CHARLES TOWN UTILITY BOARD
AGENDA

WEDNESDAY, APRIL 24, 2024

Regular Meeting | **661 South George Street, Charles Town, WV 25414** | **4:00 PM**

CALL TO ORDER

1. **APPROVAL OF MINUTES**
   a. Approval of April 10, 2024 Minutes
   UB Minutes 04.10.24.pdf

2. **PUBLIC COMMENT**
   This portion of the agenda is designed for members of the general public to share thoughts on items of interest in the community. By law, Board members may ask clarifying questions or discuss procedural matters but are not permitted to discuss the policy merits of any issue unless it is scheduled for discussion.

   The Public is invited to attend this meeting in person or via webcast (www.ctubwv.com- Board Meeting - Meeting Agendas and Minutes 2024) or by accessing the following zoom link:

   https://us06web.zoom.us/j/87320095331?pwd=Rgva4OMpHoPsIpbTSTBTmrHoFJZOVL.1

   Meeting ID: 873 2009 5331
   Passcode: 497798
   (301)715-8592

3. **UNFINISHED BUSINESS**
   a. Public Hearing for Source Water Protection Plan - Draft
   SWPP 2024 Update - Draft.pdf
   b. Sewer Strategic Plan - Draft
   SSP 2024- Draft.pdf

4. **NEW BUSINESS**
   a. Spruce Hill North Pump Purchase
   STH Quote.pdf
   b. Race Track Pump Purchase
   STH Quote.pdf
   c. Resolution 2024-01 FY 2025 Budget - Draft
   Resolution 2024-02 FY 2025 Budget.pdf
   d.
   Burns Farm Agreement Renewal - Possible Executive Session Under: WV

State Code Section §6-9A-4(b)(9) - To consider matters involving or affecting the purchase, sale or lease of property, advance construction planning, the investment of public funds or other matters involving commercial competition, which if made public, might adversely affect the financial or other interest of the state or any political subdivision and involving contract matters.

5. **MANAGER REPORTS**
   a. Utility Manager Report
   b. Chairman Report

6. **APPROVAL OF BILLS**
   a. April 24, 2024
      Board Report 04.24.24.pdf

7. **ADJOURNMENT**

8. **INFORMATION ONLY**
   a. Next Meeting - May 8, 2024 at 4:00 P.M.
      Water Capital Disbursement Report 04.24.24.pdf
      Revenue & Expense Report - March 2024.pdf

Charles Town Utility Board
Regular Board Meeting
April 10, 2024

The Charles Town Utility Board held a regular meeting on April 10, 2024 at 4:00 P.M. Members of the Board present were John Nissel, Chairman; Duke Pierson, Vice Chairman; Tommy Stocks, Treasurer; Jeff Whitten, Board Member; and Heidi Parker, Board Member. Also present were Kristen Stolipher, Utility Manager; April Shultz, Assistant Utility Manager; Ashley Stottlemyer, Secretary; Robert Rodecker, Legal Counsel and Tricia Jackson, County Commission Liaison.

CALL TO ORDER

The Chairman called the meeting to order at 4:00 P.M.

APPROVAL OF MINUTES

Approval of March 27, 2024 Regular Meeting Minutes

The Chairman called for changes or corrections to the March 27, 2024 regular meeting minutes.

Action: **Motion made by Mr. Whitten, second by Mr. Pierson, the Board unanimously approved the March 27, 2024 minutes.**

PUBLIC COMMENT

Public comment was received from Jacquelyn Milliron, Robert Ryan, Elizabeth Ricketts and Maria Russo.

NEW BUSINESS

Greenfield Forcemain Project - Possible Executive Session Under: WV State Code Section §6-9A-4(b)(12) to discuss any matter which, by express provision of federal law or state statute or rule of court is rendered confidential or to discuss a matter of potential Litigation.

Action: **This item was moved to the end of the meeting.**

Greenfield Invoice

Action: **This item was moved to the end of the meeting.**

Renewal and Replacement Project Resolution No. 18 – Contractor Pay Application No. 18

Mrs. Stolipher included the contractor application for Payment No. 18 in the amount of $78,290.45 for work completed.

Action: **Motion made by Mr. Pierson, second by Mr. Whitten, the Board unanimously approved Resolution No. 18.**

Source Water Protection Plan Draft

Mrs. Stolipher provided the draft plan which is due to the WV Bureau of Public Health by May 1st. She mentioned a public comment hearing will be held at the April 24 board meeting and encouraged the Board to provide comments as well as other stakeholders.

Action: **No action required by the Board.**

2024 Sewer Strategic Plan Draft

Mrs. Stolipher included the draft plan for the Board to review and provide comments to discuss at the next board meeting with adoption in May. The Board provided discussions.

Action: No action required by the Board.

Resolution 2024-01 – FY 2024 Budget Revisions

Mrs. Shultz briefed the Board on the minor revisions to the FY 2024 water and sewer operating budgets. She provided the overall budget revisions for FY 2024 were not significant. The Board provided discussion on the revisions.

Action: Motion made by Mr. Pierson, second by Mr. Whitten, the Board unanimously approved Resolution 2024-01 – FY 2024 Budget Revisions.

MANAGER REPORTS

Utility Manager Report

Mrs. Stolipher provided an update on the Renewal and Replacement project and suggested moving the CTUB Day to the Fall when the project is near completion.

Mrs. Parker requested staff look into evaluating capital improvement fees once the strategic plan is approved.

Action: No action required by the Board.

Chairman Report

The Chairman provided an update on the appointment of a CTUB Board member.

Action: No action required by the Board.

APPROVAL OF BILLS

April 10, 2024

Action: Motion made by Mr. Stocks, second by Mr. Pierson, the Board unanimously approved the payment of the bills.

EXECUTIVE SESSION

Greenfield Forcemain Project - Possible Executive Session Under: WV State Code Section §6-9A-4(b)(12) to discuss any matter which, by express provision of federal law or state statute or rule of court is rendered confidential or to discuss a matter of potential Litigation.

Action: Motion by Mr. Pierson, second by Mr. Stocks, the Board unanimously approved convening into Executive Session at 4:48 P.M. to discuss the Greenfield Forcemain Project and invoice.

Action: Motion made by Mr. Pierson, second by Mr. Stocks, the Board unanimously approved returning to public session. Executive session was declared over at 5:08 P.M.

Action: Motion made by Mr. Pierson, second by Mr. Whitten, the Board unanimously approved paying the Greenfield invoice for $22,050.34

Action: **Motion made by Mr. Pierson, second by Mrs. Parker, the Board unanimously approved terminating the contract with W. F. Delauter & Son, Inc. due to a mutual agreement effective April 10, 2024.**

ADJOURNMENT

There being no further business at this time, the Board adjourned the meeting.

Action: **Motion by Mr. Whitten, second by Mr. Pierson, the Board unanimously adjourned the meeting at 5:10 P.M.**

INFORMATION ONLY

The next meeting is scheduled for Wednesday, April 24, 2024 at 4:00 P.M. at 661 S. George Street.

_____	_____
John Nissel	Ashley Stottlemyer
Chairman	Secretary

FOR PUBLIC RELEASE

Source Water Protection Plan
Charles Town Utilities

PWSID: WV3301905

Jefferson County

April 2024

Prepared By:

Kristen Stolipher

Utility General Manager

In cooperation with Charles Town Utilities

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

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Kristen Stolipher

Preparer's Name

Utility General Manager

Title of Preparer

Dewberry Engineers Inc.

Name of Contractor(s)/Consultant(s)

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

Responsible party of designee authorized to sign for water utility is on file:

John Nissel

Name of Authorizing Signatory:

Chairman

Title of Authorizing Signatory:

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

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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 Charles Town Utilities 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, Charles Town Utilities 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.

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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 Charles Town Utilities can be found in **Table 1**.

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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.

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4.0 SYSTEM INFORMATION

CHARLES TOWN UTILITIES 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 CHARLES TOWN UTILITIES

Administrative office location:	661 S George Street, Suite 101, Charles Town, JEFFERSON, WV, 25414		
Is the system a public utility, according to the Public Service Commission rule?	Yes		
Date of Most Recent Source Water Assessment Report:	7/1/2004		
Date of Most Recent Source Water Protection Plan:	10/2021		
Population served directly:	18,171		
Bulk Water Purchaser Systems:	System Name	PWSID Number	Population
Total Population Served by the Utility:	18,171		
Does utility have multiple Source Water Protection Areas(SWPAs)?	No		
How many SWPAs does the utility have?	1		

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5.0 WATER TREATMENT AND STORAGE

As required, Charles Town Utilities 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 Charles Town Utilities 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. Charles Town Utilities Water Treatment Information

Charles Town Utilites	
Water treatment processes (in order of occurrence) includes:	COAGULATION, FILTRATION, DISINFECTION (CHLORAMINATION), FLUORIDATION
The treatment capacity is approximately (GPD):	3,000,000
Current average production is approximately (GPD):	1,656,000
Maximum gallons of water treated and produced at that plant in one day during the past year was:	1,980,000
Minimum gallons of water treated and produced at that plant in one day during the past year was:	1,327,000
Plant is operated an average of hours a day:	14
Maximum number of hours of operation in one day at that plant during the past year was:	16.8
Minimum number of hours of operation in one day at that plant during the past year was:	12
How many storage tank(s) are maintained on systems distribution system:	7
Total gallons of treated water storage:	3,572,000
Total gallons of raw water storage (GALs):	0

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Table 3. Charles Town Utilities 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)
SHENANDOAH RIVER INTAKE	3490888	INTAKE #1	Standard Johnson Screen - 24 inch (Stainless Steel). T-Shaped Intake	IN001	1/1/1989	Permanent	Active

Table 4. Charles Town Utilities 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)

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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**.

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Table 5. Watershed Delineation Information

Intake Name	Shenandoah River
Size of WSDA (Square Miles)	3009
River Watershed Name (8-digit HUC)	Shenandoah - 02070007
Size of Zone of Critical Concern (Acres)	8691
Size of Zone of Peripheral Concern (Acres) (Include ZCC area)	13807
Do you blend with ground water	No
Do you have an intake or well/spring missing from the list?	No

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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 Charles Town Utilities 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.

Charles Town Utilities 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**.

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Table 6. Protection Team Member and Contact Information

Name	Representing	Title	Phone Number	Email
Kristen Stolipher	Charles Town Utilities	Utility Manager	(304)724-3280	kstolipher@ctubwv.com
Chris Hutzler	Charles Town Utilities	Chief Operator	(304)725-3761	chutzler@ctubwv.com
Stephen Allen	Jefferson County Office of Homeland Security and Emergency Services	Director	(304)728-3329	sallen@jeffersoncountywv.org
Mike Sine	Jefferson County Emergency Services Agency	Director	(304)725-3287	msine@jcesa.org
Jeff Polczynski	Jefferson County Emergency Communications Center	Director	(304)728-3317	jpolczynski@jeffersoncountywv. org
Chris Cross	Jefferson County Emergency Communications Center	Deputy Director	(304)728-3372	ccross@jeffersoncountywv.org
Jessica Gormont	Jefferson County GIS Department	GIS Coordinator	(304)724-8986	jgormont@jeffersoncountywv.org
Mason Carter	Jefferson County Floodplain Ordinance Coordinator	Floodplain Coordinator		mcarter@jeffersoncountywv.org
Chief	Citizens Fire Department	Chief	(304)725-2814	
Adam Watson	Independent Fire Department	Chief	(304)725-2514	ifc@independantfirecompany.net
Alana Hartman	WVDEP Div of Water & Waste Management (Nonpoint Section)	Environmental Resources Analyst	(304)822-7266	alana.c.hartman@wv.gov
Justin Jordan	WVDHHR Kearneysville District Office	Representative	(304)725-9453	justin.e.jordan@wv.gov

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Dewberry Engineers Inc.	Richard Kinchloe	Consultant for Charles Town Utilities	(804)823-6980	rkinchloe@dewberry.com
Lew Baker	WV Rural Water Association	FSA Sourcewater Specialist	(304)638-9883	lewbaker@wvrwa.org
Jennifer O'Brien	Eastern Panhandle Regional Planning & Development Council	Assistant Director	(304)263-1743	jobrien@region9wv.com
Maria Russo	WV Rivers Coalition	Representative	(304)433-7376	mrusso@wvrivers.org
Karen Andersen	Friends of the Shenandoah	Representative		kandersen@fors.org
Karen Bencala	ICPRB	Senior Water Resources Planner	(301)984-1908	kbencala@icprb.org
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		The first meeting to notify the public of the draft will be held on April 10, 2024. The second meeting and public hearing will be held on April 24, 2024.		

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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 Charles Town Utilities 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

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drains, dry wells, or old dumps and mines.

The Charles Town Utilities 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 Charles Town Utilities and not already appearing in datasets from the WVBPH can be found in .**Table 7**.

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Table 7. Locally Identified potential Sources of Significant Contamination

Please see Appendix A to view this information.

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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 Charles Town Utilities 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.

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9.0 IMPLEMENTATION PLAN FOR MANAGEMENT STRATEGIES

Charles Town Utilities 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. Charles Town Utilities 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.

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Table 8. Priority PSSCs or Critical Areas

PSSC or Critical Area	Priority Number	Reason for Concern
Agricultural Landuses	1	Pesticides and other chemicals used for farm operations can migrate into the water supply. Areas used for disposal of animal waste or burying dead livestock can also cause contamination of the source water. Increased nutrient load from these sources in surface water may result in algal growth. Algal presence may result in taste and odor issues. If stressed some algae also releases toxic chemicals that could cause a threat to human health.
Industrial & Commercial Activity	2	Facilities such as gas stations, auto repair shops, and dry cleaners are located within the SWPA and pose a threat due to the potential for accidental spills, leaks, improper disposal of hazardous waste or improperly managed storm water runoff.
Boat Ramp	3	The WV Division of Natural Resources (WVDNR) Shannondale Springs Wildlife Management Area (WMA) has a boat ramp within the ZCC on a tributary upstream of the intake. Petroleum products from boats may contaminate the surface waters.
Railroad Traffic	4	The railroad tracks run through the protection watershed and cross 2 tributaries within the ZCC. A spill or leak could contaminate the source water.
On-Site Septic Systems	5	Failing septic systems or untreated sewage from on-site septic systems could infiltrate to the surface water source, raising concentrations of total coliform, particularly fecal coliform.
New Development Construction	6	Construction runoff from new development can increase turbidity, total dissolved solids, and total suspended solids in the surface waters. Petroleum products from construction equipment could migrate into surface waters should a spill or leak occur.
Land Conservation within the Watershed.	7	Land conservation is critical to the over health of the Shenandoah River and its tributaries. Forests lands and wetlands are vital along the routes of waterways. Restoring areas along the river to native habitats acts to filter water, stops siltation and recharges aquifers. Also, land conservation increases aquatic wildlife and access for recreation.

Table 9. Priority PSSC Management Strategies

PSSC or Critical Area	Management Activity	Responsible Protection Team Member	Status / Schedule	Comments	Estimated Cost
Boat Ramp	Contact personnel of the WVDNR Shannondale Springs WMA to identify any measures that the water system can assist to promote keeping the water free of petroleum products associated with boats.	Charles Town Utility Board	Not Started		Personnel Time

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Table 9. Priority PSSC Management Strategies

PSSC or Critical Area	Management Activity	Responsible Protection Team Member	Status / Schedule	Comments	Estimated Cost
Land Conservation within the Watershed.	Charles Town Utilities will focus on the connection between land conservation and source water protection. We will collaborate with conservation organizations like WV Rivers Coalition, WV Land Trust, the Farmland Protection Board, Land Trust of the Eastern Panhandle, Historic Landmark Commissions, and others to explore strategies to accelerate conservation easements that benefit our public drinking water source. The resulting management strategy will be a collaborative effort to identify priority conservation areas.	Lead: WV Rivers Coalition Charles Town Utility Board	Ongoing	Meet with WV Rivers Coalition to discuss opportunities	Minimal, staff time to attend meetings
Industrial & Commercial Activity	Charles Town will request Groundwater Protection Plans (GPPs) and/or stormwater management plans from WVDEP for commercial facilities located within the SWPA. Review and investigate what (if any) preventative pollution measures are already in place for these facilities. This will permit the utility to better understand protection strategies already in place at these facilities and more accurately determine the threat posed by specific facilities.	Charles Town Utility Board	Ongoing		Personnel Time
Agricultural Landuses	Pesticides, herbicides and nutrients used for farm operations can migrate through surface waters into the water supply. Non-point source runoff from the livestock areas may introduce pathogens, particularly if the runoff occurs from confined spaces, such as feedlots. Overgrazing can create erosion issues. Areas used for disposal of animal waste or burying dead livestock can also cause contamination of the source water.	Charles Town Utility Board	Ongoing		Personnel Time

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Table 9. Priority PSSC Management Strategies

PSSC or Critical Area	Management Activity	Responsible Protection Team Member	Status / Schedule	Comments	Estimated Cost
Agricultural Landuses	Consider working with the local Future Farmers of America members to distribute educational materials and best management practices information.	n/a	Not Started		
Agricultural Landuses	Work with the local livestock owners to determine the placement of animal waste disposal areas and/or areas for burying dead livestock.	n/a	Not Started		
Railroad Traffic	When CSX railways offers or provides training materials, planning guides, trainings, exercises, etc., to the LEPC, Jefferson County LEPC will make the information available to local emergency response agencies so that they may choose to utilize them. CSX has made their Rail Respond internet-based program available to HSEM, LEPC, and emergency responders that can document to CSX a need to know, which provides access to critical information about response to accidents involving the CSX rails. Emergency personnel have also expressed interest to CSX in performing routine Emergency Response drills for Highway and Railroad spills. Charles Town Utilities will work with WVDEP of BPH to perform a Hazmat Re-route request to prevent specific potential contaminants from being transported through system source water protection areas. These entities will work with railroad companies to discuss safety measures, emergency plans and inspection routine(s).	Charles Town Utility Board, Jefferson County Homeland Security and Emergency Management, WVDEP, WVBPH	Ongoing		Personnel Time
Railroad Traffic	Work with the railroad company to create an emergency response plan in case a hazardous materials spill would occur to prevent or cleanup contamination of the source water.	n/a	Not Started		

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Table 9. Priority PSSC Management Strategies

PSSC or Critical Area	Management Activity	Responsible Protection Team Member	Status / Schedule	Comments	Estimated Cost
New Development Construction	Ensure sediment and erosion control measures are being instituted at construction sites. Monitor compliance with existing regulations through inspections and/or contact with regulatory agencies (WVDEP).	Charles Town Utility Board	Ongoing		Personnel Time
On-Site Septic Systems	Charles Town Utilities will work with the Health Department to the degree feasible to encourage homeowners to maintain and routinely inspect their septic systems or replace old or failing septic systems with Best Available Technologies (BATs). Outreach materials will encourage them to have their septic system inspected regularly and pumped every 5-10 years as needed. Also, the USEPA provides a complete guide for residents to maintain their septic systems, for the guide, visit: http://epa.gov/own/septic/pubs/homeownerguide long.pdf.	Charles Town Utility Board, Jefferson County Health Department, WVDEP-DWWM	Ongoing		Personnel Time

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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. Charles Town Utilities 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**.

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Table 10. Education and Outreach Implementation Plan

Education and Outreach Strategy	Description of Activity	Responsible Protection Team Member	Status / Schedule	Comments	Estimated Cost
Jefferson County Water Advisory Committee Participation	A representative from Charles Town Utilities will participate in the Jefferson County Water Advisory Committee. County Cleanup days, outreach, Shepherdstown day, 7 watershed groups coordinated	Charles Town Utilities	Ongoing	The Jefferson County Water Advisory Commitee meets the 3rd Wednesday of each month at the County Commission meeting room located at 200 E. Washington Street, Charles Town, WV	
Emergency Planning and Coordination	Participate with local fire departments and County Emergency Services on a regular basis. This will ensure that all the agencies are in constant communication with one another and prepared in the event of an emergency.	Jefferson County Office of Homeland Security and Emergency Management Citizens and Independent Fire Departments Charles Town Utilities	Ongoing	On-going training exercises by emergency services.	Minimal, staff time to attend meetings.
Clean Up Events	Coordinate with local Clean Up efforts and publicize projects. Work closely with Watershed Associations in this regard.	Charles Town Utilities	Not Started	Coordinate with local organizations and publish information on web page	
General Information Dissemination	Include educational information on the following topics on website for public use: Source water protection, water conservation, household hazardous materials disposal, pharmaceuticals disposal, observing and reporting spills/leaks.	Charles Town Utilities	Ongoing	Annual CCR	
Best Management Practices (BMP) lists	Distribute lists of industry specific BMPs to the owners of (1) Gas Stations, (2) Car Repair Shops, (3) Agricultural Lands/Facilities within the SWPA (Future Farmers, etc.) Provide SWPP education materials.	WVDEP and WVDHHR Charles Town Utilities	Not Started	Charles Town can make this information available via web links on their web page	

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Table 10. Education and Outreach Implementation Plan

Education and Outreach Strategy	Description of Activity	Responsible Protection Team Member	Status / Schedule	Comments	Estimated Cost
Display Information	(1) Include information materials (i.e. brochures, maps, etc.) in County and City Government offices and other public places (i.e. local fairs). Work with DOT for protection area sign expansion/coverage. (2) Host non-confidential SWPP online for public review and comment.	Jefferson County Office of Homeland Security and Emergency Management. Citizens and Independent Fire Departments Charles Town Utilities	Ongoing	On-going training excercises by emergency services	
School Curricula	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). Consider implementing in conjunction with City and County MS4 requirements.	WVDEP/WVDHHR Charles Town Utilities	Not Started	Coordinate with local organizations and publish information on web page	
School Curricula	In addition, the USEPA offers free educational materials for teachers and students, including classroom lessons, fact sheets, and interactive games and activities, for grades K-12. These materials can be accessed at the following websites. For general source water protection: http://www.epa.gov/safewater/kids/index.html. For water conservation: http://www.epa.gov/watersense/resources/educational_materials.html Similar protection and conservation related resources can be found at the Groundwater Foundation website; http://www.groundwater.org/kc/kc.html."	n/a	Not Started		
School Curricula	Visit school or invite students for a plant tour to tie in with school curricula.	n/a	Not Started		

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Table 10. Education and Outreach Implementation Plan

Education and Outreach Strategy	Description of Activity	Responsible Protection Team Member	Status / Schedule	Comments	Estimated Cost
School Curricula	Ask the school to include message in school newsletter to raise awareness about source water protection and conservation.	n/a	Not Started		
Public-Private Partnerships	Work in concert with private partnerships such as WV Rivers Coalition to implement programs like Safe Water for West Virginia. This program would include outreach to landowners to promote land conservation within the ZCC, ZPC and water shed to better improve overall water quality.	West Virginia Rivers Coalition	Ongoing	WV Rivers should take the lead on this item and implement a schedule moving forward.	Minimal, staff time to attend meetings.

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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 Charles Town Utilities 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.

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Table 11. Charles Town Utilities Water Shortage Response Capacity

Can the water utility isolate or divert contamination from the intake and groundwater supply?	Yes
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:	Isolation by electronically closing the drop gate of the intake to the wet well. Using the ICPRB real time tool, Charles Town is informed of contaminant migration from upstream via real time modeling. The ICPRB is capable of determining time of travel of contaminants to the Charles Town intake. This will allow them to plan when to shut down the drop gate of the intake to isolate and keep the system from taking in potential contaminants. In addition, they have an 1800 gpm trash pump that can be manually placed into the Shenandoah River with the suction approximately 20 feet from shore if the contaminants are not near the shore line.
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:	Potentially. Using the 1800 gpm portable trash pump the Utility can establish a temporary intake in the Shenandoah Rover close to the shoreline near the wet well. The utility currently has this capability, and exercises it during periods of frazil ice or heavy organic leaf buildup on the intake structure.
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?	Approximately 2.16 days (1,656,898 gpd average production, with current storage capacity of 3,572,000 gallons of treated water.
Describe the process to close the intake:	The intake pumps can be shut down and the intake structure has a drop gate that can be closed electronically from the treatment plant.
Describe the treated water system's storage capacity of the water system:	[redacted]
Gallons of storage capacity (raw water)	0
Gallons of storage capacity (treated water)	0
Is the Utility a member of WVRWA Emergency Response Team?:	No
Is the Utility a member of WV-WARN?:	Yes
List other agreements to provide receive assistance in case of emergency:	N/A

11.2. OPERATION DURING LOSS OF POWER

Charles Town Utilities 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?:		Yes	
Please provide a scenario that best describes your system:		Has standby generator, hard-wired and read to turn on. 3 phase Cummins 250 KW Model DQAC 1403873 Seriel # D140667237 (Spec H)	
What do you have (KW)?		250.00	
What do you need (KW)?		250.00	
Can you connect to a generator at the treatment facility?:		Yes	
Please provide a scenario that best describes your system:		Has standby generator, hard-wired and read to turn on. 3 phase Cummins 300 KW Model DQDAC 1344640 Serial# A140620402 (Spec G)	
What do you have (KW)?		300.00	
What do you need (KW)?		300.00	
Can you connect to a generator at the distribution system?:		Yes	
Please provide a scenario that best describes your system:		Has standby generator, hard-wired and read to turn on. Huntfield Booster Station 3 phase Cummins 100 KW, Northern High Zone Booster Station (Ranson) 3 phase Cummins 200 KW, Model DFGC2784250 Serial #L060003643 (Spec N), 1800 gpm trash pump (emergency pump)	
What do you have (KW)?		100.00	
What do you need (KW)?		100.00	
Does the utility have fuel on hand for generator?:		Yes	
Hours:		179	
Gallons:		550	
Provide a list of suppliers and alternate suppliers that could provide fuel in the event of an emergency:		Supplier	Phone Number
	Fuel	Roach Oil	(304)263-3329
	Fuel	Griffith Energy Services, Inc.	(240)416-2830
	Generator	WV National Guard	(304)267-2772
Does the utility test the generator(s) periodically?:		Yes	
Does the utility routinely maintain the generator(s)?:		Yes	
If the Utility does not have generator or the ability to connect to a generator, describe plans to respond to power outages:		In the event of a mechanical failure to the existing generators during an emergency, the system would need to obtain a Cummins Repair Technician, or obtain an equivalent emergency generator from a rental vendor or the National Guard, In the event another generator would be needed, an electrician would need to wire a the replacement generator into the system.	

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. Charles Town Utilities 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 Charles Town Utilities

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:	Yes, there is enough capacity to support more residential, commercial and industrial development within the service area. The following explains how this can be achieved: 1. The water plant can increase daily production hours (currently running at approximately 13.50 hours/day) to increase total water production for near future expansion needs. 2. With capital improvements to the water delivery system, the total amount of fresh water on hand will increase as the replacement piping projects continue. Thus, increasing available fresh water and future expansion.

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 Charles Town Utilities PSC Annual Report.

Table 14. Water Loss Information

Water pumped - Total Gallons:		590,272,000
*Water purchased - Total Gallons:		0
Total gallons of water pumped and purchased:		590,272,000
Total gallons of water loss accounted for except main leaks:	Mains, plaint, filters, flushing, etc - Total Gallons:	50,000
	Fire department - Total Gallons:	20,000
	Back washing - Total Gallons:	18,500

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	Blowing settling basins - Total Gallons:	15,000
Total Accounted for Water Loss		188,500
Unaccounted for lost water - Total Gallons:		39,876
Water sold - Gallons:		361,896,000
Water Lost From Main Leaks:		85,000
Total Gallons of Unaccounted for Lost Water and Water Lost from Main Leaks:		124,876
Total percent unaccounted for water		6.76%
Describe the measures to correct water loss greater than 15%:	The utility is continuing with planned capital improvements of approximately $5,000,000. The improvements consist of replacing piping in the older sections of the water system.	

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.

Charles Town Utilities 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**.

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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?			Notifications are received from the WVDEP, WVDHHR and the WV Office of Homeland Security and Emergency Management. In addition the state of Virginia provides notifications as well as the Interstate Commission on the Potomac River Basin (ICPRB).
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
	Pace Analytical Services - Rapid Response Line		(877)859-7778
	HydroChem Laboratories		(304)725-6174
Do you have an understanding of baseline or normal conditions for your source water uality 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:			Continuously test for turbidity in raw water and chlorine levels in finished water with HACH equipment. Daily grab samples for pH, turbidity, temperature, total organic carbon, alkalinity and hardness; monthly grab samples for cryptosporidium and E. Coli are being collected, yearly periodic grab for nitrate, nitrite, VOCs, SVOCs and Metals.
Provide or estimate the capital and O&M costs for your current or proposed early warning system or upgraded system.	Capital Cost:		15,000
	O&M Cost:		3,000
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
Please describe the methods you use to monbitor at the same technical levels utilized by ORSANCO:			

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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**.

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13.0 COMMUNICATION PLAN

Charles Town Utilities 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. Charles Town Utilities 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 Charles Town Utilities 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.

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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.

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15.0 CONCLUSION

This report represents a detailed explanation of the required elements of Charles Town Utilities'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.

