

Source Water Protection Plan

2021

For the Town of Stanley

Town of Stanley PWSID 2139935

Stanley Industrial Park PWSID 2139936

Prepared by:



Funded by:



Table of Contents

1. Statement of Adoption	4
2. Introduction.....	5
2.1. Protection of Surface Water Sources	5
2.2. Plan Purpose.....	6
2.3. Plan Goals	6
3. Local Advisory Committee (LAC)	7
4. Recommended Actions	7
5. Source Water Assessment & Protection Areas	9
5.1. Delineation of Source Water Assessment & Protection Areas	9
5.2. Geological Characterization.....	11
5.3. Land Use	12
5.4. Future Land Use	12
6. Potential Sources of Contamination (PSC).....	12
7. Source Water Protection Plan	15
7.1. Existing Measures and Activities.....	15
7.2. Source Water Protection Emergency Response Plan.....	16
7.3. Public Education and Outreach.....	16
7.4. Implementation and Funding	17
Appendix A-1: Source Water Protection Area Zone 1 Topographic Maps	
Appendix A-2: Source Water Protection Area Zone 2 Topographic Maps	
Appendix A-3: SWPA Geological and Soil Maps	
Appendix B-1: Source Water Protection Area Land Use Maps	
Appendix B-2: Future Land Use Map: Urban Development Area	
Appendix B-3: Future Land Use Map	
Appendix C: Residential Brochure Template	
Appendix D: Potential Sources of Contamination Inventory	
Appendix E: Source Water Protection Emergency Response Plan	
Appendix F: Virginia Source Water Assessment Program Land Use Risk to Source Water	
Appendix G: Virginia Department of Health Source Water Assessment Reports (SWAR)	

Record of Review

The Source Water Protection Plan should be reviewed and revised at least every 3 years.

Date of Review	Name of Reviewer	Description of Updates (if any)
2021	Tetra Tech	Plan Creation

1. Statement of Adoption

The Town of Stanley adopted this Source Water Protection Plan and has a copy of the plan on file with the Virginia Department of Health Office of Drinking Water (VDH-ODW). The Town of Stanley is an independent public agency that provides public water service within Page County. The service and assistance of the waterworks' representatives in preparation of the plan is acknowledged and greatly appreciated.

[VDH-ODW recommends inserting a copy of the page from Town Council/Board of Supervisors meeting minutes recording the adoption of the Source Water Protection Plan.]

2. Introduction

2.1. Protection of Surface Water Sources

Protection of sources which supply public drinking water is of vital importance to the residents serviced by the Town of Stanley. The Stanley Town system and the Stanley Industrial system are addressed in this plan, collectively referred to as the Stanley system.

The water supply represents a valuable resource and investment which, if it were to become polluted, could negatively impact public health and would be expensive to restore or replace. Reducing or preventing chemical and microbiological contamination of water sources can ideally allow public water systems to avoid costly treatments and minimize future monitoring requirements. When drinking water is contaminated, costs include the following:

- Providing emergency replacement water;
- Paying for treatment and/or remediation expenses;
- Finding and developing new supplies;
- Paying for consulting services and staff time;
- Litigating against responsible parties;
- Conducting public information campaigns when incidents occur;
- Failing to meet the regulations of the Safe Drinking Water Act;
- Reducing property value or tax revenue;
- Adding health-related costs from exposure to contaminated water;
- Economic impacts, such as interruptions to businesses and loss of development opportunities; and
- Losing community acceptance of treated drinking water.

Source Water Protection is a voluntary program in Virginia. Proposed source water protection strategies are not mandated by state or federal regulations. Proposed commitments and schedules by waterworks' representatives are subject to change.

Surface water is vulnerable to contamination by several pathways, including:

- Inorganic contaminants as a result from urban storm water runoff, industrial or domestic wastewater discharges, oil and gas production, mining or farming;
- Microbial contaminants, such as viruses and bacteria, which can come from sewage treatment plants, failing septic systems, agricultural livestock operations and wildlife;
- Pesticides and herbicides, which can come from a variety of sources such as agriculture, storm water runoff, and residential uses;
- Organic chemical contaminants, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production and can also come from gas stations, urban storm water runoff and failing septic systems; and
- Radioactive contaminants, which can occur naturally or as the result of oil and gas production and mining activities.

- Any of the above contaminants as a result of chemical spills from storage tanks, trains, trucks, or pipelines.

The characteristics (land use, land cover, soil types, vegetation types, etc.) within the watershed can also impact the likelihood of contamination from a potential source migrating to a surface water intake. Preventing contamination is key to keeping drinking water supplies safe.

2.2. Plan Purpose

The purpose of the Source Water Protection Plan (SWPP) is to protect surface water and groundwater, which serves as a source of public water supply, from the threat of contamination as a result of accidents, vandalism, or unwise practices from nearby residential, industrial, commercial, agricultural, waste management, or transportation activities.

2.3. Plan Goals

The goals of the SWPP are:

- To promote public health, economic development, and community infrastructure by maintaining an adequate drinking water supply for all residents of the community;
- To create an awareness of the communities' drinking water source(s); and
- To provide for a comprehensive action plan in case of an emergency affecting the water source.

3. Local Advisory Committee (LAC)

The purpose of the LAC is to evaluate the site-specific risks to the source water, develop site-specific recommended actions to mitigate the risks, and to ensure that the recommended actions are implemented. Community involvement is a critical element to developing a successful SWPP. The LAC involves the community in this process by incorporating community members and local officials into its membership, and by holding meetings with local stakeholders.

The LAC membership typically consists of waterworks employees, town or local government officials, county or regional government representatives, board members, and/or water customers. Extensive knowledge of source water protection or the water system components is not a prerequisite to being a committee member.

