENCY SHORT FORMS

Emergency Communication Information

	Name	Phone	Email	
Designated spokesperson:	Greg Vaughn	(304)535-2206	gvaughn@harpersferrywv.us	
Alternate spokesperson:	Chris Styer	(304)535-6555	cstyer@harpersferrywv.us	
Designated location to disseminate information to media:	Corporation of Harpers Ferry/Town Hall			
Method of Contact:	Steve Allen - Homeland Security WVBPH – Kearneysville District Office Radio – WRNR, WEPM Newspaper – Spirit of Jefferson, Martinsburg Journal Television – WHAG TV Robo-calling system			
Media Contacts:	Name	Title	Phone Number	Email
	Cara Young	Spirit of Jefferson Office Manager	(304)725-2046	sojofficemanager@gmail.com
Tiffany Niebauer	The Journal Office Manager	(304)263-8931	tniebauer@journal-news.net	WRNR Radio
	(304)263-6586		WEPM Radio	
(304)263-8868		Andrew Wyatt	General Manager WHAG TV	(301)797-4400

Emergency Service Contacts

	Name	Emergency Phone	Alternative Phone	Email
Police	Harpers Ferry	(304)535-6366	(304)671-6388	jbrown@harpersferry.wv.us
Fire	Friendship	(304)535-2211		
Ambulance	Friendship	(304)535-2211		
Hazmat	DEP Spill Hotline	(800)642-3074		
Other				
Other				
Other				

Sensitive Populations

Other Communities that are served by the Utility:	Corporation of Bolivar, Jefferson County				
Major User/Sensitive Population Notification	Name	Emergency Phone	Alternative Phone	Email	
	Larry Moore NPS	(304)676-2125	(304)535-5050		
EED District Office Contact	Name	Phone	Email		
	Alan Marchun	(304)725-9453	alan.f.marchun@wv.gov		
OEHS Readiness Coordinator	Lee Orr	(304)356-4290			
Downstream Water System Contacts	Water System Name	Contact Name	Emergency Phone	Alternate Phone	Email
	City of Brunswick	Patrick Hoffmaster	(301)834-7671	(301)834-7500	
Are you planning on implementing the TIER Communications plan?:			Yes		

Emergency Service Key Staff Members

	Name	Title	Phone	Email
Key Staff Responsible for Coordinating Emergency Response Rrocedures:		[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Staff Responsible for Keeping Confidential PSSC Information and Releasing to Emergency Responders.		[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]

Emergency Response Information

List Laboratories available to perform sample analysis in case of emergency.	Name	Phone
	WV BPH – Bardane District Environmental Laboratory	(304)676-5835
	WV BPH – Bardane District Environmental Laboratory	(304)725-5832
	Reliance Laboratories, Inc.	(304)677-0531
Has utility developed a detailed Emergency Response Plan in accordance with the Public Health Security Bioterrorism preparedness and Response Plan Act of 2002 that covers the following areas?:	Yes	
When was the emergency response plan developed or last updated?:	2019	

EMERGENCY CONTACT INFORMATION

State Emergency Spill Notification

1-800-642-3074

Office of Emergency Services

<http://www.wvdhsem.gov/>

Charleston, WV- (304) 558-5380

WV Bureau for Public Health Office of Environmental Health Services (OEHS)

www.wvdhhr.org/oehs

Readiness Coordinator - Lee Orr

Phone: 304-356-4290

Cell: 304-550-5607

E-mail: Lee.E.Orr@wv.gov

Environmental Engineering Division Staff

Charleston, Central Office (304) 558-2981

Beckley, District 1 (304) 256-6666

St. Albans, District 2 (304) 722-0611

Kearneysville, District 4 (304) 725-9453

Wheeling, District 5 (304) 238-1145

Fairmont, District 6 (304) 368-2530

National Response Center - Chemical, Oil, & Chemical/Biological Terrorism

1-800-424-8802

WV State Fire Marshal's Office

1-800-233-3473

West Virginia State Police

1-304-746-2100

WV Watch – Report Suspicious Activity

1-866-989-2824

DEP Distance Calculator

<http://tagis.dep.wv.gov/pswcheck/>

PRESS RELEASE ATTACHMENTS

TIERS Levels A, B, C, D, and E

**UTILITY ISSUED NOTICE – LEVEL A
PUBLIC WATER SYSTEM ANNOUNCEMENT
A WATER SYSTEM INVESTIGATION IS UNDERWAY**

On _____ at ____:____ AM/PM, the _____ Water System began investigating an incident that may affect local water quality.