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APPENDIX A. FIGURES AND TABLES

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Water Source / Delineation

Surface Water Sources

Intake: Shenandoah River

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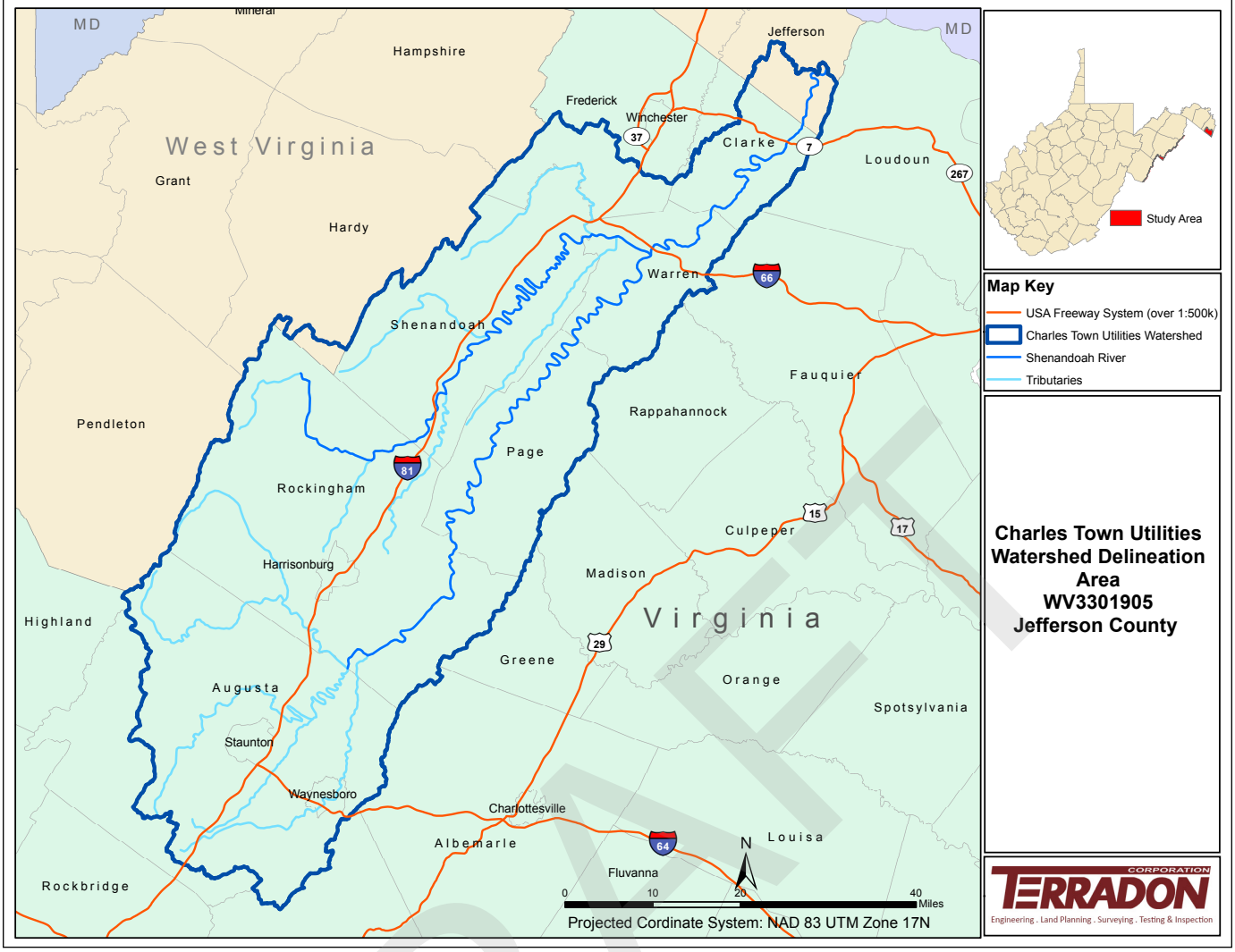
Map of watershed delineation area



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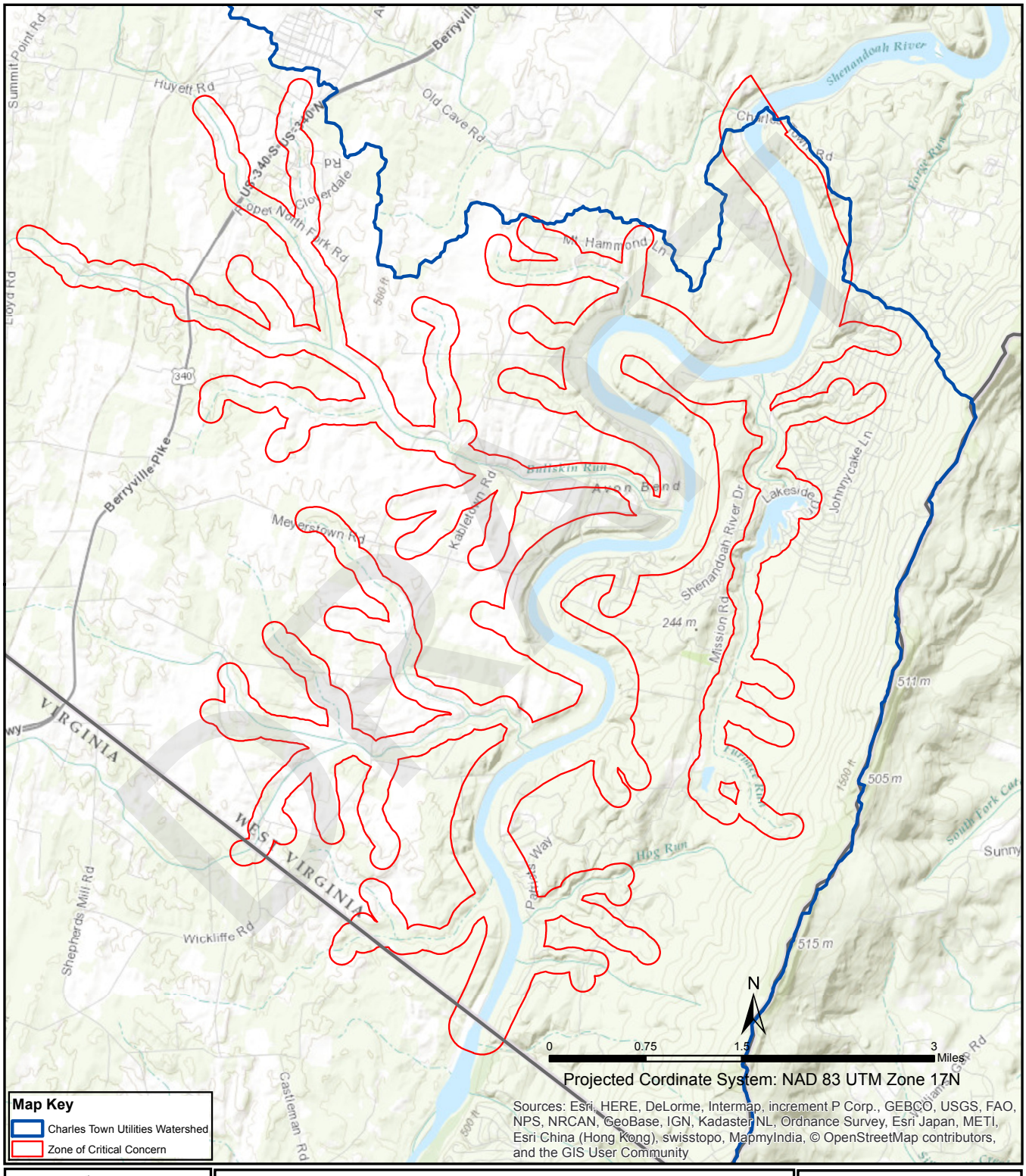
Map of zone of critical Concerns



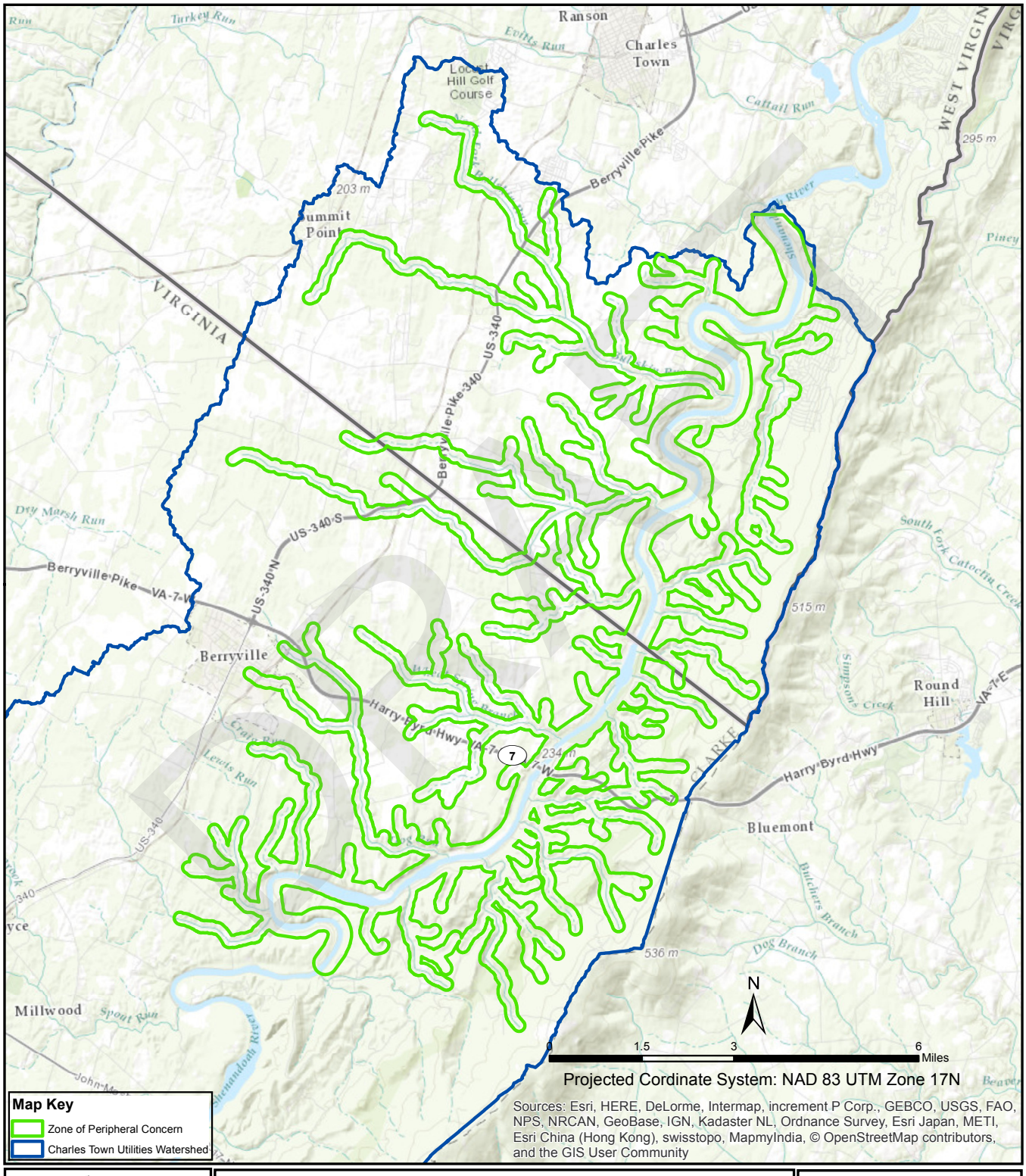
Charles Town Utilities Zone of Critical Concern

WV3301905

Jefferson County

TERRADON CORPORATION
Engineering . Land Planning . Surveying . Testing & Inspection

Map of zone of peripheral Concerns



Charles Town Utilities Zone of Peripheral Concern

WV3301905

Jefferson County

TERRADON CORPORATION
Engineering . Land Planning . Surveying . Testing & Inspection

PSSC Maps

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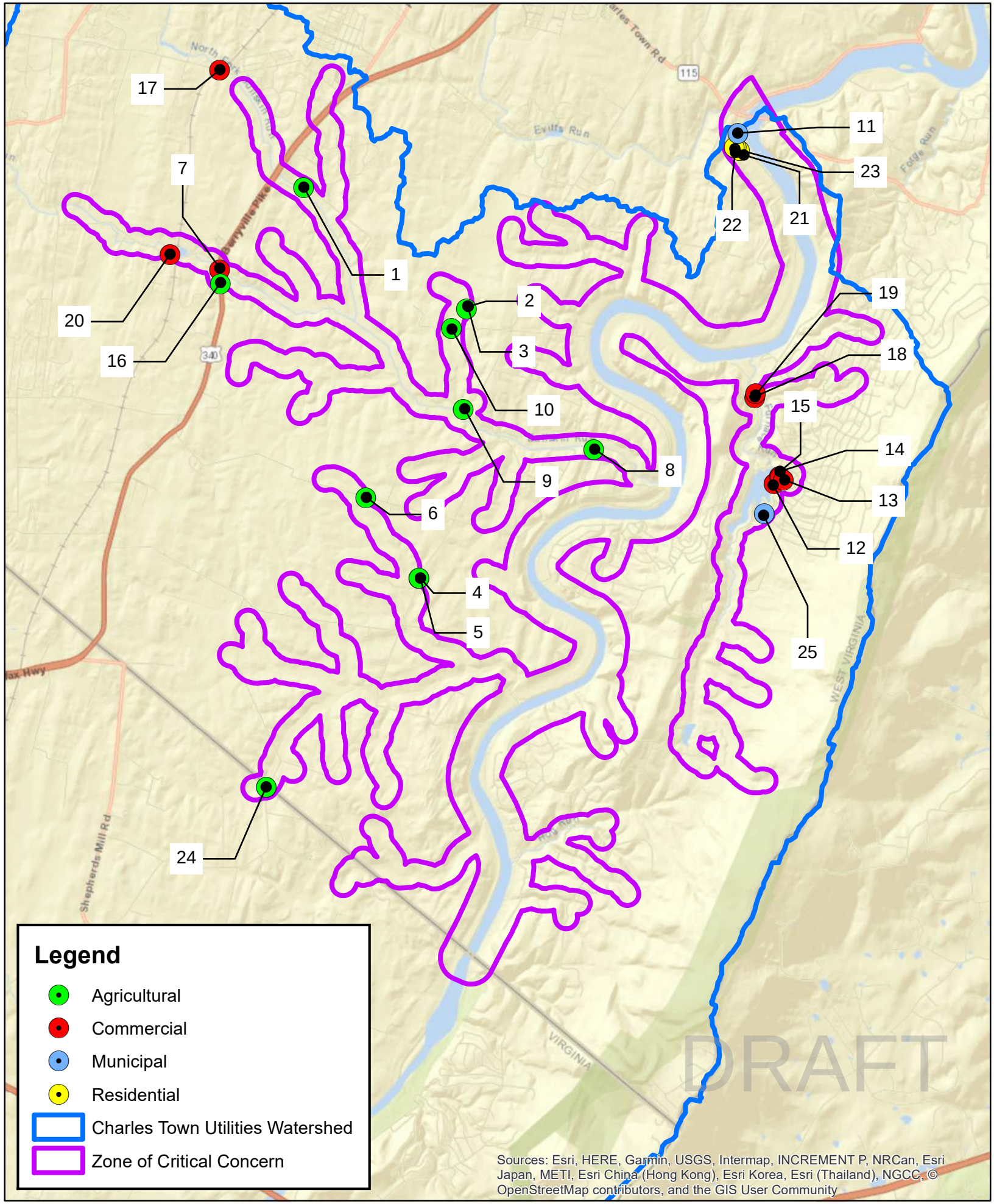


Dewberry

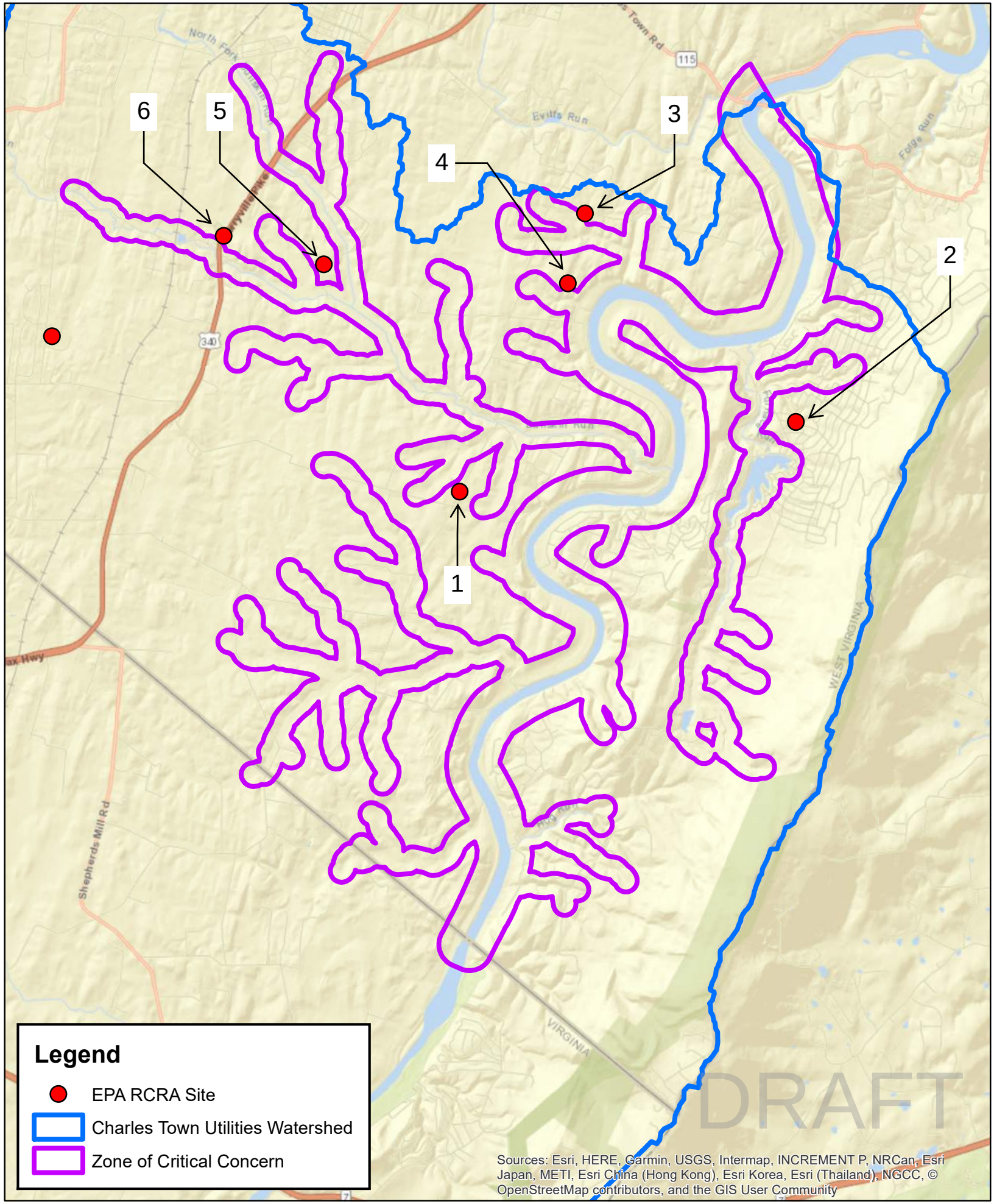
0 0.25 0.5 1 Miles

N W E S

DATE April 2024

TITLE *Unregulated Potential Sources of Contamination*

WV3301905 - Jefferson County



Dewberry

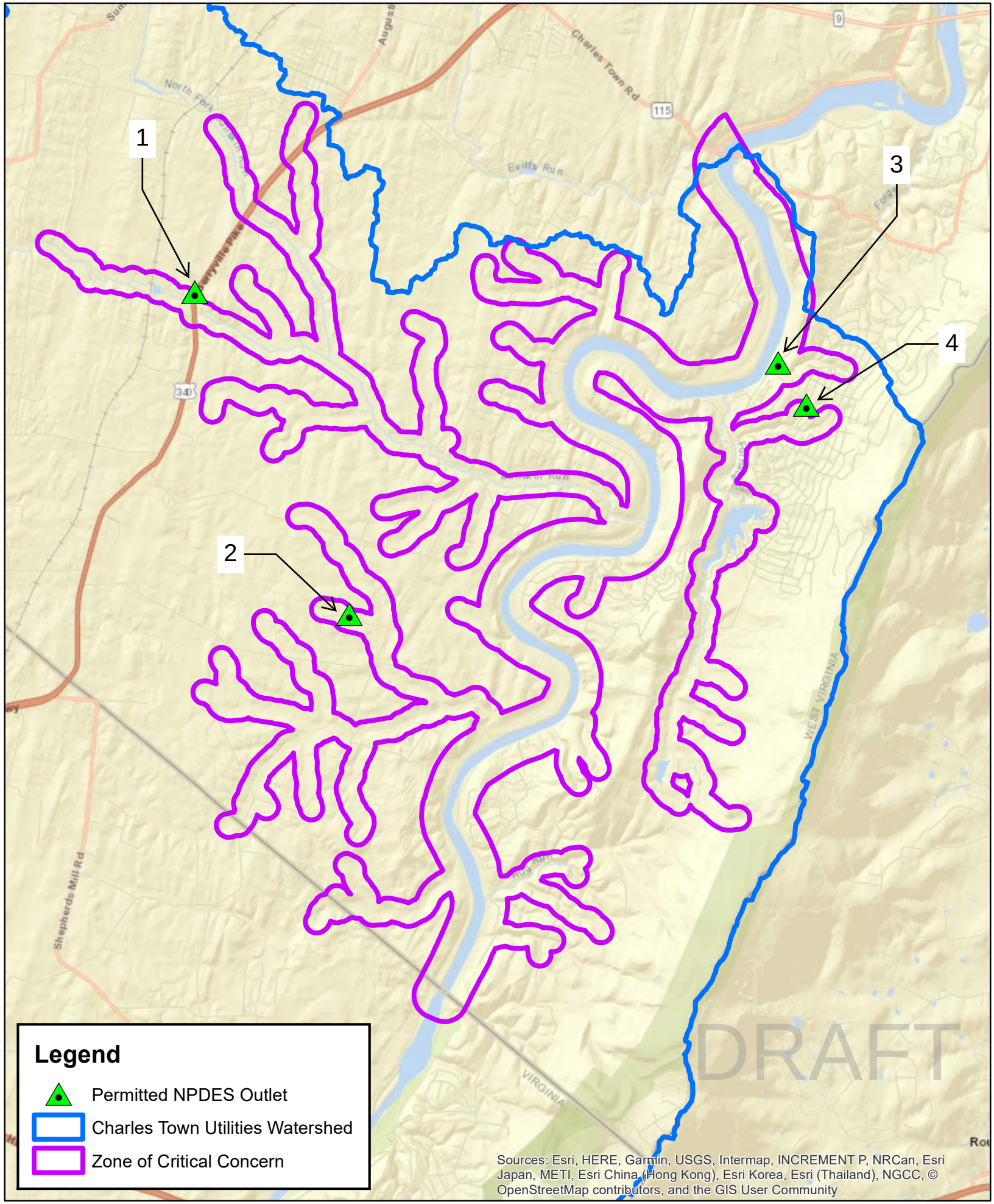
0 0.25 0.5 1 Miles

N W E S

DATE: April 2024

TITLE: EPA RCRA Sites

WV3301905 - Jefferson County



Dewberry

0 0.25 0.5 1 Miles

N W E S

DATE: April 2024

TITLE: Permitted NPDES Outlet

WV3301905 - Jefferson County

PSSC Lists

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Charles Town Utility Board
Source Water Protection Plan
Local & Regional PSSC List - April 2024

PSSC Number	Site Name	Site Description	Source Category	Associated Chemicals	Threat to GW	Threat to SW
1	Pasture	Animal Feedlots	Agriculture	NN MP TO	H	H
2	Crop Fields & Feed Lot	Animal Feedlots	Agriculture	NN MP TO	H	H
3	Crop Fields & Feed Lot	Crops, corn soybeans, wheat	Agriculture	NN MP TO	H	H
4	Cattle Pasture & Small Feed Lot w/Barn	Animal Feedlots	Agriculture	NN MP TO	H	H
5	Soybean Field	Animal Feedlots	Agriculture	NN MP TO	H	H
6	Corn Field	Crops, corn soybeans, wheat	Agriculture	NN SOC MP	L	L
7	Dave's Auto Repair & RV Sales	Car dealership	Commercial	PH VOC	H	L
8	Avon Bend Farm	Drainage Canals	Agriculture	T	L	L
9	Silos and Storage Area on Private Property	Pesticide, fertilizer, petroleum and trans.	Agriculture	PN NN SOC VOC	L	L
10	Oakwood Farm Dairy and Taylor Mountain Farm	Pasture	Agriculture	MP SOC	L	L
11	Water Intake Supply	Other	Municipal	Null	Null	Null
12	Lakeshore Grille and Restaurant	Other	Commercial	Null	Null	Null
13	Old Lake Lodge at Shannondale - Closed	Other	Commercial	Null	Null	Null
14	Old Lake Lodge at Shannondale - Closed	Other	Commercial	Null	Null	Null
15	Old Lake Lodge at Shannondale - Closed	Other	Commercial	Null	Null	Null
16	Wheatland Horse Farm	Pasture	Agriculture	MP SOC	L	L
17	Railroad tracks crossing stream	Railroad tracks and Yards	Commercial	PH M VOC HM SOC	H	H
18	Shannondale Springs Wildlife Management Area	Marina/boat docks	Commercial	PH	L	H
19	Grammy's Place Daycare - closed	Other	Commercial	Null	Null	Null
20	Railroad tracks crossing Bullskin Run near Wheatland	Railroad tracks and Yards	Commercial	PH M VOC SOC	Null	Null
21	Trailer Community	Residential (single family homes)	Residential	VOC SOC NN	H	H
22	House	Septic Systems (leach field)	Residential	MP VOC SOC TO NN	H	H
23	House	Residential (single family homes)	Residential	VOC SOC NN	H	H
24	PCS #12	Crops, corn soybeans, wheat	Agriculture	NN SOC MP	H	H
25	Private Home at 1043 Lakeside Drive	Wells: abandoned	Municipal	VOC SOC MP PH NN	H	L

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Charles Town Utility Board
Source Water Protection Plan

EPA RCRA Site PSSC List - April 2024

PSSC Number	Primary Name	Location	City	FIPS Code	HUC Code	Create Date	Update Date
1	Rhodrick Property UST Removal	3178 Kabletown Road	Charles Town	54037	2070007	11/27/2019	NULL
2	John Satterwhite	2 Red Oak Road	Harpers Ferry	54037	2070007	11/27/2019	NULL
3	Mark Cooke Residence	8 Runny Meade Road	Charles Town	54037	2070007	11/27/2019	NULL
4	NU Look Cleaner No. 19	Hillendale Shopping Center	Charles Town	54037	2070007	11/27/2019	NULL
5	Mark Stolipher	1599 Roper North Fork Road	Charles Town	54037	2070007	11/27/2019	NULL
6	W.A. Chester	3607 Berryville Pike	Charles Town	54037	2070007	11/27/2019	NULL

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Charles Town Utility Board
Source Water Protection Plan

EPA NPDES Outfalls PSSC List - April 2024

PSSC Number	Permit Number	Facility Name	Description	TC Description	Permit Type	IUT Description	RP Name
1	1003-06-037	Rainbow Diner/Truck Stop	Septic Systems	Renewed	UIC Sewage	Injection Point	340 Rainbow LLC
2	WVSG10026	Snyder Environmental Holdings LLC	Sludge/Septic Land Disposal	Renewed	Sewage	Land/Farm/Field	Snyder Environmental Services, Inc.
3	WVG870001	Black Fly/Gypsy Moth Programs	Pesticide	Renewed	Industrial	Outlet	WV Dept. of Agriculture
4	WVG416832	Pristine Homes LLC	Home Aeration Unit	New	Sewage	Outlet	Pristine Homes LLC

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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.

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Appendix B - Form B
Proposed Ground Monitoring Worksheet

Describe the type of early warning detection equipment that could be installed, including design:
Since the previous document's publication, CTUB has installed a HACH source water panel. This panel provides real-time monitoring for temperature, pH, dissolved oxygen, conductivity, oRP, turbidity and includes an "oil in water" sensor which is capable of notifying staff if petroleum products are detected in the raw water. This panel along with our SCADA system provides operators with up to the minute alerting for contamination events that could occur in the source water.
Where would the equipment be located?:
The source water panel has been installed and in use since May of 2020 and is located in the upper level of the source water intake structure.
What would the maintenance plan for the monitoring equipment entail?:
The source water panel is under contract with the manufacturer (HACH) to perform all maintenance and calibration.
Describe the proposed sampling plan at the monitoring site:
All parameters analyzed for in the source water panel are logged to our existing SCADA network. Alarms are set to notify the operator on duty of any changes to the source water which may indicate a potential contamination event.
Describe the proposed procedures for data management and analysis:
Data taken from the source water panel is logged in our existing SCADA system. This allows us to note trends in the source water, this allows us to plan for and respond to events outside of "normal" trends that can be expected due to excess rainfall and seasonal changes.