Table 1. Stanley system Local Advisory Committee (LAC)

Name	Organization	Title
Terry Pettit	Town of Stanley	Town Manager
Douglas Purdham	Town of Stanley	Stanley Town Council
Duane Layman	Town of Stanley	Stanley Town Council

The LAC contributes information to aid the development of the SWPP, reviews draft SWPPs, and ensures the implementation of recommended actions. The recommended actions that the LAC proposes are presented to the local officials and the waterworks for implementation.

The LAC holds meetings to solicit information from other local stakeholders, such as emergency response personnel, local health professionals, land or business owners, and other concerned citizens.

After reviewing the available information, characterizing the water source and the Source Water Protection Area, the LAC develops recommended actions to best protect the Stanley system source(s). The recommended actions developed by the LAC are listed in the following section.

4. Recommended Actions

The following source water protection measures are recommended to prevent potential contamination of the Stanley system supply.

[The LAC should modify this list as appropriate for the waterworks. A planned timeline should be developed by the LAC for completion of the recommended actions that is ambitious, but practical.]

Priority	Recommended Management Strategy	Planned Completion Date	Actual Completion Date
1	Seek grant funding to fence all 7 local wells. Potential Grant: VDH Wellhead Protection Grant.	Submit application 2021	

Priority	Recommended Management Strategy	Planned Completion Date	Actual Completion Date
2	Apply for grant funding to purchase and install a generator at the largest well, Well 6. Potential Grant: VDH Wellhead Protection Grant or FEMA Hazard Mitigation Grant	2022	
3	Draft and adopt a wellhead protection ordinance.	2022	
4	Seek grant funding to abandon Wells 2 and 3 due to proximity to former, unlined landfill.	As needed based on monitoring well results.	
5	Seek grant funding to identify sinkholes in proximity to wells. Potential Grant: VDH Wellhead Protection Grant.	Submit application 2023	
6	Seek grant funding to test the age of water in the aquifer since the August 23, 2011 earthquake. Potential Grant: VDH Wellhead Protection Grant.	Submit application 2024	
7	Update maps and protection brochure for presentation to the public.	2021	
8	Improve public education by posting the Source Water Protection Plan (SWPP) and updated maps on Town website.	2021	
Complete	A six-panel drinking water protection brochure was developed for distribution to water customers.		1994 Updated 2007
Complete	The Town of Stanley owns 100 X 100-foot plots of land around all wells.		
Complete	Stanley zoning ordinances prohibit bathing or depositing offensive matter in reservoirs or springs utilized for the Town water supply in Chapter 202-13. Chapter 202-23 requires the installation of backflow prevention devices on each customer service line where a potential hazard exists.		Ordinance adoption date unknown.

Priority	Recommended Management Strategy	Planned Completion Date	Actual Completion Date
Complete	<p>Page County zoning ordinances address water protection concerning stormwater, cemeteries, drought, confined animal feeding operations (CAFO), and establishes the right to restrict the dimensions of land, water, and airspace occupied by buildings based on lot size and whether a public or community water supply is available and accessed.</p> <p>Chapter 97-10 outlines technical criteria and fees for regulated land-disturbing activities. Chapter 122-4 outlines the County's authority to impose water conservation measures during drought. Chapter 125-30.9 indicates family burial grounds may not be located within 100 feet of a drinking water source or 300 yards of a public water supply. Chapter 125-133 restricts CAFOs from locating within 100 feet of a river, creek, spring, reservoir, or water supply system including private wells and cisterns and 300 feet of a recreational pond or lake</p>		1989 Amended 2005
Ongoing	Develop an emergency response plan including contingency planning for long- and short-term water outages. Review the plan annually. (Updates required on 5-year cycle)	2021	
Complete	Evaluate and rank the potential risk (high, medium low) of each of the Potential Sources of Contamination.		Completed during 2021 SWPP

5. Source Water Assessment & Protection Areas

5.1. Delineation of Source Water Assessment & Protection Areas

The Stanley system has groundwater drinking water sources. VDH delineates two different Source Water Assessment Area zones for each waterworks' source.

These zones are typically defined for groundwater sources as follows:

- Zone 1 is a 1,000-foot fixed radius around the well and is a priority zone for managing potential sources of contamination; and
- Zone 2 is a one-mile (5,280-feet) fixed radius outside of Zone 1.

The circular Zone 1 and Zone 2 groundwater delineations described above assume that the source is withdrawing from a confined aquifer comprised of uniform unconsolidated material.

Stanley system sources are influenced by karst geology. For groundwater sources which do not withdraw from a confined aquifer, the VDH recommends further study to delineate Zone 1 and Zone 2 assessment areas specific to each source. The Zone 1 assessment area should be defined as the area most at risk of source water contamination and the Zone 2 assessment area should be defined as the entire recharge area.

The water system consists of two separate systems including seven wells, two storage tanks and a booster pump. The safe yield is 545,000 gallons per day. Storage consists of 560,000 gallons. The Town system is made up of six wells and two storage tanks¹. The Industrial system contains one well and supplies two metered industrial customers. The Town system relies on 1,600 connections to supply water to approximately 4,200 people. The industrial system serves 2 metered commercial/industrial customers. Included within these customers, the Stanley Town system serves sensitive users representing a dialysis center and 3 public schools.

Table 2. Summary of Public System Details

System	Well Count	Connections	Population
Stanley Town	6	1,600	4,200
Stanley Industrial	1	2	

In the most recent Source Water Assessment Reports (SWAR), produced by VDH ODW, all included Stanley system wells have a high contamination susceptibility ranking. These SWARs are included in Appendix G. Table 4 indicates the ranking for each source. VDH designates the wells with high relative susceptibility to contamination because they are “under the direct influence of surface water source constructed in an area that tends to promote migration of contaminants with potential sources of contamination in the Zone 1 and Zone 2 assessment areas.”