The incident involves the following situation at this location:

There are no restrictions on water use at this time. As always, if water system customers notice anything unusual about their water – such as abnormal odors, colors, sheen, etc. – they should contact the water system at _____.

At this time there is no need for concern if you have consumed or used the water.

Regular updates will be provided about this Announcement as water system staff continue their investigation. Again, there are no restrictions on water use at this time.

State Water System ID# _____ Date Distributed: _____

UTILITY ISSUED NOTICE – LEVEL B
BOIL WATER ADVISORY
A BOIL WATER ADVISORY IS IN EFFECT

On _____ at ____:____ am/pm, a water problem occurred causing contamination of your water. The areas that are affected are as follows:

Entire Water System or Other: _____

CONDITIONS INDICATE THERE IS A HIGH PROBABILITY THAT YOUR WATER IS CONTAMINATED. TESTING HAS NOT OCCURRED TO CONFIRM OR DENY THE PRESENCE OF CONTAMINATION IN YOUR WATER.

What should I do?

- **DO NOT DRINK THE WATER WITHOUT BOILING IT FIRST.** Bring all water to a boil, let it boil for one minute, and let it cool before using, or use bottled water. Boiled or bottled water should be used for drinking, making ice, brushing teeth, washing dishes, bathing, and food preparation until further notice. Boiling kills bacteria and other organisms in the water.

What happened?

- The problem is related to _____

What is being done?

- The water system is taking the following action: _____

What should a customer do if they have consumed or used the water?

- _____

We will inform you when you no longer need to boil your water. We anticipate resolving the problem within _____ hours/days. For more information, please contact _____ at _____ or _____ at _____.

General guidelines on ways to lessen the health risk are available from the EPA Safe Drinking Water Hotline at 1 (800) 426-4791.

Please share this information others who use this water, especially those who may not have received this notice directly (for example, people in apartments, nursing homes, schools, and businesses). You can do this by posting this notice in a public place or distributing copies by hand or mail.

This notice was distributed by _____

State Water System ID# _____ Date Distributed: _____

UTILITY ISSUED NOTICE – LEVEL C
"CANNOT DRINK" WATER NOTIFICATION
A LEVEL C WATER ADVISORY IS IN EFFECT

On _____ at ____:____ am/pm, a water problem occurred causing contamination of your water. The areas that are affected are as follows:

Entire Water System or Other: _____

CONDITIONS INDICATE THERE IS A HIGH PROBABILITY THAT YOUR WATER IS CONTAMINATED. TESTING HAS NOT OCCURRED TO CONFIRM OR DENY THE PRESENCE OF CONTAMINATION IN YOUR WATER.

What should I do?

- **DO NOT DRINK THE WATER.** You can't drink the water, but you can use it for showering, bathing, toilet-flushing, and other non-potable purposes.
- **BOILING WILL NOT PURIFY THE WATER.** Do not drink the water, even if it is boiled.

What happened?

- The problem is related to _____

What is being done?

- The water system is taking the following action: _____

What should a customer do if they have consumed or used the water?

- _____

We will inform you when the water is safe to drink. We anticipate resolving the problem within _____ hours/days. For more information – or to report unusual water conditions such as abnormal odors, colors, sheen, etc. – please contact _____ at _____ or _____ at _____.

General guidelines on ways to lessen the health risk are available from the EPA Safe Drinking Water Hotline at 1 (800) 426-4791.

Please share this information others who use this water, especially those who may not have received this notice directly (for example, people in apartments, nursing homes, schools, and businesses). You can do this by posting this notice in a public place or distributing copies by hand or mail.