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APPENDIX C. COMMUNICATION PLAN TEMPLATE

Charles Town Utilities PWSID: **WV3301905**

Authorizing Signature: **Kristen Stolipher**

Contact Phone Number: **(304) 724-7080**

Contact Email Address: **kstolipher@ctubwv.com**

Plan Developed On: **April 2024**

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.

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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 = **A**nnouncement. 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 = **B**oil 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 = **C**annot 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 = **D**o 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 = **E**mergency. Water cannot be used for any reason.

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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
Kristen Stolipher	Charles Town Utilities	(304)724-7080	kstolipher@ctubwv.com
John Nissel	Charles Town Utilities	(304)725-2311	jnissel@charlestownwv.us

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.

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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

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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:	Kristen Stolipher	(304)724-7080	kstolipher@ctubwv.com
Alternate spokesperson:	John Nissel	(304)725-2311	jnissel@charlestownwv.us
Designated location to disseminate information to media:	Charles Town Utility Board 661 South George Street, Suite 101 Charles Town, WV 25414		
Method of Contact:	Word of Mouth Posted Notices Door-to-door canvasing Radio advertisements. newspaper Auto Dialer		

Media Contacts:	Name	Title	Phone Number	Email
	Bill Kohler, The Herald Mail	Editor	(301)733-5131	billk@herald-mail.com
	The Journal		(304)263-8931	
	Spirit of Jefferson	Publisher	(304)725-2046	editor@spiritofjefferson.com
	WKMZ Radio		(304)263-6586	info@talkradiornr.com
	WEPM 1340		(304)263-8868	
	WYII		(304)263-0637	
	WHAG Channel 25		(301)797-4400	

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Emergency Service Contacts

	Name	Emergency Phone	Alternative Phone	Email
Police	WV State Police	(911)___-_____	(304)725-9779	
Fire	Citizens Fire Company	(911)___-_____	(304)725-2814	
Ambulance	Jefferson County Ambulance Authority	(911)___-_____	(304)728-3287	
Hazmat	Stephen Allen, Director JCOHSEM	(911)___-_____	(304)728-3290	sallen@jeffersoncountywv.org
Other	Jefferson County Sheriff, Tom Hansen	(911)___-_____	(304)728-3205	thansen@jcsdwv. com
Other	Charles Town Police Department, Chief Chris Kutcher	(911)___-_____	(304)725-2714	ckutcher@charlestownwv.us.com

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Sensitive Populations

Other Communities that are served by the Utility:	Hospital, Nursing Homes, City of Ranson, Jefferson County Schools, and Charles Town Races			
Major User/Sensitive Population Notification	Name	Emergency Phone	Alternative Phone	Email
	Jefferson Memorial Hospital		(304)728-1600	
	Blue Ridge Care & Rehabilitation Center/Willowtree Manor		(304)725-6575	
	Genesis healthcare/Shenandoah Health Village Center		(304)724-1101	
	City of Ranson		(304)724-1101	
	Wright Denny School, Charles Town Middle (Jefferson County Schools) Brandon Caton		(304)725-5711	
	Charles Town Races Donald Godfrey		(304)886-9749	
EED District Office Contact	Name	Phone	Email	
	Justin Jordan	(304)725-9453	Justin.e.jordan@wv.gov	
OEHS Readiness Coordinator	Lee Orr	(304)356-4290		

Downstream Water System Contacts	Water System	Contact Name	Emergency	Alternate Phone	Email
	City of Brunswick, MD	Patrick Hoffmaster		(301)834-7671	
	City of Fredrick, MD	Ben Arneson (Superintendent of Water Maintenance)		(301)600-1681	susans@cityoffrederick.com
	Sandy Hook Water System	Kim Bowers		(240)313-2600	
	Petersville, MD			(301)834-7500	

Are you planning on implementing the TIER Communications plan?:	Yes

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Emergency Service Key Staff Members

Key Staff Responsible for Coordinating Emergency Response Procedures:	Name	Title	Phone	Email
	Kristen Stolipher	Utility Manager	(304)724-7080	kstolipher@ctubwv.com
	Chris Hutzler	Chief Operator	(304)725-3761	chutzler@ctubwv.com
Staff Responsible for Keeping Confidential PSSC Information and Releasing to Emergency Responders.	Kristen Stolipher	Utility Manager	(304)724-7080	kstolipher@ctubwv.com

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Emergency Response Information

List Laboratories available to perform sample analysis in case of emergency.	Name	Phone
	HydroChem Laboratories	(304)725-6174
	Pace Analytical	(877)859-7778
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		X
When was the emergency response plan developed or last updated?: 2021		X

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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/pswicheck/

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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: _____

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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: _____

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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: _____

DRAFT

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: _____

DRAFT

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, olors, 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: _____

DRAFT

APPENDIX D. SINGLE SOURCE FEASIBILITY

Water Source Alternative:

Did not complete the alternative source study	
Name of Alternative:	Installed 1,000,000 gallon finished water tank.
Brief Description of the Alternative:	Installed 1,000,000 gallon finished water tank.
Feasible?:	No
Provide Cost Estimate:	$0
Would this alternative supply 100% of your needs?:	No
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%

DRAFT

Section 4
WATER TREATMENT PLANT IMPROVEMENTS

A. General

This chapter contains a detailed list of recommended improvements that should be made to the Charles Town Water Treatment Plant. The effective capacity of the plant was reviewed and the current regulatory environment was summarized with respect to the potential impact on treatment requirements. The chapter also presents options for increasing the treatment capacity and includes a review of alternative treatment processes.

B. Capacity Assessment

The average plant production is 1.7 MGD. This number has been fairly consistent over the past few years, even as the population has increased. This is attributed to the lower percent lost water number. The City still strives to reduce the lost water percentage and plan to implement projects such as lead service lateral replacements, meter upgrades, main replacements, etc., over the next few years.

Due to the current Ranson and Charles Town population growth percentages, GD&F recommends assuming that the water plant production will increase by about 15% in the next 10 years, and subsequent ten-year periods. At this projection, the following average daily demands will be anticipated over the next 30 years. In 2032 the estimated average daily demand would be 1.955 MGD, in 2042 it would be 2.24 MGD and in 2052 it would be 2.58 MGD. It is also recommended to implement a plant peak factor of 1.42. This would then yield the plant design value for each year. Based on this peak factor, the following plant maximum flow rates over the next ten years can be computed as follows: 2.78 MGD in 2032, 3.18 MGD in 2042 and 3.66 MGD in 2052.

According to the WV Department of Health, they would prefer that water treatment facilities operate for no more than 16 hours per day. This gives the operators at least one (1) eight-hour shift to address any major issues or make repairs while the plant is offline. Thus, the treatment facility should be designed to produce 2.58 MG in sixteen (16) hours. This equates to a plant flow rate of 3.87 MGD. Since this value is larger than the 3.66 MGD calculated using the peaking factor, the higher of the two (2) numbers should be used. GD&F recommends utilizing 3.8 MGD, which is 1.0 MGD greater than the current WTP. This should be the design flow rate of the new water treatment facility.

C. Treatment & Regulatory Goals

1. Status of Regulations

The United States Environmental Protection Agency (USEPA) is in a continuous process of modifying and expanding drinking water regulations under the 1986 Safe Drinking Water Act (SDWA) and its subsequent amendments. Rules that are now in effect provide two levels of criteria that comprise the primary and secondary drinking water standards. Primary Drinking Water Standards are based on health-related criteria that require mandatory enforcement by state primacy agencies (West Virginia Department of Health and Human Resources). Secondary Drinking Water Standards are based on criteria that are intended to control water aesthetics (i.e. color, taste, odor) and do not pose a health

risk at levels realized in nearly any type of source water. Unlike primary standards, parameters developed as secondary standards are established as guidelines to be enforced at the discretion of the state primacy agency, but are not required in order for the agency to maintain primacy. Although parameters governed by secondary standards are not health-based, they can have a significant effect on customer satisfaction. Secondary standards include parameters such as color, taste and odor, iron, and manganese.

Two (2) primary drinking water regulations especially critical for both current compliance and for planning at the CTWTP in the near future include:

- Surface Water Treatment Rule (SWTR) and Enhanced Surface Water Treatment Rules (ESWTR), which provide for protection against microbial pathogens with specific criteria for *Cryptosporidium*, Giardia, viruses and Legionella.

- Disinfection Byproducts Rules, which regulate disinfectant residuals and disinfection byproducts that are formed by reactions of various disinfecting agents with constituents in water.

The ESWTR consists of the Interim Enhanced Surface Water Treatment Rule (IESWTR), the Long-Term 1 Enhanced Surface Water Treatment Rule (limited applicability to the Charles Town system) and the Long-Term 2 Enhanced Surface Water Treatment Rule. The IESWTR regulations require filtered water turbidity < 0.3 NTU in at least 95 percent of samples taken each month, with established action limits for turbidity excursions over shorter periods of time. In addition to these turbidity criteria, the West Virginia Bureau of Public Health encourages utilities to meet goals established by the Partnership for Safe Water, a cooperative effort between the USEPA and the American Water Works Association (AWWA). These criteria have established a more stringent, voluntary turbidity goal of less than 0.1 NTU in at least 95 percent of samples.

The third part of the ESWTR regulations are the Long-Term 2 Enhanced Surface Water Treatment Rule (LT2ESWTR). This regulation requires varying levels of treatment depending on the potential risk of *Cryptosporidium* in a source water. Under the LT2ESWTR, the amount of *Cryptosporidium* risk is classified into "bin categories" that are determined based on the extent to which sampling shows *Cryptosporidium* to be present in raw water. Based on early sampling of larger water systems, many utilities find they do not have significant levels of *Cryptosporidium* in the raw water, placing most utilities in a Bin 1 classification. Plants that fall into a Bin 1 classification are not required to add any additional treatment beyond meeting the turbidity limits set forth in the IESWTR.

The City's recent testing resulted in a Bin 1 classification; however, the raw water source will continue to be subjected to future testing.

The disinfection byproduct regulations consist of the Stage 1 Disinfectant/Disinfection Byproduct Rule (D/DBPR) and the Stage 2 D/DBPR. The Stage 1 DBPR includes requirements for total organic carbon (TOC) removal as well as for control of disinfection byproduct formation in the system. TOC removal requirements are based on the TOC concentration and the alkalinity in the raw water. The Shenandoah River in the area of

the City's intake typically has alkalinity levels of greater than 120 mg/L and TOC levels ranging from 2 to 4 mg/L. At these raw water conditions, 15 percent TOC removal is required to comply with the Stage 1 D/DBPR. The City routinely complies with this TOC removal percentage. However, additional TOC removal is currently required such that the chloramination process can be eliminated.

The Stage 1 D/DBR also set disinfection byproduct limits of 80 µg/L and 60 µg/L, respectively, for total trihalomethanes (TTHMs) and haloacetic acids (HAA5s) on a system-wide average basis over four (4) consecutive quarters. Stage 2 of the Disinfectants/Disinfection Byproducts Rule has strengthened the regulation to require compliance with these levels on a four-quarter running average basis at a variety of sampling locations within the distribution system.

The EPA uses the Unregulated Contaminant Monitoring Rules (UCMRs) to collect data for suspected contaminants in drinking water that do not currently have health safety standards. The EPA is currently up to their 5th round of such testing/monitoring. Most of these focus on various organic contaminants such as endocrine disrupters, pharmaceuticals and personal care products. These are possible candidates for future regulations.

2. Treatment Goals

Gwin, Dobson & Foreman, Inc., has developed treatment goals to form the basis for evaluation of potential treatment process sequences. A list of goals is provided in Table 4. These goals were dictated by the aforementioned regulations and provide a set of criteria that must be reached to avoid non-compliance as well as exceed the minimum removal required to satisfy the regulatory requirements of some key water quality parameters. These higher goals were set to either assure customer acceptance from an aesthetic standpoint or to provide greater comfort and assurance with respect to public health.

Table 4: Charles Town Potable Water Quality Goals

Parameter	Goal
Settled Turbidity	<1.0 NTU
Finished Turbidity	<0.10 NTU
Giardia/Cryptosporidium	Multiple Effective Barriers – 4-log removal
LRAA TTHM (Median 4-qtr LRAA)	≤60 µg/L
LRAA HAA5 (Median 4-qtr LRAA)	≤45 µg/L
TOC Removal % (12-month median)	15-25% Pretreatment [25-75% with GAC]
Iron	<0.10 mg/L
Manganese	<0.02 mg/L
Color	≤5 pcu
Lead (90th Percentile)	0.005 mg/L
Copper (90th Percentile)	0.4 mg/L
Distribution Microbials	Limit Regrowth
System Corrosion/Discoloration	Minimize

D. Discussion of Treatment Facility Needs

The existing treatment facility does not consistently meet the settled turbidity or finished water turbidity treatment goals. The process wastewater recycle process is the leading factor to this problem. The settled TOC values are just barley being met, additional TOC removal is necessary to eliminate chloramination and effectively reduce the disinfection byproducts.

Another treatment goal where there is concern between the treatment goal and the CTWTP is the barriers for Giardia and *Cryptosporidium*. The design and operation of the existing sedimentation basins and media filters create a situation where they may not be serving as consistent barriers to Giardia and *Cryptosporidium*. A discussion of these problems occurs in the following parts of this section.

1. Raw Water Intake

As mentioned previously, the CTWTP currently draws water from the Shenandoah River. The intake structure is located approximately six (6) inches above the river bottom. At this location, the historical minimum depth of the river is approximately five (5) feet. The raw water intake system consists of raw water screens and a conveyance pipe leading to the pump station.

Raw Water Screens

The incoming water is screened through a single stainless steel tee and then conveyed through approximately 560 feet of 20-inch diameter ductile iron pipe which crosses the river bottom to reach the raw water pumping station. The intake structure has a reported capacity of 4.7 MGD. At this flow, the velocity through the screen is 0.52 ft/sec.

Flow velocities through intake screens are typically designed to be less than 0.5 ft/sec to minimize the impact to aquatic life and also to ensure a uniform flow pattern through the screen. If the flow were to increase significantly above 0.5 ft/sec its operation would be more difficult and impact to the aquatic life may be noticed.

Solids that accumulate on the submerged intake screen due to the suction are removed using an air burst system. This system delivers strong pulses of high pressure air across the screen to remove debris. Operators have reported that, at times, the air burst system performs poorly, especially at times of high turbidity. During turbidity events, the air burst system must be used very frequently (approximately every 5 minutes) to ensure the intake does not become clogged.

The intake has experienced a significant problem with the accumulation of frazil ice (similar characteristics to a "slushee") on the screen. This accumulation is caused by super-cooled water that freezes in the quiescent water, using the screen as a base. This problem can be addressed by a new fully functioning and redundant airburst system that could periodically be used in cold weather to prevent the formation of the frazil ice.

Currently, there are no regulations/limitations regarding the volume or rate of water the City can pull from the Shenandoah River. Flow in the river is more than adequate to meet the increasing water demands of the service area. The lowest flow on record in the Shenandoah at the Millville gauging station was 126 MGD, measured on July 24, 1930 (Chester Engineers, 2001). However, as noted above, the intake and screen structure will need to be expanded at the same time as the treatment plant to provide adequate capacity.

Screen and Airburst System

A second redundant tee screen, supply line and concrete debris deflector are recommended such that there is adequate supply of raw water to the treatment plant.

The existing intake structure and pump station were designed and built with cut-outs for relatively easy placement of a second intake pipe. Adding a second 20" intake pipe at the time of plant expansion will ensure that flow velocities within the pipe and within the intake screens remain below engineering limitations and will provide redundancy. Also, the existing 20” wet well supply line knife gate valve should be replaced due to its current age and condition.

A new automatic air burst screen cleaning system should also be installed for each of the two (2) screens with new stainless steel air supply lines. A level sensor should also be added to the wet well and everything should be tied into the plant SCADA system. The airburst system can then automatically airburst the screens in the event of a low wet well level.

A new upstream tee screen concrete diversion structure should be installed out in the river to protect the integrity of the screens and consist of a grated top to keep the leaves and other debris from clogging the screens. This would require a permit through the Army Corps of Engineers. Refer to Appendix A for an example of a new concrete debris deflector with secondary screen.

2. Raw Water Pumping

Water is conveyed from the intake to the raw water pumping station on the west bank of the river. The pumping station consists of two (2) 125 horsepower pumps, with a combined capacity of approximately 6 MGD. As a result, the firm capacity of the pumping station, with one pump out of service, is approximately 3 MGD. Raw water from the pumping station is pumped through a 7,400 foot, 16-inch DIP to the treatment plant. The pumps have been rebuilt several times and are currently scheduled to be rebuilt this year. The pump motors may be original and should be replaced as part of the upgrade project.

Pump Station

Based on projected demand increases, the firm capacity of the raw water pumps will meet the potable water demands for the foreseeable future.

Conveyance Pipe

Calculations of headloss and velocity were done to assess the capacity of the existing 16-inch DIP. It was concluded that the 16-inch diameter raw water conveyance pipe is more than adequate to meet the future demands of the system.

3. Rapid Mix

The existing inline static mixer is 16" diameter and was replaced several years ago. A new inline static mixer should be considered in the upgrade project sized for the maximum plant capacity.

4. Flocculation & Sedimentation

a. Flocculation

Following rapid mix, flow is split into two (2) dual stage flocculation basins. The detention time in the flocculation basins at peak production capacity is 30 minutes. The basins contain vertical paddle wheel mixers with variable speed drives. Currently, the performance of the flocculation basins is satisfactory.

The flocculation basins were constructed in 2016 and are in relatively good physical condition. However, increasing the capacity of the plant would ultimately require an increase in volume of the flocculation basins to meet treatment goals. Consideration should be given to keep the existing treatment plant in operation while constructing new flocculation basins.

b. Sedimentation Basins

Flocculated water flows to two (2) parallel sedimentation basins. Both basins are fitted with inclined plate settlers. The detention time in the basins at peak capacity is approximately two (2) hours.

Both sedimentation basins were constructed in 2016 and are in good physical condition. When the settled solids are adequately removed, the sedimentations basins can produce settled water with turbidities less than 1 NTU. However, there are often significant basin performance issues when solids accumulation at the bottom of the sedimentation basins is excessive. As such, solids removal is critical to the overall performance of the facility, and, as plant data has shown, inadequate solids removal in the sedimentation basin results in floc carry over to the filters and potential turbidity breakthrough. Another issue is the overall size of the existing sludge thickener tank. This tank is currently undersized and is the limiting factor in the operators being able to adequately remove sludge from the basins.

The current sludge processing process is not working very effectively. Solids have to be constantly and consistently hauled offsite for further processing.

The existing sedimentation basins also lack proper detention time. It is recommended that a minimum of four (4) hours of detention time for proper solids settling be implemented. Also, the incline plate settlers appear to work fine; however, they are difficult to clean. The current sludge vacuum system has had its share of problems. Currently, there is no way to drain the flocculation tanks or sedimentation basins. The basins are currently full of bio-growth.

Consideration should be given to new sedimentation basins with at least four (4) hours of contact time between the existing and new basins combined. The new basins should be equipped with fiberglass chain and scrappers and a sludge hopper area. Automated drain valves and flow meters should be installed to displace the accumulated sludge from the basins. FRP weirs and troughs should be installed along with a new effluent channel and level sensor. See attached Appendix B for typical flocculation and sedimentation basin drawings.

5. Filtration

After sedimentation, the water is passed through one of four (4) multi-media filters. The filters operate in a declining rate mode of filtration; the water level in all four filters is the same and more water simply passes through the cleanest filter. As a result, under this mode of operation, the filters do not have individual flow control. The filter boxes are designed to allow the common water surface level to fluctuate as overall (or average) headloss through the filters varies. The water level rises as the filters become dirty and the overall headloss increases and reaches a point where the dirtiest filter must be backwashed to reduce headloss. Low headloss levels must also be managed to reduce the potential for an excessive filtration rate. Filter backwash water is currently recycled back to the headworks of the plant. It is recommended to replace the conventional filters with a new low pressure microfiltration membrane system. Refer to the Alternatives Evaluation section of the report for more information.

6. Clearwell

A legacy baffled clearwell of 36,000 gallons is still used immediately after the filters. Filtered water is pumped to a new 1.0 MG clearwell which provides storage of treated water prior to distribution via the finished water pumps. The clearwell also provides disinfection contact time to meet the associated regulatory requirements. The WTP clearwell is a circular concrete structure with a submersible mixer. The associated tank baffling factor is 0.10, thus the effective clearwell volume is 100,000 gallons. Between the old and new clearwell, the minimum 0.50 log inactivation is easily achieved. The old clearwell should be abandoned as part of the plant upgrade. The newer 1.0 MG clearwell will provide sufficient chlorine contact time to meet the anticipated future demands. The existing legacy clearwell should be abandoned. To facilitate better baffling, the submersible mixer should be removed in the new 1.0 MG clearwell and an interior tank baffle wall should be added between the tank inlet and outlet pipes. A mixer can promote short-circuiting and lead to a reduced baffling condition.

7. Finished Water Pumping

Following the clearwell, finished water is pumped and metered to the distribution system. The finished water pumping system consists of two (2) 150 HP, manually-controlled, horizontal centrifugal pumps rated 1,945 GPM at a TDH of 229 feet. The pumps were installed in a new Pump Building in 2016. Pump operation is based on maintaining a desired water level in the Route 9 storage tank.

The pumping system has met the needs of CTWTP; however, the firm capacity of this pumping system is 2.8 MGD. As water demands increase, this capacity will be insufficient and these pumps and their associated electrical items will need upgraded.

8. Chemical Feed Systems

Refer to previous Section 3 for additional information.

9. Residuals Handling and Disposal

Residuals handling primarily involves removing solids from the sedimentation basins which are conveyed to a sludge thickener tank. The decant water is recycled back to the head of the plant. The solids are currently being disposed of offsite to either the existing Charles Town Wastewater Treatment Facility or to another sewer plant for processing. Hauling and disposal costs vary based on the amount of solids produced.

In terms of alternative residual handling alternatives, there is no public sewer connection available at the treatment plant to convey plant solids and residuals to a wastewater treatment facility. The current CTUB sewer system; however, is within one (1) mile of the water treatment plant. Construction of a sewer line from the WTP property to the existing CTUB sewer is a viable option for solids disposal. Alternatively, CTWTP could pursue a NPDES permit and return all liquid waste to the Shenandoah River. However, the NPDES option would require the construction of concrete bottom lagoons for solids drying and over a mile of gravity piping. These dried solids would also then need to be periodically disposed of.

Currently, filter waste water is recycled to the head of the plant, which typically degrades the quality of the plant influent and provides the potential for particulates and pathogens removed by the filters to be recycled back to the head of the plant.

10. General Facility Issues

The CTWTP was constructed in 1990, and, as such, it has been in operation over thirty years. While the physical condition has been maintained, many of the original plant components are in need of modernization and upgrade to accommodate increased production requirements and enhanced water quality goals.

a. Condition of treatment structures and buildings

There are no known or obvious structural issues at the plant site. The buildings and treatment structures appear to be in fair condition. The basement and pipe gallery are congested, wet and make it difficult to perform maintenance.

b. Space (office, lab, locker, meeting, restroom, etc.)

There has been no physical expansion of the CTWTP since its construction in 1990. The office, lab, locker room and restrooms provide adequate space to meet the current needs of the staff and visitors to the plant.

The laboratory at the treatment plant appears to have adequate space, but some analytical equipment and other labware should be upgraded and additional equipment may be required in the future.

c. Code Issues

There are some current issues with the Chlorine Gas that are discussed in Section 3 of the report.

d. HVAC Issues

There are no known heating, ventilation, air conditioning (HVAC) issues associated with the existing facilities. However, in conjunction with plant expansion, plant support systems such as HVAC and plumbing should also be modified and improved as required to support the expanded plant.

e. Electrical and Instrumentation & Control (I&C), Standby Power

There are no known significant issues with the electrical and instrumentation and controls systems at the plant. Backup power is provided for both the intake and WTP via standby emergency generators.

f. Security

The overall security at the CTWTP could be improved. Currently, there are no entry checkpoints, alarm systems or identification system at the plant. These relatively simple improvements could significantly increase the security of the plant and decrease the chances of theft, vandalism or contamination at the plant.

The treatment plant site is completely surrounded by a chain link fence. Consideration for a closed circuit television system should be considered as part of the plant upgrade.

g. Maintenance, Shop, Parts Storage

The CTWTP was designed and constructed with auxiliary space for maintenance and shop activities as well as for parts storage. These spaces are in reasonable condition and have adequately served the needs of the treatment plant operators. Similar to the office and lab spaces, the need for additional parts, shop and maintenance space will increase as plant production increases.

E. Recommendations

Based on the evaluation of the existing facilities, the following recommendations were developed. The intent of the recommendations is to ensure that the City of Charles Town continues to meet treatment goals at the projected future flow rate of 3.8 MGD. Capability to meet future flow rates can best be accomplished by construction of a new treatment facility.

1. Recommendations for Capacity Increase

Construct a new, 3.8 MGD, water treatment facility that consists of backup sources, raw water intake system upgrades, new inline static mixer, flocculation and sedimentation basins modifications and expansions, membrane and GAC filtration and UV and sodium hypochlorite disinfection. Also, construction of a new pump station to convey process waste to the existing CTUB system. The new treatment plant should be designed with room for modular expansion.

a. Additional Raw Water Sources

- Either develop a pump station for Cattail Spring or develop a well on Todd Wydmyer's property. Extend power to well and a waterline to the existing WTP.
- Develop a well near the intersection of S. George Street and S. Samuel Street. Extend power to the well and a waterline to the existing WTP.

b. Raw Water Intake System

- Install a parallel 20" intake pipe leading from the river to the raw water pumping station along with a new stainless steel air line. Add a second T-screen and replace the existing 20" knife gate valve.
- Install a cast-in-place concrete diversion structure in the river upstream of the two (2) screens. Place a secondary stainless steel grating structure on top of the diversion structure to further protect screens and to prevent leaves and debris from entering screen openings. Leave downstream end of concrete diversion structure open.
- Add an automatic airburst screen cleaning system inside the pump station that features a control panel, fast acting pneumatic valves, dual air compressors and air receiver tank. The panel should be programmed to automatically utilize compressed air to clean each screen.

- Add a new ultrasonic level transmitter to the intake wet well.
- Add a new telemetry system for communication between the intake system and water treatment plant.
- Provide new 125 HP inverter duty rated motors for each vertical turbine intake pump. Note that pumps will provide 2.8 MGD each and should be sufficient for several years. Once their capacity is reached, the pumps, VFDs, electrical and generator will need to be upgraded.

c. New Treatment Facility Construction

Raw Water Piping

- Connect to the existing raw water line and bring a new raw water line into the new treatment facility. Provide a new raw water turbidimeter, magnetic flow meter and inline static mixer on the line. Also provide sample taps, chemical injections, and air release valves.

Flocculation and Sedimentation Basins

- Construct a new concrete dual stage flocculation basin where each of the two (2) basins yields 30 minutes of contact time when added to the existing flocculation basins at the plant design flow rate of 3.8 MGD. Provide new variable speed floc mixers and mud valves on each floc drain with associated drain piping.
- Continue utilizing PACl for coagulation. Provide a new bulk chemical feed system inside the Chemical Room of the new plant.
- Provide two (2) new sedimentation basins each sized such that there is a four (4) minimum detention time at plant design flow rate of 3.8 MGD, when using the existing and new basins.
- Provide two (2) new chain and scraper sludge collectors.
- Provide new effluent fiberglass weirs and troughs.
- Provide new submerged pressure transducer in sedimentation basin effluent channel for level.
- Provide a common influent and effluent channel. Design a perforated wall to allow flow to enter basin evenly. Provide an underflow wall to keep solids below water surface. Slope bottom of sedimentation basins toward sludge hoppers.
- Slide gates are also required for flow isolation.
- The new structure will be above grade so aluminum stairs, grating and handrail will be required.
- Provide new precast concrete meter and valve vault for automated sludge valves and magnetic flow meters.

Membrane Filtration

- Construct new, low-pressure membrane filtration system with a capacity of 3.8 MGD, which allows for future expansion. A new Control Building would be necessary and the recommended building type is concrete floor slab type with masonry walls, precast concrete roof structure with EPDM roofing material. Membrane system to consist of the necessary feed tanks and pumps, prestrainers, membrane module racks, backwash tanks and pumps, compressed air system, automated chemical clean-in-place (CIP) system with neutralization and water softening system. The CIP system should be housed in a separate room with the other treatment plant chemical feed stations.
- Membrane system should utilize 0.10 micron PVDF modules type as manufactured via the Thermally Induced Phase Separation (TIPS) process. Design flux rate would be around 40 gallons per day per square foot of membrane area (GFD). One (1) membrane system skid would be fully redundant.
- Demolish the existing media filters.

GAC Filtration

- Construct new, low-pressure granular activated carbon (GAC) filtration system with a capacity of 2.8-3.0 MGD and expandable to 3.8 MGD for TOC removal.
- A total of six (6) 40,000 pound GAC vessels should be installed with consideration to add two (2) future tanks. The tanks should be designed in lead-lag formation such that the total membrane filtrate flow will be divided by three (3). Flow will go through the lead GAC vessel and then the lag vessel for TOC removal. Typical design flow rate is 6-10 gpm/ft^2 with contact times between 7-10 minutes per vessel.
- Automated valves and magnetic flow meters should be provided on each set of vessels for flow control.