Table 3. Intake(s) Addressed in this Plan

System	Well Name	Location	VDH Source Water Protection Program ID	Contamination Susceptibility
Stanley Town	Well 1	Pump Lane	WL001	High
	Well 2	Little Roundhead Drive	WL002	High
	Well 3	Little Roundhead Drive	WL003	High
	Well 4	Bosley Drive	WL004	High
	Well 6	Gray Drive	WL005	High
	Well 7	Goodrich Road	WL013	High
Stanley Industrial	Well 5	Middleburg Road	WL001	High

¹ Town of Stanley. (n.d.). *Departments*. Web page. <http://townofstanley.com/departments/police/>

5.2. Geological Characterization

Appendix A-3 contains a geological map. The primary data source of this map is the United States Geological Survey. The Stanley system is in the Valley and Ridge Physiographic Province of Virginia. Carbonate rocks, primarily limestone valleys, contain most of the more productive aquifers. Carbonate rock water yielding capacity depends on the degree of fracturing and development of solution cavities in the rock. While limestone formation often yields high to medium volumes of water, fractured sandstone formations also can yield large quantities of water. Local pockets of fractured shale beds form productive aquifers. The Valley and Ridge consists predominantly of sandstone, shale, and carbonate rocks with pockets of coal-bearing beds. The valleys contain a thick cover of regolith.² There are several distinct geologic units within the Stanley system Zone 1 SWPAs. These blocky units run slightly northeast to southwest.

The eastern portion of these SWPAs contains a small portion of Waynesboro Formation and Tomstown Dolomite ([wbt]). Continuing west is a large block of Elbrook Formation ([e]) and a larger band of Conococheague Formation (O[co]). Most of the water sources are developed in the bands of [e] and O[co]. Both formations contain carbonate rock. The two most southern wells are drilled in a small block of Waynes boros formation ([wb]), also containing carbonate rock. The remainder of the SWPAs contain Chilhowee Group ([ch]) and Catoctin Formation ([Zc]).³

A detailed soil survey of Page County has been completed and mapped by the United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS)⁴. A soil map and tables are included in Appendix A-3. Hydrologic soil groups categorize soils by similar infiltration and runoff characteristics. Clay soils that are poorly drained tend to have the lowest infiltration rates, whereas sandy soils that are well-drained have the highest infiltration rates. The NRCS has defined four hydrologic groups for soils, A-D⁵. Group A soils are described as having high infiltration rates that are usually deep, well-drained sands or gravels and typically have little runoff potential. Group B soils are described as having moderate infiltration rates and are usually moderately deep and moderately well-drained soils. Group C soils are described as having slow infiltration rates, and typically have finer textures with slow water movement. Group D soils are described as having very slow infiltration rates and high clay content with poor drainage. Group D soils usually have high runoff potential. Group B soils comprise just over 72% of the soils in the SWPAs. The total area in acres and percentage of the SWPAs for each hydrologic soil group is provided in Appendix A-3.

² Trapp, Henry, Jr. (1997). *Ground Water Atlas of the United States: Segment 11, Delaware, Maryland, New Jersey, North Carolina, Pennsylvania, Virginia, West Virginia*. U.S. Geological Survey. <https://pubs.er.usgs.gov/publication/ha730L>

³ United States Geological Survey. (n.d.). *Integrated Geologic Map Databases for the United States: Delaware, Maryland, New York, Pennsylvania, and Virginia*. Website. <https://mrdata.usgs.gov/geology/state/metadata/va.html>

⁴ Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture. *Soil Survey Geographic (SSURGO) Database for Virginia*. Available online <https://datagateway.nrcs.usda.gov/>

⁵ United States Department of Agriculture. (2016). *Hydrologic Soil Group*. PDF file. https://www.nrcs.usda.gov/wps/PA_NRCSCconsumption/download?cid=nrcseprd1296623&ext=pdf

5.3. Land Use

The Stanley system utilizes 7 active wells. The Zone 2 SWPAs for all wells overlap slightly. Land use in the Zone 1 SWPAs for Well 5 and Well 7 consists predominantly of pasture. The Zone 2 SWPA for these wells is primarily pasture with some cropland and forest. Near the southern portion of Well 7's Zone 2 SWPA exists some various intensity development as the wells draw closer to the Town. The Zone 1 SWPA for Well 4 and Well 6 contain some pasture and medium intensity development. The Zone 2 SWPAs for these wells contain pasture and cropland on the outskirts of Town and mixed intensity development in Town. Well 1 Zone 1 SWPA is primarily in Town and consists of mixed intensity development. The Zone 2 SWPA contains pasture and forest at the perimeter of Town. Well 2 and Well 3 Zone 1 SWPAs overlap and include a large portion of medium to high intensity development in addition to some forest and pasture. The Zone 2 SWPA for these wells contains significant forest land use to the south, various intensity development representing the Town to the north, and some pasture to the east and west. West Main Street runs through Zone 1 SWPA for Well 1 and affects Zone 2 SWPAs for Well 2, Well 3, Well 4, and Well 6. U.S. Route 340 Business affects the Zone 2 SWPAs for all wells except Well 2 and Well 3.

5.4. Future Land Use

A future land use map for the Page County Comprehensive Plan is included in Appendix B-2, An additional map in Appendix B-3 indicates the County urban development area (UDA). The UDA represents locations where concentrated future growth is expected⁶. According to the Town's 2030 Comprehensive Plan, created in 2010, the Town of Stanley has three main areas of concentrated commercial development. The first area is in the north part of Town, coming from U.S. Route 340 Business. The second area, the Central Business District, extends from the Norfolk and Southern railroad to Deford Avenue. The third area includes the Stanley Town Center in the southern part of Town. There are several other areas of commercial uses throughout the Town and along U.S. Route 340 Business Corridor. There are 9 acres within corporate limits dedicated to industrial development but the greatest potential for industrial development is outside of Town at the industrial park. The Town has dedicated 290 acres to parks and recreation, but a significant portion of this land is zoned residential and includes public utilities. Future land use goals include maintaining a mixed-use pattern of residential and commercial activities while promoting the protection of undeveloped land⁷.