This notice was distributed by _____

State Water System ID# _____ Date Distributed: _____

**UTILITY ISSUED NOTICE – LEVEL D
“DO NOT USE” WATER NOTIFICATION
A LEVEL D WATER ADVISORY IS IN EFFECT**

On _____ at ____:____ am/pm, a water problem occurred causing contamination of your water. The areas that are affected are as follows:

Entire Water System or Other: _____

CONDITIONS INDICATE THERE IS A HIGH PROBABILITY THAT YOUR WATER IS CONTAMINATED. TESTING HAS NOT OCCURRED TO CONFIRM OR DENY THE PRESENCE OF CONTAMINATION IN YOUR WATER.

What should I do?

- **DO NOT DRINK THE WATER.** The water is contaminated.
- **DO NOT SHOWER OR BATHE IN THE WATER.** You can't use the water for drinking, showering, or bathing. It can be used for toilet flushing and firefighting.
- **BOILING WILL NOT PURIFY THE WATER.** Do not use the water, even if it is boiled. The type of contamination suspected is not removed by boiling.

What happened?

- The problem is related to _____

What is being done?

- The water system is taking the following action: _____

What should a customer do if they have consumed or used the water?

- _____

We will inform you when the water is safe to drink. We anticipate resolving the problem within _____ hours/days. For more information – or to report unusual water conditions such as abnormal odors, colors, sheen, etc. – please contact _____ at _____ or _____ at _____.

Please share this information others who use this water, especially those who may not have received this notice directly (for example, people in apartments, nursing homes, schools, and businesses). You can do this by posting this notice in a public place or distributing copies by hand or mail.

This notice was distributed by _____

State Water System ID# _____ Date Distributed: _____

**UTILITY ISSUED NOTICE – LEVEL E
EMERGENCY WATER NOTIFICATION
A LEVEL E WATER ADVISORY IS IN EFFECT**

On _____ at ____:____ am/pm, a water problem occurred causing contamination of your water. The areas that are affected are as follows:

Entire Water System or Other: _____

CONDITIONS INDICATE THERE IS A HIGH PROBABILITY THAT YOUR WATER IS CONTAMINATED. TESTING HAS NOT OCCURRED TO CONFIRM OR DENY THE PRESENCE OF CONTAMINATION IN YOUR WATER.

What should I do?

- **DO NOT DRINK THE WATER.** The water is contaminated.
- **DO NOT USE THE WATER FOR ANY PURPOSE!** You can't use the water for drinking, showering, or bathing, or any other use – not even for toilet flushing.
- **BOILING WILL NOT PURIFY THE WATER.** Do not use the water, even if it is boiled. The type of contamination suspected is not removed by boiling.

What happened?

- The problem is related to _____

What is being done?

- The water system is taking the following action: _____

What should a customer do if they have consumed or used the water?

- _____

We will inform you when the water is safe to drink. We anticipate resolving the problem within _____ hours/days. For more information – or to report unusual water conditions such as abnormal odors, colors, sheen, etc. – please contact _____ at _____ or _____ at _____.

Please share this information others who use this water, especially those who may not have received this notice directly (for example, people in apartments, nursing homes, schools, and businesses). You can do this by posting this notice in a public place or distributing copies by hand or mail.

This notice was distributed by _____

State Water System ID# _____ Date Distributed: _____

APPENDIX D. SINGLE SOURCE FEASIBILITY

Water Source Alternative:

Back up intake	
Name of Alternative:	Potomac River
Brief Description of the Alternative:	Potomac River
Feasible?:	Yes
Provide Cost Estimate:	\$0
Would this alternative supply 100% of your needs?:	Yes
Economic Criteria - Operation and Maintenance Costs:	0
Economic Criteria - Capital Cost:	0
Technical Criteria - Permitting:	0
Technical Criteria - Flexibility:	0
Technical Criteria - Resilience:	0
Technical Criteria - Institutional Requirements:	0
Environmental Criteria - Environmental Impacts:	0
Environmental Criteria - Aesthetic Impacts:	0
Environmental Criteria - Stakeholder Issues:	0
Final Score:	0.00%

Feasibility Study Narrative

Appendix D. Single Source Feasibility Study

The single source feasibility is required for a public water utility which is served by a single surface water source or a single groundwater source (i.e., one well or one spring). Harpers Ferry Water Works has one fully functional alternative water supply source of practically near-infinite quantity in place at this time. As a result, a single source feasibility study is not required for this utility at this time.