UV Disinfection

- Two (2) fully redundant UV systems should be considered as a multiple barrier type treatment system. The UV system is a cheap alternative that does not utilize any chemicals or create any byproducts. UV disinfection assists in the inactivation of viruses and *Cryptosporidium*.

Chemical Feed Systems

- The new treatment facility should feature a separate chemical feed room housing all treatment chemicals. A bulk coagulant and sodium hypochlorite chemical feed system is recommended. All new feed systems should consist of duplex peristaltic chemical feed pumps with

calibration columns, valves, day tanks, digital scales, containment, etc. Caustic soda, acid, fluoride, corrosion inhibitor and a spare chemical feed station should be considered.

Disinfection

- The new 1.0 MG clearwell is currently adequate for CT. To increase baffling, consider eliminating the submersible mixer and installing an interior baffle wall.
- Discontinue use of chlorine gas and utilize sodium hypochlorite for free chlorine.
- Eliminate chloramination as it is no longer required due to functioning GAC system.

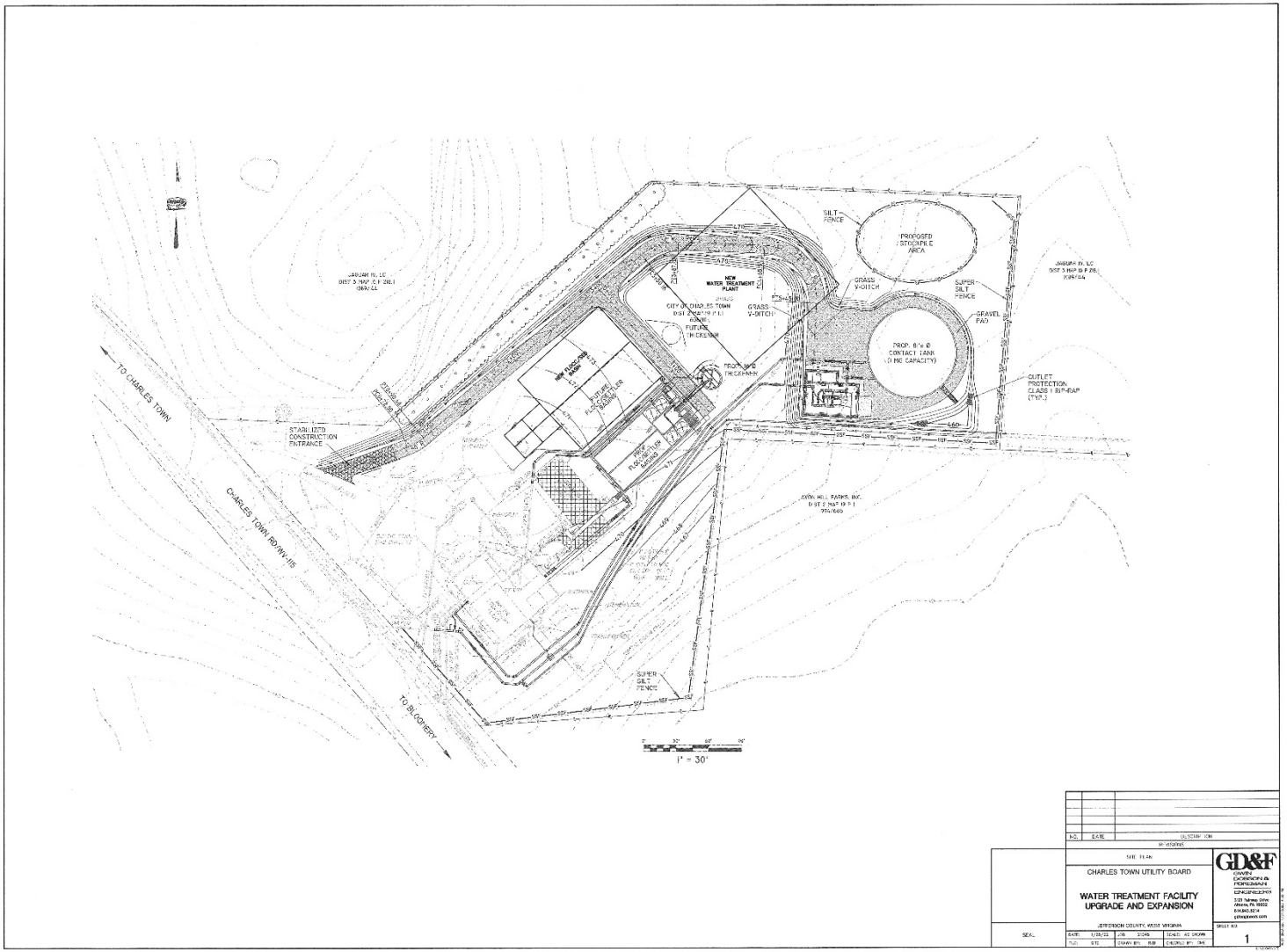
Solids Handling

- Construct a new pump station that conveys the water treatment plant process solids either to a new NPDES discharge location or ties into the existing CTUB sewer system. Note that two (2) concrete bottom lagoons and piping to the Shenandoah River would be necessary if the NPDES option is selected. Dried sludge would then need disposed of offsite. A slow and steady low-flow solids discharge rate into the existing CTUB sewer system is the preferred option.
- Discontinue all process wastewater recycling.

2. Piloting

Prior to design and construction of a new membrane and GAC filtration process, a minimum three (3) month piloting process must be done to establish and confirm design criteria and satisfactory process performance as well as help the City procure the most cost-effective membrane and GAC system for its specific water. Typical membrane pilot studies involve side-by-side testing of several different manufacturers. This enables a thorough examination of the process and selection of the most appropriate membrane system and GAC media for this application. The first step of the piloting process is for the engineer to prepare a Pilot Study Protocol and submit to the WV Health Department for approval.

Figure 7: Proposed Site Plan Layout for New WTP



APPENDIX E. SUPPORTING DOCUMENTATION

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SEWER STRATEGIC PLAN
DRAFT

2024-2027

CHARLES TOWN UTILITY BOARD

661 South George Street, Suite 101
Charles Town, West Virginia 25414

Phone: (304) 725-2316
Email: info@ctubwv.com

Charles Town Utility Board (CTUB)
Sewer Strategic Plan
2024-2027

Adopted:

_____

BOARD OF DIRECTORS

John Nissel, **Chairman**, City of Charles Town City Manager

Keith D. Pierson, **Vice Chairman**, City of Ranson Mayor, City of Ranson Representative

Thomas Stocks, **Treasurer**, City of Charles Town Representative

Jeff Whitten, City of Charles Town Representative

Heidi Parker, Jefferson County Representative

Tricia Jackson, Jefferson County Commission Liaison

CTUB MANAGEMENT

Kristen M. Stolipher, Utility General Manager – kstolipher@ctubwv.com

April L. Shultz, Assistant Utility Manager – ashultz@ctubwv.com

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EXECUTIVE SUMMARY

Purpose

The purpose of this Sewer Strategic Plan (SSP) is to document the Charles Town Utility Board's (CTUB) existing wastewater collection and treatment system to establish a plan for conveyance of all wastewater that will be generated within the region to the CTUB wastewater treatment plants during current and future periods of growth. The plan will evaluate future improvements needed and implementation strategies both physically and financially. Another major purpose of this SSP is the identification of wastewater peak flows and the evaluation of the capacity of the existing collection and conveyance system to convey these peak flows without backups of wastewater into homes and businesses and without sanitary sewer overflows. The City of Charles Town, by and through CTUB first published a SSP in 2007. The most recent revision to the SSP was approved by CTUB on April 28, 2021. Pursuant to a resolution for a tri-annual SSP update, the current revision serves as the required April 2024 update. The SSP is adopted by the CTUB Board of Directors. Upon adoption, development of actions to implement the SSP can begin. The SSP provides an overall high-level direction to prioritize resources and achieve future success.



Since the adoption of the last SSP, CTUB, through the City of Charles Town, has successfully equalized the sewer rates between the City of Charles Town sewer system, the City of Ranson Sewer System and the Jefferson County Public Service District subsequent to the utility consolidation efforts that occurred on July 1, 2018 and January 1, 2019, respectively. The equalization of rates took place almost 5 years earlier than anticipated. The wastewater treatment and collection systems of the consolidated regional utility are reviewed herein. Significant growth has occurred since the last plan and will be steadily monitored to ensure that appropriate measures are taken to address future capital improvements, operation and maintenance as well as capacity needs. Growth projections are included in this SSP, and will be, in part, considered in determining the timing of those future capital improvements. Communication with local planning and zoning authorities to acquire accurate growth projections is essential for successful monitoring of growth. This plan details the growth within the system based on growth projections provided by the local planning and zoning agencies.

Scope

The principal issues examined as part of this revision to the SSP include the following:

- Customer satisfaction and public education
- Analyze growth scenarios and develop plant and collection system expansion needs.
- Evaluate the existing wastewater collection system and treatment process in relation to future flows, loads and discharge standards.
- Assess system improvement needs, including capital costs and O&M requirements.
- Develop timeframes associated with necessary system improvements to encompass the plants and collection system.
- Update planning for future sewerage facilities to serve existing and expanded service area.

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Plan Updates

CTUB has committed to updating this document on a tri-annual basis. Adjustments to the SSP are based on the condition and performance of the overall system, updated construction data and new information regarding growth. Previously published SSP's serve as guidance to achieve accuracy in planning and to enhance the development of current and historical data. The accuracy of the planning process continues to be enhanced through the development of current data and historical data captured in previous SSP's. CTUB makes every effort to involve customers, officials and stakeholders in this process.

Tri-annual updating is expected to proceed in accordance with the following schedule:

- February New data, information, and comments solicited from stakeholders
- March Plan updated.
- April Board of Directors review DRAFT SSP
- May Draft Plan issued for comments
- May/June Plan revised, adopted and published

Project Planning

This SSP serves as a framework for decision making outlining the specific goals, strategies and objectives for the purpose of planning for future capital improvements based on a 10-year planning period from 2024 to the year 2034. Since the last SSP was adopted, CTUB has initiated the Renewal and Replacement project detailed in the prior SSP. CTUB awarded the project to Alvarez Contractors, Inc. in September 2022 for the construction of the Renewal and Replacement Project at the Charles Town Wastewater Plant. The project will replace critical equipment and aging infrastructure which will allow CTUB operations staff to be more efficient and have additional controls over the operation of the wastewater plant. There are also numerous collection system projects that are currently designed or in design that will address improved efficiencies and upgrade or decommission pump stations to reduce operation and maintenance costs. Based on analysis of available information the following recommendations outline projected near and long-term improvements:

- **Charles Town Wastewater plant**
  - Completion of Renewal and Replacement project
    - Expected to be completed by December 2024.
  - Sand Filters
    - Assessment of Sand Filters (completed December 2023).
    - Implementation of sand filter assessment and successful operation.
  - Future - Expansion of CTWWTP from 1.75 MGD
  - Water Treatment Plant Forcemain Tie-in Project

- **Tuscawilla Wastewater Treatment Plant (TWWTP)**
  - Assessment and possible installation of secondary MBR's.
  - Future – Expansion from 500,000 gpd and/or alternatives analysis

- **Completion of the 2025 Collection System Project (formerly JCPSD Flowing Spring project)**
- **Collection system projects:**
  - George/North/Liberty/Charles Gravity replacement
  - 6th Avenue/Reymann Gravity replacement
  - Mountaineer Pump Station Rehabilitation
  - Wilt's Mobile Home Park Pump Station Decommissioning
  - Belvedere Farm Pump Station Decommissioning

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Project Recommendations

Critical infrastructure upgrades will be detailed in this SPP. This will include a review of completed projects and future capital improvements. Since the last version of the SSP several key projects have started construction and others are moving through the design phase. In addition to the system wide improvements, it is necessary to begin planning and engineering for expansion of the CTWWTP in the next 10 years.

Financial

The projected costs associated with the projects outlined above are detailed in this plan. CTUB recently completed the full rate equalization in January 2024. This was a significant accomplishment almost 5 years ahead of schedule. As part of the rate equalization process, CTUB completed a Class Cost of Service Study to assess rates for all customer classes. CTUB will continue to review this every 3 to 5 years to ensure rates are fair, equitable and consistent with the cost of service. CTUB continues to pursue a strategy for funding upgrades, and expansions in a manner that will minimize the burden to the current and future ratepayers. The Board intends to fund the costs for the renewal and replacement project and the facility expansions through conventional rate impacts, payment of prior bonds and Capacity Improvement Fees (CIFs). The CTWWTP and TWWTP Phase 2 Upgrade to 1.0 MGD will require separate funding strategies in a future SSP publication. If the current sewer rates are insufficient to generate funds prior to the next phase of expansion, the City can consider increasing rates to defray the capital costs.

INTRODUCTION

Background

The Mission of the Charles Town Utility Board (CTUB) is to provide reliable water and sewer services that protect public health and the environment with financial accountability, regional stewardship, and superior customer service. Specific goals and key areas of focus are:

Customer Service – Provide efficient and effective level of service to meet customer and stakeholder expectations.

Environmental Stewardship – Take advantage of opportunities to invest in energy efficiency, renewable energy, water and sustainable practices that protect the environment. Meet all applicable regulatory notification and reporting requirements.

Infrastructure Maintenance – Properly manage, operate and maintain all parts of the wastewater collection system and provide best service in a cost-effective manner to the customer.

Financial Stability – Manage the CTUB finances to support the Utility needs and maintain reasonable sewer rates.

Workforce Planning and Development – Provide team-oriented workforce that is fully trained, fairly compensated, and accountable with clearly defined career paths for the evolving work environment.

Operational Optimization – Improve functions that support the administrative, financial, technical and field activities and provide the best service to the customer.

CTUB is a combined water and sewer utility that provides sanitary sewerage collection and treatment services for approximately 8,900 sewer customers comprising residential, commercial, industrial and public authority entities within the municipalities of the City of Charles Town, the City of Charles Town as well as the surrounding areas within Jefferson County. The County has a population of just under 60,000 and encompasses 212 square miles.

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CTUB has a five (5) member Board of Directors that meets twice monthly to consider issues of substance for Utility operations, making recommendations to the Utility Manager regarding infrastructure management, finances and other policy questions. Subsequent to the Utility consolidation, the Board of Directors has representation from the City of Ranson and Jefferson County (including a voting member and non-voting County Commission liaison). The Board of Directors are appointed by the Mayor and Council of the City of Charles Town and serve staggered four-year terms. In addition to the appointment of the Board of Directors, the City of Charles Town is responsible for the following as it pertains to CTUB:

1) Retains ownership of the assets of the system
2) Authorization of all changes in rates and charges for the water and sewer system
3) Issuance of bonds, notes and other debt obligations secured by the gross revenues of the system
4) Approval of capital projects for the water and sewer system which are not in the "normal course of business"; and
5) Approval of real property condemnations for the System.

CTUB has 31 full-time employees, 2 part-time employees and a sewer operating budget of roughly $6 million annually. Infrastructure assets include three (3) wastewater treatment plants, 125 miles (over 100 miles of gravity and over 25 miles of force main) and 43 pump stations. CTUB has the ability to treat flows interchangeably between the CTWWTP and TWWTP facilities through the Huntfield Transfer Pump stations.

Facilities Plan Summary

The period used for planning efforts for the Renewal and Replacement projects and 2021 collection system projects are based on a 10-year planning period. This period is the basis for evaluating population growth, estimating treatment capacity requirements, operational needs and evaluating treatment process alternatives. The overall planning period extends from 2024 to 2034 which includes short-term and long-term planning objectives. CTUB has completed the first steps in establishing a sewer-modeling efforts to assist with development of updated capacity improvement fees requirements and capital improvement projects for the next 15 years. Any capital projects identified in the sewer master plan will be included in future SSP's.

EXISTING CONDITIONS

Regional Growth and Service Area

The City of Charles Town, City of Ranson and Jefferson County have continued to experience consistent growth since the issuance of the last SSP. A demonstrated in the charts below, the growth rates in the region have maintained a steady 1% growth increase on an annual basis:

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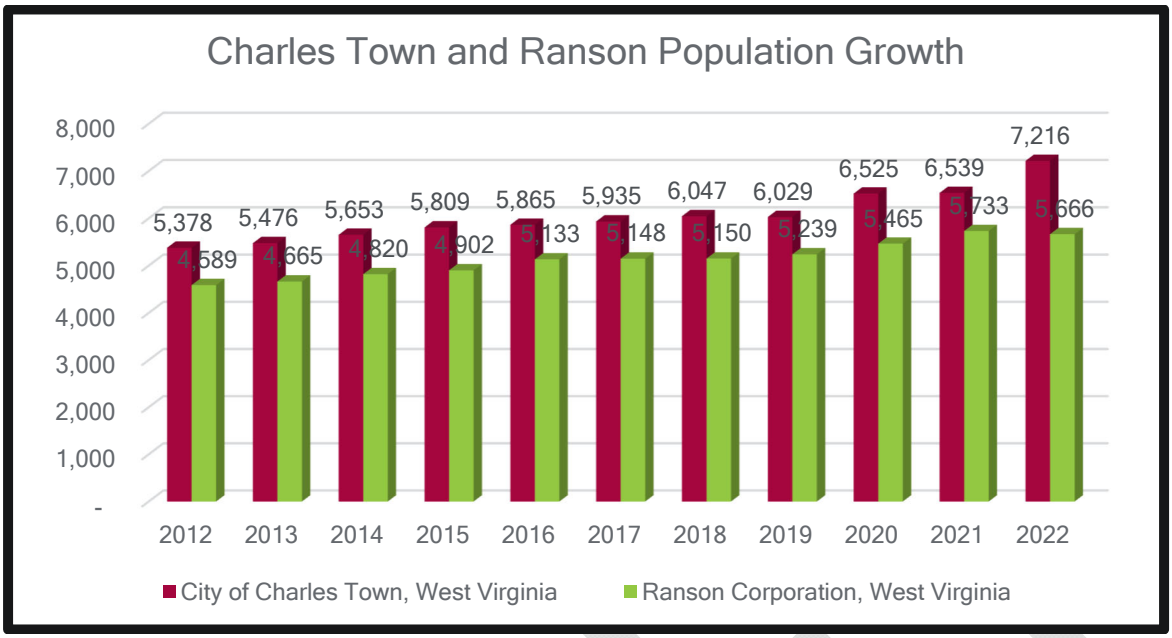

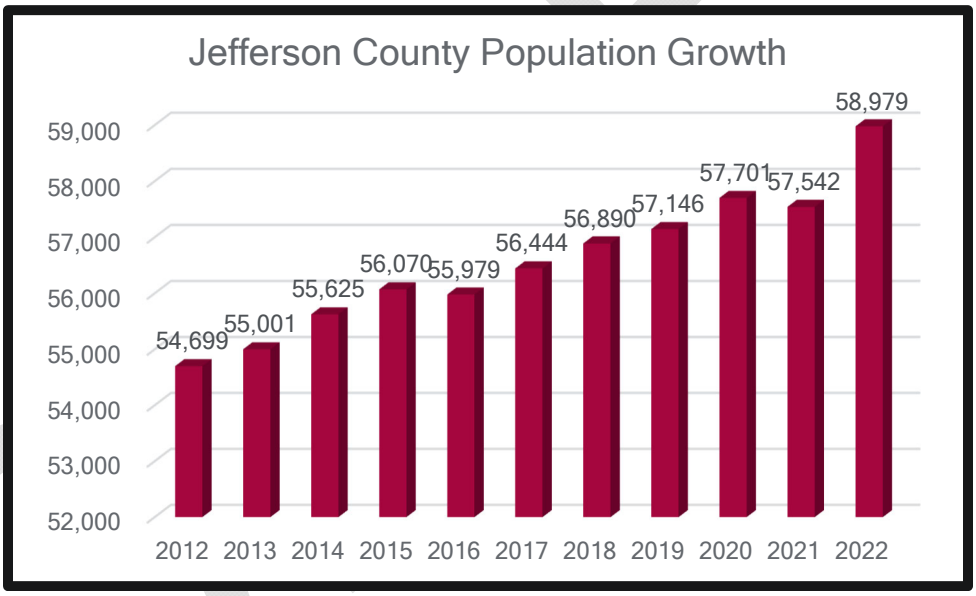

Reference: Annual Estimates of the Resident Population for Incorporated Places in West Virginia: April 1, 2020 to July 1, 2022 (SUB-IP-EST2022-POP). Source: U.S. Census Bureau, Population Division, Release Date: May 2020.

The City of Charles Town, City of Ranson and the Jefferson County Department of Planning, Zoning and Engineering have provided information regarding permits obtained since the issuance of the last SSP. Table 1.1 illustrates the past three years of residential and commercial development data. This historical data shows that an average of 490 residential units were built per year which is significantly up from the average of 129 residential units built per year from the prior reporting period (2018 to 2020).

Table 1.1 - Development Growth Trend 2021-2023

			New Connections		
Region	**Subdivision**	**Type**	**2021**	**2022**	**2023**
County	Aspen Greens	Residential	0	12	26
County	Beallair	Residential	16	22	16
County	Walnut Grove	Residential	1	1	2
County	Burr Park	Commercial	4	5	2
County	Cambridge	Residential	4	3	1
County	Woodland MHP	Residential	0	0	2
County	Tuscawilla	Residential	1	0	0
County	Kings Crossing	Residential	0	0	27
County	Magnolia Springs	Residential	116	88	71
Charles Town	CT Limits	Commercial	0	1	0
Charles Town	CT Limits	Residential	5	16	18
Charles Town	Washington Landing	Residential	61	26	25
Charles Town	Tate Manor	Residential	29	34	17
Charles Town	Huntfield	Residential	0	43	84
Charles Town	Norborne Glebe	Residential	1	115	155
Ranson	Ranson Limits	Commercial	0	0	2
Ranson	Ranson Limits	Residential	2	5	3
Ranson	President's Pointe	Residential	6	28	106
Ranson	Shenandoah Springs	Residential	0	28	61
Ranson	Briar Run	Residential	4	0	0
Ranson	Huntwell West	Residential	0	0	26
Ranson	Potomac Marketplace	Commercial	0	0	2
Ranson	Jefferson Crossing	Residential	37	43	84
Total Residential Building Permits			**283**	**464**	**724**
Total Commercial Building Permits			**4**	**6**	**6**

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Future Development Projections

In addition to the historical information that was provided, future development forecasts were obtained from the City of Charles Town, City of Ranson and Jefferson County Department of Planning Zoning and Engineering that will be monitored to determine necessary improvements to the sewer system. For the purposes of these future projections an average annual build-out of 30 units per year for larger subdivisions/developments is being used for those developments that have surpassed the Concept Plan stage. For those developments that have not entered the design phase but may still come to fruition, a projection of an average built-out of 20 units per year is being used. These averages are based on the most recent historical trends of building within the County. These projections may vary depending on various economic factors such as growth and development trends. Details of the projections are presented in Table 1.2 and known historical data has been utilized for future volumetric capacity forecasting. A full copy of the Development Forecast is included in Appendix A. Refer to Exhibit 1-2 in Appendix C for the location of projected developments.

The housing market in the region has experienced tremendous growth over the past three years and continues in an upward trend with several large housing developments currently under construction. Commercial growth has also seen significant upward trends since the development of the last SSP.

Table 1.2 -CTUB Sewer Strategic Plan 2024 Development Forecast

	Development	Total Design EDUs	Total Built as of 2024	20 year forecast to be built	Total Flow	Beyond 20 year forecast	Year 1 2024	Year 2 2025	Year 3 2026	Year 4 2027	Year 5 2028	Year 6 2029	Year 7 2030	Year 8 2031	Year 9 2032	Year 10 2033	Years 11-20 2034-2043	TOTAL @ Year 20	TOTAL REMAINING
1	Aspen Green	203	85	118	30,450	0	30	30	30	28	0	0	0	0	0	0	0	118	0
2	Beallair	372	176	196	55,800	0	30	30	30	30	30	30	16	0	0	0	0	196	0
3	Blackford Village/Tackley Mill	500	0	500	75,000	0	0	0	0	0	0	0	0	20	20	20	200	260	240
4	Briar Run	164	126	38	24,600	0	30	8	0	0	0	0	0	0	0	0	0	38	0
5	Burr Industrial Park & Bardane	200	178	22	30,000	0	3	3	3	3	3	3	3	1	0	0	0	22	0
6	Cambridge	134	92	42	20,100	0	3	3	3	3	3	3	3	3	3	3	12	42	0
7	Cantor Hollow	124	0	124	18,600	0	0	0	30	30	30	34	0					124	0
8	Charles Town Infill	250	38	212	37,500	112	5	5	5	5	5	5	5	5	5	5	50	100	112
9	Clayhill Farm	300	0	300	45,000	0	0	0	0	0	0	20	20	20	20	20	200	300	0
10	Country Club Commons	8	0	8	1,200	0	0	0	1	1	1	1	1	1	1	1	0	8	0
11	Fairview	450	0	450	67,500	0	0	0	30	30	30	30	30	30	30	30	210	450	0
12	Harvest Hills	392	6	386	58,800	166	0	0	0	0	0	0	0	0	0	20	200	220	166
13	Huntfield	3,200	554	2,646	480,000	2,046	30	30	30	30	30	30	30	30	30	30	300	600	2046
14	Huntwell West	350	26	324	52,500	0	30	30	30	30	30	30	30	30	30	30	24	324	0
15	Jefferson Orchards	888	0	888	133,200	688	0	0	0	0	0	0	0	0	0	0	200	200	688
16	Kable Townhomes	22	0	22	3,300	0	0	22	0	0	0	0	0	0	0	0	0	22	0
17	King's Crossing	404	58	346	60,600	0	30	30	30	30	30	30	30	30	30	30	46	346	0
18	Locust Knoll	300	0	300	45,000	0	0	0	20	20	20	20	20	20	20	20	140	300	0
19	Magnolia Springs	300	259	41	45,000	0	41	0	0	0	0	0	0	0	0	0	0	41	0
20	Norborne Glebe	1,050	626	424	157,500	0	30	30	30	30	30	30	30	30	30	30	124	424	0
21	Old Town Ranson - Infill	250	10	240	37,500	90	10	10	10	10	10	10	10	10	10	10	50	150	90
22	Orchard Springs	270	0	270	40,500	0	0	30	30	30	30	30	30	30	30	30	0	270	0
23	Potomac Marketplace	54	2	52	8,100	0	5	5	5	5	5	5	5	5	5	5	2	52	0
24	President's Pointe	1,100	233	867	165,000	267	30	30	30	30	30	30	30	30	30	30	300	600	267
25	Prospect Place	170	0	170	25,500	0	0	0	0	0	9	9	25	25	25	25	52	170	0
26	Ranson Gateway / Boulevard	1,175	0	1,175	176,250	815	0	0	20	20	20	20	20	20	20	20	200	360	815
27	Ranson Heights	428	0	428	64,200	0	30	30	30	30	30	30	30	30	30	30	128	428	0
28	Red Clover Meadows (formerly Lloyd Property)	258	0	258	38,700	0	30	30	30	30	30	30	30	30	18	0	0	258	0
29	Shenandoah Springs	705	285	420	105,750	0	30	30	30	30	30	30	30	30	30	30	120	420	0
30	Spring Hill	588	0	588	88,200	48	0	0	30	30	30	30	30	30	30	30	300	540	48
31	Stonecrest	320	0	320	48,000	0	30	30	30	30	30	30	30	30	30	30	20	320	0
32	Stone Spring (formerly Fritts Property)	328	0	328	49,200	0	30	30	30	30	30	30	30	30	30	30	28	328	0
33	Washington Landing	274	204	70	41,100	0	70	0	0	0	0	0	0	0	0	0	0	70	0
34	Windmill Crossing	150	146	4	22,500	0	1	1	1	1	0	0	0	0	0	0	0	4	0
35	Lakeland Place	464	0	464	69,600	0	0	0	30	30	30	30	30	30	30	30	224	464	0
36	Shoemaker Property	300	0	300	45,000	0	0	0	30	30	30	30	30	30	30	30	60	300	0
37	WVU Medical	500	0	500	75,000	50	0	0	0	0	0	30	30	30	30	30	300	450	50
38	Hillside	150	0	150	22,500	0	0	30	30	30	30	30	0	0	0	0	0	150	0
39	Vinton Property	300	0	300	45,000	0	0	0	30	30	30	30	30	30	30	30	60	300	0
	Total Projected Development	**16,145**	**3,104**	**14,291**	**2,541,750**	**4,232**	**528**	**447**	**548**	**546**	**526**	**550**	**518**	**520**	**507**	**509**	**3,130**	**8,569**	**4,472**

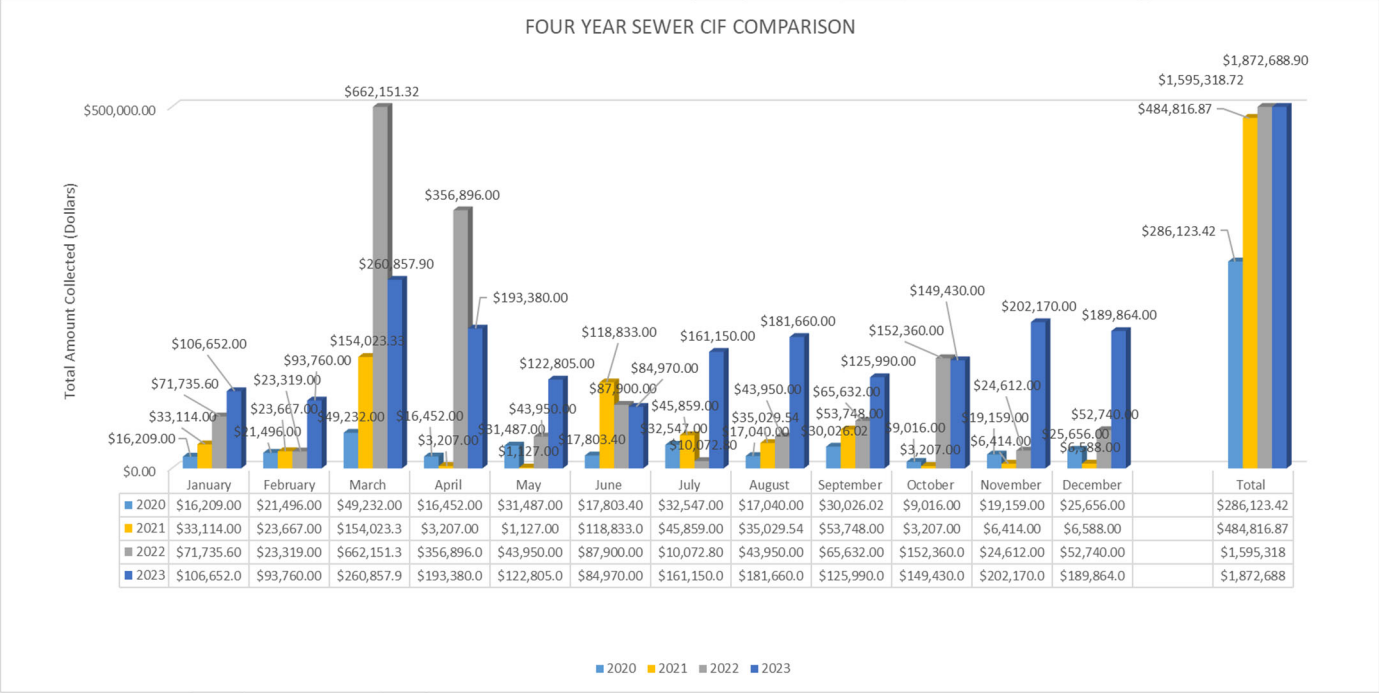
Capacity Improvement and Development Fees

Capacity Improvement fees (CIF's) are one-time charges assessed against new wastewater customers or developers/builders to recover a proportional share of capital costs incurred to provide capacity for the new utility customers. CTUB completed a CIF study that was completed in December 2021 which set the Sewer CIF at $2,930.00 per equivalent dwelling unit (or per single family home). A cursory review of changes incorporated in this SSP indicates that the CIF fee is in-line or likely reduced based on the following parameters:

- Project costs: Same
- Growth Costs: Reduced
- Current Growth: Significantly Increased
- ENR: Slightly reduced
- Debt Principal Credit: Slighted reduced

A high-level assessment with this study provides the Board with assurance that the CIF fee remains consistent with the CIF study. Additional projects will be considered to ensue that the CIF remains in alignment. Based on recommendations from CTUB's consultant the CIF fees should be evaluated every 3 to 5 years.