6. Potential Sources of Contamination (PSC)

VDH develops an inventory of PSC within the SWPAs through its Source Water Assessment Program. This inventory contains information regarding ownership of the PSC, the types of

⁶ Page County. (2020). Comprehensive Plan Volume 2: Character. PDF file. <https://www.pagecounty.virginia.gov/DocumentCenter/View/77/Comprehensive-Plan-Character-Volume-2-PDF>.

⁷ Town of Stanley. (2010). 2010-2030 Comprehensive Plan. PDF file. <http://townofstanley.com/wp-content/uploads/2010-2030-Comprehensive-Plan.pdf>

contaminants produced by the PSC, as well as the distance of the PSC to the water source. This inventory is summarized below.

The location maps of PSC within the SWPAs are presented in Appendix D. These PSC include publicly available information from Virginia Department of Environmental Quality (DEQ), VDH, U.S. Environmental Protection Agency (EPA), and other sources. DEQ hosts an online mapping inventory, Virginia Environmental Data Mapper (EDM) at: <https://apps.deq.virginia.gov/EDM/>.

The risk of each PSC varies depending on proximity to the intake and potential pathways to reach surface water. The highest priority area for protection includes the activities within the Zone 1 SWPAs. The Town of Stanley should use the PSC inventory in Zone 1 to evaluate the risk posed by each potential source of contamination and determine the need for protection measures. To ensure that the supply remains uncontaminated, continual review of land use activities and identification of potential sources of contamination is necessary.

This inventory identifies potential sources of contamination (PSC) in the protection area that could pose a threat to drinking water. A facility or activity is listed as a PSC if it has the potential to release a contaminant based on the kinds and amounts of chemicals typically associated with that type of facility or activity. It does not necessarily indicate that any release has occurred. An initial PSC list was developed as part of the Source Water Assessment conducted by VDH in 2020. This Assessment is included in Appendix G.

In November 2020, contractor staff conducted a PSC windshield survey in Zone 1 SWPAs. PSCs were identified for the SWPAs during the field investigation. The most significant threats observed were from agricultural crop fields and untreated commercial stormwater outfalls near wells.

VDH has prepared a list of typical PSCs along with their chemical constituents (Source Water Assessment Program Typical Contaminants Compendium, 2015) which is included in Appendix F. The Town of Stanley may refer to this list in the future to better understand possible threats to the source water, including typical contaminants associated with PSCs and land uses.

The PSC generally can be categorized as:

- Closed Storage Tank Releases
- Pesticides, Fertilizers, and Agricultural Land Uses
- Concentrated Residential or Municipal Areas
- Public and Private Wastewater
- Public and Private Wells
- Industrial Facilities
- Impaired Streams
- Landfill Transfer Sites

Appendix D provides a risk score for each identified PSC. PSCs identified through the Source Water Assessment Program and the windshield survey are described below.

Ten closed storage tank releases exist in the Stanley system SWPAs. Three of these sites exist within the Zone 1 SWPAs. Threats associated with storage tanks may be from historic or active facilities. If these tanks remain at historic sites, they may contain residual chemicals/oils that could contaminate the source if they were to leak. For active facilities, storage tanks potentially contain materials that, if released, would pose a risk to public health. Storage tank releases at private residences often relate to petroleum. The PSC categorized as closed storage tank releases are those for which DEQ opened and closed an investigation. These sites may pose no threat to the water resource or leaking may have occurred. For more information on specific sites, DEQ provides a registered petroleum storage tank database in CSV format called i_register.txt. This database may be downloaded from the following site: <https://www.deq.virginia.gov/home/showpublisheddocument?id=2101>. The same information is provided on the Environmental Data Mapper.

Thirty-eight of the PSC in the SWPAs are categorized as “other”. There is a wide range of regulated and non-regulated sites. These should be reviewed on a case by case basis to determine the risk posed to water resources. Several pertain to Concentrated Animal Feeding Operations (CAFOs). CAFOs have the potential to contaminate groundwater through runoff from land application of manure or through leaks in manure storage containment unit. Well water may also contain elevated levels of nitrates, pathogens, or veterinary antibiotics. Groundwater could remain at risk after a CAFO is closed and containment lagoons are drained. Surface water is at risk especially during high rainfall events when lagoons overflow. Because the Stanley system wells are located in areas containing karst, impacts typical for surface water are also relevant. Surface water may be affected regularly via flushing mechanisms and ditches constructed to carry CAFO waste. Surface waters near CAFOs could be contaminated with nitrates, fecal coliform bacteria, hormones, or ammonia. Ammonia reduces the oxygen level in surface water, preventing aquatic life from receiving enough oxygen for survival. It also converts into nitrates. High nitrate concentration can cause harmful algal bacteria and growth that kills aquatic life. Hormones from the livestock may also impact aquatic life potentially altering the reproductive habits of aquatic species or decreasing fertility of female fish⁸.

There are three known industrial PSC within the SWPAs. Two of these exist within the Zone 1 SWPAs. Municipal, commercial, and industrial areas have a concentration of homes, businesses, schools, and other facilities that may collectively introduce contaminants into water at a concentration to cause concern. Storm water runoff, care of public grounds, maintenance of city and county vehicles at garages, and residents’ activities in and outside their homes can contribute to contamination of the water source including use and storage of fertilizers, pesticides, oils, paints, cleaning agents, etc.