The primary source serving Harpers Ferry is a surface water intake on Elks Run, downgradient of the confluence of Elks Run and Elk Branch. Upgradient of the surface water intake is the Town Spring. The pipeline connecting Town Spring to the Harpers Ferry Water Treatment Plant has been damaged and/or collapsed, and now discharges directly into Elks Run. As a result, the quality of water emanating from the Town Spring influences the quality of water in Elks Run.

In the event that a contaminant occurrence requires that the Elks Run intake be manually closed, water treatment plant operators have the option of manually activating pumps in the wet well for the Potomac River Intake. The Potomac River serves as an emergency backup source for Harpers Ferry during times of drought or during emergency situations. Harpers Ferry Water Works exercises the appurtenances for the Potomac River Intake monthly to help ensure full functionality in times of need. In times of drought, water is captured from both Elks Run and the Potomac River to meet demand. In the event that Elks Run becomes contaminated, the Potomac River Intake and wet well have the capacity to meet system demand on a daily basis.

Additionally, the water system possesses 991,000 gallons of finished water storage, which has the capacity to meet average annual system demand for approximately three days. An additional 77,000 gallons of raw water can be accessed from the pre-sedimentation basin if required. The system possesses abundant capacity to handle short-term emergencies.

At this juncture, creation of an interconnection with another water utility is economically infeasible and is not open for consideration by the utility. Likewise, additional expansion of raw and treated water storage capacity is unnecessary, and spatially and economically challenging. Between the Elks Run and the Potomac River Intakes, which function as distinct, independent sources of water for the system, Harpers Ferry already possesses the capability to provide safe drinking water to its customers in the event that either source becomes contaminated.

Should a failure occur at the water treatment plant for any reason that is of duration long enough that the treated water storage becomes depleted; the utility would have the capability to bring in a portable water treatment trailer using its WVWARN membership. In extreme circumstances, the utility also could consider creating a purchase agreement with nearby water utilities to truck in water. To perform such an assessment entails reviewing the permits and capacities of other water systems to identify suitable entities that could handle such a demand. Such an analysis is not a scope element of this work, nor is it required at this juncture, because of the utility's capability to utilize two different water sources capable of satisfying Harper Ferry's demands.

Matrix Document

Single Source Feasibility Study

If a public water utility's water supply plant is served by a single-source intake for a surface water supply source or a GWUDI source, the submitted SWPP must also include an examination and analysis of the technical and economic feasibility of alternative sources of water to provide continued safe and reliable public water service in the event that its primary source of supply is detrimentally affected by contamination from a chemical release or spill event, or other reasons (including drought). These alternatives may include a secondary source, two days of additional raw or treated water storage, interconnection with neighboring systems, or other options identified on a local level. Note: a suitable secondary intake would draw water supplies from a substantially different location or water source.

Harpers Ferry Water Works has an alternative surface water intake on the Potomac River. In a contaminant event were to impact the Elks Run intake, the system could rely on the Potomac River intake to meet its full demand. Additionally, the system has at least three days' worth of finished water storage, which would meet demands for short-term emergencies related to the Elks Run intake. Because the system has an alternative backup source in place, it is not considered a single source system, and a feasibility study matrix is not required at this time. However, a brief narrative describing alternative emergency preparedness options is provided in **Appendix E**.

Communication Plan

Harpers Ferry Water Works also has developed a Communication Plan that documents the manner in which the public water utility, working in concert with state and local emergency response agencies, shall notify the local health agencies and the public of a spill or contamination event, and provide updated information related to any contamination or impairment of the system's sources or the system's drinking water supply. The initial notification to the public for any such event will occur no later than 30 minutes after the public water system becomes aware of the spill, release, or potential contamination of the public water system. Harpers Ferry Water Works will update the Communication Plan as needed to ensure contact information is up to date.

The water system has procedures in place for various types of significant spills or other emergencies that can reasonably be predicted at the source location or within the SWPA. The chain-of-command, notification procedures and response actions are known by water system employees.

The WVBPH has developed a recommended communication plan template that provides a tiered incident communication process to provide a universal system of alert levels to utilities and water system managers; Harpers Ferry Water Works has opted to utilize this procedure. The Communication Plan for Harpers Ferry Water Works is attached as **Appendix C**.

APPENDIX E. SUPPORTING DOCUMENTATION