The following is chart depicts a four-year comparison of sewer capacity fees collected:



	January	February	March	April	May	June	July	August	September	October	November	December	Total
2020	$16,209.00	$21,496.00	$49,232.00	$16,452.00	$31,487.00	$17,803.40	$32,547.00	$17,040.00	$30,026.02	$9,016.00	$19,159.00	$25,656.00	$286,123.42
2021	$33,114.00	$23,667.00	$154,023.3	$3,207.00	$1,127.00	$118,833.0	$45,859.00	$35,029.54	$53,748.00	$3,207.00	$6,414.00	$6,588.00	$484,816.87
2022	$71,735.60	$23,319.00	$662,151.3	$356,896.0	$43,950.00	$87,900.00	$10,072.80	$43,950.00	$65,632.00	$152,360.0	$24,612.00	$52,740.00	$1,595,318
2023	$106,652.0	$93,760.00	$260,857.9	$193,380.0	$122,805.0	$84,970.00	$161,150.0	$181,660.0	$125,990.0	$149,430.0	$202,170.0	$189,864.0	$1,872,688

WASTEWATER TREATMENT

Description of Existing Treatment Systems

CTUB operates three wastewater plants: the Charles Town Wastewater Treatment Plant (CTWWTP), the Tuscawilla Wastewater Treatment Plant (TWWTP) and the Deerfield Sewer Treatment Plant. These wastewater facilities are designed to process the wastewater collected throughout the community and return the treated water to the environment. The treat methods included a number of physical and biological processes designed to provide optimal conditions for nutrient removal. CTUB is regulated by the West Virginia Department of Environmental Protection (WVDEP) through the U.S. Environmental Protection Agency (EPA).

Charles Town Wastewater Treatment Plant (CTWWTP)

The CTWWTP is located on WV route 115 in Charles Town. The facility is a Sequencing Batch Reactor (SBR) treatment facility which operates as an Intermittent Cycle Extended Aeration System (ICEAS) and has a hydraulic capacity of 1.75 million gallons per day (MGD). Wastewater treatment components include one (1) coarse bar screen and compactor, one (1) grit removal system with a washer/compactor, one wet well with three (3) submersible pumps, an influent distribution box, three (3) SBR process trains operated in parallel with chemical addition for phosphorus removal, one (1) post SBR equalization tank, six (6) denitrification filters operated in parallel (currently bypassed) with chemical addition for phosphorus removal and carbon addition for denitrification, one (1) ultraviolet (UV) disinfection system and a utility water system (currently not in use). The solids handling consists of three (3) aerobic digesters operated in parallel, one (1) 573,000-gallon aerobic digester (currently not in use), one (1) sludge transfer pump, one (1) belt filter press with conveyor and one (1) lime silo with one (1) dry feed system and screw auger. The belt filter solids are land applied on farms permitted by the WV DEP.

The Charles Town facility originally consisted of primary treatment, activated sludge tanks, secondary settling basins, disinfection by chlorination, aerobic sludge digestion and sand drying beds. The plant was expanded in 1987 to include a third aeration basin and settling basin. Additionally, the plant added an open-channel Ultraviolet Disinfection (UV) unit and a belt filter press with the associated structures. The sand drying beds were removed as part of this expansion.



The plant was upgraded in 2001 and converted the SBR to an ICEAS process. The current influent pump station, headworks building and blower building were also constructed as part of this upgrade. The 573,000-gallon aerobic digester tank was added to the facility during an upgrade in 2005. The digester tank was built to provide additional sludge processing time and increased storage capacity in an effort to produce higher quality solids. Additionally, denitrification filters were installed at the facility in 2016, which included chemical addition facilities for a coagulant for phosphorus precipitation and carbon for denitrification.

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The CTWWTP accepts non-domestic wastewater from the Charles Town Water Plant. The Utility Board currently hauls approximately 6,000-9,000 gallons per week of non-domestic liquid water treatment facility sludge from their existing plant to the CTWWTP digester for processing and thickening. This sludge which is 2-6% solids, consists primarily of river laden material such as sand and dirt along with an aluminum-based coagulant from the sedimentation basins and conventional sand filters. The contents are generally rich in total organic carbon (TOC) from the river source and are difficult to press with the existing Ashbrook belt filter press. The filtrate from the press is returned back to the headworks. The maximum daily permitted volume is 10,000 gallons. The designated NPDES discharge is Outlet No. 001.

The water treatment plant sludge requires a significant amount of polymer addition and adds to the total amount of generated dry tons. It also increases the amount of lime needed for raising the solids pH content. CTUB is currently pursing alternative options to treat and dispose of the water treatment facility sludge through a connection to an adjacent developments sanitary sewer system. This connection is expected to be complete in 2024. This will eliminate the expense and treatment issues with the current method of hauling the sludge to the wastewater treatment facility.

The CTWWTP operates under the West Virginia NPDES No. WV0022349. The current permit, reissued on August 23, 2021, expires on June 30, 2026.

The CTWWTP is permitted for an annual average flow of 1.75 million gallons per day (MGD). Additionally, if the facility discharges 90% (1.58 MGD) or more of its permitted flow over 3 consecutive months, a Plan of Action must be developed and submitted to the Department. The maximum monthly average flow during the period of 2021 through 2023 was 1.22 MG.

This facility serves a population equivalent of approximately 17,500 persons in the City of Charles Town, the City of Ranson and the surrounding areas of Jefferson County and discharges treated wastewater through Outlet No. 001 to Evitts Run, approximately 4.5 miles from its mouth, of the Shenandoah River of the Potomac River.

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CTWWTP Flows and Loading

Historical flow and loading data have been compiled and analyzed for the system. This data provides the basis for projecting future flows and loadings to better understand the timing when a capacity restriction may occur at one of the treatment processes and thus must be addressed in order to provide adequate capacity to serve future growth. Table 1.3 summarize the historical and current values for flow for the CTWWTP.

TABLE 1.3: CTWWTP PLANT FLOWS 2021-2023

2021			2022			2023		
	Total (MG)	AVERAGE (MG)		Total (MG)	AVERAGE (MG)		Total (MG)	AVERAGE (MG)
JANUARY	35.83	1.22	JANUARY	37.25	1.20	JANUARY	36.55	1.21
FEBRUARY	32.98	1.18	FEBRUARY	33.8	1.21	FEBRUARY	28.96	1.03
MARCH	36.39	1.17	MARCH	33.28	1.07	MARCH	30.46	1.02
APRIL	34.33	1.18	APRIL	32.98	1.1	APRIL	29.52	0.98
MAY	33.24	1.07	MAY	35.86	1.16	MAY	30.78	0.99
JUNE	36.24	1.21	JUNE	29.9	1.00	JUNE	29.64	0.99
JULY	30.99	1.00	JULY	29.78	0.96	JULY	31.2	1.01
AUGUST	29.94	0.97	AUGUST	30.19	1.01	AUGUST	29.96	1.00
SEPTEMBER	36.36	1.17	SEPTEMBER	29.62	0.96	SEPTEMBER	33.38	1.11
OCTOBER	29.97	0.97	OCTOBER	29.02	0.94	OCTOBER	33.02	1.07
NOVEMBER	30.12	1.00	NOVEMBER	30.09	1.00	NOVEMBER	33.61	1.12
DECEMBER	35.22	1.21	DECEMBER	35.38	1.14	DECEMBER	35.2	1.14
Annual Total	401.61	1.11	Annual Total	387.15	1.06	Annual Total	382.28	1.06

Table 1.4 below summarizes the historical plant flow for the CCWWTP from 2019 through 2023. The percent plant capacity on a Maximum 3-month average daily flow basis varied from 65% to 89%. The plant expansion has been noted in the past several SSP's and is further discussed in the future projects section of this SSP. Growth has continued to increase and will be monitored to ensure that appropriate measures are taken to address sewer infrastructure and capacity needs in order to meet the needs of the regional utility.

CTUB continues to monitor growth as well as optimization efforts that have been recommended by CTUB Engineer's Gwin, Dobson & Foreman in advance of the CTWWTP expansion that may extend the service life of the existing facility, enhance process operations and provide additional capacity and improve treatment efficiencies. These optimization efforts include proper digesting of sludge through the addition of equipment which will reduce costs for sludge handling and disposal. These improvements that are part of the Renewal and Replacement project are expected to have significant impact on the operations of the facility and treatment.

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Table 1.4: Historical Plant Flow CTWWTP					
Year	Total Annual Flow (MG)	Annual Average Daily Flow (MGD)	Average Daily Flow (3-month max.)	Permit Capacity (MGD)	Percent Capacity (Average 3-month max/Permit)
2019	459	1.26	1.56	1.75	89%
2020	419.7	1.15	1.24	1.75	71%
2021	401.61	1.11	1.52	1.75	87%
2022	387.15	1.06	1.19	1.75	68%
2023	382.28	1.06	1.13	1.75	65%

The CTWWTP and TWWTP Facilities share total effluent loading limits to the Chesapeake Bay via Outfall 003. Table 1.5 below details the outlets associated with WV0022349:

Table 1.5: WV/NPDES WV0022349 Outfall Descriptions	
Outfall ID	Project Description
001	Charles Town Plant outlet to Evitts Run
002	Tuscawilla Plant outlet regardless of whether it is discharged to Evitts Run or used for spray irrigation
202	Contribution of the total load from the Tuscawilla Plant that is used by the golf course for spray irrigation
203	Contribution of the total load from the Tuscawilla Plant that is discharged directly to Evitts Run through the new effluent line
003	Total load actually discharged to Evitts Run. This is the calculated sum of the loads determined from Outlet 001 and Internal Outlet 203.

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The effluent limits for Outfall 001 are listed below in Tables 1.6 through 1.8 and the minimum sampling and monitoring frequencies are listed in Table 1.6. The tables below include the following parameters:

Biochemical Oxygen Demand (BOD), Total Suspended Solids (TSS), Ammonia (NH3), Total Nitrogen (TN) Total Phosphorous (TP). TN and TP concentrations.

Table 1.6: NPDES EFFLUENT LIMITS (OUTLET 001) BOD5, TSS AND AMMONIA-NITROGEN

Effluent Characteristics	Monthly Average Loading Rate, lbs./day	Weekly Average Loading Rate, lbs./day	Max Daily Loading Rate, lbs./day	Monthly Average Concentration, mg/L	Weekly Average Concentration, mg/L	Max Daily Concentration, mg/L
BOD5	301	N/A	601	20.6	N/A	41.2
TSS*	438	N/A	876	30	N/A	60
Ammonia-Nitrogen as N	60	N/A	120	4.1	N/A	8.2

Table 1.7: TMDL ANNUAL WASTELOAD ALLOCATIONS: NITROGEN AND PHOSPHOROUS

Effluent Characteristics	Charles Town Plant (Outfall 001)	Tuscawilla Plant (Outfall 203)	Annual Total Load Limit (Outfall 003)
Total Nitrogen	32,115 lbs.	10,740 lbs.	42,855 lbs.
Total Phosphorus	3,577 lbs.	1,790 lbs.	5,367 lbs.

Table 1.8: EFFLUENT LIMITS (OUTFALL OO1); COLIFORM, RESIDUAL CHLORINE, Ph AND D.O.

Effluent Characteristics	Maximum	Minimum
Fecal Coliform	200 Counts/100 mL (Geo. Mean) 400 Counts/100 mL (Maximum)	N/A
pH	9	6
Dissolved Oxygen (All Year)	N/A	6.0 mg/L at anytime

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Table 1.9: ANNUAL NPDES PERMIT MINIMUM MONITORING REQUIREMENTS (OUTLET 001)		
Effluent Characteristics	**Measurement Frequency**	**Sample Type**
BOD5	Once per week	24-hour composite
BOD5 % Removal	Four per month	Calculated
Total Suspended Solids (TSS)	Once per week	24-hour composite
Suspended Solids % Removal	Four per month	Calculated
Fecal Coliform	Once per week	Grab
pH	Once per week	Grab
Dissolved Oxygen	Once per week	Grab
Ammonia Nitrogen	Once per week	24-hour composite
Total Nitrogen as N (Monthly)	Once per week	24-hour composite
Total Nitrogen as N (Yearly)	Once per year	Calculated
Total Phosphorous (Monthly)	Once per week	24-hour composite
Total Phosphorous (Yearly)	Once per year	Calculated
Total Copper	Once per quarter	24-hour composite
Total Lead	Once per year	24-hour composite
Total Zinc	Once per year	24-hour composite
Total Arsenic as As	Once per year	24-hour composite
Total Cadmium	Once per year	24-hour composite
Hexavalent Chromium	Once per year	24-hour composite
Cyanide	Once per year	Grab
Total Mercury as Hg	Once per month	Grab
Total Nickel	Once per year	24-hour composite
Total Silver	Once per year	24-hour composite
Total Hardness as CaCO3	Once per 6-month period	Grab
Total Aluminum	Once per quarter	24-hour composite
Chloride as Cl	Once per quarter	24-hour composite
Chronic Tox. - Cerlodaphina Dubia	Once per year	24-hour composite
Chronic Tox. - Pimephales Promelas	Once per year	24-hour composite
Flow	Continuous	Measured

Annual effluent loading limits contained in the permit were established under the Chesapeake Bay Total Maximum Daily Load (TMDL) for total nitrogen (TN) and total phosphorus (TP). The Charles Town and Tuscawilla Facilities share total effluent loading limits to the Chesapeake Bay via Outfall 003. The other discharge limits are typical water quality - based limitations developed by the West Virginia Department of Environmental Protection.

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Tuscawilla Wastewater Treatment Plant (TWWTP)

The TWWTP is a Biological Nutrient Removal (BNR) intergraded with a Membrane Bio-Reactor (MBR) treatment facility having a hydraulic capacity of 0.50 million gallons per day (MGD). Wastewater treatment components include preliminary treatment consisting of one (1) coarse bar screen and compactor, one (1) grit removal system with a washer/compactor, one (1) flow equalization impoundment, one (1) wet well with four (4) submersible pumps and two (2) fine drum screens and compactor, two (2) BNR process treatment trains operated in parallel, chemical addition for phosphorus removal and carbon addition for denitrification, a single MBR basin in operation, one (1) ultraviolet (UV) disinfection system and a utility water system. The solids handling consists of an aerobic digester. Liquid aerobic sludge is transported to the CTWWTP for further processing and disposal. The facility primarily serves the Tuscawilla Hills Subdivision and Locust Hills area. Treated wastewater is discharged to the Tuscawilla Golf Course ponds and irrigation system (to the west) and also into Evitts Run, which is a tributary to the Shenandoah River, via a pumping system (to the east). The upgraded TWWTP has been in operation since 2014. In August of 2020 the MBR filters in Basin #3 were replaced with Toray Filters. The TWWTP operates under the West Virginia NPDES No. WV0022349. The current permit, reissued on August 23, 2021, expires on June 30, 2026. The TWWTP is permitted for an annual average flow of 0.5 million gallons per day (MGD).

TWWTP Flows and Loading

Historical flow and loading data have been compiled and analyzed for the system. This data provides the basis for projecting future flows and loadings to better understand the timing when a capacity restriction may occur at one of the treatment processes and thus must be addressed in order to provide adequate capacity to serve future growth. Table 2.1 summarize the historical and current values for flow.

TABLE 2.1: TWWTP PLANT FLOWS 2021-2023

2021			2022			2023		
	Total (MG)	AVERAGE (MG)		Total (MG)	AVERAGE (MG)		Total (MG)	AVERAGE (MG)
JANUARY	0.52	0.07	JANUARY	0	0	JANUARY	7.3	0.24
FEBRUARY	2.22	0.08	FEBRUARY	0	0	FEBRUARY	6.38	0.23
MARCH	4.22	0.14	MARCH	4.34	0.14	MARCH	6.41	0.21
APRIL	1.12	0.04	APRIL	4.68	0.16	APRIL	6.13	0.20
MAY	0.89	0.03	MAY	6.03	0.19	MAY	6.30	0.20
JUNE	3.37	0.11	JUNE	6.21	0.21	JUNE	6.89	0.23
JULY	3.9	0.13	JULY	6.48	0.21	JULY	7.31	0.24
AUGUST	3.6	0.12	AUGUST	7.01	0.23	AUGUST	7.7	0.25
SEPTEMBER	4.53	0.15	SEPTEMBER	7.11	0.24	SEPTEMBER	6.98	0.23
OCTOBER	3.94	0.13	OCTOBER	7.27	0.23	OCTOBER	6.92	0.22
NOVEMBER	3.73	0.12	NOVEMBER	6.94	0.23	NOVEMBER	7.22	0.24
DECEMBER	0.51	0.07	DECEMBER	6.73	0.22	DECEMBER	8.24	0.27
Annual Total	32.55	0.10	Annual Total	62.8	0.17	Annual Total	83.78	0.230

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Table 2.2 summarizes the historical plant flow for the TWWTP from 2019 through 2023. The percent plant capacity on a Maximum 3-month average daily flow basis varied from 0% to 43%.

Table 2.2: Historical Plant Flow TWWTP					
Year	**Total Annual Flow (MG)**	**Annual Average Daily Flow (MGD)**	**Average Daily Flow (3-month max.)**	**Permit Capacity (MGD)**	**Percent Capacity**
2019	55.24	0.15	0.14	0.5	29%
2020	1.09	0.16	0.00	0.5	0%
2021	32.55	0.1	0.13	0.5	25%
2022	62.8	0.17	0.11	0.5	22%
2023	83.78	0.23	0.21	0.5	43%
** TWWTP was offline for the majority of 2020 due to MBR replacement					

Table 2.3: NPDES EFFLUENT LIMITS (OUTLET 002) BOD5, TSS AND AMMONIA-NITROGEN				
Effluent Characteristics	**Monthly Average Loading Rate, lbs./day**	**Max Daily Loading Rate, lbs./day**	**Monthly Average Concentration, mg/L**	**Max Daily Concentration, mg/L**
BOD5	42	83	10	20
TSS*	125	250	30	60
Ammonia-Nitrogen	8.3	16.7	2	4

Table 1.7: TMDL ANNUAL WASTELOAD ALLOCATIONS: NITROGEN AND PHOSPHOROUS			
Effluent Characteristics	Charles Town Plant (Outfall 001)	Tuscawilla Plant (Outfall 203)	Annual Total Load Limit (Outfall 003)
Total Nitrogen	32,115 lbs.	10,740 lbs.	42,855 lbs.
Total Phosphorus	3,577 lbs.	1,790 lbs.	5,367 lbs.

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Table 2.4: EFFLUENT LIMITS (OUTFALL OO2); COLIFORM, RESIDUAL CHLORINE, Ph AND D.O.		
Effluent Characteristics	**Maximum**	**Minimum**
Fecal Coliform	200 Counts/100 mL (Geo. Mean) 400 Counts/100 mL (Maximum)	N/A
pH	9	6
Dissolved Oxygen (All Year)	N/A	6.0 mg/L at anytime

Annual effluent loading limits contained in the permit were established under the Chesapeake Bay Total Maximum Daily Load (TMDL) for total nitrogen (TN) and total phosphorus (TP).

Nutrient offsets continue to enhance the City's ability to expand wastewater treatment capacity in light of the nutrient removal requirements of the Chesapeake Bay Program. Because the Tuscawilla WWTP is adjacent to the Locust Hills Golf Course, a portion of its effluent flow is utilized for course irrigation. Telemetry triggers the use of the Tuscawilla Effluent Line for direct discharge to Evitts Run (Outlet 203) when flows exceed Golf Course irrigation use.

Annual reports are submitted to WVDEP for reporting period September through August. Table 2.5 demonstrates CTUB's ability to achieve Chesapeake Bay nutrient limits:

Table 2.5: Nutrient Reporting								
Year	**CTWWTP Nitrogen lbs./year**	**CTWWTP Phosphorous lbs./year**	**TWWTP Nitrogen lbs./year**	**TWWTP Nitrogen lbs./year**	**Total Nitrogen (Outlet 003) *Annual Limit 42,855***	**Total Phosphorous (Outlet 003) *Annual Limit 5,367***	**Golf Course Total Nitrogen (Outlet 202)**	**Golf Course Total Phosphorous (Outlet 202)**
2020-2021	17,112	1,785	1,643	473	13,617	1,550	1,643	473
2021-2022	19,194	2,045	3,190	1,361	17,247	1,904	3,190	1,361
2022-2023	17,127	2,036	4,993	498	17,127	2,036	4,993	498

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Deerfield Treatment Plant

The Deerfield Sewer Treatment Plant is located off Route 480 on Southpaw Lane between Route 9 and Shepherdstown. The facility consists of two adjacent Ashco re-circulating sand filter wastewater treatment plants, one pump station and twelve septic tanks with associated piping. The effluent from this system is distributed just below ground level into two disposal fields.

The Deerfield operates under the West Virginia Department of Environmental Protection Underground Injection Control Permit No. 1503-20-037. The current permit was renewed with an effective date of August 25, 2021 and an expiration date of August 25, 2026. The monitoring requirements are detailed in Table 3.1:

Table 3.1: DEERFIELD PERMIT MINIMUM MONITORING REQUIREMENTS

Effluent Characteristics	Measurement Frequency	Sample Type
Dissolved Oxygen	Once per 6 months	Grab
BOD, 5-day	Once per 6 months	Grab
Total Suspended Solids (TSS)	Once per 6 months	Grab
Total Nitrogen	Once per 6 months	Grab
Total Phosphorous	Once per 6 months	Grab
Flow	Once per 6 months	Grab
Fecal Coliform	Once per 6 months	Grab
pH	Once per 6 months	Grab

Performance and Capacity of Existing Treatment Systems

Effluent results indicate that both the CTWWTP and TWWTP facilities produce effluent water quality consistently meeting the permit requirements. The effluent data demonstrates that BOD and TSS concentrations are generally below the 30-day average permit value. Average monthly effluent NH3 concentrations are also observed to be below the minimum daily maximum permit values.

Flow projections for the CTWWTP indicate expansion improvements will be necessary within the next ten years. In 2021 CTUB had Dewberry and GDF, Inc. review the Capacity Improvement Fees as well as a high-level assessment of future capacity needed for a Wastewater Treatment plant expansion. It is anticipated that in 2030 an expansion up to 2.35 with a potential future expansion of the TWWTP Phase 2 Expansion to 1.0 MGD. Based on the data in Table 1.10, growth projections in Table 1.2 and Appendix A, CTUB will begin preliminary evaluation of options for regional wastewater facility needs and expansion in 2024/2025 based on the extensive time required to design and permit a substantial plant upgrade.

Nutrient Management

Nutrient Management continues to be critical in the regulatory permitting and treatment of sanitary sewer. Previous versions of the SSP documented the history of the implementation of US Environmental Protection Agency (USEPA) 2010 Chesapeake Bay Watershed Initiative. As a headwater partner in the Chesapeake Bay Program, West Virginia established permitted Total Nitrogen and Total Phosphorous pounds. CTUB continues to follow changes in the regulatory requirements to determine necessary changes that may be forthcoming in the Watershed Implementation Program (WIP). CTUB is compliant with nutrient management requirements. CTUB must report nutrient removal for the annual period September 1 to August 31. Table 4.1 depicts permitted pounds and actual pounds removed for the period 2020 through current reporting.

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Table 4.1: Nutrient Management					
	Total Permitted Nitrogen (lbs./yr.)	Total Reported (lbs./yr.)		Total Permitted Phosphorous (lbs./yr.)	Total Reported (lbs./yr.)
2020-2021	42,855	13,617		5,367	1,550
2021-2022	42,855	17,247		5,367	1,904
2022-2023	42,855	17,127		5,367	2,036

Forecasted capacity must now also be based on nutrient limitations. In addition to volumetric capacity, nutrient limits will be a factor in determining the timing of capital projects. The ability to achieve the reported levels, as shown in Table 4.1, will eliminate the need for the CTWWTP Nutrient Removal Phase 2 Project.

Sludge Disposal

Sludge Management is covered under the West Virginia NPDES No. WV0022349. The current permit, reissued on August 23, 2021, expires on June 30, 2026. The requirements for sludge management reporting are extensive and are covered in the permit. The Charles Town Plant currently accepts all of the waste sludge from Tuscawilla as well as the water treatment plant process waste. An upgrade to the sludge process is included with the Renewal and Replacement project which will eliminate the belt press process and construct a new centrifuge process. This process will eliminate the use of lime and will drastically improve operations with a reduction in labor expense due to the improved process.