A landfill transfer station exists within the Zone 2 SWPA. Property facility siting, design, and operation can decrease the potential impact of transfer station pollution of water resources.

⁸ National Association of Local Boards of Health. (2010). *Understanding Concentrated Animal Feeding Operations and Their Impact on Communities*. PDF File.
https://www.cdc.gov/nceh/ehs/docs/understanding_cafos_nalboh.pdf

There is a potential for runoff to enter a surface or groundwater system, however, most waste runoff or leachate is typically directed to sewer infrastructure⁹.

In addition to PSC, there are impaired waters within the SWPA. The Draft 2020 305(b)/303(d) Water Quality Assessment Integrated Report is a state list of assessed waters as reported to the EPA. The SWPA includes category 4a impairment listings. Category 4a waters are impaired or threatened for one or more designated uses and have an EPA approved Total Maximum Daily Load (TMDL). DEQ provides an online mapping application to view the assessment status of rivers, estuaries, and reservoirs on Virginia Environmental Data Mapper (EDM) at: <https://apps.deq.virginia.gov/EDM/>. Several segments of Hawksbill Creek and Mill Creek are considered impaired for recreational use based on *E. Coli* bacteria and fecal coliform and listed in Category 4a in the 2020 Integrated Report¹⁰. The sources of impairment for both Hawksbill Creek and Mill Creek are listed as wildlife other than waterfowl, but Mill Creek also has nonpoint source pollution and agriculture identified as sources.

Identification of existing contamination sources may address immediate concerns about protection of the local water supply. To ensure that the supply remains uncontaminated, continual review of land use activities and identification of potential sources of contamination is necessary.

7. Source Water Protection Plan

The SWPP describes the actions necessary to minimize the risk to the quality of the source water utilized by the Town of Stanley. The goal of the plan is to reduce or eliminate potential threats to drinking water supplies within the SWPA either through existing regulatory or statutory controls, or by using non-regulatory (and often voluntary) measures centered around an involved public.

7.1. Existing Measures and Activities

Current measures in place for protecting the quality of water within the SWPA are:

- **Regular testing** – Regular testing is required by VDH to ensure finished water adheres to National Primary Drinking Water Regulations (NPDWR).
- **Water ordinances and policies** –The Town of Stanley has devised and passed ordinances protecting water quality and conserving their water resources. Ordinances are available here: <https://ecode360.com/ST1137?needHash=true>
 - The Town has passed a cross-connection ordinance, Section 202-22, forbidding cross-connections to the Town's water system where a consumer water system

⁹ United States Environmental Protection Agency. (2000). *Waste Transfer Stations: A Manual for Decision Making*. PDF File. <https://www.epa.gov/sites/production/files/2016-03/documents/r02002.pdf>

¹⁰ Virginia Department of Environmental Quality. (2020). *2020 Impaired Waters (Category 4A/4D) TMDL Approved and (Category 4B) Other Control Measures Present*. PDF file. <https://www.deq.virginia.gov/home/showpublisheddocument?id=2255>

exists, unless such cross-connections are abated or controlled to the satisfaction of the Town.

- The Town has a backflow prevention ordinance. Facilities or instances requiring backflow prevention devices are detailed in Town Code Section 202-23.
- **Education campaigns** – Active education campaigns are included in Section 7.3.
- **Source water planning** – The Town of Stanley has developed a Local Advisory Committee (LAC) and worked in coordination with VDH and Tetra Tech to create and update this SWPP.
- **American Water Infrastructure Act (AWIA) emergency response planning** – The Town of Stanley must complete a Risk and Resilience Assessment and Emergency Response Plan for the Town of Stanley system.

7.2. Source Water Protection Emergency Response Plan

The American Water Infrastructure Act became law on October 23, 2018. This requires any community water system that serves over 3,300 people to create a Risk and Resilience Assessment (RRA) and Emergency Response Plan (ERP), updated every 5 years. Mandatory components of the ERP include alternative source water options and incident specific response procedures for source water contamination. The Town of Stanley is required to develop this RRA and ERP which will address source water issues.

AWIA Section 2018 also amended the Emergency Planning and Community Right to Know Act (EPCRA). This requires state agencies to notify affected community water systems of spills that may impact utility source water intakes and allows community water system access to EPCRA Tier II chemical storage information.

7.3. Public Education and Outreach

For citizens to appreciate the benefits of source water protection, they must first understand what the problems are in providing safe drinking water and how they can become involved in the process. Public education is the greatest promoter of voluntary action and public support for a community's source water protection program.

Activities and opportunities should be sought that will increase public awareness that source water protection is a local issue and that each citizen plays a part. Examples of potential future public education and outreach include installing signs and drafting brochures specific to source water protection. Examples of these brochures are provided in Appendix C. Signs may be installed along roads in high visibility locations near the designated boundary of the SWPA that state "Entering Town of Stanley Source Water Protection Area".

The following education and outreach opportunities are provided to Stanley system customers:

- **Annual Drinking Water Quality Report**- The Town of Stanley publishes an Annual Drinking Water Quality Report, as required by the Safe Drinking Water Act, which is

made available to all water customers and posted here:

<http://townofstanley.com/information/>

Information concerning the source water including treatment, Source Water Assessment, and suggestions to help protect source water is included in the report. In the future, The Town of Stanley could include a reference to the completed SWPP and how customers can access a copy.

- **Educational Brochure** - The Town of Stanley created a six-panel educational brochure. To obtain a copy, contact the Town administrative office.

7.4. Implementation and Funding

The initial step in implementation should be to identify responsible parties and timelines to implement the strategies. Community members can determine the best process for completing activities within the projected time periods.

The Town of Stanley previously received a \$45,000 grant from VDH to study potential sources of contamination. The Town contracted a study from Schnabel Engineering in 2007.

Numerous funding opportunities are available to aid communities in the implementation of source water protection initiatives. The following is a summary funding sources currently available to support source water protection in Virginia:

Litter Prevention and Recycling Grant Programs – Virginia Department of Environmental Quality

Funding type: grant

Description: This program coordinates annual competitive and non-competitive Litter Prevention and Recycling Grant Programs to support localities' recycling and litter prevention activities. Contact program staff at 804-698-4029 to determine what resources may be available to encourage cleanup and reporting of dump sites.

Links:

Litter Prevention - <https://www.deq.virginia.gov/land-waste/litter-prevention>

Recycling Grant - <https://www.deq.virginia.gov/land-waste/recycling>

Wellhead Protection Implementation Projects Grants – Virginia Department of Health – Office of Drinking Water

Funding type: grant

Description: This program supports the implementation of wellhead protection projects including well abandonment, educational outreach, wellhead fencing, advancing ordinances, emergency response planning, hazardous waste collection, and protection area delineation. This program requires that the waterworks have a protection strategy

in-place (i.e. Source Water Protection Plan) and an active source water protection committee.

Link: <http://www.vdh.virginia.gov/drinking-water/source-water-programs/source-water-protection-assistance-funding-opportunities/>

Drinking Water State Revolving Fund – Virginia Department of Health – Office of Drinking Water

Funding type: low interest loan with possible principal forgiveness

Description: This program provides planning funding, which could be used to analyze solutions to source water measures or evaluate potential new sources. This program also provides low interest loans with possible principal forgiveness for waterworks construction projects including new wells and intake modifications, and low interest loans for waterworks to acquire land or conservation easements and to establish local voluntary incentive-based source water protection measures. Funding is prioritized for small, financially stressed, community waterworks.

Link: <https://www.vdh.virginia.gov/drinking-water/fcap/>

Nonpoint Source Management Implementation Grant Program – Virginia Department of Environmental Quality

Funding type: grant

Description: This program provides grants for watershed projects, demonstration and educational programs and nonpoint source pollution control program development.

Link: <https://www.deq.virginia.gov/water/clean-water-financing/nonpoint-source-funding>

Virginia Wastewater Revolving Loan Fund – Virginia Department of Environmental Quality

Funding type: low interest loan

Description: This program provides low interest loans for acquisition of title or other rights to real property to protect or improve water quality, and for storm water runoff control best management practices.

Link: <https://www.deq.virginia.gov/water/clean-water-financing/revolving-loan-funds-rlfs>

Virginia Clean Water Revolving Loan Fund – Virginia Department of Environmental Quality

Funding type: low interest loan

Description: This program primarily funds wastewater treatment projects, but also funds agricultural best management practices and non-point source pollution abatement. This program can provide low interest loans to waterworks or localities to provide loans or other incentives to facilitate the implementation of agricultural best management practices.

Links:

Land conservation - <https://www.deq.virginia.gov/water/clean-water-financing/revolving-loan-funds-rlfs/land-conservation>

Stormwater - <https://www.deq.virginia.gov/water/clean-water-financing/revolving-loan-funds-rlfs/stormwater>

Stormwater Local Assistance Fund – Virginia Department of Environmental Quality

Funding type: cost-share

Description: This fund provides matching grants for stormwater projects including new stormwater best management practices, stormwater best management practice retrofits, stream restoration, low impact development projects, buffer restorations, pond retrofits, and wetlands restoration.

Link: <https://www.deq.virginia.gov/water/clean-water-financing/stormwater-local-assistance-fund-slaf>

Virginia Land Conservation Foundation – Virginia Department of Conservation and Recreation

Funding type: grant

Description: Grants are awarded to help fund the purchase of permanent conservation easements, open spaces and parklands, lands of historic or cultural significance, farmlands and forests, and natural areas. This program may allow public waterworks to permanently protect land in the SWPA at little cost to the waterworks.

Link: <http://www.dcr.virginia.gov/virginia-land-conservation-foundation/>

The Land and Water Conservation Fund (LWCF) State and Local Assistance Program – Virginia Department of Conservation and Recreation

Funding type: cost-share

Description: This program supports the acquisition and/or development of public outdoor recreation areas. This may aid utilities in purchasing land in the SWPA when the source water protection goals do not conflict with the recreational use of the land. It should be noted that all LWCF assisted areas must be maintained and opened, in perpetuity, as public outdoor recreation areas.

Link: <http://www.dcr.virginia.gov/recreational-planning/grants>

Other Virginia Department of Forestry funding programs –

VDF administers a number of programs aimed at promoting healthy forests and wildlife habitat that may help waterworks to limit erosion on land that they control within the SWPA. Additionally, VDF administers programs aimed at supporting agricultural best

management practices. Waterworks can use these programs to promote Best Management Practices within their SWPA.

Link: <http://www.dof.virginia.gov/costshare/index.htm>

Urban Waters Small Grants Program – U.S. Environmental Protection Agency

Funding type: grant

Description: This program provides small grants to restore their urban waters in ways that also benefit community and economic revitalization. In general, projects should address local water quality issues related to urban runoff pollution, provide additional community benefits, actively engage underserved communities, and foster partnership

Link: <https://www.epa.gov/urbanwaters/urban-waters-small-grants>

Healthy Watersheds Consortium Grant – U.S. Endowment for Forestry & Communities, Inc.

Funding type: grant

Description: This program provides grants to accelerate strategic protection of healthy, freshwater ecosystems and their watersheds. The primary focus for applicants should be protection and stewardship of the landscape that comprises the watershed, rather than restoration of degraded habitats or projects with a strictly water quality improvement outcome.