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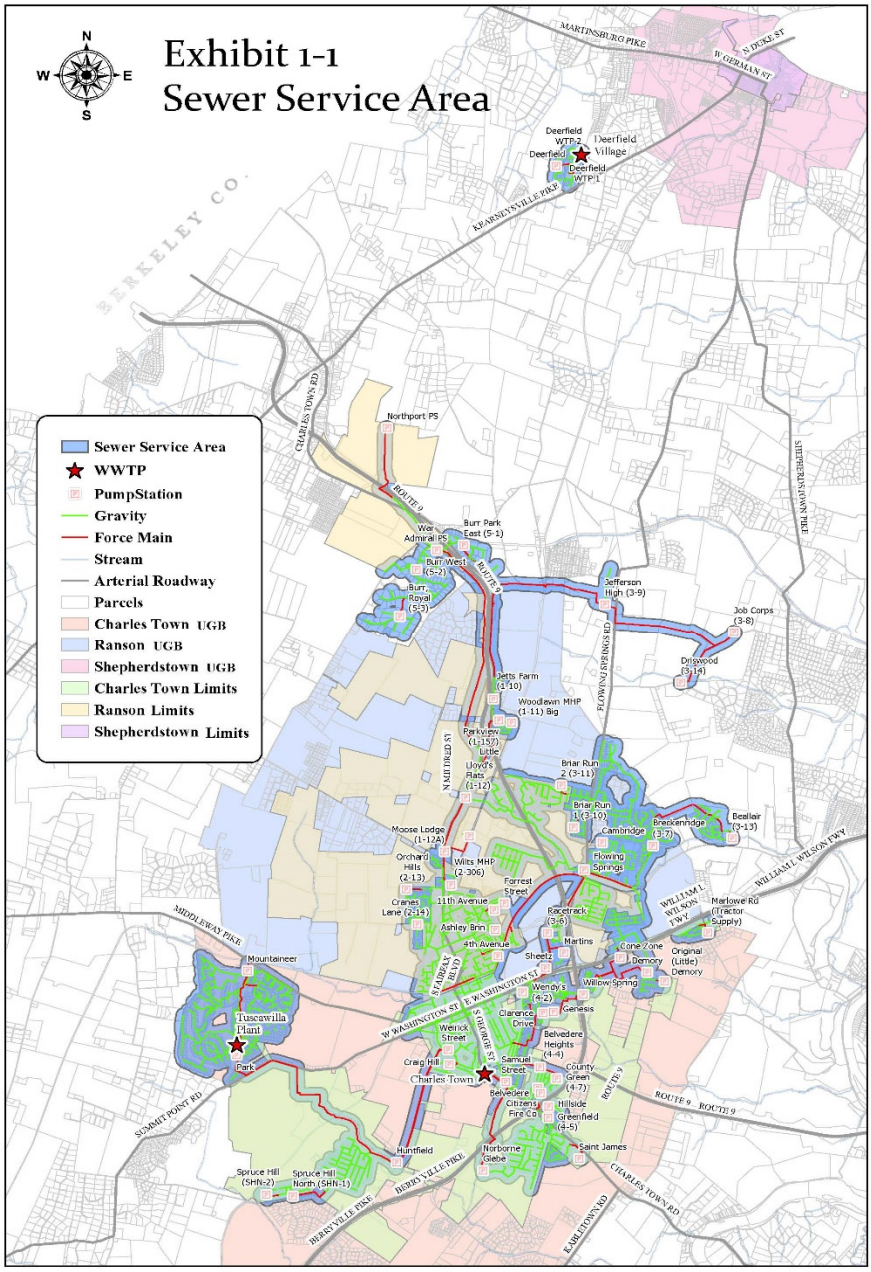
COLLECTION SYSTEM, TRANSMISSION MAINS AND PUMP STATIONS

CTUB provides wastewater service to approximately 8,800 sewer customers through a network of collection and transmission systems through over 125 miles (over 100 miles of gravity and over 25 miles of force main) and 43 pump stations to the three (3) treatment facilities noted in the previous section. Refer to Exhibit 1-1 and Appendix B for the current collection system service area and pump station locations.



Collection System and Pumping Stations



The collection system includes gravity and force mains that range from 1.5 to 24 inches in diameter. The collection system comprises of varying pipe materials including asbestos-cement, clay, ductile, cast and PVC piping. There are significant portions of the collection system that are aging and will likely need of repairs or replacement. A sewer hydraulic model was completed in January 2021 that identified several portions of the conveyance system that may need to be addressed due to capacity concerns. Specifically, the study identified capacity concerns along the Evitt's Run interceptor as well as the gravity line through Jefferson Memorial Park. These critical upgrades have been included in the 2022 Collection System Project. Additionally, studies have focused on manholes structures throughout the system that need to be repaired or replaced in the near future. To the extent possible these will be achieved within the annual operation and maintenance budgets. CTUB will continue to perform flow monitoring throughout the system to assess capacity constraints.

Pump stations and force mains are used to pump flows to another gravity collection system, to a master pump station or directly to the wastewater treatment facilities. There are 43 pump stations in the CTUB system. As a result of utility consolidation, efficiencies have been realized that allow for the installation of gravity sewer mains and decommissioning of pump stations. Where possible, the efficiencies will be pursued to reduce overall operation and maintenance expenses. To the extent possible these projects may be performed in-house to reduce overall project costs.

Fats, Oils and Grease

Overflows and sewer backups are commonly caused by fats, oil and grease (FOG). FOG gets into the sewer from household drains and neglected grease interceptors at businesses and restaurants. The FOG blocks sewer pipes, causing health hazards and leading to expensive fixes. CTUB will focus on community education and outreach to reduce the damage to the utility sewer system.

Inflow and Infiltration

Inflow occurs when stormwater flows directly into the sewer collection system. This may be through a manhole cover, or a cross connection between a storm drain and the sewer collection system. Infiltration is typically caused by ground water entering the collection system at defects in mains, laterals or manholes. CTUB has included additional smoke testing in the operational budgets for the next Strategic Planning period. CTUB continues to assess ways to address disconnection of any cross connections of storm drains to the sewer system which are considered illegal connections. CTUB is working with the City of Charles Town staff and officials to determine the appropriate enforcement actions to remove the illegal connections from the sewer system.

PROJECT REVIEW

Completed Projects

Since the last issuance of the SSP, significant improvements have been made throughout the treatment and collection system. Necessary upgrades and improvements to the CTWWTP and TWWTP were completed to address WVDEP Inspection requirements as well as operation and maintenance improvements to the collection and pump station network have been made as a result of consolidation into a regional utility. These improvements include elimination of pump stations through installation of gravity lines which reduce operation and maintenance expenses as well as projects that address rehabilitation of aging pump stations and lines to further reduce utility expenses.

Table 5.1: Projects Completed since 2021 SSP

Year	Project Description
2021	NPDES Permit Reissuance
2021	Completed 1st step in rate equalization
2021	Completed Manhole assessment
2021	$1,966,030 EEG Grant received for the Renewal and Replacement Project
2021	Decommissioned Hale Road and County Green Pump Stations
2021	Initiated and Completed Sewer Capacity Improvement fee assessment
2022	Issue Notice to Proceed on Renewal and Replacement Project in September 2022
2022	Cave Road and Shenandoah Junction Distressed Utility assistance
2022	Initiate Greenfield Force main upgrade project
2023	Received $1,620,000 EEG Grant from IJDC for the Collection System Project
2023	Completed Class Cost of Service Study on rates
2023	Wendy's Pump Station Upgrades
2023	Basin Cleaning at Charles Town Wastewater Plant
2024	Completed rate equalization of all rates in January 2024

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It should be noted that since the last SSP several key projects have either been completed or are no longer viable projects for CTUB. Specifically, the initial phases of Inflow and Infiltration studies and sewer modeling efforts were completed. Additionally, the Shenandoah Junction and Cave Road distressed utility connections were deemed part of the Jefferson Utility acquisition by West Virginia American Water therefore they are no longer part of planning efforts for CTUB.

Current Development and Projects

There are numerous on-going sewer projects that CTUB is evaluating:

2025 Collection System Project (formerly JCPSD Flowing Springs Project/Modified Flowing Springs Plan)

CTUB is working with RK&K and various consultants to finalize this project and is currently in the process of obtaining easements for the project. The engineer's construction cost estimate for this project is currently $8,283,000. CTUB has received a grant award in the amount of $1,620,000. CTUB also anticipates contributing approximately $3,000,000.00 towards the project from Capacity Improvement Fees. Funding for the Project consists of (i) a $3,575,000 USDA RD loan at a 2.5 percent interest rate over 40 years. And (ii) a DEP SRF loan of $2,844,984 at .25 percent interest, and a .25 percent administrative fee for a term up to 40 years, and debt forgiveness in the amount of $500,000 per the January 17, 2017 DEP assurance letter. During the consolidation of utilities, CTUB committed to the WV PSC completing necessary components of the Flowing Springs project through submission of a Modified Flowing Springs Plan in March 2018. Since the utility consolidation and completion of the Route 9 sewer project, CTUB has evaluated efficiencies and operational alternatives to significantly reduce components and costs of the Modified Flowing Springs Plan. The Flowing Springs Project and Modified Flowing Springs plan have evolved into a 2025 Collection System projects which consists of necessary improvements to the CTUB collection system. Table 5.2 includes a summary of the anticipated components and costs of this project.

2021 Renewal and Replacement Project for CTWWTP and TWWTP

In 2022, CTUB issued the Notice to Proceed on the Renewal and Replacement Project for the Charles Town Wastewater Treatment Plant. This project was awarded to Alvarez Contractors, Inc. in the amount of $10,151,000.00. The project was designed by Gwin, Dobson and Foreman, Inc. (GDF) and included improvements to the following:

- Headworks screening
- The influent and effluent pump stations
- UV disinfection system
- Supervisory Control and Data Acquisition (SCADA) system modifications
- Solids Handling upgrade to Centrifuge
- New Electrical Building and electrical throughout the plant
- Implementation of full sludge digestion
- FRP Shelter installation for electrical components.

The Renewal and Replacement project is approximately 75% complete with several key electrical components waiting to be shipped. Although the project was expected to be substantially complete by June 2024, however it appears that these delays will impact the schedule and delay substantial completion by several months. The project continues to be within budget.

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Table 5.2 below illustrates the anticipated costs associated with the current and future projects:

Table 5.2: 2024 Project Estimate Summary	
WASTEWATER TREATMENT PLANT PROJECTS	
Wastewater Treatment projects	**Costs**
Renewal and Replacement Project (Near Completion end of 2024)	$12,135,000.00
Preliminary Engineering for Plant expansion	$50,000.00
Blue-Nite Sand Filter Rehabilitation	$200,000.00
Maintenance Shop (split with Water Operations)	$250,000.00
Future Plant Projects	
CTWWTP Upgrades and Expansion (2030)	$20,500,000.00
	.
Total Wastewater Plant Project Costs	**$33,135,000.00**
Collection System Projects	**Costs**
RK&K Task 7 Parkview MHP Pump Station Decommission	In-house (COMPLETED)
RK&K Task 7 Lloyd's Flat Pump Station Decommission	In-house (COMPLETED)
Upgrades to Existing Wendy's Pump Station	In-house (COMPLETED)
2022 Collection System Project	
Burr East Pump Station	$910,900.00
Moose Lodge	$426,400.00
Jett's Farm	$721,100.00
Lakeland Place	$1,257,800.00
Jefferson Memorial Park Collector	$332,500.00
Evitt's Run Collector	$1,668,400.00
Flowing Spring Pump Station (Possible Bid Alternate)	$2,965,900.00
Collection System Engineering, Legal, Design	$1,275,000.00
RK&K Collection System Project Total	**$9,558,000.00**
Future CTUB Collection System Projects	**Costs**
Cantor Hollow Pump Station	$145,000.00
Greenfield	$1,100,000.00
Greenfield Pump Station	$370,000.00
Fairfax Parallel Line/Collector Project	$510,000.00
2026/2027 Collection system project	$3,000,000.00
Collections Project and Pump Stations Project (2031)	$3,250,000.00
Total 2022 and Future Collection System Project Costs	**$17,933,000.00**
Total Plant and Collection Projects	**$51,068,000.00**

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Future Projects

CTUB is actively working on various projects that will result in more operational efficiencies, tracking and growth of the utility system. CTUB continues to keep the sewer hydraulic model updated and follows changes in growth that may impact the collection and transmission system growth related projects. CTUB has developed a 10-year Capital Improvement Plan (CIP) Expenditure Plan to track capital projects and expenditures. The CIP prioritizes planning projects that are needed as a result of the following factors:

- Regulatory Compliance
- Condition/Probability of Failure
- Consequences of Failure/Risk
- Capacity / System Operational Efficiencies
- Improved Operations and Maintenance costs
- Safety
- Design Life / Best Replacement Practices
- Redundancy / Reliability
- Opportunity Projects
- Development Extensions

The CTUB Asset Management Plan will be updated to assist with the development and maintenance of a CIP over the next several years. CTUB is continuing to evaluate conversion to a software program that will provide cohesive interaction between accounting, billing, asset management and maintenance programming for all facilities.

CTWWTP Plant Expansion

Expansion of the CTWWTP is expected within the next 10 years based on the historical flow data in Table 1.4 as well as the development projections detailed in Table 1.2. Design efforts will be initiated in 2024/2025.

There are various factors that need to be evaluated with an expansion of the CTWWTP including location, size, type of facility and environmental protection. An expansion from 1.75 MGD is estimated to cost approximately $18 to $23 million in today's dollars. Every effort will be made to provide the most cost-effective design to minimize any burden to ratepayers.

RATE EQUALIZATION, FUNDING AND FINANCIAL OPTIONS

Rate Equalization

During the consolidation of utilities, the City of Charles Town agreed to exercise its best efforts to equalize the rates and charges for water service of all water and sewer customers within 10 years after the closing date. In January 2024, CTUB completed this obligation nearly 5 years ahead of schedule. CTUB continues to maintain a positive financial position. The ability to equalize rates well in advance of the 10-year mark demonstrates the benefits of the consolidation efforts.

The Class Cost of Service Study performed in 2023 identified several rate adjustments necessary for sewer. No rate increase was necessary however the rate tariff structure was revised to more appropriately align the various rates with the customer classes.

CTUB continues to maintain a minimum debt/service coverage ratio of 130%. The debt service coverage ratio required by bondholders for the combined utility is 115%.

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Funding and Financial Planning

CTUB has successfully initiated the Renewal and Replacement project at the Charles Town Wastewater Plant. In addition, CTUB is nearing completion of the 2021 Collection System Project and expects to have the project out to bid in the summer of 2024.

CTUB continues to pursue a strategy for funding upgrades and expansion in a manner that will minimize the burden to the current and future ratepayers. CTUB intends to fund the costs for the above projects through conventional rate impacts, payment of prior bonds and Capacity Improvement Fees. The development of a capital improvement plan will identify future capital purchases that are necessary for the operation of the sewer system. CTUB continues to update the Capital Improvement Plan that will identify system needs and will aid in the evaluation of the Capacity Improvement fees. The next evaluation of Capacity Improvement Fees is anticipated to be underway in 2025.

Future CTWWTP expansion is expected to be necessary within the next 10 years. This will require a significant capital outlay and funding strategies in a future SSP and project discussion. It is anticipated that plant expansion could range from $18 to $23 million.

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APPENDIX A – GROWTH PROJECTIONS

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	Table 1.2 -CTUB Sewer Strategic Plan 2024 Development Forecast																												
	Development	Total Design EDUs	Total Built as of 2024	20 year forecast to be built	Total Flow	Beyond 20 year forecast	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20	Years 11-20	TOTAL @ Year 20	TOTAL REMAINING
							2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2034-2043		
1	Aspen Green	203	85	118	30,450	0	30	30	30	28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	118	0
2	Beallair	372	176	196	55,800	0	30	30	30	30	30	30	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	196	0
3	Blackford Village/Tackley Mill	500	0	500	75,000	0	0	0	0	0	0	0	0	20	20	20	20	20	20	20	20	20	20	20	20	20	200	260	240
4	Briar Run	164	126	38	24,600	0	30	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	38	0
5	Burr Industrial Park & Bardane	200	178	22	30,000	0	3	3	3	3	3	3	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	22	0
6	Cambridge	134	92	42	20,100	0	3	3	3	3	3	3	3	3	3	3	3	3	3	3		0	0	0	0	0	12	42	0
7	Cantor Hollow	124	0	124	18,600	0	0	0	30	30	30	34	0															124	0
8	Charles Town Infill	250	38	212	37,500	112	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	50	100	112
9	Clayhill Farm	300	0	300	45,000	0	0	0	0	0	0	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	200	300	0
10	Country Club Commons	8	0	8	1,200	0	0	0	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	8	0
11	Fairview	450	0	450	67,500	0	0	0	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	0	0	0	210	450	0
12	Harvest Hills	392	6	386	58,800	166	0	0	0	0	0	0	0	0	0	20	20	20	20	20	20	20	20	20	20	20	200	220	166
13	Huntfield	3,200	554	2,646	480,000	2,046	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	300	600	2046
14	Huntwell West	350	26	324	52,500	0	30	30	30	30	30	30	30	30	30	30	24	0	0	0	0	0	0	0	0	0	24	324	0
15	Jefferson Orchards	888	0	888	133,200	688	0	0	0	0	0	0	0	0	0	0	20	20	20	20	20	20	20	20	20	20	200	200	688
16	Kable Townhomes	22	0	22	3,300	0	0	22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	22	0
17	King's Crossing	404	58	346	60,600	0	30	30	30	30	30	30	30	30	30	30	30	16	0	0	0	0	0	0	0	0	46	346	0
18	Locust Knoll	300	0	300	45,000	0	0	0	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	0	0	0	140	300	0
19	Magnolia Springs	300	259	41	45,000	0	41	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	41	0
20	Norborne Glebe	1,050	626	424	157,500	0	30	30	30	30	30	30	30	30	30	30	30	30	30	34	0	0	0	0	0	0	124	424	0
21	Old Town Ranson - Infill	250	10	240	37,500	90	10	10	10	10	10	10	10	10	10	10	5	5	5	5	5	5	5	5	5	5	50	150	90
22	Orchard Springs	270	0	270	40,500	0	0	30	30	30	30	30	30	30	30	30	0	0	0	0	0	0	0	0	0	0	0	270	0
23	Potomac Marketplace	54	2	52	8,100	0	5	5	5	5	5	5	5	5	5	5	2	0	0	0	0	0	0	0	0	0	2	52	0
24	President's Pointe	1,100	233	867	165,000	267	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	300	600	267
25	Prospect Place	170	0	170	25,500	0	0	0	0	0	9	9	25	25	25	25	25	27	0	0	0	0	0	0	0	0	52	170	0
26	Ranson Gateway / Boulevard	1,175	0	1,175	176,250	815	0	0	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	200	360	815
27	Ranson Heights	428	0	428	64,200	0	30	30	30	30	30	30	30	30	30	30	30	30	30	30	8	0	0	0	0	0	128	428	0
28	Red Clover Meadows (formerly Lloyd Property)	258	0	258	38,700	0	30	30	30	30	30	30	30	30	18	0	0	0	0	0	0	0	0	0	0	0	0	258	0
29	Shenandoah Springs	705	285	420	105,750	0	30	30	30	30	30	30	30	30	30	30	30	30	30	30	0	0	0	0	0	0	120	420	0
30	Spring Hill	588	0	588	88,200	48	0	0	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	300	540	48
31	Stonecrest	320	0	320	48,000	0	30	30	30	30	30	30	30	30	30	30	20	0	0	0	0	0	0	0	0	0	20	320	0
32	Stone Spring (formerly Fritts Property)	328	0	328	49,200	0	30	30	30	30	30	30	30	30	30	30	28	0	0	0	0	0	0	0	0	0	28	328	0
33	Washington Landing	274	204	70	41,100	0	70	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	70	0
34	Windmill Crossing	150	146	4	22,500	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0
35	Lakeland Place	464	0	464	69,600	0	0	0	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	14	0	0	224	464	0
36	Shoemaker Property	300	0	300	45,000	0	0	0	30	30	30	30	30	30	30	30	30	30	0	0	0	0	0	0	0	0	60	300	0
37	WVU Medical	500	0	500	75,000	50	0	0	0	0	0	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	300	450	50
38	Hillside	150	0	150	22,500	0	0	30	30	30	30	30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	150	0
39	Vinton Property	300	0	300	45,000	0	0	0	30	30	30	30	30	30	30	30	30	30	0	0	0	0	0	0	0	0	60	300	0
	Total Projected Development	**16,145**	**3,104**	**14,291**	**2,541,750**	**4,232**	**528**	**447**	**548**	**546**	**526**	**550**	**518**	**520**	**507**	**509**	**472**	**386**	**343**	**347**	**258**	**250**	**250**	**200**	**200**	**200**	**3,130**	**8,569**	**4,472**

APPENDIX B – EXISTING SERVICE AREA

DRAFT

Exhibit 1-1
Sewer Service Area

N
W
E
S

- Sewer_Service_Area
- WWTP
- Pump_Station
- Gravity
- Force_Main
- Stream
- Arterial_Roadway
- Parcels
- Charles_Town_UGB
- Ranson_UGB
- Shepherdstown_UGB
- Charles_Town_Limits
- Ranson_Limits
- Shepherdstown_Limits

MARTINSBURG PIKE
N DUKE ST
W GERMAN ST
Deerfield Village
Deerfield
KEARNEYSVILLE PIKE
BERKELEY CO.
Northport PS
CHARLES TOWN RD
War Admiral PS
Burr Park East (5-1)
Burr West (5-2)
Burr, Royal (5-3)
ROUTE 9
Jefferson High (3-9)
Job Corps (3-8)
FLOWING SPRINGS RD
Driswood (3-14)
SHEPHERDSTOWN PIKE
Jetts Farm (1-10)
Woodlawn MHP (1-11) Big
Briar Run 2 (3-11)
N MILDRED ST
Briar Run 1 (3-10)
Beallair (3-13)
Breckenridge (3-7)
Moose Lodge (1-12A)
Flowing Springs
WILLIAM L WILSON FWY
Orchard Hills (2-13)
Wilts MHP (2-306)
Forrest Street
Cranes Lane (2-14)
11th Avenue
Marlowe Rd (Tractor Supply)
Ashley Brin
Racetrack (3-6)
4th Avenue
MIDDLEWAY PIKE
Mountaineer
Original (Little) Demory
Demory
E WASHINGTON ST
N GEORGE ST
Wendy's (4-2)
Willow Spring
Clarence Drive
Tuscawilla Plant
W WASHINGTON ST
Weirick Street
S GEORGE ST
Magnolia Springs
Park
Craig Hill
Charles Town
Belvedere
Samuel Street
Hillside
ROUTE 9
ROUTE 9
ROUTE 9
Greenfield (4-5)
SUMMIT POINT RD
BERRYVILLE PIKE
Huntfield
Spruce Hill (SHN-2)
Spruce Hill North (SHN-1)
BERRYVILLE PIKE
CHARLES TOWN RD
KABLETOWN RD

APPENDIX C – PROJECTED DEVELOPMENTS

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Exhibit 1-2
Projected Developments

* See 2024-2043 Development Forecast spreadsheet in Appendix A of Strategic Plan

	Development
1	Aspen Green
2	Beallair
3	Blackford Village/Tackley Mill
4	Briar Run
5	Burr Industrial Park & Bardane
6	Cambridge
7	Cantor Hollow
8	Charles Town Infill
9	Clayhill Farm
10	Country Club Commons
11	Fairview
12	Harvest Hills
13	Huntfield
14	Huntwell West
15	Jefferson Orchards
16	Kable Townhomes
17	King's Crossing
18	Locust Knoll
19	Magnolia Springs
20	Norborne Glebe
21	Old Town Ranson - Infill
22	Orchard Springs
23	Potomac Marketplace
24	President's Pointe
25	Prospect Place
26	Ranson Gateway / Boulevard
27	Ranson Heights
28	Red Clover Meadows (formerly Lloyd Property)
29	Shenandoah Springs
30	Spring Hill
31	Stonecrest
32	Stone Spring (formerly Fritts Property)
33	Washington Landing
34	Windmill Crossing
35	Lakeland Place
36	Shoemaker Property
37	WVU Medical
38	Hillside
39	Vinton Property

Tuscawilla Plant

Charles Town

CHARLES TOWN RD
ROUTE 9
SHEPHERDSTOWN PIKE
FLOWING SPRINGS RD
WILLIAM L WILSON FWY
MIDDLEWAY PIKE
N MILDRED ST
E WASHINGTON ST
W WASHINGTON ST
N GEORGE ST
S GEORGE ST
BERRYVILLE PIKE
SUMMIT POINT RD
KABLETOWN RD

WWTP
Gravity
Force_Main
Stream
Arterial_Roadway
Parcels
Charles_Town
Ranson_UGB
Shepherdstown_UGB
Charles_Town_Limits
Ranson_Limits

STH, Inc.
97 D Monocacy Blvd
Frederick MD 21701
Phone: (301) 682-3390
Fax: (301) 682-3391

Quote

Quote # QTE25374

Date 4/10/2024

Bill To

Charles Town Utility Board
661 South George Street
suite 101
Charles Town WV 25414
United States

Ship To

TOTAL

$11,850.00

Expires: 5/10/2024

Title

Spruce Hill North 1 SPS Spare Pump

Account Rep	Lead Time	Terms
Cameron A Hallock (301) 370-3949	10-12 weeks	Net 30

Item	Amount
STH Proposal - Group STH Proposal to Include: Qty.1 WG75HH-03 27100F020 7-1/2HP, 200V, 3PH Grinder Qty.1 Freight Allowed	$11,850.00

Quoted price does not include Federal, State, or Local Sales Tax.

Subtotal	$11,850.00
Tax Total (%)	$0.00
Total	$11,850.00

Terms and Conditions:

Dear Valued Customer,

Unless specified otherwise, quoted price does not include shipping or freight charges. FOB Shipping Point. Start-up and Warranty will not be provided until complete payment has been received. All terms subject to credit approval. Past due accounts are subject to 2% per month service charge. APR of 24%. All attorney fees and court costs incurred in collection of past due accounts will be added to amount due. The above is accepted subject to the terms as stated. Payment will be issued in accordance with STH terms. I accept a fax or e-mail of this agreement to be as legally binding as an original document. If tax exempt, include a copy of your tax certificate. State law requires us to have a copy on file. Quotes Valid for 30 days.

PO #: _____ Date: _____ STH Authorization: _____ Date: _____

Company Name: _____ Date: _____

Authorized:_____ Title: _____

STH, Inc.
97 D Monocacy Blvd
Frederick MD 21701
Phone: (301) 682-3390
Fax: (301) 682-3391

Quote

Quote # QTE25367

Date 4/9/2024

Bill To

Charles Town Utility Board
661 South George Street
suite 101
Charles Town WV 25414
United States

Ship To

TOTAL

$10,900.00

Expires: 5/9/2024

Title

CTUB - Race Track Pump Station Spare Pump

Account Rep	Terms
Cameron A Hallock (301) 370-3949	Net 30

Item	Quantity	Rate	Amount
4VHX150M4-23 Myer 4VHX150M4-23 Submersible Wastewater Pump 15HP, 1750 RPM, Rated for 230V/3PH Power Dual Mechanical Seals, Oil-Filled Motor 35' Power/Control Cables, Explosion-Proof Rated 9.00" Impeller Trim	1	$10,500.00	$10,500.00
Freight Allowed Freight allowed - prepaid transportation charges which are included in the contract price	1	$400.00	$400.00

*****Quoted price does not include Federal, State, or Local Sales Tax.*****

Subtotal	$10,900.00
Tax Total (%)	$0.00
Total	$10,900.00

Terms and Conditions:

Dear Valued Customer,

Unless specified otherwise, quoted price does not include shipping or freight charges. FOB Shipping Point. Start-up and Warranty will not be provided until complete payment has been received. All terms subject to credit approval. Past due accounts are subject to 2% per month service charge. APR of 24%. All attorney fees and court costs incurred in collection of past due accounts will be added to amount due. The above is accepted subject to the terms as stated. Payment will be issued in accordance with STH terms. I accept a fax or e-mail of this agreement to be as legally binding as an original document. If tax exempt, include a copy of your tax certificate. State law requires us to have a copy on file. Quotes Valid for 30 days.

PO #: _____ Date: _____ STH Authorization: _____ Date: _____

Company Name: _____ Date: _____

Authorized:_____ Title: _____

Charles Town
Utility Board

661 S. George Street, Suite 101 Charles Town, WV 25414
Phone: (304) 725-2316 ♦ Fax: (304) 725-7150 ♦ Web: www.ctubwv.com

UTILITY BOARD

CHAIRMAN
City of Charles Town City Manager
John Nissel

VICE CHAIRMAN
City of Ranson Mayor
Duke Pierson

TREASURER
Thomas Stocks

SECRETARY
Ashley Stottlemyer

Board Member
Jefferson Whitten

Board Member
Heidi Parker

UTILITY MANAGER
Kristen Stolipher

RESOLUTION NO. 2024-02
CHARLES TOWN UTILITY BOARD

WHEREAS there is need for the Charles Town Utility Board by and for Water and Sewer operations to adopt Water and Sewer Budgets for Fiscal Year 2025;

WHEREAS it has been determined that certain CITY OF CHARLES TOWN (WEST VIRGINIA) Combined Waterworks and Sewerage System Refunding Revenue Bonds require the following:

Section 6.15. Operating Budget. The Issuer shall annually, at least 30 days preceding the beginning of each Fiscal Year, or at such earlier date required by its charter or the ordinance of the Board, prepare and adopt by resolution a detailed budget of the estimated revenues and expenditures for operation and maintenance of the System during the succeeding Fiscal Year. The Issuer shall mail copies of such annual budget and all resolutions authorizing increased expenditures for operation and maintenance to the Original Purchaser and shall make available such budgets and all resolutions authorizing increased expenditures for operation and maintenance of the System at all reasonable times to the Original Purchaser and to any Holder of Bonds or anyone acting for and in behalf of such Holder who requests the same;

NOW, THEREFORE, BE IT RESOLVED, that the Charles Town Utility Board hereby adopts Water and Sewer Budgets for Fiscal Year 2025, dated April 24, 2024.