Link: <https://www.epa.gov/hwp/healthy-watersheds-consortium-grants-hwcg>

Regional Conservation Partnership Program – U.S. Department of Agriculture

Funding type: cost share

Description: This program provides funding to locally driven, public-private partnerships that improve the nation's water quality, combat drought, enhance soil health, support wildlife habitat and protect agricultural viability. The program connects partners with producers and private landowners to design and implement voluntary conservation solutions that benefit natural resources, agriculture, and the economy. Applicants must match or exceed the federal award with private or local funds.

Link: <https://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/financial/rcpp/>

Appendix A-1: Source Water Protection Area Zone 1 Topographic Maps

For security purposes, this Appendix is omitted from public versions of the SWPP.

Appendix A-2: Source Water Protection Area Zone 2 Topographic Maps

For security purposes, this Appendix is omitted from public versions of the SWPP.

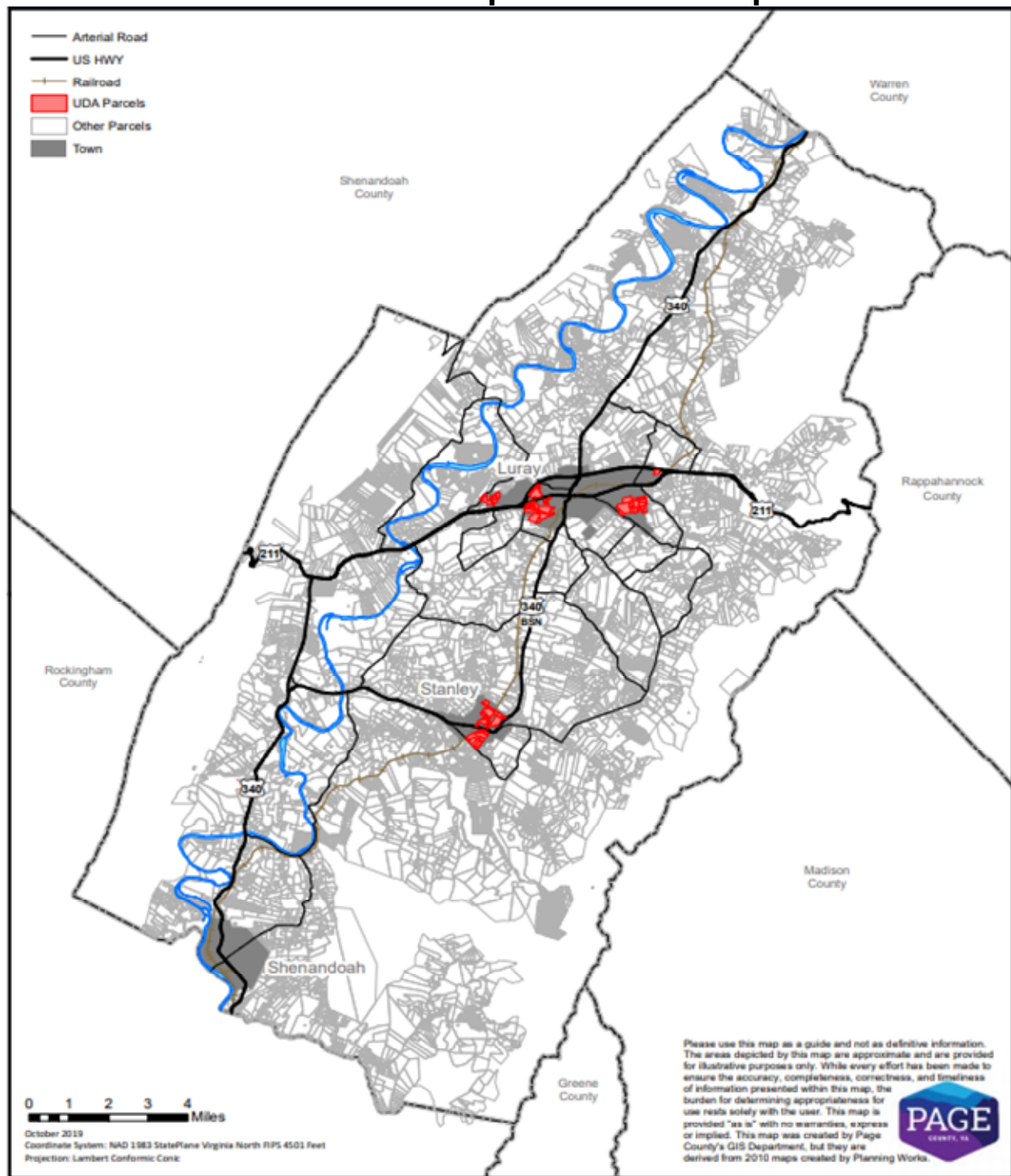
Appendix A-3: SWPA Geological and Soil Maps

For security purposes, this Appendix is omitted from public versions of the SWPP.

Appendix B-1: Source Water Protection Area Land Use Maps

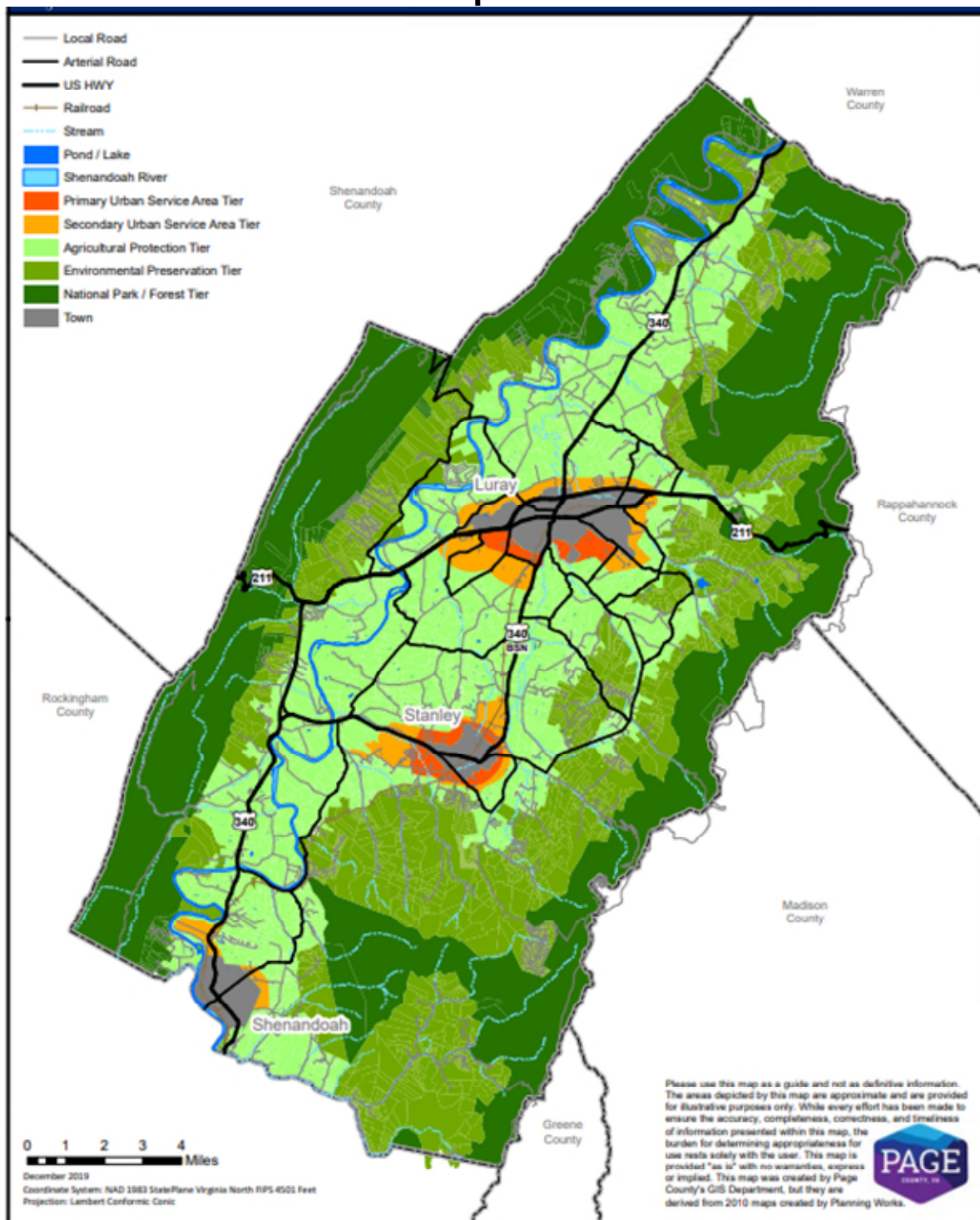
For security purposes, this Appendix is omitted from public versions of the SWPP

Appendix B-2: Future Land Use Map: Urban Development Area¹¹



¹¹ Page County. (2020). Comprehensive Plan Volume 2: Character. PDF file.
<https://www.pagecounty.virginia.gov/DocumentCenter/View/77/Comprehensive-Plan-Character-Volume-2-PDF>.

Appendix B-3: Future Land Use Map¹²



¹² Page County. (2020). Comprehensive Plan Volume 1: Vision. PDF file.

<https://www.pagecounty.virginia.gov/DocumentCenter/View/78/Comprehensive-Plan-Vision-Volume-1-PDF>.

Appendix C: Residential Brochure Template

How To Protect Your Drinking Water

for residents of the
[PWS Name] Source Water Protection Area



[Insert photo of Town Seal/Company Logo here]

For questions regarding the [PWS Name]
Source Water Protection Plan, please
contact:

Name, Title
Phone: 555-555-5555
Fax: 555-555-5555
E-mail: someone@example.com

How Can I Protect My Water?

- Never pour used motor oil or other hazardous waste materials onto the ground or in a storm drain. Find a proper disposal location at <http://earth911.com>.
- Don't flush unwanted medications. Find a drug collection location or event (https://www.deadiversion.usdoj.gov/drug_disposal) or place medications in a sealed container in the trash.
- Minimize the use of fertilizers, pesticides and herbicides on your lawn and farm.
- Join your local watershed organization.
- Learn about your drinking water supply and conserve water in your home.
- Pump your septic system every 3-5 years.
- Keep animals, including livestock and their waste, out of local streams.

Source: <http://www.ColumbiaWatershed.org>

Where Does My Drinking Water Come From?

Your drinking water comes from [surface water name and/or groundwater]. [include brief description of sources/system].

Why Should I Be Concerned?

The public water supply is a valuable resource that, if contaminated, would negatively impact public health and put a financial burden on the community to restore or replace. As the map below shows, your property is located within our source water protection area. As such, things you do on your property can adversely affect our water source!



Insert photo of Zone I here

Appendix D: Potential Sources of Contamination Inventory

For security purposes, this Appendix is omitted from public versions of the SWPP

Appendix E: Source Water Protection Emergency Response Plan

For security purposes, this Appendix is omitted from public versions of the SWPP. The Town of Stanley is required to complete a Risk and Resilience Assessment and Emergency Response Plan including source water components by the American Water Infrastructure Act.

Appendix F: Virginia Source Water Assessment Program Land Use Risk to Source Water

For security purposes, this Appendix is omitted from public versions of the SWPP.

Appendix G: Virginia Department of Health Source Water Assessment Reports (SWAR)

For security purposes, this Appendix is omitted from public versions of the SWPP.

The Virginia Department of Health regularly updates these SWARs and provides the data for use in compiling this Source Water Protection Plan.