CHARLES TOWN UTILITY BOARD

_____
Chairman

Attest:

_____

Dated:

Charles Town Utility Board

FISCAL YEAR 2025 BUDGET

| 661 S. GEORGE STREET, SUITE 101, CHARLES TOWN WV 25414

Charles Town Utility Board
Water Fund
Annual Operating Budget
For the year ending June 30, 2025

	FY 2024 BUDGET Approved 4/10/2024	FY 2025 PROPOSED BUDGET (For approval 4/24/2024)
OPERATING REVENUES		
Sales and Services to Customers	$ 4,535,500	$ 4,900,000
Total Operating Revenues	4,535,500	4,900,000
OPERATING EXPENSES		
Salaries, Wages, and Benefits	1,520,844	1,684,250
Contractual Services	130,000	140,000
Administrative and General	225,800	245,800
Material and Supplies	437,000	438,000
Utilities	158,400	165,000
Maintenance	820,000	830,000
License Fees and Subscriptions	141,500	134,000
Total Operating Expenses	3,433,544	3,637,050
Operating Income (before dep expense)	1,101,956	1,262,950
Depreciation Expense (non-cash)	(1,237,073)	(1,237,073)
Operating Income	(135,117)	25,877
NON-OPERATING REVENUES (EXPENSES)		
Tank Lot Rental Revenue	565,000	565,000
Interest Income	145,000	160,000
Sinking Fund Income	28,000	34,000
Misc. Water Revenue	35,000	40,000
Interest on Long Term Debt	(376,358)	(358,160)
Total Non-Operating Revenues (Expenses)	396,642	440,840
NET INCOME (LOSS)	$ 261,525	$ 466,717

Charles Town Utility Board
Water Fund
Budget Comparison
For the year ending June 30, 2025

	FY 2022 ACTUAL	FY 2023 ACTUAL	FY 2024 BUDGET	FY 2024 RE-BUDGET	FY 2025 BUDGET	VARIANCE
OPERATING REVENUES						
Metered Sales - Residential	$ 2,552,400	$ 2,631,779	$ 2,664,000	$ 2,915,000	$ 3,182,000	$ 267,000
Metered Sales - Commercial	1,287,225	1,297,903	1,340,000	1,400,000	1,525,000	125,000
Metered Sales - Glen Haven/Cavaland	95,952	93,582	100,000	88,000	58,000	(30,000)
Bulk Water	17,964	20,879	20,000	24,000	25,000	1,000
Customer Penalties	68,449	77,641	85,000	80,000	80,000	-
Misc Service Revenue - Reconnection	31,200	31,090	38,000	28,500	30,000	1,500
TOTAL OPERATING REVENUES	**4,053,190**	**4,152,875**	**4,247,000**	**4,535,500**	**4,900,000**	**364,500**
OPERATING EXPENSES						
Water Supply & Treatment						
Materials & Supplies	16,477	3,711	15,000	15,000	15,000	-
Maint of Water Source	19,983	13,337	20,000	30,000	30,000	-
Salaries & Wages	330,783	356,132	380,129	380,129	441,390	61,261
Power & Fuel	119,074	139,912	140,000	150,000	155,000	5,000
Power & Fuel - GH/CAV	6,462	8,131	8,400	8,400	10,000	1,600
Chemicals	142,717	168,802	170,000	185,000	185,000	-
Testing	33,383	55,512	55,000	35,000	35,000	-
Material & Supplies - WTP	19,954	23,911	25,000	30,000	30,000	-
Material & Supplies - GH/CAV	3,097	3,957	4,000	4,000	5,000	1,000
Sludge Hauling	-	39,672	39,500	45,000	55,000	10,000
Maint of Water Treatment Plant	99,915	78,922	90,000	90,000	90,000	-
Maint of Water Plant - GH/CAV	5,640	1,579	5,000	10,000	10,000	-
License Fees & Subscriptions	-	25,701	34,000	25,000	20,000	(5,000)
Total Water Supply & Treatment	797,485	919,280	986,029	1,007,529	1,081,390	73,861
Transmission & Distribution - Maint						
Salaries & Wages	433,575	384,205	389,144	389,144	403,960	14,816
Materials & Supplies	15,730	18,382	20,000	25,000	25,000	-
Maint of Dist Reservior & Standpipes	67,440	25,738	50,000	50,000	50,000	-
Maint of Mains	99,659	115,918	120,000	120,000	120,000	-
Maint of Services	142,338	142,239	150,000	160,000	160,000	-
Maint of Meters	136,320	174,843	180,000	240,000	240,000	-
Maint of Hydrants	4,703	26,565	15,000	50,000	50,000	-
Total Tranmission & Distribution	899,764	887,889	924,144	1,034,144	1,048,960	14,816
Billing & Accounting Expenses						
Salaries & Wages	154,591	167,573	197,629	197,629	197,629	-
Billing Expense	12,772	38,645	40,000	65,000	65,000	-
License Fees & Subscriptions	-	46,466	64,500	64,500	72,000	7,500
Bad Debt Expense	9,395	5,986	10,000	15,000	15,000	-
Total Billing & Accounting	176,758	258,669	312,129	342,129	349,629	7,500
Administrative & General Expenses						
Salaries & Wages	113,679	115,470	130,607	130,607	139,895	9,289
Director Compensation	-	2,375	2,500	2,500	2,500	-
Employee Insurance & Benefits	151,137	160,399	221,784	178,000	229,592	51,592
Employee Pension - PERS	98,636	41,786	98,776	98,776	106,684	7,908
Payroll Taxes - FICA	79,894	79,534	83,959	83,959	90,681	6,722
OPEB	(82,310)	(61,995)	-	-	6,936	6,936
Employee Pension - 457 Plan	-	17,792	18,101	22,101	23,325	1,224
Office Supplies & Expense	98,178	66,249	65,000	78,000	78,000	-
Travel, Training, & Education		-	-	6,500	15,000	8,500

Charles Town Utility Board
Water Fund
Budget Comparison
For the year ending June 30, 2025

	FY 2022 ACTUAL	FY 2023 ACTUAL	FY 2024 BUDGET	FY 2024 RE-BUDGET	FY 2025 BUDGET	VARIANCE
Uniform Expense		-	-	8,000	10,000	2,000
Computers - Technology	12,772	15,635	15,000	22,000	22,000	-
Maintenance of General Property	14,879	16,123	15,000	25,000	25,000	-
License Fees & Subscriptions	-	14,715	30,000	30,000	20,000	(10,000)
Contractual Services - Engineering	77,802	15,269	20,000	25,000	30,000	5,000
Contractual Services - Accounting	19,341	17,178	20,000	20,000	20,000	-
Contractual Services - Legal	10,066	27,756	20,000	65,000	65,000	-
Contractual Services - Other	61,468	21,117	20,000	20,000	25,000	5,000
Rental of Office Building	-	-	15,000	15,300	15,300	-
Transportation Expense	50,712	73,448	78,000	68,000	72,000	4,000
Property Insurance	74,393	74,916	85,000	85,000	95,000	10,000
Worker's Comp	33,072	32,896	35,000	26,000	19,158	(6,842)
Regulatory Commission Expense	15,086	12,793	20,000	20,000	20,000	-
Misc. General Expense	9,567	10,149	10,000	10,000	15,000	5,000
Advertising & Publication Expense	-	3,805	-	4,000	5,000	1,000
Bond Administration Fees	5,119	5,193	6,000	6,000	6,000	-
Total Administrative & General	843,493	762,602	1,009,727	1,049,742	1,157,072	107,329
TOTAL OPERATING EXPENSES	**2,717,500**	**2,828,440**	**3,232,029**	**3,433,544**	**3,637,050**	**203,506**
Operating Income (before Depreciation)	1,335,690	1,324,435	1,014,971	1,101,956	1,262,950	160,994
Depreciation Exp (Non-cash, not budgeted)	(1,186,118)	(1,237,073)	(1,165,000)	(1,237,073)	(1,237,073)	-
OPERATING INCOME (LOSS)	**149,572**	**87,362**	**(150,029)**	**(135,117)**	**25,877**	**14,911**
NON-OPERATING REVENUES (EXPENSES)						
Tank Lot Rental Revenue	523,603	566,391	565,000	565,000	565,000	-
Interest Income	5,009	23,891	23,000	145,000	160,000	15,000
Sinking Fund Income	469	19,139	20,000	28,000	34,000	6,000
Misc. Water Revenue	71,609	33,484	50,000	35,000	40,000	5,000
Grant Revenue	46,765	11,080	-	-	-	-
Bond Issuance Costs	(139,733)	-				-
Gain on Sale of Assets	-	14,005	-	-	-	-
Interest on Long-term Debt	(445,578)	(395,146)	(425,000)	(376,358)	(358,160)	18,198
TOTAL NON-OPERATING REVENUES (EXP)	**62,144**	**272,844**	**233,000**	**396,642**	**440,840**	**44,198**
NET INCOME (LOSS)	**$ 211,716**	**$ 360,206**	**$ 82,971**	**$ 261,525**	**$ 466,717**	**$ 59,109**

Charles Town Utility Board
Water Fund
Debt Service Schedule
Fiscal Year 2025

	BUDGET
BONDS	
1987 Series B Revenue Bond	$ 10,885
1988 Series B Revenue Bond	14,308
1989 Series B Revenue Bond	3,012
2002 Series A Revenue Bond	71,988
2002 Series B Revenue Bond	93,507
2010 Series A Revenue Bond	55,466
2010 Series B Revenue Bond	6,079
2016 Series A Revenue Bond	429,019
2018 Series A-7 Revenue Bond	35,391
1988 Series B Revenue Bond	244,700
1988 Series B Revenue Bond	444,029
Total Debt Service - Bonds	1,408,384
Notes Payable - City of Charles Town	10,800
Required Renewal & Replacement 2.5% of Revenue	122,500
TOTAL DEBT SERVICE - FY 2025	**$ 1,541,684**

Charles Town Utility Board
Water Fund
Capital Expenditure Budget
Fiscal Year 2025

	FY 2025 BUDGET
DESCRIPTION	
Renewal & Replacement Fund - (Includes 2.5% for FY 2025)	942,994
Capital Improvement Fund	7,406,620
FUNDS AVAILABLE FOR CAPITAL IMPROVEMENTS	**$ 8,349,614**
ANTICIPATED CAPITAL EXPENDITURES	
Fleet and Related Equipment	150,000
Specialized Equipment (Escavator, Mowers, etc)	50,000
Safety Equipment	50,000
Meter Replacement	150,000
WTP Repair/Replacement	60,000
Distribution System Repair/Replacement	45,000
General Property Repair/Replacement	30,000
Misc. Repairs/Replacements/Equipment	40,000
Asset Management Software Implementation	40,000
Billing/Accounting Software Implementation	50,000
Fleet and Related Equipment	25,000
TOTAL CAPITAL EXPENDITURES	**$ 690,000**

WATER TREATMENT AND DISTRIBUTION SYSTEM CAPITAL IMPROVEMENTS
(Current - FY 2025)

PROJECT NAME	
Phase A Projects - Appendix A	2,802,658
TOTAL CAPITAL IMPROVEMENT PROJECT EXPENDITURES	**$ 2,802,658**

1.) Refer to Appendix A for the breakdown of Phase A water projects that are planned for FY 2025.
2.) Water projects in Phase A are being financed with internal funding and a future bond issue.

Appendix A.

Water Treatment and Distribution System Capital Improvement Projects			
	Phase A	Phase B	Phase C
Project Name	**2022 - 2025**	**2026-2027**	**2028-2031**
Wells & Springs (Back-up water source)	1,614,900	-	
WTP Chlorine Room Upgrades	119,900	-	
River Intake VFD Installation	232,090	-	
WTP Process Solids, Recycle and Sanitary Forcemain Design	914,950	-	
Intake Construction Cost	-	-	1,265,000
Water Treatment Plant Upgrade	-	-	17,505,000
Main Zone Improvements	-	1,050,000	2,468,000
Northern High Zone Improvements	-	298,000	3,526,000
Huntfield Zone Improvements	-	21,000	3,478,000
Shared - Maintenance Building - (Water/Sewer)	250,000	-	-
Water Capital Improvement Projects	**$ 3,131,840**	**$ 1,369,000**	**$ 28,242,000**

	Estimated Project Costs	Prior FY Expenditures	YTD Expenditures	Projected Budget	Phase B	Phase C	Total 5-Year Project Costs
Project Name	**4/24/2024**	**2022-2023**	**2024**	**2025**	**2026-2027**	**2028-2031**	**2025-2031**
		Phase A - 2022-2025					
Wells & Springs (Back-up water source)	1,614,900	34,845	-	1,580,055	-	-	1,614,900
WTP Chlorine Room Upgrades	119,900	2,261	-	117,639	-	-	119,900
River Intake VFD Installation	232,090	82,419	54,476	95,195	-	-	232,090
WTP Process Solids, Sant. FM/PS Design	914,950	10,351	144,829	759,770	-	-	914,950
Intake Construction Cost	1,265,000	-	-	-	-	1,265,000	1,265,000
Water Treatment Plant Upgrade	17,505,000	-	-	-	-	17,505,000	17,505,000
Main Zone Improvements	3,518,000	-	-	-	1,050,000	2,468,000	3,518,000
Nothern High Zone Improvements	3,824,000	-	-	-	298,000	3,526,000	3,824,000
Huntfield Zone Improvements	3,499,000	-	-	-	21,000	3,478,000	3,499,000
Shared - Maintenance Building (Water/Sewer)	250,000	-	-	250,000	-		250,000
	$ 32,742,840	**$ 129,876**	**$ 199,305**	**$ 2,802,658**	**$ 1,369,000**	**$ 28,242,000**	**$ 32,742,840**

Charles Town Utility Board
Sewer Fund
Annual Operating Budget
For the year ending June 30, 2025

	FY 2024 BUDGET (Approved 4/10/2024)	FY 2025 PROPOSED BUDGET (For approval 4/24/2024)
OPERATING REVENUES		
Sales and Services to Customers	$ 6,884,000	$ 7,047,000
Total Operating Revenues	6,884,000	7,047,000
OPERATING EXPENSES		
Salaries, Wages, and Benefits	1,635,281	1,788,083
Contractual Services	260,000	290,000
Administrative and General	315,500	317,500
Material and Supplies	562,300	562,300
Utilities	390,000	390,000
Maintenance	1,090,000	1,085,000
License Fees and Subscriptions	90,000	100,000
Total Operating Expenses	4,343,081	4,532,883
Operating Income (before dep expense)	2,540,919	2,514,117
Depreciation Expense (non-cash)	(2,205,421)	(2,205,421)
Operating Income	335,498	308,696
NON-OPERATING REVENUES (EXPENSES)		
Misc. Sewer Revenues	30,000	30,000
Interest Income	162,000	170,000
Sinking Fund Income	160,000	165,000
Interest on Long Term Debt	(603,946)	(587,147)
Total Non-Operating Revenues (Expenses)	(251,946)	(222,147)
NET INCOME (LOSS)	$ 83,552	$ 86,549

Charles Town Utility Board
Sewer Fund
Budget Comparison
For the year ending June 30, 2025

	FY 2022 ACTUAL	FY 2023 ACTUAL	FY 2024 BUDGET	FY 2024 REVISION	FY 2025 BUDGET	VARIANCE
OPERATING REVENUES						
CTUB Revenue	$ 2,322,727	$ 2,386,475	$ 2,432,000	$ 2,600,000	$ 2,650,000	$ 168,000
Ranson Revenue	1,375,136	1,380,961	1,414,000	1,500,000	1,550,000	86,000
JCPSD Revenue	2,442,288	2,513,120	2,526,000	2,660,000	2,720,000	134,000
Customer Penalties	37,066	40,989	42,000	42,000	45,000	-
Customer Penalties - RA	22,271	29,204	30,000	30,000	32,000	-
Customer Penalties - PSD	39,799	48,949	52,000	52,000	50,000	-
TOTAL OPERATING REVENUES	**6,239,287**	**6,399,697**	**6,496,000**	**6,884,000**	**7,047,000**	**388,000**
OPERATING EXPENSES						
Collection System						
Materials & Supplies	12,379	16,561	20,000	15,000	15,000	-
Maint of Service Connections	48,744	15,674	55,000	65,000	65,000	-
Maint of Collecting & Trans. Mains	164,145	202,377	220,000	180,000	180,000	-
Total Collection System	225,268	234,612	295,000	260,000	260,000	-
Pumping System						
Salaries & Wages	306,999	322,237	402,006	402,006	513,870	111,864
Power	111,591	125,274	135,000	140,000	140,000	-
Materials & Supplies	16,530	18,444	25,000	25,000	25,000	-
Sludge Hauling	-	38,216	40,000	65,000	65,000	-
Maint of Pump Stations	191,129	120,047	210,000	180,000	180,000	-
Total Pumping System	626,249	624,217	812,006	812,006	923,870	111,864
Wastewater Treatment & Disposal						
Salaries & Wages	232,759	268,744	313,509	313,509	276,817	(36,692)
Power - CT Plant	126,830	139,034	135,000	150,000	150,000	-
Power - TUI	79,684	91,713	90,000	90,000	90,000	-
Power - Deerfield	7,178	6,179	10,000	10,000	10,000	-
Chemical Expense - CT	154,853	177,471	175,000	180,000	180,000	-
Chemical Expense - TUI	17,927	6,977	20,000	25,000	25,000	-
Testing - CT	26,431	30,144	35,000	35,000	35,000	-
Testing - TUI	6,191	14,304	12,000	12,000	12,000	-
Materials & Supplies	99,310	77,336	80,000	80,000	80,000	-
Sludge Hauling - CT	-	4,703	5,000	-		-
Sludge Hauling - TUI	-	22,633	13,000	60,000	60,000	-
Maint. Burns Farm	74,744	114,560	110,000	110,000	110,000	-
Maint. Treatment Plant - CT	118,213	183,209	200,000	240,000	230,000	(10,000)
Maint. Treatment Plant - TUI	70,802	102,802	90,000	145,000	150,000	5,000
Maint. Treatment Plant - Deerfield	23,875	1,672	15,000	15,000	15,000	-
Total Wastewater Treatment & Disposal	1,038,797	1,241,482	1,303,509	1,465,509	1,423,817	(41,692)
Billing & Accounting Expenses						
Salaries & Wages	200,143	211,963	246,780	246,780	285,793	39,014
Billing Expense	88,263	86,603	60,000	75,000	75,000	-
License Fees & Subscriptions	-	20,090	40,000	40,000	50,000	10,000
Bad Debt Expense	16,230	14,723	15,000	25,000	25,000	-
Total Billing & Accounting	304,636	333,379	361,780	386,780	435,793	49,014
Administrative & General Expenses						
Salaries & Wages	180,454	191,897	205,113	205,113	218,805	13,692

Charles Town Utility Board
Sewer Fund
Budget Comparison
For the year ending June 30, 2025

	FY 2022 ACTUAL	FY 2023 ACTUAL	FY 2024 BUDGET	FY 2024 REVISION	FY 2025 BUDGET	VARIANCE
Director Compensation	-	2,375	2,500	2,500	2,500	-
Employee Insurance & Benefits	143,532	142,750	256,412	210,000	198,920	(11,080)
Employee Pension - PERS	90,706	41,052	105,067	105,067	116,801	11,734
Payroll Taxes - FICA	71,979	76,339	89,307	89,307	99,281	9,974
OPEB	14,566	(59,230)	-	-	6,120	6,120
Employee Pension - 457 Plan	-	16,205	17,608	20,000	23,808	3,808
Office Supplies & Expense	113,797	67,884	75,000	85,000	85,000	-
Travel, Training, & Education	-	15,545	-	12,000	20,000	8,000
Uniform Expense	-	3,952	-	6,500	10,000	3,500
Computers - Technology	-	13,614	18,000	20,000	20,000	-
Maintenance of General Property	28,583	23,135	30,000	30,000	30,000	-
License Fees & Subscriptions	-	13,537	30,000	30,000	30,000	-
Contractual Services - Engineering	48,685	24,850	35,000	35,000	35,000	-
Contractual Services - Accounting	28,840	37,950	40,000	30,000	30,000	-
Contractual Services - Legal	143,648	214,365	180,000	180,000	200,000	20,000
Contractual Services - Other	45,327	11,599	25,000	15,000	25,000	10,000
Rental of Office Building	-	-	15,000	15,300	15,300	-
Transportation Expense	67,391	84,099	85,000	90,000	90,000	-
Property Insurance	90,706	73,986	110,000	110,000	110,000	-
Worker's Comp	26,736	30,365	35,000	25,000	17,868	(7,132)
Regulatory Commission Expense	24,984	19,383	30,000	30,000	30,000	-
Misc. General Expense	7,830	12,084	10,000	15,000	15,000	-
Advertising & Publication Expense	-	4,801	-	3,000	5,000	2,000
Bond Administration Fees	51,328	51,257	55,000	55,000	55,000	-
Total Administrative & General	1,179,092	1,113,794	1,449,006	1,418,787	1,489,403	70,616
TOTAL OPERATING EXPENSES	**3,374,042**	**3,547,485**	**4,221,300**	**4,343,081**	**4,532,883**	**189,802**
Operating Income (before Depreciation)	2,865,245	2,852,212	2,274,700	2,540,919	2,514,117	(26,802)
Depreciation Exp (Non-cash, not budgeted)	(1,897,227)	(2,205,421)	(2,042,000)	(2,205,421)	(2,205,421)	-
OPERATING INCOME (LOSS)	**968,018**	**646,791**	**232,700**	**335,498**	**308,696**	**(26,802)**
NON-OPERATING REVENUES (EXPENSES)						
Misc. Sewer Revenues	20,760	17,547	25,000	30,000	30,000	-
Interest Income	7,649	35,020	27,000	162,000	170,000	8,000
Sinking Fund Income	728	158,637	90,000	160,000	165,000	5,000
Bond Issuance Costs	(32,856)	(192,863)	-	-	-	-
Gain on Sale of Assets	-	52,159	-	-	-	-
Loss on Retirement of Assets	(153,496)	(45,671)	-	-	-	-
Interest Expense - Other	(60,254)	-	-	-	-	-
Interest on Long-term Debt	(318,002)	(559,831)	(320,000)	(603,946)	(587,147)	16,799
TOTAL NON-OPERATING REVENUES (EXP)	**(535,472)**	**(535,003)**	**(178,000)**	**(251,946)**	**(222,147)**	**29,799**
NET INCOME (LOSS)	**$ 432,546**	**$ 111,788**	**$ 54,700**	**$ 83,552**	**$ 86,549**	**$ 2,997**

Charles Town Utility Board
Sewer Fund
Debt Service Schedule
Fiscal Year 2025

	BUDGET
BONDS	
1988 Series B Revenue Bond	$ 7,588
2010 Series C Revenue Bond	41,668
2010 Series D Revenue Bond	16,668
2011 Series A Revenue Bond	250,373
2013 Series A Revenue Bond	21,262
2014 Series A Revenue Bond	145,782
2016 Series B Revenue Bond	172,325
2018 Series A-1 Revenue Bond	10,917
2018 Series A-3 Revenue Bond	38,303
2018 Series A-4 Revenue Bond	12,612
2018 Series A-5 Revenue Bond	38,496
2018 Series A-6 Revenue Bond	66,832
2018 Series B Revenue Bond	265,313
2020 Series A Revenue Bond	234,694
2022 Series A Revenue Bond	164,230
2022 Series B Revenue Bond	233,300
2022 Series C Revenue Bond	159,335
Total Debt Service - Bonds	1,879,698
Notes Payable - City of Charles Town	2,636
Required Renewal & Replacement 2.5% of Revenue	176,175
TOTAL DEBT SERVICE - FY 2025	**$ 2,058,509**

Charles Town Utility Board
Sewer Fund
Capital Expenditure Budget
Fiscal Year 2025

	FY 2025 BUDGET
DESCRIPTION	
Renewal & Replacement Fund - (Includes 2.5% for FY 2025)	607,322
Capital Improvement Fund	6,803,228
FUNDS AVAILABLE FOR CAPITAL IMPROVEMENTS	**$ 7,410,550**
ANTICIPATED CAPITAL EXPENDITURES	
Fleet and Related Equipment	160,000
Specialized Equipment (Escavator, Mowers, etc)	30,000
Safety Equipment	50,000
Manhole Lining Replair/Rehabilitation	75,000
WWTP Repair/Replacement	50,000
Collection System Repair/Replacement	60,000
Pump Station Repair/Repairment	100,000
General Property Repair/Replacement	30,000
Misc. Repairs/Replacements/Equipment	40,000
Asset Management Software Implementation	40,000
Billing/Accounting Software Implementation	50,000
Fleet and Related Equipment	25,000
TOTAL CAPITAL EXPENDITURES	**$ 710,000**
WWTP AND COLLECTION CAPITAL IMPROVEMENT PROJECTS	
Phase A Projects - Refer to Appendix B	**$ 10,339,387**

1.) Detailed project budgets are tracked in the form Schedule B.

2.) The R&R and Collection System project financing details are on Appendix B.

3.) The remaining sewer projects in Phase A will be financed with internal funds.

Appendix B.

Wastewater Treatment and Collection System Capital Improvement Project Summary			
	Phase A	Phase B	Phase C
Project Name	**2022 - 2025**	**2026-2027**	**2028-2031**
Renewal and Replacement Project (Near Completion)	12,135,000	-	-
Blue-Nite Sand Filter Rehabilitation	200,000	-	-
CTWWTP Upgrades and Expansion (2030)	-	50,000	20,500,000
2022 Collection System Project	5,141,356	4,440,644	-
Cantor Hollow Pump Station	145,000	-	-
Greenfield Forcemain Upgrades	1,100,000	-	-
Greenfield Pump Station Upgrades	370,000	-	-
Fairfax Parallel Line/Collector Project	-	510,000	-
2026/2027 Collections System Upgrade	-	3,000,000	-
Collections Project and Pump Stations Project (2031)	-	-	3,250,000
Shared - Maintenance Building - (Water/Sewer)	250,000	-	-
Water Capital Improvement Projects	**$ 19,341,356**	**$ 8,000,644**	**$ 23,750,000**

	Estimated Project Costs	Prior FY Expenditures	YTD Expenditures	Projected Budget	Phase B	Phase C	Total 5-Year Project Costs
Project Name	**4/24/2024**	**2022-2023**	**2024**	**2025**	**2026-2027**	**2028-2031**	**2025-2031**
		Phase A - 2022-2025					
Renewal and Replacement Project (Near Completion)	12,135,000	4,324,786	3,832,446	3,977,768	-	-	12,135,000
Blue-Nite Sand Filter Rehabilitation	200,000	-	-	200,000	-	-	200,000
CTWWTP Upgrades and Expansion (2030)	20,550,000	-	-	-	50,000	20,500,000	20,550,000
2022 Collection System Project	9,582,000	527,856	172,857	4,440,644	4,440,644	-	9,582,000
Cantor Hollow Pump Station	145,000	-	11,709	133,291	-	-	145,000
Greenfield Forcemain Upgrades	1,100,000	76,920	54,202	968,878	-	-	1,100,000
Greenfield Pump Station Upgrades	370,000	-	1,193	368,807	-	-	370,000
Fairfax Parallel Line/Collector Project	510,000	-	-	-	510,000	-	510,000
2026/2027 Collections System Upgrade	3,000,000	-	-	-	3,000,000	-	3,000,000
Collections Project and Pump Stations Project (2031)	3,250,000	-	-	-	-	3,250,000	3,250,000
Shared - Maintenance Building - (Water/Sewer)	250,000	-	-	250,000	-	-	250,000
	$ 51,092,000	**$ 4,929,562**	**$ 4,072,407**	**$ 10,339,387**	**$ 8,000,644**	**$ 23,750,000**	**$ 51,092,000**

- The estimated cost of the Renewal & Replacement project is $12.1 million with $8.1 million being expended as of March 31, 2024. The project is being financed by a $7.435 million bond issue, grants, and internal funding.

- The estimated cost of the 2022 Collection System project is $9.6 million with $0.7 million expended as of March 31, 2024. The project is being financed with a future bond issue, grants, and internal funding.

VENDOR SORT KEY	DESCRIPTION	FUND	DEPARTMENT		AMOUNT
	RADIAL BULLET	SEWER FUND	SEWER		64.25
				TOTAL:	2,475.69
VITAL SIGNS	DECALS & SIGN	WATER FUND	WATER		40.00
	DECALS & SIGN	SEWER FUND	SEWER		165.00
				TOTAL:	205.00
WV BUREAU OF EMPLOYMENT PROGRAMS	BENEFITS FOR QTR 3/31/24	WATER FUND	WATER		3.76
	BENEFITS FOR QTR 3/31/24	SEWER FUND	SEWER		3.76
				TOTAL:	7.52
WV WATER DEVELOPMENT AUTHORITY	#2017-175 INFRSCTR FNDPRJC	SEWER FUND	NON-DEPARTMENTAL		1,442.89
				TOTAL:	1,442.89
XYLEM WATER SOLUTIONS U.S.A., INC.	WA SCTN HOSE W/GODWIN FTTN	WATER FUND	WATER		3,900.00
				TOTAL:	3,900.00
ZETA SOLUTIONS, LLC	KEMIRA PAX-XL8	WATER FUND	WATER		11,966.40
				TOTAL:	11,966.40

========== FUND TOTALS ==========

50	WATER FUND	130,832.21
60	SEWER FUND	149,201.93
	GRAND TOTAL:	280,034.14

TOTAL PAGES: 5

APPROVED BY: _____

APPROVED BY: _____

VENDOR SORT KEY	DESCRIPTION	FUND	DEPARTMENT		AMOUNT
PERRY & ASSOCIATES, CPA'S	PREPARATION OF AUDIT YE 20	WATER FUND	WATER		3,500.00
	PREPARATION OF AUDIT YE 20	SEWER FUND	SEWER		3,500.00
				TOTAL:	7,000.00
ROSS H BARE	SVC CALL CTWWTP	SEWER FUND	SEWER		1,650.00
	CTWWTP SVC CLL BLWR #1	SEWER FUND	SEWER		9,667.18
	CTWWTP SVC CLL BLWR #3	SEWER FUND	SEWER		9,667.18
	CTWWTP SVC CLL BLWR #3AIRE	SEWER FUND	SEWER		5,024.90
	WARADMRL PS SVC CALL	SEWER FUND	SEWER		516.18
				TOTAL:	26,525.44
S&S ELECTRIC INC	INTAKE VFD PROJECT	WATER FUND	NON-DEPARTMENTAL		31,410.00
				TOTAL:	31,410.00
SG PLUMBING, INC.	114 W LIBERTY ST: 4/05/24	WATER FUND	WATER		1,300.00
	545 BROOKE ST: 4/09/24	WATER FUND	WATER		1,075.00
	109 PROSPECT AVE: 4/15/24	WATER FUND	WATER		728.60
	99 PROSPECT AVE: 4/15/24	WATER FUND	WATER		1,119.51
	WATER ST: 4/16/24	WATER FUND	WATER		1,200.00
	404 S CHURCH ST: 4/17/24	WATER FUND	WATER		1,012.50
	404 S CHURCH ST: 4/17/24	WATER FUND	WATER		1,012.50
				TOTAL:	7,448.11
SHENANDOAH AIR CONDITIONING & HEATING,	CTWWTP SVC CALL	SEWER FUND	SEWER		99.00
				TOTAL:	99.00
STEPTOE & JOHNSON PLLC	GENERAL EMPLOYER COUNSELIN	WATER FUND	WATER		81.25
	GENERAL ENVIRONMENTAL	SEWER FUND	SEWER		2,100.00
				TOTAL:	2,181.25
STH, INC.	GRNFLD PS REHAB	SEWER FUND	NON-DEPARTMENTAL		14,897.00
	GRNFLD PS REHAB	SEWER FUND	NON-DEPARTMENTAL		14,897.00
	PM: KIMBERWICKE DR N	SEWER FUND	SEWER		500.00
	PM: NORTHPORT AVE PS	SEWER FUND	SEWER		500.00
	PM: WAR ADMIRAL PS	SEWER FUND	SEWER		500.00
				TOTAL:	31,294.00
GERALD TAYLOR CO., INC.	PUMP / TRANSPORT	WATER FUND	WATER		479.76
	PUMP / TRANSPORT	WATER FUND	WATER		876.70
	SUPERVAC	SEWER FUND	SEWER		1,613.62
	TRANSPORT	SEWER FUND	SEWER		1,049.40
	VAC LIFT STATIONS	SEWER FUND	SEWER		1,454.02
				TOTAL:	5,473.50
TEK ADVISORS LLC	IT CNSLTNG: 4/1/24 - 3/31/	WATER FUND	WATER		440.00
	IT CNSLTNG: 4/1/24 - 3/31/	SEWER FUND	SEWER		440.00
				TOTAL:	880.00
THE CI THORNBURG CO, INC.	SRII TRPL 100G METER	WATER FUND	WATER		5,217.00
	SOFTWARE & SERVICES SENSUS	WATER FUND	WATER		27,167.54
	CALAMP	WATER FUND	WATER		2,243.36
				TOTAL:	34,627.90
HD SUPPLY INC	OFFSET CM SCN038825	SEWER FUND	SEWER		386.85
	OFFSET CM SCN055400	SEWER FUND	SEWER		889.95
	50' SUSPEN'D FLOAT SWITCH	SEWER FUND	SEWER		1,134.64

VENDOR SORT KEY	DESCRIPTION	FUND	DEPARTMENT		AMOUNT
	PNGI: THRU 3/31/24	SEWER FUND	SEWER		170.00
	WVAWC: THRU 3/31/24	SEWER FUND	SEWER		382.50
	GRNFLDFRCMN: THRU 3/31/24	SEWER FUND	SEWER		65.00
				TOTAL:	3,599.10
CARSON KLOCKMANN	PER DIEM 5/02/24	WATER FUND	WATER		55.00
				TOTAL:	55.00
KROHNE INC	FLWMTR & FLWTBE CNVRTR	SEWER FUND	SEWER		5,904.76
				TOTAL:	5,904.76
MARYLAND BIOCHEMICAL CO., INC.	BACTERIA FOR CTWWTP	SEWER FUND	SEWER		2,774.29
	BACTERIA 4 NITRIFICATION C	SEWER FUND	SEWER		2,823.63
	MB NITRIFIERS	SEWER FUND	SEWER		9,053.91
				TOTAL:	14,651.83
SECURITY DEPOSIT REFUNDS	203-001225	WATER FUND	NON-DEPARTMENTAL		125.06
	402-000602	WATER FUND	NON-DEPARTMENTAL		56.16
	701-000790	WATER FUND	NON-DEPARTMENTAL		43.92
	701-003760	WATER FUND	NON-DEPARTMENTAL		43.97
	701-003830	WATER FUND	NON-DEPARTMENTAL		43.95
	701-003840	WATER FUND	NON-DEPARTMENTAL		13.77
	701-003850	WATER FUND	NON-DEPARTMENTAL		43.95
	701-003860	WATER FUND	NON-DEPARTMENTAL		43.95
	701-003870	WATER FUND	NON-DEPARTMENTAL		13.77
	701-003880	WATER FUND	NON-DEPARTMENTAL		43.95
	702-003740	WATER FUND	NON-DEPARTMENTAL		34.57
	702-003820	WATER FUND	NON-DEPARTMENTAL		9.08
	702-003880	WATER FUND	NON-DEPARTMENTAL		43.95
	702-003890	WATER FUND	NON-DEPARTMENTAL		43.96
	702-003920	WATER FUND	NON-DEPARTMENTAL		43.95
	702-003940	WATER FUND	NON-DEPARTMENTAL		13.78
	702-003970	WATER FUND	NON-DEPARTMENTAL		27.47
	704-000500	WATER FUND	NON-DEPARTMENTAL		37.47
	705-003660	WATER FUND	NON-DEPARTMENTAL		24.96
	707-001920	WATER FUND	NON-DEPARTMENTAL		13.83
	708-001450	WATER FUND	NON-DEPARTMENTAL		13.89
				TOTAL:	779.36
MISS UTILITY OF WV, INC.	MESSAGE FEES: MAR	WATER FUND	WATER		242.58
	MESSAGE FEES: MAR	SEWER FUND	SEWER		242.57
				TOTAL:	485.15
NH & A	LICENSE FOR ANTI-VIRUS	WATER FUND	WATER		236.41
	LICENSE FOR ANTI-VIRUS	SEWER FUND	SEWER		236.41
				TOTAL:	472.82
PACE ANALYTICAL SERVICES, LLC	TESTING: WTP	WATER FUND	WATER		103.70
	TESTING: RCKWL MNTHLY	SEWER FUND	SEWER		317.30
	TESTING: CT WKLY	SEWER FUND	SEWER		396.70
	TESTING: TUSC WKLY	SEWER FUND	SEWER		154.70
	TESTING: WV0022349/002	SEWER FUND	SEWER		498.80
	TESTING: WV0022349	SEWER FUND	SEWER		126.00
	TESTING: IU05 AVW	SEWER FUND	SEWER		139.30
	TESTING: CT QRLY	SEWER FUND	SEWER		394.00
				TOTAL:	2,130.50

VENDOR SORT KEY	DESCRIPTION	FUND	DEPARTMENT		AMOUNT
				TOTAL:	248.00
FERGUSON US HOLDINGS, INC	PRESSURE GAUGE	SEWER FUND	SEWER		502.53
				TOTAL:	502.53
FREDERICKTOWNE LABS INC	TESTING	SEWER FUND	SEWER		141.00
	TESTING	SEWER FUND	SEWER		456.00
	TESTING	SEWER FUND	SEWER		456.00
	TESTING	SEWER FUND	SEWER		456.00
	TESTING	SEWER FUND	SEWER		644.00
	TESTING	SEWER FUND	SEWER		644.00
	TESTING	SEWER FUND	SEWER		282.00
				TOTAL:	3,079.00
GUTTMAN ENERGY	W/E 4/07/24	WATER FUND	WATER		510.64
	W/E 4/14/24	WATER FUND	WATER		890.61
	W/E 4/07/24	SEWER FUND	SEWER		1,343.59
	W/E 4/14/24	SEWER FUND	SEWER		1,564.79
	W/E 4/14/24	SEWER FUND	SEWER		17.86
				TOTAL:	4,327.49
GASKINS SERVICES LLC	TOPSOIL DELIVERY	WATER FUND	WATER		1,050.00
				TOTAL:	1,050.00
GRIFFITH ENERGY SERVICES, INC.	WAR ADMIRAL BLVD	SEWER FUND	SEWER		2,243.63
				TOTAL:	2,243.63
HIGH HORIZONS FARM, INC.	STRAW	WATER FUND	WATER		100.00
				TOTAL:	100.00
HOLTZMAN OIL CORP	CHEVRON RANDO & MULTIFAK	SEWER FUND	SEWER		331.56
	CHEVRON RANDO & MULTIFAK	SEWER FUND	SEWER		36.75
				TOTAL:	368.31
INWOOD QUARRY, INC.	C2 PICKUPS: 4/10/24	WATER FUND	WATER		2,117.88
	C2 PICKUPS: 4/10/24	WATER FUND	WATER		2,117.88
	C2 PICKUPS: 4/11/24	WATER FUND	WATER		459.14
	C2 PICKUPS: 4/11/24	WATER FUND	WATER		459.15
	C2, C1, I10 PICKUPS: 4/12/	WATER FUND	WATER		1,227.02
	C2, C1, I10 PICKUPS: 4/12/	WATER FUND	WATER		1,227.01
				TOTAL:	7,608.08
JAMES RIVER EQUIPMENT	EQUIP RENTAL	SEWER FUND	SEWER		1,303.45
				TOTAL:	1,303.45
JEFFERSON PUBLISHING COMPANY	4/03 AD: WVNPDES WA NOTICE	WATER FUND	WATER		95.82
	4/10 AD: HYDRANT FLUSHING	WATER FUND	WATER		33.26
				TOTAL:	129.08
JNO S SOLENBERGER & CO., INC	CHECK VALVE	SEWER FUND	SEWER		179.24
				TOTAL:	179.24
KAY CASTO & CHANEY PLLC	MDDLWYDVLPMNT: THRU 3/31/2	WATER FUND	WATER		227.50
	PNGI: THRU 3/31/24	WATER FUND	WATER		170.00
	WVAWC: THRU 3/31/24	WATER FUND	WATER		382.50
	CLLCTNSYSTM: THRU 3/31/24	SEWER FUND	NON-DEPARTMENTAL		2,201.60

VENDOR SORT KEY	DESCRIPTION	FUND	DEPARTMENT		AMOUNT
AMERIGAS PROPANE LP	PROPANE: ODEN DR	SEWER FUND	SEWER		609.47
				TOTAL:	609.47
ANTIETAM ELECTRICAL CONTRACTORS, INC	GENERATOR HOOKUP	WATER FUND	WATER		983.18
				TOTAL:	983.18
APPLE VALLEY TIRE	DUMP TRUCK TIRES	WATER FUND	WATER		1,341.12
				TOTAL:	1,341.12
AUTOZONE	MAINTENANCE SUPPLIES	WATER FUND	WATER		324.10
	DIESEL ADDITIVE 4 DUMP TRU	SEWER FUND	SEWER		85.32
				TOTAL:	409.42
BIEDLER'S ELECTRIC MOTOR REPAIR, INC.	CRANES SPARE PUMP REPAIR	SEWER FUND	SEWER		2,369.50
				TOTAL:	2,369.50
BOYD'S GUTTERING	GUTTER & DWNSPT @ MAINTSHO	WATER FUND	WATER		450.00
				TOTAL:	450.00
CHARLES TOWN SEWER	MAR FUNDING	SEWER FUND	NON-DEPARTMENTAL		15,031.39
				TOTAL:	15,031.39
CHARLES TOWN WATER	MAR FUNDING	WATER FUND	NON-DEPARTMENTAL		10,658.36
				TOTAL:	10,658.36
CITY ELECTRIC SUPPLY CO	MINI FUSES	SEWER FUND	SEWER		37.50
				TOTAL:	37.50
CORE & MAIN	WASHER	WATER FUND	WATER		144.00
	STOCK	WATER FUND	WATER		951.54
	STOCK	WATER FUND	WATER		1,893.57
	GASKET, VLV BOX, FLG ACC,	SEWER FUND	SEWER		3,873.54
	DEERFIELD PLANT	SEWER FUND	SEWER		3,304.38
	DEERFIELD PLANT	SEWER FUND	SEWER		1,848.97
				TOTAL:	12,016.00
COYNE CHEMICAL	AMMONIUM SULFATE 40% NSF	WATER FUND	WATER		5,959.11
	ZETAG 8868 FS	SEWER FUND	SEWER		10,225.89
				TOTAL:	16,185.00
CRETEX SPECIALTY PRODUCTS, INC	MANHOLE RISER SUPPLIES	SEWER FUND	SEWER		3,021.29
				TOTAL:	3,021.29
CRYSTAL SPRINGS	MONTHLY SVC@ 661 S GEORGE	WATER FUND	WATER		147.99
	MONTHLY SVC@ 661 S GEORGE	SEWER FUND	SEWER		147.99
				TOTAL:	295.98
CSX TRANSPORTATION, INC	ANNUAL PIPELINE FEES	WATER FUND	WATER		100.00
	ANNUAL PIPELINE FEES	WATER FUND	WATER		171.90
				TOTAL:	271.90
WV DEPT OF HEALTH & HUMAN SERVICES	BACTERIOLOGICAL TEST	WATER FUND	WATER		40.00
	BACTERIOLOGICAL TEST	WATER FUND	WATER		160.00
				TOTAL:	200.00
EAST MOUNTAIN HEALTH PHYSICIANS, INC	C.HUTZLER, A.SHADE, J.WHIT	WATER FUND	WATER		248.00

CHARLES TOWN UTILITY BOARD
WATER FUND
FISCAL YEAR 2024 CAPITAL EXPENDITURE REPORT
As of April 24, 2024

CAPITAL EXPENDITURE DISBURSEMENT REPORT

DATE	BUDGET LINE ITEM		AMOUNT	DESCRIPTION
FY 2023	WTP RIVER INTAKE VFD	$	82,419.30	GDF - VFD PROJECT INVOICE NO. 1
8/2/2023	FLEET TRUCKS & EQUIPMENT	$	57,969.45	2023 FORD F-350 (MAINT DEPT)
8/9/2023	FLEET TRUCKS & EQUIPMENT	$	14,853.32	JD 17G MINI ESCAVATOR
9/13/2023	FLEET TRUCKS & EQUIPMENT	$	54,447.61	2023 FORD F-150 (WATER PLANT)
10/26/2023		$	19,926.31	VERTICAL TURBINE - WTP (Approved FY 2023)
11/15/2023		$	24,432.92	CONVERTED 2018 DODGE TO DUMPTRUCK (FY 2023)
12/5/2023	SAFETY/EMERGENCY EQUIPMENT	$	25,974.00	GENERATOR (GLEN HAVEN)
3/13/2024	VALVE MAINT TRAILER & FLEET/EQUIPMENT	$	114,080.20	DUMP TRUCK FOR MAINT DEPT
3/13/2024	WTP RIVER INTAKE VFD	$	23,066.00	PANEL FOR INTAKE PUMPS
4/24/2024	WTP RIVER INTAKE VFD	$	31,410.00	GDF - VFD PROJECT INVOICE NO. 2
TOTAL		**$**	**448,579.11**	

CAPITAL EXPENDITURE BUDGET VS. ACTUAL

BUDGET LINE ITEM	BUDGET	FY 2023	AS OF 4/24/2024	BUDGET REMAINING
ASSET MANAGEMENT SOFTWARE IMPLEMENTATION	35,000.00	-	-	35,000.00
BILLING & ACCOUNTING SOFTWARE IMPLEMENTATION	25,000.00	-	-	25,000.00
FLEET TRUCKS & EQUIPMENT	150,000.00	-	(141,350.58)	8,649.42
*VALVE MAINTENANCE TRAILER	100,000.00	-	(100,000.00)	-
SAFETY/EMERGENCY EQUIPMENT	50,000.00	-	(25,974.00)	24,026.00
METER REPLACEMENT	150,000.00	-	-	150,000.00
WTP RIVER INTAKE VFD INSTALLATION	232,900.00	(82,419.30)	(54,476.00)	96,004.70
VERTICAL TURBINE - WTP (APPROVED FY 2023)	-	-	(19,926.31)	(19,926.31)
CONVERTED 2018 DODGE TO DUMPTRUCK (APPROVED FY 2023)	-	-	(24,432.92)	(24,432.92)
TOTAL CAPITAL EXPENDITURE BUDGET	**$ 742,900.00**	**$ (82,419.30)**	**$ (366,159.81)**	**$ 294,320.89**
			$ (448,579.11)	

*VALVE MAINTENANCE TRAILER WILL BE INCLUDED ON FUTURE CAPITAL BUDGET - NOT NEEDED IN FY 2024

Charles Town Water Department
Revenue & Expense Summary
3/31/2024

Annual Budget		Y-T-D Budget	Y-T-D Actual	Difference
	REVENUES			
2,915,000	Metered Sales - Residential	2,186,250	2,156,671	(29,579)
1,400,000	Metered Sales - Commercial	1,050,000	1,031,217	(18,783)
88,000	Metered Sales - Glen Haven/Cavaland	66,000	73,432	7,432
24,000	Sale for Resale - Bulk Water	18,000	21,088	3,088
80,000	Forfieted Discounts	60,000	56,671	(3,329)
28,500	Misc. Service Rev - Reconnection / Tap Fees	21,375	20,905	(470)
565,000	Tank Lot Rental Income (Non-Operating)	423,750	389,809	(33,941)
145,000	Interest Income (Non-Operating)	108,750	126,542	17,792
28,000	Sinking Fund Income (Non-Operating)	21,000	25,506	4,506
35,000	Miscellaneous Income (Non-Operating)	26,250	26,863	613
-	CIF Revenue (Non-Operating)	-	1,397,081	1,397,081
5,308,500	**TOTAL REVENUES**	3,981,375	5,325,784	1,344,409
	EXPENSES			
15,000	WS - Materials & Supplies Expense	11,250	8,212	(3,038)
30,000	WS - Maint of Water Source	22,500	17,780	(4,720)
380,129	WT - Salaries & Wages - Operations Labor	285,097	286,600	1,503
150,000	WT - Power & Fuel	112,500	105,303	(7,197)
8,400	WT - Power & Fuel - GH/CAV	6,300	5,246	(1,054)
185,000	WT - Chemical Expense	138,750	136,989	(1,761)
35,000	WT - Testing	26,250	13,442	(12,808)
30,000	WT - Materials & Supplies Expense	22,500	22,320	(180)
4,000	WT - Materials & Supplies Expense - GH/CAV	3,000	2,541	(459)
45,000	WT - Sludge Hauling	33,750	32,482	(1,269)
90,000	WT - Maint of Water Treatment Plant	67,500	53,484	(14,016)
10,000	WT - Maint of Water Plant - GH/CAV	7,500	8,194	694
25,000	WT - Licenses & Subscriptions	18,750	14,267	(4,483)
389,144	TD - Salaries & Wages - Maintenance Labor	291,858	294,354	2,496
25,000	TD - Materials & Supplies Expense	18,750	14,363	(4,387)
50,000	TD - Maint of Dist Reservior & Standpipes	37,500	25,114	(12,386)
120,000	TD - Maint of Mains	90,000	83,015	(6,985)
160,000	TD - Maint of Services	120,000	111,348	(8,652)
240,000	TD - Maint of Meters	180,000	172,959	(7,041)
50,000	TD - Maint of Hydrants	37,500	33,834	(3,666)
197,629	CA - Salaries & Wages	148,222	134,865	(13,357)
65,000	CA - Billing Expense	48,750	42,510	(6,240)
64,500	CA - Licenses & Subscriptions (includes Sensus)	48,375	16,670	(31,705)
15,000	CA - Bad Debt Expense	11,250	10,008	(1,242)
130,607	GA - Salaries & Wages	97,955	100,017	2,062
2,500	GA - Director Compensation	1,875	1,750	(125)
178,000	GA - Employee Insurance & Benefits	133,500	129,923	(3,577)
98,776	GA - Employee Pension Expense	74,082	70,161	(3,921)
83,959	GA - Payroll Taxes - FICA Tax Expense	62,969	63,010	41
22,101	GA - Employee 457 Expense	16,575	15,093	(1,482)

Charles Town Water Department
Revenue & Expense Summary
3/31/2024

78,000	GA - Office Supplies & Expense	58,500	64,600	6,100
6,500	GA - Travel, Training, & Education	4,875	4,025	(850)
8,000	GA - Uniform Expense	6,000	5,489	(511)
22,000	GA - Computer - Technology Expense	16,500	19,288	2,788
25,000	GA - Maint. of General Property	18,750	17,591	(1,159)
30,000	GA - Licenses & Subscriptions	22,500	5,069	(17,431)
25,000	GA - Contractual Services - Engineering	18,750	14,153	(13,681)
20,000	GA - Contractual Services - Accounting	15,000	15,375	(847)
65,000	GA - Contractual Services - Legal	48,750	51,677	(33,375)
20,000	GA - Contractual Services - Other	15,000	15,165	36,677
15,300	GA - Rental of Building	11,475	10,200	(1,275)
68,000	GA - Transportation Expense	51,000	48,577	(2,423)
85,000	GA - Insurance	63,750	83,976	20,226
26,000	GA - Worker's Comp	19,500	13,973	(5,527)
20,000	GA - Regulatory Commission Expense	15,000	5,304	(9,696)
6,000	GA - Bond Administration Fees	4,500	4,123	(377)
10,000	GA - Misc. General Expense	7,500	5,194	(2,306)
4,000	Advertising & Publication Expense	3,000	2,664	(336)
376,358	Interest on Long Term Debt (Non-Operating)	282,269	319,138	36,870
1,237,073	Depreciation Expense (Non-Cash)	927,805	927,805	-
5,046,975	**TOTAL EXPENSES**	3,785,231	3,659,239	(125,993)
	Less: CIF Revenue		(1,397,081)	
261,525	Excess (Deficit)	196,144	269,465	
	Reconciliation to Cash:			
	Cash Balance @ 6/30/23		650,664	
	Disbursements To Date		(4,403,576)	
	Expenses		3,659,239	
	Deposits To Date		4,393,126	
	Revenues		(3,928,703)	
	CASH BALANCE @ 3/31/2024		640,215	
			640,215	Water Operating
			(0)	
	Water Capacity Improvement Fees		5,554,965	
	Water Renewal & Replacement		820,494	
	Water Working Capital Fund		391,908	

Charles Town Sewer Department
Revenue & Expense Summary
3/31/2024

Annual Budget		Y-T-D Budget	Y-T-D Actual	Difference
	REVENUES			
2,600,000	CTUB Service Revenue	1,950,000	1,949,857	(143)
1,500,000	Ranson Revenue	1,125,000	1,120,520	(4,480)
2,660,000	JCPSD Revenue	1,995,000	2,070,958	75,958
42,000	Customer Forfieted Discounts	31,500	31,186	(314)
30,000	Customer Forfieted Discounts- RA	22,500	24,061	1,561
52,000	Customer Forfieted Discounts- PSD	39,000	36,994	(2,006)
30,000	Misc. Sewer Revenues (Non-Operating)	22,500	21,585	(915)
162,000	Interest Income (Non-Operating)	121,500	147,685	26,185
160,000	Sinking Fund Income (Non-Operating)	120,000	148,242	28,242
-	Grant Revenue - WDA EEGF	-	651,890	651,890
-	CIF & CAC Revenues (Non-Operating)	-	1,819,764	1,819,764
7,236,000	**TOTAL REVENUES**	5,427,000	8,022,741	2,595,741
	EXPENSES			
15,000	CS - Materials & Supplies Expense	11,250	3,212	(8,038)
65,000	CS - Maint of Service Connections	48,750	43,502	(5,248)
180,000	CS - Maint of Collecting & Trans. Mains	135,000	98,066	(36,934)
402,006	PS - Salaries & Wages	301,504	298,506	(2,998)
140,000	PS - Power & Fuel	105,000	102,398	(2,602)
25,000	PS - Materials & Supplies Expense	18,750	14,620	(4,130)
65,000	PS - Sludge Hauling	48,750	46,643	(2,107)
180,000	PS - Maint of Pump Stations	135,000	116,535	(18,465)
313,509	TD - Salaries & Wages	235,132	240,639	5,507
150,000	TD - Power - CT Plant	112,500	111,191	(1,309)
90,000	TD - Power - TUI	67,500	38,735	(28,765)
10,000	TD - Power - Deerfield	7,500	3,121	(4,379)
180,000	TD - Chemical Expense - CT	135,000	102,678	(32,322)
25,000	TD - Chemical Expense - TUI	18,750	18,094	(656)
35,000	TD - Testing - CT	26,250	23,223	(3,027)
12,000	TD - Testing - TUI	9,000	8,129	(871)
80,000	TD - Materials & Supplies Expense	60,000	47,641	(12,359)
60,000	TD - Sludge Hauling - TUI	45,000	39,601	(5,399)
110,000	TD - Maint. Burns Farm	82,500	72,137	(10,363)
240,000	TD - Maint. Treatment Plant - CT	180,000	177,091	(2,909)
145,000	TD - Maint. Treatment Plant - TUI	108,750	100,382	(8,368)
15,000	TD - Maint. Treatment Plant - Deerfield	11,250	8,270	(2,980)
246,780	CA - Billing & Acct Labor	185,085	176,343	(8,741)
75,000	CA - Billing Expense	56,250	49,206	(7,044)
40,000	CA - Licenses & Subscriptions	30,000	16,670	(13,330)
25,000	CA - Bad Debt Expense	18,750	18,286	(464)
205,113	GA - Salaries & Wages	153,835	156,739	2,904
2,500	GA - Director Compensation	1,875	1,750	(125)
210,000	GA - Employee Insurance & Benefits	157,500	132,763	(24,737)
105,067	GA - Employee Pension Expense	78,800	77,584	(1,216)

Charles Town Sewer Department
Revenue & Expense Summary
3/31/2024

89,307	GA - Payroll Taxes - FICA Tax Expense	66,980	67,603	623
20,000	GA - Employee 457 Expense	15,000	14,204	(796)
85,000	GA - Office Supplies & Expense	63,750	66,366	2,616
12,000	GA - Travel, Training, & Education	9,000	9,184	184
6,500	GA - Uniform Expense	4,875	4,873	(2)
20,000	GA - Computer - Technology Expense	15,000	15,439	439
30,000	GA - Maint. of General Property	22,500	15,227	(7,273)
30,000	GA - Licenses & Subscriptions	22,500	7,403	(15,097)
35,000	GA - Contractual Services - Engineering	26,250	3,385	(22,865)
30,000	GA - Contractual Services - Accounting	22,500	13,725	(8,775)
180,000	GA - Contractual Services - Legal	135,000	73,170	(61,830)
15,000	GA - Contractual Services - Other	11,250	5,550	(5,700)
15,300	GA - Rental of Building	11,475	10,200	(1,275)
90,000	GA - Transportation Expense	67,500	63,170	(4,330)
110,000	GA - Insurance	82,500	83,976	1,476
25,000	GA - Worker's Comp	18,750	12,901	(5,849)
30,000	GA - Regulatory Commission Expense	22,500	9,729	(12,771)
55,000	GA - Bond Administration Fees	41,250	37,276	(3,974)
15,000	GA - Misc. General Expense	11,250	8,096	(3,154)
3,000	GA - Advertising & Publication Expense	2,250	1,212	(1,038)
603,946	Interest on Long Term Debt (Non-Operating)	452,960	308,911	(144,048)
2,205,421	Depreciation Expense (Non-Cash)	1,654,066	1,654,066	-
7,152,448	**TOTAL EXPENSES**	5,364,336	4,829,422	(534,914)
	Less: CIF Revenue & Grant Revenue		(2,471,654)	
83,552	Excess (Deficit)	62,664	721,665	
	Reconciliation to Cash:			
	Cash Balance @ 6/30/23		2,544,101	
	Disbursements To Date		(9,637,321)	
	Expenses		4,829,422	
	Deposits To Date		9,742,320	
	Revenues		(5,551,087)	
	CASH BALANCE 3/31/2024		2,649,100	
			2,649,100	Sewer Operating
			(0)	
	Sewer Capacity Improvement Fees		6,803,228	
	Sewer Renewal & Replacement		431,147	
	Sewer Working Capital Fund		721,181	